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REGIONAL DEVELOPMENT WITH RENEWABLE ENERGY UTILIZATION

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University of Pannonia

Abstract. Most of the European countries favour the utilisation of renewable resources – mainly biomass – for energy purposes. Secondary products as energy resources have become more valuable, the production of energy crops has begun. Annual natural gas consumption in Hungary is about 15 billion m^3; the country imports ca. 11–12 m^3 of natural gas every year that costs 1000 billion HUF (3.7 billion EUR). We could save considerable sum of this money for the country, if we use local power supply to minimise gas import and modernise the buildings energetically. A possible solution to this problem can be the solid biomass-based decentralised (local, small-scale energy generation in several places) energy supply. High-efficiency wood chip burning combustion equipments are suitable for large consumers (e.g.: settlements, public institutions, industrial and agricultural buildings), while pellet or briquette burning systems are ideal for small consumers and households. The paper analyses the economic and social aspects of woodchips based district-heating on the examples of heating plants in Hungary.

Key words: heating plants, woodchips utilization, decentralised energy supply, regional development

INTRODUCTION

There are considerable efforts all over the world to set up independent power generation systems organised in smaller networks and adjusted to the natural endowments. This can be a model to be followed by Hungary as well. The topic of renewable energy is essentially important for Hungary, because the country is poor in mineral based energy resources. From renewable energy resources: solar-, wind-, geothermal energy and biomass are the areas where Hungary has great potential. At the same time the use of these energy resources is not widespread. The potential of the renewable energy utilization is higher

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than the current use, the most important is the biomass [Barótfi, 1996, 1998; Bohoczky, 2005; Marosvölgyi, 2002].

Several technologies are available nowadays for the utilization of biologic based energy resources and more technologies are under development, improving the efficiency and reducing the costs. The spread of these solutions are affected by the available agricultural land, annual yields and the applicability of by-products [Ragossnig, 2007; Réczey, 2007].

Perspective area in the utilization of biomass is woodchips burning. Steam, hot water or flue-gas can be used for heating, electric supply, or combined (heat and electric) energy production. Burning equipments can be automatized with power feeding of woodchips and with the control of power. In the case of small scale burning equipments, the woodchips can be stored (for a year) next to the boilers, in the case of bigger power stations separate woodchips store rooms can be established for few months' quantity.

The evaluation of the environmental and social effects of biologic based energy resources is very inconsistent. Referred periodicals contain approximately 7000 papers annually which are dealing with the topic in different aspects [Várhegyi, 2007].

The most important reason for the decentralised energy use is the reduction of problems caused by fossil energy use. Researchers agree that the use of biomass shall not exceed a certain limit, because the renewable ability of natural resources is limited.

It is widely accepted that biomass production (for energy purpose) is more favourable than the conventional production in terms of environmental aspects. The 'revitalisation' of rural areas is one of the most frequently cited advantages [McKay, 2006; Hillring, 2002; Domaca et al., 2005].

Some authors say that probably the environmental aspects of biomass utilization are more significant than the gain of energy [Vágvölgyi and Szesztai, 2003]. Others consider work place creation as the most important effect of 'renewable energy industry'.

In Hungary, authors agree that the utilization of our potential, further increase of the share of bio-energy in the energy balance has energy import decreasing and environmental protective function, connected to the agricultural and rural development [Bohoczky, 2001; Kerényi, 2001; Pálvölgyi – Faragó, 1995].

All regions and settlements should find the way of development which fits the local advantages. If the renewable energy utilization is part of this development strategy, the environmental, social and economic impacts must be considered. According to our hypothesis, decentralised energy supply systems (based on the burn of woodchips) in given settlements of Hungary are suitable to substitute fossil energy resources and they are competitive energy producers besides having positive effects on the development of their direct environment. With the use of locally produced biomass, part of the money spent for energy resources will stay in the region. The saving will serve further development of the region, and it contributes to the decrease of energy import dependence.

MATERIAL AND METHODS

The initial subtask in the research project was to investigate the 1.2 MW woodchip-fuelled heating plant in Pornóapáti (West Hungary), to check the technical and

operation parameters, and to analyse its environmental and economic impacts. The settlement is near to the Austrian border; its population is around 380.

The energy for heating and domestic hot water preparation is provided by the plant in the village. Thermal transmission line network conveys the energy to the heat centres of the houses. Depending on the weather, the system works from the end of September till next April. It costed 360 million HUF (1.35 million euro), and it was financed mainly from the structural funds. Domestic hot water preparation is available out of the heating season through individual heat-generating installations.

The quantity of the energy substituted by the woodchips burning was analysed. During the analysis we calculated the costs of heating energy with gas, domestic hot water preparation with electricity, the quantities were calculated from the annual consumption. We considered the percentage distribution of energy consumption in households provided by Barótfi et. al. (2007): heating energy consumption 84%, domestic hot water preparation 16%.

The money spared by the use of the heating plants (in the village and in the region) was also calculated at regional level, by the use of the locally produced wood chips. The calculation was based on the average annual wood chips use of the wood-chip-fuelled heating plants in Pornóapáti (1.2 MW), Körmend (5 MW), and Szombathely (7.5 MW). The price of the wood chips showed significant changes in the examined period. The calculated price equalled to the average cost of the wood chips under 30% moisture content (appropriate for store and use), transported to the heating plant depot.

RESULTS

The alternative of wood chips burning in Pronóapáti was the building of gas network. The choosing of alternative energy was confirmed by the price increase of gas and the last years' debates about gas service in the neighbour countries. These systems in the Austrian villages work well. The municipality and the population of the examined village were familiar with these best practices. The operational experiences of the Austrian heating plants showed that they are able to produce heat at competitive price. The feasibility was supported by the high number of individual junctions (emerging from the lack of gas network), the availability of locally produced wood based biomass, the shortness of heating network (because of the location) and the successful involvement of structural funds.

The use of gas for heating energy, the use of electricity for domestic hot water (DHW) preparation in the examined period would have used the following quantities according to our calculation (Table 1).

According to our calculations, if the necessary energy had been provided with natural gas and electricity, 203.206 m^3 gas and 365.6 MWh electricity would have been used, which costs 37.4 million HUF (139 000 EUR) in nominal price. On the other hand, energy supply from the heating plant cost is 23.1 million HUF (86 000 EUR) in nominal price altogether, during the examined period.

Although the savings are small-scaled due to the size of the heating plant, they may serve as an additional source of income for the local forestry, saw-mills and farmers,

Table 1. The substituted quantities of gas and electricity in the examined period
Tabela 1. Zastępowane ilości gazu i energii elektrycznej w badanym okresie

Heating season	Public energy use GJ	Substituted energy quantities		Price of substituted quantities* million HUF (1000 EUR)	Sell of heating plant energy** million HUF (1000 EUR)
		Gas for heating GJ	Electricity for DHW preparation MWh		
2006/2007	2471	2076	109.7	10.2 (38)	6.5 (24)
2007/2008	3063	2573	136.1	13.5 (50)	8.3 (31)
2008/2009	2691	2260	119.7	13.8 (51)	8.3 (31)
Total	**8225**	**6909**	**365.6**	**37.4 (139)**	**23.1 (86)**

* Gross public energy prices for gas and electricity in the heating seasons. Average price of gas: 2.871 HUF/MJ (1 Aug 2006 – 1 July 2007), 3.030 HUF/MJ (1 July 2007 – 1 July 2008), 3.735 HUF/MJ without subsidy at < 20 m^3/h (1 Oct 2008 – 1 July 2009) based on the 44/2006 (VI. 30), 56/2007. (VI. 1.), 97/2007. (XII. 1.) GKM regulations and 24/2008. VIII. 31. KHEM regulation. Price of electricity: 37,68 HUF/kWh (from 1 Aug 2006), 39.36 HUF/kWh (from 2 Febr 2007, the average: 38.52 HUF/kWh), 44.4 HUF/kWh (1 Jan 2008 – 30 June 2009, "A" public general price (24h), over 1320 kWh/year consumption, based on the 48/2006. (VII. 21.), 12/2007. (I. 26.) GKM regulations, MEH.

** The prices of heating plant energy: 2611 HUF/GJ (2006/2007), 2713 HUF/GJ (2007/2008), 3082 HUF/GJ (2008/2009).

* Ceny brutto gazu i energii elektrycznej w sezonach grzewczych. Przeciętna cena gazu: 2.871 HUF/MJ (1 sierpnia 2006 – 1 lipca 2007), 3.030 HUF/MJ (1 lipca 2007 – 1 lipca 2008), 3.735 HUF.MJ bez dopłaty poniżej 20 m^3/h (1 października 2008-1 lipca 2009) na podstawie regulacji GKM nr 44/2006 (VI. 30), 56/2007. (VI. 1.), 97/2007. (XII. 1.) oraz regulacji KHEM nr VIII. 31. Cena energii elektrycznej: 37,68 HUF/kWh (od 1 sierpnia 2006), 39,36 HUF/kWh (od 2 lutego 2007, przeciętnie 38,52 HUF/kWh), 44,4 HUF/kWh (1 stycznia 2008 – 30 czerwca 2009), taryfa „A" (24 godz.), zużycie ponad 1320 kWh/rok, na podstawie regulacji GKM, MEH nr 48/2006. (VII. 21.), 12/2007. (I. 26.)

** Ceny energii z elektrociepłowni: 2611 HUF/GJ (2006/2007), 2713 HUF/GJ (2007/2008), 3082 HUF/GJ (2008/2009)

Source: Own calculation.
Źródło: Obliczenia własne.

and help evolve this specific branch of rural development in Hungary. The wood-burning district heating plants in Pornóapáti (founded in 2005, output: 1.2 MW), Körmend (operates since 2003, output: 5 MW) and Szombathely (since 2004, output: 7.5 MW) retained a considerable sum of money in the region (Figure 1).

The calculations were based on the data in Table 2. The results show that the heating plants mentioned above retained 867.9 million HUF (3.2 million EUR) in nominal price altogether in the region, during the examined period.

Similar investments may profit from the savings of consumers on wood chips costs, by attracting companies with high energy demand, and by trading CO_2 quota. Additionally, they can create also jobs directly (e.g.: workers in heating plants) or indirectly (e.g.: designers, contractors), launch local machine production and have positive impacts on local values and environment protection (Németh, 2011).

However, it must be stressed that such projects need long-term, uninterrupted flow of quality feedstock at a fair price. High efficiency plants located in towns and cities require more raw materials, which may cause quality, quantity and price problems. Sometimes these higher demands can be satisfied only by applying long-distance delivery.

Fig. 1. The location of the heating plants
Rys. 1. Rozmieszczenie elektrociepłowni

Source: Own work.
Źródło: Opracowanie własne.

Table 2. Retained money in the region from the operation of the three heating plants
Tabela 2. Środki finansowe zatrzymane w regionie dzięki działaniu trzech elektrociepłowni

Heating season	Price of wood chips* net 1000 HUF/t (EUR/t)	Money retained in the region net million HUF (1000 EUR)		
		Körmend 6000 t/year	Szombathely 8000 t/year	Pornóapáti 377 t/year
2003/2004	6.4 (24)	38.4 (142)	0	0
2004/2005	7.9 (29)	47.4 (176)	63.2 (234)	0
2005/2006	10.0 (37)	60.0 (222)	80.0 (296)	3.8 (14)
2006/2007	12.5 (46)	75.0 (278)	100.0 (370)	4.7 (17)
2007/2008	13.5 (50)	81.0 (300)	108.0 (400)	5.1 (19)
2008/2009	14.0 (52)	84.0 (311)	112.0 (415)	5.3 (20)
Total	–	**385.8 (1429)**	**463.2 (1715)**	**18.9 (70)**

* Prices used for the calculation are average prices, referring to the price of wood chips under 30% moisture content (appropriate for store and use), transported to the heating plant depot
* Ceny wykorzystane w obliczeniach są cenami przeciętnymi, odnoszącymi się do ceny wiór drzewnych poniżej 30% wilgotności (odpowiednich do przechowywania i wykorzystania), dostarczonych do elektrociepłowni

Source: Own research, based on Fogarassy 2009; Gonczlik et al., 2007; Németh I., 2007; Bohoczky, 2005; Purker and Tímár, 2004.
Źródło: Badania własne na podstawie Fogarassy 2009; Gonczlik et al., 2007; Németh I., 2007; Bohoczky, 2005; Purker i Tímár, 2004.

DISCUSSION

The heating plant in Pornóapáti was founded in 2005. It is a standard, well-adjusted, central system that replaced the old, inefficient heat networks. The research verified that well-designed, purposeful utilisation of energy like this offers an alternative to fossil fu-

els. The heating plant uses 377 tons of wood material in a year, its output is 1.2 MW and has 51% overall efficiency, which is a comfortable and competitive solution to consumers, replacing gas.

According to our research results, if the amount of energy produced in the heating plant had been provided with natural gas and electricity during the examined period (from 2006 to 2009), 203.206 m^3 gas and 365.6 MWh of electricity would have been used, which costs 37.4 million HUF (appr. 139 000 EUR). On the other hand, energy supply from the heating plant cost 23.1 million HUF (86 000 EUR) altogether during the three heating seasons, in nominal prices. The importance of local energy supply is that some amount of money spent on energy supply does not fall into the hands of multinational energy companies, but it is kept in the region.

Settlements can save on energy resources, withhold money and reduce national gas import by using local energy supply. Three district heating plants are located in Pornóapáti (founded in 2005, output: 1.2 MW), Körmend (operates since 2003, output: 5 MW) and Szombathely (since 2004, output: 7.5 MW), which utilise secondary products of local silviculture – woodchips, shaving, saw-dust – and retained 867.9 million HUF (3.2 million EUR) in nominal price in the region. This sum of money can serve – as an additional source of income – the local forestry, saw-mills and farmers, and help evolving a specific branch of rural development in Hungary.

Besides energy saving, similar projects may also contribute to workplace creation directly (e.g.: workers in heating plants) or indirectly (e.g.: designers, contractors), launch local machine production and have positive impacts on local values and environment.

The best practices of efficient use of renewable energy resources are basic conditions of the spread of environment-conscious approach. Transfer of knowledge is the least calculable, but probably the most important effect of such projects. Experiences during the establishment and operation can ease the investment decisions of settlements which plan the introduction of decentralized energy supply systems, they can reduce the time-consuming process of planning and implementation.

The rational use of natural resources can spread with effective communication. Pornóapáti joined the International Renewable Energy Road Network in 2007, which means e.g. the introduction of the project for visiting groups and common communication. The network is in the Austrian-Slovenian-Hungarian border region; its stations are renewable energy using establishments. The aim of the network was to introduce and propagate the possibilities of renewable energy resources. So not only the inhabitants, but visitors, leaders of settlements, innovative experts are also stakeholders of the project.

CONCLUSIONS

The directions of developments in the energy sector are driven by energy saving and environment protection issues. As a result of the last two decades' technical-technological development, modern industrial solutions emerged. Their share in the total energy production is not really significant yet, but their development and spread is dynamic.

In the Hungarian and European Union policy, there are several initials to subsidize the strategic areas of research, technical development, energy production and supply, and

environment protection from different funds. Hungary is poorly supplied with energy resources, the rational use of them is crucial in all areas.

The key questions of researches in this topic are the utilisation of solid biomass for heating purposes and its technology (efficiency, costs). The results support our hypothesis that alternative systems offer economical heating solutions for settlements, but they can rarely be realised without adequate state support. There are also positive results that cannot be measured with money (value creation, environmental aspects) but have to be considered. Unfortunately, these factors are less important than economic ones, before decisions.

The heating plant in Pornóapáti and the other Hungarian and Austrian ones' demand in the region give the possibility for farmers to produce energy plants. This new direction of production can contribute to the rational land use and marketable products. As an additional activity, it can assure the diversification of farmers. With long-term contracts it can guarantee fix income for the entrepreneurs, which helps to keep people in the region.

The available Hungarian biomass potential should be exploited, based on local, regional systems. The paper analyzed some factors which should be considered for decisions. The results of the research and the strict environment protection regulations predict favourable future to the examined or similar technologies which are environmentally friendly and prefer local interests and values.

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ROZWÓJ REGIONALNY Z WYKORZYSTANIEM ODNAWIALNEJ ENERGII

Streszczenie. Większość krajów europejskich przychylnie odnosi się do wykorzystania odnawialnej energii – przede wszystkim biomasy – na cele energetyczne. Produkty uboczne jako źródła energii stały się bardziej wartościowe, rozpoczęto produkcję roślin na cele energetyczne. Roczne zużycie gazu na Węgrzech wynosi około 15 miliardów m^3, kraj importuje około 11–12 m^3 gazu rocznie, co generuje koszty w wysokości 1000 miliardów HUF (3,7 miliardów EUR). W skali kraju można byłoby oszczędzić znaczącą kwotę, jeżeli w celu zmniejszenia importu gazu podjęte zostałyby działania zmierzające do wykorzystania lokalnych zasobów energii i modernizacji energetycznej budynków. Rozwiązaniem tego problemu może być stworzenie zdecentralizowanej opartej na biomasie podaży energii (lokalne wytwarzanie energii na małą skalę w wielu miejscach). Wysokowydajne instalacje do spalania wiór drzewnych są odpowiednie dla dużych odbiorców energii (np. osiedla, instytucje publiczne, budynki przemysłowe i rolnicze), podczas gdy systemy spalania peletów i brykietów są idealne dla małych odbiorców oraz gospodarstw domowych. Autorzy artykułu dokonują analizy spolecznych i ekonomicznych aspektów wdrożenia lokalnego systemu ogrzewania opartego na spalaniu wiór drzewnych bazując na przykładach takich ciepłowni funkcjonujących na Węgrzech.

Słowa kluczowe: elektrociepłownie, zużycie wiór drzewnych, zdecentralizowana podaż energii, rozwój regionalny.

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BULGARIAN FOOD INDUSTRY GROWTH AND TRADE WITH BRIC COUNTRIES

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Abstract. The Food and Beverage Industry is an attractive and a leading sector in Bulgarian industry. The Bulgarian Food and Beverage Industry (BFBI) has traditionally been an export-oriented. The biggest importer of food and beverages in Bulgaria is Brazil, followed by Russia, China and India. Continual increase of trade relations importance with BRIC countries, especially in food and beverages, has significant impact on the sectors dynamics. The paper aims to analyze the industrial dynamics of the Food and Beverage Industry in Bulgaria and the role of trade relations with BRIC countries, namely Brazil, Russia, India and China, on it. Bulgarians' trade balance with these countries is negative. To overcome these negative trends for the sector it is necessary to increase the competitiveness production, and to rely on quality and standardized production, for development of new market niches.

Key words: Food Industry, Industrial Growth, Trade, Bulgaria, BRIC countries

INTRODUCTION

The Food and Beverage Industry is an attractive and a leading industrial sector of Bulgarian economy. A favourable climate and natural resources have served as a foundation of the sector's development. This industry is traditional and has some unique products that are competitive on the international market.

The Bulgarian Food and Beverage Industry (BFBI) has been traditionally an export-oriented industry. During the period of centrally planned economy (CPE) it blossomed under the conditions of COMECON markets. There were enough foreign markets to implement large-scale production, there was a relatively developed domestic market, and

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there was full vertical integration (agriculture – food processing – packaging – marketing and trade) within the former operating structures [Kopeva, 1997].

In the last decade of the 20th the BFBI continued to be an example of a typical factor-driven industry. The only sources of comparative advantages are a very favourable climate, highly fertile soil, high-quality agricultural production, low labour cost, and a skilled and qualified labour, well equipped processing factories. Slowly and steady in beginning of the 21st, BFBI become an investment-driven industry, introducing a market approach, embarking upon positive return on investment, market-based competition between firms, steady and reliable relationships with supporting industries, absence of monopolies, innovations and re-inventing old markets. Therefore, the challenge in front of the BFBI is to continue its development and to strengthen already achieved positions, led by competitive strategies implemented on firm and sector levels. After becoming part of the EU, before the BFBI are introduced new opportunities and new requirements.

The BFBI is an important manufacturing subsector. It is dominant in the Bulgarian manufacturing sector and plays a central role in the national economy. Its contribution to the GVA is stable in last decade and is around 14.8% (in 2008). The GVA has been constantly annually increasing by 40% since 2005. The food and drink sector includes over 5300 companies. The BFBI is composed of a diverse range of companies from SMEs to large companies. The sector contributes to 16.5% (in 2007) of the sector's employment. BFBI contributes to the extra EU-27 trade by 0.4% (in 2009). The trade balance of food and beverage products is positive and it accounted 43 million EURO in 2009, tracing significant drop by 83% from 2008. [EUROSTAT, 2011]. Despite that huge decline in volume, there are no changes in the final export destinations and importing countries. In general, the biggest trading third countries partner is Russia. The share of export and import increased in the year 2010 respectively by 53.1% and 33.4% in comparison of 2009. China is the second important trade partner, followed by Brazil and India. The biggest importer of food and beverages in Bulgaria is Brazil, followed by Russia, China and India. Constantly increasing importance of trade relations with BRIC countries, especially in food and beverages, have significant impact on the sectors dynamics.

The paper aims to analyse the industrial dynamics of the Food and Beverage industry in Bulgaria and the role of trade relations with BRIC countries, namely Brazil, Russia, India and China, on it. The paper has following structure. Section 1 is introduction stressing on the role and importance of the BFBI. The analysis of production and turnover dynamics of FBI is given in Section 2. In Section 3 it is analysed dynamics of trade of food and beverages and the role of BRIC countries. Conclusions are given in Section 4.

PRODUCTION AND TURNOVER DYNAMIC OF BFBI

To understand the development of BFBI, we had to identify the basic factors that drive industrial changes:

- The change of consumers' needs. Consumers have changed their buying preferences for the last decade. Now they buy more high quality products at higher prices instead of bulk of cheap low quality ones.

- The change of technological requirements. Consumers prefer to buy bio-products. The tendency is to produce more green products than ever have been produced.

The role of the factors above is based on the food and beverage features:

- Food manufacturing depends on the quality of raw materials from agriculture. Structural changes in agriculture in recent years have a negative effect over the food production. The negative effect is result of the worsen quality and a continuous decline in the volume of agricultural production.
- The BFBI is characterized with a large number of small firms. This size structure is directly connected with growth potential of the enterprises and the industry as a whole. As a final result, due to the relatively low financial entry barrier in the sector, there are many small business representatives that produce low quality food. As an example, nearly 70% of food producers were threatened for exiting the industry due to a failure of the newer and higher standards of product quality at the end of 2006. According to this, many food producers (especially those producing: milk and milk products; meat and meet products; miscellaneous etc.) were forced to implement quality management standards as ISO 9000 and HACCP.

According to the change of the above factors, we can easily find some general economic framework problems for producing food and beverage as follows:

- Poor co-operation with agricultural suppliers (farmers respectively);
- Deteriorate supplies of seasonal and perishable agricultural products;
- Absence of sufficient long term investments in food and beverage development;
- Poor co-operation with firms in other interrelated sectors of the industry (clusters);
- Increasing requirements of quality standards and environmental protection.

In addition, we find that there has been a deterioration of infrastructure in the food and beverage sector for the last decade. As a result, the prospects of industry growth have been worsened by the infrastructure deterioration. Firstly, it is observed worsen labour force structure. There is an aging of producing labour force among the firms in the industry. This is combined with a presence of seasonality in the recruitment of key workers. Consequently, this reflects to a very slow increase of labour productivity and respectively to a low wages. Secondly, the analysis revealed poor technological structure. As a result of worsen financial potential and not good size structure, many producers have and use a physically and morally depreciated assets and respectively an obsolete production technologies.

Serious pressure on food and beverage producers gives the current market situation. This means a huge increase of competition in the industry and free movement of goods within the EU. In addition, there is an understanding from the European Commission (EC) that European consumers need more product diversity and better food quality. In opposite, there is a state of insufficient public support for development new food products, new technologies or new techniques for producing food and beverages.

Considering all changes in factors above, we find dynamic changes in production and sales of food and beverages. The statistical data indicate that the dynamics of production and turnover of Bulgarian food industry have been very close till mid-2006. After that, the market situation has been changed as a result of Bulgarian EU membership from 2007. Data show that produced food increased by up to 20%, while sales increased four times, respectively by 80%, for 2008.

The statistical data confirm the expected effect of economic crisis. The production indices have been fallen at level of 2005. The Bulgarian food industry dynamic during the crisis is presented as comparative analysis of some financial indicators crosses by firm size .

The analysis of the financial data shows that the crisis affects stronger the smaller Bulgarian food producers than the larger ones. In comparison we can find some essential effects of crisis as follows:

- The average reduction in turnover of the largest producers is below 1% in comparison with a decrease of 9% for the smallest ones;
- The profit of bigger companies has increased than the decreased profit an opposite of decrease profit of small companies;
- The financial indicators of large food producers are 10% higher than the average rate for the food industry;
- There is a positive correlation between the size, turnover, profit and the value of fixed assets.

In conclusion, despite the poor state of BFBI, the food producers have perceived a smaller crisis effects. In addition, there are enough sufficient indicators that bigger firms have more growth benefits of reduced dynamic of production and turnover.

BULGARIAN FOOD AND BEVERAGE INDUSTRY AND TRADE

Analysis of industrial dynamic is based on common perception of industrial dynamic as a whole. Thus, our findings are in accordance with the following definition: "The industrial dynamic is a result of the increasing ability to enforce the industry evolution (for a long-term period" [Forrester, 1961]. Therefore, industrial dynamics does not only describe and analyse the current industrial structure, but these market driven factors that can change economic structures over time.

According to the statement that is given above, the trade dynamic analysis covers three directions:

- Analysis of dynamic change of exports and imports of Bulgarian food and live animals;
- Analysis of dynamic indices of ratio "export/import" for Bulgarian food and beverage industry;
- Analysis of dynamic indices by food groups.

Development of Bulgarian trade and BRICs are analyzed in two layers;

- Bulgarian food trade for 1992–2007;
- Bulgarian food trade for BRICs for 1995–2007.

DYNAMIC OF TRADE INDICES OF FOOD IN BULGARIA

Bulgarian food industry indicates growth for the last decade. Our hypothesis is that the food industry's trade dynamic is a result of free commodity trade within the European Union from the beginning of the century. Therefore, we are looking at change not just by structure of the overseas partner but by structure of traded product groups.

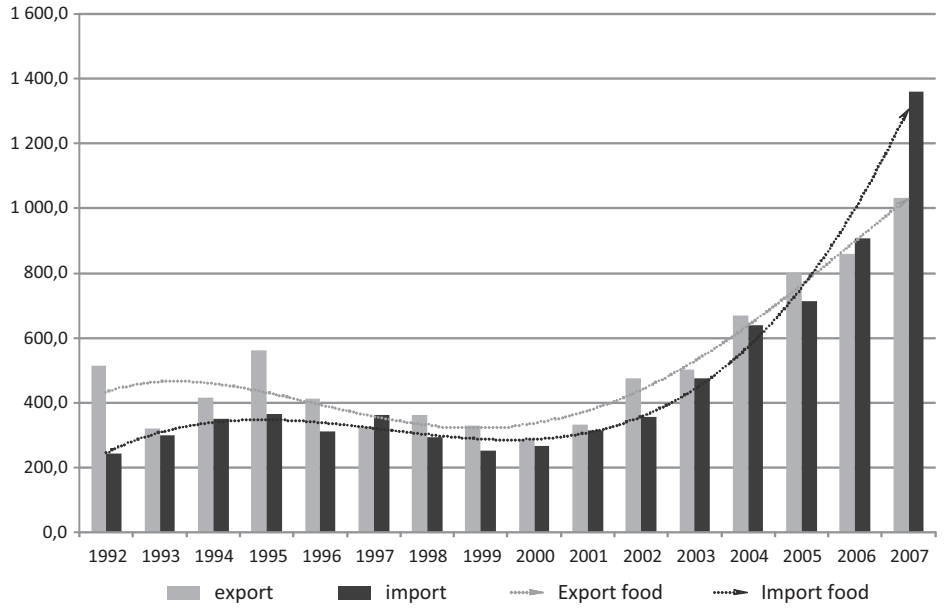

Fig. 1. Dynamic of export and import of Bulgarian Food industry
Rys. 1. Dynamika eksportu i importu przemysłu spożywczego w Bułgarii

Source: NSI and own calculations.
Źródło: Narodowe statystyki i obliczenia własne.

First of all, the analysis covers the dynamic change of Bulgarian food trade for the last 15 years (Figure 1). The food industry has expanded the volume of trade six times since 2000. Trade value of food products had enlarged three times for last five years. Food import has been moving up faster than food export for last years.

As the productivity of Bulgarian industry is not high, Bulgarian plants cover a low quality and price food sector. In addition, the opening the boundaries for free food trade to European countries had given a competitive advantage of Bulgarian food producers. As many authors stated, cost advantage is the single Bulgarian competitive advantage. EU membership, as an economic and political decision, could explain over two times enlargement of food import in Bulgaria for the year of 2007. In addition, the big difference between production and turnover of food and beverages could be fulfilling with more and more import of food products.

Bulgarian food trade looks in better position than trade as a whole for the observed period. The ratio "export/import" gives a picture that food export had overtopped import since 2005. Even then the ratio for food trade is exceeded the ratio for Bulgarian trade. We could evaluate negative the trend of continuous fall of observed indices. So the food export has been turn down for the observed period. Even more, the differentiation between manufacture trade indices and food indices has slow down. Dynamic growth of food import is similar to the growth of Bulgarian import. A problem is that the growth change of food export is slower than the growth rate of Bulgarian export. This means that Bulgarian food industry has lost its competitive advantage very fast.

The next step of the analysis is to find out does the state of food industry dynamic is the same for different food product groups. For our finding we use a classification of eight groups as follows: live animals; meat and meat products; diary and eggs; fish and fish products; cereals; vegetables and fruits; sugar and honey; coffee, tea and spices; miscellaneous food products.

The food trade picture follows some basic conclusions:

a) The trade of food products was at lowest level in 1999–2000. Since then the trade in all food groups have been increased.
b) Trade of cereals and fish products has slow down their growth rate;
c) Export/import ratio forms three groups, respectively: (i) cereals and live animals, where the Bulgarian trade is mostly determined by export; (ii) dairy and eggs, vegetables and fruits, and spices, where export of these products exceeds import for the observed period. A negative tendency of the food trade is kept in this group but with a slower rate; (iii) all other food products, in this group the trade volume is made mostly by import. The dynamic of the change between export and import is constant for the observed period.

In conclusion, we found that main export-oriented food products had lost their advantage very fast. Therefore, the expansion of food products on the Bulgarian national market is done by vast increase of food import.

The data allows confirming the group division above:

- First two groups are characterized with fastest growth rate of the export and slowest growth rate of the import. These are the products with highest trade potential (excluding cereals).
- Third group includes products with slowest export growth and fastest import rate. Bulgarian food industry does not possess competitive advantage producing these food products.

FOOD TRADE (IMPORTS AND EXPORTS) WITH THE BRICS COUNTRIES

The output of food processing sector has stable traditions and presence in the trade balance of the country. With the accession of Bulgaria to the EU many of the obstacles to trade relations have been removed (such as duties, fees, etc.). However, the country must comply with certain allowances, which are set by the EU internal Community trade. Although most of the trade with production from sector "Food and beverage" is realized within the union, we can say that the world market there is huge potential for realization of commercial trade. Much of this potential is due to such countries as Brazil, Russia, India and China.

Bulgaria has negative trade balance with BRIC countries. The country is a net importer of different types of goods from them (Figure 2). Export/import of food and beverages from Brazil, Russia, India and China is also in favour of import (Figure 3).

The production and trade of products from food processing sector can be conditionally differentiate in the following product groups: Food and live animals, Meat, Dairy and eggs, Fish, Cereals, Vegetables and fruits, Sugar and honey, coffee, tea, cocoa and spices, miscellaneous.

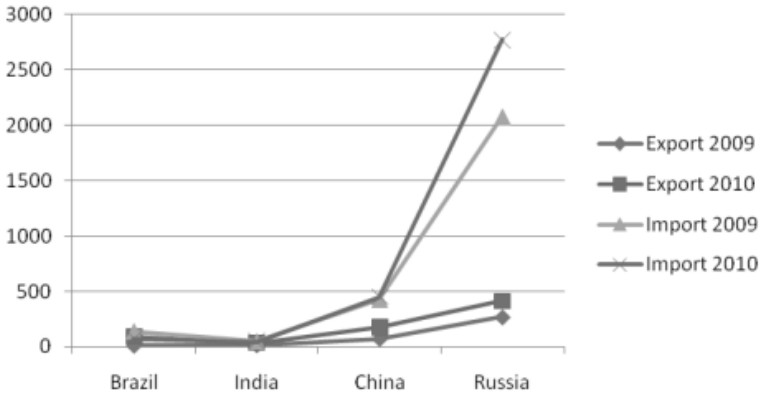

Fig. 2. Total Export/Import BRIC countries
Rys. 2. Eksport/Import krajów BRIC

Source: NSI and own calculations.
Źródło: NSI, 2010: Narodowe statystyki i obliczenia własne.

Note: The figures (index) shows how many times export exceeds import in the reference period by countries
Nota: Liczby (indeks) wskazują, ile razy eksport przewyższa import w okresie referencyjnym w poszczególnych krajach

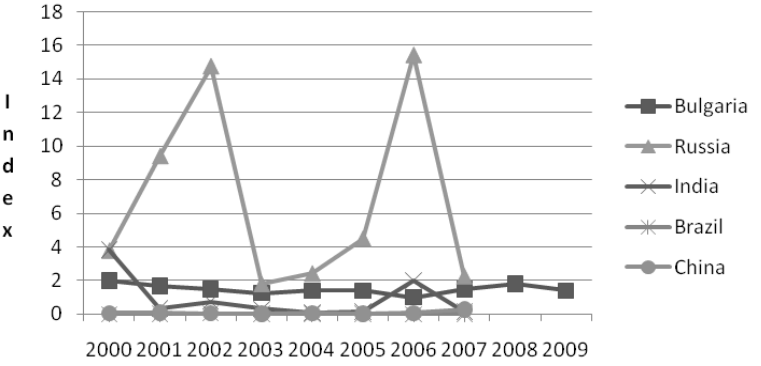

Fig. 3. Food and Beverages Export/Import Ratio by BRIC countries
Rys. 3. Eksport/Import żywności i napojów według krajów BRIC

Source: EUROSTAT.
Źródło: EUROSTAT.

Note: The figures (index) shows how many times export exceeds import in the reference period by countries
Nota: Liczby (indeks) wskazują, ile razy eksport przewyższa import w okresie referencyjnym w poszczególnych krajach

Imports and exports (bilateral trade) is developing at different intensities in different countries of the BRICs in each of these product groups. The largest share of bilateral trade with the countries of the BRICs is occupied by trade in food and live animals. Almost 100% of it is due to food, and trade in live animals is occasionally. In the mid 90s, Bulgaria had relatively high levels of trade in food and food products.

This trade was mainly with Russia. Russian market has been a traditional market at the time of socialism. The trade with food and food products with other countries: China, India and Brazil, is very poor. From 1997 to 2002 trade with Russia decreased several times. The lowest rates were reported in 2001. Then the trade turnover is already comparable with trade with other countries from BRICs. Since 2002, there has been a slight resurgence and increasing the rate of growth. But the levels are significantly lower than those in the 90's. Interesting here, is the fact that trade with Russia is on diametrically opposite position with trade with India, China and Brazil. There was a inverse limit point in 2001. Prior to that time, basic trade with food is realized with Russia and with other countries was symbolic. After 2001 the share of India, China and Brazil is growing, and with Russia shrinks to the unenviable position.

Bulgaria is a traditional producer of cereal. Most of the production is intended to meet the internal needs of the country. Another part is realized in the European market, which is closer and easily accessible. In this type of production, from food processing sector, there is the trend of a decline in trade with Russia. Such turnover is completely lacking in Brazil, and trade relations with China and India are incidental. They are in years when those countries show grain crisis.

The trend in trade in fruit and vegetables largely repeated the trend in trade with food. Indices presented in graphic form echoes that of food (Figure 4). There is an inversion point (i.e. the largest drop in commodity exchange) in the period 1999–2000. Until this year, trade in fruits and vegetables with Brazil, China and India is almost lacking. After that, after this inversion point, there is a slow, but steady growth rate.

In recent years, trade with these countries is almost equal and there is no preference country market. The trade balance of fruits and vegetables with the BRICs is negative. The main reason for this state is a reduced Russian market potential.

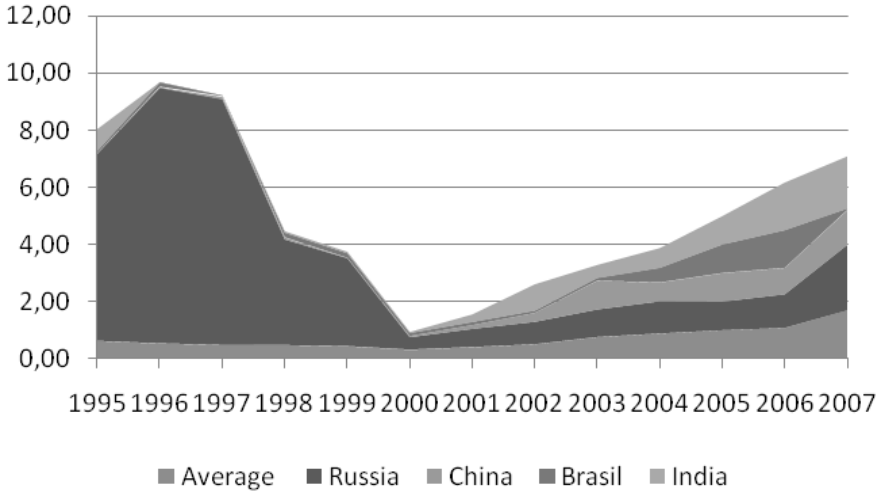

Fig. 4. Trade Index of Vegetables and Fruits with the countries of BRICs, based on 2005
Rys. 4. Indeks handlu warzyw i owoców z krajami BRICS, rok bazowy 2005

Source: NSI and own calculations.
Źródło: Narodowe statystyki i obliczenia własne.

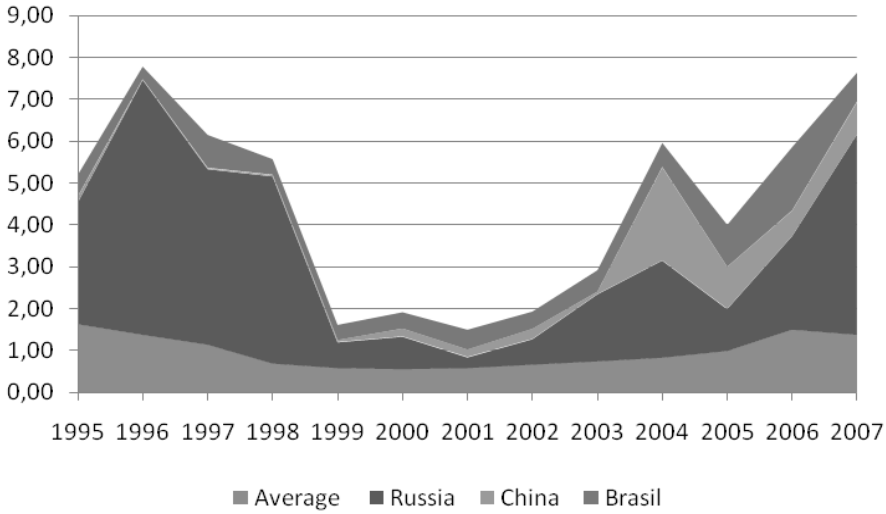

Fig. 5. Trade Index of Sugar and Honey with the countries of BRICs, based on 2005
Rys. 5. Indeks handlu cukrem i miodem z krajami BRICS, rok bazowy 2005

Source: NSI and own calculations.
Źródło: Narodowe statystyki i obliczenia własne.

