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THE LEVEL OF INNOVATIVENESS IN POLAND ON THE EXAMPLE OF ENTERPRISES FROM THE WARMIŃSKO-MAZURSKIE VOIVODSHIP

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Abstract. The main aim of the conducted research, which results are presented in this article, was to show the state of innovativeness among SME's entrepreneurs from the warmińsko-mazurskie voivodship. In the article there are also presented the entrepreneurs' opinions concerning implemented innovations, the plans of implementing the further innovations and on the other side the barriers of implementing innovative solutions and the lack of the entrepreneurs' knowledge about the form of public support in increasing the level of innovativeness.

Key words: SME's sector, innovativeness, innovations

INTRODUCTION

The sector of small and medium-size enterprises is the basic sector of the developed economies. This is the sector, which is developing the fastest and, concerning its attributes, conforms the fastest to the changing conditions which occur in economy. Those firms are establishing the most work places and are the motor of economy increase. After the Polish access to the European Union, entrepreneurs from SME's sector have had the opportunities to benefit from various programmes and projects, which target is to increase their competitiveness. Nowadays the usage of innovative solutions by the entrepreneurs is becoming more and more important. The increase of innovativeness and advanced technologies meaning as the factors which determine the economic process is the main attribute, characteristic for contemporary economy. The state of enterprises innovativeness is mostly determined by the ways of economic development. Implementation of processing, technological and organizational innovations is an opportunity to decrease productions costs and increase products quality. However, the innovative activity needs creating an

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effective and appropriate national support system. It has already existed and developed and that is why there is a need to inform entrepreneurs and encourage them to benefit from the EU funds.

RESEARCH METHOD AND MATERIAL SOURCES

The research was carried out in November 2007 on the sample of 61 entrepreneurs from the warmińsko-mazurskie voivodship, with the usage of a questionnaire form. The findings give the base to infer in quantitative and qualitative character and most information was analyzed in relation to firm's time existence, employment, sales, legal form of activity, the place of activity and activity range.

The questionnaire form included three thematic elements:

- opportunities of innovating,
- the extent of benefiting from public funds,
- the reasons why the innovations were not implemented.

On the base of the research results there were attempts to answer the following questions:

- How did the entrepreneurs assess the level of innovativeness in their firms?
- Did they implement innovations, are they going to implement them in the future?
- What are the costs of implementing innovations, do the entrepreneurs use public funds to achieve that purpose?
- What are the barriers of innovating?

The respondents chosen to the research were conducting business activity in SMEs sector in the warmińsko-mazurskie voivodship. The respondents were the clients of the Consulting Points from the warmińsko-mazurskie voivodship. So the selected sample was chosen to the research.

The Consulting Points (PK) function as first contact institutions for small and medium-size entrepreneurs. There are almost 200 PK's in the whole country. The information, which small and medium-size entrepreneurs can gain, concerns the basic issues about business activity and enterprise management and also the accessible support instruments for entrepreneurs.

THE CHARACTERISTIC OF THE RESPONDENTS

The research, concerning the level of innovativeness, had been carried out on the sample of 61 enterprises from the warmińsko-mazurskie voivodship, with the usage of the questionnaire form. In the selected sample there were 36.1% microenterprises – employing up to 9 employees, 27.9% small enterprises – with employment from 10 to 49 persons and 36.1% medium-size, with from 50 to 249 workers. The big enterprises were not taking part in the research.

The majority, because up to 60.7% enterprises taking part in the research, have been conducting business activity for more than 8 years. The smallest group of firm were these, which have been operating on the market for the shortest time, that was less than one

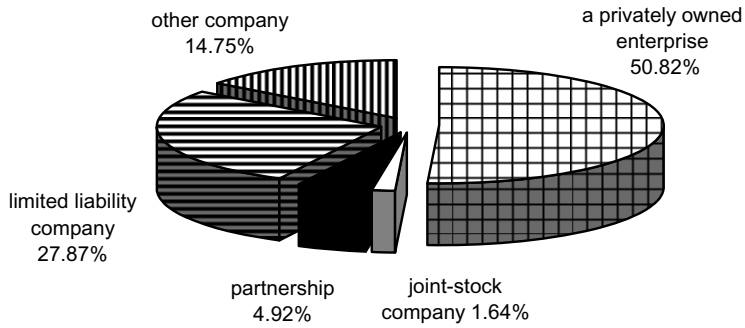

Fig. 1. Respondents structure in relation to legal form of enterprises
Rys. 1. Struktura respondentów ze względu na formę prawną przedsiębiorstwa
Source: Own study based on the research results.
Źródło: Opracowanie własne na podstawie wyników badań.

year – they constituted 1.64%. The entrepreneurs operating more than 5 years constituted almost 87% from all respondents taking part in the research.

Among the researched population the majority constituted the privately owned enterprises. Almost 30% constituted limited liability companies, and almost 15% represented other companies. The smallest group consisted of respondents who represented joint-stock companies.

The most enterprises, which took part in the research, operate on the regional market. Not much less operate on the European area. Only 11.4% of enterprises operate on the local or global market. In case of the company location, respondents the most often pointed out city with more than 50 000 residents.

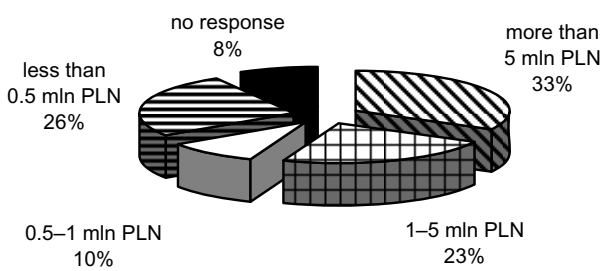

Fig. 2. Respondents structure in relation to achieved sales
Rys. 2. Struktura respondentów ze względu na osiągane obroty
Source: Own study based on the research results.
Źródło: Opracowanie własne na podstawie wyników badań.

It was a difficult question in research to point out sales. Almost 8.5% firm owners did not want to reveal their sales. Sales over 5 million PLN pointed more than 32% respondents. About 26% of them gave the information about sales not exceeding 0.5 million PLN a year, 23% of researched enterprises had the turnover in the 1 to 5 million PLN range, whereas in the 0.5 to 1 million PLN almost 10%. Therefore, it was a very diversified group of respondents, what gives the opportunity to get interesting research results and lets to make a deep analysis.

THE KIND AND COSTS OF IMPLEMENTED INNOVATIONS IN SME'S

The innovations give to entrepreneurs significant development opportunities. They are reflected in producing new products, using new production methods and also company expanding into new markets and using new sales ways. Growing labour costs, which grow faster than labour productivity, cause that Poland is no more competitive in that scope in relation to other countries. That is why conducting innovative activity is a chance for entrepreneurs as well as economy.

Taking into account the level of modernity and also the fact that the majority of SME's are not able to implement innovations, the European Union supports entrepreneurs' innovativeness. It is very important for entrepreneurs to realize about the necessity of implementing improvements in firms and benefitting from the support.

More than 85% entrepreneurs consider their firms as modern, however only just under 82% researched companies confirmed implementing innovation over the last three years. All respondents representing medium-size firms, that is those which employ from 50 to 249 workers, consider their firm as modern. More sceptical are the representatives of smaller firms, where the opinions are divided almost in half.

Among entrepreneurs considering their firm as modern there are 42.3% of medium-size firms, 25% of small and 32.7% of microfirms. In this group 61.5% of firms has been operating longer than 8 years and 17.3% from 5 to 6 years. Entrepreneurs, who have a different view about the firm modernity, are the respondents operating longer than 8 years – 55.6% and 33.3% from 7 to 8 years.

From among entrepreneurs who over the last three years implemented innovation, 35 implemented product innovation, 34 process innovation, 16 organizational and 6 marketing innovation. Only in 5% of the cases, firms implemented all kinds of innovations. Very often, because in 36% of the cases, product and process innovations were implemented at the same time.

The most (57%) of respondents pointed out, that product innovation had been implemented in their firm. The similar situation is with process innovation. The least number of respondents implemented marketing innovations. It is interesting that all firms,

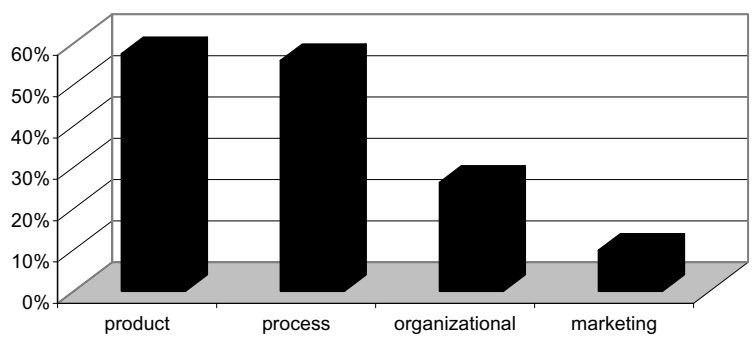

Fig. 3. The proportion of firms, which had implemented innovations
Rys. 3. Udział procentowy firm, które wprowadziły innowacje
Source: Own study based on the research results.
Źródło: Opracowanie własne na podstawie wyników badań.

which implemented marketing innovations at the same time implemented the organizational ones. The answers, which often were repeated, were about implementing product with process innovation – 36% answers. Pointing simultaneously process and organizational innovation considered only 3% of answers. Moreover, three kinds of innovation were pointed out by 18% of subjects, whereas four – by 5%.

The example of process innovation, which was pointed out by the respondent, was the implementation of computer software mHR. One of the firms implemented product innovation which was women's clothes with leather elements and process innovation – new way of preparing pre-productive documentation, technical-technological in clothes production which saves the maximum time, giving ideal repetitiveness (Computer System of Preparing Production).

The next interesting example of implemented innovation was the use of machine for laying a resin and gel coat over yachts production. According to the respondent, the product is a novelty on the market, because it joints the properties of tourist and racing yacht. One of the respondents implemented as much as six innovations, three product (environmental science map, hydrological map, software platform ARA.NET and MAPA. NET) and three process innovation (supporting computer system of production management "SOURCE FORCE", topographic database TPD, navigation system GPS for geodetic measurements).

Unfortunately, 15 respondents (25%), did not give the information about the costs of implemented innovations in firms. The majority of implemented product innovations were connected with spending money. The highest, spent on implementing innovation amount of money, was 9 million PLN, on the other side the smallest was 10 000 PLN. Average amount was 1533 100 PLN. The amount declared most often, because as much as 4 times, was 500 000 PLN. What is interesting, the biggest investments, over 1.5 million PLN, were made by medium-size entrepreneurs with sale over 5 million PLN. It is quite obvious that small firms are not able to spend such amounts on that kind of activity. But it is significant just to take innovative investments.

USAGE OF PUBLIC FUNDS ON INNOVATIONS

One of the subjects mentioned in the research was the usage or applying for public support, connected with implementing innovations. Only one person among the respondents did not answer the question about financing the innovations from public funds. The public support in the spectrum of innovating was used mostly by medium-size entrepreneurs. They constituted 58% of all using the support and almost 30% of the respondents. The least number of companies using the support was in the group of small entrepreneurs.

Studying years of business activity it should be taken into account that the biggest number of THE entrepreneurs are those who has been operating more than 8 years, so this group is the largest. The research indicates that the entrepreneurs which have been established more than 7 years ago more often used the innovating support. Entrepreneurs, who have been operating the shortest time and those who functioning between 3–4 years, did not benefit from the support. In case of the firms existing from 1 to 2 years and from 5 to 6 years, twice as much as the others did not use the support funds in relation to those who were able to take the advantage of support.

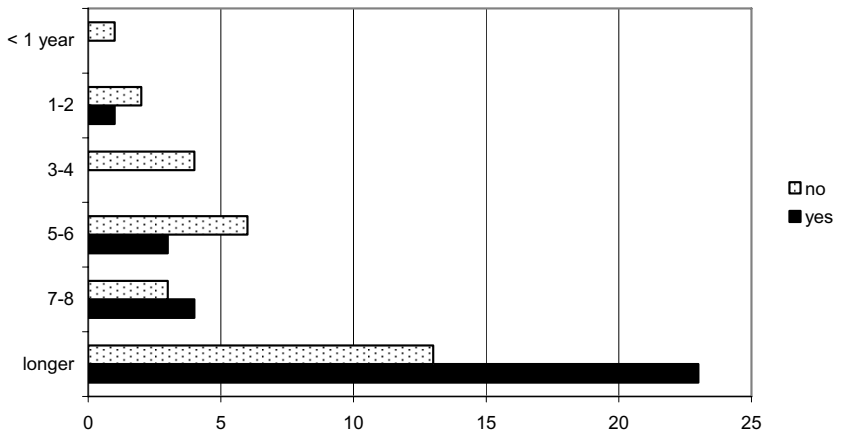

Fig. 4. The number of entrepreneurs using the public support funds in relation to the activity period
Rys. 4. Liczba przedsiębiorców korzystających ze wsparcia ze środków publicznych w zależności od okresu funkcjonowania
Source: Own study based on the research results.
Źródło: Opracowanie własne na podstawie wyników badań.

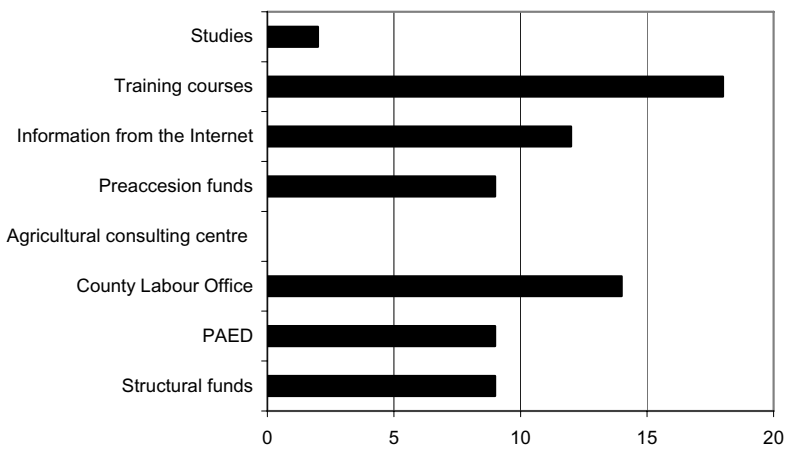

Fig. 5. The forms of support used by the entrepreneurs
Rys. 5. Formy wsparcia, z których korzystali przedsiębiorcy
Source: Own study based on the research results.
Źródło: Opracowanie własne na podstawie wyników badań.

Many of entrepreneurs, who had benefited from the support on the innovation implementing, pointed out different kinds of sources. Frequently the researched firms pointed the aid within the Phare programme, which was the pre-accession programme. Some entrepreneurs also benefited from the Structural Funds – Sectoral Operational Programme Improvement of the Competitiveness of Enterprises, 2.3 and 2.1. Little number of respondents pointed ZPORR 3.4, County Labour Office support and PFRON support.

In a few cases the entrepreneurs used more than one support source. The amount of investment fund was situated between 25 000 to 2.5 million PLN. The highest sum was received from SOP ICE 2.3 (from 350 000 to 2.5 million PLN) and the lowest from Phare (from 60 000 to 100 000 PLN).

One of the entrepreneurs, which innovating cost was 5 million PLN, used a wide public support. He used the grant on ISO audit certificate from Polish Agency for Enterprise Development where the cost refund amounted of 25 550 PLN, Phare 2000, from which he got the grant in the amount of 67 000 PLN on equipment and software purchased to the training room. What is more, from Phare ESC 2003 funds he got the grant in the amount of 63 900 PLN on the project "Increase the competitiveness of X firm on the market by enlargement of product offer" and from SOP ICE 2.3 he used the grant in the amount of 96 000 PLN "Increase the competitiveness of X enterprise by technological innovation".

The entrepreneurs often pointed out more than one support source. In ten cases they said about at least three sources, in 18 cases pointed two. The training courses, which were pointed by almost 30% of entrepreneurs who were put through an examination, were the most popular. An important role was played by the County Labour Offices whose offer was used by 23% out of firms.

INNOVATING PLANS IN THE SME`S SECTOR FROM WARMIŃSKO--MAZURSKIE VOIVODSHIP

The results of the research show that lots of the entrepreneurs still did not implement innovations. However almost everybody declares that they will implement innovations in the next two years. That declaration was not submitted only by the two of the entrepreneurs, who constituted 3% of the population.

Another point raised in the research was the plans of using innovating support. Only three of entrepreneurs intend to finance the investment on their own, the 95% respondents want to use the chance of benefiting from the outside sources.

The majority of the researched entrepreneurs pointed out the barriers to implementing innovations and put them in order from the most to the least important. Analysis of the three most essential barriers shows that, according to entrepreneurs the most important were financial barriers, first of all too high innovation costs. The lack of appropriate financing source was also very important obstacle. According to entrepreneurs the barrier of implementing innovation could be too high economical risk. Another, discernible obstacles were law barriers, tax regulations, the lack of technological information and the lack of qualified staff, which could implement innovations and apply innovative solutions. The least essential for the respondents were the market barriers.

The most often pointed barrier of implementing innovations regardless of the kind of enterprise was too high cost of innovating. In case of micro and small enterprises this obstacle was pointed as the most important by more than 40% of respondents and 35% of small firms. For almost a quarter of the researched micro firms, the most important barrier was the lack of appropriate financing source and for 17.5% of small and 18% of medium--size enterprises the most important barrier was a lack of clarity of law regulations. According to entrepreneurs the innovating obstacle was also too high economical risk,

which could not be taken by them. It should be emphasized that more essential barrier for firms is the lack of technological information than the law regulation.

The researched entrepreneurs pointed out different kinds of barriers in relation to the business activity period. For those firms, which were operating for the shortest time and constituted the smallest group among researched population, the innovating barrier was its too high cost. Whereas for firms operating for the longest time the important barriers were also the lack of financing sources and too high economical risk.

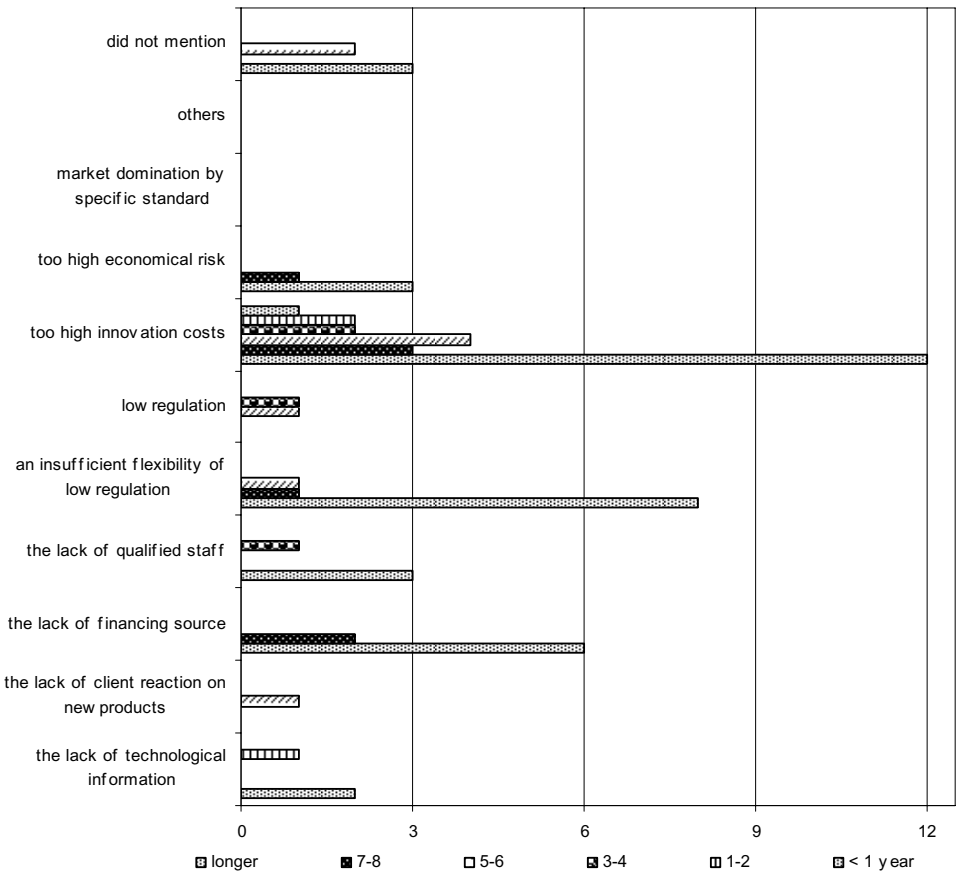

Fig. 6. The barriers of implementing innovations in relation to activity period of the enterprise
Rys. 6. Bariery ograniczające wdrożenie innowacji w zależności od okresu prowadzenia działalności przez firmę
Source: Own study based on the research results.
Źródło: Opracowanie własne na podstawie wyników badań.

The large firms have a bigger capital or are more creditworthy. That is why it is easier for them to implement innovative solutions, which are cost-effective and now constitute the most essential factor in increasing the competitiveness of enterprises. The representatives of small firms knowing that, are not able to finance the costs of innovations. That is

why the national and EU's politics are so important part in overcoming financial barriers, especially these which are consider as fundamental. The Structural Funds are a chance for firms from SME's sector and information on them should be systematically provided for those companies.

SUMMARY

The small and medium-size entrepreneurs in Poland had been given a chance of the significant development after the economic transformation. Almost twenty years after this event it can be seen how significant is this sector in the Polish economy. There is lots of evidence in support of this thesis, starting from participation of these entrepreneurs in the total number of firms in Poland, through the employment in this sector, to the participation in gross domestic product.

So far, SME's sector in Poland was competitive on the global markets with low work costs. Nowadays the crucial role in firms and economy is being played by the innovativeness. However, the mechanisms which encourage innovative activity are poorly developed in Poland. Statistics data shows, that the level of economical innovativeness in Poland is lower than in the other EU countries.

Conducted research shows that entrepreneurs are willing to implement the innovations and they are thinking of using public funds. Unfortunately they do not have enough knowledge about opportunities of getting support, what provides the imperfection of information and promotion politics. Entrepreneurs should be contributed in the complicated process of implementing the innovative solutions and be assisted in overcoming all the obstacles. The support used from the 2.1.1 SOP ICE shows that companies are interested in benefitting from the structural funds for the innovative investments, predicted for the years 2006–2008. The goal of these investments was to create permanent competitive advantages on the global market, increase the products quality, introduce new products or use new production processes. In the new financial perspective for years 2007–2013 the supporting instruments for the innovative business activity have the greatest share among all.

Researches reveals that the products and processes innovations were mostly implemented and the half of the respondents used public support to finance innovations. Most of the respondents declared the willing of implementing innovations in the two years period among with the usage of the public funds for support. In the same time, entrepreneurs pointed out financial barriers as the main obstacles, meaning too high costs of innovations and lack of appropriate innovation financing. This shows that the utilization of support from the structural funds is the greatest chance for developing innovativeness in the SME's sector.