In trade with sugar and honey (Figure 5), the flow is moving at variable rates. After a considerable decrease in the period 1999–2002, there is observed growth rates. The volume of trade in 2007 reached the level of the mid 90s. As with other product groups, major trading partner is Russia. Turnover with Brazil and China is almost low. Such turnover is completely lacking in India. In this product group, the turnover is mainly made on sugar imports from Brazil and copper exports from Bulgaria to countries in the BRICs.

Unlike the previous product groups where the country is losing ground in terms of loss of markets, but has export performance, the next group of products has mainly import nature. The country is a net importer of coffee, cocoa and some spices. The lower point of trade is in the period 1999–2001 (a few years after Bulgarian economy recession in 1998). In recent years, trade with the countries of BRICs is relatively evenly distributed. This trade is in the stage of progress. Negative about the economy is that, this generates a negative net balance of trade balance of this product group.

Trade turnover with the other products from the food industry does not differ from the general trend of the considered here product groups. The economy recession from mid 90's conducted an overall loose of food markets. The trade processes and trade structures with those countries are changing and decreasing. Opening the country to world markets increases the flow to countries like India, China and Brazil, not only with Russia. In recent years, trade with India and China now exceeds trade with traditional partners of Bulgaria such as Russia.

Interesting fact is which of the product groups are with greatest contribution in the implementation of Bulgaria trade with the countries of BRICs.

Until 20 years ago, the primary user of the output of food industry enterprises sector of Bulgaria was the huge Russian market. With its simplicity and high absorption, the

Russian market provided to Bulgarian Food sector safe place for the realization of food productions. The main part of the trade flow is made of Bulgaria's exports to Russia. These exports are mainly of canned food, alcohol and cereal crops. With the exiting of the Russian economy from the crisis during 90s, it opens to the products of Western markets. By increasing the pretentiousness of Russian consumers, Bulgarian food products lost significant positions. Therefore, in 1999–2000 the trade flow of these two countries, otherwise traditional trading partners, declined to unenviable position.

At the same time, with the loss of trade with Russia to Bulgaria there were opened up new opportunities. Such opportunities are trade markets in countries as China, a new and much larger market of Russian. These opportunities, however, are not fully used. Basic trade with China is only carried by 1–2 product groups such as Cereals and dairy.

One could say that the Chinese market has not yet been developed. It will be perspective to increase bilateral trade in the future.

The trade with Brazil has been increasing in recent years. But this state is not equal represented for all food product groups. However, the export volume of food and honey has been developing well. So does the import volume of coffee, cocoa and spices (Figure 6).

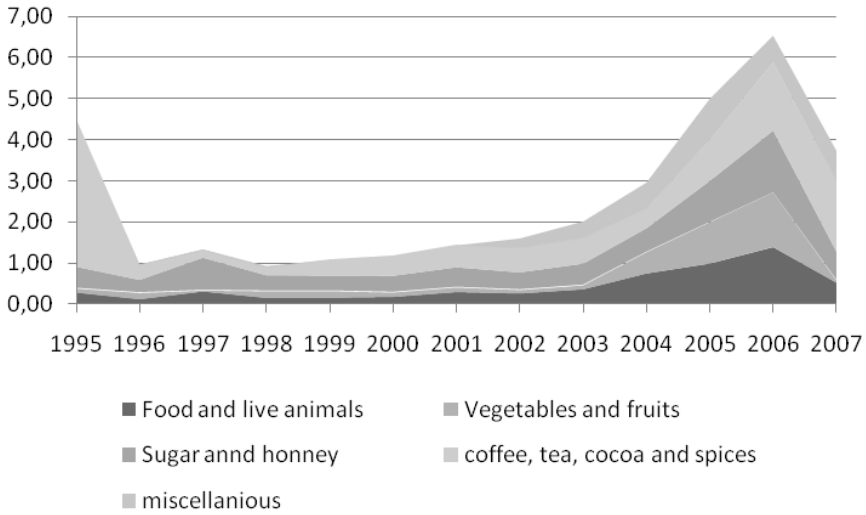

Fig. 6. Rate of change in trade with Brazil by product groups in Food sector (2005 = 1.00)
Rys. 6. Stopa zmiany wymiany handlowej z Brazylią według grup produktów sektora żywnościowego (rok bazowy 2005)

Source: NSI and own calculations.
Źródło: Narodowe statystyki i obliczenia własne.

The situation is identical in trade with India (Figure 7). There are observed some hikes in trade relations, mainly dominated by trade in cereals. Another strong product group is presented by imports of spices and fruit. The pace of change in trade relations with both countries is increasing. But the foreign trade balance is negative for Bulgaria. This is the result of low competitiveness of Bulgarian production in the food industry, and of low quality and lack of industry standards in Bulgarian economy.

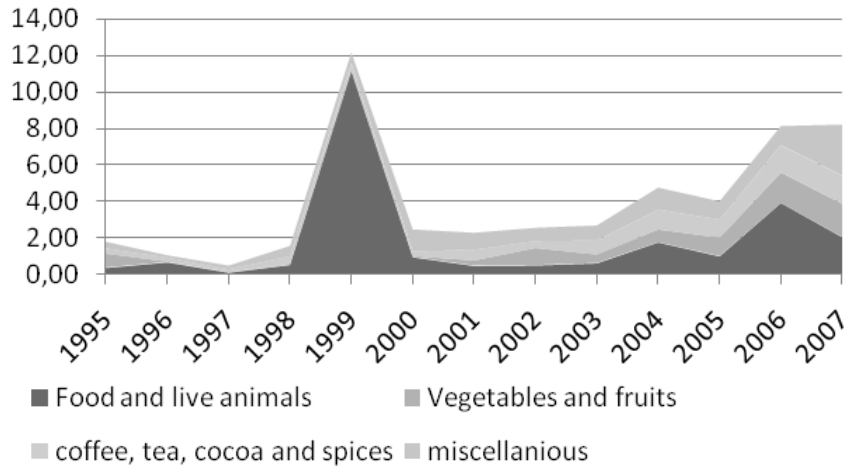

Fig. 7. Rate of change in trade with India by product groups in Food sector (2005 = 1.00)
Rys. 7. Stopa zmiany wymiany handlowej z Indiami według produktów sektora żywnościowego (rok bazowy 2005)

Source: NSI and own calculations.
Źródło: Narodowe statystyki i obliczenia własne.

CONCLUSIONS

Based on conclusions that comprised analysis of trade for different (i) groups food products and (ii) BRICs countries, it can be summarized that Bulgaria has relatively stable trade relationship with these countries. Commercial positions are lost with traditional trading partners like Russia. There are opportunities for both countries to increase the number of traded products and goods. In the years of business globalization, options to entering the promising markets like China, India and Brazil have not been fully used. These markets have a large volume of consumers and provide an opportunity for the realization of Bulgarian production of food industry. They are an alternative to the saturated European market. Bulgarians' trade balance with these countries is negative and it is observed long term trade deficit. To overcome these negative trends for the sector it is necessary to increase the competitiveness of Bulgarian production, and to rely on quality and standardized production, and to concentrate efforts for development of new market niches in the BRIC countries.

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PRZEMYSŁ SPOŻYWCZY I HANDEL Z KRAJAMI BRIC W BUŁGARII

Streszczenie. Produkcja żywności i napojów jest atrakcyjnym i wiodącym sektorem bułgarskiego przemysłu. Bułgarski przemysł żywnościowy jest tradycyjnie zorientowany pro-eksportowo. Największymi importerami bułgarskiej żywności i napojów są Brazylia, Rosja, Chiny i Indie. Systematyczny wzrost relacji handlowych z krajami BRIC ma znaczący wpływ na dynamikę tego sektora. Celem artykułu jest analiza dynamiki przemysłu spożywczego w Bułgarii i rola stosunków handlowych z państwami BRIC. Bilans handlu zagranicznego Bułgarii z krajami BRIC jest ujemny. W celu przezwyciężenia negatywnego trendu w tym sektorze jest niezbędna poprawa konkurencyjności produkcji poprzez standaryzację i jakość oraz rozwój eksportu na rynki niszowe.

Słowa kluczowe: przemysł spożywczy, handel, Bułgaria, kraje BRIC

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SME SECTOR ECONOMIC POSITION IN THE EU: INSIGHTS INTO LABOUR EFFICIENCY AND PROFITABILITY

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Summary. The paper presents the outcomes of the analysis of labour and profitability in micro, small and medium enterprises (SMEs) of EU countries. The analysis is based on the data provided by the EC Enterprise and Industry, covering the year 2008. According to the outcomes of regression analysis, the most important factors influencing SME profitability include: the productivity of expenses, the level of labour involvement in production, the share of added valuein incomes and labour costs. The most important factors influencing labour efficiency in the SME sector include: labour equipment and the shares of added value and production in incomes.

Key words: microenterprises, small enterprises, medium enterprises, SME sector, work efficiency, profitability, regression analysis

INTRODUCTION

A very high position of micro, small and medium enterprises (SME) is typical for the economies of most of the Member States of European Union (UE). The micro, small and medium enterprises are understood as businesses employing respectively <10, 10–49 and 50–250 people and whose annual turnover and/or total annual balance do not exceed respectively: 2/2, 10/10 and 50/43 millions of Euros [Commission… 2004]. The special meaning of the SME sector in the EU economy results from two premises. Firstly, the number of subjects of this kind determines their importance as the major employer and their influence on the labour market. Secondly, operating in the SME sector is commonly considered as a manifestation of proper competition and a major marker of entrepreneurship [Skowronek-Mielczarek 2003]. However, if one takes into account parameters other than the numbers of enterprises and the number of people employed, the meaning of the SME sector is not so homogeneous, as the sector is strongly diversified as regards tech-

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nological efficiency, economic efficiency and financial efficiency, both in particular EU countries and among them [Majewski 2005].

One of the most import ant determinants of SME economic position is labour efficiency and financial effectiveness measured as profitability. Labour efficiency is generally considered to be one of the most important development parameters of economies, as it leads to cost reduction, increase in supply of cheaper goods and services, makes the market more dynamic, which results in the increase in purchasing power of societies, their wealth and competitive abilities [Landmann 2004]. At the same time, the high rank of profitability results from three premises [Wędzki 2006]: first, profitability constitutes the base of evaluation for the accumulation of owners' capital in the context of VBM (Value Based Management), secondly, it expresses a function of aim of a company, thirdly, its analysis enables to identify the factors of capability to create values for company owners, perceived in the categories of balance sheet profit or residue profit.

The main purpose of the present paper is to analyse the variety of the level and factors influencing labour efficiency and SMEs profitability in EU countries. The analysis includes the latest economic and financial statistical data from EC database, published on EUROSTAT website [SME Performance… 2010].

METHODOLOGY

The analysis was based on decomposing the index of labour efficiency, measured as added value and decomposing the index of company income profitability, measured as net operating surplus. The index of labour efficiency was analysed as product of the added value index, the share of production value in total income, productivity of net material inputs and labour equipment measured as the value of material inputs calculated per employee according to the scheme below*:

$$LE = \frac{AV}{E} = \frac{AV}{P} \times \frac{P}{IT} \times \frac{IT}{M} \times \frac{M}{E}$$

$$LE = AVI \times PS \times IP \times LEq$$

where:

LE – labour efficiency [added value (AV)/number of employees (E)],
AVI – added value index [added value (AV)/production incomes(P)],
PS – production share in income [production income value (P)/ incomes total (IT)]
IP – input productivity [incomes total(IT)/material inputs (M)],
LEq – labour equipment [material inputs (M)/number of employees (E)],

* A number of different technological, economic and financial categories is used to measure labour efficiency in practice, e.g. global production, sold production, added value, operating profit [Ikeda and Souma 2008, Wiatrak and Ziętara 1978]. Generally, however, it is added value which is recognized as one of the most objective categories of evaluating companies' efficiency, widely used in evaluating labour efficiency [Wołodkiewicz-Donimirski 2009, Zarządzanie .. 1999]. Its nature and weight result mainly from the fact that it measures efficiency from the point of values added by human capital with regard to external material costs; it thus constitutes a major criterion of the ability to generate value for owners [Skoczylas, Niemiec 2003, Wędzki 2006].

In turn, due to the limited amount of information and their range in the databse of the EC Enterprise and Industry, [SME Performance… 2010], the analysis of profitability in SME in EU-27 countries was conducted basing on the decomposition of the profitability index measured as net operating surplus[**]. The index was presented as the product of input productivity, labour equipment measured as the value of inputs (indirect consumption) per employee, the labour consumption of production, the index of added value, the index of labour costs per hired employee and the index of entrepreneurs' salaries, according to the following scheme:

$$IcP = \frac{NOS}{P} = \frac{SI}{M} \times \frac{I}{E} \times \frac{E}{IT} \times \frac{AV}{IT} \times \frac{GOS}{AV} \times \frac{NOS}{NOB}$$

$$IcP = IP \times LEq \times Lc \times AVI \times LCI \times ESi$$

where:

IcP – income profitability [net operating surplus (NOS)/sales incomes (SI)]
IP – input productivity [sales incomes (SI)/total inputs (I)],
LEq – labour equipment [total input (I)/number of employees (E)],
LC – labour consumption of production [number of employees (E)/sales incomes (SI)],
AVI – added value index [added value (AV)/sales incomes (SI)],
LCI – labour costs incomes [gross operating surcharge (GOS) /added value (AV)]
ESi – entrepreneurs' salaries index [net operating surplus (NOS)/gross operating surplus (GOS)]

The indexes presented above, which constitute a cohesive and logical system of structural analysis of labour efficiency[***], were subject to statistical analysis by means of basic descriptive statistics. Moreover, a qualitative analysis of labour efficiency and profitability were conducted by means of stepwise regression, which use all factors in the models of decomposition of efficiency and profitability above as descriptive variables. The econometric model uses the data characterizing the particular factors in micro, small and medium enterprises within the frames of 45 detailed sections of the EU economy [NACE… 2009, Rozporządzenie 2006].

[**] The database of EC Enterprise and Industry includes information about companies, including SME, limited to a dozen or so economic and financial categories, not including balance sheet information. The data enables to estimate operating surplus according to the sequence: Added value = incomes total (global production) – indirect consumption costs; Gross operating surplus = added value – labour costs, Net operating surplus = gross operating surplus – entrepreneurs' salaries [SME Performance… 2010].

[***] The suggested structure of the cause-and-effect model of labour efficiency results from the range of data presented in the EU report SME Performance Review, on the basis of which the analysis was conducted. The report does not include data concerning balance sheet elements, which means it is impossible to use classical determinants of labour efficiency such as technological equipment, measured as assets, and in particular- fixed assets.

DIVERSIFICATION OF LABOUR EFFICIENCY IN THE SME SECTOR IN THE EU

Table 1 presents the level of work efficiency, measured as added value, according to the size of companies and in the arrangement of EU countries. The data shows that the efficiency of the SME sector (EUR 40.29k) is much lower than the efficiency of big enterprises (EUR 61.14k), mainly as a result of relatively low labour efficiency (EUR 33.20k) of the most numerous group of micro scale subjects. The differences are substantial and they do not only concern the economy of Denmark, whose labour efficiency, measured as added value, was higher in the SME sector (EUR 70.17k) than in big enterprises (EUR 64.47k), as a result of particularly high efficiency in microenterprises (EUR 95.67k). Moreover, taking descriptive statistics into account, it is possible to notice that the average picture of labour efficiency in the EU is a resultant of significant differences which occur from country to country.

The value of the variation coefficient, v_p, exceeding 50% in 2008, clearly depicts the differences in labor efficiency in the SME sector in the EU. Moreover, the applied statistical measures also show a clear right-sided asymmetry of the distribution of labour efficiency ($\overline{x} > Q_2$), which shows that over 50% of EU countries have higher efficiency than the average in the EU. However, as regards the first quartile (Q_1), companies in 25% of countries of the EU have very low efficiency, i.e. the relation of added value to the number of employees was lower or equal to EUR 19.3k. The countries include Bulgaria whose SME companies only had average efficiency of EUR 5.47k, but also Lithuania, Poland, Romania, Hungary and Latvia, whose companies had efficiencies between EUR 12 and 17k. As regards the third quartile, (Q_3), it is possible to notice that 25% of EU countries had efficiencies notably higher than the EU average and it amounted to EUR 54.7k or more. The most efficient companies in this group operated in Denmark, whose labour efficiency in the SME sector exceeded EUR 70k, i.e. it exceeded the average value for the EU by about 75%. SME businesses in the UK, Finland, Ireland and Luxemburg had added value per employee between EUR. 60.7 and 67.7k.

The contents of table 1 show a large differentiation of labour efficiency in the SME sector, which is particularly influenced by considerable differences in microenterprises (v_p = 53.2%). Generally, over 50% of EU countries can boast of efficiency of their microenterprises higher than the average efficiency in the EU and its distribution, similarly to that of the whole SME sector, is characterized by quite a remarkable right-sided asymmetry ($\overline{x} > Q_2$). However, as regards the first quartile (Q_1), the microenterprises in 25 EU countries had really low relation of added value to the number of employees, i.e. lower or equal to EUR 15.2k. The values are striking for enterprises in Bulgaria, Lithuania and Hungary, where average level of labour efficiency amounted to EUR 3. 7–9.7k and microenterprises in Poland, with labour efficiency of EUR 8.7k. Analysing the second quartile (Q_3), one can notice that microenterprises in 25% of EU countries had labour efficiency considerably higher than EU average, amounting to at least EUR 46.7k. The highest values can be observed for Denmark (EUR 95.7k) and Luxemburg (EUR 89.9k), but also Ireland, Finland, Great Britain and Sweden (EUR 53.4–59.9k)

The degree of variety among EU countries with regard to labour efficiency in small and medium companies was relatively lower, but still considerable (v_p = 40.7–46.5%). It

Table 1. Differentiation of labour efficiency in EU countries by size of enterprises in 2008 (value added per employees in thousands of EUR excluding financial companies)

Tabela 1. Zróżnicowanie wydajności pracy w krajach Unii Europejskiej według wielkości przedsiębiorstw w 2008 roku (wartość dodana na 1 zatrudnionego w tys. euro, bez przedsiębiorstw finansowych)

EU countries	Enterprise size					
	Micro	Small	Middle	Total SME	Large	Total
Austria	43.96	50.43	67.19	52.70	73.17	59.40
Belgium	42.20	60.51	79.42	56.75	83.94	65.75
Bulgaria	3.74	6.12	6.92	5.47	13.24	7.49
Cyprus	30.05	39.09	41.32	35.39	47.52	37.39
Czech Republic	15.50	20.37	24.21	19.40	33.44	23.95
Denmark	95.67	57.93	60.93	70.17	64.47	68.23
Estonia	17.48	18.32	23.40	19.73	22.52	20.33
Finland	57.87	60.22	71.63	62.75	80.11	69.75
France	48.60	51.37	55.15	51.25	66.98	57.28
Greece	18.05	35.30	43.32	24.90	63.14	29.85
Spain	29.52	39.61	49.14	36.54	61.35	41.99
Netherlands	34.78	51.18	65.23	47.59	59.29	51.43
Ireland	59.33	49.94	84.13	64.27	130.76	85.21
Lithuania	7.15	12.82	15.47	12.03	19.85	14.01
Luxembourg	89.91	58.90	58.62	67.69	76.67	70.68
Latvia	14.99	16.61	19.11	17.01	19.07	17.50
Malta	20.38	30.75	27.23	24.47	45.99	29.46
Germany	44.76	45.87	55.69	48.65	66.67	55.77
Poland	**8.69**	**18.63**	**21.12**	**13.73**	**28.42**	**18.30**
Portugal	13.28	22.45	29.82	19.19	41.02	23.24
Romania	12.21	15.11	15.02	14.11	33.77	21.28
Slovakia	23.27	22.11	20.45	21.73	31.16	25.93
Slovenia	21.05	31.46	30.00	26.61	36.40	29.84
Sweden	53.40	55.22	64.91	57.27	79.69	65.40
United Kingdom	56.51	56.81	71.30	60.75	71.84	65.76
Hungary	9.70	16.44	21.80	14.31	32.60	19.60
Italy	30.06	46.13	56.03	38.34	64.14	43.26
	Descriptive statistics					
$\overline{x}$(EU-27)	33.20	42.74	49.71	40.29	61.14	47.08
min	3.7	6.1	6.9	5.5	13.2	7.5
max	95.7	60.5	84.1	70.2	130.8	85.2
Q_1	15.2	19.5	22.6	19.3	33.0	22.3
Q_2	29.5	39.1	43.3	35.4	59.3	37.4
Q_3	46.7	51.3	62.9	54.7	69.4	62.4
v_p (%)	53.2	40.7	46.5	50.1	30.7	53.7

Source: Author's own calculations based on the SME Performance… [2010].
Źródło: Obliczenia własne na podstawie SME Performance... [2010].

was also the case when work efficiency measured as added value per employee oscillated between EUR 6.1k and 60.5k (small companies) and EUR 6.9–84.1 (middle companies). There are a number of causes of these dispersions, also relating to microenterprises, internally-based, such as entrepreneurs' decisions, but also external conditions on which entrepreneurs have little or no influence. Labour efficiency is a category of a high degree of synthesis, which is to a large degree decisive about the necessity to analyse it systematically, i.e. taking into account different structural arrangements of factors creating logical cause-and-effect connections.

Table 2 presents the structure of the cause-and-effect model of SME labour efficiency, obtained on the basis of decomposing this index, described in the introductory part of the present paper. Its analysis leads to the conclusion that the bigger the size of an enterprise, the lower the share of added value in incomes. The share of production incomes in incomes total remains relatively stable, the efficiency measured as the productivity of material inputs decreases and the equipment given to employees increases substantially; its level in small and medium enterprises is higher than in microenterprises by about 50 and 100%.

Table 2. Structure of casuse-and-effect model of labour efficiency by enterprise size estimated on the basis of 45 activity sections (NACE) in EU total in 2008 (excluding financial companies)

Tabela 2. Struktura modelu przyczynowo-skutkowego wydajności pracy według wielkości przedsiębiorstw oszacowana na podstawie 45 sekcji działalności (NACE) w UE ogółem w 2008 roku (bez przedsiębiorstw finansowych)

Statistics	Ratios of labour efficiency model				
	WWD	SP	PN	UP	WP
Micro					
$\overline{x}$	0.429	0.664	1.398	0.083	33.20
v_p (%)	17.77	9.61	9.66	58.77	27.65
Small					
$\overline{x}$	0.397	0.629	1.332	0.129	42.74
v_p (%)	19.59	6.34	8.86	45.99	22.24
Middle					
$\overline{x}$	0.345	0.663	1.297	0.167	49.71
v_p (%)	25.92	5.25	10.02	57.82	22.20
Total SME					
$\overline{x}$	0.389	0.652	1.340	0.118	40.29
v_p (%)	21.94	6.20	9.99	51.47	19.48

Source: Author's own calculations based on the SME Performance… [2010].
Źródło: Obliczenia własne na podstawie SME Performance… [2010].

To summarize, it is possible to say that as regards the analysed factors of labour efficiency, the SME sector is really diversified. Moreover, as regards the variation coefficient, considerable differences exist also within the particular classes of enterprise size. They mainly concern the equipment of employees and the share of added value in incomes.

It means that, first of all, these factors are main determinants of the level and variability of labour efficiency. The strength and direction of their influence can be described by appropriate quantitative methods.

QUALITATIVE ANALYSIS OF LABOUR EFFICIENCY FACTORS IN SME

Table 3 presents the indexes of linear fragmentary regression between the value of labour efficiency ratio and its descriptive statistically significant variables (at significance level $\alpha = 0.05$) and the beta ratios and determination ratio (β) and (R^2). These ratios create a basis to evaluate the strength and direction of the influence of the mentioned factors on the efficiency of labour efficiency in SME. The analysis of the parameters in the regression models from table 3 allows to draw the following conclusions:

1. With regard to all regression models, the following variables proved to be statistically significant: the added value ratio, the ratio of production share in incomes and the employees equipment. These variables explain, to a large degree, the variability of labour efficiency, both in particular size groups of enterprises (R^2 = 78.43–87.75%) and generally in the SME sector (R^2 = 80.44%).

Table 3. Linear regression coefficients and beta (β) between the ratio of labour efficiency (Y) and a statistically significant independent variables (X_i), estimated on the basis of the parameters of 45 section activities (NACE) in the EU total in 2008

Tabela 3. Współczynniki regresji liniowej i beta (β) między wskaźnikiem wydajności pracy (Y) a statystycznie istotnymi zmiennymi niezależnymi (X_i), oszacowane na podstawie parametrów 45 sekcji działalności (NACE) w UE ogółem w 2008

Independent variables X_i	Dependent variable Y			
	Enterprise size			
	Micro	Small	Middle	Total SME
	Regression coefficients			
X_1	260.76	181.78	332.65	281.53
X_2	52.90	91.89	134.29	76.30
X_3	–	–	–	–
X_4	174.41	246.90	269.23	219.38
Constant of equation	−121.15	−127.73	−224.11	−148.49
	β ratios			
X_1	0.449	0.569	0.451	0.455
X_2	0.367	0.524	0.347	0.370
X_3	–	–	–	–
X_4	1.065	1.048	0.943	0.946
	Coefficients of determination R^2 (%)			
R^2 (%)	79.72	78.43	87.75	80.44

Source: Author's own calculations based on the SME Performance… [2010].
Źródło: Obliczenia własne na podstawie SME Performance… [2010].

2. The estimated parameters of the regression function show that with regard to enterprises of all sizes, the increase in the share of added value in incomes positively influenced labour efficiency. As regards the absolute dimension, this factor was of greatest meaning in medium-sized enterprises and microenterprises, where an increase in the added value in incomes by one unit (1 percentage point) resulted in an average increase in labour efficiency by EUR 2.6 and 3.32 respectively.
3. The share production value in incomes, a marker of the profitability of production, proved to be an important determinant of labour efficiency in micro, small and medium companies. An increase in the value of the share by 1 per cent resulted, on average, in an increase of income profitability by EUR 0.52k (micro), 0.91k (small) and 1.34k (middle).
4. All types of companies have shown very significant relationship between efficiency and equipment of labour. An increase of labour equipment by one unit (EUR 1k) resulted, in absolute terms, in an increase in labour efficiency by EUR 0.17k in microenterprises and 0.27k in medium companies and 0.22k in SME in general.
5. As regards β ratios, measuring the indirect influence of the factors in question, the equipment of labour had primary meaning with respect to determining the level and variety of labour efficiency. As regards β, its strength of influence on efficiency was 2–3 times greater than the strength of other factors from the model.

THE DIFFERENTIATION OF PROFITABILITY IN THE SME SECTOR AMONG EU COUNTRIES

Table 4 presents the level of income profitability, measured as net operating surplus, by enterprise size and in the arrangement of EU countries. The data shows that generally, the SME sector has significantly lower profitability (6.84%) than the sector of big enterprises (9.55%), mainly due to relatively low profitability (4.32%) of the most numerous group of microenterprises. The differences in this respect are considerable and they do not only concern Germany, Denmark, Luxemburg and Great Britain, whose financial effectiveness, measured as operational surplus, was twice as high for SME than for big enterprises. Moreover, taking into consideration descriptive statistics, it is possible to notice that the average picture of financial effectiveness of the EU is the resultant of very serious differences between EU countries in this respect.

The value of the variation coefficient, v_p, ultimately shows considerable profitability differentiation in the SME sector in EU countries, as it amounted to 42% in 2008. Moreover, the statistics used also show a clear right-sided asymmetry of the profitability distribution ($\overline{x} > Q_2$), which shows that over 50% of countries can boast about profitability higher than the average profitability in the EU. However, in the range of the first quartile (Q_1), 25% of SME had actually lower profitability, i.e. the relation of operating surplus to incomes was equal to or lower than 4.1%. The following enterprises are included here: Hungarian (0.32%), Greek (1.53%), Slovenian (1.93%) and French (1.96%). In turn, taking the third quartile (Q_3) into account, it can

be noticed that 25% of EU countries have profitability higher than the average value for the EU and it was higher than or equal to 8.6%. The highest profitability in the SME sector were reached in Great Britain (almost 15%), followed by profitability in Malta (11.4%), Ireland (11.9%) or Cyprus (12.9%).

The data included in table 4 shows that the high level of differentiation of SME profitability is mainly influenced by a high ratio of operating surplus to incomes in the microenterprises sector (v_p = 114.5%). In general, in over 50% of EU countries the profitability higher than average and its distribution, similarly to the whole SME sector, was characterised by right-sided asymmetry ($\bar{x} > Q_2$). However, as regards the first quartile (Q_1), 25% of EU had unprofitable microcompanies, i.e. their ratio of operating surplus to incomes was equal to or lower than –1,0%. In this respect, microenterprises in Lithuania (–7.3%), Hungary (–7.1%), and Greece (–6.5%), Slovenia (–4.6%), Portugal (–4.4) and Poland (–3.1%) show the lowest values. Taking into account the third quartile (Q_3), it is possible to notice that the profitability of 25% microenterprises in the EU notably exceeded the average value for the EU and amounted to 6.2% or more. This group included microenterprises from Great Britain (17.4%), Denmark (17.7%) and also Germany (10.3%), Cyprus (10.6%), Ireland and Luxemburg (13.0%).

The profitability of small and medium enterprises was subject to much smaller differences in EU countries (v_p = 20.7–22.3%). However, even in the case the enterprises of that size, financial efficiency is measured as the index of operating surplus divided by incomes oscillated in a quite range of values, i.e. 3.3–15.8% (small companies) and 3.0–15.3% (medium-sized companies). It is caused by a number of internal factors, i.e., to a large extent, depending on entrepreneurs' decisions and their external conditionings on which the influence of entrepreneurs is generally limited. These factors also influence microenterprises. It is the case as profitability is influenced by, on the one hand, entrepreneurs' decisions in the area of assets and capital, the strategies of liquidity and sales, organization of production and the human capital they manage and, on the other hand, by macroeconomic and sector factors, connected with the periodicity of the economic situation, inflation-related processes, changeability of prices, economic, fiscal, exchange rate policies, competitiveness and the degree of modernity in the branch and demand fluctuations.

Profitability is a category characterized by a large degree of synthesis, which, to a large degree, determines the necessity to analyse it systematically, i.e. taking into account various structural sets of factors, creating logical chains of cause-and-effect links while using deterministic and stochastic methods.

Table 5 presents the structure of the cause-and-effect model of the income profitability ratio among SME, obtained after decomposing the ratio according to the description in the initial part of the article. Its analysis lets one arrive at the conclusion that as the company size increases, its effectiveness measured as input productivity falls down, labour equipment increases significantly; the level of the employment factor in small and medium-sized companies is higher when compared with microenterprises by 50% and 100% respectively. Moreover, the difference in labour equipment translate well into the level of labour consumption and, hence, affect labour

Table 4. Income profitability in the EU by size of enterprises in 2008 in % (excluding financial companies)
Tabela 4. Rentowność przychodów w krajach UE według wielkości przedsiębiorstw w 2008 w % (bez przedsiębiorstw finansowych)

EU countries	Size of enterprises					
	Micro	Small	Middle	Total SME	Large	Total
Austria	4.26	8.80	11.23	8.36	11.92	9.65
Belgium	0.50	5.40	7.21	4.24	6.72	5.21
Bulgaria	1.19	6.21	7.82	5.20	11.64	7.45
Cyprus	10.61	14.27	14.18	12.93	19.48	14.01
Czech Republic	–1.43	5.03	6.57	3.72	11.53	6.93
Denmark	17.67	7.30	5.86	10.45	6.19	9.04
Estonia	3.16	4.14	6.92	4.80	8.12	5.41
Finland	5.67	6.21	8.13	6.75	7.70	7.24
France	–0.65	3.61	3.02	1.96	5.43	3.50
Greece	–6.52	7.73	8.77	1.53	12.79	4.06
Spain	4.08	9.08	9.28	7.40	12.32	9.02
the Netherlands	3.07	7.28	7.31	6.25	7.45	6.70
Ireland	12.66	8.31	14.05	11.88	19.38	15.21
Lithuania	–7.33	5.78	7.91	3.96	9.10	5.73
Luxemburg	13.04	4.28	4.19	6.94	4.71	6.04
Latvia	5.43	9.57	10.90	8.85	10.73	9.23
Malta	6.67	15.83	15.31	11.36	26.20	15.68
Germany	10.34	8.60	8.64	9.04	7.01	7.98
Poland	**–3.16**	**8.58**	**9.62**	**4.45**	**12.74**	**7.84**
Portugal	–4.46	6.24	8.47	2.94	11.31	5.42
Romania	5.72	7.20	8.67	7.27	19.36	12.26
Slovakia	5.22	5.63	5.30	5.39	10.90	8.17
Slovenia	–4.62	5.37	4.75	1.93	8.11	4.21
Sweden	1.67	4.52	6.24	4.18	9.38	6.47
United Kingdom	17.37	13.31	13.84	14.71	14.02	14.36
Hungary	–7.15	3.35	5.75	0.32	9.85	4.24
Italy	0.31	7.39	6.09	4.20	8.15	5.35
Descriptive statistics						
$\overline{x}$(EU-27)	4.32	7.79	8.28	6.84	9.55	7.99
min	–7.3	3.3	3.0	0.3	4.7	3.5
max	17.7	15.8	15.3	14.7	26.2	15.7
Q_1	–1.0	5.4	6.2	4.1	7.9	5.4
Q_2	3.2	7.2	7.9	5.4	10.7	7.2
Q_3	6.2	8.6	9.5	8.6	12.5	9.1
v_p (%)	114.5	22.3	20.7	42.1	21.5	25.7

Source: Author's own calculations based on the SME Performance… [2010].
Źródło: Obliczenia własne na podstawie SME Performance… [2010].

Table 5. The structure of the cause-and-effect model of income profitability by enterprise size, as estimated on the basis of 45 activity sections (NACE) in the EU total in 2008 (excluding financial companies)

Tabela 5. Struktura modelu przyczynowo-skutkowego rentowności przychodów według wielkości przedsiębiorstw, oszacowana na podstawie 45 sekcji działalności (NACE) w UE ogółem w 2008 roku (bez przedsiębiorstw finansowych)

Statistics	Multipliers of the cause-and-effect model						
	SI/IT	IT/E	E/SI	AV/SI	GOS/AV	NOS/GOS	NOS/SI
Micro							
$\overline{x}$	1.40	83.36	8.58	28.48	56.09	27.05	4.32
v_p (%)	9.66	58.78	41.79	19.98	19.21	76.07	95.56
Small							
$\overline{x}$	1.33	128.58	5.84	24.95	34.70	89.93	7.79
v_p (%)	8.87	46.00	35.17	19.63	30.29	4.66	28.16
Middle							
$\overline{x}$	1.30	167.29	4.61	22.91	36.77	98.36	8.28
v_p (%)	10.03	57.82	31.56	23.34	25.59	0.69	28.33
Ogółem MSP Total SME							
$\overline{x}$	1.34	118.41	6.30	25.39	43.11	62.47	6.84
v_p (%)	9.99	51.48	37.13	21.98	23.11	14.73	26.98

Source: Author's own calculations based on the SME Performance… [2010].
Źródło: Obliczenia własne na podstawie SME Performance... [2010].

efficiency. Obtaining EUR 100k in microenterprises required the employment of 9 employees while it only required 6 and 5 employees in small and medium-sized enterprises respectively. The data presented also suggests that microenterprises, frequently due to a little involvement of material inputs, are characterized by relatively high level of added value share in incomes. The differences are not as strong, though, as in the case of employees' equipment measured by the level of material inputs. However, as a consequence of high labour consumption, a considerable part of added value is lost in microenterprises due to high costs of employment. The share of these costs amounted to 56% of added value in microenterprises while it reached the values of 34.7% and 36.7% in small and medium-sized companies respectively.

The data in table 5 also shows a relatively high level of microentrepreneurs' salaries, as compared with the generated surplus. The share of net operating surplus in gross operating surplus amounted to 27.1% while it amounted to 89.9 and 98.4 in small and medium-sized enterprises respectively. The accumulative capabilities of microcompanies are thus generally really low and no good development opportunities are created. To sum up, it is possible to conclude that as regards the analysed factors, the SME sector is highly differentiated. Also, referring to the variability coefficient, (v_p), differences exist even in types of enterprises. The differences mainly concern employees' equipment, labour consumption of production and labour costs. This means that thesse factors are the main determinants of profitability. Their strength and direction of influence can be defined by means of appropriate quantitative methods.

QUANTITATIVE ANALYSIS OF PROFITABILITY FACTORS IN THE SME SECTOR

Table 6 presents the ratios of linear stepwise regression coefficients of the general model, involving the values of the income profitability ratio, measured as net operating surplous and statistically significant descriptive variables (at significance level $\alpha = 0.05$), (β) coefficient and (R^2) determination coefficients. These coefficients are the basis for a synthetic evaluation of the strength and direction of the influence of the mentioned variables on the financial effectiveness of SME, measured as income profitability. The analysis of the parameters from table 6 of the parameters of structural models of regression enables to draw the following conclusions:

1. most variables from the regression models proved to be statistically significant and describe the changeability of income profitability, both in particular size-based groups of enterprises (R^2 = 91.27–97.12%) and in SME in general (R^2 = 89.42%),

Table 6. Linear regression coefficients and beta (β) between the ratio of revenue profitability (Y) and statistically significant independent variables (X_i), estimated on the basis of 45 section activities (NACE) in the EU total in 2008

Tabela 6. Współczynniki regresji liniowej i beta (β) między wskaźnikiem rentowności przychodów *Y*, a statystycznie istotnymi zmiennymi niezależnymi X_i, oszacowane na podstawie 45 sekcji działalności (NACE) w UE ogółem w 2008 roku

Independent variables X_i	Dependent variable, Y			
	Micro	Small	Middle	Total SME
Regression coefficients				
X_1	11.760	0.322	2.658	0.157
X_2	–	–	–	–
X_3	−0.419	−0.423	−0.168	−1.444
X_4	–	0.514	0.446	0.747
X_5	0.455	0.281	0.324	0.175
X_6	0.026	–	–	–
Constant of equation	−32.421	−13.056	−17.265	−10.175
β coefficients				
X_1	0.521	0.276	0.203	0.076
X_2	–	–	–	–
X_3	−0.114	−0.103	−0.049	−0.404
X_4	–	0.508	0.528	0.704
X_5	0.511	0.399	0.487	0.245
X_6	0.090	–	–	–
Coefficients of determination R^2 (%)				
R^2 (%)	91,27	97,12	96,39	89,42

Source: Author´s own calculations based on the SME Performance… [2010].
Źródło: Obliczenia własne na podstawie SME Performance… [2010].

2. the assessed parameters of the regression function show that in all size-based groups of enterprises, an increase in the efficiency of inputs positively influenced profitability. As regards absolute values, this factor influenced microenterprises to the highest degree, where an improvement of efficiency of one unit translated into an average increase in profitability of over 11%.
3. the level of the labour consumption of production was negatively correlated with profitability. As regards each and every type of enterprise, its increase resulted in a decrease of profitability, particularly in micro and small enterprises, where employing an extra person resulted income profitability by over 0.4%.
4. the share of added value in incomes proved to be another important determinant in small and medium enterprises. An increase of this share of 1 percentage point resulted, on average, in an increase in income profitability of 0.44–0.51%,
5. regardless to company size, a connection could be observed between profitability and labour costs. An increase in the share of gross operating surplus in added value, i.e. A reduction of hired employees' wages, resulted in an increase in profitability of 0.28% in small companies and 0.45% in microenterprises respectively,
6. an influence of employees' salaries on income profitability was also clearly visible. Although salary reductions positively influenced profitability, its impact was really low in absolute terms,
7. as regards β coefficients, measuring the relative impact of the factors in question, effective use of inputs and labour costs were of primary meaning in microcompanies, while the ability to generate added value and labour costs were the most important determinants in small and medium enterprises.

SUMMARY

As regards to the number of enterprises and employment, the SME sector plays a vital role in EU economies. However, taking into account some of the most important criteria of technical, economic and financial efficiency, i.e. labour efficiency and profitability, the position of the sector is not as strong as it might seem.

Microenterprises stand out here in particular, as they represent really low levels of labour efficiency and profitability in general. The quantitative analysis of the causes of low labour efficiency shows that the factors to blame for low labour efficiency include poor labour equipment resulting in high labour consumption, increased ability to generate added value and increased preference of production to other business areas. The causes of low profitability include labour costs, labour-consuming production processes and relatively high ratio of employees' salaries to the generated operating surplus. It is thus generally possible to conclude that a development in the areas of efficiency and profitability requires systematic investments and their implementation, which, in the case of SME and microenterprises in particular, may prove difficult due to low accumulation capabilities and limited opportunities to use external sources of capital.

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POZYCJA EKONOMICZNA SEKTORA MSP W UNII EUROPEJSKIEJ Z PUNKTU WIDZENIA WYDAJNOŚCI PRACY I RENTOWNOŚCI

Streszczenie. W artykule zaprezentowano wyniki analizy wydajności pracy i rentowności w mikro, małych oraz średnich przedsiębiorstwach krajów UE. Analizę przeprowadzono na podstawie danych Komisji Europejskiej ds. Przedsiębiorstw i Przemysłu z 2008 roku. Według wyników analizy regresji do najważniejszych czynników kształtujących rentowność MSP należą: produktywność nakładów, pracochłonność produkcji, udział wartości dodanej w przychodach oraz koszty pracy. Natomiast do najważniejszych czynników kształtujących wydajność pracy w sektorze MSP należą: uzbrojenie pracy oraz udział wartości dodanej i wartości produkcji w przychodach.

Słowa kluczowe: mikroprzedsiębiorstwa, małe przedsiębiorstwa, średnie przedsiębiorstwa, sektor MSP, wydajność pracy, rentowność, Unia Europejska, analiza regresji

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AGRICULTURAL FARMS' ADAPTATION AND ADJUSTMENT PROCESSES TO CHANGING ECONOMIC ENVIRONMENT IN POLAND (CASE STUDY OF ONE FARM)

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Abstract. The paper presents results of studies on the adjustment process of farms to market economy requirements. Trends of change were analyzed on the basis of a case study. The owner of the farm under analysis made significant changes in the farming production means and resources between 2005 and 2010, namely his actions showed a high tendency to concentrate land ownership. He also systematically invested in farming equipment and buildings, adapting their capabilities to the growing demands on farming requirements, organizational changes and technological developments. An important role in financing such activities was played by the supply of external capital, both in the form of preferential loans and EU funding and subsidies. The analysis of the farmer's behaviour patterns ranks him as one of the most dynamic agricultural entrepreneurs, among the group of farmers who have sufficient resources to meet the demands of competition and stay in the market. They can act strategically, properly combining the internal potential with the opportunities created by the changing environment.

Key words: economic environment, agricultural entrepreneurs, adjustment processes, farm case study

INTRODUCTION

The 1990s in Poland were the period of radical change, often defined as a transformation and transition period. The changes covered most areas of economic, political and social life. Their aim was, among others, to create conditions for restoring the economic balance upset by the deep 1980s crisis, stop the runaway inflation and introduce

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market mechanisms in the country's economy by setting up markets for capital, goods, services and labour. Market forces manifested themselves earliest in the food production sector. As early as the summer of 1989, most prices of agricultural products and foodstuffs were freed, which led to the general market liberalization. Significant overhaul of the state economic system occurred at the beginning of 1990, with the gradual elimination of central planned economic management instruments.

The introduction of market mechanisms and competition from foreign producers revealed the structural and efficiency weaknesses of the Polish agriculture. Among the barriers preventing the smooth adaptation to market economy mechanisms one frequently mentions the following: dispersed agrarian structure, technological backwardness, insufficient individual farmers' income and the related high levels of poverty, low educational standards and generally advanced age of farmers, as well as the so-called mental barriers [Wilkin 2000]. These conditions result in the fact that not all farms are equally adjusted to changing economic environment. The liberal system is "beneficent" for the strong and efficient businesses, pays premiums to those who are active and entrepreneurial, and show the ability and capacity to adapt to changing economic conditions. Market mechanisms "reward" economically efficient entities, and depreciate weaker players. Farmers, in their mass, are weaker players, and in the free market are doomed to lose. However, their adaptability depends mainly on the economic strength of individuals [Woś 1998].

The period of more than twenty years since the beginning of the transition has had a significant influence on the shaping of modern agriculture [Wilkin 2010]. New regulations have created a different macroeconomic environment for its functioning, thus determining the conditions of development. According to Woś [2000], the most important were the following processes: the expansion of market relations, privatisation (especially in the field of food trade and processing) and the abolishment of state monopoly in foreign trade. Agriculture, now governed by market forces, has simply had to adjust to the new rules of economic interaction. The position of agriculture and its related policies have been determined not so much by the changes that have taken place in themselves, by the changes in its economic environment. As indicated by Wilkin [2000], macroeconomic conditions have forced the adjustment processes in agriculture, but they have not actually facilitated them. Rural areas witnessed considerable problems of adaptation to market economy conditions. Only the last years – since Poland's accession to the European Union – has been a unique time of beneficial change. Poland's entry into the EU has definitely been a positive qualitative change in the agricultural sector [Wilkin 2010].

The new economic rules being introduced to the Polish economy resulted in a considerable qualitative differentiation of farms. There has appeared a group of modern, expansive farming enterprises strongly associated with the market, whose managers have tried to adapt to the requirements of the new economic environment, often successfully. It should be emphasized that making changes is a prerequisite allowing to maintain a competitive market. All farms that want to function, and are aimed to grow and develop, must be subject to change. They cannot just aim for the very survival. Growing competition results in constant striving for development, and this means the need to invest [Gradziuk 2006].

METHODOLOGY

The paper presents results of studies on the adjustment processes of farms to market economy requirements. Trends were analyzed on the basis of a case study of an agricultural farm. Empirical data was collected using a description of the farm enterprise, including changes in the organization and farming production resources between 2005 and 2010, and an interview questionnaire which addressed socio-demographic characteristics, attitudes and behaviours of its manager.

RESULTS

The farm under analysis is situated in the south-eastern part of Hrubieszów district (Poland, Lublin Voivodship), which in the past was characterized by a significant share of the state sector in the ownership of land. The present owner of farm began his independent business activity in 2005, but his entire professional life (as well as other aspects of his life) has been associated with agriculture*. After starting a family, looking for jobs, which would have provided housing, he decided to come to the border areas of south-eastern Poland and took a position in the local PGR (State Agricultural Farm), where he initially worked as animal rearing specialist, then the farm manager, director and administrator – until the collapse of the entire system of state-owned farms. In 2000, together with a partner, he leased the farm from the Agricultural Property Agency of the State Treasury (from 2003, the Agricultural Property Agency) with its land area of 460 ha, of which his own resources accounted for 33% of the total farming area. After five years, the partners decided to purchase the leased land. The surveyed farmer has ultimately purchased 48.69 hectares.

In the period 2005–2010, only crop production was conducted on the farm. It is a basic and standard form of agricultural production, which is also the only renewable source of food and non-food agricultural raw resources. The base of crop production is land, which is both a means and object of production. Therefore, its resources (both quantitative and qualitative) are crucial to the organization of this form of production. The studied farm possessed a total area of 149.7346 ha of good quality farming land at the beginning of 2010. The average rate of soil valuation was 1.53 (compared to 0.79 on average in Poland), and over three-quarters of arable land belonged to Class II. The farm had a positive spatial distribution of land – two plots of land were utilized for agricultural purposes, and the distance to the farthest field was 5 km. The structure of agricultural land accounted for 92% of arable land (Table 1). According to preliminary results of Agricultural Census 2010, the average area of a single farming entity operating in Poland amounted to 7.92 ha. During the eight years it increased by 13.5%. Compared to the previous census (2002), there was a decline in the number of the smallest farms (with an area of 1 ha of arable land by 26.8%; and between 1 to 5 ha – by 24.8%). There was also a significant, though still

* Subject's parents possessed an agricultural farm of significant size in those conditions. Due to poor soil quality, they mainly engaged in tobacco production.

Table 1 The structure of agricultural land in the surveyed farm in 2010
Tabela 1. Struktura użytków rolnych w badanym gospodarstwie w 2010 r.

Specification Wyszczególnienie	Structure of Farm Production Struktura UR	
	ha	%
Arable Land/GO	137.6875	92.0
Grasslands/TUZ	12.0471	8.0
Orchards/Sady	–	–

Source: Own research.
Źródło: Badania własne.

small, rise in the number of the largest agricultural holdings. In the group area of 20 ha and more, this increase amounted to 6.5%, including in this case, farms with an area of 50 hectares or more, where the increase was 34.4%. Therefore, the analyzed farm belonged to the cohort of 27.000 farms with an area of 50 hectares or more, which accounted for only 1.2% of all farms in Poland [Information... 2011].

A significant impact on the acceleration of farmers' adjustment to changing environmental conditions has been observed in the increase in the mobility of the basic production resources: land, labour and capital. The primary way to increase the degree of mobility of land is its lease. The investigated farmer used the leasing institution, but treated it as a transitional form, ultimately leading to a purchase. He also expressed the intention to maintain family control over his holding in the future (by handing it to his children) – and had already appointed a successor. In 2010, a part of arable land (8.94 ha) was handed over to his son, thus enabling the latter to use the state subsidy of 75.000 PLN, aiming to facilitate the settlement of young farmers (CAP measure). His son designated the received funds for the purchase of additional land. The subject's attitude testifies the thesis put forward by Halamska et al. [2004] that the attachment of Polish farmers to land as an inheritable asset is extremely strong. A lasting relationship with land and its perception in terms of value, and not just a mean of production, is part of peasants' identity, in which Podedworna [2001] sees an important source of non-economic motivations, which in turn may facilitate the survival of farmers in crisis situations.

The surveyed farm changed its area in the period under investigation. As a result of the purchase of land, its area tripled. It was enlarged in a „revolutionary" way by participating in the „parcelling out" of former state own farms (Figure 1). The farmer indicated that he intended to further increase the farm area in the future, however the problem was the lack of supply of land in the locality.

The selection of crops that are grown on farms depends on a multitude of factors, mainly the quality of soil and climatic conditions, but also the attitude of the individual farmer. The crop structure in the surveyed farm was dominated by cereals (including wheat and barley), constituting 60,5% in 2010 (Table 2). Their participation was slightly lower than the national average, which according to preliminary results of the Agricultural Census of 2010 was 68.4%. The share of sugar beet (11.7%) was several times higher than the national average (2.0%), as well as that of oilseed rape (12.7% on the farm, 8.9% nationally) [www.stat.gov.pl]. The analysis of data on changes in crop structure in the studied farm in the years 2006–2010 shows that in 2007 the farmer introduced new crops

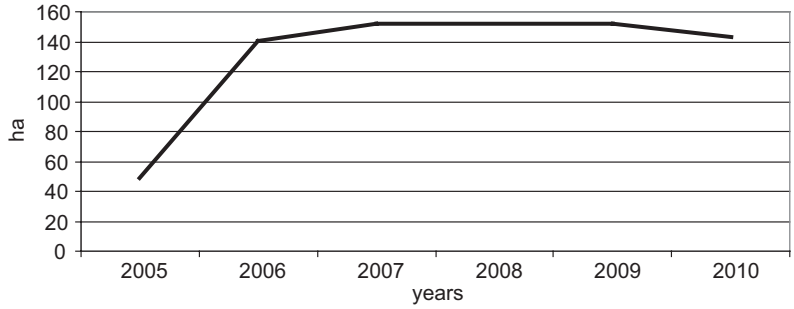

Fig. 1. Changes in the total area of the surveyed farm in 2005–2010
Rys. 1. Zmiany powierzchni ogólnej badanego gospodarstwa w latach 2005–2010

Source: Own research.
Źródło: Badania własne.

– durum wheat and winter rapeseed. In 2008 he began to cultivate beans, but according to an interview in 2011, he stopped its cultivation, motivating the decision by too high labour intensity and the lack of grain storage facilities. In the period under investigation, there was a reduction of the share of cereals in the crop structure, which in 2006 was over 90% and in 2010 was 60.5% (in 2010 the national average, compared to 2002 decreased by 5.7 percentage points [www.stat.gov.pl]. In 2010, as compared to 2006, there was a decrease in winter oilseed rape – by 6.6 percentage points. However, the area for the sugar beet cultivation increased almost twofold. As pointed out by the farmer, the changes in the crop structure resulted primarily from crop rotation requirements and economic conditions (market opportunities, the level of profitability).

Table 3 shows the yields of basic crops that were achieved in the surveyed farm between 2006 and 2010. They stood at a higher level than the average in Lubelskie Voivodship as well as in Poland. In 2009, the average yield of winter wheat in Lublin region was 35 dt/ha, while in Poland the figure was 40.4 dt/ha, spring barley – 32.0 and 32.3 dt/ha respectively, rape and agrimonia 20.1 and 29.3 dt/ha respectively, sugar beet 561 and 553.0 dt/ha respectively [www.stat.gov.pl].

From an interview conducted, it can be assumed that the farmer shipped his produce to a variety of recipients (Table 4). The key factor in the choice of recipients was the level of the proposed purchase prices. For example, in this respect the year 2010 saw the high demand for grain, which consequently led to almost complete levelling of prices for consumer cereals and animal feed, and as a result, the farmer decided to sell part of his spring barley crop to "ANIMEX" located in Zamosc, a company that specializes in the production of animal feed. This allowed him to reduce transportation costs. It was also important for the farmer to maintain long lasting co-operation with processing plants (including Lubella for which he cultivated spring durum wheat, used specifically for making pasta, and Bodaczów Vegetable Fats Plant), which the farmer viewed as strongly beneficial. The farmer could expect good conditions of sale, as he offered large, uniform batches of his produce. That made it possible to negotiate prices and delivery methods. Moreover, in 2007, along with his former partner, the subject founded a Group of Grain and Oilseed Producers, in which he served as vice president. It consisted of ten members:

Table 2. The crop structure in the surveyed farm in 2006–2010
Tabela 2. Struktura zasiewów w badanym gospodarstwie w latach 2006–2010

Years Lata	Plant Group Grupa roślin	Crop structure Struktura zasiewów	
		ha	%
2006	Cereals/Zboża	124.19	90,2
	including: winter wheat/w tym: pszenica ozima	79.15	63.7
	spring barley/jęczmień jary	45.04	36.3
	Sugar beet/Buraki cukrowe	9.00	6.5
	Mustard seed/Gorczyca	4.50	3.3
2007	Cereals/Zboża	69.75	48.8
	including: winter wheat/w tym: pszenica ozima	18.75	26.9
	spring durum wheat/pszenica jara durum	24.00	34.4
	spring barley/jęczmień jary	27.00	38.7
	Sugar beet/Buraki cukrowe	12.70	8.9
	Winter oilseed rape/Rzepak ozimy	45.05	31.5
	Beans/Fasola	15.45	10.8
2008	Cereals/Zboża	100.15	70.1
	including: winter wheat/w tym: pszenica ozima	57.50	57.4
	spring durum wheat/ pszenica jara durum	15.00	15.0
	spring barley/ jęczmień jary	27.65	27.6
	Sugar beet/Buraki cukrowe	11.20	7.8
	Winter oilseed rape/Rzepak ozimy	28.00	19.6
	Beans/Fasola	3.60	2.5
2009	Cereals/Zboża	95.25	66.6
	including: winter wheat/w tym: pszenica ozima	48.00	50.4
	spring durum wheat/pszenica jara durum	14.00	14.7
	spring barley/jęczmień jary	33.25	34.9
	Sugar beet/Buraki cukrowe	18.00	12.6
	Winter oilseed rape/Rzepak ozimy	27.00	18.9
	Beans/Fasola	2.70	1.9
2010	Cereals/Zboża	86.42	60.5
	including: winter wheat/w tym: pszenica ozima	38.80	44.9
	spring durum wheat/pszenica jara durum	17.85	20.7
	spring barley/jęczmień jary	29.77	34.4
	Sugar beet/Buraki cukrowe	17.50	12.2
	Winter oilseed rape/Rzepak ozimy	35.53	24.9
	Beans/Fasola	3.50	2.4

Source: Own research.
Źródło: Badania własne.

two commercial companies and eight individual farmers. The main incentive for its creation was the absence of such a group in the Lublin Voivodship, and especially in Zamosc region, which in fact is a major area for grain and cereal cultivation. The primary objective was to provide the Producer Group members the opportunity to sell grain and oilseed at favourable prices and to optimize production costs.

Table 3. Yields of main crops in the surveyed farm between 2006 and 2010
Tabela 3. Plony podstawowych roślin uprawnych w badanym gospodarstwie w latach 2006–2010

Plant group Grupa roślin	Yields of basic crops in the surveyed farm [dt/ha] in the years Plony podstawowych roślin uprawnych w badanym gospodarstwie [dt/ha] w latach				
	2006	2007	2008	2009	2010
Cereals/Zboża					
including: winter wheat/ w tym: pszenica ozima	56.1	85.0	76.8	73.6	60.8
spring durum wheat/ pszenica jara durum	–	65.0	55.6	31.0	51.0
spring barley/jęczmień jary	49.2	55.0	75.5	52.3	54.0
Rapeseed/Rzepak	–	31.0	29.0	38.2	30.8
Sugar beet/Buraki cukrowe	575.1	652.8	587.3	627.2	473.6

Source: Own research.
Źródło: Badania własne.

Table 4. Volume and value sales, and agricultural customers in 2010
Tabela 4. Wielkość i wartość sprzedaży oraz odbiorcy płodów rolnych w 2010 r.

Specification Wyszczególnienie	Volume [t] Ilość [t]	Price [PLN/t] Cena [zł/t]	Value [PLN] Wartość [zł]	Name of recipient Nazwa odbiorcy
Winter wheat/Pszenica ozima	236.00	890.94	210 262,86	Lubella
Spring wheat/Pszenica jara	86.68	963.84	83 546,18	Lubella
Brewery grade barley/ /Jęczmień browarny	163.77	840.00	137 566,80	„OPTIMA" Brewery, „ANIMEX" Feedstuff
Rapeseed/Rzepak	109.50	1299.28	142 326,01	Bodaczów Vegetable Fats. Bielsko-Biała
Sugar beet/Buraki cukrowe	828.76	118.34	98 076,16	Werbkowice Sugar Plant
Beans/Fasola	7.0	3100.00	21 700,00	Broker

Source: Own research.
Źródło: Badania własne.

Under the influence of organizational and technological changes taking place in farms, resources of machinery and equipment and buildings must also be subject to adjustment processes. The farmer in the period under investigation introduced numerous changes in the farm's technical equipment. The changes were primarily motivated by the increasing area of agricultural land, the introduction of new technology and changes in the organization of production. In the period between 2005 and 2010, he purchased machinery and equipment worth a total of 1.005.480 PLN (Table 5). The highest expenditures were incurred in 2008, using alongside his own resources, EU funding and subsidies from the Rural Development Programme. According to the farmer, it is necessary to further modernize the farm's machinery for its proper functioning in the future. Therefore, he filled an application to the Agency for Restructuring and Modernisation

Table 5. Expenditures incurred for the purchase of tractors and agricultural machinery in 2005–2010
Tabela 5. Nakłady poniesione na zakup ciągników i maszyn rolniczych w latach 2005–2010

Type of machine Rodzaj maszyny	Years Lata	Value [PLN] Wartość nakładów [zł]
Combined cultivator and seed drill/ /Agregat uprawowo-siewny	2007	108.000.00
Rotary plough/Pług obrotowy	2008	41.480.00
Stubble cultivator/ Kultywator ścierniskowy	2008	28.620.00
Tractor 6930/Ciągnik 6930	2008	350.000.00
Front end loader/Ładowacz czołowy	2008	35.380.00
Combine harvester/Kombajn zbożowy	2010	442.000.00
Total/Razem	–	1.005.480.00

Source: Own research.
Źródło: Badania własne.

of Agriculture for a grant to purchase other items of machinery – a fertilizer spreader and a subsoiler. In 2006, the farmer, using his own funds, purchased two grain silos with a capacity of 500 tonnes. He also carried out a renovation of a farm building, part of which was adapted for the storage of fuel, pesticides and tools. In the future, he intends to purchase two more silos of the same capacity, allowing separate collection of different varieties of grains. He also plans to build a shelter to store agricultural equipment. He has already started work on the implementation of this investment.

The surveyed farmer indicated that it is vital to use external sources of funding to sustain feasible functioning of the farm. In 2005 he obtained a preferential loan of 400.000 PLN for the purchase of land and a farm building, and in 2006 the subsequent loan (727.400 PLN) to buy the adjacent plot. The farmer emphasised that any purchase of such an amount of land using own resources would have been virtually impossible. The subject also benefited from the EU aid programmes aiming at the modernization of rural areas. He received aid amounting to 40% payback on the purchase of agricultural equipment, thanks to which he modernized his machine park. An essential role in the functioning of the surveyed farm was also played by funding from direct payments and agro-environment schemes (Table 6). According to the farmer, with ever-rising prices of means of production, the majority of farming enterprises would not be able to survive without such a aid.

The most important task of individuals managing businesses (including agricultural holdings) is the decision-making process. Its accuracy and efficiency positively influences a given economic situation of the entity in question. A helpful tool in this effort is the economic balance rationality, which includes information processing and inference, leading to making decisions and choices which in turn result in achieving the best possible results. The investigated farmer pointed out that the basis for any decision taken by him, the changes in the functioning of the farm, was the economic calculation. Among the most important decisions, he mentioned the purchase of new machinery and equipment and silos for storing grains, which ultimately contributed to optimizing his farming production.

Table 6. The value of assets acquired under direct payments and agro-environmental programme in 2010

Tabela 6. Wartość środków uzyskanych w ramach dopłat bezpośrednich oraz programu rolno-środowiskowego w 2010 r.

Specification Wyszczególnienie	Area [ha]/ /crops [t] Powierzchnia [ha]/ /zbiory [t]	Rate [PLN] Stawka [zł]	Amount of subsidies [PLN] Kwota dopłaty [zł]
Single area payments/Jednolita płatność obszarowa	149.34	562.09	83 942.52
Compensatory area payments/ /Uzupełniająca płatność obszarowa	125.45	327.28	41 057.27
Stubble crop/Międzyplon ścierniskowy	59.35	520.00	30 862.00
Sugar crop subsidy/Płatność cukrowa	590.00	50.42	29 747.80
Total/Razem	–	–	185 609.59

Source: Own research.
Źródło: Badania własne.

The surveyed farmer positively assessed his chances of competing with farmers in other EU countries, despite differences in the level of subsidies for agricultural production**. At the same time he saw the need to make constant changes in his farm holding, its systematic modernizing in order to strengthen its competitive position in the market.

Expansive behaviour of the farmer can be justified, among others, by the relatively high level of his education and extensive practical experience. He graduated from secondary school majoring in agriculture, then he studied at tertiary level, however his family circumstances did not allow him to follow through. He systematically supplemented his practical knowledge and skills by attending training courses, specialized study tours, maintaining contacts with universities, as well as studying specialized literature. Education is a synthetic measure, which sets the level of competence of individuals in the labour market and society. It is a key factor determining the current life situation. It very often strongly determines an individual's views on a variety of issues. It also begins to play an increasingly important role as a factor determining production profiles in agriculture, encouraging and enabling the use of not only the effects of mechanization and chemicals, but also the effects of biological and information technology revolution. In the future, the importance of education in determining farm market opportunities will only grow [Kołoszko-Chomentowska 2008].

** Currently, there are large disparities in the distribution of direct payments between the EU-15 countries and new member states, partly due to the phasing-in mechanism and lower reference yields in these countries, resulting from less intensive agriculture [Bajek et al 2007].

The analysis of the answers provided for the interview questionnaire dealing with levels of self-esteem in terms of activity, leads us to believe that the farmer was characterized by high self-reliance and perseverance in pursuit of the goal. He was an optimist, convinced that life brings rather more good than harm. When asked to make an overall assessment of his former life, he said that although he had not planned it thoroughly, he was fairly satisfied with his life's outcomes.

The farmer's preferences and attitudes can also be inferred from his answers to the question about the most valuable opportunities created by running the farm. Among the options provided, he chose three, in his opinion, the most important: the independence and autonomy of decision making, the opportunity to demonstrate initiative, implementing innovation, and pursuing his passion for shaping the living nature around him. This confirms the individualistic attitude – the desire to test oneself in action, independence, a sense of one's own agency.

Also, the type of decisions taken, and assessment of their relevance may indirectly indicate the aspirations of the farmer's business enterprise. He began his self-managed enterprise with significant amount of investment – the modernization of agricultural equipment and increasing the farm's acreage. He assesses his initial decisions positively which may indicate high self-esteem, self-confidence, but also a willingness to take risky actions, often yielding results in the long run. One can also try to look for justification of his expansive behaviour in the ultimate motives of starting his independent business operation. His fundamental motive was his love for land.

SUMMARY

The study shows that the surveyed farmer made significant changes in the stocks of his production means and resources between 2005–2010. Primarily, he showed a high tendency to concentrate farming land (by purchasing it), which resulted in a threefold increase in the agricultural area (from 46.29 to 149.734 ha). Buying land is an important symptom of pro-development behaviour. It is clear evidence of intent to continue farming, and is supported by the financial resources motivating such intentions. It is also associated with establishing closer ties with agriculture and is an expression of adjustment to market economy forces. In addition to the introduction of technological progress, it is the first necessary step in improving the competitive position [Gradziuk 2005].

The growth potential of the studied farm encompassed not only the farming land but also the fixed assets. The farmer systematically invested in farming equipment and buildings, adapting their resources to the growing size of the agricultural area and the organizational and technological changes. He did not treat his farm as a stabilizing force, he declared his willingness to continue its development. The tendency of farmers to invest indicates their attitude to develop production and is a synthetic measure of the economic and financial situation of a given enterprise, which determines its ability to grow in the long term. An important role in financing the activities of the analyzed individual was played by external capital funding. The subject used both preferential loans and aid from EU funding and subsidies. He stressed that thanks to the loans, he was able to acquire the farm, and the EU funds allowed for its modernization.

Decisions of the surveyed farmer, relating to the organization of production and use of modern technology, were mainly influenced by economic factors, and the changes were designed to primarily increase the scale of production and to adapt it for market requirements. The expansive behaviour of the farmer can be justified, among other factors, by a relatively high level of his education and extensive practical experience. He also possesses certain psychological traits, such as optimism, self-determination, perseverance and consistency in the implementation of actions conducive to entrepreneurial activities. The analysis of his behaviour allows us to group him among the most dynamic entrepreneurs in farm sector, having sufficient resources to meet the competition and stay in the market.

In summary, it is clear that changes occurring in the Polish agriculture and rural areas, the processes of structural change, economic restructuring of agriculture lead to the emergence of a group of farms that are economically strong, expansive, and which have considerable potential for development. Such farmers can act strategically, combining their internal potential with the opportunities created by the changing environment. They are aware that an essential condition that allows them to maintain a competitive edge market is their ability to make changes.

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PROCESY DOSTOSOWAWCZE GOSPODARSTW ROLNYCH W POLSCE DO ZMIAN W OTOCZENIU (STUDIUM PRZYPADKU JEDNEGO GOSPODARSTWA ROLNEGO)

Streszczenie. W opracowaniu przedstawiono wyniki badań dotyczących procesów dostosowawczych gospodarstw rolnych do wymogów gospodarki rynkowej. Tendencje zmian przeanalizowano na podstawie studium jednego gospodarstwa rolnego. Właściciel analizowanej jednostki w latach 2005–2010 dokonał znaczących zmian w zasobach czynników produkcji. Wykazał dużą skłonność do koncentracji ziemi. Systematycznie inwestował w sprzęt rolniczy oraz budynki i budowle, dostosowując ich zasoby do rosnącej powierzchni UR oraz zmian organizacyjnych i technologicznych. Ważną rolę w finansowaniu działalności odgrywały kapitały obce, zarówno kredyty preferencyjne, jak i fundusze UE. Analiza zachowań rolnika pozwala zaliczyć go do grupy najbardziej dynamicznych przedsiębiorców rolnych, prowadzących gospodarstwa posiadające wystarczające zasoby aby sprostać konkurencji i utrzymać się na rynku. Potrafią oni działać strategicznie, właściwie łącząc potencjał wewnętrzny z szansami, jakie niesie zmieniające się otoczenie. Są świadomi, że podstawowym warunkiem, pozwalającym utrzymać się na konkurencyjnym rynku jest dokonywanie zmian.

Słowa kluczowe: zmiany w otoczeniu, przedsiębiorcy rolni, procesy dostosowawcze, gospodarstwo rolne

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STABILITY OF STRATEGIES OF POLISH OPEN-END INVESTMENT FUNDS INVESTING IN GLOBAL MARKETS DURING THE FINANCIAL CRISIS*

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Abstract. The authors have attempted to analyze the stability of investment strategy of the Polish open-ended funds, which invest assets in global markets. The study covered the period from 2006 to 2010, which also contain a period of financial crisis. The analysis was performed by statistical methods which use a regression line, Spearman rank correlation coefficient and contingency table. All three methods are based on alpha coefficients of the characteristic lines of funds taken as measures of active investment policy of the managers. For the purposes of study, the authors have constructed market factor based on the indexes of the largest stock exchanges. The results were compared with those obtained earlier for the Polish market and equity funds.

Keywords: open-ended investment fund, regression line, Spearman rank correlation coefficient, contingency table, investment effectiveness

INTRODUCTION

Looking for investment opportunities and the desire for portfolio diversification induce financial market participants to go beyond the boundaries of their own country. This trend is also caused by globalisation and, consequently, by the regulatory framework enabling the free movement of capital. Nowadays, investing abroad is particularly

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easy, primarily because of the development of computer techniques, which have drawn stock exchanges closer on an unprecedented scale. Also, such a young market as the Polish one is drawing closer to the rest of the world of finance. Anyone who considers entrusting their savings to investment funds may take into consideration an offer of investment not only on the Polish or European market, but also in as far countries as China and Japan. The current global financial crisis is neither universal nor frequently appearing. In the stabilization period, when there is no financial-economic turmoil, the use of offers of investment in foreign markets creates an additional opportunity to earn money through the use of better economic conditions in some markets and avoidance of less attractive areas. For these obvious reasons, the Polish open-ended investment funds are increasingly offering potential customers access to foreign markets. Such funds are the focus of attention of the authors of this study.

The aim of this paper is statistical analysis of the Polish investment funds investing the assets in global markets, i.e. not only in European countries. It should be stipulated that from the funds point of view it is not a too rich offer, it appeared relatively recently, after Poland's accession to the European Union. This is fully understandable due to the fact that the Polish financial market is still in developmental stage, both in terms of number of investment proposals and their diversity. It should be admitted, however, that Poland is far ahead of other former Eastern bloc countries in many respects, including the size and diversity of offers, the amount of mutual funds, access to foreign markets, market capitalization of securities, etc. For these reasons, among other things, the authors conclude that it is worthwhile to look at global mutual funds. The analysis presented is based on the methodology used in earlier works, which, inter alia, allowed the comparison of results with those obtained for the Polish market.

METHODOLOGICAL ASSUMPTIONS

First of all, it should be mentioned that the authors' interest is the analysis of mutual fund market adaptation to variable economic conditions, which shall be explained below. In the traditional approach to assessing the effectiveness of funds, standard methods based on indicators, including Treynor, Sharpe, Jensen are used. This approach provides information about the skills of the management of individual funds portfolio, whereas the proposals for the overall market are the 'sum' of skill components. As previous research of the authors has shown [Karpio et al. 2008], due to the high variability of the positions occupied by leaders, the conclusions are not very representative for the market as a whole. Moreover, the efficiency may not be the sole criterion for choosing a mutual fund. Much more important is the ability to adapt the investment policy to a variable economic situation, that is conducting an active policy. It shall be called the stability of investment policies. Using the aforementioned technique takes into account the passive aspect of investment decisions taken by managers. The performance indicators are based on the example of beta coefficients in the characteristic lines of funds. By definition, it measures the correlation of changes in shares of the market index. Thus, its large value in the market growth is interpreted positively, and rightly so, but this is the imitation of the market and not in that much of the activity. The manager's opera-

tion comes to following the economic situation – it is the basis for index funds functioning. On the other hand, balanced equity funds of stable growth should be guided by other criteria than 'imitation' of the market. Therefore, in the present study, the basis of market assessment shall be alpha coefficients appearing in the equations:

$$r_{At} = \alpha_A + B_A r_{mt} + \varepsilon_{At} \tag{1}$$

where r_{At}, r_{mt} are the changes in t time, respectively: fund A and factor market m. According to this, as mentioned above, the coefficients α_A shall be the basis for the evaluation of active investment policy and, in further analysis, they shall just be focused on. Leaving aside, at this point, the problem of selecting a market factor to assess the market for funds, three methods shall be used. All tests require a period of division into sub-periods, in this study are the weeks. In each of them, for each fund, a regression model based on equation (1) shall be constructed to determine alpha coefficients as a measure of active investment policy.

In the first method, a measure of stability of mutual funds investment policy shall be a beta coefficient assigned from the equation:

$$\alpha_{A,t} = \alpha_A + \beta_A \alpha_{A,t-1} + \varepsilon_{A,t} \tag{2}$$

Its value close to zero shows negligible tendency to change the investment policy in the consecutive weeks. It should be noted that value of beta coefficient different from zero, no matter which direction, gives evidence of active management, but does not indicate whether it was profitable or not. This question should be answered by analyzing an additional rate of return achieved by the mutual funds during the period considered, but this is not a subject of interest in this work. In the next step, the average beta factor (arithmetic average) shall be calculated for all analyzed funds. Considering the fact that the accepted level of significance is different from zero or not, its interpretation is analogous to the above, and the proposals are for the entire market.

In the second method, each week, the funds are arranged with respect to the value of coefficients α_A, and then Spearman rank correlation coefficients are calculated for the consecutive weeks. The value relating to the size of the entire market shall be, at this time, the arithmetic average of values obtained, together with the test of its significance.

Another method is based on a contingency table consisting of four cells, which are assigned labels: previous loss / future loss, previous loss / future gain, future loss / previous gain, future gain / previous gain.

For example, the first cell (previous loss / future loss) gives the number of funds which, in any pair of consecutive weeks, could be characterized by the following behavior: in the first of them, the ratio α_A had a value lower than the median and in the second as well. If a fund in the first couple of weeks was characterized by a coefficient lower than the median and another – bigger, it would increase the value specified in the cell with the label: previous loss / future profit. At the end, a significance test verifies the hypothesis that the number given in at least one cell is equal to 25% of all values. The adoption of such a hypothesis demonstrates a lack of connection between the investment decisions taken in the following weeks – that is the investment stability of mutual fund market.

CONSTRUCTION OF FACTOR MARKET AND SELECTION OF FUNDS

The discussed methods for investment stability analysis are three ways of deduction on an active behaviour of the investment funds market, and they have been discussed in the works of [Cahart 1997], [Hendricks D. et al. 2008], [Derwall et al. 2008]. It should be noted that, in their original formulation for determination of active investment policy measures, a multi-index model was used. In this paper, the authors have decided to consider a variant that takes into account only one factor, which is an index constructed on the basis of indexes of twelve stock exchanges in different regions of the world. For the purposes of the study, the following indexes have been taken into account: All Ord Austral, B-Shares Shanghai, Buenos Aires, Budapest BUX, Frankfurt DAX, DJ Industrial, London FTSE 100, Hang Seng H.Kong, Mexic IPC, NASDAQ US, NIKKEI 225 Tokyo, TSE-300 Toronto. Budapest is a 'representative' of European stock exchanges on the basis of some arbitrary, but the authors wanted to avoid the consideration of Polish market, as mutual funds investing abroad have a few shares listed in Poland. The studies took into account the values of shares of funds investing in global developed markets and in global emerging markets. Therefore, the market factor constructed by the authors, includes indexes of the respective markets, stock exchanges, not all, but in our opinion – the representative ones. The mutual funds investing their shares in global emerging markets, in their informational brochures, also mention the countries of Central and Eastern Europe, Russia or Poland. Budapest Stock Exchange was chosen as a representative of those countries. Since the index stores and counting methodologies are different, the value of each of them is related to a base value, that is the value on the last day of December 2002. The global index is a weighted average of the components in which the weights are the shares of each index (after normalization to its base value) in the global index.

The chart shows the course of the index in the study period, i.e. from 31 May 2006 to 30 April 2010. The 31 May 2006, is the date of the first quotation of funds – Arka BZ WBK Funduszy Akcji Zagranicznych FIO (FIO Foreign Equity Funds). This period was

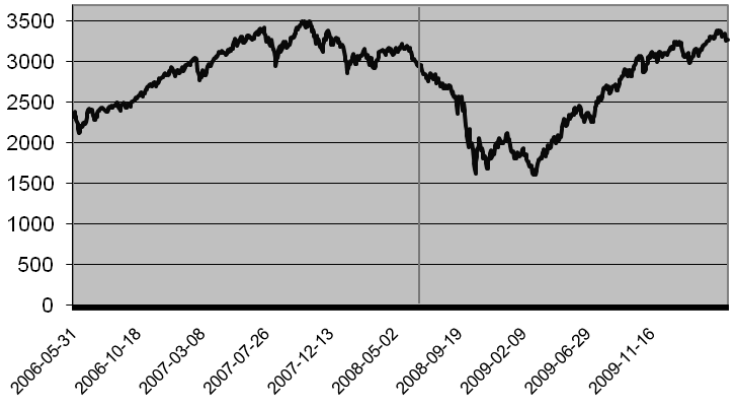

Fig. 1. Chart of the global market index
Rys. 1. Wykres indeksu rynku globalnego.

Source: Own study based on data from Bossa.pl
Źródło: Opracowanie własne na podstawie danych z Bossa.pl

divided into two sub-periods: I from 31 May 2006 to 27 June 2008 and II from 30 June 2008 to 30 April 2010. The division takes place in conventional mid-crisis, and it is intended. An active policy means taking into account the situation on financial markets, the search for profitable investments, which always exist, and not giving up to the trend. In each of the sub-periods, three methods of analysis of activity have been used, separately for the funds declaring investment in developed markets and emerging markets. In Table 1, the names of the funds that were listed in different periods are placed.