REFERENCES

Baruk J., 1992: Innowacje czynnikiem efektywnego rozwoju przedsiębiorstwa (aspekty ekonomiczno-organizacyjne), Wyd. Uniwersytetu Marii Curie-Skłodowskiej, Lublin.

Encyklopedia Biznesu, 1995. Fundacja Innowacja, Warszawa.

Matusiak K. (red.), 2005: Innowacje i transfer technologii. Słownik pojęć, Polska Agencja Rozwoju Przedsiębiorczości, Warszawa.
Pangsy-Kania S.: Poziom innowacyjności polskiej gospodarki w kontekście narodowego systemu innowacji, http://ekonom.univ.gda.pl/mikro/konferencja/pdf/Pangsy-Kania%20Sylwia1.pdf
Pomykalski A., 2001: Innowacje, Wyd. Politechniki Łódzkiej, Łódź.
Raport Nauka i Technika w 2005 r., 2006. Główny Urząd Statystyczny, Warszawa.
Sosnowska A., Łobejko S., 2006: Małe i średnie przedsiębiorstwa w Polsce w warunkach konkurencji [w:] Pozytywy i trudności w rozwoju, Polska Agencja Rozwoju Przedsiębiorczości, Warszawa.
Stawasz E., 1999: Innowacje a mała firma, Wyd. Uniwersytetu Łódzkiego, Łódź.

POZIOM INNOWACYJNOŚCI W POLSCE NA PRZYKŁADZIE PRZEDSIĘBIORSTW Z WOJEWÓDZTWA WARMIŃSKO-MAZURSKIEGO

Streszczenie. Głównym celem przeprowadzonych badań, których wyniki przedstawiono w niniejszym artykule, było pokazanie stanu innowacyjności firm z sektora MSP, działających na obszarze województwa warmińsko-mazurskiego. Zaprezentowano także opinie przedsiębiorców, dotyczących wdrażanych przez nich innowacji, planów wdrożenia kolejnych, a z drugiej strony barier wprowadzania innowacyjnych rozwiązań i niewiedzy przedsiębiorców na temat form wsparcia w zakresie wzrostu innowacyjności.

Słowa kluczowe: sektor MSP, innowacyjność, innowacje

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ECOLOGICAL FARM DEVELOPMENT IN POLAND

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Abstract. Ecological farming is developing rapidly in Poland. It enhances farm incomes while preserving the natural environment and cultural heritage. Ecological farming is based on natural methods of land cultivation which preserve the fertility of land and protect animals. The most important advantage of ecological farming is the preservation of biodiversity. The number of ecological farms increased in 2005 to almost ten times their 1999 figures. The average ecological farm area has 23 hectares and is much larger in comparison to traditional farms. The total average agricultural land under ecological production in 2005 also increased. The collected data from the Ministry of Agriculture and Rural Development has confirmed the increasing use of ecological agriculture and the number of processing factories using ecological products both before and after Polish integration with the European Union.

Key words: ecological farms, ecological farm area, area of crops in ecological farms

INTRODUCTION

Ecological farming is environmentally-friendly. It helps to preserve the natural and cultural environment. People who take up ecological farming often display a high degree of ecological consciousness [Zaręba 2000] and such owners often seek to promote environment resources, archaeological sites and national culture [Žibėniene 2000]. Tourists can find many attractions on ecological farms, such as swimming in lakes, fishing, hunting, bird watching and even playing basketball.

Ecological farming is also very advantageous for farmers because it can increase their income by using existing premises, a free labour force and it helps to create contacts between different people. Ecological farming is a form of healthy relaxation, is relatively cheap and can be adjusted to individual needs and demands of tourists [Rzepecka 2004].

Ecological farming is based on low-tech natural resource production. It ensures land fertility, animal health and the high quality of agricultural products [Babalski 2004].

The main rules of ecological production are: the preservation of agriculture production environment, high quality of biological goods, the improvement of land fertility and the biodiversity of production.

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Ecological farming is also rapidly expanding in Europe. The production of ecological methods is supported and promoted as the way of environmentally-friendly farm management [Rzepecka 2004]. Environmental programmes which aim is to promote ecological farming must meet strict environmental preservation rules.

The surface of land under ecological farming is the largest in Italy, where almost one-fourth of the total land is used for this aim [Rzepecka 2004]. Ecological farming is supported in the Plan of Development of Rural Areas in the years 2004–2006 and includes arable land, meadows and pastures and orchards. Ecological agriculture is also one of the seven agro environmental packets which will be introduced in Action 4 "Supporting agro environmental activities and the improvement of animal health" [Dobrzyńska 2004]. The demand for ecological products is increasing in Europe and the most popular are vegetables and fruits.Western European markets are generally supplied by imports from Eastern European countries, such as Poland, but the prices of ecological commodities are generally higher.

The development of ecological production depends on many factors, such as friendly agriculture advisory and promotion [Ardanowski 2004]. The development of commercial, private advisory will undoubtedly decrease the demand for services, especially for poor farmers. The promotion of ecological farming will improve its development.

The introduction of market economics in agriculture should be integrated with ecology and ethics. The concept of ecological agriculture is to prevent the damage to the environment, improve the lives of consumers, connect people in common activities and raise ecological awareness [Górny 1993]. The yields of basic cereal, potatoes and other plants are generally smaller in ecological agriculture than in conventional agriculture. The unit cost of ecological production is higher but the quality of agricultural commodities is better. The development of ecological production in rural areas can decrease the negative effects of economic transitions such as unemployment because people can start private tourism businesses which are based on natural resources.

The promotion of ecological farming will help alleviate rural poverty and lead to economic development. The Polish Ministry of Agriculture and Rural Development has launched a promotional campaign on ecological agriculture. The aim of the program is to provide farmers, consumers and other people with information about the advantages of ecological farming and to increase the demand for ecological commodities.

Ecological production needs more promotion and farmers should form producers' collectives. They should also work together to access additional funding. Moreover, the internet gives them the possibility to promote their farms on a larger scale than traditional local promotion.

Ecological agriculture is regulated by European Union law[1] and certificates awarded to Polish ecological producers are honoured in Europe.

AIM AND METHODOLOGY

The aim of the survey was to assess the economic conditions of ecological farming development in Poland using data from the Ministry of Agriculture and Rural Development.

[1] Ordinance EU 2092/91.

The data included the number of ecological farms in Poland, the average ecological farm area and the area of particular crops. In addition, the average agricultural land on which ecological production was introduced in the years 2003–2005 and the number of ecological production processing factories are presented.

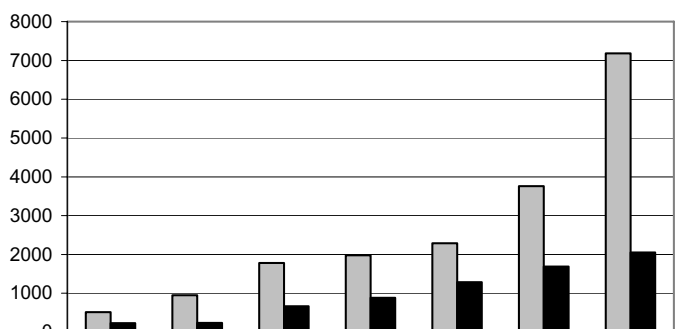
RESULTS

The development of ecological farms depends on regional conditions. Ecological agriculture does not mean returning to medieval cultivation. The vision of ecological agriculture is based on three pillars: people, environment and healthy food [Gaziński 1993]. In many regions of Poland, ecological farms are a chance for national resource preservation. It means a return to values lost because of mass production.

Ecological agriculture is a farming system with sustainable plant and animal production. It is based on natural, rather than chemical, fertilizers. It provides soils with natural ingredients improving its fertility and animal health. It is forbidden to use hormones and synthetic products or other chemical plant preservation products in ecological production

The data from Ministry of Agriculture and Rural Development have proved a significant increase in ecological farms number in Poland. During the years 1999–2005, ecological farms number have increased more than fourteen times (Fig. 1).

Another important characteristics of ecological farms is certification. Certified farms offer the highest value of services. The number of certified ecological farms increased in the years 1999–2005 nearly ten times. The data has proved that Poland is in the primary stages of ecological farming development. It means that Poland has the possibility to increase this kind of activity when the natural resources and history will be utilized in



	1999	2000	2001	2002	2003	2004	2005
number of ecological farms in Poland	513	949	1778	1977	2286	3760	7183
number of ecological certified farms in Poland	231	238	669	882	1287	1688	2050

Fig. 1. Number of ecological farms in Poland in the years 1999–2005
Rys. 1. Liczba gospodarstw ekologicznych w Polsce w latach 1999–2005
Source: Data from Ministry of Agriculture and Rural Development.
Źródło: Dane Ministerstwa Rolnictwa i Rozwoju Wsi.

a wise and advantageous way. It is also possible when all marketing factors, for instance: good services, cheap price, effective promotion and fast distribution will be used to promote ecological farming in Poland. Moreover all available data show an increasing fragmentation of ecological farming in Poland. The traditional agriculture is not so attractive and now consumers demand more specialized eco-tourism, because they want fully participate in local people life and culture, to do active sports, admire the beauty of natural countryside, protect the environment and improve well-being of farmers running ecological farms and people offering additional services for them.

The care for natural preservation is expressed by people around the world who become more environmentally sensitive and that is why they are more interested in ecological farming believing that the environmental protection is public issue [Górny 1993]. Argusa and Guidry using Hasek [1994] data claim that ecological farming and tourism will be expanding about 20–25 percent each years. Countries which contain regions full of diversity of flora and fauna are particularly designate to increase this kind of activity. Poland natural resources are very big and huge amount of them is under control and preservation. There are many natural parks and forests, lakes, mountain which confirm about our country basis to develop ecological farming and eco-tourism totally different from conventional agriculture and mass tourism.

The highest dynamics of ecological farms in the years 2001–2005 was observed in zachodniopomorskie (1219%), lubuskie (963.6%) and podlaskie (867.8%) provinces, but the lovest dynamics was observed in mazowieckie (333%) and lubuskie (268.4%) provinces. Even though the dynamics of ecological farm is different, the dynamic in all provinces is positive. A significant increase in ecological farms in Poland proved that this kind of activity is very popular among farmers and have great possibilities of development in the future.

The development of ecological farms depends on regional conditions. Ecological agriculture does not mean come back to old cultivation. The vision of ecological agriculture is based on theree fillars: people, environment and healthy food [Golinowska, Janowska-Biernat 2006]. In many regions of Poland ecological farms are chance for nastional resources preservation. It means the direction to values lost because of mass production.

The survey also referred to ecological farm area. It is possible to conclude that the average ecological farm area is much bigger than the average farm area in Poland. The dynamic of ecological farming development confirm that the ecological arable land in 2004 was 82.7 thousand hectares, what determined about 0.4% of total arable land. The number of ecological farms has increased almost seven times and the agriculture land area has increased almost ten times from 2000 to 2005 [Rzepecka 2004]. The ecological production in Poland is invested by funds from Ministry of Agriculture and Rural Development. All ecological cultivations and plants are financed what constituted about 700 PLN by year.

The organizational structure of ecological farms has changed during the years 1999–2004. The highest number of small farms to 5 hectares was stated in 1999 (32%), but the highest number of farms from 10 to 20 hectares was found in 2004 [Rzepecka 2004]. This results do not confirm the opinion that ecological production is typical for small farms. The ecological production can be the alternative for intensive farming (Table 1).

Table 1. Number of ecological farms in particular provinces
Tabela 1. Liczba gospodarstw ekologicznych w poszczególnych województwach

Region	Province	Years					
		2001	2002	2003	2004	2005	Dynamics 2001=100
Małopolska i Podgórze	Małopolskie	173	266	407	697	1177	680.3
	Świętokrzyskie	462	389	382	547	785	169.9
	Podkarpackie	189	236	288	430	885	468
	Śląskie	15	38	33	47	81	540
Pomorze i Mazury	Lubuskie	22	29	20	66	212	963.6
	Zachodniopomorskie	36	69	85	176	439	1219.4
	Pomorskie	34	40	46	66	177	520.6
	Warmińsko-Mazurskie	81	77	126	244	484	597.5
Mazowsze i Podlasie	Mazowieckie	231	232	249	434	770	333.3
	Łódzkie	24	34	34	71	168	700
	Podlaskie	56	103	122	207	486	867.8
	Lubelskie	288	253	263	393	773	268.4
Wielkopolska i Śląsk	Kujawsko-Pomorskie	59	69	62	89	143	242.4
	Dolnośląskie	54	82	110	197	396	733.3
	Wielkopolskie	41	40	40	70	170	414.6
	Opolskie	13	20	19	26	37	284.6
	Total	1778	1977	2286	3760	7183	403.9

Source: Data from Ministry of Agriculture and Rural Development.
Źródło: Dane Ministerstwa Rolnictwa i Rozwoju Wsi.

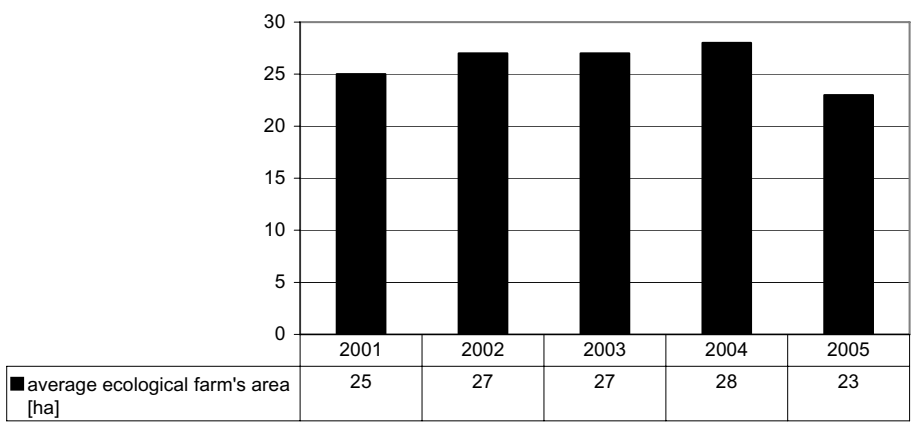


Fig. 2. Average ecological farm's area in Poland in the years 2001–2005
Rys. 2. Średnia powierzchnia gospodarstwa ekologicznego w Polsce w latach 2001–2005
Source: Data from Ministry of Agriculture and Rural Development.
Źródło: Dane Ministerstwa Rolnictwa i Rozwoju Wsi.

The ecological cultivation was mainly concentrated in east region (23.4 th. hectares), but the smallest concentration was found in central region (łódzkie, mazowieckie 6.8 th. hectars) in 2004.

The data has proved that the biggest part of ecological farms determined meadows and pastures (Table 2). The structure of ecological farms is determined by ecological cultivation. As Brodziński points out [12] meadows and pastures accounted for 51% of farm area. Such structure is typical for ecological farms which have not intensive production. On the second position there were agricultural cultivations (grains, potatoes). A significant part of ecological farms determined orchards (4.2%) and vegetables (1.2%). When comparing the crops structure of ecological farms in particular farms we can find that certified farms had the most agriculture cultivation, orchards and vegetables. But, the farms in the first year of changing were characterized by biggest meadow and pastures area. The highest percentage of meadows was characterised for małopolskie province (73%), but the lowest for kujawsko-pomorskie (21.2%). The regional differentiation of meadows percentage depends mainly on natural resources and environment conditions.

Table 2. The area of particular crops in ecological farms in 2004 (ha)
Tabela 2. Wielkość poszczególnych rodzajów upraw w gospodarstwach ekologicznych w 2004 r. (ha)

Specification	Meadows and pastures	Agricultural cultivation	Orchards	Vegetables	Together
Certified farms	15 901.1	15 909.9	1 553.4	487.3	33 851.7
Farms in the first year of changing	17 629.1	13 396.5	1 278.1	272.9	32 576.6
Farms in the second year of changing	5 330.5	4 051.4	372.3	69.6	9 823.8
Total	38 860.7	33 357.8	3 203.8	829.8	76 252.1
Percentage (%)	50.9	43.7	4.2	1.2	100.0

Source: Data from Ministry of Agriculture and Rural Development.
Źródło: Dane Ministerstwa Rolnictwa i Rozwoju Wsi.

The organizational structure of ecological farms has changed during the years 1999–2004. The highest number of farms with less than 5 hectares was in 1999 (32%), but the highest number of farms from 10 to 20 hectares was found in 2004 [7]. These results do not support the view that ecological production is only for small farms. Ecological production can be an alternative to intensive farming. Moreover, ecological farming demands more human resources in agriculture in exchange for ecologically-balanced agriculture. It eliminates human damage to ecosystems, which stops the process of environment degradation.

The average agricultural land used for ecological production almost doubled from 2004 to 2005 and was three times higher than 2003. It means that the agricultural land used for ecological production is rapidly increasing.

Not all Polish farms have resources for ecological development and not all producers are interested in ecological production. However, the agrarian structure and the low level of technology in rural Poland is a chance for many farms to use ecological methods of production [12].

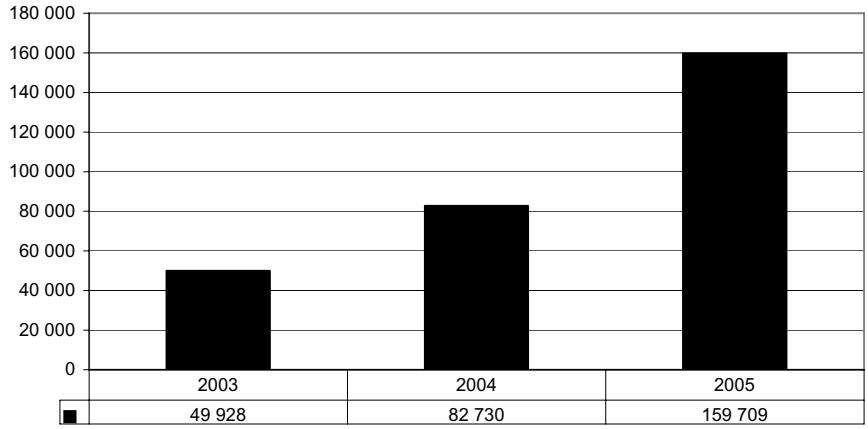


Fig. 3. Total average agricultural land in which ecological production was introduced in the years 2003–2005
Rys. 3. Powierzchnia użytków rolnych, na których prowadzona była produkcja rolna metodami ekologicznymi w latach 2003–2005
Source: Data from Ministry of Agriculture and Rural Development.
Źródło: Dane Ministerstwa Rolnictwa i Rozwoju Wsi.

The data shows that the number of processing enterprises was almost 5 times higher in 2005 than in 2003. It shows that the development of ecological farms increased the demand for the processing of such products (Fig. 4).

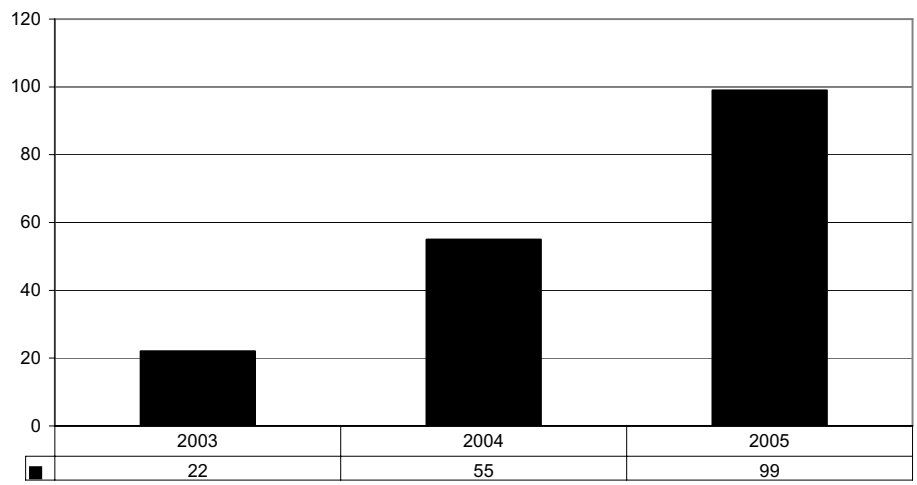


Fig. 4. Number of processing factories for ecological production
Rys. 4. Liczba przetwórni produktów rolnictwa ekologicznego
Source: Data from Ministry of Agriculture and Rural Development.
Źródło: Dane Ministerstwa Rolnictwa i Rozwoju Wsi.

CONCLUSIONS

The development of ecological farms in Poland does not just involve its expansion, but rather its specialization. It is advantageous not only for the environment, but also for the economy and people. It is a chance for Polish agriculture to be a significant ecological producer in Europe.

The data collected from Ministry of Agriculture and Rural Development reflect the significant increase of ecological farms in Poland. This tendency was visible both before and after Polish integration with European Union and what is particularly important is the fact that the number of ecologically-certified farms in Poland has increased almost ten times in 2005 in comparison to 1999. It means there has not only been an increase in certified farms but also in the quality of ecological commodities. This situation is a chance for Polish ecological producers to increase sales not only on national markets, but also on European markets. The ecological awareness of people in Europe is increasing and more consumers are choosing to buy more expensive commodities which guarantee high quality.

Ecological agriculture ensures better biodiversity of animals and plants which do not pollute waters and also preserve the diversity of rural areas.

Integration with the European Union opens the door for Polish ecological farmers to sell on western markets. However, ecological farmers should be better integrated into producers' collectives to give them better chances in competitive activities.

One of the key elements of ecological farming development in Poland is promotion and education. Farmers should be encouraged to use ecological methods of production and more people should be educated about ecological production advantages. Children should also be educated in schools about ecological products. Promotions concerning ecological production should also include other institutions and exhibitions at international trade shows.

REFERENCES

Agrusa J. F., Guidry J., 1999: Ecotourism and Sustaineable development of the Maya Rain Forest in Central America. http://www. Hotel-online.com/trends/panAmerProceedingsMay/99/EcotourismMaya.

Ardanowski J.K., 2004: Bariery w podejmowaniu działalności w rolnictwie ekologicznym. Materiały z seminarium pt. „Rolnictwo ekologiczne – nowe warunki działania wynikające z członkowstwa Polski w Unii Europejskiej". (Barriers in taking activities in ecological agriculture. Materials from seminar; Ecological agriculture-new cinditions coming from Polish membership in European Union)", p. 5–7 [In Polish]. http://www.ijhar-s.gov.pl/download/040906_134946_83_rolnictwo%20eko-materialy%20z%20konferencji.pdf

Babalski M., 2004: Warunki prowadzenia gospodarstwa ekologicznego z perspektywy producenta. Rolnictwo ekologiczne – nowe warunki działania wynikające z członkowstwa Polski w Unii Europejskiej. (Conditions of running ecological farm from producer's perspective. Ecological agriculture – New conditions coming from Polish membership In European Union), p. 37–41 [In Polish]. http://www.ijhar-s.gov.pl/download/040906_134946_83_rolnictwo%20eko-materialy%20z%20konferencji.pdf

Brodziński Z., 2006: Zróżnicowanie przestrzenne i dynamika rozwoju gospodarstw ekologicznych w Polsce. (Spatial differentiation and dynamics of ecological farms development in Poland). Prace Naukowe Akademii Ekonomicznej im. Oskara Langego we Wrocławiu nr 1118, Tom 1, p. 122–128 [In Polish].