Table 1. Funds investing in global developed and emerging markets in I and II period
Tabela 1. Fundusze inwestujące w globalne rynki rozwinięte i wschodzące w I i II okresie

	Funds investing in global developed markets	Funds investing in global emerging markets
I Period	Arka BZ WBK Funduszy Akcji Zagranicznych FIO (FIO Foreign Equity Fund) Skarbiec Top Funduszy Zagranicznych FIO (FIO Foreign Funds)	Allianz Globalny SFIO Subfundusz Allianz Akcji Rynków Wschodzących (Emerging Markets Equity Allianz Subfund) Ampliko SFIO Parasol Światowy Ampliko Subfundusz Akcji Rynków Wschodzących (Emerging Markets Equity Subfund Ampliko World Umbrella) Pionieer FG SFIO subfundusz Akcji Rynków Wschodzących (Emerging Markets Equity Subfund) PKO ŚFW – SFIO Subfundusz Rynków Wschodzących (Emerging Markets Subfund)
II Period	ALIOR SFIO Subfundusz Alior Stabilnych Spółek (Stable Companies Alior Subfund) Arka BZ WBK Funduszy Akcji Zagranicznych FIO (FIO Foreign Equity Funds) BPH FIO Parasolowy Subfundusz BPH Subfundusz BPH Akcji Globalnych (Global Equity BPH Subfund BPH Umbrella Subfund) ING SFIO Subfundusz Globalny Spółek Dywidendowych (Dividend Companies Global Subfund) PZU SFIO Globalnych Inwestycji PZU Subfundusz Akcji Rynków Rozwiniętych (Developed Markets Equity Subfund PZU Global Investments) SKARBIEC Top Funduszy Zagranicznych FIO UniFundusze FIO Subfundusz UniMaxZagranica (UniMaxForeign Subfund FIO Unifund FIO Foreign Top Funds)	Allianz Globalny SFIO Subfundusz Allianz Akcji Rynków Wschodzących Ampliko SFIO Parasol Światowy (Emerging Markets Equity Allianz Subfund Ampliko SFIO World Umbrella) Ampliko Subfundusz Akcji Rynków Wschodzących (Emerging Markets Equity Subfund) ING SFIO Subfundusz Rynków Wschodzących (Emerging Markets Subfund) INF SFIO Subfundusz VIP Funduszy Akcji Rynków Wschodzących (Emerging Markets Equity Funds VIP Subfund) Pionieer FG SFIO Subfundusz Akcji Rynków Wschodzących (Emerging Markets Equity Subfund) PKO ŚFW – SFIO Subfundusz Rynków Wschodzących (Emerging Markets Subfund)

Source: Own study based on Money.pl
Źródło: Opracowanie własne na podstawie Money.pl.

The study covers the period from 2006 to 2010, because not until this period did the offering funds investing in foreign markets begin to appear, before this, it occurred occasionally and did not occupy much attention. Moreover, only after Poland's accession to the EU in 2004 and changing foreign exchange law did the opportunity of investing outside the home country arise.

MARKET STABILITY TEST OF POLISH FIO INVESTING IN GLOBAL MARKETS

According to the assumptions set out in the discussion of methodological assumptions, the starting point was to determine the characteristic line for each fund based on weekly changes of shares, equation (1). In the next step, beta coefficients appearing in equation (2) were found. In both cases, the structural parameters were estimated with the use of classical least squares method. It should be noted that verification of both regression models have not always confirmed the fulfillment of all assumptions. However, taking into account the fact that in further research the average value of beta coefficients and Spearman average coefficients appeared, it can be assumed that the negative aspects of lack of positive verification of individual assumptions of Classical Least Squares are averaged and do not have a major impact on the results obtained.

The effects of the application of I method is shown in Table 2. With the exception of the first period for mutual funds investing in global developed markets, for all the others, the null hypothesis that the average beta value is zero was not rejected at significance level of 0.05.

It can therefore be concluded that, apart from the exception mentioned, the analyzed market funds show no tendency to actively adapt to changing market conditions. A correlation between markers of active investment policy, such as alpha coefficients, is zero. The only exceptions are funds investing in developed markets and only in the first period considered, which contains the beginning of financial crisis. Indeed, a different from zero beta value indicates a correlation, but it does not indicate whether the described changes in policy were beneficial to customer of mutual funds. But looking at the change of units, it can be unambiguously stated that it was unfavorable. Consequently, the result can be interpreted to the detriment of the management. Indeed, a different from zero, the value of average beta coefficient for market funds which invest assets in developed markets testifies to the fact that the crisis was reflected in those funds particularly negatively.

Table 2. Average values of beta coefficients and standard errors
Tabela 2. Średnie wartości współczynników beta i błędy standardowe

I period (from 31–05–2006 to 27–06–2008)		II period (from 30–06–2008 to 30–04–2010)	
Emerging markets	Developed markets	Emerging markets	Developed markets
–0.111	–0.109	0.023	0.046
Standard deviation			
0.239	0.011	0.083	0.062

Source: Own study.
Źródło: Opracowanie własne.

Table 3 presents average values of Spearman coefficients. In case of mutual funds investing in global developed markets, it was not possible to determine the value of the coefficient in I period (due to insufficient data), hence no values are indicated in the table. The null hypothesis of insignificance of average rank correlation coefficients, with the adopted level of significance, was not rejected for all test periods, for which it was possible to designate the coefficient of Spearman.

Table 3. Spearman rank average correlation coefficient
Tabela 3. Średnie wartości współczynników korelacji rangowej Spearmana

I period (from 31–05–2006 to 27–06–2008)		II period (from 30–06–2008 to 30–04–2010)	
Emerging markets	Developed markets	Emerging markets	Developed markets
0.235	No data	0.042	–0.121
Standard deviations			
0.544		0.447	0.457

Source: Own study.
Źródło: Opracowanie własne.

The obtained results fully confirm the conclusions from I method. Of course, with the exception of developed markets funds, which this time do not appear. As a consequence, the lack of correlation between measures of active investment policy in the consecutive weeks can be observed. This conclusion applies to both periods, both the formation of financial crisis (I period), and the upturn (II period).

Tables 4 and 5 present the results of the last method, using a contingency table. Using the chi-square statistics, the null hypothesis test assumes that the value of the table is 25% in all of its cells. The null hypothesis in all cases where such a table could be determined was not rejected.

Table 4. Contingency table for I period
Tabela 4. Tablica kontyngencji dla I okresu

	Future loss		Future gain	
	Emerging markets	Developed markets	Emerging markets	Developed markets
Previous loss	29.41%	–	23.53%	–
Previous gain	23.53%	–	23.53%	–

Source: Own study.
Źródło: Opracowanie własne.

Table 5. Contingency table for II period
Tabela 5. Tablica kontyngencji dla II okresu

	Future loss		Future gain	
	Emerging markets	Developed markets	Emerging markets	Developed markets
Previous loss	26.98%	30.61%	23.02%	26.53%
Future gain	23.02%	26.53%	26.98%	16.33%

Source: Own study.
Źródło: Opracowanie własne.

The results obtained using a contingency table fully confirm previous findings, with the sole responsibility, it can be confirmed that they are not optimistic in terms of customer funds.

FINAL REMARKS

It is worth noting that the study of the effectiveness of entire markets, not individual mutual funds, provide global information, because shares of each mutual fund are averaged. This does not preclude the possibility of achieving a 'fair' profit by individual funds. And so this is what is happening. There are relevant investments, which translate into an increase in shares in a short period of time, even in bear markets, but often do not translate into the results of the entire market. The study of randomness of investment performance [Karpio et al. 2008] clearly indicates that such a behaviour is generally random, it is difficult to distinguish strong leaders maintaining their position in the long term. Such conclusions apply to both equity and balanced funds, so those that have particularly a lot of opportunities for the portfolio selection of assets. Polish stock market provides many opportunities for doing so, but everything indicates that managers do not work very carefully on their commission.

Previous studies of the authors on the Polish market of equity and balanced mutual funds performed using the three methods described above yielded slightly different results [Karpio et al. 2009]. In the years 2003–2009, the equity market was characterized by an activity displaying significantly different from zero the values of average coefficient of Spearman. The same conclusion stemmed from the third method. In this case, only equity funds were analyzed , but, as it turns out, the balanced fund market behaves identically. In the case of Polish market, investment opportunities, on the one hand, are quite large, since the stock market gives the possibility of selection of profitable assets even in a poor economic condition. On the other hand, the interest in the funds on the part of customers translate into their assets of the order of 90, or in the best period of almost 140 billion PLN, which makes the Polish market small. Hence, an investment opportunity in foreign markets becomes interesting. However, greater care of the managers in selecting investments should go hand in hand, and active management – should lead to very different results than those observed in this study. The authors hope that in the future the situation shall change, because awareness of the investment of Polish society is rapidly increasing, and the pressure on managers must bring a positive effect to their benefit and to the investment fund market. Global markets offer greater opportunities for customers to multiply money by selecting the portfolio of growing companies, even during the financial crisis.

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STABILNOŚĆ STRATEGII POLSKICH OTWARTYCH FUNDUSZY INWESTYCYJNYCH INWESTUJĄCYCH NA RYNKACH GLOBALNYCH W OKRESIE KRYZYSU FINANSOWEGO*

Streszczenie. Autorzy podjęli próbę analizy stabilności strategii inwestycyjnych polskich otwartych funduszy inwestycyjnych lokujących aktywa na rynkach globalnych. Badania objęły lata 2006–2010, czyli również okres kryzysu finansowego. Analizę przeprowadzono metodami statystycznymi wykorzystującymi linię regresji, współczynnik korelacji rangowej Spearmana oraz tablicę kontyngencji. Wszystkie trzy metody oparte są na współczynnikach alfa w liniach charakterystycznych funduszy traktowanych jako miary aktywnej polityki inwestycyjnej zarządzających. Na cele pracy autorzy skonstruowali czynnik rynkowy oparty na indeksach największych giełd. Uzyskane wyniki porównano z tymi, które otrzymano wcześniej dla rynku polskiego i funduszy akcyjnych.

Słowa kluczowe: otwarty fundusz inwestycyjny, linia regresji, współczynnik korelacji rangowej Spearmana, tablica kontyngencji, efektywność inwestycyjna.

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SYSTEM OF AGRICULTURAL STRUCTURAL PENSIONS IN POLAND AFTER THE YEAR 2000 BASED ON THE EXAMPLE OF THE SELECTED COUNTIES IN WARMIŃSKO-MAZURSKIE AND MAZOWIECKIE VOIVODSHIPS

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Abstract. The aim of the survey was to conduct evaluation of functioning of the system of agricultural structural pensions in Poland (on the base of the secondary data originating from the Agency for Restructuring and Modernisation of Agriculture and Ministry of Agriculture and Rural Development) and the process of application for the structural pension from the perspective of the beneficiary (own survey). The questionnaire based survey covered 59 agricultural farms in Warmińsko-Mazurskie voivodship and 26 farms from Ciechanów County (Mazowieckie voivodship).

Key words: agricultural farms, agricultural policy instruments, structural pensions

INTRODUCTION

In 2009, rural areas occupied 93.2% of the area of the country and were populated by 14.9 million people, i.e. 39.0% of the population of Poland. The structure of land use in rural areas was dominated by agricultural land that in 2009 represented 61.9% of such land (including arable land 45.8%) and forest, wooded and bushy areas representing 30.9% of the total area [Obszary wiejskie w Polsce… 2011].

The system of structural pensions represents one of the forms of the Rural Development Programme (RDP). Providing the permanent source of income for people operating agricultural farms and general restructuring of the entire structure of farms represents its main objective. Structural pensions are to encourage owners of agricultural farms in pre-retirement age that are subject to social insurance to abandon agricultural activities and transfer ownership of the farm in a way supportive to improvement of the agricultural

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structure [Plawgo 2005]. That activity also aims, to a certain extent, at allowing allocation of land characterised by low productivity to non-agricultural use. Structural pensions are an instrument mitigating the consequences of agricultural transformations in rural areas and providing income for people resigning the conduct of agricultural activity they are to contribute to increasing the profitability of agriculture [Mierosławska 2008, Program… 2007, Pięta 2007].

Before the accession of Poland to the European Union few farmers benefited from structural pensions because the Act of 01.01.2002 on structural pensions governing that form of benefits imposed numerous legal limitations. Difficulties impossible to overcome by many people existed such as, for example, the requirement that the farm had to be at least 3 ha in area; additionally, if one of the spouses operating the farm did not satisfy the requirements, both were not eligible to the pension [Paszkowski 2004]. It should also be added that the amount disbursed as the pension was lower than now mainly as a consequence of the fact that before accession to the EU it was funded from the State budget only and the State was not prepared for that to the satisfactory extent. The Agricultural Social Insurance Fund (KRUS) was the institution responsible for receiving applications for pension benefits and for disbursement of those benefits.

The situation has changed after accession of Poland to the EU in 2004 when the criteria of applying for the structural pension changed. They became less stringent as a result of which many more people could obtain the above benefit and as a consequence of which a much larger number of people possessing agricultural farms applied for them. Additionally, with the accession to the European Union the amounts disbursed increased thanks to the subsidies from the European Agricultural Guidance and Guarantee Fund (EAGGF). This contributed to the situation that during the recent years an increase in the rural population in relation to the urban population has been recorded [Rutkowska 2005]. As of 2004, that activity is serviced by the Agency for Restructuring and Modernisation of Agriculture (ARMA).

Proposals for implementation of a system of agricultural structural pensions in Poland appeared already during 1990s. The decrease in the number of farms by 840000 by 2010 was assumed. That target was to be achieved by, among others, the earlier mentioned agricultural pensions as well as training preparing for a change of profession that were targeted at owners of agricultural farms with the land area of under 5 hectares. The programme, however, was not completed as its influence on structural transformations was low as a consequence of conditions of cultural– lack of willingness among farmers to pass the land outside the family, economic – lack of jobs, and low level of benefits offered [Paszkowski 2004].

METHODOLOGY AND SCOPE OF RESEARCH

Within the frameworks of this research project an attempt was undertaken at evaluation of functioning of the system of agricultural structural pensions in Poland. For that purpose the secondary data originating from the Agency for Restructuring and Modernisation of Agriculture and Ministry of Agriculture and Rural Development concerning the dynamics of transfer of agricultural farms in Poland for structural pensions during the years 2002–

–2006, change in the number of agricultural farms in Poland during the years 2004–2007, including agricultural farms transferred for enlargement of another farm were used.

The evaluation of the selected aspects of the process of applying for the structural pension from the perspective of the beneficiaries was conducted on the base of the results of direct survey conducted using the survey questionnaire during the 4th quarter of 2009. The survey covered the group of 59 persons previously operating agricultural farms in Bartoszyce, Ełk and Mrągowo Counties (Warmińsko-Mazurskie voivodship) and 26 beneficiaries from Ciechanów County (Mazowieckie voivodship) that obtained benefits in the form of the agricultural structural pension. The questionnaire consisted of 24 questions. The first part of the questionnaire concerns the degree of clarity of structural pension award principles while the second part the methods and forms of farm transfer, including participation of the persons in the common household after the transfer of the farm to the successor and opinions concerning the level of benefits disbursed.

HISTORY OF STRUCTURAL PENSIONS IN POLAND

The system of agricultural structural pensions has been in operation in Poland since 2002. Until now the programme of structural pensions has been delivered in two stages. Currently they are awarded and disbursed within the frameworks of the programming period of 2007–2013. During the period of functioning of structural pensions the conditions of obtaining eligibility to the pension and the principles related to the land transfer were subject to certain changes. They resulted mainly from the current experience and aimed at improvement of the effectiveness of the instrument possessing the form of structural pension.

During the period preceding the accession of Poland to the European Union the average farm size in Poland was more than 10 ha less than in the EU, which contributed to the situation that Polish farmers were unable to compete with the farmers from the EU Member States. The fragmentation of agricultural farms in Poland is the weakness contributing significantly to low competitiveness of those farms [Zarębski 2002]. The majority of agricultural farms in Poland were concentrated in the area group of up to 1 ha of agricultural land. Such farms represented 27% of the total number of farms in Poland. Additionally, farms up to 5 ha of agricultural land represented 68% of the total number of farms. However, according to Zegar [2010], evaluation of the agricultural structure requires considering not only the number and size of the farms but also the distribution of production-economic parameters in agriculture. If the number of small and very small farms increases the number of farmer families for which farming could provide sufficient income. For that reasons, among others, the Act on structural pensions was enacted on the 26th of April 2001.

During the years 2002–2004, few farmers transferred the agricultural farms as a consequence of high requirements and low benefits. In 2002, ca. 1206 application for pension were lodged. Out of that number only 63,76% satisfied the initial requirements and as a consequence only 38% resulted in pension award. During the consecutive year the number of applications was even smaller, just 587. That was far from the projections that assumed that around 8000 applications would be lodged [Sikorska-Wolak 2006]. It can be

assumed that many farmers expected better conditions of receiving the pension benefits after accession to the European Union. The information campaign concerning that activity was also not as effective as during the following years [Kisiel et al. 2008].

In the whole country the number of farms transferred during the years 2004–2006 (as at 31.07.2007) was 83 times higher than the number of farms transferred during the years 2002–2004. The total percentage of farms encompassed by the programme of structural pensions before the accession was just 0.03% of all the farms in the country while during the years 2004–2006 it reached almost 3%. After Poland's accession to the European Union the situation changed drastically. This is confirmed by the number of farms transferred after 2004 as compared to the number of farms transferred during the preceding years (Table 1).

During the years 2004–2006, the majority of farms covered by the structural pensions were transferred for enlargement of other farms. A small number was transferred for other purposes such as afforestation, to the State Treasury or for the purposes of environment. As a consequence the improvement in the structure of farms could take place as a consequence of transferring them for enlargement of other, already existing, farms mainly [Informacja... 2008].

Table 1. Dynamics of transfer of farms in Poland in exchange for structural pensions during the years 2002–2006 (as at 31.07.2007)

Tabela 1. Dynamika przekazywania gospodarstw rolnych w Polsce za renty strukturalne w latach 2002–2006 (stan na 31.07.2007 r.)

Voivodship	Number of farms	Average farm area (ha)	Farms transferred	
			2002–2004	2004–2007
Dolnośląskie	82 836	9.6	52	2 875
Kujawsko-Pomorskie	79 222	12.3	89	4 156
Lubelskie	223 132	6.6	46	5 465
Lubuskie	31 783	9.8	4	554
Łódzkie	164 806	6.7	53	5 772
Małopolskie	216 675	3.2	2	2 385
Mazowieckie	291 454	7.4	91	9 407
Opolskie	41 656	9.3	42	1 560
Podkarpackie	198 452	3.5	12	2 601
Podlaskie	99 730	11.1	73	4 391
Pomorskie	53 607	12.9	28	1 574
Śląskie	110 766	3.9	7	1 485
Świętokrzyskie	125 643	4.7	14	3 322
Warmińsko-Mazurskie	51 834	17.1	41	1 836
Wielkopolskie	138 962	10.8	69	4 903
Zachodniopomorskie	41 168	16.2	23	1 300
Total	**1 951 726**	**7.4**	**646**	**53 586**

Source: Halamska M. 2006. Renty strukturalne a przemiany polskiej wsi. Uwagi socjologa. Wieś i Rolnictwo, 2(131): 58–67 and data of the Agency for Restructuring and Modernisation of Agriculture at www.arimr.gov.pl/fileadmin/pliki/zdjecia_strony/407/renty_1.pdf, access on: 8.06.2011).

Źródło: Halamska M. 2006. Renty strukturalne a przemiany polskiej wsi. Uwagi socjologa. Wieś i Rolnictwo, 2(131): 58–67 and data of the Agency for Restructuring and Modernisation of Agriculture at www.arimr.gov.pl/fileadmin/pliki/zdjecia_strony/407/renty_1.pdf, access on: 8.06.2011).

Own studies [Kisiel et al.] conducted in 2006 and encompassing over 4000 farms in all the counties of Warmińsko-Mazurskie voivodship indicated that farmers expressed very positive opinions concerning the current system of structural pensions. As many as 9.75% of the respondents provided information that members of their families exercised the possibility of ceasing their farming activities and opted for the structural pension. At farms where that instrument of the Common Agricultural Policy was used generally just one person opted for it; that situation was recorded in 79.39% of cases in that group. More than a half of the people retiring for that pension (58.85%) still remained in the common household but only 36.44% of them still helped in running the farm. In more than ¾ of the cases (84.23%) the farms were passed to another member of the family and only in 7.31% of cases the land was sold.

In the scale of the country, during the years 2004–2007, a significant decrease in the number of farms with the area exceeding 1 ha could be observed (Table 2). From among those farms 28 516 were transferred for enlargement of other farms, which means that those farms were liquidated. It should also be noticed that they represented almost 60% of all the farms exceeding 1 ha liquidated during those years in Poland.

In some voivodships the number of transferred farms was higher than the decrease in the number of farms during those years, i.e. in Mazowieckie and Podlaskie voivodships,

Table 2. Changes in the number of farms in Poland during the years 2004–2007
Tabela 2. Zmiany liczby gospodarstw rolnych w Polsce w latach 2004–2007

Number of farms exceeding 1 ha of agricultural land				
Voivodship	year		change in the number of farms	farms transferred for enlargement of other farm(s)
	2004	2007		
Dolnośląskie	76 559	73 549	–3 010	1 806
Kujawsko-Pomorskie	75 771	73 197	–2 574	2 473
Lubelskie	210 550	222 389	11 839	3 147
Lubuskie	35 534	33 608	–1 926	310
Łódzkie	159 926	155 691	–4 235	3 063
Małopolskie	202 927	195 288	–7 639	766
Mazowieckie	278 831	275 961	–2 870	5 165
Opolskie	36 582	36 487	–95	955
Podkarpackie	185 444	182 123	–3 321	920
Podlaskie	95 002	93 602	–1 400	2 691
Pomorskie	52 419	46 312	–6 107	902
Śląskie	97 529	83 642	–13 887	620
Świętokrzyskie	116 875	115 270	–1 605	1 392
Warmińsko-Mazurskie	50 019	47 788	–2 231	1 202
Wielkopolskie	132 691	135 829	3 138	2 257
Zachodniopomorskie	49 570	37 309	–12 261	847
Total	**1 856 229**	**1 808 045**	**–48 184**	**28 516**

Source: Information concerning the influence of the measure "structural pensions" on improvement of the area structure of farms. 2008: Ministry of Agriculture and Rural Development.
Źródło: Informacja dotycząca wpływu działania „renty strukturalne" na poprawę struktury agrarnej gospodarstw, 2008: Ministerstwo Rolnictwa i Rozwoju Wsi.

or lower than the increase in the number of farms, e.g. in Lubelskie voivodship. His means that simultaneously with liquidation of farms in exchange for structural pensions new production units were established, which might have resulted from, e.g. division of the already existing farms into smaller ones.

During the period of 2007–2013, 2.2 billion EUR was planned for structural pensions of which 1.5 billion EUR (67%) represented liabilities to beneficiaries from stage one. That situation resulted from the fact that stage one lasted for 3 years while the liabilities were extended over 10 years. This limited the level of expenditures for the current liabilities, which undoubtedly is unfavourable for the farmers. It is projected that during the programming period ca. 7200 persons a year will receive the structural pension [Gawłowski, Mickiewicz 2009].

RESULTS OF SURVEYS AND DISCUSSION

Within the frameworks of the RDP 2004–2006, 1922 applications representing 3.42% of all the applications lodged were lodged in Warmińsko-Mazurskie voivodship. As at 31.07.2007, 1836 agricultural farms were transferred and the total value of payments made was PLN 66 253 768,89 (3.67% of all the payments made in the country (Informacja… 2007). The largest number of lodged with the Agency for Restructuring and Modernisation of Agriculture offices that were considered was lodged in Mazowieckie voivodship – 9902 applications (representing 17.6% of all applications lodged in the country. As a result of the review of applications 9407 farms with the total area of 82 301 ha were transferred in that voivodship. Consideration of those applications resulted in the disbursement of the amount of PLN 311 440 031,59 in Mazowieckie voivodship that represented 17,33% of the total amount used for implementation of that measure in the country.

Within the frameworks of the Measure "Structural pensions RDP 2007–2013" during the campaign of 2007 and the campaign of 2008 the total of 763 applications were lodged in Warmińsko-Mazurskie voivodship while the disbursements made amounted to PLN 13 486 331,62 which represented ca. 4.35% of the entire amount disbursed during those campaigns in all voivodships [Informacja… 2007]. Similar to the first programming period, also during this programming period the largest number of applications – 2696 (26.17% of all the applications) was lodged in Mazowieckie voivodship.

The number of applications lodged during the latest programming period was much lower than during the RDP 2004–2006 and the disbursements made were also lower. During the years 2007–2008 they amounted to almost PLN 310 million while during the period of 2004–2006 the amount of disbursements reached almost PLN 2.5 billion.

The questionnaire based surveys conducted indicate that the vast majority of the respondents applied for the structural pension within the frameworks of the RDP 2004––2006. In each county of Warmińsko-Mazurskie voivodship the proportion of such applicants was around 75% of the respondents while in Ciechanów County the beneficiaries represented 53.85%. That fact matches the data provided by the Agency for Restructuring and Modernisation of Agriculture and proves that during those years the pensions were received positively by the farmers. It should also be noticed that the benefits disbursed for

structural pensions within the frameworks of the RDP 2004–2006 were definitely higher than the pensions and disability pensions disbursed on the base of the Act of 1990 on the social insurance of farmers (Paszkowski 2007).

The principles of awarding the structural pensions changed with the change of the programming period. Among the surveyed group of respondents from four counties almost 70% declared that the principles were clear or rather clear while for only 4% of the respondents the principles on which they applied for such benefits were unclear (Figure 1). It can be stated then that the farmers considered the system of structural pensions favourable and the procedures of applying for such pensions posed no major difficulties to them.

Among the respondents from Ciechanów County for 80.77% completing the application for the pension presented no difficulty, although 5 persons (19.23%) had difficulties related to the register lots and enclosures. 50% of the applicants did not complete the applications on their own but used assistance of the spouse, son or an employee of the county office of the Agency for Restructuring and Modernisation of Agriculture.

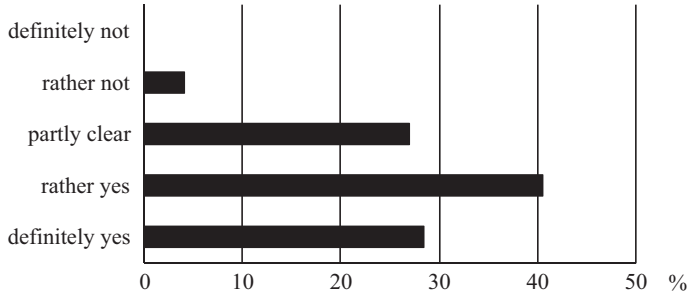

Fig. 1. Degree of clarity of the principles of structural pensions' award
Rys. 1. Stopień zrozumiałości zasad przyznawania rent strukturalnych

Source: Own work based on surveys.
Źródło: Opracowanie własne na podstawie badań.

In case of the respondents from the counties of Warmińsko-Mazurskie voivodship, the persons that confirmed difficulties in completing the applications indicated completing the enclosures as the major problem (21.4% of the respondents indicating difficulties). The lowest number of difficulties was indicated by residents of Bartoszyce County; in that county the applications were also completed by the applicants themselves the most frequently. Respondents from Ełk County indicated the largest difficulties in both completing the applications and completing the enclosures. Ełk County is the county most distant from the Agricultural Extension Services Centre, which might have been the cause of poorer information for the applicants.

In the surveyed counties of Warmińsko-Mazurskie voivodship the majority of programme participants (52.5%) transferred their farms to their successors. The situation in Ciechanów County was similar. The respondents had no problem finding a person to take over the agricultural farm as 84.62% of the successors were members of the family. The applicants are more willing to transfer their farms to their keen in most cases remaining with them in the common household (Figure 2).

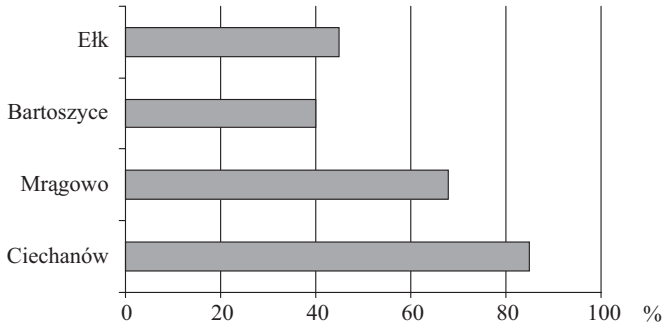

Fig. 2. Share of persons remaining in the common household after transferring the farm to the successor

Rys. 2. Udział osób pozostających we wspólnym gospodarstwie domowym po przekazaniu gospodarstwa następcy

Source: Own work based on surveys.

Źródło: Opracowanie własne na podstawie badań.

The data presented in figure 2 indicate that in the counties covered significant differences in the proportion of persons remaining in the common household after transferring the farm to the successor can be noticed. The lower average indicator for all the counties of Warmińsko-Mazurskie voivodship as compared to Ciechanów County may result from the differences between regions that exist in the rural areas of Poland that have their roots in the long time tradition, culture and attitude to the land. Warmińsko-Mazurskie voivodship is not a region with well-established rural population as opposed to the voivodships of southern or central Poland where family ties are of major importance and farms are passed from generation to generation.

Transfer of the agricultural farm to a family member is unfavourable because in that way only few farms are liquidated and, as is well known, the major objective of structural pensions is to enlarge the already existing farms, which should contribute to improving their effectiveness. However, the programme covered just 3% of all farms in Poland. The average size of the farm exceeding 1 ha increased by 4% only. On the other hand, 47.5% of the people in the surveyed counties of Warmińsko-Mazurskie voivodship transferred their farms for enlargement of other, already existing farms. That indicator had similar value in Ciechanów County – 46.15%.

To obtain the structural pension the beneficiary had to transfer the land in a permanent way, that is dispose of it through sale or donation. That requirement was compulsory in both programmes. Lease as a method of transfer of the farm was applicable during the programming period of 2004–2006 only and the lease period had to be 10 years at minimum. People that transferred their land in the form of a donation formed the largest group of the respondents and in Ciechanów County such people represented 84.61% of the respondents. Only in the counties of Ełk and Ciechanów the beneficiaries opted for land lease to obtain the benefits in the form of the structural pension (Figure 3) while land sale was the most frequently employed option in Bartoszyce County (44%).

Currently the basic structural pension is 150% of the lowest pension. As of March 1, 2010 the lowest guarantied pension is PLN 706.29 and as a consequence the basic

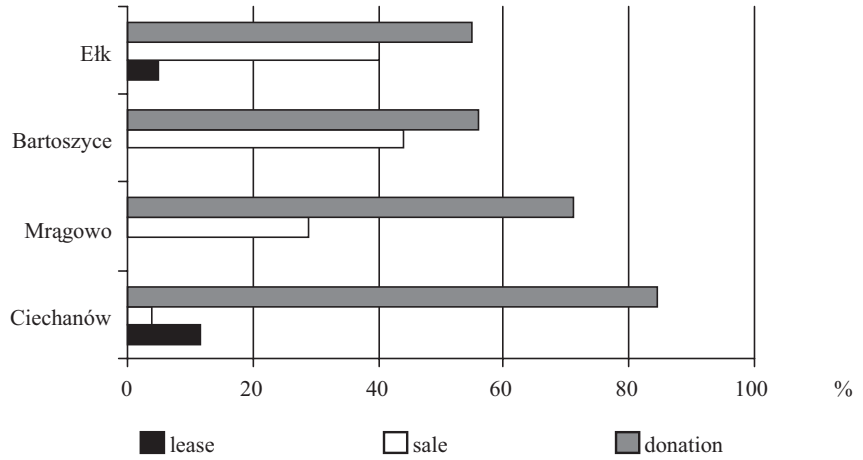

Fig. 3. Forms of transfer of agricultural farms
Rys. 3. Formy przekazania gospodarstwa rolnego

Source: Own work based on surveys.
Źródło: Opracowanie własne na podstawie badań.

amount of the structural pension is PLN 1059.44. The surveys conducted indicate that in the counties of Mrągowo and Bartoszyce the awarded pension amount is sufficient to satisfy the life needs of farmers while in case of Ełk county 70% of the respondents were disappointed with the amount of pension received. In that county also the largest percentage of the respondents opted for the structural pension together with the spouse (65%), which means that their pension was increased by 100% of the minimum pension. More than a half of the beneficiaries from Ciechanów County (65.38%) were satisfied with the amount of the benefit received. Its amount during the years 2004–2006 was at the level of PLN 1800, however during the following programming period it was subject to a significant decrease to ca. PLN 1050. At the same time a similar percentage of the respondents (53.85%) benefited from the privilege offered at transition to the structural pension, which is they left to themselves 0.5 ha of agricultural land that serves satisfying own needs.

It can be assumed that the amount of PLN 1765.73 is not satisfactory to meet all the needs of the household if it is the sole source of support. Additionally, the minimum wage for work as of January 1, 2011 amounts PLN 1386. In case one of the spouses retires on the structural pension and the other takes a full time job (with the remuneration at the level of the minimum wage), they generate jointly the income at the minimum level of PLN 2445.29, which is significantly higher than the amount of pension awarded in case when both spouses retire for the structural pension.

Going back to the levels of payments during the last two programming periods (of which the second one is still in progress), the farmers can currently receive the maximum disbursements lower by over PLN 1000 than during the years 2004–2006. Additionally, it can be noticed during the recent years that the largest number of applications for the structural pension are lodged by farmers residing in voivodships with reasonably good structure of agriculture while the farmers living in voivodships with

worse agricultural structure show less interest in that instrument. The largest numbers of applications were lodged from Mazowieckie, Wielkopolskie, Lubelskie and Kujawsko-Pomorskie voivodships while Lubuskie voivodship had the lowest number of such applications [Gawłowski, Mickiewicz 2009].

CONCLUSIONS

From the very beginning of structural pensions programme the conditions that had to be fulfilled to be eligible for the pension have been becoming increasingly stringent while the value of the benefits has been decreasing continually, although still that benefit is more favourable for the farmer than the pension from the Agricultural Social Insurance Fund (KRUS) as it is one and a half times higher. After the accession of Poland to the European Union the number of applications lodged was much higher than during the earlier periods but during the current programming period significantly fewer farmers receive the structural pension as a consequence of not only more stringent requirements but also lack of funds for that measure. In Warmińsko-Mazurskie voivodship 1922 applications were lodged during the campaign of 2004–2006 while in 2007 and 2008 the number of applications lodged was just 40% of the number of previously lodged applications. In Mazowieckie voivodship the number of applications lodged during the first programming period was 5 times higher (9902 applications) than in Warmińsko-Mazurskie voivodship; during the initial 2 years of the RDP 2007–2013 the Agency for Restructuring and Modernisation of Agriculture received 2696 applications. Also in the whole country a decreasing trend can be noticed as the applications for the structural pension lodged during the years 2007–2008 represented only 30.36% of the number of applications lodged within the frameworks of the RDP 2004–2006. The improvement of the structure of agriculture as a whole by means of limiting the number of farms and as a consequence increasing the areas of the remaining farms is one of the goals of the structural pensions programme. In the scale of the country, during the years 2004–2006 it could be noticed that the majority of applicants for the structural pensions transferred their farms for enlargement of other farms.

Own studies conducted indicate that similar to the entire country the majority of applicants for structural pensions applied during the period of 2004–2006 (ca. 75% of the respondents in the surveyed counties of Warmińsko-Mazurskie voivodship and 53.85% in Ciechanów County). Despite the changing principles of applying for that benefit, for the vast majority of the respondents (70%) those principles were clear and the procedures of applying for the pensions did not pose major difficulty although frequently (50%) the applicants used assistance in completing the required documents.

Among the surveyed a significant diversity in the share of persons remaining in the common household after transfer of the farm to a successor because in all the counties of Warmińsko-Mazurskie voivodship that indicator was lower as compared to Ciechanów County. That situation could be the consequence of the differences between regions existing in Polish rural areas. Warmińsko-Mazurskie voivodship is not a region with well-established rural population as opposed to the voivodships of southern or central Poland where family ties are of major importance. From the perspective of the objectives for im-

plementation of the structural pensions system that situation is positive because transfer of the farm to a family member does not contribute to the expected extent to increasing the average farm area.

Own surveys conducted indicate that the level of satisfying the life needs of the respondents by the benefits varies because in Bartoszyce and Mrągowo counties the benefits awarded, according to the respondents, were sufficient to satisfy the life needs of the farmers while in Ełk County 70% of the respondents were disappointed with the amount of benefits they were receiving. More than a half of the beneficiaries (65.38%) from Ciechanów County were also satisfied with the amount of the benefits received. At the same time, 53.85% of the respondents exercised the privilege offered by applying for the structural pension and they left to themselves 0.5 ha of agricultural land that serves satisfying their own needs.

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SYSTEM ROLNICZYCH RENT STRUKTURALNYCH W POLSCE PO ROKU 2000 NA PRZYKŁADZIE WYBRANYCH POWIATÓW WOJ. WARMIŃSKO--MAZURSKIEGO I MAZOWIECKIEGO

Streszczenie. Celem pracy było dokonanie oceny funkcjonowania w Polsce systemu rolniczych rent strukturalnych (na podstawie danych wtórnych pochodzących z Agencji Restrukturyzacji i Modernizacji Rolnictwa oraz Ministerstwa Rolnictwa i Rozwoju Wsi) oraz procesu ubiegania się o rentę strukturalną z punktu widzenia beneficjentów (badania własne). Badaniem ankietowym objęto 59 gospodarstw rolnych woj. warmińsko-mazurskiego i 26 gospodarstw powiatu ciechanowskiego (woj. mazowieckie).

Słowa kluczowe: gospodarstwa rolne, instrumenty polityki rolnej, renty strukturalne

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AGROTOURIST ACTIVITY AS AN EXAMPLE OF FAMILY ENTREPRENEURSHIP

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Abstract. This article contains an analysis of the concept of entrepreneurship in the context of conducting an agrotourist activity. The Author, based on the results of empirical studies carried out in family agrotourist farms in Międzychodzki Poviat (Wielkopolskie Region), presents a possible process of family agrotourist farms transformation into business entities providing agrotourist services. She defines the concept of the family agrotourist farmas a farm providing agrotourist services as a secondary revenue-generating activity while not conducting business activity in the sphere of providing services for tourists. The article confirms the proposed thesis that family agrotourist farms belong to a specific group of 'entities' which are alike in the sphere of personal strategy and succession, structure and organizational culture.

Key words: agrotourism, agrotourism farms, entrepreneurship, management

INTRODUCTION

Entrepreneurship may be analyzed with regard to a number of aspects. Yet, in view of the topic of the problem discussed in this article, the economic and psychological aspects of entrepreneurship seem to be particularly important. Entrepreneurship in the economic meaning should be understood as the inherent ability of man to perceive the opportunities of undertaking profit rendering business activities and to take respective risk at their implementation [Schumpeter 1960]. However, in accordance with modern theories, the entrepreneurship is often narrowed down to the specific process of management (process-based methodology) and as such does not account for the personal features of the entrepreneur to sufficient extent, nor does it account for his abilities which allow him to apply the resources surrounding him [Targalski 2006]. Entrepreneurship in the psychological aspect may be defined as one of the human features which relates to how man determines his own manner of the satisfaction of his vital needs [Grzegorzewska-Mischka 2009]. In

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order to underline the economic and psychological aspects of entrepreneurship, particularly important in rural areas, this work will refer to the theory of Robert Hisrich, where he defines entrepreneurship as "the process of creating a new and positive value through the devotion of time and effort, the acceptance of the financial, psychological and social risk involved in view of the expected material and personal satisfaction" [Hisrich and Peters 1992]. The task of the author of the article is to adopt such approach to entrepreneurship which would most reliably reflect the entrepreneurship of running a tourist farm. The provision of farm tourism services is a new aspect of an agricultural farm whose business, as a rule, focuses on agricultural production but not on the provision of services. Moreover, to start the farm tourism business means accepting not only the financial risk but also the changes in the family relations and in the relations in the local community.

According to A.P. Wiatrak [2010], depending on the manner of running the business activity, we can distinguish:

a) independent entrepreneurship – distinguished with opening a new enterprise,
b) corporate entrepreneurship – comprising innovation in the already existing company or its expansion via establishment of new business entities.
c) individual entrepreneurship – limited to setting up and running one's own enterprise,
d) group entrepreneurship – characteristic for individual entrepreneurs acting jointly,
e) agricultural entrepreneurship – consisting of business activities performed within the farm area,
f) other agricultural entrepreneurship consisting of business activities performed outside the field of agriculture.