Dobrzyńska N., 2004: Wsparcie finansowe dla rolników prowadzących gospodarstwa ekologiczne. Materiały z seminarium pt. „Rolnictwo ekologiczne – nowe warunki działania wynikające z członkowstwa Polski w Unii Europejskiej". (Financial suport for farmers running ecological farms. Materials from seminar "Ecological agriculture – New conditions coming from Polish membership in European Union"), p. 19–26 [In Polish]. http://www.ijhars.gov.pl/download/040906_134946_83_rolnictwo%20ekomaterialy%20z%20konferencji.pdf

Gaziński B., 1993: Kulturowy wymiar rolnictwa ekologicznego. Rolnictwo ekologiczne od teorii do praktyki. (Cultural dimension of ecological agriculture. Ecological agriculture from theory to practice) (In Polish) Stowarzyszenie EKOLAND Stiftung LEBEN&UMWELT. Warszawa, p. 78–82.

Golinowska M., Janowska-Biernat J., 2006: Rozwój rolnictwa ekologicznego na Dolnym Śląsku. (Development of ecological farminh in Dolny Śląsk). Prace Naukowe Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, p. 244–250 [In Polish].

Górny M., 1993: Ekorozwój i rolnictwo ekologiczne. Rolnictwo ekologiczne od teorii do praktyki. (Ecodevelopment and ecological agriculture. Ecological agriculture from theory to practice) (In Polish) Stowarzyszenie EKOLAND Stiftung LEBEN&UMWELT. Warszawa p. 83–87.

Hasek G., 1994: Tourism's Green Machine. Hotel & Motel Management. Oct. 3, p. 25–26.

Jaźwińska A., 2000: Perspektywy rozwoju agroturystyki w dolinie Bugu. (w:) Problemy rozwoju turystyki wiejskiej na Wileńszczyźnie. (Perspectives of agrotourism development in Bug volley. Problems of rural tourism development in Wileńszczyzna) Warszawa-Biała Waka, p. 183–193 [In Polish].

Rzepecka M., 2004: Stan i tendencje rozwojowe rolnictwa ekologicznego w Polsce i innych państwach członkowskich Unii Europejskiej. Materiały z seminarium pt. „Rolnictwo ekologiczne – nowe warunki działania wynikające z członkowstwa Polski w Unii Europejskiej". (State and development tendencies of ecological agriculture In Poland and other European Union members. Materials from seminar "Ecological agriculture – New conditions coming from Polish membership In European Union"), p. 42–51 [In Polish]. http://www.ijhars.gov.pl/download/040906_134946_83_rolnictwo%20ekomaterialy%20z%20konferencji.pdf

Sołtysiak U., 1993: Eko-rolnictwo- szansą na polską specjalność. Rolnictwo ekologiczne od teorii do praktyki.(Eko-agriculture-a Chance for Polish specialty. Ecological agriculture fro theory to practice) Stowarzyszenie EKOLAND Stiftung LEBEN&UMWELT. Warszawa, p. 111–117 [In Polish].

Wight P., 1993: Ecotourism: Ethics of Eco sell? Journal of Travel research, Winter, p. 3–3.

Zaręba D., 2000: Ekoturystyka. PWN, Warszawa, p. 183.

Žibėniene G., 2000: Ekoturystyka na terenach chronionych Litwy (w:) Problemy rozwoju turystyki wiejskiej na Wileńszczyźnie. (Eco-tourism in preserved areas of Lithuenia. Problems of tourism development in Wileńszczyzna). Warszawa-Biała Waka, p. 9–15 [In Polish].

ROZWÓJ GOSPODARSTW EKOLOGICZNYCH W POLSCE

Streszczenie. W Polsce ekologiczne rolnictwo rozwija się dynamicznie. Zwiększa ono dochody rolników, zachowując środowisko naturalne i dziedzictwo kulturowe. Rolnictwo ekologiczne opiera się na naturalnych metodach uprawy ziemi, które utrzymują jej

żyzność i chronią zwierzęta. Największą korzyścią ze stosowania rolnictwa ekologicznego jest ochrona bioróżnorodności. Liczba gospodarstw ekologicznych zwiększyła się blisko dziesięciokrotnie w 2005 roku w porównaniu do 1999. Średnia powierzchnia gospodarstwa ekologicznego wynosiła 23 hektary i jest dużo większa w porównaniu do gospodarstwa tradycyjnego. Powierzchnia pod uprawami ekologicznymi uległa również zwiększeniu w 2005 roku. Zebrane informacje z Ministerstwa Rolnictwa i Rozwoju Wsi potwierdziły rozwój rolnictwa ekologicznego i wzrost liczby przedsiębiorstw zajmujących się przetwórstwem produktów ekologicznych zarówno po, jak i przed akcesją Polski do Unii Europejskiej.

Słowa kluczowe: gospodarstwa ekologiczne, powierzchnia gospodarstw ekologicznych, powierzchnia upraw gospodarstw ekologicznych

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CHANGES IN THE SOCIO-ECONOMIC STRUCTURE OF THE NON-FARMING RURAL POPULATION IN 2000–2005

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Abstract. Non-farming population represents an increasingly significant group of rural residents and therefore became an important object of study. The paper is primarily focused on the description of the non-farming rural population. The main source of the analysed data were surveys of families residing in 76 villages across Poland. The sampling of villages for the surveys was purposeful and representative, based on socio-economic features of the population and the land structure. Research shows that as many as 57% of rural families own no agricultural land in 2005 and on the basis of the analysis of socio-economic development observed in rural areas, it may be assumed that the non-farming rural population will grow further and that this socio-occupational category will increasingly determine the socio-economic development of rural areas.

Key words: non-farming population, rural areas, regional differentiation

INTRODUCTION

Changes in the socio-economic structure of rural population make the one of the most important determinants of the rural development. Non-farming population represents an increasingly significant group of rural residents and therefore became an important object of study. Compared to the rest of the rural population the non-farming population can be distinguished by the quality of human capital. It is primarily related to the considerable share of relatively young and skilled persons. Their lifestyle, the adopted system of values and social aspirations were increasingly similar to behaviour patterns observed in highly urbanised and industrialised areas. In the then prevailing conditions that group is the engine of civilisational progress in rural communities and represented occupational advancement [Turski 1970, Sikorska 2005].

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Regardless of the changed conditions for the development of the non-farming rural population, an upward trend was still observed over the years covered by subsequent IAFE-NRI surveys. It stemmed from determined efforts of the rural population to improve living conditions; since the development potential of a major share of farms was marginal and the feeling of redundancy was increasingly widespread among farmers, it was necessary to find new sources of income. Competitive pressure in agri-food markets and technological progress pushed down agricultural employment, therefore strong outflow of workforce from agriculture continued, in spite of family ties and the growing role of farms as protection against the loss of off-farm jobs. After Poland's accession to the European Union, those processes became even more intensive [Chmieliński, Otłowska 2007]. As a result, despite a number of constraints on further growth of non-farming rural families, this category of households has become a permanent element of rural areas, and the future socio-economic rural development in fact largely relies on the non-farming population to be the engine of favourable changes in rural areas and agriculture.

OBJECT OF THE STUDY AND RESEARCH METHOD

The paper is primarily focused on the description of the non-farming rural population (both families and individuals). Data on the mobility of the group in question, its demographic characteristics allow to identify changes which could be observed prior to accession and in the early period of Poland's membership in the European Union.

The main source of the analysed data were surveys of families residing in 76 villages across Poland, conducted by the Institute of Agricultural and Food Economics – National Research Institute (IAFE-NRI) in 2000 and 2005. The sampling of villages for the surveys was purposeful and representative, based on socio-economic features of the population and the land structure of holdings located in the distinguished regions[1]. Basically, the sample excludes villages of a mixed nature (urban and rural), villages dominated by workers' families or those particularly attractive for tourists in terms of location. The surveyed villages represent a fixed sample for panel field surveys conducted periodically at the Social and Regional Policy Department of the IAFE-NRI. In 2000, the number of surveyed rural households was 8.643 and they represented the total population of the villages in question. This group included 4.716 families without agricultural land, also referred to as non-farming families. In 2005, the survey conducted in the same villages covered 8.604 rural families. It produced source materials on social characteristics and economic activities of all the residents. The group included 4.899 non-farming families (Table 1).

[1] Poland was divided into five Macroregions according to the administrative division into voivodships and similarities between historically developed characteristics of the socio-economic structure of particular rural areas and agriculture. Specific Macroregions include the following voivodships: Central-Western – the Kujawsko-Pomorskie and Wielkopolskie voivodships; Central-Eastern – the Łódzkie, Mazowieckie, Lubelskie and Podlaskie voivodships; South-Eastern – the Świętokrzyskie, Małopolskie, Podkarpackie and Śląskie voivodships; South-Western – the Opolskie, Lubuskie and Dolnośląskie voivodships; Northern – the Zachodniopomorskie, Pomorskie and Warmińsko-Mazurskie voivodships. For more on the division into Macroregions see: [Sikorska 2005].

It should be emphasised that the source materials for the analysis have the merit of providing comprehensive information. In the questionnaire for non-farming families most questions refer to the family, the outflow and inflow of families and individuals from and to the village. Detailed questions concern sources of income for the family and demographic characteristics, the educational level and working life of the family members. Another section of the questionnaire refers to the possession of basic goods, with a view to determining the living standards in the surveyed group of families.

STRUCTURE AND MOBILITY

According to the applicable typology of rural areas, in Poland such regions represent 93.2% of Poland's total area. Those areas are inhabited by 14.7 million persons, i.e. 38.6% of Poland's population, but the farming population (with farms of more than 1 ha of agricultural land) represents only half of the rural population. It should be noted, however, that the share of the rural population has been slightly increasing. Particularly strong population growth has been in rural areas in the proximity of major cities or in those characterised by attractive rural and natural landscape. At the same time, fluctuations in the number of rural residents is increasingly accompanied by a marked downward trend of the farming population, following the fall in the number of family farms. As their number decreases, the role of agricultural holdings in providing the source of income is gradually diminishing. Therefore, economic activity and sources of income of the farming population have been increasingly diversified. In 2005, farming provided the main activity and income source only for 36% of households with a farm of more than 1 ha of agricultural land, whereas the corresponding figure for 2000 was 42%. Such rural households accounted for 36% and 43% respectively of the farming population.

The analysis of the non-farming population has primarily demonstrated that this group represents a growing and ever more significant share of the rural population. As many as 57% of rural families own no agricultural land. Therefore, the rural community can no longer be identified exclusively with agricultural activities.

The regional distribution of non-farming rural residents suggests that the division into in the west and north of Poland, where the rural population was characterised by a high share of non-farming families, and central and eastern regions, with a relatively minor proportion of non-farming households, remained virtually unchanged. In some areas, particularly in the north and southwest, the group in question accounted for three--fourths of all rural families. Even in the southern regions, where agricultural holdings are characterised by very traditional family ties, non-farming families represented nearly half of the rural community, irrespective of the economic status of individuals.

For the description of changes observed in rural areas, the increasing share of the non-farming population is significant in a number of ways. First of all, it indicates the diminishing role of agriculture as a determinant of the economic situation of the rural population. For more than a decade, the process has been intensified. In the past, the main mechanism for reducing the economic dependence of rural residents on agricultural holdings was the outflow of rural youth from agriculture to non-agricultural occupations. It was primarily driven by prospects of rapid social advancement and frequently involved

Table 1. Non-farming families in 2000 and 2005
Tabela 1. Rodziny bezrolne w 2000 i 2005 roku

Macroregion Makroregion	Year Rok	Surveyed families, total Liczba badanych rodzin	Of which: non-farming families w tym bezrolne	
			number liczba	share udział
Total	2000	8643	4716	54.6
Ogółem	2005	8604	4899	56.9
Central-Western	2000	1012	534	52.8
Środkowozachodni	2005	1031	556	53.9
Central-Eastern	2000	2787	1249	44.8
Środkowowschodni	2005	2635	1213	46.0
South-Eastern	2000	2368	1117	47.2
Południowo-wschodni	2005	2408	1229	51.0
South-Western	2000	1255	897	71.5
Południowo-zachodni	2005	1278	946	74.0
Northern	2000	1221	919	75.3
Północny	2005	1252	955	76.3

Source: IAFE-NRI surveys 2000, 2005.
Źródło: Badanie IERiGŻ-PIB 2000 i 2005.

plans to leave rural areas [Rosner 1991]. The outflow of labour from agriculture observed in the past twenty years should be primarily attributed to necessary adjustments to new macroeconomic conditions, particularly the need to cope with greater competitive pressure and to reduce production costs. Significant land fragmentation, characteristic of Polish agricultural holdings, rapidly increased hidden unemployment in agriculture and, regardless of the imbalance in the labour market, the situation in agriculture pushed farmers to seek alternative incomes. As a result, even though non-farming rural families suffered all the adverse effects of Poland's economic transition, the number of such households continued to rise. Furthermore, partly due to increased interest on the part of rural youth in taking over the farms as rightful successors, the non-farming rural population included a growing number of retired farmers.

After Poland's accession to the European Union, the generally improving economic conditions and significant land fragmentation contributed to greater interest in non--agricultural activities, thus more new rural households became non-farming families [Wilkin 2005]. Ever greater job opportunities encouraged such attitudes. As a consequence, over 70% of new non-farming families had a farming background.

In recent years, to a greater extent than before, the formation of the non-farming population in rural areas has been affected by family and individual migration. In 2000–2005, a total of 12% of the households in question lost the status of a non-farming rural family. Within this group, relatively the most non-farming families left rural areas to live in towns or cities (nearly 60%). Almost 40% of migrant families moved to another village, whereas a mere 5% decided to go abroad. At the same time, very rare occurrences of individual migration by members of non-farming rural households, unlike in the case of family migration, usually involved geographical mobility within rural areas – 45% of

individual leaving the surveyed villages moved to another village. According to survey findings, an increasing number of migrants decided to leave Poland. It concerned nearly 14% of the total number of individual migrants.

In general, in 2000–2005 net migration among non-farming families was positive. The increase in the number of the surveyed households (new families accounted for 13%) was greater than the decrease (12% had left the surveyed villages), but the difference was less significant than in 1996–2000 (16% against 5% respectively). Therefore, the conclusion is that the period of 1996–2005 witnessed an upward trend in the mobility of the non-farming population.

The non-farming rural population was characterised by a high share of younger working age persons, as well as by a relatively high proportion of children and young people. The pre-working age population accounted for ca. one-fourth, a higher share than that of the post-working age population (less than one-fifth of the surveyed group). However, in recent years there has been an intensification of the demographic ageing of the non-farming rural population. In 2000–2005, as compared to 1996–2000, there was an increase in both the post-working age population and the non-mobility working age population.

For years, the demographic structure of the non-farming population in rural areas has been determined by the inflow of persons who discontinued farming and took up paid employment. In recent years, the age structure of the group in question has largely been affected by changes resulting from job migration of families/individuals and more widespread education, particularly higher education. Another important factor has been a growing number of retired farmers in the non-farming population. Combined with job migration by young members of non-farming families, this pattern determines the demographic ageing of the population in question.

SOCIO-DEMOGRAPHIC STRUCTURE

With regard to the whole non-farming population surveyed, the working age population accounted for more than half, the majority being the mobility age population, i.e. persons at the stage in life distinguished by greater social activity. It could be reflected in geographical or job mobility, choosing a different type of employment or in the family situation. Presumably, such demographic features of the surveyed group indicated its significant potential and the capacity to influence overall changes in rural communities.

The demographic "youth" of non-farming rural population was reflected not only in a high share of younger working age persons, but also in a relatively high proportion of children and young people. The pre-working age population accounts for approx. one-fourth, a higher proportion than that of the post-working age population (less than one-fifth of the surveyed group). However, in recent years there has been an intensification of the demographic ageing of the non-farming rural population. In 2000–2005, as compared to the previous period covered by the surveys, there was an increase in both the post-working age population and the non-mobility working age population (Table 2).

Importantly, the rural community is also characterised by significant differences in the educational level between the farming and non-farming population. Relevant data

Table 2. Non-farming rural population by age in 2000 and 2005
Tabela 2. Ludność bezrolna według ekonomicznych grup wieku w latach 2000 i 2005

Specification Wyszczególnienie	Share of*/Udział ludności w wieku*									
	the pre-working age population przedprodukcyjnym		the working age population produkcyjnym		of which/z czego				the post-working age population poprodukcyjnym	
					the age of mobility mobilnym		the age of non-mobility niemobilnym			
Year/Rok	2000	2005	2000	2005	2000	2005	2000	2005	2000	2005
Non-farming families Rodziny bezrolne	26.5	22.2	54.0	58.8	37.0	38.1	17.0	20.7	19.5	19.0

*Economic age groups according to the Central Statistical Office: the pre-working age population – persons aged 17 or under; the working age population – women aged 18–59 and men aged 18–64; the post-working age population – women aged 60 or over and men aged 65 or over. The working age population was subdivided into two groups: the age of mobility population – persons aged 18–44 – and age of non-mobility population – women aged 45–59 and men aged 45–64.
*Przyjęto stosowane przez GUS ekonomiczne grupy wieku: przedprodukcyjny – osoby do 17 lat; produkcyjny – kobiety w wieku 18–59 lat i mężczyźni w wieku 18–64 lat; poprodukcyjny – kobiety 60 i więcej oraz mężczyźni 65 i więcej lat. W wieku produkcyjnym wydzielone zostały jeszcze dwie grupy: mobilny – osoby w wieku 18–44 lat i niemobilny – kobiety w wieku 45–59 lat i mężczyźni w wieku 45–64 lat.
Source: IAFE-NRI surveys 2000, 2005.
Źródło: Badanie IERiGŻ-PIB 2000 i 2005.

primarily illustrate social and economic aspirations of young people. The improvement in the educational level was found to be stronger in the farming population (in terms of secondary, post-secondary and higher education) than among persons without agricultural land. At the same time, the gap between the two groups of the rural population had been gradually narrowing, which is primarily reflected in the growth rate of persons with secondary education (Table 3). It follows that education opportunities and aspirations have been increasingly similar in rural areas, and regardless of the type of economic activity education is perceived as a main precondition of social and economic advancement as well as of improved living standards of the rural population.

Table 3. Rural population aged 15 or over by education in 2000 and 2005
Tabela 3. Ludność wiejska w wieku 15 lat i więcej według poziomu wykształcenia w latach 2000 i 2005

Specification Wyszczególnienie	Year Rok	Share of population with/Udział ludności z wykształceniem			
		primary education podstawowym	basic vocational education zawodowym	secondary and post-secondary education maturalnym i pomaturalnym	higher education wyższym
Non-farming families	2000	39.5	38.8	18.1	3.6
Rodziny bezrolne	**2005**	**36.1**	**36.1**	**22.5**	**5.3**
Farming families	2000	41.6	39.2	17.0	2.2
Rodziny rolnicze	**2005**	**34.4**	**37.4**	**23.2**	**5.0**

Source: IAFE-NRI surveys 2000, 2005.
Źródło: Badanie IERiGŻ-PIB 2000 i 2005.

The importance of the educational level as a determinant of individual position in the labour market is very clear in data on rural unemployment as the unemployment rate differs between social groups. According to the surveys, the situation of the population in the labour market largely depends on the following factors: age, education, trade/profession and the place of residence.

CONCLUSIONS

The analysis of the non-farming rural population has primarily demonstrated that persons without agricultural land represent an increasingly significant group of rural residents. From 1988 the number of non-farming rural families rose by 15.4%, up to as many as 57% of all the rural households in 2005 [Chmieliński, Otłowska 2007]. The main determinant of such changes was the abandonment of farming and taking up non--agricultural activities by the rural population or the discontinuation of production at the retirement age. Therefore, the rural population can no longer be identified with the farming population. In some regions of Poland, particularly in the north and southwest, the group in question accounts for three-fourths of the total number of families. Even in the eastern Poland, where agricultural holdings have been characterised by very traditional family ties, non-farming families represent nearly half of the rural community, irrespective of the economic status of individuals.

According to data on the educational structure of the non-farming population, the group was strongly oriented towards non-agricultural activities. It was reflected not only in the relatively high share of persons with non-agricultural qualifications, but also in differences in the educational level between macroregions. Relatively the best educational level of the surveyed group was found in the south of Poland. For instance, in 2005 the share of the non-farming rural population with secondary, post-secondary of higher education in the South-Eastern macroregion exceeded 36%, compared to the national average of 28%. Those areas are characterised by the most advanced diversification of economic activities of the rural population among all the macroregions. Relatively more absorptive local labour markets provided more non-agricultural job opportunities than in villages located in other macroregions. It has been proven in the paper that the situation of the population in the labour market largely depends on the following factors: age, education, trade/profession and the place of residence.

On the basis of the analysis of socio-economic development observed in rural areas, it may be assumed that the non-farming rural population will grow further and that this socio-occupational category will increasingly determine the socio-economic development of rural areas.

REFERENCES

Chmieliński P., Otłowska A., 2007: Zmiany w strukturze społeczno-demograficznej ludności nierolniczej w latach 2000–2005, Report 81, IERiGŻ-PIB, Warsaw.

Wilkin J., 2005: Polska wieś 2025. Wizja rozwoju, Cooperation Fund, Warsaw.

Rosner A., 1991; Migracje wieś – miasto, a przepływy między typami gospodarstw domowych ludności wiejskiej, IRWiR PAN, Warsaw.
Sikorska A., 2005: Zmiany strukturalne na wsi i w rolnictwie w latach 1996–2000 a wielofunkcyjny rozwój obszarów wiejskich. Synteza, IERiGŻ-PIB, Warszawa.
Turski R., 1970: Przemiany struktury społecznej wsi, [in:] Struktura i dynamika społeczeństwa polskiego, PWN, Warsaw.

PRZEMIANY W SPOŁECZNO-EKONOMICZNEJ STRUKTURZE LUDNOŚCI BEZROLNEJ W LATACH 2000–2005

Streszczenie. Przemiany w strukturze ludności wiejskiej są najlepszą ilustracją ogólnego kierunku zmian funkcji obszarów wiejskich, z miejsca pracy rolników i produkcji żywności w stronę miejsca pracy i życia ludności niezwiązanej z rolnictwem. Celem pracy jest analiza regionalnych różnic w wybranych cechach struktury społeczno-ekonomicznej bezrolnej ludności wiejskiej. Badanie objęło 76 wsi tworzących ze względu na cechy społeczno-ekonomiczne reprezentację struktury obszarów wiejskich w Polsce.

Słowa kluczowe: ludność bezrolna, obszary wiejskie, zróżnicowanie regionalne

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MARKET FACTORS IN THE DEVELOPMENT OF AGRICULTURAL SEED PRODUCTION (ON THE EXAMPLE OF POTATO)

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Abstract. Potatoes comprise such species of crops which experienced the greatest fall in the production of seeds in 1989–2006. There is a need and an economic justification to revert the decreasing tendencies in seed production and to increase the usage of qualified seed-potatoes in agriculture by 2–3 times. In light of the analysis, which was carried out, it is the demand factors, i.e. size of production and profitability of agriculture, quality of seed-potatoes and level of marketing, which are the major barriers in the restoration of seed production. Meanwhile, there is a need to limit the barriers which hamper the increase of supply (profitability of seed production, phytosanitary requirements, short life cycle of the cultivar). In 2005–2006 there has been a significant increase in market prices of seed--potatoes. The elimination of most of the barriers in market development that are discussed in the paper is necessary to rebuild seed production.

Key words: seed production, potato, market, barriers and chances of developments

INTRODUCTION

Seed market comprises one of the segments of potato market and potentially one of the most profitable directions in the production of this crop. Meanwhile, it plays the role of a contractor of the most basic means of production in relation to the remaining directions of potato usage, especially goods production. New cultivars and qualified seed material are the carrier of biological progress [Chotkowski 2007]. Biological progress constitutes one of the most important factors which decrease cost absorptiveness of productivity and limit its unfavourable activity on the environment. An approach which favours biological progress over other factors of production (e.g. mechanisation or chemical progress) stems from the fact that there are no limits as to the size of farms and productivity, therefore, small family-owned farms, which dominate the Polish agriculture, may take advantage of it [Woś 2003].

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The use of valuable cultivars and healthy seeds as elements of biological progress in the adjustment of the whole production sphere and potato economy to the growing demands of both, domestic and international market, requires a seed sector that will be well-functioning. This enables the farmers to increase their harvest and improve its quality which means the potato's enhanced competitiveness on the market. Hence the need to overcome the crisis in Polish potato market and the restoration of seed production and market are a priority in the interests of agricultural policy. The attention of seed production companies who are sellers of seeds as well as the state's politics should be focused on the effect of the increase of demand on qualified seed-potatoes, meanwhile taking into consideration the supply factors.

The aim of the paper is to identify the most important market barriers which hamper the restoration of seed market on the example of seed-potatoes.

TENDENCIES IN THE POTATO SEED PRODUCTION

Potato seed production in the EU is concentrated on four countries: the Netherlands, Germany, France and Great Britain, which occupy 75% of the total land area of potato crops. The share of seed plantations in the overall area of potato crops is on average 5.7% in the EU countries, including the Netherlands (24% which is directed at the seed-potato

Table 1. European Union countries with the largest area of potato seed plantations
Tabela 1. Kraje Unii Europejskiej z największą powierzchnią plantacji nasiennych ziemniaka

No	Country	Seed area		Share of seed plantations in general crops area %	Area of seed production per 100 tons of marketable production, ha
		2005 [ha]	dynamics 2000–2005 2000 = 100		
1.	Netherlands	38 682	100.0	24.0	6.9
2.	Germany	16 436	82.1	5.9	1.8
3.	France	14 983	102.3	9.6	3.3
4.	Great Britain	14 322	88.1	10.0	2.8
5.	Denmark	4 695	84.5	11.8	4.2
6.	Poland	4 631	67.1	0.8	1.2
7.	Czech Republic	4 472	78.2	12.5	5.9
8.	Spain	3 300	91.7	3.5	1.5
9.	Belgium	2 078	96.8	3.3	1.0
10.	Sweden	1 665	82.0	5.5	2.3
11.	Austria	1 525	98.4	6.8	2.3
12.	Ireland	1 500	71.8	11.5	6.0
13.	Slovakia	1 400	53.4	7.4	3.6
14.	Hungary	440	32.5	1.7	1.0
15.	Latvia	300	88.2	0.7	0.8
Total EU – 25		112 762	90.4	5.7	2.8

Source: Own study based on: [Hambloch Ch., Menth H., Stelzer M. 2005. ZMP – Marktbilanz. Kartoffeln 2005. Zentrale Markt- und Preisberichtstelle GmbH, Bonn, p. 168].
Źródło: Opracowanie własne na podstawie [Hambloch Ch., Menth H., Stelzer M. 2005. ZMP – Marktbilanz. Kartoffeln 2005. Zentrale Markt- und Preisberichtstelle GmbH, Bonn, 168 s.].

export), the Czech Republic (12%) and France and Great Britain (about 10%) and Germany (5.9%) (Table 1). Among other European countries Poland has one of the lowest share indicators and high dynamics of a decrease in the area of potato seed plantations. The decrease of the area of potato seed plantations in all the EU countries (except for France and the Netherlands) results mainly from a decrease in the overall area of potato crops.

Potato seed production in Poland in the past twenty years has decreased ten times [Zimnoch-Guzowska, Chotkowski 2006]. Potatoes are plants in the case of which the tempo of a fall in the production of qualified seed material was the highest in 1989–2006 (Table 2). Years 1996, 2002 and 2006 were an exception as there was an increase in the area of potato seed production in comparison with the previous year (in 1996 an increase of over 50%, in 2002 of 1.7%, and in 2006 of 15%) [Dzwonkowski et al. 2007]. The major reason for the increase in the area of potato seed production was the higher prices of potatoes in the market. The share of qualified seed potatoes in the use made of the seed potatoes in total was on a very low level, about 5%, in total. The share of qualified plantations, on the other hand, in the overall area of potato crops in Poland decreased from 4% in 1986–1989 to 0.9% in 2006. When drawing the characteristics of the most important tendencies in the seed potato sector, one has to pay attention to the average low size of seed plantations, which in 1991 was 0.99 ha and in 2006 increased only to reach 2.01 ha (whereas in the Netherlands it was almost 18 ha).

The decrease of the area of seed potato reproduction is accompanied by its gradual movement to counties in the northern part of Poland, especially to Pomerania (25.8% of the total land area in 2005) and west-Pomerania (17.0%). These regions have more favourable climatic and environmental conditions which are more suitable for seed potato crops. The share of foreign varieties in the seed area has systematically grown and its pace has accelerated in particular after 2000 [Chotkowski, Wróbel 2006]. The expansion of foreign varieties results from the growing scale of processing in companies which deal with processed potato into crisps and chips, as well as the pushing aside of the Polish varieties of potato in the part of the market of potatoes for consumption which is enhanced by intensive and effective marketing.

SUPPLY BARRIERS IN THE DEVELOPMENT OF SEED MARKET

Because of its unique character, it is the supply conditions which play an important role in overcoming crisis in the seed market. Thanks to them even in the years of good situation on the market the reproduction or the exchange of qualified seed potatoes do not increase as the producers of seed potatoes find it difficult to supply adequately large amounts of seeds. The following are the most important barriers which hamper the increase of supply of qualified seeds:

– Phytosanitary conditions. Difficulties arising from the practical use of legal regulations on phytosanitary safety are considered to be the most important factors which hamper the growth of supply for qualified seed potatoes [Chotkowski 2006]. Fighting against the threat to seed plantations by means of bacterial ring rot of potato caused by (Clavibacter michiganensis ssp. sepedonicus) (Spieckermann and Kotthoff 1914) (Cms) and the risk related to the danger of quarantine diseases are also considered to

Table 2. Changes in qualified plantations area measured in thousands of hectares and their share (%) in crops in total in 1998–2006
Tabela 2. Zmiany w powierzchni kwalifikowanych plantacji (w tys. ha) oraz ich udział w uprawach ogółem w latach 1998–2006 (%)

Crop	1988–1990		1991–1993	1994–1996	1997–1999	2000–2002	2003–2005	2006		
	in thousands ha	share %	in thousands ha	in thousands ha	in thousands ha	in thousands ha	in thousands ha	in thousands ha	share %	dynamics (9:2)
1	2	3	4	5	6	7	8	9	10	11
Cereals in total	257.5	3.6	118.3	133.9	170.1	104.4	59.2	44.6	0.6	0.17
– Winter wheat	61.4	3.8	38.9	35.1	53.2	32.9	18.6	13.6	0.8	0.22
– Spring wheat	28.7	4.4	15.0	16.1	25.0	13.1	6.0	4.2	1.0	0.15
– Winter barley	9.8	6.0	3.5	5.1	3.2	3.0	1.6	1.9	1.0	0.19
– Spring barley	43.5	4.2	20.8	28.0	33.3	20.8	12.0	10.4	1.2	0.23
– Rye	41.3	1.8	16.1	18.2	25.3	10.1	5.8	3.5	0.3	0.08
– Oat	39.3	4.9	12.3	15.1	12.5	9.3	4.2	4.0	1.0	0.10
– Winter triticale	32.3	5.0	10.3	13.8	16.9	11.3	7.8	5.7	0.6	0.18
– Maize	2.3	0.6	2.1	1.4	0.8	1.5	2.1	2.5	0.8	1.09
Potatoes	65.9	3.5	26.3	10.2	9.3	6.9	5.6	5.4	0.8	0.08
Sugar beet	2.2	0.5	1.8	1.7	0.8	0.07	0.04	0.02	0.02	0.01
Winter rape	5.9	1.2	3.9	3.3	1.9	1.4	1.4	0.6	0.1	0.10
Pulse	90.0	19.4	38.2	16.1	13.3	6.4	3.8	3.7	4.3	0.04
Papilionaceus	18.7	2.3	4.7	3.1	2.5	1.5	0.7	1.5	0.4	0.08
Grasses	40.5	–	17.4	10.5	11.8	8.6	8.1	17.1	–	0.42
Crops in total	483.9	3.3	212.7	180.2	210.5	130.8	81.1	75.9	0.7	0.17

Source: Own study based on [Oleksiak T. 2007. Rynek nasion. [in:] Zalewski at al.: Rynek środków produkcji i usług dla rolnictwa. Stan i perspektywy. Analizy rynkowe, nr 31. IERIGŻ-PIB, ARR, MRiRW, Warszawa, 30–35].

Źródło: Opracowanie własne na podstawie [Oleksiak T. 2007. Rynek nasion. [In:] Zalewski at al.: Rynek środków produkcji i usług dla rolnictwa. Stan i perspektywy. Analizy rynkowe, nr 31. IERIGŻ-PIB, ARR, MRiRW, Warszawa, 30–35].

be the major problem. Apart from financial losses and the overcoming of the difficulties connected with the control and research, one can talk here about a "fear barrier". The role of the state politics is to establish compensation systems for farmers and seed manufacturers because of the presence of quarantine diseases, and to make sure that obligatory examinations do not hamper the development of potato business. The change of the functioning of phytosnitary services, following the EU model, seems to be necessary. Instead of being exclusively a policeman, it should become an advisor for producers. The decrease of risk of disqualification and degradation of plantations because of the threat of virus diseases favours the usage of the right production technology and the selection of varieties according to a given region's threat of infection [Turska, Chotkowski 2007].

– High costs of seed potato production and profitability problem. As it follows from calculations by Plant Breeding and Acclimatization Institute at the Bonin Research Center, the profitability of seed potato production in given years was mostly positive. However, in the face of high costs, environmental and economic risk and recently increased costs, i.e. those related to the PIORiN (Main Inspectorate of Plant Health and Seed Inspection) control, the prospect of profitability is unsatisfactory. The negative impact of this barrier of increase of qualified seed potato supply will decrease the higher the level of market prices for seed potato sale.
– Short life cycle of varieties and shortage of popular varieties of seed potatoes in particular. The Netherlands, France and Great Britain's share in the production of the leading varieties in seed industry usually amounts to 10–15% and has remained so for many years. In Poland a sudden regress in the seed production of potato varie-

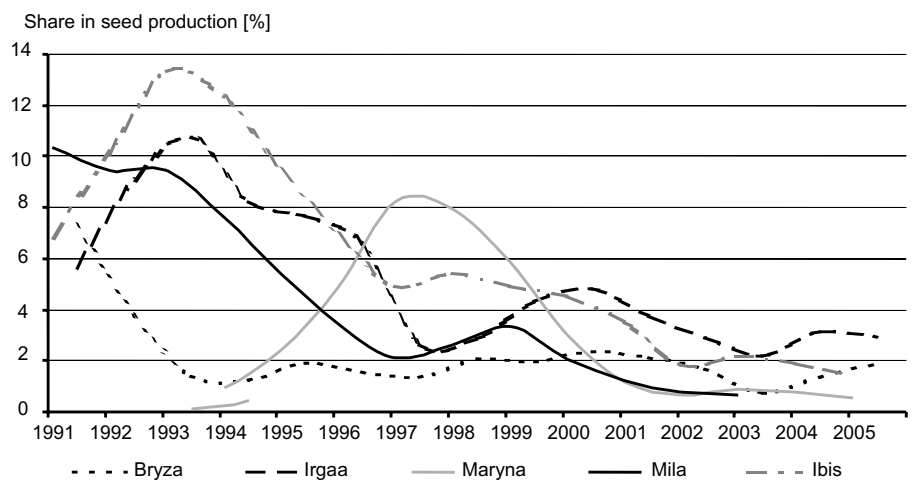

Fig. 1. Life cycle of mid-early and mid-late varieties for consumption according to the share in seed production in 1991–2005
Rys. 1. Cykl życia średniowczesnych oraz średniopóźnych odmian konsumpcyjnych, względem udziału w produkcji nasiennej w latach 1991–2005
Source: [Chotkowski, Wróbel 2006].
Źródło: [Chotkowski, Wróbel 2006].

ties appreciated by the producers and consumers alike is very common [Chotkowski, Wróbel 2006]. On the example of varieties of potatoes for consumption grown for late harvest, such relapse is presented by Figure 1. Changeability of the structure of varieties and its dispersion lowers the economic effectiveness of seed production and the market position of domestic varieties. From the length of the life cycle's point of view, the chase for new varieties, which is characteristic for the domestic market, is highly unfavourable. Too short a life cycle of the varieties also results from market instability, dominance of free-market trade instead of contracts between farmers and the government as well as a relatively high market tolerance to the prevailing sale of potatoes for consumption which are of low quality parameters. In their seed politics, seed breeding companies should strive for the concentration of variety structure as well as to acquire the longest possible variety life cycle.

FACTORS OF DEVEVELOPMENT OF DEMAND MARKET FOR SEED POTATOES

Low profitability of agriculture, including potato production. In a situation of low level of income and profitability of agricultural production in an average farm, farmers tend to limit the costs, including the purchase of qualified seeds. The EU integration and the inclusion of Polish farmers into Common Agricultural Politics have not brought any significant improvement in this respect. Until 2005 a relative stability of real prices of free-market potatoes for consumption in the potato production was observed. Certain possibilities of a price increase and effectiveness exist only in case of sale of stored potatoes, the sale of potatoes grown in conditions of reduced application of agricultural chemicals, and cooperation of farmers in a form of marketing groups.

Low level of potato trade production. As it follows from the IHAR Bonin Research Center analyses [Rembeza 2003], the optimal frequency of seed potato exchange (with some unwillingness to risk which is connected with the investment to purchase seed potatoes on the part of the farmers) on market potato plantations (processed potatoes and for consumption) is every 4–5 years. However, in case of the production of potatoes for the farmers' own use it is profitable to exchange seed potatoes every twenty years. The level of market production decidedly influences the demand for seed potatoes. This is confirmed by the ratio of seed production to the size of market production, which in Poland is slightly lower than in Germany (Table 1). Chances to increase the market production of potatoes in Poland are mainly associated with an increase in processing potatoes into alimentary products and an increase in export (Table 3).

According to research carried out in 2004 in seed manufacturing industries, it is the strict phytosanitary regulations, including the fear of examinations for bacterial ring rot that hamper potato export [Chotkowski 2006]. Despite difficulties, one has to strive for an increase of the drastically low limit of starch production in Poland which was imposed on it during accession to the European Union. Possibly potatoes can be included into the programme of biofuel usage.

Fluctuations of situation in potato market. The demand for seed potatoes drastically falls in years of high potato harvest which results in difficulties to sell and low free market

Table 3. Elements of potato market development in Poland
Tabela 3. Czynniki rozwoju rynku ziemniaka w Polsce

	Factors concerning the increase of market production and outlets of potatoes
1.	Development of potato processing – conditions which favor new investments
2.	Liquidation of barriers for export development
3.	Development of ecological and integrated production
4.	Aiming at an expansion of limits in starch production which were imposed on Poland
5.	Inclusion of potato alcohol into the program of biofuel usage
6.	Increase in potato consumption, including the very early ones
7.	Development of market for pork produced with the use of cereals and potatoes

Source: Own analysis.
Źródło: Analiza własna.

prices of potatoes for consumption. An increased extent of contract of potatoes for consumption with clearly defined prices of sale would diminish the scale of price fluctuations and the level of market situation.

Unsatisfactory quality of seed potatoes available on the market. The emphasis on the improvement of seed potato quality as well as the availability of valuable varieties constitute the most important instrument of exerting pressure of seed producers on the market [Chotkowski 2007]. The improvement of seed potato quality has a positive impact on the effectiveness of their exchange in farms [Rembeza 2003]. The increase of profitability of seed potato exchange will stimulate the supply for qualified seed material.

Concentration of production almost exclusively on the domestic market. Because of the market expansion strategy, globalization of the market and the diversification of economic risk, all big seed producers redirect a part of their activity to foreign markets. Seed producers in Poland limit their sale almost exclusively to domestic market [Chotkowski 2007]. Additional opportunities to export seed potatoes would make it easier for the seed producers to take the risk connected with the increase of reproduction area in case of more favourable supply conditions on the domestic market (like for instance in 2005/2006) [Barański 2006]. The concern of seed producers with export of seed potato would improve the quality of seed potatoes since foreign markets are more demanding.

The liquidation of budget donations for the breeding and exchange of seed potatoes. Until recently, i.e. prior to EU integration, the funds for creative and conservation breeding, including a discount for the purchase of seed potatoes constituted the basic instrument of enhancing the supply. At present the Polska Izba Nasienna (Polish Seed Office) has introduced some funding for farmers for the purchase of up to 100 kg of qualified material. Seed-breeding companies have to pay for the costs of breeding work by means of more effective licence fees, the increase of reproduction scale and the sale of their own varieties and possibly a growth in selective material price. As a result of the act on the legal protection of varieties there is a possibility to obtain fees as one plants materials from one's own crops in farms. However, this is unlikely to affect the income of the stock farmers.

Low cost and little effectiveness of marketing activity. Seed breeding companies have until recently given too little money and employed too few staff for their activity connected

with the conquer of new markets and the launching of new contacts with receivers of seed potatoes. Apart from the workings of the so-called transaction market (the quality and adjustment of the available varieties to the clients' demands, promotion, making sure that the offer and materials reach all the potential receivers of seed potatoes) the modern concept of marketing assumes the launching and maintaining constant cooperation with purchasers [Chotkowski 2007]. Among the activities of the so called partner marketing one can distinguish (apart from the deliverance of high quality products as well as kind and effective service) such elements of cooperation as visits on farms connected with technological and market counselling, training courses, deliverance of publications, phone or the Internet contact, informal meetings.

PRICE TENDENCIES

The prices of seed potatoes in the past fifteen years have showed a greater dynamics of increase than market prices of potatoes for consumption (Table 4). However, the changeability in seed potato prices is greater that that of market potatoes as well as the changeability of prices of seed material of other crops [Rembeza 2003]. Potato seed production can be counted as a high risk activity. Additionally, the directions in changeability of prices cannot be foreseen because they depend on weather conditions.

Table 4. Changes in seed potato prices in comparison with potato for consumption and industrial processing potato prices in 1991–2006, PLN for 100 kg (current prices)
Tabela 4. Zmiany w cenach sadzeniaków w porównaniu z ziemniakami na cele konsumpcyjne i przemysłowe w latach 1991–2006, w zł/100 kg (ceny bieżące)

Direction of potato usage	1991–1993	1994–1996	1997–1999	2000–2002	2003–2006	Dynamics 2003–2006/1991–1993 1991–1993 = 100
Seed potatoes – purchase prices	11.8	36.8	26.8	50.7	55.1	467
– sale prices	13.9	43.0	41.0	51.0	88.8	638
Potatoes for consumption – late harvest – purchase prices	8.0	23.3	28.0	33.8	36.9	461
– free market prices	11.0	25.3	30.5	35.6	56.1	510
– retail prices	21.4	44.5	65.7	68.3	91.0	425
Processed potatoes (starch) – purchase prices	5.6	12.9	13.5	19.2	18.4	329

Source: My own analysis based on the data from GUS (Main Statistical Office).
Źródło: Analiza własna na podstawie danych GUS.

As it follows from the regression equation presented below, the prices of seed potatoes are shaped mainly by the prices of potatoes for consumption in a given year and partly by seed potato prices from the previous year. The increase in prices of potatoes for consumption by 1% causes an increase in seed potato prices by 0.93%.

$$P_s = -1.07 + 0.93 \log P_{con} + 0.42 \log P_{st-1}$$

where: P_s = actual prices of seed potatoes (2002 prices = 100)
P_{con} = actual prices of potatoes for consumption (market)
P_{st-1} = seed potatoes prices of the previous year
$R^2 = 0.87$; DW = 2.14

On the other hand, potatoes for consumption prices are shaped by the level of potato harvest in a given year. An increase of harvest by 1% causes a decrease in prices of potatoes for consumption by almost 1.7%. Real prices of potatoes for consumption in 1990–2004 were shaped on a relatively stable level (the negative tendency is irrelevant). In 2005–2006 as a result of poor potato harvest, market prices of potatoes for consumption grew to 60.5–92.9 PLN per 100 kg. The improvement of prosperity makes favourable perspectives for the development of seed potato and market potato production. However, there are no signs to imply that the above tendencies will remain constant on the market in the years to follow.

$$P_{con} = 7.9 - 1.69 \log Q - 0.017 \log t$$

where: Q = total amount of potato harvest
T = developmental tendency of prices of potatoes for consumption
$R^2 = 0.68$; DW = 1.80

In relation to western European countries there are incorrect relations of seed potato prices in Poland from the producers' and sellers' point of view. The relations of prices of seed potatoes to those of potatoes for consumption in Poland were shaped on the level 1.5–1.7: 1 and they are much lower than in western European countries, where they were 2.5–3.0:1. The intention to reduce costs and sale prices is one of the major aims of the marketing strategy on the global market. However, in Poland qualified seed potato prices ought to be increased to cover the costs of their quality improvement and to increase the profitability of their reproduction. The increase of seed potato prices may thus cause a supply increase provided that their quality improves significantly [Barański 2006].

SUMMARY

The reconstruction of seed production of crop plants, including seed potatoes preconditions the development of plant production for the market and increases its competitiveness in the trade. In light of the analysis that was carried out, the main role in the process of seed market development is played by demand factors. The foreseeable increase in market production of potatoes provides a chance for an increase in the exchange of seed potatoes. The prediction, which is presented in Table 5, assumes an increase in production for the market up to 4.7 tons.