The provision of farm tourism services is therefore classified as non-agricultural business activity composed of business activities undertaken outside the field of agriculture, yet performed basing on the resources of a farm.

A family run enterprise may thus be defined as a business entity where the ownership and management functions are held by one family members [Jeżak, Popczyk, Winnicka-Popczyk 2004]. For the ownership and management criteria, farm tourism business activity can be classified as family run enterprise. However, tourist farms rarely operate as business entities, a majority of them are agricultural farms, which additionally render farm tourism services. This reluctance to set up businesses in the field of farm tourism services is certainly due to preferential financial and social conditions applicable to agricultural farms. On the other hand, it is the very factor which significantly reduces the chances for EU subsidies designated for small and medium businesses.

The analysis, in its further part, in accordance with the theory of P. Drucker [1992] assumes that not every enterprise must be characterized with entrepreneurship. Similarly, the author of this article has also assumed that not all the symptoms of entrepreneurship must be defined as running business activity.

METHODOLOGY

For the purpose of this analysis, the author has adopted a research hypothesis which assumes that family run tourist farms make up a specific group of 'entities' which show similarities in the field of personal strategies and succession, organizational structure and

culture. For the requirements of further analyses, the author of this article has defined a family run tourist farm as an agricultural farm which renders farm tourism services for additional profits [Art. 3 the Act... 2004] and which does not run business activity consisting in the provision of services to tourists. The empirical research was carried out in 2010, the research focused on owners of tourist farms located in Międzychód poviat. Questionnaires were carried out in the form of an interview and were extensive in their nature. The selection of the research area was motivated with high attractiveness of the poviat for the development of farm tourism and with the highest concentration of tourist farms in Wielkopolskie region. Owners of 41 tourist farms operating within the area of Międzychód poviat were invited to take part in the research. 3 farms refused to participate in the research, 2 other farms did not meet the criteria adopted for the purposes of this article for the definition of a family run tourist farm because income generated from this type of activity was the basic source of living of the family. Having accounted for the plausible conditions for carrying out the research, the respondents were limited to 36 owners or joint owners of the tourist farms and the research was effected in July 2010 via the application of the standard interview method.

RESULTS OF THE RESEARCH

According to J. Sikora [2008] "organizational structure is an internal structure of an organized entity, which concerns the layout of components and their interrelations (bonds)". It may be assumed that in such a specific entity as a family run tourist farm the scope of organizational bonds shall depend upon the size of the business and the presence of persons unrelated to the owners on the farm. According to Duczkowska-Małysz K. and Duczkowska-Piasecka M. [2006] the more the enterprise is focused on the agricultural farm, the closest its relations with local resources and most frequently the created work places are taken up by the members of the owners' family.

The provision of farm tourism services, even run on a small scale (renting up to 5 rooms) most often, however, requires the division of tasks and maintenance of a certain hierarchy in a family. The carried out research proved that among the tourist farms operating in the area of Międzychód poviat, the organizational structure similar to a radial structure prevailed (Figure 1). In the course of time, it may evolve into a linear structure if the farm owners can indicate the farmer playing the dominant role in the provision of farm tourism services and also if they can transfer part of the duties and supervision over them to other family members. Analyzing the research results it may be concluded that the allocation of certain tasks in the organizational structure of a family run tourist farm and scope of the duties falls mainly from the relations with regard to the farm owners.

Organizational culture is a group mind programming, which distinguishes members of one organization from the other [Hofstede 2000] provided that the process of creating the way of thinking and acting shall be accepted by the members of these organizations [Bolesta-Kukułka 1993]. As it has been mentioned earlier, in the case of tourist farms, the services rendered for the benefit of the tourists are mainly rendered by the persons related to the farm owners and the place of the services provision is the very place of residence of the owners and at least some of the co-workers. Therefore, accounting for

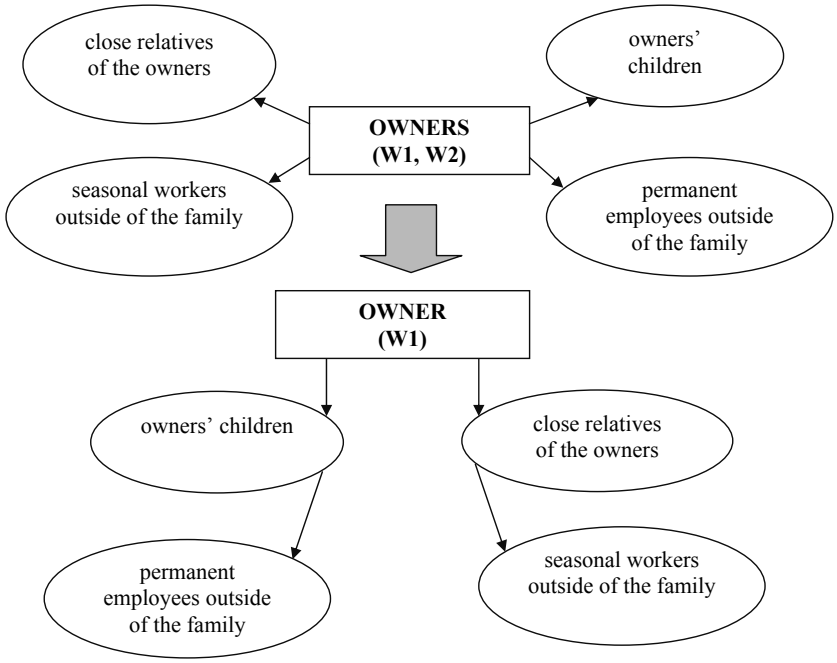

Fig. 1. Structural model of a tourist farm evolution in time
Rys. 1. Model struktury gospodarstwa agroturystycznego ewoluujący w czasie

Source: Own elaboration.
Źródło: Opracowanie własne.

the factors shaping the organizational culture in an tourist farm, in accordance with the typology of cultures by Cameron and Quinn [Cameron, Quinn 2003] it may be assumed that the clan culture (team) e most often prevails in the family run tourist farms, this culture type underlines the family nature of the enterprise, based on the communal spirit and the involvement of the employees – most often the family members or friends. The basic assumption of the clan culture is the management of the enterprise via team work and continuous development of the employees as well as their involvement and loyalty [Leśniewski 2010]. Fulfillment of the said tasks is easier in an tourist farm if the owners have precise succession plans, which may pose an additional encouragement to reaching joint business plans.

As the studies have shown, personal strategy applied in over 88% of the farms under the analysis assumes the provision of farm tourism services by the members of the family only . We may thus assume that in so organized and operating tourist farms, functional, technical and informative bonds will prevail. Personal strategy based mainly on own labour resources indicates the existing, yet hidden unemployment and also shows that family run tourist farms play a very small role in direct creation of work places in rural areas (Figure 2).

According to A. Nalepka [2001] in the case of a radial structure, characteristic of the newly set up enterprises, the owner manages a group of people on his own. In the case

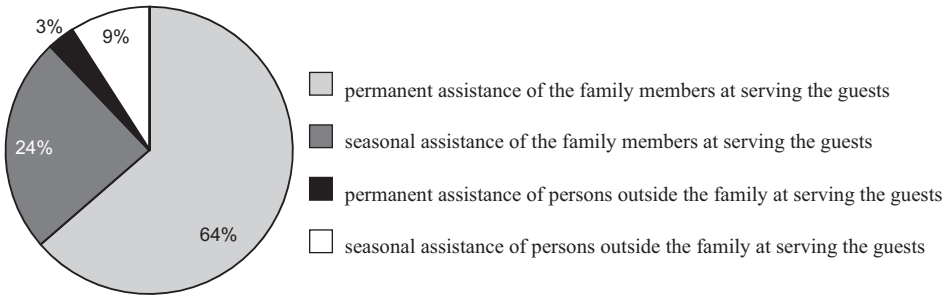

Fig. 2. Personal strategy applied in the farms under research
Rys. 2. Strategia personalna stosowana w badanych gospodarstwach

Source: Own research.
Źródło: Badania własne.

of tourist farms under research, the powers centralized in the hands of the owner, mostly both spouses (64%) covering the key areas of the farm operations, was the situation most frequently encountered. The powers covered such key areas of operations as: booking, guest serving, marketing activities.

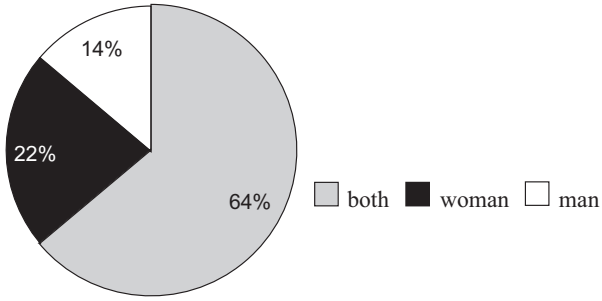

Fig. 3. Responsibility for rendering farm tourism services, accordingly to sex
Rys. 3. Odpowiedzialność za świadczenie usług agroturystycznych, wg płci

Source: Own research.
Źródło: Badania własne.

The research showed that traditionally understood relations husband-wife were transferred upon the tourist farm business activity and resulted in the „typical" division of duties (Figure 3). In the case of farms where both spouses were responsible for the provision of farm tourism services, the wives mainly did the cooking and cleaning and the husbands did the investments in the farm and provided leisure entertainment services for the guests (82% of respondents). Yet, despite the powers centralized in the hands of the service providers, they were quite rarely reserved for the decisions to be exclusively made by them .

Among the farms under the analysis we could observe a certain regularity, namely, in the case of the farms where both spouses were equally responsible for the provision of farm tourism services, a democratic style of management prevailed, and the decisions of key importance for the farm were taken after family consultations (Figure 3). While in

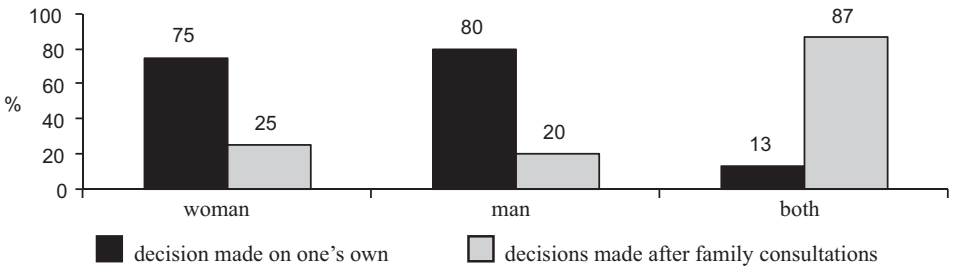

Fig. 4. Decision making process in tourist farms, depending on the person in charge of the service provision

Rys. 4. Proces podejmowania decyzji w gospodarstwach agroturystycznych, w zależności od osoby odpowiedzialnej za świadczenie usług

Source: Own research.
Źródło: Badania własne.

the case of the farms where one person was responsible for the provision of farm tourism services, an autocratic management style prevailed. It may thus be concluded that the more the powers in the farm tourism business are dispersed, the greater the influence of the family members upon the decision making process.

Succession, also called the management of the intergenerational change may pose a serious problem in a family run enterprise, especially in a family run tourist farm, where most often the place of residence of the members of the family is also the place of the service provision. Many more problems connected with the succession to the agricultural farm being the back office of the farm tourist services may arise. As the results of numerous research [Kosmaczewska 2007, Wojciechowska 2009, Balińska, Sikorska-Wolak 2009, Jalinik 2009, Kurtyka 2010] show the most frequent age group of the tourist farm owners is the age group over 40. Such age structure of the farm owners results from the manner of transferring the agricultural farm to the successor, which usually takes place when the child is over 30, which certainly is connected with the retirement age reached by the parents and which certainly offers the successor the chance to gain the experience in running the agricultural activity, this makes it easier for the farmer to take the risk connected with the commencement of the provision of the farm tourist services.

The income generated from this type of business, which may significantly increase in the course of time, may affect the decision to limit or stop entirely the plant or animal breeding and may become the scope of conflict resulting from the provision of farm tourist services. For that reason the generation gap may appear with regard to running agricultural activity rather than with regard to farm tourist services. As the research has shown, only in 2 farms, the provision of farm tourist services was commenced before the transfer of the agricultural farm to the successor. In the majority of the farms under research (94%) farm tourist services were provided by the so called 'young generation' and this was the first generation in the family starting the farm tourist business.

As the results of the research show tourist farms operating in the area of Międzychód poviat operate on the basis of the resources that are not only inherited from the agricultural farms but that are also acquired on the market. The manner how the present owners came into possession of the agricultural farm does not influence the encouragement

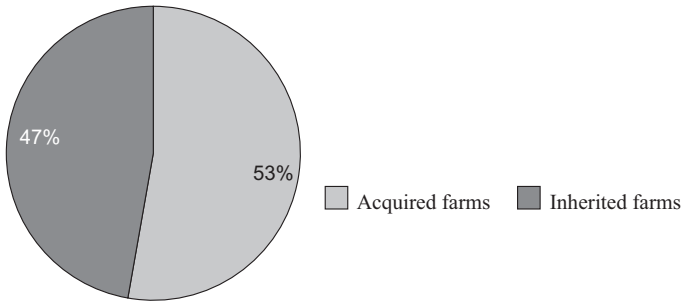

Fig. 5. Manner of the acquisition of a farm, whose resources make up the basis for operating a tourist farm

Rys. 5. Sposób pozyskania gospodarstwa rolnego, w oparciu o zasoby którego prowadzona jest działalność agroturystyczna

Source: Own research.
Źródło: Badania własne.

process for the successors to continue the tourist farm business (Figure 5). It may, however, be assumed that farms with unsatisfactory, in the view of the owner, profitability of the farm tourist services and where the strategy is focused on breaking even but not on expansion and development, the inclination to transfer the business to the successors may be smaller. As it may be observed, at the present stage of development of farm tourism, the generational transfer rarely takes place, however, succession plans of respondents show clear intentions thereon. The owners of only 5 farms (13% of respondents) do not plan their children, after inheriting the agricultural farm, tgo continue to provide the farm tourist services.

In the opinion of the author of this analysis, we can observe a certain process that tourist farms showing the entrepreneurial spirit quite frequently undergo. Having reached a satisfactory level of profitability from the farm tourist services, the business quickly develops while the agricultural activity is given up. The income generated from farm tourist services becomes the basic source of living for the family. In such a case we can observe a transition from a family run tourist farm into a family enterprise running business. 59% of the owners of the analyzed tourist farms operating in Międzychód poviat said that if farm tourism was subject to taxation on the general principles they would not cease the provision of services, which, in view of the author of this paper, shows that they have reached a satisfactory level of income from this type of activity.

CONCLUSIONS

In view of progressive and unavoidable changes taking place in rural areas, the inhabitants adopt different attitudes. Some of them look upon the changes as their chance, accept them and try to take the best advantage of them for themselves and their families, adopting therefore entrepreneurial attitudes. Unfortunately, there are also some people in the local communities who view the changes as a threat to what is well tested and familiar, who do not accept the transformations and adopt a passive attitude. Commencing the

provision of farm tourism services, the farmer has to accept not only a certain level of financial risk, which falls from the decision on commencing the activity, but he also has to break the barriers posed by passive and claiming attitudes which one encounters in the local communities. Narrowing the farm tourism business just to one's own agricultural farm and to one's own labour resources dooms any chance of development for failure.

Adoption of entrepreneurial attitudes is certainly easier in the cities because for the reason of a less 'hermetic society' the failure most often has just the financial dimension and is just a spot of blemish on one's own ambition. [Zaremba 2008]. In case of entrepreneurial initiatives undertaken in rural areas, their initiators are strictly observed by the local community and when they are successful, then they become the local leaders followed by the others. Therefore, taking into account the conditions for the creation of entrepreneurial attitudes, including insufficiencies in the infrastructure surrounding the business, no wonder that the initiatives undertaken in rural areas and focused on farm tourism services are usually small scale initiatives and are limited to one's own and family funds. Yet, similarly to family run enterprises operating as business entities, they show certain similarities in the field of personal strategy and succession, in the field of culture and organizational structure. For these reasons family run tourist farms, even if they are not yet business entities face an opportunity to become them in future if the individual entrepreneurial spirit of the tourist farm initiators is strong enough to be viewed as group entrepreneurship [Sudoł 2008] which may constitute a major competitive advantage in the competition with entities with more extensive material and financial resources.

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DZIAŁALNOŚĆ AGROTURYSTYCZNA JAKO PRZEJAW RODZINNEJ PRZEDSIĘBIORCZOŚCI

Streszczenie. Niniejszy artykuł zawiera analizę pojęcia przedsiębiorczości w kontekście prowadzenia działalności agroturystycznej. Autorka bazując na wynikach badań empirycznych przeprowadzonych wśród rodzinnych gospodarstw agroturystycznych w powiecie międzychodzkim (woj. wielkopolskie) nakreśla możliwy proces transformacji rodzinnych gospodarstw agroturystycznych w podmioty gospodarcze świadczące usługi agroturystyczne. Definiuje przy tym rodzinne gospodarstwo agroturystyczne jako gospodarstwo rolne, które świadczy usługi agroturystyczne w ramach ubocznego zajęcia zarobkowego i nie prowadzi działalności gospodarczej w zakresie świadczenia usług dla turystów. W artykule znajduje się także potwierdzenie stawianej tezy, że rodzinne gospodarstwa agroturystyczne tworzą specyficzną grupę „podmiotów", które wykazują podobieństwa w sferze strategii personalnej i sukcesji, struktury i kultury organizacyjnej.

Słowa kluczowe: agroturystyka, gospodarstwo agroturystyczne, przedsiębiorstwo, zarządzanie

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INTELLECTUAL CAPITAL IN AGRICULTURE – MEASUREMENT AND DETERMINANTS

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Abstract. The article presents the basic premises and particular determinants of measuring intellectual capital in farms. It discusses the assumptions of the measurementand the framework of the research method. It presents the assertions describing the particular elements of intellectual capital, i.e. human capital, organisational capital and market capital. Key issues relating to each of these are characterised. The paper also includes a hint that intellectual capital is strictly linked with the local environment as well as the broadly understood quality of human capital in rural areas.

Key words: intellectual capital, human capital, organisational capital, market capital, farming business

INTRODUCTION

It was in the middle of the 20th century that analysts of companies' market positions, measured by the classic indices of the efficiency of the use of economic resources, started to notice that organisational working order and economic effectiveness could vary a lot among economic subjects even if the value and structure of their assets are quite similar. It is also expressed by the positive value of the difference between a company's market value and its accounting value resulting from skilfull management and the quality of the engaged human resources. The fact that the human resource factor exists and cannot be separated from people is not challenged by anyone today. The resource has been called 'intellectual capital' and assigned a decisive role in building a company's competitive advantage. A vast part of works touching on intellectual capital concerns services and companies using advanced technology. Apart from describing its nature and complexity, they also include proper and useful-in their authors' views- methods of measuring the resource [Edvinsson, Malone 2001; Kasiewicz, Rogowski, Kicińska, 2006; Mroziewski 2008; Ujwary–Gil 2009; and others]. In spite of the natural

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impediments of automation in agricultural production, the progress of innovations entering real life naturally influences farming businesses, causing changes in understanding the notions of farming and farmers. Contemporary agriculture cannot be limited to land and classic production factors, but must comprise advanced technologies and quality standards, requiring higher than ever human involvement and in particular, their knowledge, experience, skills and competences. The main concept in agriculture, like other sectors of economy, is not merely production, but the ability to sell goods and services of highest standards. Therefore, initiating research into intellectual capital in agriculture, understood as the outcome of knowledge and the ability to apply it and preparing a tool for its complex assessment in farming businesses seem to be even more important. Such tool should not only allow to quantify the resources of human capital and characterize its elements, but also enable it to compare economic subjects in time and space. In both cases, creating a comprehensible and practical system is the most important challenge connected with the search for an optimal measurement method. Therefore, the ultimate determiner of the excellence of the measurement method is the possibility of its common use and acceptance in practice.

The aim of the paper is to outline the methodological assumptions of analysing intellectual capital in agricultural businesses by means of selected methods of strategic analysis, i.e. the method of key factors of success and the method of weighted discrete assessment. The main idea of the research is not merely to create a measurement tool, but also commencing the collection of assessments in order to build up a database for further comparisons.

THE NATURE OF INTELLECTUAL CAPITAL

Although intellectual capital has only recently become the subject of scientific considerations, it has been present in practice for ages, by means of common sense. In this sense, intellectual capital can be defined as the human's ability to make right decisions, which marks their intelligence and whose results contribute to the improvement of life and the effectiveness of the undertaken actions [Czechowska-Świtaj 2005]. Intellectual capital also happens to be called a means to an end with regard to future targets. It is also called knowledge capital [Pomiar kapitału intelektualnego… 2005]. It is the knowledge which allows its users to process materials so that they become more valuable. Intellectual capital comprises the talents and skills of particular people, groups of people, technological and social networks, including software and cultural environment, which joins it; these are also intellectual properties such as patents, copyrights, methods, procedures, etc. Most researchers agree that the base for all considerations concerning intellectual capital the difference between a company's market value and its accounting value [Dobija 2003]. The difference most frequently results from the involvement of intangible assets in the structure of the value of the company. These assets, integrated with human resources, financial means, technologies and information, contribute to the creation of key competences, allowing the economic subject to reach tangible economic benefits.

Whatever the way of defining intellectual capital is, researchers agree that what impedes its identification is heterogeneity, complexity, possibilities of measurement and the

internal relations between its constituents. In spite of the mentioned impediments, it can be stated that:

- it is created by a number of categories, of ten of different character or nature,
- its basic component is knowledge,
- it results in the growth in company value,
- it increases the company's competitive advantage and
- it fills the gap between the company's market value and its financial capital [Kasiewicz, Rogowski, Kicińska 2006].

Intellectual capital (Figure 1) can be divided into:

1. human capital,
2. structural capital, which can be divided into organisational capital and market capital.

Its components, i.e. human capital, organizational capital and market capital, remain in mutual relations, interact with each other and, as a result, contribute to the creation of new values. The relations are peculiar for each subject of the market, which means they also exist in farming businesses. What needs to be emphasized is the role of the feedback between the human capital, which remains of primary meaning, and structural capital (organizational and market capital). It results from the fact of relatively greater role of human in the processes taking place in the economic subjects in question.

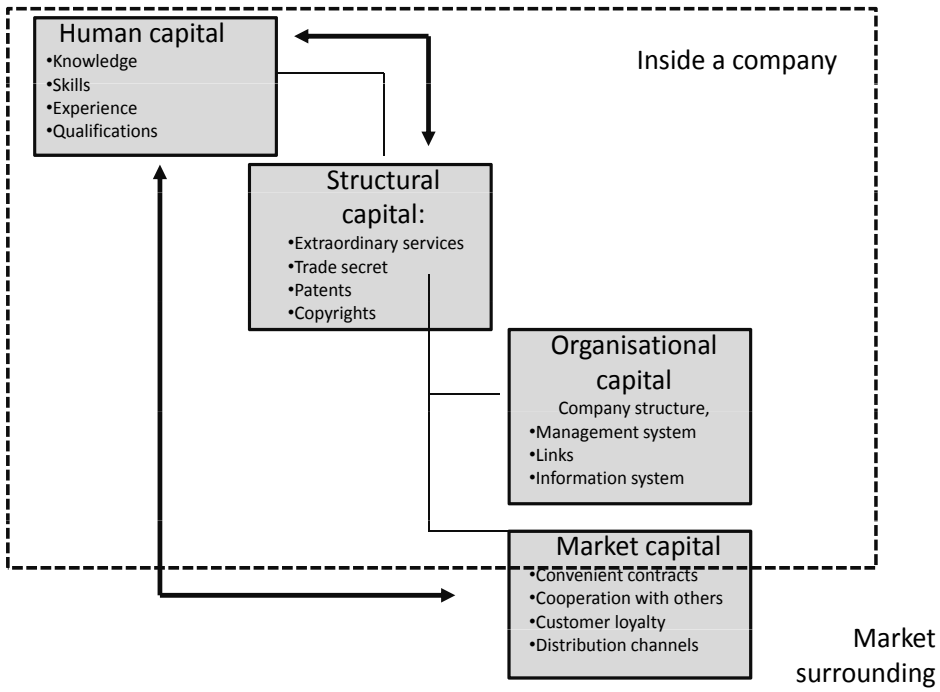

Fig. 1. The structure of intellectual capital in farming
Rys. 1. Struktura kapitału intelektualnego przedsiębiorstwa rolnego

Source: Author's elaboration based on [Edvinsson, Malone 2001].
Źródło: opracowanie własne na podstawie [Edvinsson, Malone 2001].

THE DETERMINANTS OF INTELLECTUAL CAPITAL IN AGRICULTURE

As regards the considerations of intellectual capital of farms, it is essential to emphasise their connections with the environment. People, who constitute the most important pillar of intellectual capital, belong to the local society, shape their behaviours and form attitudes according to their own system of norms and values. In this respect, human capital is a component of intellectual capital of local character. The direct effect is a strong integration of the business with the local community, which also automatically results in the fulfillment of Edvinsson and Malone postulate [2001] concerning the external foundations of intellectual capital [Mroziewski 2008]. Such close connection between the intellectual capital creates the resultant of three factors, i.e. the quality of external educational institutions, equipping people with knowledge and skills, shaping attitudes and providing the rules of social life (formal education, agricultural consulting, trainings, adult education etc.), skills which are vital in shaping and using intellectual capital of a company [Mroziewski 2008]. Bearing in mind the recurring issues of improving the quality of human capital in Poland's rural areas, defined as improvements to the level of formal education [Adamowicz 2008, Czerna-Grygiel 2008, Poczta, Mrówczyńska-Kamińska 2008, Wysocki, Kołodziejczak 2007, and others] and the issues of accumulating the social capital as an endogenous factor of its development [Kozera 2006, Społeczno-ekonomiczne aspekty… 2007], it seems highly reasonable to measure intellectual capital as a resource integrating all separately analysed people-related components with their actions.

Although the notion of competitiveness started to be emphasized in the very study of agricultural economics in the 1990s and researchers started to point out the urgent and justified necessity to build and maintain it, competitive advantages used to be associated with the possessed assets, economies of scale or technological developments. The roles of two elements with social overtones, i.e. creating producer groups (horizontal integration) and building relatively stable trade agreements with the processing industry (vertical integration) [Kozera, Gołaś 2008].

The activities proved a vital role of the human factor in building the competitive advantage of farms, their scale and effectiveness depending on it. Research into intellectual capital allows to consider particular features, properties and predispositions of the people employed on farms, not only as a source of innovations, but also the creator of decisions which, through rational actions, can lead to generating economic profits. Their setting in the technical-and-organisational reality of farms, within the frames of the so-called structural capital, enabling companies to function effectively, is an issue of equal importance. Structural capital reflects human activities focusing on, among others, ensuring efficient internal communication, the flow of information, but it also has its material dimension, e.g. as obtained licenses, franchises, etc. and it can also be subject to market turnover [Pomiar kapitału intelektualnego… 2005]. Analysing this component of intellectual capital seems even more important as the problemsof information barrier, increasing the difficulties of accessing the market by farmers, technological backlog of the Polish countryside or numerous infrastructural imperfections have been emphasized a number of times [Woś 2004]. Functioning in the reality of dynamically changing market, severe competition, the pressure of quality demands and the standarisation of products makes farming bu-

sinesses adapt to market requirements as there is always the threat of being eliminated from the market. Measuring the intellectual capital of households also allows to evaluate this aspect of their operating, described as market capital. Although the present literature involve sa number of works on some peculiar disproportions of market participants on the part of both demand and supply, where supply is represented by farming businesses and demand is represented by strong economic leaders – there is no doubt that the way of perceiving the market and reacting to its changeability become key factors of success in managing the businesses.

ECONOMIC ASSUMPTIONS OF MEASURING INTELLECTUAL CAPITAL

Researching quality features other than formal education is strictly connected with the problem of getting proper information. Data appropriateness, i.e. the degree to which it meets the information demands of the research, also causes that it has to be available, accurate and up-to-date. In the case of farming businesses, the gathering of data fulfilling the above criteria is largely impeded or even impossible in a number of cases. It is connected with the character and destination of the information generated by companies. The information connected with everyday production-related decisions is generally largely informal, as it includes notes, records or single fragmentary calculations. Another type of data, whose construction and merit range result from the formal-and-legal systematic requirements (tax record system) or the requirements of the banking system (data necessary to be granted credit). In both cases, the data concerns the area of real processes taking place in companies, not reflecting the quality-related matters connected with possessing intangible assets. The methodology of social science assumes that the survey is the right tool used to study social and economic phenomena and that it's particularly true for qualitative measures [Bieniok et al: 1997, Brzozowski, Kopczyński, Przeczniczka 2001]. This comprehensive and standarised tool seems to be useful also in the case of gathering information for the sake of measuring intellectual capital in farming businesses, particularly when studying all phenomena which are difficult to measure or weakly structurised.

Assumptions of two diagnostic methods have been used in designing the diagnostic questionnaire: the method of weighted discrete assessment and the method of key factors of success. Both of these methods have been known for a number of years in strategic management of companies and they were used in the research of P. Wachowiak and A. Sopińska [2005], J. Paliszkiewicz [2005 and 2007] or M. Kozera, Z. Gołaś [2009] and others. The discreet method lies in the assumption that it is possible to develop a list which would allow to identify the differences between economic subjects and, at the same time, describe their attractiveness. A list constructed in this way allows to make comparisons between subjects basing on a freely chosen criterion. In order to increase the objectiveness of the assessment and, at the same time, to enable the comparisons between subjects with respect to all elements, the method of weighted discreet assessment is used, as different criteria can have different meaning in the evaluation of different subjects [Gierszewska, Romanowska 1995]. The other method used to prepare the diagnostic questionnaire was the method of key factors of success. Key factors of success comprise a number of criteria which are supposed to be the most important, determining the compe-

titive position of a company and its chances of development [Gierszewska, Romanowska 1995]. The method can be used effectively if the prepared list of criteria is complete, i.e. it takes into account all the major factors of the areas in which the company operates.

As specialists suggest, in order to build the system of key competences (factors of success), it is necessary to build a bank of information, using surveys, interviews or studies in groups of focus. [Metody organizacji i zarządzania… 2006]. The starting point for the assessment can be both the competitors from the sector and the subjects working in it. This results in the assessment becoming more relative.

There is a possibility to refer the outcomes of the assessment to a single subject, marked as standard for a given sector. The technique is called benchmarking [Gierszewska, Romanowska 1995]. It is methodologically correct to compare a given subject to the ideal profile of key factors of success. As a result, a more objective assessment can be made and there is a possibility to prepare a ranking list of subjects, from the best to the weakest. It also enables a precise, discrete description of the distance which there is between the given subject and its particular competitors.

With no doubt, the qualitative description of reality has to take into account the diversity and complexity of the phenomena, the more so as intellectual capital is a heterogeneous resource. However, it is assumed that it consists of three components, according to literature, i.e. human capital, structural capital and market capital. The particular areas can be decomposed and described, each in 15 statements.

The method of weighted discrete assessment and assessment profile, elaborated by Polish authors, P. Wachowiak and A. Sopińska [2008] can serve as an example. Analysing the method and attempting to apply it directly in farming businesses has confirmed the existence of intellectual capital in the researched subjects of the sector, however, it has proved to be too far from the reality of the subjects of this sector [Kozera, Gołaś 2008; Kozera, Gołaś 2009; Kozera 2010]. The following step was to define the scale of assessment, i.e. the range of points granted in course of assessment to each of the solutions, depending on the degree to which it meets a given criterion.The statements were given appropriate weights, related to the usefulness of a given statement in describing the actual situation of a given subject. The list of statements was then subject to theoretical-and-empirical verification in a focus group.

The first part of the created diagnostic questionnaire concerned human capital. The initial stage of the research procedure required a list of statements describing, among others, the existing and postulated state of qualifications, competences, experiences, attempts and behaviours of the people running the businesses (Table 1). The statements concerning human capital were based on the assumptions resulting from the so-called strategy of natural evolution of farming businesses, described by Woś [2004] and the classical product life cycle, present in marketing literature and strategic management. What results is that the farming business is whose periodicity is described by generative changes over generations. Grabowski [1996] advances further, assuming that the classical product life cycle lasts for two generations. In both cases, the changes over generations are connected with re-organisation of the business, prolonging its maturity phase and the period of its activity on the market. Therefore, the construction of the diagnostic questionnaire included questions indirectly characterising the phase of the development cycle of the particular business. The questions include those relating to the age of acquiring the

Table 1. Characteristics describing human capital
Tabela 1. Twierdzenia opisujące kapitał ludzki

Lp.	Human capital/Kapitał ludzki
1	Age of farm acquirement/take-over Wiek nabycia/przejęcia gospodarstwa
2	Time of farm keeping Czas prowadzenia gospodarstwa
3	Use of experience Korzystanie z doświadczeń
4	Professional knowledge resources Źródła wiedzy zawodowej
5	Project of farm future Plany przyszłości gospodarstwa
6	Sources of economic knowledge Źródła wiedzy ekonomicznej
7	Exterior commitment Zaangażowanie zewnętrzne
8	Mode of enterprising attitude Typ zachowań przedsiębiorczych
9	Introduction of innovations Wprowadzanie innowacji
10	Way of decision-making Sposób podejmowania decyzji
11	Time of additional training Czas dokształcania (dni w roku)
12	Money spent for additional training Środki finansowe przeznaczane na dokształcanie
13	Computer skills Umiejętność pracy z komputerem
14	Knowledge of foreign languages Znajomość języków obcych
15	Formal education Wykształcenie formalne

Source: Own elaboration.
Źródło: Opracowanie własne.

business or taking it over, the time of running it and future plans. What follows as a natural consequence of the assumption of the life cycle is the link with the experiences of the older generation, but on the other hand, two issues of similar overtones have been raised – knowledge management, understood as planned and conscious completion of the essential skills and competences of the person running the business and/or their family (mainly the successors) and the way of making decisions (self-reliant, authoritative – which is usually associated with farmers or collective – understood as consulting decisions with family members, and particularly with the successor and possibly involving the participation of consulting institutions).

The character of managing resources in farming and, in particular, its social conditioning, have become a premise to include a question concerning the relations with the social environment in the diagnostic questionnaire. The relations include active participation

not merely in market organizations (such as producer groups, collective use of machines, associations of breeders, etc.), as these have become the subject of considerations in the area of market capital, but first of all, the relations resulting in the improvement of social-and-economic conditions of the local environment of the farmer. The further part of the questionnaire concerns the widely described matter of improving the quality of human capital in agriculture. The defined research questions aim to describe the state of formal and practical knowledge of the farmer and, at the same time, they link these with its sources (divided into sources of economic and professional knowledge). Another aspect which was emphasized was continual education, perceived as an essential factor in the development of the Polish countryside. The area includes questions concerning the time allocated to trainings and related expenses. The competences which constitute the challenges of the present open economy, i.e. foreign language skills and the efficiency of computer use were also diagnosed. The last feature included in the part of the questionnaire concerning human capital was innovativeness, understood as the speed of reacting to changes due to market situation in both technical-and-organisational aspect and technological aspect.

As the subject literature includes discussions of specifying the notion of running a farming business and the view that a farmer cannot make all decisions on their own, but usually runs the business with a spouse [Paszkowski 2006], and also involves seasonal workers in the production process, the questions include three possible levels of answers, related to the farmer, their family members and seasonal workers.

Part two of the diagnostic sheet concerns organizational capital. The resource can be related to "everything which supports employees in doing work" [Pomiar kapitału… 2005]. Therefore, it is the outcome of people's purposeful activities including trainings, extending the workshop, improvements in innovativeness, modifications aiming to improve the flow if information, gathering and using knowledge. These aspects are relatively difficult to measure in a farming business, but an attempt was made to define them and assign values to the most important areas resulting from the technical-and-organisational conditioning of the businesses and market pressure (Table 2).

Taking into account the specifics of running a farming production business, and, in particular, its variety visible in, on the one hand, a possibility to specialize in a certain area and, on the other hand, its multidimensionality, the organizational complexityof the farming business has been selected as an essential characteristic of organizational capital. Making its assessment, three variations were assumed as possible: traditional, describing multi-purpose businesses, two-dimensional, having two parallel directions and modern – understood as a specialist business, with one dominant production dimension. The issues of the applied technologies have become the next part of the considerations of the organizational complexity of farming businesses. They were included in the statements concerning the use of procedures in course of running the business, but also meeting the quality requirements and the resulting standarisation of production. These subjects were completed with questions concerning financial expenses on purchasing new technologies. The activity of the person running a business in this respect is expressed in this respect in questions covering the future vision of the company's functioning and development, but also its particular manifestations, i.e. planned investments and realized investments. Complementarily, a statement was made to

Table 2. Characteristics describing organizational capital
Tabela 2. Twierdzenia opisujące kapitał organizacyjny

Lp.	Organizational capital/Kapitał organizacyjny
16	Processes requiring Osage of procedures Procesy wymagające stosowania procedur
17	Businessplan preparation Przygotowanie biznes planu
18	Organizational complexity of farm Złożoność organizacyjna gospodarstwa
19	Knowledge management on farm Zarządzanie wiedzą w gospodarstwie
20	Way of defining the objectivesw Sposób sformułowania celu działania
21	Outlay for technologies Nakłady finansowe na technologie
22	Scope of development projection Zasięg wizji rozwoju
23	Collection of suppliers and purchasers data Gromadzenie informacji o dostawcach i odbiorcach
24	Way of market participation Sposób uczestnictwa w rynku
25	Number of planned/reported investment Ilość planowanych/zgłoszonych do realizacji inwestycji
26	Number of implemented investment Ilość zrealizowanych inwestycji
27	Outlay for informatical infrastructure Nakłady finansowe na infrastrukturę informatyczną
28	Cooperation in extent of counseling Współpraca w zakresie doradztwa
29	Quality control Przestrzeganie standardów jakości
30	Level of informatisation Poziom informatyzacji

Source: Own elaboration.
Źródło: Opracowanie własne.

describe business plans (NB assessment was made basing on their amount and range, i.e. for a single investment or for a farming company as a whole). The issues of both the very method of formulating the aim of the farming business (survive, survive and extend or extend and succeed) and the time horizon of the undertaken actions (the range of development vision) have proved to be essential. In the planning context, what was considered essential was the issue of managing knowledge in farming businesses, understood as undertaking any activities aiming to increase the level of knowledge in the company through its gaining from the environment [Pomiar kapitału… 2005]. Apart from knowledge management, it was assumed that there were possibilities of its enrichment through the cooperation with broadly understood consulting in farming, however, on weighting the assessments, there was an assumption made about using the opinions of specialist centres other than Centres of Consulting in Farming or Chambers

of Farming, especially special units of consulting companies on the farming market and representing the processing industry. As regards the organisational capital considerations, the way of participating in the market proved to be a key issue. Three options of its evaluation were taken into account, i.e. passive participation, active participation including a degree of commercialization of activities and the third option, assuming not merely active participation in the market, but also full involvement in creating collective forms of operating with regard to production and sales, but also collective use of machines. Active participation in the market requires the creation in a business a kind of infrastructural background, which is expressed by, among others, possessing a computer and using proper software and making expenses on these. Independently from the degree of informatisation, the way of gathering and storing information about suppliers and customers is the manifestation of organizational capital in companies, the more so as independently from the degree of specialization and modernity, there a number of cases where the farmer remains a traditionalist, emotionally connected with a given customer or supplier.