One may expect that the branch of potato trade will receive a greater than so far help and support in the development from the government and organizations which are active in this sector. The negative approach of the companies, politicians and administrators to the perspectives of business development connected with potatoes has to be changed

Table 5. Assessed needs for seed production in Poland in comparison with potato crops with various usage directions in 2005 and 2010
Tabela 5. Oszacowane zapotrzebowanie na produkcję nasienną w Polsce w porównaniu z uprawami ziemniaka na różne przeznaczenie w latach 2005 i 2010

Usage direction	Condition in 2005			Forecasting fo 2010		
	t*/tonnes	yield, t/ha	t* ha	t*/tonnes	yield, t/ha	t* ha
Production for maket in total	3660	–	218	4700	–	240
– for consumption	1820	25.0	120	1900	30.0	115
– processed for starch and alcohol	830	25.0	35	1200	30.0	40
– processed for food products	980	30.0	60	1300	35.0	65
– Export	30	25.0	3	300	30.0	20
For farms usage in total	3495	15.0	357	2640	17.0	271
– farmer families usage in total	2490	15,0	300	2300	17.0	225
– feeding stuff (without refuse)	1005	15.0	57	340	17.0	43
Seed production demand in total	285	10.0	13	235	15.0	12
– Seed potatoes for market production demands (exchange every 4 years)	110	12.0	10	150	15.0	10
– qualified seed potatoes on no-market production demands (exchange every 20 years)	35	12.0	3	60	15.0	2
Area of potato crops in total, ha, t*.	–	–	588	–	–	520

*t – in thousands /w tysiącach
Source: My own analysis on the base of GUS [Dzwonkowski et al. 2007] and research of IHAR [Chotkowski 2006].
Źródło: Własna analiza na podstawie danych GUS [Dzwonkowski et al. 2007] oraz badań IHAR [Chotkowski 2006].

[Chotkowski 2006]. When assuming that the frequency of seed potato exchange is every four years on average, the demand for qualified seed potatoes may be estimated to be 150.000 t. An output of 15 t per 1 ha implies the necessity to grow seeds on the area of 10.000 ha (Table 5). The remaining 2.000–3.000 ha should provide potatoes for export and exchange (every 20 years) on plantations which are meant to produce crops for self--usage supply. The next argument for the increase of demand for qualified seed potatoes is the foreseeable increase in the professional potato production and quality demands of the market [Beukema, Van der Zaag 1989]. The key role in the restructuring of the seed market is to be played by seed-breeding companies as well as the state's politics. The liquidation of financial help for biological progress may paradoxically lead to a situation in which the owners of varieties, by improving the seed potato quality on the market and the development of cooperation with purchasers and implementation of other system solutions, will order the market which will result in an increase of the indicator of seed potato exchange in Poland [Barański 2006]. One may expect that the seed-breeding companies instead of creative breeding will concentrate on developing the production of their own seed varieties, the organization of reproduction and the development of sales

market, whereas seed producing companies will implement the rules of marketing to a greater extent. The development of seed market will be inhibited in a situation when some supply barriers are eliminated. In the past few years the role of factors of this kind has decidedly increased. Phytosanitary conditions are considered to be the most important barrier which inhibits the growth of supply for qualified seed potatoes. Aid from the state government seems to be necessary here. An increase of supply prices of seeds as well as the lengthening of life cycle of the leading potato varieties would have a positive impact on limiting the supply barriers. To sum up one may claim that the seed market of potatoes is likely to restore and develop. However, the elimination of some barriers is necessary. The factors for the seed market development which are presented in this paper are also applicable to cereals and other crops.

REFERENCES

Barański B., 2006: Kto trzyma klucz do przełamania kryzysu w nasiennictwie ziemniaka w Polsce. Ziemn. Pol. 3, 11–14.

Beukema H.P., Van der Zaag D.E., 1990: Introduction to potato production. Pudoc, Wageningen, p. 208.

Chotkowski J., 2007: Marketingowe podstawy rozwoju rynku nasion rolniczych. Monogr. i Rozpr. Nauk. IHAR, nr 26, IHAR Radzików, p. 134.

Chotkowski J., 2006: Perspektywy produkcji ziemniaków w Polsce w opiniach przedsiębiorstw nasiennych. Biul. IHAR 242, 153–160.

Chotkowski J., Wróbel S., 2006: Tendencje w strukturze odmianowej produkcji sadzeniaków ziemniaka w Polsce w latach 1991–2005. Zesz. Probl. Post. Nauk Rol. 511, 459–468.

Dzwonkowski W., Szczepaniak I., Rosiak E., Chotkowski J., Rembeza J., Bochińska E., 2007: Rynek ziemniaka. Stan i perspektywy. Analizy rynkowe 31. IERiGŻ-PIB, ARR, MRiRW, Warszawa, p. 27.

Rembeza J., 2003: Ryzyko a ekonomiczna efektywność nakładów w produkcji rolniczej na przykładzie ziemniaka. Post. Nauk Rol. 1, 67–77.

Turska E., Chotkowski J., 2002: Potato seed production – current problems and development trends. Ann. Warsaw Agric. Univ. – SGGW, Agriculture 43, 33–38.

Woś A., 2003: Polityka rolniczo-środowiskowa i nowe szanse rolnictwa. IERiGŻ, Warszawa, p. 98.

Zimnoch-Guzowska E., Chotkowski J., 2006: Potato sector in Poland: From breeding to production. [In:] Potato developments in a changing Europe. Ed. N.V. Haase, A.J. Haverkort. Wageningen Academic Publishers, Wageningen, 215–225.

CZYNNIKI RYNKOWE W ROZWOJU ROLNICZEJ PRODUKCJI NASIENNEJ (NA PRZYKŁADZIE ZIEMNIAKA)

Streszczenie. Ziemniaki należą do takich gatunków, które doświadczyły największego spadku produkcji nasiennej w latach 1989–2006. Istnieje potrzeba uzasadnienia ekonomicznego odwrócenia malejącej tendencji w produkcji nasiennej i dwu-, trzykrotnego zwiększenia zużycia kwalifikowanych sadzeniaków w rolnictwie. W świetle przeprowadzonej analizy okazuje się, że głównymi barierami w odnowie produkcji nasiennej są takie czynniki popytowe, jak: rozmiar produkcji i dochodowość w rolnictwie, jakość sadzeniaków oraz poziom marketingu. Należy ograniczyć bariery, które hamują wzrost zaopatrzenia (dochodowość produkcji sadzeniaka, wymagania fitosanitarne, krótki cykl życia odmian uprawnych).

W latach 2005–2006 nastąpił znaczący wzrost w cenach rynkowych sadzeniaków. Wyeliminowanie większości barier rozwoju rynku, omawianych w artykule, jest niezbędne do odbudowania produkcji nasiennej.

Słowa kluczowe: produkcja nasienna, ziemniak, rynek, szanse i bariery rozwoju

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PREDICTION OF LOAN REDEMPTION IN A TRANSITION COUNTRY: A COMPARISON OF LOGIT MODELS AND ARTIFICIAL NEURAL NETWORKS

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Abstract. Banks provide a financial intermediary service by channeling funds efficiently between borrowers and lenders. Bank lending is subject to credit risk when loans are not paid back on a timely basis or are in default. The ability or possessing a methodology to evaluate the creditworthiness of a borrower is therefore crucial to managing the bank's risk management and profitability. In transition countries like Poland, creditworthiness evaluation is especially difficult due to the transitional nature of the financial markets. This paper looks at a comparison of using logit models and artificial neural networks models to evaluate a borrower's credit risk. In particular, this paper shows that artificial neural networks model is a better predictive tool than logit models of credit risk.

Key words: loan redemption, classification, logit model, artificial neural networks

INTRODUCTION

The fundamental risk of making bank loans is credit risk and its redemption in a timely manner, particularly in a transitioning country like Poland. Poland's financial system has undergone tremendous reforms and changes for over a decade and a half in adapting to a market economy. However, the Polish financial system is still primarily a banking based system, lacking in depth and width comparable with older European Union member

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countries. In an effort to improve the financial system, foreign banks participation is encouraged with the result that there are now only 3 banks that can be called Polish: PKO BP SA and BOŚ, listed on the Warsaw Stock Exchange, and BGŻ. Other Polish banks are foreign owned, for example, WBK Bank Zachodni (Irish), Kredytbank (Austrian) and Citibank and Bank Handlowy w Warszawie (USA) to name a few.

Small and medium size business ventures are still mainly dependent on bank for financing. The greater risk and uncertainty associated with an emerging transition business environment means that the Polish banks are extremely cautious and reluctant in their loan lending. Although the foreign owned Polish banks brought improved management skills and much needed current technology into the Polish banking system, the Polish bank market is different from the western developed market and the application of western norms in the evaluation of credit risk may not be applicable, resulting in fewer loans being made. The loan amounts tend to be small, often between five to forty thousand dollars. Firms find it relatively difficult to obtain a credit from the banks, while individual clients find it easier with smaller loans. A loan credit procedure and evaluation that is more suited to a transition market like the Polish market may be more appropriate.

Banks have two different approaches to credit evaluation of potential borrowers. Credit evaluation of firms consists of firm performance (asset turnover, profit, credit history, etc) while individual client evaluation consists of income and demographic indicators characteristics: gender, age, place of living, labour market status, level of education, monthly incomes, family size, etc. For small seasonal and holiday loans (Christmas, Easter, vacation loans) of USD 500 to USD 3.000, individual client credibility is seldom investigated.

This paper focus on individual client loan lending by Polish bank, given that most Polish banks focus on primarily small loans to individual clients. The use of traditional discriminant analysis to classify individual client credit indicators is not valid, given the poor nature of the factors and some of the factors are qualitative. This paper discusses the different models and problems associated with dependent dichotomous variables that can only take on two values. The paper uses logit models and artificial neural networks to dichotomous the classification of individual client indicators based on actual data of loan redemption obtained from the regional bank of Poland. Developing a reliable and systematic risk evaluation method usable and applicable to credit officers in a transition country like Poland will encourage greater loan lending, contributing to the growth and expansion of the business sector.

DISCRETE CHOICE MODELS

Many dependent variables of interest in economic and social sciences can only take on two values. The two possible outcomes are usually denoted by zero and one. Such variables are called dummy or dichotomous variables. Examples of some binary choice situations are:

- evaluation of potential borrowers as credit worthy clients,
- prediction of bankruptcy,
- the labour market status of a person (employed and unemployed),
- voting behaviour of a person (i.e. voting in favour or otherwise).

The above problems can usually be solved by applying binary response models such as discriminant analysis, logit and probit models, or artificial neural networks. These models describe the relationship between a dependent variable *Y* and one or more independent variables *X*. The dependent variable *Y* is a discrete (binary) variable that represents a choice or category. Thus, the solution of the binary response model classifies the object, the bank client, the company, employee, or the person in terms of his creditworthiness, potential for firm bankruptcy, labour market status or voting preference to one of two pre-defined classes. The independent variables are presumed to affect the choice or category, and represent *a priori* beliefs about the causal or associative elements important in the choice or classification process.

In the case of client creditworthy evaluation, the input of the classifier could be the information (in the database) that describes the situation of the credit applicant. And the classifier produces the output in terms of evaluating the creditworthiness of the client (Fig. 1).

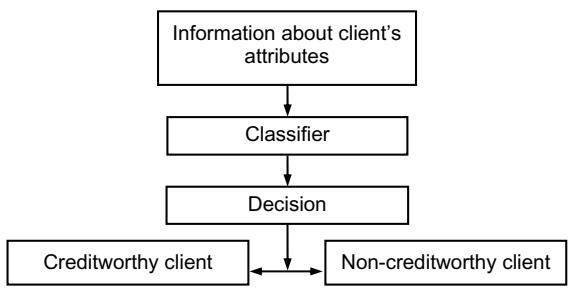

Fig. 1. Creditworthiness evaluation as a classification problem
Rys. 1. Ocena wiarygodności kredytowej jako zadanie klasyfikacji
Source: Witkowska, Mazur, Staniec 2005.
Źródło: Witkowska, Mazur, Staniec 2005.

The application of binary response models to bankruptcy prediction, firm performance evaluation or creditworthiness determination have been carried out by many studies. Altman (1968) made the first attempt to apply linear discriminant analysis to evaluate potential bankruptcy by employing financial ratio indicators; his further works [(1971), (1988), (1993)] develop this idea further. Back, Laitinen, Sere and van Wazel (1995) compare bankruptcy prediction methods using discriminant analysis, logit model and genetic algorithm. Ohlson (1980) uses logit models in the probabilistic prediction of bankruptcy. Johnsen and Melicher (1994) apply logit models to bankruptcy prediction and financial distress. Lennox (1999) compares logit and probit models in bankruptcy prediction. Later studies like Cramer (2001), (2003) also uses logit models in credit evaluation.

Theodossiou, Kahya, Saidi and Philippatos (1996) carry out an empirical study of financial distress while Kaiser (2001) applies logit models to predict financial distress. Bernhandsen (2001), Neophytou, Charitou and Charambolis (2000) perform an empirical study of corporate bankruptcy in UK while Barniv, Agarwal and Leach's (2002) study looks at bankruptcy prediction. Gruszczyński (2001) presents econometric models constructed for binary variables and their application in finance.

Bankruptcy prediction using artificial neural networks are carried out by various studies like Rahimian, Singh, Thammachote and Virmani (1993), Odom and Sharda (1993), Raghupathi, Schkade and Raju (1993) and Rehkugler and Schmidt-von Rhein (1993). Baetge and Krause (1993) apply artificial neural networks to the risk classification of companies while Witkowska (1999), (2002), **Witkowska, Kaminski, Kompa, Staniec** (2004) and Witkowska, Mazur, Staniec (2005) apply neural networks to simulate the decisions made by the credit officers about the credit granting.

Alfaro (2005) compares neural networks to combining classifiers in corporate failure prediction in Spain while Chrzanowska, Witkowska (2007) employ aggregated classification trees, binary regression and Bayesian discriminant analysis to the individual borrowers recognition.

In summary, the various studies indicate that any evaluation of a client's credit worthiness has to apply a formal statistical method. In studies where a comparison is made it shows that the application of artificial neural nets usually gives better results than linear discriminant analysis. It is possible to find the economic interpretation parameters of the discriminant and logit models while weights in neural networks cannot be interpreted. The fundamental problem in the application all these models is to select the set of diagnostic variables because of the strong correlation of most financial ratios used.

LOGIT MODELS

Logit model is the most popular model of dichotomous classification. Let us assume that there is a set of n observations of grouping variable: $Y = [y_1 \quad y_2 \quad ... \quad y_n]$, where y_i equals 1 or y_i equals 0, $i = 1, 2,\ldots, n$. To describe the probability that $y_i = 1$, the following logit model is used:

$$p_i = \frac{e^{y_i}}{e^{y_i} + 1} \tag{1}$$

where: p_i – the probability that y_i takes the value 1, $p_i \in (0,1)$,

$$y_i = \mathbf{b}^T \mathbf{x}_i + \varepsilon_i \tag{2}$$

where: $\mathbf{x}_i$ – vector of k discriminant variables that describe the i-th object: $\mathbf{x}_i = [x_{i1}\ x_{i2} \ldots x_{ik}]^T$, $\mathbf{b}$ – vector of regression function (2) parameters: $\mathbf{b} = [b_0\ b_1\ b_2 \ldots b_k]^T$ ε_i – random coefficient.

The model (1) uses the logistic distribution function. To estimate parameters $b_0, b_1, b_2, \ldots, b_k$ the maximum likelihood method is applied[1]. To evaluate the accuracy of the model, likelihood ratio (L) is used:

$$L = -2(\log LR - \log LUR) \tag{3}$$

where: LUR – the likelihood function value that is evaluated for the model with (k + 1) parameters, i.e. the model:

[1] To maximize the likelihood function the quasi Newton method is used.

$$\hat{y}_i = \hat{\mathbf{b}}^T \mathbf{x}_i \tag{4}$$

where: $\hat{y}_i$ – theoretical values, $\hat{\mathbf{b}} = [\hat{b}_0\ \hat{b}_1\ \hat{b}_2 ... \hat{b}_k]^T$ – the vector of parameter estimates, LR – the likelihood function value that is evaluated for the model with intercept $\hat{b}_0$ only.

The L statistic is distributed chi – squared with k degrees of freedom (k – number of independent variables in the model). Other measures that are used to evaluate the logit model are:

- correlation coefficient $cor(y, \hat{y})$ that is used to evaluate the relationship between real y_i and theoretical value $\hat{y}_i$ ($i = 1, 2, \ldots, n$),

- Wald statistic: $W = \left(\dfrac{\hat{b}_i}{S\left(\hat{b}_i\right)} \right)^2$ (5)

where: $S\left(\hat{b}_i\right)$ – standard error of parameter estimates $\hat{b}_i$, to investigate if the independent (discriminant) variables $x_1, x_2, ..., x_k$ are statistically significant.

ARTIFICIAL NEURAL NETWORKS

The computational structure of artificial neural networks (ANN) has attractive characteristics such as graceful degradation, robust recall with noisy and fragmented data, parallel distributed processing, generalization to patterns outside of the training set, nonlinear modeling, and learning.

There are numerous artificial neural networks architecture designs. However, they can be classified on the basis of the techniques used to train the free parameters (weights) in the network[2]. Azoff (1994), Bishop (1995), Schurmann (1996) distinguish two learning methods: supervised and unsupervised learning. Applying unsupervised learning, the network does not know the correct answers and is to find out the classification patterns (these are the so-called self-organizing networks). Employing supervised learning, sample inputs and desired outputs must be given (the entire collection of cases learned is called a training set). During the training procedure the computed output is compared to the desired output. If the computed output is incorrect, then the weights are adjusted so as to make the computed output closer to the known output.

In our study of Polish client creditworthiness we apply supervised learning networks such as multilayer perceptron (MLP)[3] and radial basis function network (RBF) since the data set contains patterns of borrower classification.

Multilayer perceptron (Fig. 2) is usually formed by a cascading group of single layers. There is an input layer, an output layer, and hidden layers. The neurons of different layers are densely interconnected through direct links. At the input layers, the neurons receive the values of input variables and multiply them through the network, layer by layer.

[2] The initial weights of the connections can be chosen randomly.

[3] In our experiments MLP parameters (weights) are estimated (trained) employing back propagation algorithm.

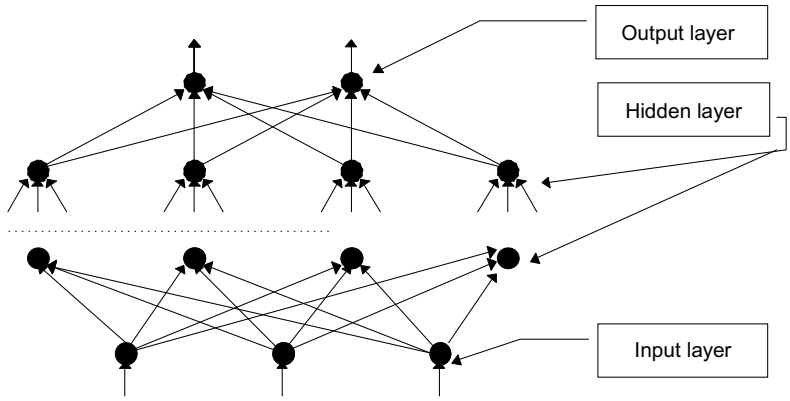

Fig. 2. Multilayer perceptron
Rys. 2. Perceptron wielowarstwowy
Source: Witkowska 2002.
Źródło: Witkowska 2002.

Assuming that there are $(L - 1)$ hidden layers and each of them contains K^l neurons ($l = 1, 2,\ldots, L - 1$), the output of the j-th neuron in the l-th hidden layer ($l = 2, 3,\ldots, L - 1$) equals:

$$h_j^l = F_l\left(\sum_{k=0}^{K^{l-1}} w_{jk}^l h_k^{l-1}\right) \tag{6}$$

For the first hidden layer output of the j-th neuron is:

$$h_j^1 = F_1\left(\sum_{i=0}^{n} w_{ji}^1 x_i\right) \tag{7}$$

The output of the j-th neuron in the output layer equals:

$$y_j = F_L\left(\sum_{k=0}^{K^{L-1}} w_{jk}^L h_k^{L-1}\right) \tag{8}$$

where: h_k^l is the output of the k-th neuron in the l-th hidden layer ($k = 1, 2,\ldots K^l$), x_i is the input of the i-th neuron in the output layer, y_j is the output of the j-th neuron in the output layer ($j = 1, 2,\ldots, m$), F_l is the activation (transfer) function defined for the l-th hidden layer, and for the output layer, $w_{jk}^l, w_{ji}^1, w_{jk}^L$ are the weights estimated for each element in all layers (i.e. $l = 1$ for the input layer, $l = 2, 3,\ldots, L - 1$ for hidden layers and $l = L$ for the output layer). Index k ($k = 1, 2,\ldots, K^l$) denotes numbers of neurons being inputs of the hidden layers ($l = 2, 3,\ldots, L - 1$) and the output layer ($l = L$).

The hidden layer neurons are often characterized as feature-detectors. The number of hidden layers and the number of neurons in each hidden layer is selected arbitrarily.

The number of neurons in input and output layers is determined by the problem that is to be solved by ANN, for instance, applying neural systems to the classification, the input neurons represent discriminant variables, and output neurons represent the pre-defined classes (as it is shown in Fig. 1).

The total transfer function of the RBF network is given by:

$$y = \sum_{k=1}^{M} w_k \Phi_k(\|\mathbf{x} - c_k\| / \delta_k) \tag{9}$$

where: y – the network output, $\mathbf{x} = [x_1 x_2 ... x_n]$ – the vector of inputs, w_k – the network adjustable weights connecting the network hidden nodes with the network output, $\Phi_k(\|\mathbf{x} - c_k\| / \delta_k)$ – radially-symmetric transfer functions with centers $c_k \in R^N$ ($k = 1,..., M$), δ_k – the scaling factor, ||···|| denotes the Euclidean distance.

Note that in RBF network (Fig. 3), the only adaptable weights (i.e. parameters w_k in (9)) are located between the hidden and the output network layers. These weights determine linear combination of basis functions values, and together with the chosen basis functions centers c_k, determine the shape of the generated mapping function (Kaminski and Strumillo 1997). In our study, the basis functions centers are selected by applying k-means method.

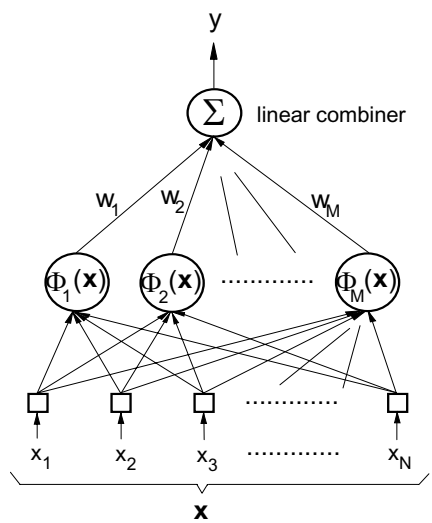

Fig. 3. Radial basis function network
Rys. 3. Siec o radialnych funkcjach bazowych
Source: Kaminski, Strumillo 1997.
Źródło: Kaminski, Strumillo 1997.

Applying supervised learning the data set is divided into three usual subsets: training set, the validation set, and the testing set. In our research, the elements of the training, validation, and testing sets are chosen randomly. The training set is used to "teach" the network while the validation set is employed to evaluate the accuracy of the training. And

the testing set is used to evaluate the accuracy of prediction or classification. This accuracy is usually measured by root mean squared error (*RMS*):

$$RMS = \sqrt{\frac{\sum_{i=1}^{n} \rho_i}{n}} \tag{10}$$

where: ρ_i – the absolute error, i.e. the difference between desired and generated output, evaluated for the *i*-th object, n – number of elements in the training, validation (or testing) set.

DATA DESCRIPTION

The empirical study is carried out using data that contain information of 100 individual borrowers from regional Polish bank who had obtained "Christmas" credit loans for December 2002. The value of "Christmas" loans varied from USD 550 to USD 2.500. In March 2004 the bank reported that 37 of the borrowers are in default. Thus, the structure of our sample is as following:

Table 1. Structure of the sample
Tabela 1. Struktura próby

Total number of borrowers	Number of borrowers who paid back the loan	Number of borrowers who defaulted
100	63	37

Source: Based on the data set.
Źródło: Opracowanie własne na podstawie danych.

To construct the binary response model, the dependent variable $y_i = 1$ denotes the borrower who paid back the loan, and $y_i = 0$ otherwise. Each borrower is described by eight credit evaluation characteristics:

- X_1 – age (in years),
- X_2 – period of loan repayment (in quarters),
- X_3 – incomes,
- X_4 – level of education,
- X_5 – place of resident,
- X_6 – gender,
- X_7 – information if the borrower is an existing or potential bank client,
- X_8 – amount of the loan.

Attributes: X_1, X_2, X_3 and X_8 are measurable characteristics while the remaining four X_4, X_5, X_6 and X_7 are qualitative characteristics. The letters are binary coded to form the model. Hence, there are eight potential input variables x_j (j = 1, 2,..., k).

MODEL CONSTRUCTION

The first step of the model building is to investigate the correlation among the variables y and x_j (j = 1, 2,..., 8). We employ the following methods to distinguish independent variables for the models:

- Yule coefficient for the pairs of binary variables (i.e. Y and one of variables: $X_4 - X_7$),
- t – Student statistic test for the pairs consisting of binary and continuous variable,
- Pearson correlation coefficient if both variables are quantitative.

Investigation of mutual relationships between the grouping and the discriminant variables as well as the relationships among independent variables shows that the value of the loan, income, the place of resident, and gender should be omitted in the models. Finally we defined five sets of independent variables as follow:

a) x_1 (age), and x_4 (level of education),
b) x_1 (age), x_4 (level of education), and x_2 (period of repayment),
c) x_1 (age), x_4 (level of education), and x_7 (an existing or potential bank client)
d) x_1 (age) and x_2 (period of repayment),
e) x_2 (period of repayment), and x_7 (an existing or potential bank client).

The five logit models containing the independent variable sets (a) – (e) are estimated. Among them we choose the logit model that is the best fit in terms of:

- Wald statistic (5) – all independent variables are statistically significant,
- chi-squared statistic (3), and
- correlation coefficients.

The selected model describes the probability of loan redemption using the set of discriminant variables (b). Parameter estimates of the regression model (3) are as follow:

$$\hat{y}_i = 215 + 0.001x_{1i} - 2.19x_{4i} + 1.43x_{2i} \tag{11}$$

$$L = 24.033;\ cor(y, \hat{y}) = 0.6$$

According to the model (11) specification, neural networks are constructed employing the variable set (b) as input neurons x_i. On the basis of *RMS* errors (10), obtained for the validation sets, three supervised learned neural nets are chosen for classification. These networks contain three variables: x_1, x_4 and x_2 in the input layer (7) or (9), one output variable y (y = 1 or y = 0) and 4 or 5 hidden neurons[4]:

- MLP 3-4-1 ($RMS_{validation\ set}$ = 0.37);
- MLP 3-5-1 ($RMS_{validation\ set}$ = 0.38);
- RBF 3-5-1 ($RMS_{validation\ set}$ = 0.42);

CLASSIFICATION ACCURACY EVALUATION

Let us assume that there are n objects O_i (i = 1, 2,..., n) which are to be classified. The two different classes A_p (p = 1, 2) containing n_p elements is obtained through the process

[4] MLP 3-4-1 denotes that there are three input neurons, four elements in the hidden layer and one output.

as described in Figure 1. Every borrower from our data base is an object. The content of both classes is known from the information that we have of whether the borrower is in default or not. In our investigation we find the algorithm of the object (borrower) recognition and evaluate the accuracy of classification by comparing the classes that was constructed to the actual ones by checking every object. If we know the pattern of the classified object (borrower), then it is possible to evaluate errors of classification by comparing elements which should belong to the groups A_p with elements of classes $\hat{A}_p$, where $\hat{A}_p$ denotes the classes which are constructed from the results of our classification experiments. The general classification error is then defined as follows:

$$E = \frac{\sum_{p=1}^{2} K_p}{\sum_{p=1}^{2} n_p} \cdot 100\% \tag{12}$$

where: K_p – is the number of misclassified objects of the class A_p, i.e. number of borrowers who should belong to the class A_p but they are recognized as belonging to another class, n_p – is the count of the A_p class.

The general classification error shows the percentage share of misclassified objects. The error can be calculated for the whole set of observation as well as for separate sets: training, validation, and testing. We may also consider the E_p classification error that shows the share of misclassified objects from p-th class in the total count of elements belonging to the class A_p:

$$E_p = \frac{K_p}{n_p} \cdot 100\% \tag{13}$$

This error is especially important when the borrowers classification is considered since K_p calculates the number of defaulted clients that are recognized by the model as credit worthy clients indicating the hypothetical number of loans that will not be redeemed. Thus the error E_p shows the share of misclassified objects in the set of defaulted clients.

RESULTS OF BORROWERS CLASSIFICATION

Applying the logit function (9) and the artificial neural networks (MLP 3-4-1, MLP 3-5-1 and RBF 3-5-1), the borrowers are classified into two classes. To compare the accuracy of the classification of the logit model and ANN, it is necessary to take into consideration the whole set of 100 observations. Table 2 presents the results generated by the models in terms of general classification errors and the comparison of counts of objects belonging to A_p and $\hat{A}_p$ groups. Bold numbers denote the correct classification.

The logit model properly recognized 51 borrowers who did not default on the loan (that is 81% of observation belonging to the class of credit worthy clients) and 20 clients who defaulted on the loan (that is 54% of objects from the group of defaulted clients).

Table 2. Classification of borrowers
Tabela 2. Klasyfikacja kredytobiorców

Actual number of borrowers who:	Predicted number of borrowers who:		General classification error
	Did not default	Defaulted	
	logit	model	29%
Did not default	51	12	
Defaulted	17	20	
	MLP 3-4-1	model	19%
Did not default	53	10	
Defaulted	9	28	
	MLP 3-5-1	model	24%
Did not default	51	12	
Defaulted	12	25	
	RBF 3-5-1	model	22%
Did not default	52	11	
Defaulted	11	26	

Source: Own calculation.
Źródło: Obliczenia własne.

The general classification error shows that 29% of the object is misclassified while 71% of borrowers are correctly classified.

The results obtained from the neural networks model indicate that the general classification errors, calculated for the whole set of observation, are smaller than the one obtained for the logit model. All the models correctly predicted from 51 to 53 (i.e. over 80%) of credit worthy clients. The misclassification of defaulted clients depends on the model construction and it differs from 24% (i.e. 9 misclassified borrowers) to 46% (i.e. 17 incorrectly classified defaulted clients).

The real predictive power of the accuracy of the classification, from applying supervised learned neural networks, can be shown by comparing the general classification errors calculated for the testing set. In Table 3, the comparison of errors (10) in every set is presented.

The best results are obtained for the RBF network. Although the RBF network general classification error for the training set is the biggest among the analysed neural

Table 3. Classification errors for artificial neural networks
Tabela 3. Błędy klasyfikacji dla sztucznych sieci neuronowych

Set of data	Number of observations	MLP 3-4-1	MLP 3-5-1	RBF 3-5-1
Training	50 (number of creditworthy clients: 33)	2%	26%	28%
Validation	25 (number of creditworthy clients: 15)	32%	20%	16%
Testing	25 (number of creditworthy clients: 15)	40%	24%	16%
Number of	misclassified observations in testing set	10	6	4
Share* of	misclassified defaulted clients E_p	(7) 70%	(2) 20%	(2) 20%

*Number in parenthesis denotes number of misclassified objects in the testing sets
Source: Own calculation.
Źródło: Obliczenia własne.

networks, this network can correctly predict 84% of objects from the testing set and only 20% of defaulted clients as credit worthy ones. The network MLP 3-4-1 seems to be "overtrained" since the classification error is very small for the training set and it is rising for two other sets.

CONCLUSIONS

This paper endeavors to employ binary response models to predict the credit worthiness and potential loan default by bank borrowers in a transition country like Poland. Credit and risk management evaluation of loan lending is an essential part of a bank's operations. Banks in transition countries like Poland need to establish a reliable credit policy that may be more applicable to a transitional country by providing bank credit officers with an evaluation tool to determine the credit worthiness of potential borrowers. The results of this paper show that artificial neural networks model have strong predictive power over logit models. The results also indicated that the X_1 (age), X_2 (period of loan repayment (in quarters)), and X_4 (level of education) in model (11) had the best statistical performance and the lowest classification errors. Thus, this set of variables was used in our experiments. Other variables such as X_3 (income), X_5 (place of resident), and X_6 (gender) do not seem to be important as predictive (discriminant) variables.

The classification provided by artificial neural networks seems to be more accurate than the one made by the logit model. Among the analyzed neural networks, the RBF network generates the smallest classification errors.

The appearance of qualitative features is the main obstacle in the application of binary response models to individual borrower classification. Thus, special methods should be applied to correlation investigation and classification. It is worth mentioning that some of features describing objects are not correlated with the grouping variable i.e. the credit repayment. Banks in transitional countries like Poland should revise the credit granting procedure where most loans are small valued loans extended to individual clients by taking into account the supporting instrument offered by artificial neural networks to evaluate credit risk.

REFERENCES

Alfaro E., 2005: Combinacion de clasificadores mediante el metodo boosting. Una aplicacion a la prediccion del fracaso empresarial en Espana (Combining Classifiers by the Boosting Method. An Application to the Corporate Failure Prediction in Spain), Universidad de Castilla-La Mancha, Albacete (doctoral thesis).

Altman E., 1968: Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy, Journal of Finance Vol. XXIII, No. 4, p. 589–603.

Altman E., 1971: Corporate Bankruptcy in America, Heath Lexington Books, Lexington.

Altman E., 1988: The Prediction of Corporate Bankruptcy, Grandland Publishing, New York.

Altman E., 1993: Corporate Financial Distress ans Bankruptcy, J. Wiley & Sons. Chichester, New York.

Azoff E.M., 1994: Neural Network Time Series Forecasting of Financial Markets, John Wiley & Sons Ltd., Chichester.

Back B., Laitinen T., Sere K,. van Wazel M., 1995: Choosing Bankruptcy Prediction Using Discriminant Analysis, Logit Analysis, and Genetic Algorithms, Proceedings of the First Nordic Workshop on Genetic Algorithms and their Applications, Vaasa.

Baetge J., Krause C., 1993: The Classification of Companies by Means of Neural Networks, Journal of Information Science and Technology, 3, 1, October, p. 96–112.

Barniv R., Agarwal A., Leach R., 2002: Predicting Bankruptcy Resolution, Journal of Business Finance and Accounting, 29 (3&4), p. 497–520.

Bernhardsen E., 2001: A model of bankruptcy prediction, Working Paper No 10, Norges Bank, Oslo.

Bishop C.M., 1995: Neural Networks in Pattern Recognition, Clarenton Press, Oxford.

Chrzanowska M., Witkowska D., 2007: Zastosowanie wybranych metod klasyfikacji do rozpoznawania indywidualnych kredytobiorców (Application of Selected Methods to the Individual Borrowers Recognition), Jajuga K., Walesiak M., 2007: (ed.) Taksonomia 14, Klasyfikacja i analiza danych – teoria i zastosowania (Taxonomy No 14. Classification and Data Analysis), Wydawnictwo Akademii Ekonomicznej im. Oskara Langego we Wrocławiu, Wrocław, p. 108–114.

Cramer J.S., 2001: An Introduction to the Logic Model for Economists, Timberlake Consultants Ltd., London.

Cramer J.S., 2003: Logit Models from Economics and Other Fields, Cambridge University Press, Cambridge.

Gruszczyński M., 2001: Modele i prognozy zmiennych jakościowych w finansach i bankowości, (Models and Forecasts of the Qualitative Variables in Finance and Banking) Szkoła Główna Handlowa (Warsaw School of Economics), Warszawa.

Johnsen T., Melicher R.W., 1994: Predicting Corporate Bankruptcy and Financial Distress: Information Value Added by Multinomial Logit Models, Journal of Economics and Business, 46, p. 269–286.

Kaiser U., 2001: Moving in and out of Financial Distress: Evidence for Newly Founded Services Sector Firms, ZEW Discussion Paper Nr 01-09, Zentrum für Europäische Wirtschaftsforschung, Mannheim.

Kaminski W., Strumillo P., 1997: Kernel Ortogonalization in Radial basis Function Neural Networks, IEEE Transactions on Neural Networks, Vol. 8, No 5, p. 1177–1183.

Lennox C., 1999: Identifying Failing Companies: a Reevaluation of the Logit, Probit and DA Approaches, Journal of Economics and Business, 51, p. 347–364.

Neophytou E., Charitou A., Charalambous C., 2000: Predicting Corporate Failure: Empirical Evidence for the UK, University of Southampton, Working Paper Series, 01-173.

Odom M.D., Sharda R., 1993: A Neural Network Model for Bankruptcy Prediction, in Trippi R.R., Turban E., ed., Neural Networks in Finance and Investing, Probus Publishing Company, Chicago – London, p. 177–185.

Ohlson, J.A., 1980: Financial Ratios and the Probabilistic Prediction of Bankruptcy, Journal of Accounting Research, Spring.

Raghupathi W., Schkade L.L., Raju B.S., 1993: A Neural Network Approach to Bankruptcy Prediction, in Trippi R. R., Turban E., ed., Neural Networks in Finance and Investing, Probus Publishing Company, Chicago- London, p. 141–158.

Rahimian E., Singh S., Thammachote T., Virmani R., 1993: Bankruptcy Prediction by Neural Network in Trippi R. R., Turban E., ed., Neural Networks in Finance and Investing, Probus Publishing Company, Chicago- London, p. 159–176.

Rehkugler, H., Schmidt-von Rhein A., 1993: Kreditwurdigkeitsanalyse und Prognose fur Privatkundenkredite Mittels Statischer Methoden und Kunstlicher Neuronaler Netze. Eine empirisch – vergleichende Studie, Bamberger Betriebswirtschaftliche Beitrage, Otto Friedrich Universitat, Bamberg, discussion paper 93.

Schurmann J., 1996: Pattern Classification. A Unified View of Statistical and Neural Approaches, John Wiley & Sons, INC., New York, Chichester, Brisbane, Toronto, Singapore.
Theodossiou P., Kahya E., Saidi R., Philippatos G., 1996: Financial Distress and Corporate Acquisitions: Further Empirical Evidence, Journal of Business Finance and Accounting, 23, p. 699–719.
Wilson R.L., Sharda R., 1994: Bankruptcy Prediction Using Neural Networks, Decision Support Systems, 11, p. 545–557.
Witkowska D., 1999: Application of Artificial Neural Networks to Bank – Decision Simulations, International Advances in Economic Research, No 5, 3, p. 350–368.
Witkowska D., 2002: Artificial Neural Networks and Statistical Methods. Selected Financial Problems, H.H. Beck, Warsaw (in Polish).
Witkowska D., Kaminski W., Kompa K., Staniec I., 2004: Neural networks as a Supporting Tool in Credit Granting Procedure, Information Technology for Economics and Management, (ITEM) e-journal, Vol. 2, No. 1, Paper 1, http://www.item.woiz.polsl.pl/issue2.1/journal2.1.htm
Witkowska D., Mazur A., Staniec I., 2004–2005: Classification of Borrowers: Artificial Neural Networks and Classification Function, Folia Oeconomica Stetinensia 3–4 (11–12), Wydawnictwo Naukowe Uniwersytetu Szczecińskiego, Szczecin, 2005, p. 43–62.

PRZEWIDYWANIE SPŁATY KREDYTU W KRAJU TRANSFORMACJI GOSPODARCZEJ: PORÓWNANIE MODELI LOGITOWYCH I SZTUCZNYCH SIECI NEURONOWYCH

Streszczenie. Banki przekazują środki finansowe od depozytariuszy do kredytobiorców, co jest obarczone ryzykiem kredytowym, kiedy pożyczka nie jest spłacana w terminie (lub nie zastanie w ogóle spłacona). Dlatego możliwość dokonania oceny zdolności kredytowej lub posiadanie metodologii wspomagającej to działanie jest istotne w zarządzaniu ryzykiem bankowym. W krajach takich jak Polska, których gospodarka jest w okresie transformacji, ocena zdolności kredytowych jest szczególnie trudna z powodu przemian zachodzących na rynku finansowym. Artykuł porównuje zastosowanie modeli logitowych i sztucznych sieci neuronowych do oceny ryzyka kredytowego. W szczególności wykażemy, że sztuczne sieci neuronowe są lepszym narzędziem prognostycznym niż modele logitowe.

Słowa kluczowe: spłata kredytu, klasyfikacja, model logitowy sztuczne sieci neuronowe

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UNEMPLOYMENT OF RURAL INHABITANTS AS A DISADVANTAGEOUS FACTOR OF LOCAL AND REGIONAL DEVELOPMENT

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Abstract. The aim of the paper is to present some selected issues of rural inhabitants' unemployment on the base of own research with the reference to general situation on labour market in Poland. Empirical data analyzed in the paper comes from the research project entitled "Analysis and assessment of rural women situation on labour market" co-financed by the European Social Fund within Sectoral Operational Programme Human Resources Development realized in Department of Marketing and Agrarian Policy in Warsaw University of Life Sciences in the years 2006–2007. Findings from the research include some patterns which did not depend on the characteristic of rural region but there are also some factors which reveal regional diversification (internal and external factors).

Key words: rural inhabitants, labour market, unemployment

INTRODUCTION

Issues connected with employment, especially people in difficult position on labour market, are one of the most important in all Polish regional operational programmes for the years 2007–2013, which means that it is not a problem for particular regions but for nearly all Polish regions. Rural inhabitants are actually perceived as persons in disadvantageous situation concerning employment possibilities. Close examination of opinions of rural unemployed on their situation can be very helpful during implementation of these new programmes.

There are some issues concerning labour market, described even in Polish National Strategic Reference Framework 2007–2013, as main weaknesses of the Polish economy:

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- low level of professional activity, professional and spatial mobility,
- high unemployment rate, especially among youth and women and among persons with low qualifications,
- intensifying phenomenon of long-lasting unemployment,
- large scope of unregistered employment ("grey zone"),
- low effectiveness of labour market institutions in limiting unemployment,
- insufficient correlation of the education system with the labour market,
- relatively low outlays and insufficient investments in the education system, especially on rural areas,
- low level of education on rural areas,
- low lifelong learning indicator,
- high level of income level of the society,
- marginalization and social exclusion of some population groups,
- insufficient correlation of entrepreneurship promotion among citizens with the education system.

Some of them are confirmed directly on a micro-level by the researches conducted among rural inhabitants.

The aim of the paper is to present some selected issues of rural inhabitants' unemployment on the base of own research with the reference to general situation on labour market. However, in this place it should be stressed that a narrow interpretation of the term "labour market" associated only with statistical measures of economic activity, employment and unemployment, perhaps including variations in rates between age groups and genders is not enough to full examination of the situation of rural areas. There is a need of a broader perspective, according to which rural labour markets are viewed as functional systems, in which employment demand is driven by regional competitiveness, whilst employment supply is partly a function of demography, (including inter regional migration), but also of various socio-economic factors which determine participation rates, and of the qualitative aspects of the labour force often referred to as "human capital".

There are also some specific groups of rural inhabitants, especially these who comes from a households with agricultural farm, on labour market. Firstly, it is the case of young people – the classical model of farms' succession is ending. Where there are larger farms a son, or less often a daughter, may work on the farm full time until the parent retires or takes a back seat role. However, by far the more common situation is for the young person to work off the farm full time or part time because most farms cannot carry the costs of two family households. A final decision to return to the farm is made much later, usually when the farmer retires (which partly explains the rising average age of farm holders). In this model the young person has been open to the greater opportunities of the non farming economy and is therefore more likely to reject a return to the farm or adopt a part time system. This model is not automatic – it assumes that the individual has had a better education or skills training and hence has not been forced through lack of opportunities to stay on the farm. This has clear implications for agricultural and rural policy. The next case is the specific situation of women in rural areas. Their role is more complex and is still often affected by the culture and traditions of the region. There are very clear differences in the roles of men and women on the farm, with men doing the traditional field and herd management tasks while women act as administrators and tend young

stock. This traditional model is disappearing, however, as women increasingly work off the farm to earn another income for the household or take over the day to day management of the business while the husband works off the farm. In addition as farms have diversified into new enterprises such as tourism it is often the wife who is better equipped to manage this part of the business [SERA Report].

DATA

Empirical data analyzed in the paper comes from the research project entitled "Analysis and assessment of rural women situation on the labour market" co-financed by the European Social Fund within Sectoral Operational Programme Human Resources Development done in 2006–2007 in Department of Marketing and Agrarian Policy in Warsaw University of Life Sciences. Though women situation on labour market cannot be considered without their families, especially so traditional as these ones in the countryside, so 1000 entire rural households from selected 24 Polish poviats were interviewed during the research in 2006. There were 413 unemployed living in 318 households participating in the research.

However, the image of unemployment would be uncompleted without wider background, which for the needs of this study was prepared on the basis of statistical data form the Central Statistical Office and will be present as the first part of the work in order to introduce in the unemployment issues.

GENERAL BACKGROUND OF UNEMPLOYMENT IN POLAND

The was a decrease in number of unemployed in Poland in the year 2006 in comparison with 2005. It was 2237 thousand of unemployed at the end of 2005 towards 3017 thousand at the end of 2005. The decline in number of unemployed took place both in the population of women as well as men. Table 1 presents the population of unemployed according to particular sex in 2005 and 2006.

Unemployment rate was increasing to 2004 and after that decreasing to 2006. In January 2007 there was a little seasonal increase in the unemployment rate and it was at

Table 1. Unemployed according to sex (Labour Force Survey – LFS)
Tabela 1. Bezrobotni według płci (BAEL)

Specification	2005		2006	
	thousand	%	thousand	%
Total	3017	100.0	2237	100.0
– Men	1504	49.9	1123	50.2
– Women	1513	50.1	1113	49.8
Feminization index	101	–	99	–
Urban areas	2014	66.8	1485	66.4
Rural areas	976	32.4	751	33.6

Source: The Central Statistical Office, Labour Force Survey in Poland III quarter 2006, Warsaw.
Źródło: GUS, Aktywność ekonomiczna. Ludność Polski, III kwartał 2006, Warszawa.