The third part of the diagnostic sheet concerns market capital. It describes the relations between the business and other market participants (Table 3). The statements describing this element of intellectual capital contain key, from the point of view of market processes, issues of perceiving the market and the final consumer. Weighting in this respect consisted in describing the degree of market changeability, i.e. stable market with a standard product, changeable market divided into segments of different requirements and very dynamic market, varied, of changeable needs. A complementation of the market perception can be the knowledge of consumer behaviour, whose purchasing motivations were described as the buying obligation, a choice of one of a number of offers and the demand to meet the demands in a situation which allows to make a choice of one of the available options. Placing these issues on the diagnostic sheet, an assumption was made that the understanding of the market and customer behaviour has direct influence on the production-related decisions of companies.

Market contacts involve the very interesting question of product recognition. As regards farming businesses producing raw materials for further processing, the brand is identified on the basis of the renown of the farm and its perception by potential customers. It is important from the point of view of the durability of corporate links on the market. With regard to assessing the relations and links connecting a farming business with its customers and suppliers, part of the diagnostic questionnaire questions was devoted to evaluating them, forms of contact and cooperation. The fact of producers' integration into groups of both formal and informal, ad hoc, character, has also been taken into account. The statements describing market capital include such which reflect the degree of customer satisfaction and loyalty and economic activity of the business in gaining new customers or suppliers. They add up to the overall picture of relations resulting from a deep emergence of companies in the socio-economic reality

The created diagnostic questionnaire was subject to preliminary empiric verification in the focus group, consisting of nine farms of different production types. The verification confirmed the majority of the research hypotheses. It also pointed to the assumptions of insufficient degree of certainty, requiring further specification or complementation. The opinions gained from farmers in the consultation process also pointed at the necessity to

Table 3. Characteristics describing market capital
Tabela 3. Twierdzenia opisujące kapitał rynkowy

Lp.	Market capital/Kapitał rynkowy
31	Connection with regular customers Kontakty ze stałymi klientami
32	Level of brand knowledge Zasięg znajomości marki
33	Range of production- trade cooperation Zakres współpracy produkcyjno-handlowej
34	Database of consumers/contractor Istnienie baz klientów/kontrahentów
35	Customers' satisfaction Zadowolenie klientów
36	Acquisition of new customers Działania na rzecz pozyskiwania nowych klientów
37	Loyalty of customers Lojalność klientów
38	Suppliers' cooperation mode Formy współpracy z dostawcami
39	Expectation of final consumers Wyobrażenie o konsumencie finalnym
40	Market expectation Wyobrażenie o rynku
41	Availability for customers Dostępność dla klientów
42	Cooperation forms with competitors Formy współpracy z konkurentami
43	Consumers contact Formy kontaktu z odbiorcami
44	Scale of contractor Wielkość kontrahenta
45	Level of productions processing Stopień przetworzenia produkcji

Source: Own elaboration.
Źródło: Opracowanie własne.

differentiate the diagnostic sheet depending on the type of production activity. It mostly concerned the part devoted to market capital and links with customers. However, the outcomes of the research allow to claim that the built diagnostic questionnaire has a considerable cognitive value and allows to assess the resource of intellectual capital in its three dimensions, i.e. human capital, organizational capital and market capital.

SUMMARY AND CONCLUSIONS

Without doubt, intellectual capital constitutes a unique resource for each business. Whether conscious or not, the existence of the resource contributes to their success and allows businesses to become unique among a number of similar subjects. Agricultural

market and its business units are subject to the same processes which happen in the entire economy and all its subjects. They are also subject to pressure of market competition and demands of consumers' market. In this situation, the processes of knowledge absorption and its transfer to reality become particularly important. They become possible owing to the personal entrepreneurship of a farmer whose expression is intellectual capital. This capital influences other traditional resources of the business, contributing, as a result, to creating new value.

The concept of measuring human capital presented in this paper allows to identify a number of specific conditions in which a farming business operates. They include issues related with the time of running the business and its passing to the successor or links with the local environment in the social sphere, creating corporate networks with customers and quite substantial degree of delay in the areas of technical and IT infrastructure development. However, the defined issues characterizing the particular elements of intellectual capital allow to assess its resource as a whole and the analysis of its components. They also create a possibility to compare agricultural businesses with each other and to rank the elements of this kind of capital from the most to the least precious.

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KAPITAŁ INTELEKTUALNY W ROLNICTWIE – UWARUNKOWANIA I POMIAR

Streszczenie. W artykule zaprezentowano podstawowe przesłanki oraz szczególne uwarunkowania pomiaru kapitału intelektualnego w gospodarstwach rolnych. Omówiono założenia pomiaru oraz konstrukcję metody badawczej. Zaprezentowano twierdzenia opisujące poszczególne składowe kapitału intelektualnego tj. kapitał ludzki, organizacyjny i rynkowy. Scharakteryzowano w obrębie każdego z nich kwestie o wiodącym znaczeniu. Wskazano też na zakorzenienie kapitału intelektualnego w środowisku lokalnym oraz jego związek z szeroko rozumianą problematyką jakości kapitału ludzkiego obszarów wiejskich.

Słowa kluczowe: kapitał intelektualny, kapitał ludzki, kapitał organizacyjny, kapitał rynkowy, gospodarstwa rolne

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APPLIED PRICING STRATEGIES OF TOOTHPASTES' PRODUCERS ON POLISH COSMETICS MARKET

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Abstract. The aim of this paper was to examine the average price of toothpastes available on Polish cosmetic market in order to asses used pricing strategies by several large and medium international and domestic toothpastes' producers. The 8 leading cosmetics market participants include: Procter&Gamble (Blend-a-med), Colgate-Palmolive (Colgate, Colodent, Flurodent), Unilever (Signal), Henkel (Vademecum, Denivit), GlaxoSmithKline (Aquafresh, Parodontax, Sensodyne), GABA International (Elmex, Meridol, Biodent), Church&Dwight (Pearls Drops) and Dr. Theiss Naturwaren (Lacalut).
Polish cosmetics market is a very large, and because of the ongoing battle to hold on loyal but at the same time win new clients, a profitable one. Strong inside competition on domestic market broadens and expands the range and diversity of cosmetic products. Toothpastes' producers act in the highly crowded and fragmented marketplace. There is a large presence of both branded and private label companies. Major players seek to position their products on the basis of value addition, functionality, price premium and to a certain extent packaging.
Polish consumers increasingly expect high-quality cosmetics at relatively low prices. That is the main reason why the examination of used pricing strategies is so important and taken under deep consideration in this article. The results showed that dominant strategies are: penetration pricing, loss leader, price leadership, psychological pricing as well as bundling and quantity discounts strategy.

Key words: price, pricing strategies, toothpastes, cosmetics market

INTRODUCTION

Cosmetics market includes products for personal hygiene, that are cosmetics intended for face and body skin care, hair care products, products for oral care, color cosmetics and fragrance products [Piechocińska 2005; Sztolcman et al. 2003].

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Toothpastes are one of the most dynamic segments of the oral care market. Oral care is undergoing significant changes with innovative and fresh products motivating people to alter their oral hygiene habits [http://www.prweb.com/].

The toothpaste market comprises of several large and medium international and domestic players competing fiercely in the highly crowded and fragmented marketplace. There is a large presence of both branded and private label companies. Major players seek to position their products on the basis of value addition, functionality, price premium and to a certain extent – packaging. Leading market participants include Procter&Gamble (Blend-a-med), Colgate-Palmolive (Colgate, Colodent, Flurodent), Unilever (Signal), Henkel (Vademecum, Denivit), GlaxoSmithKline (Aquafresh, Parodontax, Sensodyne), GABA International (Elmex, Meridol, Biodent), Church&Dwight (Pearls Drops) and Dr. Theiss Naturwaren (Lacalut) [http://www.prweb.com/].

The sale value of toothpastes has been estimated at the level of 698 mln PLN annually, which is 11 mln litres of toothpastes per year. The leader of value and quantity sale is Blend-a-med, produced by Procter&Gamble (suitably 27% and 28% of market share), second one is Colgate (20% of market share in value and quantity sale), then Colodent (12% and 20% of market share in value and quantity sale). They comprise 31% quantity and 41% of value sale. The toothpaste market in Poland is strongly developed, and "toothpastes consumption" per person is similar to that in West Europe. Therefore one should not count on aggressive quantity growth. However its value can increase, considering wider offer of specialist toothpastes [http://www.portalfmcg.pl/].

The toothpastes are divided into few basic categories depending on their application, such as: refreshing, whitening, herbal, desensitizing, anti-caries (caries prevention – cavity protection), antitartar activity (reduction of calculus formation), multicare (multi-benefit), gums protecting and intended for children [http://wiadomoscihandlowe.pl/; Davies et al. 2004].

Purchase of toothpaste is mainly driven by individual habits, inclination towards particular flavour and familiarity with the product. The toothpaste market is generally not price sensitive and brand loyalty plays an important role for the majority of customers. Currently nearly 97% of the population in developed countries uses at least one variety of toothpaste. This gives marketers virtually no space to expand the market with new users. Consequently, adding or increasing value to the product is the preferred alternative. Technological progress made in recent years altered the toothpaste segment into one that offers additional benefits such as fresher breath, healthier gums and whiter teeth, besides just fighting cavities [http://www.prweb.com/].

Going through the counters where the various toothpaste brands are stacked in a typical departmental store, one can notice the considerable price differences that exist between the various toothpaste varieties. This applies even for similar quantities of toothpaste. Some of price differences we see can be very substantial, so that one brand of toothpaste costs as much as 50% more than another brand of the same quantity of the same product [Mahoney 2010].

There are few factors, which determine the price of toothpastes. One factor that plays a major role in determining the price of toothpaste is the place of its production. It is a noticeable trend that products made in the orient can come at significantly lower prices than products made in the west. It is connected with the cost of labour (an important

factor in factory production) between the east and west. Next factor that plays a major role in determining the price of toothpaste is its producer. The big manufacturers, who have established a name for themselves strong client bodies made up of people who truly trust their products can afford to sell their products at substantially higher prices, and still attract people to buy those products. Another factor that plays a major role in determining the price of toothpaste is the ingredients that go into the making of the toothpaste. The basic ingredients of a toothpaste remain more or less the same across board, but there are other additives that vary from product to product, and it is those that can cause the price differences [Mahoney 2010].

In this study an analysis of pricing strategies of toothpastes available on Polish cosmetics market was conducted.

METHODOLOGY OF THE PRICING STRATEGY ANALYSIS OF TOOTHPASTES AVAILABLE ON POLISH COSMETICS MARKET

In this paper the prices of 122 toothpastes (14 brands) available on Polish cosmetics market were analyzed in hypermarkets (Auchan, Carrefour, Kaufland, Real, Selgros, Tesco) in 2011 in Poznań in the period between August, 15 and September,15. Analyzed products came from 8 main producers: Procter&Gamble (Blend-a-med), Colgate-Palmolive (Colgate, Colodent), Unilever (Signal), Henkel (Vademecum, Denivit), Glaxo-SmithKline (Aquafresh, Parodontax, Sensodyne), GABA International (Elmex, Meridol, Biodent), Church&Dwight (Pearls Drops) and Dr. Theiss Naturwaren (Lacalut).

During analysis all researched toothpastes were divided into 8 categories depending on their application:

- refreshing,
- whitening,
- herbal,
- desensitizing,
- anti-caries,
- multicare,
- gums protecting,
- intended for children.

Some of analyzed toothpastes' brands (Colgate, Colodent, Signal, Vademecum, Aquafresh, Elmex) are intended for a daily use and they have different activities such as refreshing, whitening, desensitizing, anti-caries or multicare. That's why main activity of toothpaste (whitening or refreshing etc) was taken under consideration during division into groups. Moreover other analyzed brands such as Parodontax, Sensodyne, Meridol, Biodent or Lacalut are specialist medicinal toothpastes intended for various teeth problem care – hypersensitive teeth, bleeding gums, gingivitis and periodontitis. During analysis Parodontax, Meridol, Biodent or Lacalut brands were assigned only to gums protecting group and Sensodyne brand was assigned only to desensitizing group, even if they have also other activities such as whitening, anti-caries etc. Next analyzed brands such as Denivit and Pearls Drops are also specialist toothpastes with intense whitening activity, so they were assigned only to whitening group.

The average prices and capacities of toothpastes were taken under consideration during analysis. With the aim of conducting of pricing analysis, the unit of measurement was average price (in PLN) of toothpaste per litre. Physicochemical forms of toothpastes were not taken under considerations.

It was used the tools of descriptive statistics and it was conducted the descriptive and comparative analysis. The results of this study have cognitive and diagnostic character.

RESULTS AND DISCUSSION

Price is a value that will purchase a definite quantity, weight, or other measure of a good or service. As the consideration given in exchange for transfer of ownership, price forms the essential basis of commercial transactions. It may be fixed by a contract, left to be determined by an agreed upon formula at a future date, or discovered or negotiated during the course of dealings between the parties involved. In commerce, price is determined by what (1) a buyer is willing to pay, (2) a seller is willing to accept, and (3) the competition is allowing to be charged [http://www.BusinessDictionary.com].

Pricing strategies play a very significant role in each organization's strategy. A process of establishing a pricing strategy consists both of economic and non-economic conditions. According to the traditional marketing mix includes products, promotion, price, place, people, processes and physical evidence. Another approach is that price is determined by measures such as costs, revenues and profits. Pricing is definitely a dynamic process, as nothing will remain constant: the economy, taste, innovations, as well as competitors actions and reactions.

There are many ways in which price can be used for strategic purpose [Kent 2003; Kotler and Armstrong 2010; Nagle and Holden 2002]:

1. Price skimming is used especially when new technology is introduced. There are always some consumers who are willing to pay more for a new launched product. After the richest or the most profligate consumers have been satisfied, the price is reduced in order to skim off another consumer layer.
2. Penetration pricing involves the setting of lower, rather than higher price in order to achieve a large, if not dominant market share. It is often used by businesses, need to use up spare resources (e.g. factory, capacity), whishing to enter a new market or build on a relatively small market share.
3. Product-line pricing consists in establishing a single price for all products in a product line. The additional price of an up-market product will be much greater than the additional manufacturing costs.
4. Related product pricing means that a product's price is low itself but the organization makes its profit by after sale service, e.g. renewing the ink cartridges.
5. Demand manipulation not only is the company using price discrimination but also encouraging others to make use of the service at less crowded time.
6. Price discrimination setting a different price for the same product in different segments to the market. For example, this can be for different ages or for different opening times, such as cinema tickets.

7. Price leadership is an observation made of oligopolic business behavior in which one company, usually the dominant competitor among several, leads the way in determining prices, the others soon following.
8. Loss leader is a product sold at a low price (at cost or below cost) to stimulate other profitable sales.
9. Psychological pricing is designed to have a positive psychological impact. For example, selling a product at PLN 3.99, rather than PLN 4.00.
10. Dynamic pricing is a flexible pricing mechanism made possible by advances in information technology, and employed mostly by Internet based companies. By responding to market fluctuations or large amounts of data gathered from customers – ranging from where they live to what they buy to how much they have spent on past purchases – dynamic pricing allows online companies to adjust the prices of identical goods to correspond to a customer's willingness to pay. The airline industry is often cited as a dynamic pricing success story. In fact, it employs the technique so artfully that most of the passengers on any given airplane have paid different ticket prices for the same flight.
11. Target pricing is a method whereby the selling price of a product is calculated to produce a particular rate of return on investment for a specific volume of production. The target pricing method is used most often by public utilities, like electric and gas companies, and companies whose capital investment is high, like automobile manufacturers. Target pricing is not useful for companies whose capital investment is low because, according to this formula, the selling price will be understated. Also the target pricing method is not keyed to the demand for the product, and if the entire volume is not sold, a company might sustain an overall budgetary loss on the product.
12. Bundling and quantity discounts means to reward people for larger purchases through quantity discounts or bundling. Set the per-unit price lower when the customer purchases a quantity of five instead of one, for example, or charge less when the customer purchases a bundle or several related items at one time. Bundle overstocks with popular items to avoid a closeout. Or, bundle established items with a new product to help build awareness.

The fact of different activity of toothpastes has the impact on toothpastes' division on few basic categories depending on their application: refreshing, whitening, herbal, desensitizing, anti-caries, antitartar activity, multicare, gums protecting and intended for children. That is the main reason for dividing analysed toothpastes into 8 categories: refreshing (Figure 1), whitening (Figure 2), herbal toothpastes (Figure 3), desensitizing (Figure 4), anti-caries (Figure 5), anti-tartar (Figure 6), multicare (Figure 7), gums protecting (Figure 8), for childern (Figure 8).

According to the analysis the most expensive universal and intended for a daily use refreshing toothpaste were from Colgate and Vademecum and cost around 73–71 PLN/ /Liter. The second price group consisted of two producers' brands such as: Signal and Blend-a-med which price varied from 64 PLN/Liter up to 67 PLN/Liter. To the third price group belonged last two brands: Aquafresh and Colodent which price oscillated from 32 to 38 PLN/Liter (Figure 1).

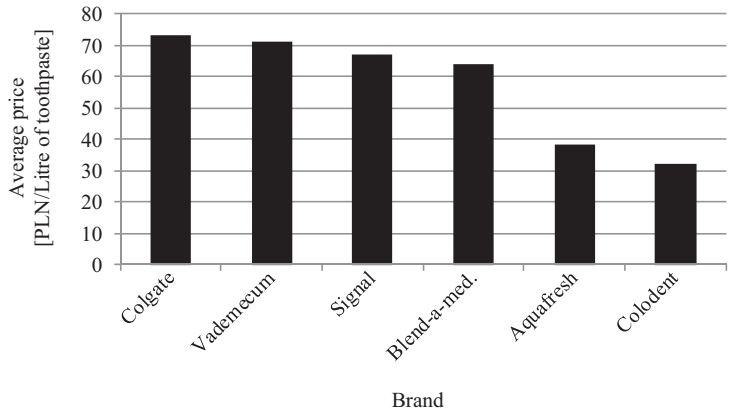

Fig. 1. Average prices of refreshing toothpastes available on Polish cosmetics market
Rys. 1. Średnie ceny odświeżających past do zębów dostępnych na polskim rynku kosmetycznym

Source: Own research.
Źródło: Badania własne.

The next step of the analysis was to asses the average prices of whitening toothpastes available on Polish cosmetics market. The prices differed a lot. In the Figure 2 one can noticed that the most expensive is Denivit (588 PLN/Liter), then Pearl Drops (199 PLN/Liter) and the last group consists of toothpastes of a regular price from 39–100 PLN/Liter. The cheapest one is Colodent (39 PLN/Liter), then Vademecum (72 PLN/Liter), Colgate (85 PLN/Liter) and Aquafresh (92 PLN/Liter) are at the same price level, beside the most expensive which is Signal (96 PLN/Liter).

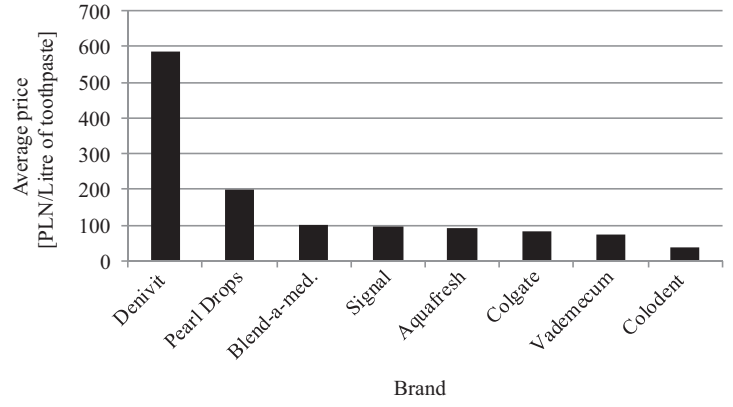

Fig. 2. Average prices of whitening toothpastes available on Polish cosmetics market
Rys. 2. Średnie ceny wybielających past do zębów dostępnych na polskim rynku kosmetycznym

Source: Own research.
Źródło: Badania własne.

In the figure 3 the results of the average prices of herbal toothpastes available on domestic cosmetics market were presented, offered only by four producers which are: Blend-a-med, Colgate, Colodent and Signal. The most expensive was Blend-a-med (59 PLN/Liter), then Colgate (50 PLN/Liter) where Colodent and Signal could be purchased from 36 up to 39 PLN/Liter.

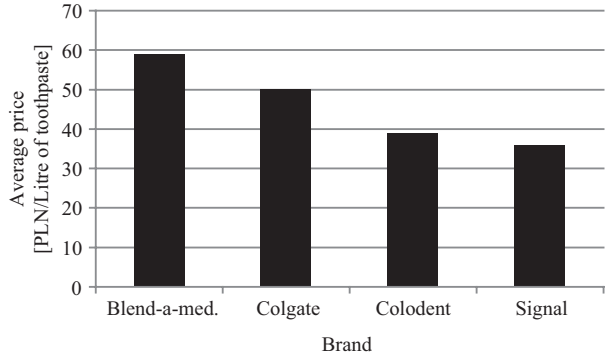

Fig. 3. Average prices of herbal toothpastes available on Polish cosmetics market
Rys. 3. Średnie ceny ziołowych past do zębów dostępnych na polskim rynku kosmetycznym

Source: Own research.
Źródło: Badania własne.

In the Figure 4 the results of the average prices of desensitizing toothpastes available on Polish cosmetics market were presented. Desensitizing toothpastes are used by a narrow group of consumers and in the analysis are presented by Sensodyne, Elmex, Blend-a-med and Colgate. Sensodyne was the top price leaders (166 PLN/Liter). The second group consisted of Elmex and Blend-a-med with the price level around 156–154 PLN/Liter. The cheapest was Colgate 140 PLN/Liter.

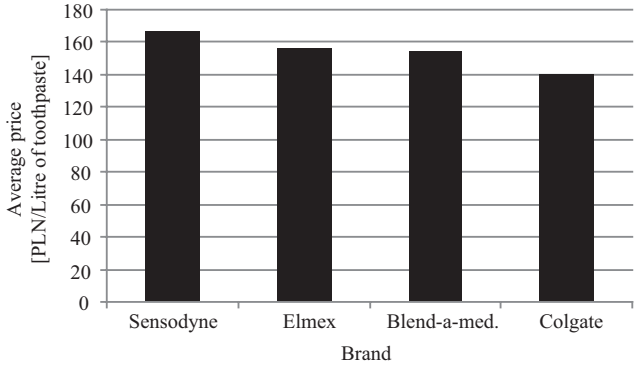

Fig. 4. Average prices of desensitizing toothpastes available on Polish cosmetics market
Rys. 4. Średnie ceny past do wrażliwych zębów dostępnych na polskim rynku kosmetycznym

Source: Own research.
Źródło: Badania własne.

In the Figure 5 the average prices of anti-caries toothpastes offered by different producers available on Polish cosmetics market were analyzed. The most expensive, to compare with the cheapest one – Colodent (33 PLN/Liter), was Elmex which cost 156 PLN/Liter. The second product was Blend-a-med which cost almost two times less: 80 PLN/Liter. The third group of examined products such as: Vademecum, Aquafresh, Colgate, Signal and Colodent was on the same price level from 40 to 33 PLN/Liter.

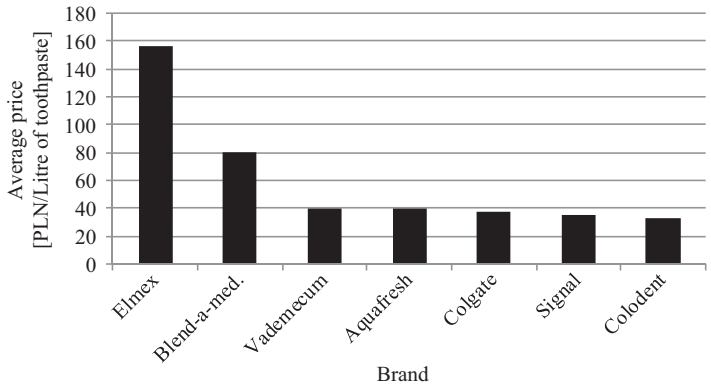

Fig. 5. Average prices of anti-caries toothpastes available on Polish cosmetics market
Rys. 5. Średnie ceny przeciwpróchniczych past do zębów dostępnych na polskim rynku kosmetycznym

Source: Own research.
Źródło: Badania własne.

In the Figure 6 the average prices of multicare toothpastes offered by different producers available on Polish cosmetics market were analyzed. The most expensive, to compare with the cheapest one – Colodent (33 PLN/Liter), was Blend-a-med which cost 140 PLN/ /Liter. The second group consisted of three products, such as: Colgate (67 PLN/Liter),

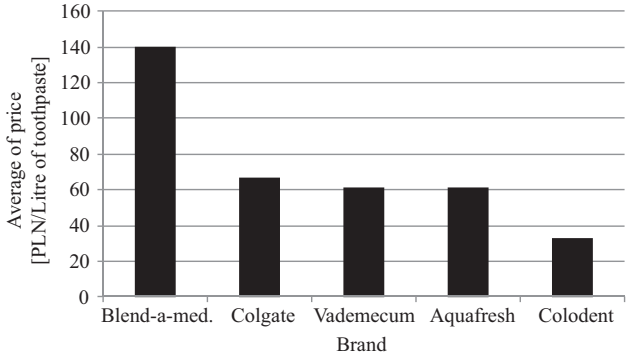

Fig. 6. Average prices of multicare toothpastes available on Polish cosmetics market
Rys. 6. Średnie ceny past do zębów o kompleksowym działaniu dostępnych na polskim rynku kosmetycznym

Source: Own research.
Źródło: Badania własne.

Vademecum and Aquafresh (each for 61 PLN/Liter) were almost on the same price level. The last analyzed multicare toothpaste Colodent cost 33 PLN/Liter which is 4.3 times less than the most expensive one.

In the Figure 7 the average prices of gums protecting toothpastes offered by different producers available on Polish cosmetics market were analyzed. The most expensive was Meridol (210 PLN/Liter). The second group consisted of: Lacalut (181 PLN/Liter), Paradontax (171 PLN/Liter) and Blend-a-med (155 PLN/Liter). The cheapest one turned out to be Biodent (93 PLN/Liter),

In the Figure 8 the average prices of toothpastes intended for children were analyzed. Two most expensive ones were Elmex (188 PLN/Liter) and Sensodyne (180 PLN/Liter). The second group consisted of Colgate (135 PLN/Liter) and Signal (117 PLN/Liter). To

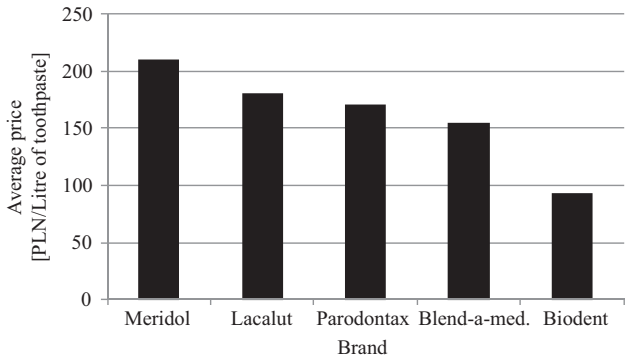

Fig. 7. Average prices of gums protecting toothpastes available on Polish cosmetics market
Rys. 7. Średnie ceny past do zębów chroniących dziąsła dostępnych na polskim rynku kosmetycznym

Source: Own research.
Źródło: Badania własne.

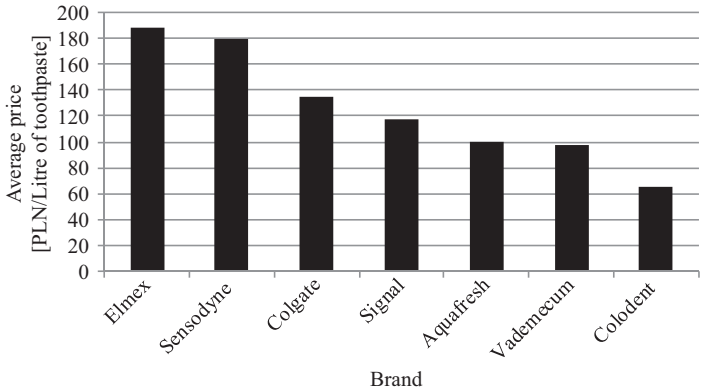

Fig. 8. Average prices of intended for children toothpastes available on Polish cosmetics market
Rys. 8. Średnie ceny past do zębów przeznaczonych dla dzieci dostępnych na polskim rynku kosmetycznym

Source: Own research.
Źródło: Badania własne.

the third group belonged Aquafresh (100 PLN/Liter), Vademecum (97 PLN/Liter) and the cheapest one – Colodent 65 PLN/Liter.

CONCLUSION

Pricing strategies are sometimes an overlooked part of the marketing-mix strategy. They can have a large impact on profit, so should be given the same consideration as promotion and advertising strategies. A higher or lower price can dramatically change both gross margins and sales volume. Price a premium item too low may cause that customers will not believe the quality is good enough. Conversely, put too high a selling price on value lines and customers will purchase competitors' lower-price items. The results of the analysis proved that some typical pricing strategies are commonly used by examined toothpastes producers on Polish market. Colgate, Elmex and Blend-a-med profit from price leadership strategy whereas Colodent takes the use of loss leadership. On a daily basis psychological pricing strategy is being used by all examined toothpastes' producers such as: Aquafresh, Colgate, Colodent, Blend-a-med, Denivit, Lacalut, Sensodyne and Vademecum. Many of them take advantage of bundling and quantity discounts like: a) one toothpaste in a regular price plus second one 25% cheaper, b) one toothpaste in a regular price plus second one 50% cheaper, c) one toothpaste in a regular price plus second one 75% cheaper, d) one toothpaste in a regular price plus second one for free, e) one toothpaste in a regular price plus mouthwash gratis. Beside that, producers of Colodent, Signal and Vademecum toothpastes tends to use penetration pricing strategy.

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STOSOWANE STRATEGIE CENOWE PRODUCENTÓW PAST DO ZĘBÓW NA POLSKIM RYNKU KOSMETYCZNYM

Streszczenie. Celem niniejszego artykułu była analiza średnich cen past do zębów podzielonych na 8 grup cenowych: a) odświeżające, b) wybielające, c) ziołowe, d) dla zębów wrażliwych, e) przeciwpróchnicze, f) o kompleksowym działaniu, g) chroniące dziąsła h) przeznaczone dla dzieci. Wszystkie analizowane produkty są oferowane przez 14 krajowych i zagranicznych producentów działających na polskim rynku kosmetycznym. Polski rynek kosmetyczny jest rynkiem dużym, mało chłonnym, podzielonym pomiędzy konkurentów walczących o utrzymanie dotychczasowych oraz co jest bardzo trudne, pozyskanie nowych klientów. Silna konkurencja pozytywnie wpływa na dużą różnorodność oferowanych produktów.

Krajowi konsumenci stawiają wysokie wymagania względem jakości past do zębów, jak również wykazują duże przywiązanie do zakupywanych i używanych past. Stąd też, głównym powodem powstania niniejszego artykułu była ocena wykorzystania strategii cenowych przez zagranicznych producentów past do zębów dostępnych na polskim rynku kosmetycznym. Wyniki analizy wskazują, że do podstawowych strategii zalicza się: strategię penetracji cenowej, strategię lidera straty, strategię przywództwa cenowego, strategię psychologicznej ceny oraz strategię zakupu wielopaku.

Słowa kluczowe: cena, strategie cenowe, pasty do zębów, rynek kosmetyczny

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IMPORTANCE OF FARMER – INSTITUTIONS RELATIONSHIP INTENSITY FOR FARM DEVELOPMENT

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Abstract. The aim of the paper is to assess importance of the relationship, at various levels of its intensity, between farmers and the institutional environment of agriculture for farm development. The data source derives from the results of questionnaire surveys conducted among farmers – owners of agricultural holdings in the south-east of Poland, i.e. the area of Świętokrzyskie, Małopolskie and Podkarpackie provinces.
The research results demonstrated that the degree of intensity of farmers` interactions with institutions is directly linked to resources, organization of the production process and the production performance of the agricultural holdings. High intensity of farmer-institutions interactions facilitates the process of introduction of changes in agricultural holdings with the use of the European Union financial support. However, the rule applies mainly to the larger-in-size and economically stronger holdings and may consequently lead to growing polarization of farms in the highly fragmented structure of agricultural holdings in the south-east of Poland.

Key words: farmers, institutional environment of agriculture, development of agricultural holding.

INTRODUCTION

The process of integration of Poland with the European Union (the EU) has revealed the role of institutional environment for the functioning of food markets and sustaining the process of development of rural areas. This area has been subject to fundamental

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changes following the rise of new economic conditions, particularly the necessity to introduce specific institutional arrangements required by the EU. The issue refers primarily to governmental institutions, yet it also determines the process of development of the trade-supply environment. In the opinion of Kołodziejczyk and Wasilewski, the drawback of the process is, for the time being, the practice of provisional establishment of organizations which are to implement the temporary policies and the lack of strategic plan which would facilitate the process of creating institutional environment so as to enhance the development of agribusiness and rural areas [Kołodziejczyk, Wasilewski 2005].

As institutions (organizations) make a complex system of mutual interactions, their activities may induce positive changes in some spheres of agribusiness, yet they may also slow down some positive processes in others. As it was verified by foreign experiences, the presence of institutions generally improves the economic situation of business entities but this refers primarily to economically stronger market players. The process is noted to be taking place in Poland as well [Fahlbeck 2004].

Economics more and more willingly verify the positive impact of organizational, consultancy and management institutions on growth processes of business entities [Stiglitz 1999]. It is of particular importance in the case of agriculture for its specific traits like the role of the natural environment, the seasonal character of agricultural production, and low price and income elasticity of demand for food. The recent changes in business economics assign institutions, particularly in agribusiness, a new challenging task of mobilizing optimal support for the attainment of strategic goals like securing sufficient quantity and quality of food and provision of public goods (landscape, biodiversity, the unspoilt natural environment). The general framework in favour of this mission is offered by counselling which can contribute to the economic empowerment of rural communities by improving production efficiency and supporting the EU programmes beneficiaries. Potential for the development of the agricultural and food-processing sector is further determined by financial institutions and units of local and agricultural self-government.

Institutional environment of agribusiness, which can effectively bring about changes at various levels of the industry's structure, can be divided into external and internal. A special role is assigned to government agencies like the Agricultural Market Agency (Agencja Rynku Rolnego – ARR), Agency for Restructuring and Modernisation of Agriculture (Agencja Restrukturyzacji i Modernizacji Rolnictwa – ARiMR), Agricultural Property Agency (Agencja Nieruchomości Rolnych – ANR), Agricultural Counselling Centres (Ośrodki Doradztwa Rolniczego – ODR) and local agriculture chambers; yet, in practice, these institutions serve principally the needs of large agricultural holdings [Miś 2009] which denotes a growing polarisation among farms.

The rise of new challenges to the institutional environment was accompanied by a notion of the diminishing role of farming and agricultural income in the economy of rural areas. Under these circumstances institutions were increasingly expected take on a role of the creator of new forms of business activity, which was particularly important for these farms whose entry into the agricultural market seemed problematic. The main advantages of the institutional environment are reduction of transactional costs, evolution of production structures and provision of public goods.

The fragmented structure of agriculture in the south-east of Poland makes it difficult to reduce transaction costs for the lack of integration within the sector itself. In this con-

text the issue of provision of public goods seems less controversial as small multifunctional agricultural holdings are naturally better suited to do it. However, other researches show that it has been the large agricultural holdings that have managed to make use of the EU agri-environmental funding most often and effectively [Czudec et.al 2008, Czudec, Zając 2010]. However, it is small, not large farms that continue to remain the dominant element of the European model of farming [Czudec 2009].

The growing liberalization of the food and farm market presents a challenge of increasing competition which in turn enhances the development of food-security oriented agribusiness. Simultaneously, public goods should be provided by smaller agricultural holdings where extensive production is justified by variety of social functions.

In the light of the above considerations, the need for more detailed research on the institutional environment of agriculture, particularly the fragmented one, in the process of its transformation seems highly justified. The issue is even more noteworthy as the wait-and-see attitude frequently adopted by farmers leads to diminished competitiveness of this kind of agriculture in the European model of agriculture.

THE AIM, RESOURCE USED AND RESEARCH METHODOLOGY

The aim of the paper is to assess importance of the relationship, at various levels of its intensity, between farmers and institutions for development of agricultural holdings.

The main hypothesis that has been used to write the paper holds that the higher intensity of the farmer-institutions relationships (cooperation) using the EU financial support, the more beneficial the cooperation proves for the farmers and the more sweeping changes take place in their holdings.

The data source derives from the results of questionnaire surveys conducted in 2007*. They were a part of a sample-based research and the method used was that of proportional stratified random sampling. The questionnaire surveys were carried out among farmers – owners of agricultural holdings in the south-east of Poland, i.e. the area of Świętokrzyskie, Małopolskie and Podkarpackie provinces. The sampling unit was an agricultural holding. The sampling population consisted of 541.1 thousand holdings. Out of this total population the sample was chosen using the random sampling method which accounted for the size and internal diversification of units (with regard to the size of arable land in the holding) to make the research results representative for the whole population. The choice of units for the sampling furthermore accounted for spatial design of the units, i.e. proportion of the size of the agricultural holdings population in the respective provinces – within the set sampling sections. Altogether, the survey was conducted on a sample of 856 farmers**.

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** More on the sampling method used see [in:] Czudec et.al 2008, pp. 15–17.

For the sake of the research the intensity (of farmer-institutions relationships) rate in the range between 0 and 1 was tabulated. The value was determined by the number of institutions farmer maintained contact with and their frequency. It was based on a rating scale which assessed the intensity of farmer-institution relationships. Farmer was granted 1 point for each institution he got in touch with and another point(s) in the range 1–5 contingent on the contact frequency. Following the results of the questionnaire survey the maximum value of contacts and frequency was set at 64 points. For this threshold the value of intensity rate was set at 1 and its value was 0 if there were no relationships between farmer and institutions whatsoever [Czudec et.al 2008].

It is worth pointing out that the survey takes into account formal institutions which constitute the direct environment of agriculture at local level. Their range includes banks, agricultural counselling centres, local branches of ARiMR, a regional branches of ARR and ANR, regional or local development agencies, local self-governments, district employment agencies, agriculture chambers, farmer trade unions, business, trade and industry chambers, credit guarantee funds, trade organisations, consulting agencies, foundations, associations, R-D centres, enterprise development agencies, etc. Typical market sphere institutions like food and agricultural wholesale companies, agricultural commodity markets, private agricultural produce purchase companies, and producer-marketing farmer groups have been not considered for the research as they are elements of farmers' business activity and merely its marketing "extension", and thus do not make the institutional environment of agriculture.

The analysis of the presented correlation between the intensity rate and production input properties of the holdings, specific characteristics and results of the production may resort to a variety of research methods, yet most of them impose certain requirements on the used data set. Due to lack of normal distribution of the main parameter i.e. intensity rate of farmer-institutions relationships, which was proved by a χ^2 significance test, and qualitative character of many other variables, the authors have decided to use a non-parametric significance tests χ^2 and Spearman's rank correlation coefficient.

At first the examined population of 856 agricultural holdings was divided into three subgroups according to the intensity rate of their owner's relationships with institutions: the benchmarks used to split terciles had values 0.33 and 0.47 in the range from 0 to 1. Subsequently the above subsets of farmers evidencing low, medium and extraordinary level of interaction with institutions became the focal point of the analysis to determine the number of agricultural holdings with regard to their production input properties and production characteristics and production results. The above features became criterion for another division within the original three subsets defining the farmer-institution intensity rate. The number of the second parameter-related categories depended on the number of the criterion variants; as for the continuous parameters, the holdings were divided into three subgroups with regard to tercile values.