Table 2. Unemployment rate in the period 2000–2007
Tabela 2. Stopa bezrobocia w latach 2000–2007

Lear	2000	2001	2002	2003	2004	2005	2006	2007*
Unemployment rate	15.1	17.5	18.0	18.0	19.0	17.6	14.9	15.1

*Data from January 2007
Source: Own elaboration on the base of data from the Central Statistical Office.
Źródło: Opracowanie własne na podstawie danych GUS.

the level of 15.1%. Table 2 presents changes in unemployment rate in the period from 2000 to 2007.

Unemployment rate was higher in towns than in rural areas. In 2006 it was 14.1% in urban areas whereas 11.4% in rural areas. Both in case of women as well as men, the unemployment rate decreased in comparison with the previous year but the decline was more visible among men. Women's unemployment rate was higher – in 2006 it was 14.3% whereas in case of men it was 12%.

The highest number of unemployed is at the age group from 25 to 34, whereas the lowest in the group from 55 to 74. In the group aged from 35 to 44 the number of unemployed women exceeds the number of unemployed men, whereas in the other age group the situation is opposite. The most significant difference between women's and men's unemployment is in the last age group, between 55 and 74 years old. Unemployment is both a problem of men as well as women but for older women it is much more difficult to find a job. They would like to come back to work after bringing up their children but such returns are very complicated. On the other side there is a quite large youth unemployment and it concerns all young people not regarding sex.

As far as the educational level of unemployed is considered, there is a permanent tendency of the highest unemployment in the group of people with only vocational education. In case of women there is also quite significant number of unemployed with secondary vocational education. The smallest group of unemployed women is among after-secondary educated. It is quite interesting that university education does not close chances for unemployment. One out of 12 women and one out of 10 men from the unemployed group had higher education.

RESEARCHES' RESULTS

There were some general conclusions drawn from the researches' results, which did not depend on the internal conditions in regions where rural unemployed live in.

First of all there was a significant proportion of short-term unemployed, shorter than half a year. Taking into account the time of research conducting (summer and autumn) as well as their age it can be stated that there is a considerable level of unemployment among graduates. The time of being an unemployed person, was also determined by living in a household with a farm's owner versus a household not connected with agriculture. One out of four unemployed from households connected with agriculture had no work shorter than half a year whereas one out of four unemployed from non-agricultural households had no work longer than 5 years. Unemployed from households with agricultural activities can be decelerated as farmers in Agricultural Social Insurance Fund (Kasa

Rolniczego Ubezpieczenia Społecznego, KRUS) even if they do not participate in agricultural works and are unnecessary on a farm. Taking into account the high employment in agriculture it is quite possible so there can be some hidden unemployment on Polish farms. Gender was also a factor, which influenced on unemployment lasting. Women were longer unemployed than men. Nearly half of investigated unemployed women had no work longer than five years. Proportion of men in this group was four times lower. The reason for that situation is employers' unwillingness to employ women or lack of flexible work offers, which can be accepted by women with babies or looking after other depended family members. In a long-term perspective it can be a source of permanent women's unemployment because the longer a potential worker is without work, the lower is her, as well as his, market value. Moreover, long-lasting and inefficient looking for a job causes feelings of resignation and discouragement.

The time of being unemployed was very diversified in the researched regions (Table 3). the higher proportion of long-lasting unemployed was in the central region, 31% were without work more than 5 years. Better situation in that case was in the south and south--western regions.

Table 3. Time of being unemployed according to the region [%]
Tabela 3. Czas pozostawania bezrobotnym w regionach [%]

Time of being unemployed	The Central Region	The South Western Region	The South Region	The North Western Region	The North Region	The Eastern Region
Till half a year	19.7	33.3	19.6	21.5	21.8	17.5
7–12 months	9.9	0.0	37.6	10.1	14.1	8.8
13–24 months	15.4	22.2	19.6	17.7	15.4	21.0
25–36 months	9.9	14.8	8.9	12.7	7.7	14.0
37–60 months	14.1	11.1	3.6	16.5	14.1	12.3
Over 60 months	31.0	18.6	10.7	21.5	26.9	26.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Own elaboration.
Źródło: Opracowanie własne.

Eligibility to receiving unemployment benefit was somehow the result of unemployment lasting. So the proportion of investigated unemployed eligible to receive unemployment benefit was the highest in the eastern region and the lowest in the central region but also in the south-western. More men were had rights to this kind of payments in comparison with women.

Occasional casual work was the main form of gaining financial recourses for living for in the examined population of unemployed. More than half of them declared it. One out of three investigated unemployed admitted also working in the so cold gray zone. This phenomena was the most visible in the south-western and central region (Table 4). Men confessed to it twice more than women.

Resigning from former work was more frequent among women than men and as it can be guessed the main reason was having a baby. Although, examined women did not say that they gave up work, they indicated that having a child was a reason of work's loss so it can be concluded that it was not their own decision but employers' unwillingness to

Table 4. Financial resources of unemployed according to region [%]
Tabela 4. Zródła utrzymania bezrobotnych według regionów [%]

Specification	The Central Region	The South Western Region	The South Region	The North Western region	The North Region	The Eastern Region
Occasional casual work	42.9	37.0	66.0	45.4	37.8	69.2
Moonlighting	46.9	63.0	15.1	32.7	24.4	21.2
Different forms of social support	10.2	0.0	18.9	21.8	37.8	9.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Own elaboration.
Źródło: Opracowanie własne.

employ pregnant women or women with babies. Men gave up work mainly because of low earnings.

Unemployment in rural areas is mainly connected with shrinking of local labour market. More than half of researched unemployed worked formerly not further than 15 km away from the place of living. Nearly one out of two men and one out of four women worked closer than 5 km. It is a clear sign that activation of local communities and local markets is the best way of rural areas development.

The most popular ways of looking for a job were using information from family members and searches directly in companies. Two thirds of investigated unemployed declared that. Women tried to find work closer to their place of living. One out of five men and one out of ten women were looking for a job abroad. Considerable regional differentiation can be seen in this case because in western parts of Poland there were more persons who wanted to work abroad, especially in the south-western region, where more than half of researched unemployed were looking for a job abroad. Rural inhabitants from poviats of less economically developed (smaller GPD per capita and higher unemployment rate) are less mobile, they were looking for a job near their place of living, mainly in of their villages or commune.

Permanent job was preferred much more by women than men – 84% of them and 54% of investigated men would like to have permanent full-time job. Women also would like more to find job in the state sector perceived as much more stable and safer and they were more determined to find such a job. They even were more prone to take up work in the agricultural sector and work for less minimal wage than men.

Investigated rural unemployed were not very keen on using other than financial help. Mainly they use help from labour offices, mostly participating in different kinds of courses and trainings. The most skeptical about this support form were rural inhabitants from the south-western and north-western regions. One out of three researched unemployed declared than he or she did not use help form any supporting institutions. Although one out of five declared that he or she gained help co-financed by the European Union. It is quite high level of market consciousness taking into account that it was the second year of Polish Membership in the EU. Unfortunately examined unemployed had negative opinions on any existing institutional help. Only one out of four had positive experiences in that field.

There was also question concerning potential chances of unemployment decrease in rural areas. Investigated unemployed rural inhabitants indicated different solutions. They mainly stressed necessity to go outside farm and undertaking non-agricultural or service activities. On the other hand they saw opportunities in better profitability of agricultural production or rural tourism development. The main barrier of starting work outside agriculture was lack of jobs in the nearest area. The next ones were too low wage and disadvantageous work conditions on the employers' side but they also saw such barriers like lack of suitable qualifications as well as difficult and expensive commuting.

CONCLUSIONS

There occurred some over-regional patterns during the research. The main ones were a significant proportion of short-term unemployed, shorter than half a year as well as the time of being an unemployed person determined by living in a household with a farm versus a household not connected with agriculture – rural inhabitants without a farm tend to stay unemployed for considerably longer time. Gender was also a factor, which influenced the unemployment lasting. Women were longer unemployed than men.

Of course there were also some regional differences. First of all, they concern the time of being unemployed. The higher proportion of long-lasting unemployed was in the central region, 31% were without work more than 5 years. Secondly in western parts of Poland there were more persons who wanted to work abroad, especially in the south-western region, where more than half of investigated unemployed were looking for a job abroad.

REFERENCES

Central Statistical Office, Labour Force Survey in Poland III quarter 2006.

National Strategic Reference Framework 2007–2013, Ministry of Regional Development, Warsaw, May 2007.

Study on Employment in Rural Areas. Final Deliverable. (SERA Report), May 2006, European Commission, Directorate General for Agriculture.

BEZROBOCIE NA OBSZARACH WIEJSKICH JAKO PRZESZKODA ROZWOJU LOKALNEGO I REGIONALNEGO

Streszczenie. Celem artykułu jest prezentacja wybranych aspektów bezrobocia wśród ludności wiejskiej. Materiałem badawczym wykorzystanym w artykule są dane empiryczne stanowiące część projektu badawczego pt. Analiza i ocena sytuacji kobiet wiejskich na rynku pracy, współfinansowanego z Europejskiego Funduszu Społecznego w ramach Sektorowego Programu Operacyjnego Rozwój Zasobów Ludzkich, zrealizowanego w Katedrze Polityki Agrarnej i Marketingu SGGW. Wnioski z badania obejmują kwestie wspólne dla wszystkich badanych regionów, ale wskazują również na czynniki różnicujące.

Słowa kluczowe: ludność wiejska, rynek pracy, bezrobocie

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HOLIDAY HOMES: THE UNSPOKEN CRISIS

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Abstract. This paper addresses the concerns of a growing minority of people who live in the peripheral regions of Britain, attracting tourists and those in search of holiday homes. Taking as its focus West Cornwall, the paper explores the impact of economic and social change on the lives of local people excluded from the property market. The authors take a novel approach by examining the effects of the interaction of the property market and ethnographic accounts from local people.

Keywords: Cornwall, gift exchange, kinship, holiday homes, predatory behaviour, and self-catering accommodation

INTRODUCTION

This paper examines the dislocation from their own communities of the growing minority of people affected by the distorted market for holiday homes. Using Sennen Cove in West Cornwall, U.K. as the location of the study we employ ethnographic methods to give a voice to the concerns of local people who are unable or unwilling to express their plight regarding the contradiction that exists between the need for housing stock and tourism development in the form of holiday home ownership. We pay particular attention to the social processes that are involved in the establishment of a dependent relationship between indigenous people and holiday home owners. The point we are making in this paper is that the local voice that has not been heard – referring to the subtitle of the paper 'the unspoken crisis' – is that of the indigenous people who have become obligated to the holiday home owners by economic necessity and not through choice. We achieve these aims by adopting an interpretive framework drawing on the disciplines of social policy, economics and social anthropology.

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Counter to this process of process of exclusion, this paper illustrates how the management of property as a resource controlled by kinship groups can stem the predatory and acquisitive behaviour of incoming developers. Fieldwork shows that the female members of these groups with a stake in tenure wield increasing informal power in an economy that has come to be dominated by tourism. Through the sentiment of attachment, they are able to influence the local market in holiday accommodation by retaining property thereby making a scarce resource scarcer.

We also show that the transfer of power from the patrilineal to a matrilineal system of management within these kin groups takes place in the hereditary transmission of property. This is significant because it demonstrates the process of intervention and negotiation that underpins the continuity of the indigenous people's cultural survival. In the penultimate section of the paper it is argued that socially excluded and marginalized people are in fact necessary for those seeking to invest in holiday homes in Cornwall.

Holiday home is a generic term used in this paper to indicate housing stock that for all or part of the year falls outside the accommodation available to local people to rent or buy in a tourist area. Embedded within this generic definition is the more familiar concept of the second home. Second homes are a very specialised form of self-catering accommodation. They are not usually thought of in the same way as the traditional holiday lets rented for one or two weeks each year by a succession of visitors to English seaside resorts. Second homes offer no 'in house' staff to provide hospitality services to their occasional residents, they are in every respect self-catering units. What differs from the traditional self-catering unit is the form of tenure and its use as a vehicle for short-term economic return and long-term investment.

Second home owners purchase their properties with very different motivations, and this will determine use made of the premises as self-catering units. The usage and motivation can best be understood as a continuum. At one end is the owner who buys a property exclusively for their own use, visiting at weekends, school holidays and for extended summer breaks. They bring much of their own food and drink to cater for the break and other leisure and lifestyle goods. Their intention is to use the second home for personal use with other residents being restricted to close friends and family. At the notional centre point of the continuum are those who buy a second home for their personal use, but in addition let the property as conventional self-catering accommodation when not being used by the owner. The management of the letting for self-catering accommodation is usually undertaken by regional or national agencies specialising in 'holiday cottages'. At the other end of the continuum is the second home owner who buys the property primarily for investment purposes. Personal use may be restricted to one or two weeks a year, with the remainder of the time 'to let' as self-catering accommodation. Whatever the mix of tenure what is common to second home owners is the privatised lifestyle this form of self--catering accommodation offers them.

LITERATURE REVIEW

We are aware that the issue of holiday homes / second homes has been discussed by people in rural and tourist areas for over twenty years [Bollom 1978; Coppock 1977; Countryside Agency 2002]. Housing has now become a major strand of government

policy with initiatives such as the Sustainable Communities Plan for the South West [Office of the Deputy Prime Minister, 2003]. One of the aims is to provide affordable housing and address the problem of redundant and empty properties. These approaches are essentially interventions by the National State at a local level, in the housing market. The conventional approach to the issue of the imbalance in the housing stock between holiday homes and other forms of accommodation is through the planning system and policy response [Purbeck District Council, 2005]. Hall and Muller [2004] set out reasons why there has been a 're-emergence in interest in second home research'. In doing so they rather understate the issue, saying second homes have been used as a economic development tool leading to the 're-emergence of conflict between second home developers and the permanent population in some localities, making second homes a significant policy issue'. An examination of the literature would have shown that second homes have been a continual source of conflict in the Celtic periphery of Britain [Ireland 1987]. Hall and Muller [2004] claim that 'In contrast to other forms of tourism mobility, such as day tripping, second home tourism is covered relatively well in census data and national statistics'. This is not our understanding of the accuracy of the enumeration of second homes in the British 2001 Census [Brown 2004].

At the local level another type of response to the unspoken crisis involves written protest and public debate in the form of letters to the local newspaper, The Cornishman (30.10.2003; 18.12.2003 & 23.12.2003). To understand this process in West Cornwall we have utilized concepts advanced by Jordan [1996] of 'communities of fate' and 'communities of choice'. The latter are opportunistic and predatory, a phenomenon that has already been noted in operation in Sennen Cove [Ireland 1987]. What has not been fully documented is the process by which the 'communities of fate' that have been excluded respond to increasing marginalisation. This paper demonstrates the 'economics of human collectivities' [Jordan 1996]. Jordan argues that when individuals are most vulnerable and lack personal and material resources 'they enjoy the protection afforded by membership of an inclusive group that cooperates productively to re-distribute its product' [Jordan 1996].

At the level of Government policy-making there seems to be broad agreement with the view expressed by Jordan [1996] that in the last two decades the worse off in society have actually seen their standard of living fall further. This is in sharp contrast to the dominant paradigm of 'free market utopianism as a political creed' [Jordan 1996]. The problem of increasing poverty outlined by Jordan is particularly acute in rural areas of Britain. Hirsch [2003] reporting for BBC News highlights the problem. He says, 'The Government has frankly admitted that its system of giving help to rural areas and communities is confusing and bureaucratic'. This lack of clarity on policies to respond to rural crisis was evident in the recent 'foot and mouth' outbreak [Ireland and Vetier 2002]. Hirsch [2003] concludes that rural policy has amounted to little more than 'rearranging the bureaucratic deckchairs'. For example MAFF has now been replaced with DERFA and the Office of the Deputy Prime Minister is now responsible for policy on sustainable communities.

Andrew George (MP for St Ives and Isles of Scilly) introduced a debate in the House of Commons on Rural Housing [Hansard 2003]. George explained the problem in Cornwall. He said:

> When we are talking in terms of generalities, sometimes we miss significant points about local areas. I will talk about my constituency, which includes west Cornwall and the Isles of Scilly where there is a significant and large private housing market. I call it that because I do not like using the phrase "open" housing market. The market is not open to all local people. It is important to call it a private housing market. It is a bit like a golf club: one can enter only if one has certain credentials and can pay the membership fee [Hansard 2003, Col. 31WH].

What George highlights in this quotation is the criteria of membership for what Jordan [1996] terms 'communities of choice'. Membership is determined by the ability to pay for housing in this private market. In contrast George characterizes the plight of those who belong to the 'communities of fate' [Jordan 1996]. George says, 'For people who cannot even begin to look at the private market, which is the vast majority of people on ordinary local wages, the question is where else to look'. On this theme George's remarks confirm what our research has found in Sennen Cove. 'Many properties are lost to the holiday trade because one can get a far better income. The private sector therefore affords little opportunity for people looking for accommodation' [Hansard 2003].

Nationalist parties and Celtic pressure groups are even more vociferous in their criticism of the housing crisis, which they link to tourism and in-migration. Mebyon Kernow – the party for Cornwall attributes the low wage problem cited by George to an over-dependence on tourism. Linking tourism to the housing market Mebyon Kernow agrees with George that 'the housing market is not working for the good of local communities in Cornwall'. The result, as our research in Sennen Cove demonstrates, is that 'many coastal villages have become little more than havens for holiday makers' [Mebyon Kernow 2003]. In response, one of Mebyon Kernow's policies is an 'immediate imposition of 200% council tax on second homes' [Mebyon Kernow 2003].

The issue of holiday homes is a Pan Celtic concern. This is clear from an alliance formed between CYMUNED a Welsh pressure group campaigning for the 'right of local people to have housing, the right of an indigenous culture to survive'. At a meeting in Penzance in March 2002, CYMUNED formed an alliance with Cornish Solidarity to campaign against unaffordable housing prices. Estimates of the scale of the housing crisis vary; however, a recent BBC News report in June, 2003, citing figures collected by the GMB Union, stated that there were in Cornwall '6.000 empty houses and nearly 11.000 second homes'. Our view is that holiday homes have social and political consequences that must be acknowledged and in so doing challenge the dominant agenda of the hospitality and tourism industries [Botterill 2000]. Having summarised the housing crisis the question has to be asked: What is the nature of the social and economic processes at work in local communities affected and can knowledge of them influence the policy response?

CONCEPTUAL FRAMEWORK

For ethnographic research to have any relevance the qualitative examples from the field have to be capable of interpretation within a conceptual framework. This section of the paper outlines the concepts used to provide a framework for the fieldwork. There are five interrelated concepts within the framework: social policy, market principle, social

exclusion, kinship and cultural identity. To understand the dynamic process between the operation of market principle, in relation to housing, and the effect of state intervention, we need to add to the conceptual framework a theory of social exclusion. The redistribution of scarce resources by those excluded from the formal economic system helps us understand how local families use their self-catering accommodation in a special way and therefore carefully orchestrate cultural continuity while adapting to change in peripheral communities.

Market principle can be understood as operating in a perfect market were there are large numbers of buyers and sellers who agree to exchange goods at a price, without reference outside the market [Jordan 1996]. Holiday homes are traded between buyers and sellers in this way. Into this equation we need to build the reaction of groups and communities to the increasing scarcity of local housing stock. One group becomes impotent in the market place, those without the financial means to compete either from earnings or using capital from inherited property. The findings of our research will demonstrate that the dominant kinship groups in Sennen Cove act collectively 'excluding outsiders from the goods [housing used for self-catering accommodation] that they supply to each other' [Jordan 1996].

What is of interest here is why should kin groups combine to act against market principle? The answer to this question leads us to conclude that the 'communities of fate', that mirror closely the local kinship network, share social characteristics that are absent in the 'communities of choice', that is, a shared consciousness derived from membership of a kinship group that provides a unique cultural identity. In Sennen Cove identity is derived from residence, kin ties and occupation. 'Covers' [pronounced to rhyme with Dover] is the collective name given to people born in Sennen Cove who belong to one of the main kinship networks and who are associated with fishing. Those people who share these characteristics have a shared consciousness of not just being Cornish, but of being a Cover.

METHODOLOGY

The economic and social processes we describe here at work in the local housing market are not mere apt illustrations but as part of a systematic collection of ethnographic data over a period of twenty years. Ireland began with the study of the impact of tourism on Sennen Cove by undertaking two years fieldwork between 1981 and 1983. In common with many anthropologists he did not lose contact with the field in the intervening years, more recently working with Ellis to maintain and update an ethnographic record of social change in Sennen Cove [Ireland 2004; Ireland and Ellis 2005].

Ellis's position in Sennen Cove is unusual as an indigenous person and academic giving her 'the ability to observe events on a daily basis, especially within the family and reflect on their significance, using informal conversations and chance exchanges to build an ethnography' [Monaghan and Just 2000]. Ellis has acknowledged the sensitivity of this position as family member and ethnographer. Other researchers have adopted the inclusion of a more autobiographical style of presentation, in which like Ellis 'the ethnographers background and relations with his or her subjects becomes a central topic

of the ethnography' [Monaghan and Just 2000]. The sensitive nature of this research and the close proximity to key informants does raise ethical considerations. It is important to note that neither author has a personal antipathy against the developer of self-catering second home accommodation who appears in findings of our ethnography. However, by virtue of undertaking this study, the authors by default become advocates for the minority of people affected by the distorted market for holiday homes. This is a consequence of the fact that 'the peoples anthropologists study have often been among the most vulnerable' [Monaghan and Just 2000].

The data gathered provides the building blocks for the extended case method and situational analysis [Mitchell 1956; Van Velsen 1964; Shokeid 1971]. We have adapted the method of presenting data pioneered by Shokeid [1971]. The data collected consists of four kinds. First there are normative descriptions from observations of interaction between locals and the second home developer. Secondly, there are the extended case studies that demonstrate the processes of decision making over property among the Covers. We present thirdly the analysis of social situations that focus on tensions between the Covers and the developer, and finally statistical data from the village property Census and official sources.

THE ETHNOGRAPHIC CONTEXT FOR THE RESEARCH

To enable comparison to be made with other rural and maritime communities a demographic and geographical sketch of the context for the field research is given. The parish of Sennen is situated in the extreme Southwest of England within the administrative district of Penwith, one of the six local authorities in Cornwall. Cornwall has a higher than average concentration of holiday accommodation, much of which is located in the coastal communities, as indicated by the 2001 Census.

Figure 1 clearly indicates the concentration of holiday/second homes in the Penwith District. Sennen Parish is approximately eight miles from Penzance and 290 miles from London. The parish covers approximately 2.300 acres of predominantly plateau land between 250 and 300 feet above sea level. The North and North-Western boundary is formed by Whitesand Bay, which comprises the beach of Sennen Cove and the granite cliffs eventually extending to Land's End [Ireland 2004]. Sennen Cove is an occupational community that owes its reason for existence to the pilchard fishing of the 18th and 19th centuries. In the last century Sennen Cove made the transition from a community dependent on fishing to one relying increasingly on income from tourism [Ireland 1987, 1996]. As a result of this transition a local census of self-catering accommodation in Sennen Cove carried out by the authors show a more complex picture of tenure. Table 1 shows the distribution of tenure in Sennen Cove in 2003, with tenure-type generated from the field.