The basis of the adopted methodology was the assumption that the farmer-institutions intensity rate impacts the development of agricultural holdings; however, the authors also assumed that sometimes the correlation might be affected by certain specific properties of agricultural holdings and the main task of the statistical analysis is to demonstrate the existing regularities in this respect.

The main methodological tool used to examine the above relationships was a non-parametric significance test χ^2. The data used to make the test calculations was grouped in two-dimensional arrays; however, due to the fact that the farmer-institutions relationship intensity rates were divided in three categories, the number of categories for the second variable was determined by the variable values. Prior to analysis of the variables gathered in the two-dimensional arrays, the authors supported the null hypothesis on their independence. Assuming that p_{ij} denotes the probability that a randomly chosen element belongs to category i and j with regard to the two features accounted in the table, while $p_{i.}$ and $p_{.j}$ are their respective marginal probabilities, the null hypothesis can take the following form [Jóźwiak, Podgórski 1998]:

H_0: $p_{ij} = p_{i.}\, p_{.j}$ for a i, j index pair,

whereas the alternative hypothesis takes the form:

H_1: $p_{ij} \neq p_{i.}\, p_{.j}$ for some index pairs of i, j.

We estimate the marginal probabilities:

$\hat{p}_{i.} = n_{i.} / n$

and

$\hat{p}_{.j} = n_{.j} / n.$

where: n – sample size.

The values expected in the analysed table, assuming independence of the variables, are calculated according to:

$\hat{n}_{ij} = n\hat{p}_{i.}\hat{p}_{.j} = n(n_{i.} / n)(n_{.j} / n) = (n_{i.} n_{.j}) / n.$

The χ^2 test statistics can be calculated from the formula:

$$\chi^2 = \sum_{i=1}^{k}\sum_{j=1}^{l}\frac{(n_{ij} - \hat{n}_{ij})^2}{\hat{n}_{ij}}.$$

The numbers of degrees of freedom are assumed to equal $(k - 1)(l - 1)$.

The null hypothesis was rejected at the significance level $\alpha = 0{,}05$, when $\chi^2 \geq \chi^2_{\alpha,\,(k-1),(l-1)}$.

In order to define the degree of correlation between the tested variables, the Pearson's contingency coefficient C was used [Sobczyk 1996]. For values in the <0, 1> range it was calculated from the formula:

$$C = \sqrt{\frac{\chi^2}{\chi^2 + n}}.$$

As this coefficient value depended on the number of rows and columns, it was divided by its estimated upper limit which was determined from:

$$C_{\max} = \frac{\sqrt{\frac{k-1}{k}} + \sqrt{\frac{l-1}{l}}}{2}$$

Further studies of the above dependencies occasionally revealed a need to define the kind and closeness of relationship between the agricultural holding area and the tested variables. Taking into account the fact that the distribution of the holding area significantly varied statistically from normal distribution, the Spearman's rank correlation coef-

ficient was used to define the relationship. Prior to calculation of the coefficient, the size-related variables are assigned to successive ranks. When the same value appears twice or more, which actually happened in the analysis, they are granted the average value in the ranks which they would be assigned if they were adjacent but had different values. The same ranks make associated ranks. In this case there is a need to introduce modifications to the calculation of the rank correlation coefficient. Hence, the Spearman's rank correlation coefficient was calculated from the formula [Steczkowski, Zeliaś 1997]:

$$\tilde{\rho}_s = \frac{\sum_{i=1}^{n} a_i^2 + \sum_{i=1}^{n} b_i^2 - \sum_{i=1}^{n} d_i^2}{2\sqrt{\sum_{i=1}^{n} a_i^2 \sum_{i=1}^{n} b_i^2}},$$

where:

$$\sum_{i=1}^{n} a_i^2 = \frac{n^3 - n}{12} - T_x,$$

$$\sum_{i=1}^{n} b_i^2 = \frac{n^3 - n}{12} - T_y,$$

$$\sum_{i=1}^{n} d_i^2 = \sum_{i=1}^{n} (R_{1i} - R_{2i})^2$$

$$T_x = \frac{1}{12} \sum_{j=1}^{k} \left(t_j^3 - t_j \right),$$

noting that the formula for T_y is identical with the formula for T_x, and

n – sample size,

R_{1i}, R_{2i} – ranks for the first and second variables respectively,

t_j – the number of associated ranks in the j group,

k – the number of groups of associated ranks.

The Spearman's rank correlation coefficient calculated according to the above formula implies direction of the analysed features (positive or negative agreement among ranks) and its absolute value between the <0, 1> range indicates strength of the relationship. In order to carry out the statistical evaluation of coefficient significance the statistical Student's t-test is used:

$$t = \tilde{\rho}_s \sqrt{\frac{n-2}{1 - \tilde{\rho}_s^2}},$$

which provides basis to verify the null hypothesis H_o : $\rho = 0$ on independence of analysed variables in population with regard to the alternative hypothesis H_1:$\rho \neq 0$ which assumes the presence of some link between the variables.

The null hypothesis was rejected, like previously, at the significance level $\alpha = 0.05$, when $t \geq t_{\alpha,\, n-2}$., where $n - 2$ denotes the number of degrees of freedom variations.

THE RESEARCH FINDINGS

The conducted research proved that individual agricultural holdings in the south-east of Poland are highly diversified with regard to many selected features related to the farmer-institutions relationship intensity level. The following features should be noted above all others: the size of arable land in the holding, economic strength of farm measured in ESU (European Size Unit), sales volume of agricultural production and amount of the EU financial support. Farmers evidencing more intense relationships with local institutions tend to have larger (in terms of size) and economically stronger holdings, obtain higher returns from the sale of its agricultural production and higher financial support from the EU funds (Table 1).

Another fact worth noting is that the holdings which maintain more intense relationships with local institutions tend to evidence more frequent changes in number of production activities and production input resources. The changes usually involve extension of agricultural machinery resources, land resources, livestock and its building resources as well as increase in the number on production activities in farm (Table 1).

The above findings denote that more intense relationships of farmers with the institutional environment of agriculture positively affects structural transformation and modernization of holdings in the south-eastern region of Poland, and it refers primarily to bigger in size and economically stronger agricultural holdings. Furthermore, it should be noted that farmers who maintain more intense relationships with institutions constantly keep looking for new market opportunities and in their farms processes in favour of production versatility outweigh those in favour of production specialization.

The research findings prove the proposed hypothesis that the higher the intensity rate of relationship (cooperation) between farmers local institutions, the more substantial benefits (effects) they derive from the cooperation and the more sweeping changes take place in their holdings with the use of the EU financial support.

The analysis attempted to carry out the statistical evaluation of significance of the relationships and their direction. It should be noted that on the one hand the intensity of relationships between farmers and various institutions is determined by the farmer's set of unique traits; on the other hand it is determined by the features of the holding itself. Hence, a correlation between the farmer-institutions intensity rate and the production input resources, production process properties and production performance was to be established. Taking into account the above relations, one of the analysed variables was always the value of the farmer-institutions relationship intensity rate, and the other was the examined factors.

For the sake of comparison of the analysis results, all statistical values of the significance test χ^2 and contingency coefficients C were juxtaposed in Table 2.

Taking into account the age of the person in charge of the holding, farmers between 40–49 years of age tended to get in touch with various kinds of institutions the most frequently; the older farmers, the least frequently. The findings of the χ^2 test suggest in this case a statistically high relationship between the farmer's age and the intensity of their relationships with institutions; however, the correlation itself was relatively low and its value determined by the Pearson's contingency coefficient C equalled 0.18.

Table 1. Characteristic features of the analysed agricultural holdings
Tabela 1. Cechy charakterystyczne badanych gospodarstw

Specifications	The analysed agricultural holdings			
	Total	According to the farmer-institutions relationship intensity rate		
		to 0.33	0.34–0.47	0.48 and more
Number of farms	856	296	273	287
Farmer-institutions relationship intensity rate (mean)	0.41	0.23	0.40	0.62
Mean farmer's age, in years	44.4	46.4	43.5	43.2
Share of farmers with at least secondary education (percent)	55.0	52.0	55.0	58.2
Mean farm management experience, in years	16.5	17.4	16.0	16.0
Share of male farmers (percent)	69.4	62.2	72.1	74.0
Farm full-time employment (mean)	1.4	1.3	1.4	1.5
Full-time employment per 100 ha of arable land (mean)	17.7	25.5	18.7	13.3
The size of arable land in the holding, in hectares (mean)	7.9	5.1	7.5	11.3
Economic strength of the holding, in ESU (mean)	8.0	4.2	8.9	11.2
Total volume of agricultural sales in 2006 per holding, in PLN (mean)	29811.4	13901.9	33268.0	42931.7
Total volume of agricultural sales in 2006 per 1 ha of arable land, in PLN (mean)	3676.7	2485.9	4462.0	4157.9
Total value of the EU financial support in 2002–2006| per holding, in PLN (mean)	28557.7	21284.8	21970.1	37618.8
Total value of the EU financial support in 2002–2006 per 1 ha of arable land, in PLN (mean)	2001.0	1132.7	2359.6	2555.4
Share of farm income in total family income in 2002–2006 (percent)	52.0	39.6	56.4	59.0
Change in the number of production activities in farm in 2002–2006 (percent of the holdings)				
no change	78.5	80.7	83.2	71.8
increase	10.1	5.4	9.2	15.7
decrease	11.4	13.9	7.6	12.5
Change in labour resources in farm in 2002–2006 (percent of the holdings)				
no change	92.9	94.9	93.0	90.6
increase	3.1	2.0	2.9	4.5
decrease	4.0	3.1	4.1	4.9
Change in land resources in farm in 2002–2006 (percent of the holdings)				
no change	70.4	79.7	72.5	58.9
increase	25.7	11.5	26.0	40.1
decrease	3.9	8.8	1.5	1.0
Change in livestock building resources in farm in 2002–2006 (percent of the holdings)				
no change	85.4	94.3	84.2	77.4
increase	14.0	5.7	15.4	21.3
decrease	0.6	0.0	0.4	1.3
Change in agricultural machinery resources in farm in 2002–2006 (percent of the holdings)				
no change	64.4	83.4	59.7	49.1
increase	34.8	15.2	39.6	50.6
decrease	0.8	1.4	0.7	0.3
Change in livestock unit numbers in farm in 2002–2006 (percent of the holdings)				
no change	75.2	83.1	75.4	66.9
increase	19.5	9.1	22.0	27.9
decrease	5.3	7.8	2.6	5.2

Source: Own research.
Źródło: Badania własne.

Table 2. The relation between the farmer-institutions relationship intensity rate and the examined factors as determined by the statistics of the significance tests χ^2 and contingency coefficients *C* values

Tabela 2. Statystyki testu χ^2 oraz wartości współczynników kontyngencji C opisujące stopień powiązania między aktywnością rolników w kontaktach z instytucjami a badanymi zmiennymi

The examined factors	Significance tests χ^2 statistics	Pearson's contingency coefficient *C*	Statistical significance of the relation
Farmer's age	18.3	0.18	**
Farmer's completed education	34.3	0.23	**
Farmer's experience in managing the holding	6.9	0.11	–
Farmer's gender	11.0	0.15	**
Farm full-time employment	32.7	0.24	**
Full-time employment per 100 ha of arable land	60.0	0.31	**
The size of arable land in the holding	143.8	0.46	**
Economic strength of the holding, in ESU	151.0	0.48	**
Total volume of agricultural sales in 2006 per holding	159.4	0.49	**
Total volume of agricultural sales in 2006 per 1 ha of arable land	65.0	0.33	**
Total value of the EU financial support in 2002–2006 per holding	135.0	0.45	**
Total value of the EU financial support in 2002–2006 per 1 ha of arable land	125.8	0.44	**
Share of farm income in total family income in 2002–2006	86.8	0.37	**
Change in the number of production activities in farm in 2002–2006	23.4	0.20	**
Change in labour resources in farm in 2002–2006	4.50	0.09	–
Change in land resources in farm in 2002–2006	62.4	0.34	**
Change in livestock building resources in farm in 2002–2006	29.7	0.24	**
Change in agricultural machinery resources in farm in 2002–2006	84.1	0.39	**
Change in livestock unit numbers in farm in 2002–2006	38.8	0.26	**

Notes: ** significance for probability value $p = 0.01$
Uwaga: ** istotność przy prawdopodobieństwie $p = 0{,}01$

Source: Calculated on the basis of own research.
Źródło: Obliczenia na podstawie badań własnych.

The next factor which may affect the intensity of relationships between farmers and institutions was the level and type of education attained by holding owner or owners. Seven types of education were distinguished, i.e. primary, agricultural and non-agricultural vocational, agricultural and non-agricultural secondary and agricultural and non-agricultural higher education. The analysis findings generally prove that growth of intensity of relationships is accompanied by increase in the level of farmer's education, particularly agricultural education. The results of the χ^2 test suggest a statistically high dependency of the variable within the relationship; however, the dependency itself was

higher compared to the former and its value determined by the Pearson's contingency coefficient *C* equalled 0.23.

As for the dependency between the farmer-institutions relationship intensity rate and farmer's farm management experience (length of time), the findings prove lack of any statistically significant correlation.

The holding owners were both men and women, yet the research proved that male farmers tended to be more active in relationships with institutions. The relationship also proved statistically highly significant: the Pearson's contingency coefficient *C* valued 0.15.

Another important labour-related factor is manpower resource base in farm. At first the farmer-institutions relationship intensity rate and the size of the manpower resource base was analysed. The relationship between the above factors turned out statistically highly significant and the Pearson's contingency coefficient *C* was 0.23. The correlation may not only result from the need to effectively use the farm workforce but also from the fact that larger manpower resources are found in larger (with regard to area) holdings; the effective use of the farm land is of crucial importance in these holdings and they showed high intensity rate of their relationships with the institutional environment. The value of the Spearman's rank correlation coefficient which defined the degree of dependency between the manpower resource base and the holding area size was positive and statistically highly significant and came to 0.37 approximately.

When it comes to examining the relationship between the farmer-institutions intensity rate and labour resource per unit of arable land it turns out to be inverse. This basically means that the less manpower resources per 100ha of arable land, the higher the intensity of farmer-institutions relationships was evidenced and the correlation was statistically highly significant as the Pearson's contingency coefficient *C* was 0.31. Naturally, one can conclude that concentration of labour resource per unit of land is lower in larger – with regard to area – holdings, which is confirmed by the value of the Spearman's rank correlation coefficient, i.e. –0.71, simultaneously indicating statistically high significance of the relationship.

Another production input, apart from labour, is land. The relationship between the arable land size and the farmer-institutions intensity rate is statistically highly significant and the Pearson's contingency coefficient *C* evidenced relatively high value of 0.46.

The ESU rate was used to denote economic strength of holding. The farmer-institutions intensity rate proved linked to each other in a statistically highly significant manner as the Pearson's contingency coefficient *C* was relatively high, i.e. 0.47. This fact reveals a considerable need for close relations between institutions and farmers managing high-volume production potential holdings. Undoubtedly, such interaction is beneficial for the holding as it gains access to extra funding and may lead to higher efficiency of the production process.

One of the most measurable effects of production activities of a holding is sales volume of its production. There proves to be a high positive correlation between the farmer-institutions intensity rate and the value of agricultural production sales. This fact is verified by the statistically high correlation between the two variables for contingency coefficient *C* equalling 0.49, the highest value of all the examined so far.

As far as the size of agricultural production sales per unit of arable land is considered, one could conclude that that there is also high correlation between this variable and the farmer-institutions intensity rate, as evidenced by contingency coefficient *C* of 0.33. It is worth noting that higher sales volume per 1ha of arable land was observed by larger in size holdings. The relevant Spearman's rank correlation coefficient was in this case positive and statistically significant (app. 0.3).

Another relationship to be considered is the one between the farmer-institutions intensity rate and the size of financial support received from the EU funds. This correlation proves statistically highly significant–the contingency coefficient *C* had relatively high value of 0.45. The size of the EU financial support was also statistically highly significant and positively correlated to the area size of the holding, which is indicated by the value of the Spearman's rank correlation coefficient, i.e. slightly above 0.5.

Taking into account the amount of the EU financial support per unit of arable land in farm the findings of the research lead to the conclusion that the increase of the support is accompanied by growing intensity of relationships between farmers and institutions. The dependency was statistically highly significant as the contingency coefficient *C* showed one of the highest measured values, i.e. 0.44. Furthermore, it should also be noted that there is positive and statistically highly significant relationship between the amount of the EU financial support per unit of arable land and the farm area which is verified by the Spearman's rank correlation coefficient 0.37.

Not all members of the farmer's families work on the farm. Hence another analysed relationship was the one between the share of farm income in the total family income and the farmer-institutions relationship intensity rate. The results of the χ^2 test demonstrated in this case high statistical significance of the relationship between the variables as the Pearson's contingency coefficient *C* was 0.37. This fact denotes that the more families relied on agricultural production for their income, the more these holdings were interested in maintaining closer relationships with institutions.

Agricultural holdings are often required to make decisions that result in modification of the production process. The main reason is the need to adjust the production profile to the existing market conditions and to make use of the available resources most efficiently. One of the methods boils down to change the number of economic activities in the holding. The research findings show that farmers who cooperate with institutions more actively tend to increase the number of economic activities more often – the relationship between this feature and the farmer-institutions intensity rate is statistically highly significant and the relevant Pearson's contingency coefficient *C* is 0.2. The increase in the number of economic activities in holding runs counter the process of specialization of production; however, taking into account the fact that the above occurrences are accompanied by the growth of farm area or/and capital resources, they increase security of farm income in highly volatile markets and prices for agricultural produce. Hence, farmer's cooperation with institutions enables them to take advantage of emerging market opportunities.

Modifications in holding organization do not apply to the production process exclusively but its surrounding conditions as well. The analysis of changes in farm labour resources does not allow to confirm statistically significant relationship with farmer-institutions intensity rate. The fact can mainly justified by relatively high inertia of farm labour resources.

Land is another fundamental production input. Increase in land resources was significantly more frequent among the farmers who cooperated with institutions more closely and this relationship was statistically highly significant as the Pearson's contingency coefficient *C* was 0.34. Moreover, it should be noted that in this case the number of holdings which decreased their land resources was so small, that statistics of the χ^2 test was calculated on the basis of a 3×2 table as the holdings and those which did not change their land resource base had to be placed in one group.

A statistically high significant relationship between the farmer-institutions intensity rate and the increase in livestock building resources in farm was noted. The Pearson's contingency coefficient *C* which defined the relationship was 0.24. Like in the former case, statistical analysis was conducted in 3×2 table which was justified by occasional cases of decreasing number of buildings in farms. These cases were included into the group of holdings which did not change their building resource base.

A clear and statistically highly significant relationship occurred between the farmer-institutions intensity rate and the increase in agricultural machinery base in farm: in this case the Pearson's contingency coefficient *C* was 0.24. For actually a very small number of holdings saw a decrease in their agricultural machinery base, the holdings were included into the group of holdings which declared no changes in this respect: statistics of the χ^2 test were calculated like in the former two cases, in a 3×2 table.

Statistically highly significant relationship was observed between the farmer-institutions intensity rate and the size of livestock population. The value of the Pearson's contingency coefficient *C* defining this relationship was 0.24.

CONCLUSIONS

Statistical analysis of the research findings allows to conclude that the intensity of relationships between farmers and institutions is most highly related to the following features: agricultural production sales per unit of arable land, economic strength of agricultural holding (in ESU), holding area size and the EU financial support per farm and per 1 ha of arable land.

In the light of the findings it is justified to note that the largest–in terms of area and economically strongest holdings were the biggest recipients of the EU support funding: the farmers in charge of them established relatively the closest relationships with agricultural support institutions and they proved most resourceful at efficient management of the existing production inputs.

Holdings managed by the farmers who established most intense relationships with institutions were observed to introduce a specific set of changes to organization of the production process including increasing the number of agricultural activities, expanding the resource base of farm machinery, farm area, livestock and its buildings.

The intensity of farmer-institutions relationships was rather only moderately linked to the farm income share in overall family income, manpower resource base and farmer's education: however, these factors additionally contributed to higher farm management performance.

The intensity of farmer-institutions relationships was least related to changes in labour resources in farms, the farmer's gender and the time they had run the holding.

Generally, the research findings justify a statement that the intensity level of farmer's relationships with institutions of the agricultural environment is a yardstick which can accurately and comprehensively indicate not only the holding's resources, its production organization methods but its economic performance as well.

The research proved the proposed hypothesis that the higher intensity of relationship (cooperation) between farmers and local institutions, the more benefits they, i.e. famers, derive from this cooperation with regard to the changes taking place in the holdings and taking advantage of the EU financial support. Hence, close farmer's cooperation with the institutional environment of agriculture stimulates the processes of structural changes and modernization of agricultural holdings. This, however, applies primarily to the larger in terms of area and economically stronger holdings, which may lead to high polarization of holdings in the fragmented agriculture of the south-east of Poland.

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ZNACZENIE INTENSYWNOŚCI RELACJI ROLNIKÓW Z OTOCZENIEM INSTYTUCJONALNYM W PROCESIE ROZWOJU GOSPODARSTW ROLNYCH

Streszczenie. Celem artykułu jest ocena znaczenia stopnia intensywności relacji rolników z otoczeniem instytucjonalnym w procesie rozwoju gospodarstw rolnych. Materiał źródłowy stanowią wyniki badań ankietowych przeprowadzonych w 2007 roku wśród rolników,

właścicieli gospodarstw rolnych z regionu południowo-wschodniej Polski, tj. z trzech województw: świętokrzyskiego, małopolskiego i podkarpackiego.
Przeprowadzone badania wykazały, że intensywność kontaktów rolników z otoczeniem instytucjonalnym jest bezpośrednio związana z zasobami, organizacją procesu produkcji i wynikami produkcyjnymi gospodarstw rolnych. Intensywne kontakty rolników z instytucjami ułatwiają dokonywanie zmian w gospodarstwach rolnych, przy wykorzystaniu wsparcia finansowego z Unii Europejskiej. Dotyczy to jednak głównie jednostek większych obszarowo i silniejszych ekonomicznie, co może prowadzić do większej polaryzacji gospodarstw w rozdrobnionym rolnictwie południowo-wschodniej Polski.

Słowa kluczowe: rolnicy, otoczenie instytucjonalne rolnictwa, rozwój gospodarstw rolnych

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ECONOMIC SITUATION OF THE POLISH FRUIT GROWERS IN THE PERIOD 1999–2009

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Abstract. The paper presented the contemporary situation of the Polish fruit growers. There was displayed an increasing area of fruit production, reaching 331 thousand of hectares in 2009. The attention was paid to domination of apple trees in a structure of varieties, especially such varieties as: Idared, Lobo, Cortland. Moreover, there was presented an income situation of farms with permanent crops (including fruit growers) on the base of the aggregated data of Farm Accountancy Data Network – FADN. There was noticed decrease in average farm income in these group of farms, from 37 thousand zlotys in 2007 to 16 thousand zlotys in 2009 resulting from a smaller value of production and increase in total costs. There was also indicated that income of farmers conducting permanent crops was lower than gained in farms of mixed type of farming.

Key words: horticulture, farm income, orchards, Poland

INTRODUCTION

Fruit growing is one of the most dynamically developing branches of agriculture. It provides fruits, which are a necessary element of a human diet. Increase in fruit production is a feature of world fruit growing, which has been taking place since the Second World War. The largest rise of production took place in China (from 57 million tons in 1995 to 80 million tones in 2005). In Poland, rural areas take 93.2% of the country (29 139.8 thousand ha), inhabited by 38.6% of people (14.7 million people), whereas permanent crops take 329 thousand ha (1.05% of agricultural land in 2009). According to the Agricultural Census in 2002, agricultural activity in Poland was run by 2933 farms, including 1956 thousand with more than 1 ha (in this group there is only 745 thousand of farms of economic size larger than 2 ESU), which constitutes 25.4% of all farms [Pozarolnicza działalność gospodarstw... 2003]. The size of 2 ESU is achieved by more than 90% of fruit growing farms. The forthcoming years will force fruit growers to facing increasing

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competitiveness both on domestic as well as foreign markets, where majority of fruit is sold. Fruit production faces in a perspective of rising work and investment costs from one side and decreasing fruit prices [Makosz 2005]. Increase of production efficiency per 1 ha and improvement of fruit quality is one of possible strategies of fruit growers.

AIM, DATA RESOURCES AND METHODOLOGY

A documenting method was used in the paper; it consists of use of information gathered previously for aims of agrarian, social and economic policy [Stacha 1997]. Information on economic facts came from documents prepared by suitable institutions of central administration, as the Central Statistical Office as well as prepared for scientific objectives, as reports, analyses and dissertations of scientific entities and institutions for example the Research Institute of Pomology and Floriculture in Skierniewice (Instytut Sadownictwa i Kwiaciarstwa w Skierniewicach referred to as ISiK in the text) and the Institute of Agricultural and Food Economics – National Research Institute referred to as IERiGŻ-PIB in the text.

There was used published data of the Farm Accountancy Data Network – FADN. FADN is the European system of gathering of accountancy data from farms. Information on farms is gathered in order to determine income value of farms achieved in the EU countries and to analyze activities of particular types of farms as well as effects, which can take place after implementation new or modification of old instruments of the Common Agricultural Policy. Agricultural farms participating in FADN are classified according to criteria: economic size expressed in ESU and an agricultural type. Each Member State accepts a different threshold of economic size determining minimal size of farms participating in FADN. These differences result from a various agrarian structure of particular countries. FADN monitoring is one of possible sources of evaluation of fruit growers' economic situation both in Poland as well as in selected EU countries [Wyniki standardowe uzyskane... 2008].

An analysis of data coming from interviewed population of farms of all European countries is a subject of a permanent FADN analysis, for example 753 thousand of commercial farms were interviewed in Poland [Goraj, Mańko, Osuch, Płonka 2010]. FADN is focused on commercial farms significantly contributed to proportion of added value in agriculture. There are observed farms generating at least 90% of Standard Gross Margin (SGM) [Poziom i struktura dochodów rodzin rolniczych... 2010]. Researched farms are classified according to economic criteria – Standard Gross Margin (SGM), European Size Unit (ESU), and the agricultural type [Poziom i struktura dochodów rodzin rolniczych... 2010]. The last criterion concerns to proportion of particular activities taken up within a farm in establishing SGM. In the researched population there is determined the Annual Work Unit (AWU), which is defined as a conversion unit of work input as an equivalent of time worked by one full-time person in a farm during one year. One AWU is an equivalent of 2200 hours of work performed during a year by: a farmer, his family members as well as hired workers. There are determined eight general types and one non-classified group of farms, 17 basic types, and 50 detailed types within FADN. Data presented below consists of an analysis performed for farms

according to the farm type and classes of economic size supplemented by a distribution of farms in selected regions and European Size Unit (ESU). In FADN classification, orchards [Wyniki standardowe uzyskane przez indywidualne gospodarstwa rolne... Warszawa 2006], consisting of fruit tress and berry bushes (including tropical and subtropical orchards) were classified as permanent crops along with olive groves and rest of permanent crops, consisting of perennial crops under shelter, nurseries (including grapevine nurseries) and other perennial crops (osier, bulrush, and bamboo).

The aim of the paper is to determine an economic situation of family farms growing fruit in Poland on the base of self-aggregated data coming from the FADN system. The period of analysis of an orchard structure on the base of data from the Central Statistical Office (CSO) consists of the period 1999–2009, whereas data gained from the FADN system – the period 2004–2009.

ROLE OF FRUIT GROWING IN POLAND

Poland is one of the main fruit producers in Europe. A number of fruit growers in Poland is determined on a level of 319 thousand, whereas 90% of them constitutes small farms of fruit crops smaller than 1 ha. According to estimation of ISiK in Skierniewice, there are about 40 thousand of farms producing for market (commercial fruit production). On the other hand only about 10% of them produce on a very high European level – estimations from 2005 [Makosz 2005]. An area of orchards in Poland constituted 1.08% of agricultural land in 2007 [Rocznik Statystyczny Rolnictwa i Obszarów Wiejskich... 2007] and it has been systematically growing for a dozen or so years. In the analyzed period 1995–2008 there can be seen two fundamental periods: the first one 1996–2001 when very slow increase of orchard area took place (for example comparing year-to-year increase it was on a level of 0.28% for a change in 1997 compared to 1996 and 0.55% in 2001 compared to 2000). The second period since 2002 (except from 2003 and 2007 when fruit production suffered from weather conditions) is a period of dynamical increase of orchard crops area – annual average increase of the area was on a level of 3.81%.

It should be stressed that both intensive increase of the orchard area in Poland as well as technological innovations including mainly establishing of new or transformation of existing orchards into intensive orchards result in increase in volume of fruit production in Poland. In the period 2006–2009 the orchard area was in a range 292.4––336.8 thousand ha (Figure 1). Contemporary intensive technologies used in fruit production [Mika 2002] accompanied by rising an area of crops allow to achieve increase in fruit production.

Increasing competitiveness on fresh fruit market causes that much more fruit is exported on Central-European markets (mainly to Russia, Ukraine, Belarus as well as the Baltic States). There is increase in requirements in wholesale and retail trade, especially in case of volume of one fruit batch and fruit quality. Increase in competiveness on market contributes to a necessity of performing marketing operations by large producers and professional organizations with self-governmental authorities promoting both a region as well as products from a particular area of fruit production. A group of main regions of

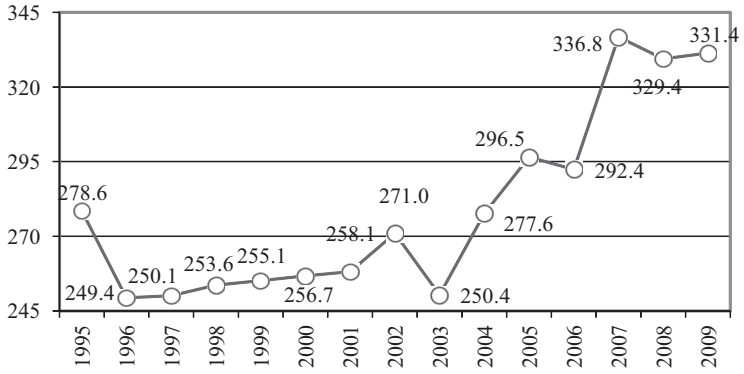

Fig. 1. Area of orchards in Poland in the period 1995–2009 [thousand ha]
Rys. 1. Powierzchnia sadów w Polsce w latach 1995–2009 [w tys. ha]

Source: Rocznik Statystyczny Rolnictwa i Obszarów Wiejskich, GUS, Warszawa 2007, Rocznik Statystyczny Rolnictwa, wyd. GUS [2009–2010].
Źródło: Rocznik Statystyczny Rolnictwa i Obszarów Wiejskich, GUS, Warszawa 2007, Rocznik Statystyczny Rolnictwa, wyd. GUS [2009–2010].

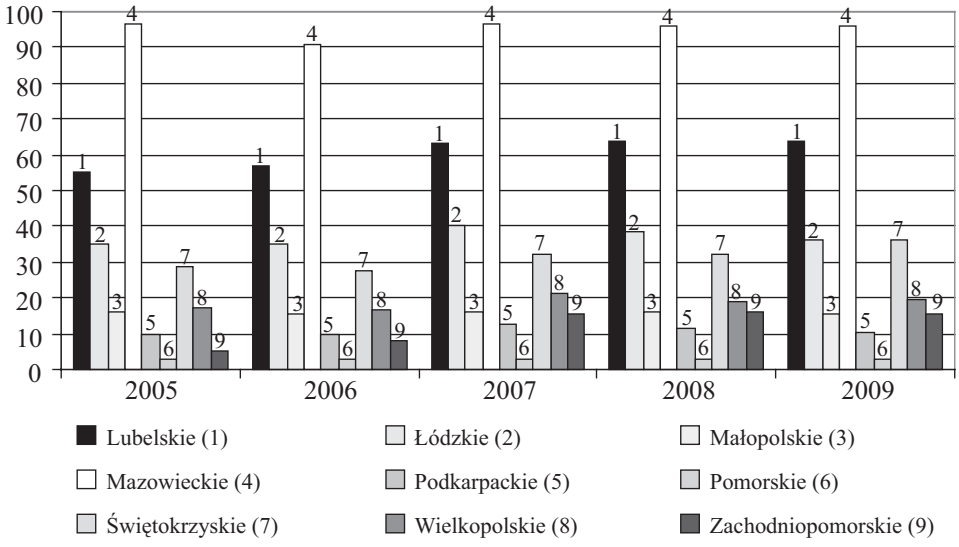

Fig. 2. Orchard area in Poland in selected regions in 2005–2009 in thousand hectares (according to administrative borders)
Rys. 2. Powierzchnia sadów w Polsce w wybranych regionach w latach 2005–2009 w tys. ha (według granic administracyjnych)

Source: Own elaboration on the base of CSO: Rocznik Statystyczny Rolnictwa i Obszarów wiejskich, Warszawa 2007, p. 206, Rocznik Statystyczny Rolnictwa i obszarów wiejskich, Warszawa 2008, s. 212, Rocznik Statystyczny Rolnictwa i obszarów wiejskich, Warszawa 2009, p. 79.
Źródło: Opracowanie własne na podstawie GUS: Rocznik Statystyczny Rolnictwa i Obszarów wiejskich, Warszawa 2007, p. 206, Rocznik Statystyczny Rolnictwa i obszarów wiejskich, Warszawa 2008, s. 212, Rocznik Statystyczny Rolnictwa i obszarów wiejskich, Warszawa 2009, s. 79.

fruit production in Poland consists of: mazowieckie, lubelskie, and łódzkie. An area of orchards in mazowieckie region was at a level of 98 thousand ha (except from 2006). The second and third region were respectively lubelskie and łódzkie (Figure 2). Comparing rate of growth, there can be indicated three regions, where increase of orchard area was on the highest level: zachodniopomorskie (growth by 312.5% comparing 2009 to 2005), lubuskie (173.8%) and warmińsko-mazurskie (162.8%). However, increase in crops area in these regions did not have significant influence for fruit production in Poland, besides zachodniopomorskie region, where significant rise of walnut crop took place.

Taking into account the area structure of orchards it should be indicated that in 2002 27.5% of farms grew fruit on an area larger than 1 ha. In next years this structure changed; there was decrease in proportion of farms with orchards from 27.5% in 2002 to 5.2% in 2005, and continuously to 4.4% in 2006 and 3.9% in 2007 [Gospodarstwa rolne... 2005 oraz Rocznik Statystyczny Rolnictwa i Obszarów Wiejskich... 2008]. The highest growth rate was noticed in the group of farms with area of 100 hectares and more; in this group orchard area raised more than 25 times, in farms from 20 to 50 hectares – respectively 8 times.

STRUCTURE OF VARIETIES IN HORTICULTURAL FARMS IN POLAND IN THE PERIOD 1999–2009

One of significant determinants of success of farms growing fruits is selection of fruit trees' varieties. Value of income gained from 1 ha of orchard is conditioned by sensitivity of selected varieties to cold, scab, mildew, spring frost on the one hand, and regularity of yielding and demand on the other hand* [Golimowska 2002]. Authors [Makosz 2005] indicate a necessity of adjustment of varieties' structure of fruits in order to decrease proportion of fruits directed for industrial processing and increase proportion of dessert apples. Improvement of fruit quality and a distribution system (connection of a transport, warehouse system with a structure of entities on fresh fruit market) can open and reinforce a position of the Polish fruit producers in international markets. However, lack of enough investments can contribute to, as E. Makosz claims, to significant decrease in demand for fruits (till 300 thousand tones), which can be caused by lack of acceptation of offered fruits. Specialization in fruit production should be indicated as a factor of success of fruit growers. Apple tree crops are the main species. An average apple tree crop occupied an area of about 160–175 thousand ha (Figure 3). Sour cherry is the second popular species; its area ranges about 35.5 thousand ha and plum on an area about 21 thousand ha (Figure 3). At the same time it should be stressed that the highest growth rate took place in cultivation of walnut, which increased from 3.5 thousand ha in 2002 to 20.1 thousand ha in 2009. It was probably connected with high subsides of the European Union for this kind of permanent crops.

* One of possible ways of decreasing costs is to switch from fruit growing to integrated fruit production. However, it requires larger involvement, knowledge and capabilities of conducting marketing activities in farms.

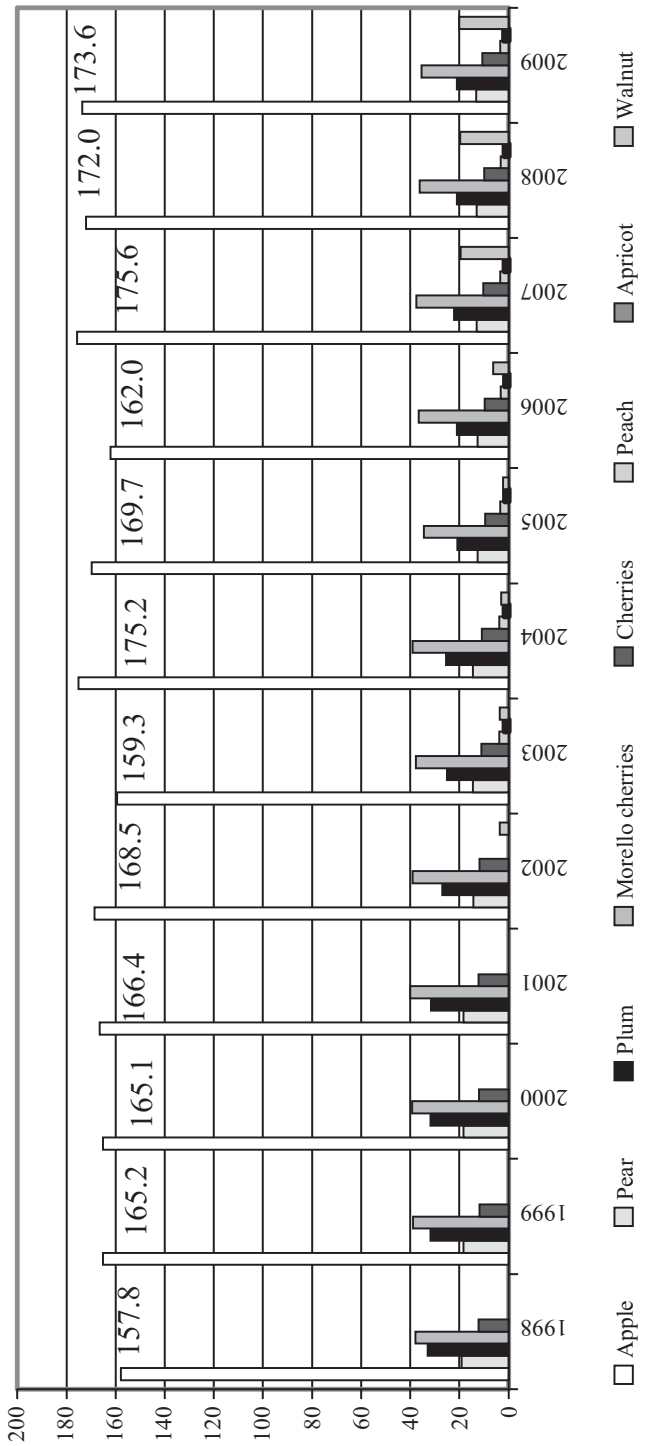

Fig. 3. Area of fruit tree crops in the period 1998–2009 (thousand ha)
Rys. 3. Obszar upraw drzewek owocowych w latach 1998–2009 (w tys. ha)

Source: Own elaboration on the base of data of the CSO, included in the publication: Wyniki produkcji roślinnej from the period 1999–2010.
Źródło: Opracowanie własne na podstawie GUS, uwzględniając publikację: Wyniki produkcji roślinnej z lat 1999–2010.

In the case of apples, there should be indicated increasing competitiveness of varieties from producers outside the EU on international markets (outside of domestic market). Also observation of consumers' preferences, especially on international markets, can contribute to increase in competitiveness of domestic producers. Competitiveness of fruit growers is also improved by selection of attractive fruit varieties with simultaneous maintaining their diversity. Permanent exchange of old varieties in Polish orchards contributes to improvement of assortment structure on domestic market and adjustment to foreign requirements. A dominating position in a variety structure of apples was occupied in 2009 by: Idared (27 948 ha), Jonagold (19884 ha), Szampion (17 650 ha), Gloster (10 346 ha), and Cortland (15 005 ha). High changeability of apple harvests is a characteristic feature of the Polish fruit production (Table 1). Harvest volume of particular apple varieties was not equal in the analyzed period 1999–2009. In the case of Idaret, harvests were achieved at a level from 128 thousand tons to 443 thousand tones, for Lobo from 78 to 236 thousand tones, and for Cortland from 76 to 245 thousand tones (minimal values and medians for the rest of apple varieties are presented in the Table 1).

Table 1. Maximal, minimal values and median of crops volume of selected main apple varieties in Poland in the period 1999–2009 (expressed in dt)

Tabela 1. Wartości maksymalne, minimalne oraz mediana wielkości zbiorów wybranych podstawowych odmian jabłek w Polsce w okresie 1999–2009 (wyrażone w dt)

Varieties of fruits	maximal harvest volume	median	minimal harvest volume
Idaret	4 428 929	3 438 208.5	1 277 314
Lobo	2 363 978	2 014 224.5	787 927
Cortland	2 445 574	2 020 215	758 848
Jonagold	3 356 975	2 189 487.5	988 575
Szampion	3 078 771	2 075 103	858 272
Gloster	2 105 846	1 462 135.5	503 734
Ligol	1 519 899	828 491.5	161 329

Source: Own elaboration on the base of data of the CSO included in the publication: Wyniki produkcji roślinnej… from the period 1999–2010.

Źródło: Opracowanie własne na podstawie GUS, uwzględniając publikację: Wyniki produkcji roślinnej z lat 1999–2010.

Yielding changeability of particular varieties is important because of income stability and as a result because of profits of horticultural farms. At the same time, selection of varieties requiring less nursing treatments is important from a perspective of costs. There can be indicated new verities, which are characterized by highest resistance to apples scab, which decreases costs of plant protection substances in farms. For example Freedom, Floriana, Sawa, and Odra are the varieties resistant to apple scab. At the same time sensory assessment of majority of varieties indicates that their taste is not significantly different from apples cultivated as dessert ones [Kruczyńska, Rutkowski 2003]. More considerable yielding changeability of particular apple varieties can be seen during analyses of crop volume per 1 ha of fruit crops. Yields of Idaret ranged from 46.1 dt in 2007 to 162.7 dt in 2003. The highest crops per 1 ha were achieved for majority of apple varieties in 2008.

ECONOMIC SITUATION OF FARMS WITH PERMANENT CROPS – FADN PERSPECTIVE

According to the FADN methodology farm income consists of: gross added value calculated as total output reduced by intermediate consumption and increased by balance of subsidies and taxes of operational activity. Gross added value reduced by deprecation of production factors allows calculating farm net value added, which reduced by total external costs as wages, rent, and interest paid and increased by subsidies gained as a result of investment activity gives family farm income (Figure 4). Assessment of total output (plant crops and products) indicates significant increase in fruit production value

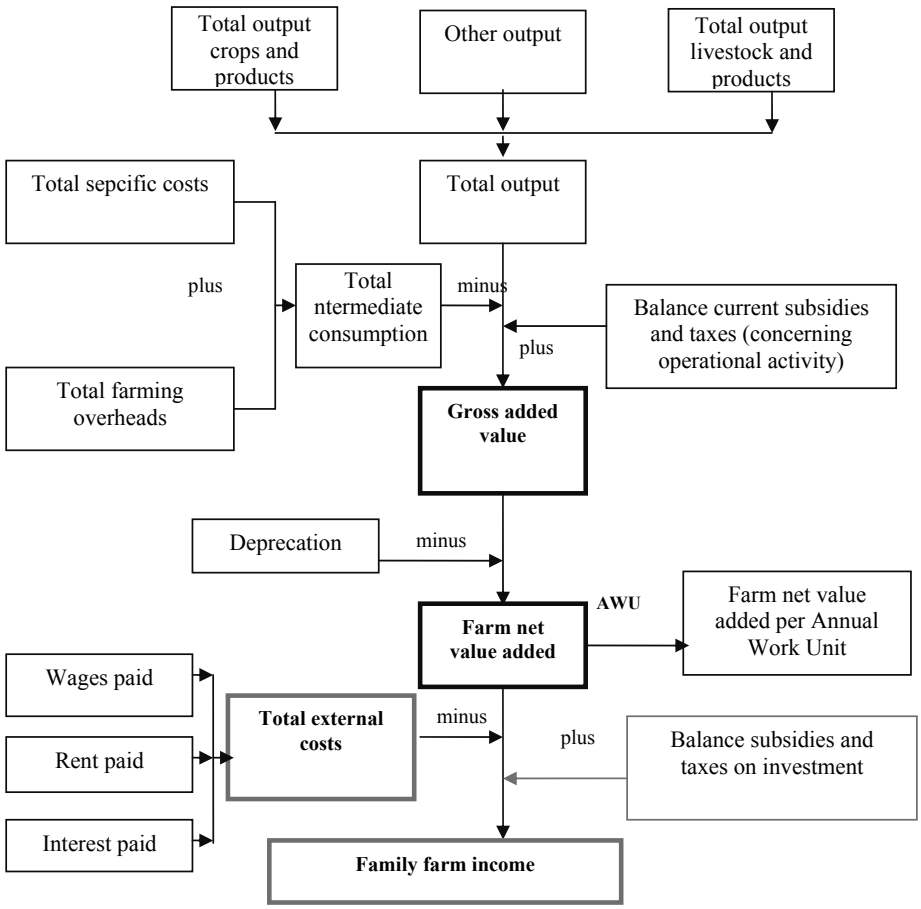

Fig. 4. Scheme of family farm income calculation according to FADN
Rys. 4. Schemat obliczania dochodu rolniczego rodziny według FADN

Source: Wyniki standardowe uzyskane przez indywidualne gospodarstwa rolne uczestniczące w Polskim FADN w 2004 roku, cześć I. Wyniki standardowe, Polski FADN, Warszawa 2006.
Źródło: Wyniki standardowe uzyskane przez indywidualne gospodarstwa rolne uczestniczące w Polskim FADN w 2004 roku, cześć I. Wyniki standardowe, Polski FADN, Warszawa 2006.

only in specialist farm conducting permanent crops. Fruit value in this group constituted 79–87% of total production in the analysed period. At the same time only in farms of arable farming, value of sold fruit ranged from 4 to 5%. Analysis of production from farms with permanent crops displays that there was significant decrease in income in 2008 and 2009 compared to the pervious years.

A level of total family farm income depends on a selected direction (type) of agricultural production. The lowest income was achieved every year by farms of diversified type. A level of income in these farms was 21.39 thousand zlotys in 2006 and it has been systematically decreasing since 2006 [Orłowska 2010] till 16.78 thousand zlotys (decrease by 21.55% compared to the level in 2006). Decline of family farm income was noticed almost in all groups, including also farms with permanent crops, except from horticultural farms and farms with *grain* eating livestock. Fruit growers noticed the largest decrease in income in the analyzed period – from 37.30 thousand zlotys in 2007 to 17.66 thousand zlotys and 16.47 thousand zlotys respectively in 2008 and 2009. The main reason of decline of income in farms with permanent crops results from increase in direct costs and simultaneous decline of total production value from 94 thousand zlotys in 2007 to 79 thousand zlotys in 2009. This decrease was the largest one within all types of farms. Income from farms with permanent crops was lower than income gained by farms of diversified type. An observation of structure of income of farms allows to stating that after increase in income in specialist farms with animal production and fruit production lasting a few years, there was a breakdown in income in these agricultural types (Figure 5). The economic situation of farms aiming at permanent crops suffered significant worsening in the analyzed period.

The highest input of work was put in farms specializing in horticultural production and permanent crops (including orchards). In these types of farms hired workforce constituted for example in 2008 the highest proportion, respectively 34% and 35% for perma-

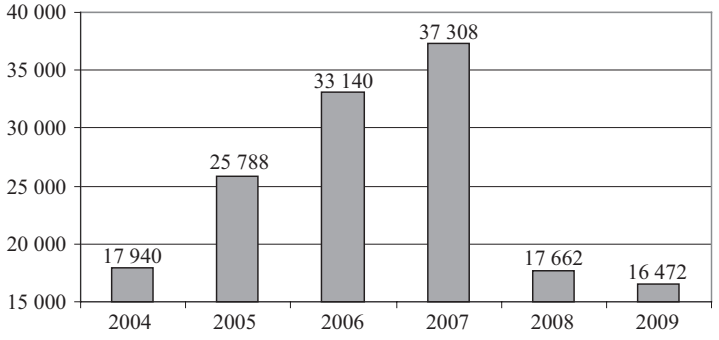

Fig. 5. Family farm income from a farm with permanent crops (zloty)
Rys. 5. Dochód rolniczy rodziny z gospodarstwa z uprawami trwałymi

Source: Own elaboration on the base of data from FADN, for example: L. Goraj, S. Mańko, D. Osuch, R. Płonka, Wyniki standardowe uzyskane przez gospodarstwa rolne uczestniczące w Polskim FADN [years 2004–2010], wyd. IERiGŻ, Warszawa.

Źródło: Opracowanie własne na podstawie danych FADN, np. L. Goraj, S. Mańko, D. Osuch, R. Płonka, Wyniki standardowe uzyskane przez gospodarstwa rolne uczestniczące w Polskim FADN [lata 2004–2010], wyd. IERiGŻ, Warszawa.

nent crops [Wyniki standardowe uzyskane przez gospodarstwa rolne... 2009]. Income per one full-time person increased in the analyzed period (since 2004 to 2007) but after that it broke down to a level of 15 thousand zlotys. Decline of income was more significant in a case of family farm income per one full-time person – to a level of 12.5–13 thousand zlotys (Figure 6).

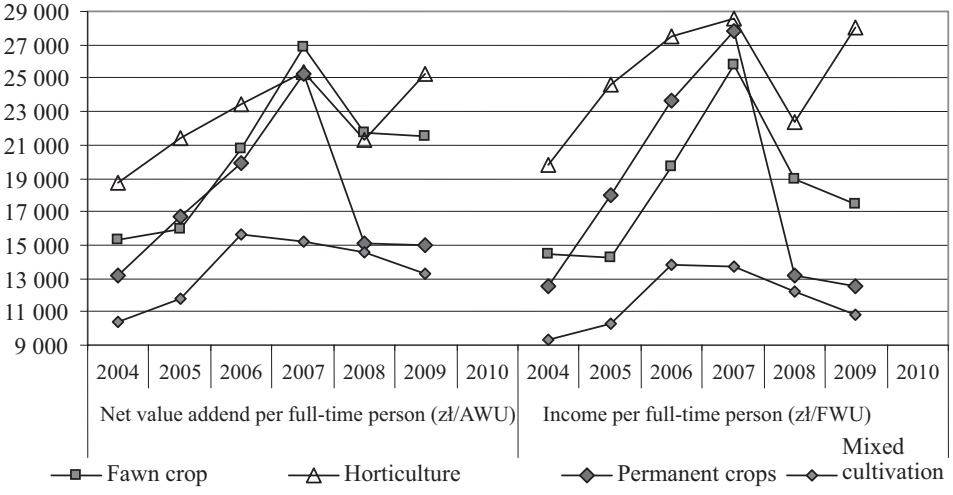

Fig. 6. Income per person in farms with permanent crops on the background of other types of farms with plant production in the period 2004–2010 (data from FADN expressed in zloty/AWU and zloty/FWU)

Rys. 6. Dochód na osobę w gospodarstwach z uprawami trwałymi na podstawie innych typów gospodarstw z produkcją roślinną w latach 2004–2010 (dane z FADN wyrażone w złotych/AWU I złotych/FWU)

Source: Own elaboration on the base of data from FADN, for example: L. Goraj, S. Mańko, D. Osuch, R. Płonka, Wyniki standardowe uzyskane przez gospodarstwa rolne uczestniczące w Polskim FADN [years 2004–2010], wyd. IERiGŻ, Warszawa.

Źródło: Opracowanie własne na podstawie danych FADN, np. L. Goraj, S. Mańko, D. Osuch, R. Płonka, Wyniki standardowe uzyskane przez gospodarstwa rolne uczestniczące w Polskim FADN [lata 2004–2010], wyd. IERiGŻ, Warszawa.

CONCLUSIONS

Despite of decline connected with considerable decrease of income, fruit growing is one of the most dynamically growing branches of agriculture, which is proved by increase in area of orchards. Specialization resulting from concentration of fruit selling on foreign markets, mainly on the Eastern markets, but also on markets in countries accepting the highest level of fruit quality in wealthy Arab and Asian countries, is one of possible change directions. An observation of consumers' preferences, especially on international markets, can contribute to increase in competitiveness of domestic producers. Undoubtedly, rise of orchard area takes place in Poland, which on the one hand can be interpreted as a positive signal for market because it concerns investments in farms but on the other

hand it can be an attempt of saving income of households through increase in cultivation area. Some producers, especially possessing a small area and diversified varieties of fruit production as well as paying high costs of orchards running for example because of selection of cost-consuming varieties, can be eliminated from market in the closest future. It is in compliance with conclusions formulated by other researchers that there is increasing specialization and a rising number of fruit producers operating on a high European level taking into account both quantity as well as quality. The main areas of fruit production concentration seem to be such regions as: mazowieckie, lubelskie and łódzkie.

It should be stressed that in the situation of decrease in income of fruit producers there is for example a necessity of adjustment of varieties structure of fruit tress, which are less sensitive for different kinds of pathogens. According to the FADN data, decline of income took place in the case of permanent crops, especially in the period 2008–2009 and it is possible that this tendency will also occur in the next years. There was the largest decrease of income in farms with permanent crops from 37.3 thousand zlotys in 2007 to 16.5 thousand zlotys in 2009. This decrease was the most significant in a group of all types of farms. It is worth stressing that income from farms with permanent crops was lowest that income from farms of diversified type. Decline of income was also noticed in the case of assessment of workforce input in farms specializing in horticultural cultivation and permanent crops. Income per one full-time person was on the level of 15 thousand zlotys and family farm income per one full-time-person was on the level of 12.5–13 thousand zlotys. It is a very low value taking into account a level of minimal income in the economy.

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SYTUACJA EKONOMICZNA POLSKICH GOSPODARSTW SADOWNICZYCH W LATACH 1999–2009

Streszczenie. W artykule przedstawiono ocenę sytuacji w polskich gospodarstwach sadowniczych. Wskazano na wzrastającą powierzchnię upraw owoców, sięgającą w 2009 r. 331 tys. ha. Zwrócono uwagę na dominację upraw jabłoni w strukturze odmianowej, a szczególnie takich odmian jak: Idared, Lobo, Cortland. W dalszej części artykułu przedstawiono, na podstawie zagregowanych danych FADN sytuację dochodową gospodarstw dysponujących uprawami trwałymi (w tym gospodarstw sadowniczych). Zwrócono uwagę na spadek przeciętnych dochodów rolniczych w tych gospodarstwach z 37 tys. zł w 2007 do 16 tys. zł w 2009 r. z uwagi na mniejszą wartość produkcji oraz wzrost kosztów ogółem. Wskazano ponad to, ze średnio dochody rolników posiadających uprawy trwałe były niższe niż dochody uzyskiwane w grupie gospodarstwo typie mieszanym.

Słowa kluczowe: ogrodnictwo, dochód rolniczy, sady, Polska

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ASSESSMENT OF THE STRATEGIC PLANNING LEVEL IN THE COMMUNES OF THE MALOPOLSKA PROVINCE

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Abstract. Strategic planning is one of a very important areas of local government. Prepared strategic documents facilitate the efficient carrying out community development policy. The most commonly prepared planning documents are: development strategies, long-term financial plans, long-term investment plans, plans of local development and village development plans. The article pointed out the large variations among municipalities in the implementation of the strategic management tools. It also stressed that to ensure the usefulness of strategic plans for the creation of local economic development is necessary to take into account the stage of their preparation for specific problems to be solved. The basis for the formulation of strategic plans of municipalities should be bottom-up initiatives. It should not be the administrative necessity of their possession.

Key words: commune, development strategy, long-term financial plan, planning, public management, strategic management

INTRODUCTION

The management of communes as the public sector entities is undergoing an evolution from the administration model towards the more active and, first and foremost, effective method drawing on inspiration from the management of commercial entities. This results from noticing of the fact that communes, just as enterprises, operate in a competitive environment. Their competitiveness is understood as the ability to realise adopted objectives on the market in a proficient, efficient, and cost-effective way [Gralak 2008, Kieżun 1998].

In effect, the reforms of the public sector entities management have led to the creation of the New Public Management concept (NPM) (Pl: *Nowe Zarządzanie Publiczne – NZP)*. The assumptions of this management model focus on the improvement of the effectiveness of public resources management achieved by creation of market relations and competition in the scope of the provision of public services [Bailey 1995].

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The fundamental areas of interest inherent to the NPM model include strategic management, public organisations operation management, personnel management, and financial management [Zalewski 2005]. The strategic management ought to cover a number of functions related to the strategy preparation and implementation, project management, monitoring, assessment and control as well as finance management [Klasik 2000].

Strategic planning in public organisations requires that the consensus of all persons, social groups, organisations, and institutions involved in their functioning is reached. Reaching such an understanding constitutes a substantial condition for the success of not only the plan creation procedure proper, but also its effective realisation [Bryson 1988]. It is of fundamental significance for organisations management interpreted as the effective pursuance of realisation of assumed objectives.

The implementation of the strategic management concept in the public sector encounters some reservations as well. They can be brought down to the following [Hughes 1998]:

- The lack of the possibility to precisely define objectives, due to the different conditions of operation of public organisations,
- Rotation of authorities translated into the short time horizon of management,
- The issue of liability for the operation of public institutions.

The listed reservations may by no means be treated as a premise for forbearing the long-term perspective planning in public units, they should only point at the necessity of taking a certain specificity of the sector's functioning into consideration.

Satisfactory results in the creation of development on the territorial self-government level are strictly related to the proficiency in their management understood in the categories of know-how and skills in the management of resources, processes, and flow of information with the view of the optimum use thereof [Gralak 2008].

The objective of the study is to make an attempt at the assessment of the level of advancement of strategic planning in the basic-level territorial self-government units of the Malopolska Province. It was also resolved to verify the hypothesis proposing that in the units located on the peripheries in relation to the province capital the status of the use of strategic management tools is lower than in relation to the communes located closer to the centre.

MATERIAL AND RESEARCH METHODOLOGY

The material for the analysis was provided by the results of questionnaire polls conducted in the communes located within the territory of the Malopolska Province. The questionnaire polls were conducted within the years 2008–2009 on the population of 132 units which included 96 rural communes and 36 entities with the status of an urban-rural commune.

Only the units with the rural or urban-rural commune were qualified for the purposes of the analysis. This resulted from the need to maintain the comparability of objects subject to the research which was of particular relevance due to the nature of obtained information. Boroughs [urban communes], mainly due to the size and size-related features could at least distort some of the obtained results.

The analysis included the fundamental strategic planning instruments used in the practice of functioning of the territorial self-government units in Poland. They included: development strategies, long-term financial and investment plans, local development plans, and Village Development Plans (VDP).

RESULTS AND DISCUSSION

Although in a large part of Polish territorial self-government units, the strategic planning is not an altogether new phenomenon, nevertheless, prepared strategic documents are characteristic for their diversified quality [Słodowa-Hełpa 2003]. Also the types of strategic plans being prepared, their scope, their character as well as the objectives of preparation are diverse. Admittedly, the Act on Commune Self-Government [1990] does not impose a direct obligation to prepare the development strategy on the territorial self-government units of the basic level, nevertheless the said act already features provisions from which it follows that the development policy is conducted by various entities depending on the scale, including – on the local scale – the poviat and commune self-government. The subsequent article of the mentioned Act already features the provision stating that the basis for conducting the development policy is the prepared development strategy.

Regional development and the regional development strategies used for the purposes of their realisation in Poland are treated as an integral part of the broadly understood question of the development of the entire country. Such an understanding of the regional development strategies, although pointing to their key significance for the realisation of the objectives adopted in the scale of the entire country seems to be somewhat exaggerated. The first reason for such an opinion is the existing discrepancy between the economic objectives of the administrative reform of the country and the entire public finances system. The increase of the significance of the self-government units (located closer to the citizen) in the decision making process focused on solving residents' problems, which was declared at the introduction of the administrative division of the state, in its assumptions was to facilitate the improvement of effectiveness of provision of public services. However, in order for this to become a fact, it is necessary to transfer adequate financial resources to the lower levels of self-government with the view of realisation of specific projects. The heretofore experiences related to the decentralisation of public finances, however, indicate the inadequacy of the financial means transferred from the central budget to the regional and local level in relation to the public tasks ceded thereon. In consequence, it only results in the substantial limitation of the financial self-sufficiency of self-government units [Pyszkowski 2003].

The next issue with a limiting impact on the possibility of the interpretation of the issues of the country's development seen through the prism of the regional development strategies is the existing dichotomy between the hierarchy of objectives on the regional and local levels of the territorial self-government. Local self-governments aware of many needs and unsolved problems, sometimes even of a civilisational nature, in their strategies focus mainly on the creation of the best possible conditions of living for their residents and on the development of economic activity within their own territory. They compete with one another to attract, among others, entrepreneurs to their territory and due

to the development of their companies strive for the creation and extension of the local economic base. Meanwhile, the province's self-government is obligated to conduct such intraregional development policy the objective of which would be to equalise the disproportions between individual territorial units. Hence, it is visible that the regional and local levels of the territorial self-government operate at cross-purposes.

The assessment of the status existing in the area of the use of the strategic management by the territorial self-government units in Poland focuses on two levels mainly: self-governing provinces and communes. However, this does not signify the elimination of the intermediate level – the poviat – from among the entities able to draw up and implement the specific long-term planning tools. It is rather related to the fact of relatively very low financial self-sufficiency of the Polish poviats which results in the significantly limited scale of making use of the strategic management methods in the actual administration of a territorial unit by this level of self-government [Ziółkowski 2005].

The communes located on the territory of the Malopolska Province are characterised by a high diversification in terms of many characteristics in the level of the social and economic development, entrepreneurship, local economy structure, employment, infrastructure, self-government's financial standing, etc. These differences are noticeable also in relation to the level of use of the planning functions in the commune management with consideration of the long-term time horizon. The collective specification of the strategic documentation used in the communes of the Malopolska Province with keeping the division into rural and urban-rural units is to be found in Tables (1 and 2).

Table 1. Specification of strategic documentation used in a group of rural municipalities in the Malopolska Province

Tabela 1. Zestawienie wykorzystywanej dokumentacji strategicznej w grupie gmin wiejskich województwa małopolskiego

Type of owned strategic documentation	Number of entities	Share in population [%]
Development strategy	81	84.38
Long-term financial plan	61	63.54
Long-term investment plan	32	33.33
Local development plan	77	80.21
Village development plan	49	51.04
Other	25	26.04

Source: Own study.
Źródło: Opracowanie własne.

In the rural communes group, the most popular document was the development strategy (more than 84% of the indications), although only four units fewer admitted that they possessed the local development plan. Such a high popularity of this second document was certainly a derivative of the fact that the research was conducted already after the end of the period of implementation of assistance programmes co-financed from the EU structural funds from the so-called first financial perspective (2004–2006). During this period, it was the key document constituting an attachment at applying for the external assistance funds in the frames of the provincial component of the Integrated Regional Operational Programme (IROP).

Decidedly fewer communes had long-term financial plans (Pl: WPF) most often constructed in the form of long-term forecasts of incomes and expenditures of local budgets. Against this background, it is worth highlighting that only every second unit from among those with long term financial plans declared the preparation of long-term investment plans (Pl: WPI). On this basis, it is possible to come to the conclusion that although forecasting of basic financial categories of the budget does not present communes with excessive difficulties, then the proper formulation of development objectives based thereon along with their inclusion in the form of coherent investment projects is not such an easy task altogether. The reason for such a state of affairs may be the lack of the long-term vision of development of the local community which in time may be translated into making investment-related decision not on the basis of the earlier established hierarchy of strategic objectives, but caused solely by the current needs or being solely a derivative of political calculations.

All the above-analysed strategic documents within their scope included the matters concerning the territory of the entire commune and this is why creating them required that the postulates of all the players of the local self-government scene be taken into account. In many a case, their interests are contradictory, especially when substantial financial outlays are required for their realisation which, with the limitations of local budgets, is almost a commonplace phenomenon [Kożuch 2008]. Then, the ability to arrive at consensus and to set such task priorities is required so that in the first order consensus-reaching skills are required in order for the tasks which stand the biggest chance at dynamising the local development processes to be first qualified for implementation.

The only document developed and implemented at the level lower than the entire commune is the village development plan. Such plans, as intended by the legislator, were to facilitate the creation of grassroots local initiatives on one hand based on the detailed diagnosis of possessed resources, including historical assets, assets related to the natural environment, human capital, and the local material base while on the other on identification and analysis of projects the realisation of which would be to constitute the solution of very relevant developmental issues at the lowest level. The institution of the Village Development Plan was also aimed at creation of the possibility for local circles to come forth with concrete investment project proposals addressed to the decision-making bodies on the level of the commune.

The Village Development Plans were drawn up in only half of the units subject to analysis. It is not a high result, nonetheless, it should be born in mind that the construction of this document was a substantial *novum* for residents of the decisive majority of localities and the adaptation of this innovation requires time. So far many plans concerning the residents' affairs have been formulated as if from above by the commune self-government, in many cases even without the necessity for direct involvement of the concerned parties. Although it stood in contradiction with the declared principles for the creation of such documents, nevertheless the practice of local self-governments' operation in this respect, frequently consisting in commissioning the preparation of the plan by an external entity, pointed to the application of other solutions in reality. A certain improvement in this area may be caused by the implementation of certain tasks in the frames of operational programmes and also of the Community initiatives oriented on the financial support for grassroots initiatives intended at animation of development processes on the local scale.

In the group of other strategic documents, the most frequent answer were the declarations related to local zoning plans. These were documents in the decisive majority developed for the territory of an entire commune. Other plans with the long-term time horizon were the strategies for solving local social problems, water supply and sewage management plans as well as solid waste treatment plans.

Table 2. Specification of strategic documentation used in a group of urban-rural municipalities in the Malopolska Province
Tabela 2. Zestawienie wykorzystywanej dokumentacji strategicznej w grupie gmin miejsko-wiejskich województwa małopolskiego

Type of owned strategic documentation	Number of entities	Share in population [%]
Development strategy	35	97,22
Long-term financial plan	25	69,44
Long-term investment plan	12	33,33
Local development plan	34	94,44
Village development plan	21	58,33
Other	22	61,11

Source: Own study.
Źródło: Opracowanie własne.

The use of the strategic documentation in the commune management was a lot more popular in the group of urban-rural units (Table 2). Declarations related to the possession of long-term plans in each of the groups separated in terms of the type of the strategic documentation shaped at the higher level compared to the population of rural communes (compare: Table 1).

Merely one of the urban-rural communes covered by the study did not have a development strategy whereas in two cases the lack of the local development plans was indicated. It is worth noting here that the lack of this document does not necessarily have to be perceived in negative categories from the present time perspective since it was a document that in case of applying for the financing of projects from the European Union Funds was treated by the unit implementing the Integrated Regional Operational Programme as a mandatory attachment. Along with the end of the previous financial perspective 2004–2006 and the beginning of the new one (2007–2013), fundamental changes took place in the scope of the form of the operational programmes used to implement the EU funds. The said changes resulted in the lack of the necessity to present local development plans along with the remaining application documentation at applying for the external sources of financing within the frames of the regional programmes.

Almost 70% of the communes where the polls were conducted declared the possession of long-term financial plans whereas merely every third from the urban-rural unit group developed and implemented a long-term investment plan. Such a relation between these two instruments for the long-term strategic management of the commune's finances points to the fact that it is decidedly easier for the self-governments of urban-rural units to plan their incomes and revenues while the development of the plan of projects of an investment nature along with the indication of the sources for the

defrayal of necessary outlays presented them with many difficulties and for that reason the communes decided to engage in such activities significantly more seldom. A similar situation was true for the rural communes group (compare: Table 1).

More than 58% (21 from among 36 included in the research) of the urban-rural units developed a village development plan. Admittedly, it is only a slightly higher percentage than in the rural commune populace, but taking into consideration the differences between these two groups of communes in relation to the other strategic plans discussed earlier, one could have expected that also in this case the relative difference would be preserved. The argument that may support the relatively low interest of urban-rural communes in the development of Village Development Plans is the fact that such documents are used to create positive transformations caused by grassroots endogenous initiatives in rural areas. Special attention is due here to the creation of so-called local development centres whose role in the decisive majority is played by the biggest localities in the area and thus – the seats of communes. In case of the urban-rural units these are municipalities. If their population exceeds 5 thousand people, then such municipalities are excluded from the possibility of obtaining financial support in the frames of activities connected to rural revitalisation implemented in the frames of the Rural Development Programme for the years 2007–2013. If such a municipality is the only local development centre in the area of the entire commune, in such cases it substantiates the lack of the Village Development Plan.

Among other documents with the long-term time horizon, the urban-rural communities mentioned the local zoning plans, waste management plans, and social problems solution plans. In the majority of cases, the declarations regarding the possessed local zoning plans pertained to selected villages or even parts (quarters) of a commune seat borough rather than to the area of the entire commune. It must be emphasised that in this group, the answers speaking of developed and implemented plans for co-operation with NGOs were much more frequent. Presumably, this is due to the fact of the higher presence of organisations of this type in the life of the local communities of urban-rural communes in comparison with typically rural units.

The level of use of the strategic documentation in the commune management may be diversified due to the unit size. In big communes, due to the relatively higher number of various developmental problems, it can be expected that the interest in solving them in a coordinated manner shall be higher, and the strategy may be used successfully used for this purpose. The conducted analyses confirm the existence of such an interdependence (Figure 1), although it is not a lasting tendency. Indeed, most often the development strategies were drawn up in the group of the biggest communes (with the population of more than 50 thousand) whereas the units with the population in the range between 10–15 thousand were the second in turn (at least in the sample covered by the study). The smallest units used the strategic management methods most seldom while the difference between the indications in the group subject to the analysis and the comparative data for the whole of Poland was the smallest in this group (69.2% for the researched population against 68.5% of the national average).

What deserves to be emphasised is the fact that in each of the isolated groups, the use of strategic programming tools in communes was at the highest level in the group of the units located on the area of the Malopolska Province as compared against the whole

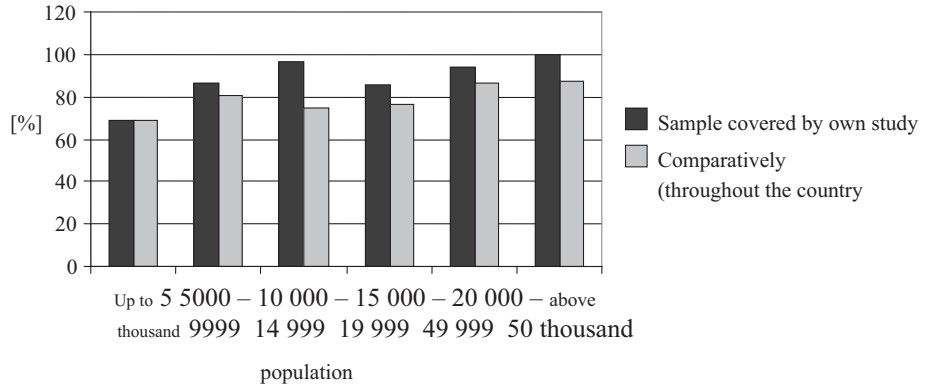


Fig. 1. Possession of development strategy in the communities according to the number of inhabitants

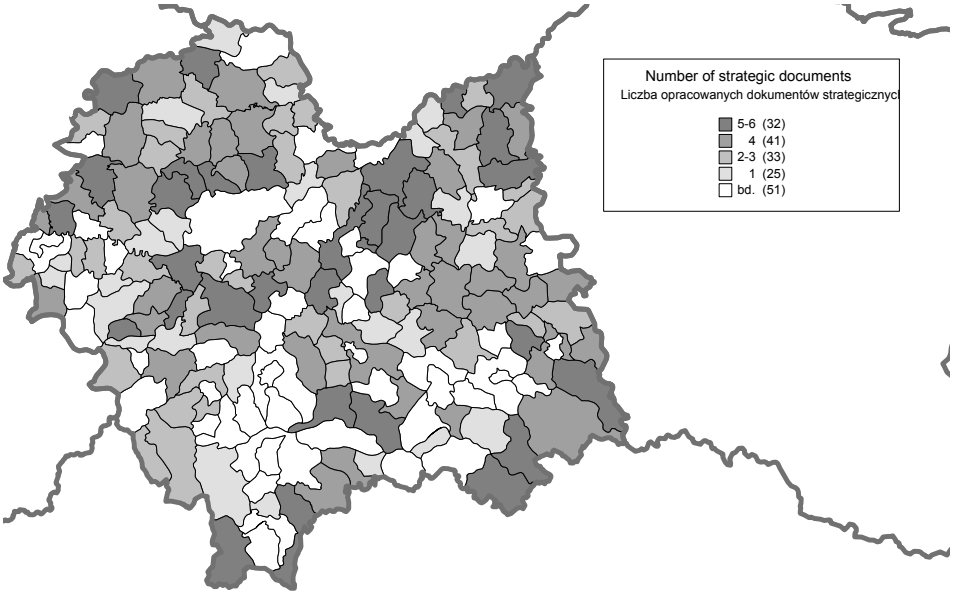
Rys. 1. Posiadanie strategii rozwoju w gminach ze względu na liczbę mieszkańców

* Based on M. Ziółkowski research.

* Na podstawie wyników badań M. Ziółkowskiego

Source: Own study and on the basis of [Ziółkowski 2005].

Źródło: Źródło: badanie własne oraz na podstawie [Ziółkowski 2005].



Map 1. Spatial differentiation in the level of strategic planning in communes of Malopolska Province

Mapa 1. Przestrzenne zróżnicowanie poziomu planowania strategicznego w gminach województwa małopolskiego

Source: Own study.

Źródło: Opracowanie własne.

of the communes countrywide. The differences varied in specific groups and ranged from 0.7 percentage point (p.p.) among the earlier-mentioned smallest communes up to 22.3 p.p. in the group with the population ranging between 10–15 thousand. In the remaining groups of the communes isolated according to their population, the differences between the territorial self-government units from Malopolska in relation to the nationwide data did not exceed 10 percentage points.

With the view of verifying the thesis proposed at the beginning of the essay and declaring that in the communes located on the peripheries in relation to the capital of the province the level of the use of the strategic management tools is lower when compared against the units located closer to the administrative centre of the region, it was resolved to carry out the assessment of the spatial differentiation of the Malopolska Province in the scope of communes' development of long-term time horizons plans (Map 1).

The analysis of the spatial differentiation of the use of the tools for the strategic administration of the territorial self-government units of the basic level has demonstrated that there are no clear regularities in the spatial distribution of communes. Both in the close vicinity of Krakow as well as in a substantial distance from the city, there were units which in their management of local affairs used all the strategic planning tools covered by the study. Such communes occurred in a similar scale on the area of the centrally located Krakow poviat as well as the Dąbrowa, Gorlice, or Nowy Sącz poviats located on the peripheries. Almost analogically, the units whose advancement in the implementation of the strategic management instruments was limited (e.g. communes with only one strategic document) were equally often located in the vicinity of the province capital as well as on the peripheries of the region (e.g. some communes of the Tarnów, Tatra, and Oświęcim [Auschwitz] poviats).

The conducted analysis of the correlations between the distance of the commune from the region's capital and the level of advancement in the implementation of the strategic management tools yielded the results unequivocally pointing to the non-occurrence of the interdependence between the variables (correlation coefficient $r_{xy} = –0.04$). The presented results make one state that the adopted research hypothesis ought to be dismissed and in its place an alternative hypothesis should be adopted – the one stating the lack of the substantial differentiation of the use of the tools for the strategic management of development in the communes following from their location in relation to the administrative capital of the province.

CONCLUSIONS

The shaping of advantageous conditions for the life of the populace and running business operations as well as the active animation of the local development processes occurring at the commune level requires a precise vision of the unit in the future. In the strategic planning, the visions of the economic future of territorial units are materialised in the form of various documents from among which the development strategies enjoy the greatest popularity. As the conducted analyses have demonstrated, the level of advancement of strategic planning in the communes of Małopolska is strongly diversified. The analysis of this state of diversification suggests the following conclusions:

1. The strategic planning tools are more often used by units with the status of an urban-rural commune rather than by rural communes. The source of these differences may lie in the relatively higher level of the socio-economic development of these units and the higher awareness of the local authorities as regards the mechanisms for creation of the local development processes.
2. The communes from the area of the Malopolska Province in general were characterised by the higher advancement level in drawing up of the development strategies in comparison with the data in this scope calculated for the entire country. This constitutes a proof of the higher involvement of the local authorities in activities aimed at the local economic development and, moreover, more frequent thinking in long-term categories.
3. In the scope of the instruments for the strategic management of finances, a dissonance between the long-term financial plans treated as the balance between planned incomes and expenditures as well as revenues and outlays and their instrumentalisation in actual activities serving the purposes of creation of local development is clearly visible which, in this case, signifies the implementation of long-term investment plans. In order to dynamise developmental processes, it would be recommended to use the Long-Term Investment Plans in the management of commune finances in a greater extent.
4. The creation of the local economic development based on the use of the strategic management tools in territorial self-government units, requires that the said instruments are treated not as a formal document, but as a set of coordinated activities serving the purposes of solving a cluster of specific problems. In order for this to be so, the strategic plans must be constructed in a way taking into consideration real needs of a local unit while not in a way that is only a set of activities created most frequently in a response to the legal and administrative regulations imposed from above.

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OCENA POZIOMU PLANOWANIA STRATEGICZNEGO W GMINACH WOJEWÓDZTWA MAŁOPOLSKIEGO

Streszczenie. Planowanie strategiczne należy do bardzo istotnych obszarów działania samorządu terytorialnego. Opracowane dokumenty strategiczne ułatwiają efektywne prowadzenie polityki rozwoju gminy. Do najczęściej przygotowywanych dokumentów planistycznych należą: strategie rozwoju, wieloletnie plany finansowe i inwestycyjne, plany rozwoju lokalnego oraz plany rozwoju miejscowości. W artykule wskazano na duże zróżnicowanie wśród gmin w zakresie implementacji narzędzi strategicznego zarządzania rozwojem. Podkreślono również, że dla zapewnienia użyteczności planów strategicznych dla kreowania lokalnego rozwoju ekonomicznego niezbędne jest uwzględnianie już na etapie ich przygotowywania konkretnych problemów, które mają być rozwiązane. Podstawą do formułowania planów strategicznych na poziomie gmin powinny być oddolne potrzeby/inicjatywy, a nie administracyjna konieczność ich posiadania.

Słowa kluczowe: gmina, planowanie, strategia rozwoju, wieloletni plany finansowy, zarządzanie publiczne, zarządzanie strategiczne

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