Table 1 shows two types of second home tenure. Pure second homes are those properties exclusively for the owners' recreational use that represent an extension of the owners' private household. Another type of tenure, Second homes & Let, is used by owners for their own recreation but this activity is secondary to the property's use as income-generation through holiday letting.

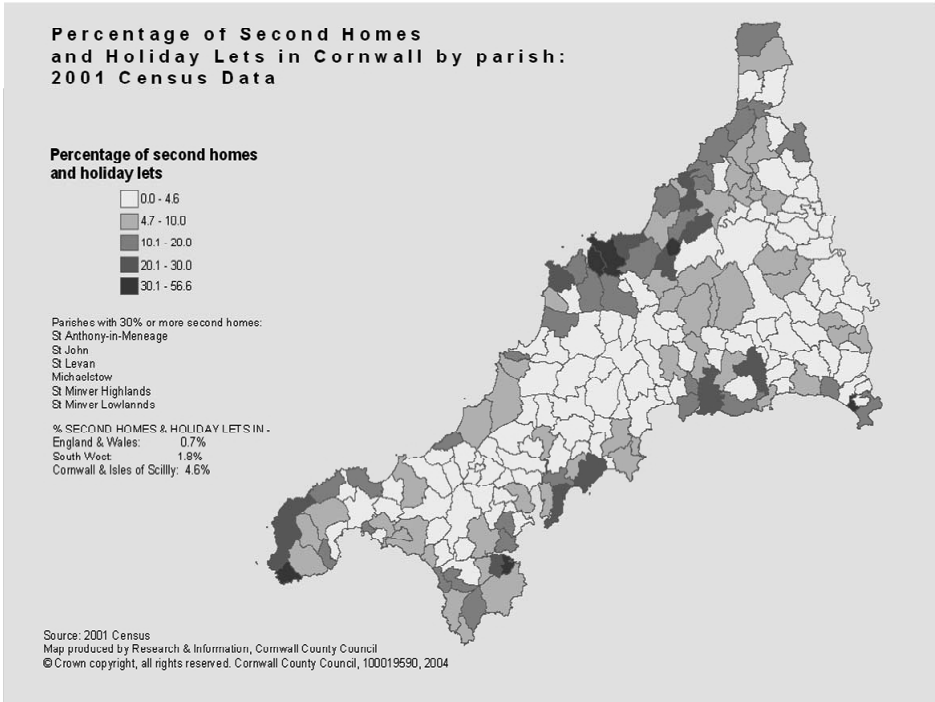

Fig. 1. Percentage of Second Homes and Holiday Lets in Cornwall
Rys. 1. Udział procentowy "drugich domów" oraz "domów wakacyjnych" w Kornwalii
Source: Parish: 2001 Census Data.
Źródło: Parish: 2001 Census Data.

Table 1. Percentage distribution of tenure Sennen Cove, 2003
Tabela 1. Rozkład procentowy praw własności w Sennen Cove, 2003

Non-holiday accommodation tenure-type 42% N = 60	Holiday accommodation tenure-type 58% N = 84			
Full-time occupation	Lets: local	Lets: non-local	Second homes & let	Pure second homes
42%	13%	8%	19%	18%

Source: Own research.
Źródło: Badania własne.

The other two categories Lets: local and Lets: non-local are not for the owners' personal recreation at all but are wholly for the holiday trade. What the table does not submit is the importance of the former tenure-type, Lets: local, mainly reserved for inherited property within indigenous kin sets. Fieldwork has shown a complex state of affairs in terms of the management and use of these surplus properties with local families themselves engaged in the holiday homes industry to protect their cultural heritage.

FINDINGS

The social and market forces we have described in the previous section, outlining the conceptual framework, are played out as a social drama between two families in Sennen Cove, the Penders and the 'Palmers'.

The Pender kin group

We take as our case study William Pender and his family and chart the allocation process of William's seven properties to his sons and daughters as it unfolds at the time of writing. William's property is the result of approximately three centuries of transmission through the male line. 'The Cove was full of them [Penders] at one time'. This comment by a member of William's kin groups needs to be understood in the context of a contemporary Cove where second homes and holiday lets dominate.

William has four children, one son and three daughters aged between their mid-forties to mid-sixties. Members of the family reside in some properties and others are used as holiday lets. A third-share of one property is owned by a cousin. The eldest, unmarried son will inherit the main family house. He has lived with his parents all his life and is known for a talismanic, although fatalistic, Cover identity. His income derives from various building and grass-cutting jobs around the Parish. Family members are concerned about his future in the large family house 'How will he pay the 'lectric (electricity bill) for that great house?' One daughter also lives in the Cove occupying one of William's properties (which she will inherit). She has three grown-up children, one of whom herself [Ellis] lives in the Cove with her four year old son in one of the properties.

The other two daughters of William live in different parishes within the district of Penwith. Both have experienced career and social mobility since they left the Cove. Although neither of them lives in the Cove they both retain a firm attachment to it with the prospect of selling the property they will inherit, out of the question. Four of William's seven properties were, in recent years, 'informally inherited' between these sisters within the lifetime of their father in order to offset death duties, but more importantly to enable the substantial refurbishment of them by those in a financial position to do so. William can be colloquially described as 'asset rich but cash poor'. This 'pre-inheritance inheritance' involves a complex financial arrangement whereby the considerably enhanced revenue from the letting is divided between the daughters and their parents.

We can interpret this account of William's kin group through the concept of differential inheritance [Delphy and Leonard 1986]. The advantage of this is the provision of a structure for understanding the allocation and re-distribution of cultural roles. Delphy and Leonard consider the most interesting cases of differential inheritance, where resources cannot or are not equally distributed, those 'where accession is at stake – not succession to the father's actual position, but rather to a status similar to his – and where this is tied not (as classically) to material inheritance, but to cultural inheritance'. This relates to our fieldwork in that the unmarried son is not transformed by the inheritance process. The lineage ends with the son, who places a high value on local culture, yet is powerless to sustain it, despite the considerable material assets he will inherit.

Kinship, as with any other social institution, is a cultural construct with rules of behaviour and interaction between members. Kinship in Sennen Cove has traditionally been patrilineal with naming systems and the transmission of property and other resources

through the male line. The ethnography has shown the adaptive nature of culture with in Sennen Cove from patrilineal to matrilineal power and the inheritance of property. The inheritance by the females represents the power of attachment, a sentiment characteristic of the 'communities of fate'. The investment made by the female members of William's kin set is not purely for economic returns. It is often remarked by member of the set that 'They'll never see the money they put into those places [for refurbishment] back'. Their investment serves to underline the duality of their status as professional women who have had, and in some cases continue to pursue, a career outside the Cove and their strong identification with their kin. This identification is not merely symbolic, it enables the daughters of the patriarch, William, to exercise important pre-inheritance controls over property. It is these controls that present barriers to entry into the local property market for two groups of potential buyers. The first are indigenous people who, although members of the kinship system of the Cove, are perceived as not at the centre, having their claim to property diluted by exogamy. The second group is the subject of this paper. These are the prospective second home owners. The paper now turns to examine the strategies they adopt to try and circumvent indigenous control mechanisms over the sale of property.

The 'Palmer' Family

The 'Palmer' family (pseudonym), in Sennen Cove, consists of a husband and wife and children who are away at school in term time. Mr Palmer is a property developer for self-catering holiday accommodation in Devon and Cornwall. The Palmers fit closely one of the five distinct types of ideologies of home ownership identified by Gurney [2000] 'petty tycoons...strong believers in the home as an investment in their own financial acumen.'(Cited in Darke and Gurney 2000:89–90). The Palmers have been coming to Sennen Cove for about twenty years and now become local residents. In conceptual terms William and his kin group are representative of the 'community of fate' while the Palmers are indicative of the 'community of choice'. We direct our attention to the examination of ethnographic data that charts the strategies the Palmers adopt in an attempt to circumvent indigenous controls over the sale of property.

Strategies to gain entry to the local property market

Overcoming cultural barriers to the purchase of holiday accommodation is not an easy process; it can take a considerable period of time and the investment of social capital, with risk on both sides. The following case study details the subtle process involved in acquiring property in Sennen Cove. The extended case material gathered by Ellis shows a familiar cycle which begins with holidays in Sennen and ends with the acquisition of a property for use as holiday accommodation. The case centres on the Palmers, a family who have followed a familiar pattern leading to eventual entry into the local property market and their relationship with a carpenter related to the William's kinship group by marriage. The cycle of predatory behaviour has five key moments over a twenty year period (Fig. 2).

The five key moments are: cultivating friendships with the locals; setting up social obligations through gift exchange; 'getting in' with the community of fate; recruiting a service class; property acquisition and, finally, an increase in social distance from the indigenous people leading to rejection. The events described here take place over a period from the 1980s to the present day (2005).

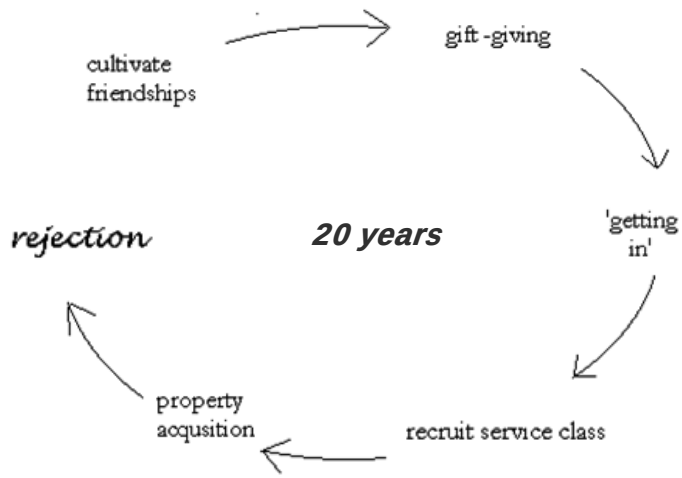

Fig 2. Cycle of Predatory Behaviour in Sennen Cove
Rys. 2. Cykl nieuczciwego zachowania w Sennen Cove
Source: Own research.
Źródło: Badania własne.

The first stage in this process is to build social capital with indigenous people that can later be exchanged for information and services to assist the Palmers in the purchase and maintenance of property in Sennen Cove. The first step involves building up social relations with indigenous people with a very different culture and socio-economic status to their own. The Palmers begin cultivating friendships when taking family holidays in Sennen Cove and soon decide to buy a house in the village for use as self-catering holiday accommodation. The house they buy is strategically placed opposite one of the heads of a main kinship group in Sennen Cove, William. Ellis, as a member of this group, becomes aware of the Palmers' strategies to gain acceptance. She recalls how the family responded to the Palmers' planned encounters designed to cultivate friendships. William, the head of the kin set, would comment on Mrs Palmer's enthusiasm for catching him up while he was out walking the dog on the sand dunes. 'She got some tongue on her' [she talks a lot], he would remark. Information on the functioning of the local community is essential to success in the local market. Therefore, some form of acceptance, however superficial, is essential if the in-migrants are to obtain the support of locals for their ventures [the Palmers were planning to buy further property in the Cove]. This leads to the second stage in the cycle: setting up social obligations through gift giving.

Gift Giving. Ellis recalls that the Palmers have been giving gifts to William and his wife over a long period of time, perhaps twenty years.

'The most notable gifts have been things such as paintings or hand-made pottery given at birthdays. They are items of good quality intended to be put on display in the 'front room' perhaps becoming heirlooms. The gifts are usually items that would be beyond the purse of William to buy. However, these items exist in a sort of front-stage competition with the genuine heirlooms of William's kin set which came into existence not in the form of bought gifts but by centuries of hereditary transmission. An expensive

oil painting of a famous ship in a gilt frame (probably costing up to a hundred pounds) finds its place amongst William's own paintings of the Cove and Land's End fashioned from off-cuts of hardboard and household emulsion and gloss [William was a carpenter and part-time fisherman]. Similarly, maritime-inspired ornaments that have been given sit on sideboards next to cutlery and a jug salvaged from the wrecks in the Cove such as the Trifolium and the Bomeor in the William's parents' time. It is noteworthy that one hand-thrown pot given by the Palmers was bought at the annual Cape Cornwall Arts and Crafts exhibition, where William himself regularly exhibited his paintings and carvings. In addition to birthdays and anniversaries, gifts are normally given to William and his wife when the Palmers (amongst several other families from 'up-country') arrive at their holiday homes and when they leave to go back home. On these occasions the gifts are usually less expensive, mainly consumable/perishable items such as flowers or chocolates. William's wife, Honor, has always been interested in growing plants and so these gifts are always met with enthusiasm. It is safe to say that at every family celebratory event there will be at least a card and often a gift from the Palmers'.

In Ellis' account, these examples of gift giving between the two families are the source of mixed reactions from the recipients, from superficial appreciation, hidden embarrassment (evident only to fellow kin) and most importantly, a sense of social obligation to the givers. The gifts serve to symbolise the originating cultures of givers and recipients. The expensive items given by the Palmers only have a worth in a culture that increasingly attributes high exchange values to antiques and collectables [Bedford and Mackay 1977]. In contrast, displayed along side these items is ethnic art and historic artefacts from shipwrecks, that form part of the cultural heritage of the Covers. By taking gifts from a very different cultural milieu into their home, William has accepted and to some extent validated the Palmers' existence, thus forming a bond of social obligation between the families. For this bond to continue it has to be constantly renewed through the giving of gifts on entry and exit to Sennen Cove.

The gifts 'give the donor [Palmers] a mystic and dangerous hold over the recipients [Sahlins 1974]. To repay the obligation of the gift William and his wife invite the Palmers to become fictive kin. Being present at a rite of passage, signified by a wedding, gave the Palmers privileged access to the community, this process is referred to locally as 'getting in'. For the real purpose of property development and improvement the Palmers needed access to the local service class.

By attending family events the Palmers were able to build relationships with kin who would be later recruited to service property development. Ellis charts this process of getting in, essential for the Palmers' plans to develop self-catering holiday accommodation.

Getting in Ellis notes that her first real awareness of the Palmers as linked to her family came when her sister got married in the late 1990s.

'I was aware of some background discussion of their presence at the ceremony and reception afterwards in the Queen's Hotel in Penzance. The discussion that ensued revolved around my sister's parents and grandparents being very keen to include the Palmers and this was eventually honoured. The routine was always the same; firstly the grandparents raised the idea of the Palmers being invited. My mother and older Aunt then took responsibility for breaking this news to the person whose event it was (e.g. wedding or christening). The person was usually annoyed at first and then they relented (they had

no choice in reality, the older members of the family would not know of the arguments behind the scenes)'. This example illustrates a link between gift giving and the extension of social tolerance ('getting in') to other spheres. Marshall (1961, cited in Sahlins 1974) concludes, 'The worse thing is not giving presents. If people do not like each other but one gives gifts and the other must accept, this brings a peace between them'.

The second incident took place when Ellis's mother's sister's first child was christened in the winter of 1998 in Sennen church.

'During the church ceremony I remember seeing the Palmers standing up in the pews, looking forwards and thinking 'how come they are here?' until my mind processed the connection with the family. I remember their faces did not look particularly relaxed perhaps because they knew no-one at these gathering other than the older members of the family. I particularly remember Mrs Palmer's face having a startled expression. The day of the Christening was very windy with a stiff, cold North-Westerly coming in across the bay, 'right in' as we call it. Afterwards there was a small reception upstairs in the Old Success hotel. I remember the Palmers standing by the door quite a lot looking awkward and I had a very brief exchange with them, more of a greeting than a conversation. My sisters and I left that to the older members of the family who always do the right thing by them. I remember hearing family members' voices changing into a sort of stilted, high-pitched careful articulation when talking with them. Later on in the reception I noticed they took position on one of the comfortable settees, I suppose they couldn't do any other seeing as they couldn't 'mingle'. My mother would be sitting on the arm of the settee talking to them. Looking back these must have been awkward occasions for the Palmers.'

These incidents show inauthentic people in authentic settings [Pearce and Moscardo 1986] to which they have no cultural ties, only those that have been constructed for them. The accounts imply a great deal of psychological and social discomfort for the Palmers in their role as fictive kin. This raises the question: Why did they continue to play this role in William's kin group over such a long period of time? Above all the Palmers wanted social acceptance in Sennen Cove and minimal hostility to their plans to develop holiday properties. There is also a more pragmatic reason, the need for local labour to undertake improvements to their properties that we have termed a service class.

Service class. In this context a local service class is meant to signify indigenous people who have traditionally been recruited by incomers to Sennen Cove to undertake the maintenance of their holiday accommodation and tend to their personal needs when on holiday. The growth of this form of labour is common. Hennessy [1994] notes in a study of Looe, South-East Cornwall, the growth of a pool of workers within the 'informal economy'. The services provided range from cleaning and looking after the keys of properties for a small retainer, to artisan and trades skills such as carpentry and building work. To fulfil this role the Palmers recruited Ronnie, (a pseudonym) a local carpenter and relation by marriage to the William's kin group, to undertake improvements to their second home and other properties. Over the years a bond of trust developed between Ronnie and Mr Palmer. This is important because this trust was later to be betrayed. Mr Palmer had told Ronnie some years ago that he would never develop properties in Sennen, because of the potential difficulties of undertaking such a venture in a village of which he felt a part.

Property acquisition. The penultimate stage of the process involves the acquisition and development of property. Ellis details the case of some old garages close to the Land's End cliff being bought for development as a 'backpacker hostel'.

'Local people were confident that this was unsuitable for development due to the proximity to the Land's End cliff line. It was also thought that the National Trust would never allow it. Sennen Parish Council refused planning permission as did Penwith District Council. Over the next few months it transpires that it has been passed 'higher up', with a certain sense of inevitability with widespread acknowledgement that Palmer must be a 'Mason'. The residents of Marias Lane formed a protest group prior to it being passed. Once it had been passed a notice was posted up at the garages thanking everyone for their efforts and deploring this state of affairs. Some time later, everyone was lifted by the news that the National Trust was to challenge the development. A few weeks later it was learnt that the National Trust apparently ran out of time in which to submit a legal challenge.'

Rejection Ellis provides an ethnographic account of changes in social interaction with the Palmers that lead them to become ostracised from the community. The first indication of a change in relations between the Palmers and local families comes from the matriarch, Honor, over the construction of a car park. Ellis notes:

'Things began to change between the older members of my family and the Palmers when they started to build those places up Marias Lane [purpose built self-catering units]…in fact it was before that, because of the row about the planning permission. Just before all of this, they built a car park in front of their house with quite a high wall facing the road. 'Now we got to look at that' said Honor who has a good view of it from the downstairs windows. This was the first negative thing I'd heard her say about the Palmers, although I'm sure there were many thoughts of the same kind.'

The process of social rejection from the community becomes reaffirmed through comments and reaction to minor acts of hostility toward the Palmers as the next example shows. Ellis says: 'It was a difficult time for my parents and grandparents when they were building those places in Marias Lane because they kept trying to turn the conversation around to 'the site' and 'how we had so-and-so at the site the other day'. My mother said 'we don't say nothing about it, we just say 'oh yeah' and talk about something else'. I was told with some enthusiasm about the time they had the bumper of their mini [their 'runaround car'] kicked in on the site. Everyone assumed it was someone from the Marias Lane protest group which was formed when they were trying to get planning. My Mother said 'They are quite open about it really, she [Mrs Palmer] said that they've taken some stick over building they places'.

For developers like the Palmers, rejection by local communities is a price they are prepared to pay for profit. Their way of coping with rejection in one community is to turn attention to another. This process is evident from a recent conversation about the Palmers between Ellis and her mother. She asked her mother, 'If she sees much of the Palmers now? Her mother replied, 'No, they are away at their other places aren't they?' (other homes around the South West of England).

The tenure of property gives identity and cultural continuity in communities like Sennen Cove. It is for this reason that main kin groups guard their inheritance. For the Palmers the ownership of property has a different meaning, it is a marker of success in the dominant capitalism economy. Ellis demonstrates the tension between these two

positions and the personal effect the development of self-catering accommodation units by the Palmers has had on her. She tells us: 'There is a plaque above the Palmers' house saying 'Sennen Cove Limited' I saw Palmer polishing it one day and it was the first time I'd saw it, it made me feel sick. I realised then that it referred to the places up Marias Lane. The owner of the car garage in Sennen had seen the self-catering units in Marias Lane up for sale on the internet'.

CONCLUSION

This paper has had one overriding aim, to show through the social drama played out between the Penders and the Palmers the social processes involved in acquiring property for development as self-catering accommodation. The ethnographic data presented binds together social situations into an extended case study that charts a cycle of predatory behaviour. Social interactions between these families have been shown to have the intention of gaining access to local property and the labour to service and maintain them. This cycle of behaviour has been illuminated by fieldwork involving one author [Ellis] in the observation and reflection on daily events and their significance. The sensitivity of this position has been acknowledged and data gathered without prejudice.

A review of the literature indicates the tension that exists in the market between buyers and those for whom their property is a marker of cultural identity in Sennen Cove. In summary the property market does not function for local people, making them vulnerable because of the lack of personal and material resources. The ethnographic account detailed through our fieldwork has elucidated the conceptual framework adopted. The Penders and the Palmers are respectively indicative of the 'communities of fate' and 'communities of choice'. Detailed insight has been gained into the strategies and social interactions engaged in by both groups to either gain access to, or retain property in Sennen Cove. We have argued that anthropologists often find themselves as advocates for marginalised and vulnerable groups. This we believe is the significance of our research, because not a great deal is known about the social processes and tensions manifest in communities subject to demands for holiday accommodation. Accounts are more often documented from the point of view of the 'communities of choice', in U.K. television programmes such as 'A Place in the Sun' and 'Location, Location, Location'.

In conclusion, there should be no doubt in the mind of the reader as to the 'storyline' or the point of the argument. This paper is a response to an acknowledged void in research on British coastal communities engaged in providing hospitality; that is, a detailed 'ethnographic examination of social structure, processes and relationships' [Boissevain and Selwyn 2004]. The modus operandi for change and cultural continuity in Sennen Cove has centred on the ownership of self-catering accommodation.

REFERENCES

Beach at Carlyon Bay, 2005: http://www.carlyonbeach.com/home.html

Bedford J., Mackay J., 1977: Yesterday's Junk, Tomorrows Antiques. Macdonald and Jane's Publishers Ltd, London.

Bollom C., 1978: Attidutes and Second Homes in Rural Wales. University of Wales, Cardiff.
Boissevain J., Selwyn T., 2004: Contesting the Foreshore: Tourism, Society, and Politics on the Coast. Amsterdam University Press.
Botterill D., 2000: Social scientific ways of knowing hospitality. In: Lashley C., Morrison A. (Eds.) In Search of Hospitality: Theoretical perspectives and debates. Butterworth and Heinemann, Oxford, p. 177–197.
Brown M., 2004: The Census and alternative approaches to measuring seasonally occupied properties in England and Cornwall. Conference paper at the British Society for Population Studies Conference, Leicester, September 2004.
Byrne D., 1999: Social exclusion. Open University Press, Buckingham.
Centre for Housing Policy, University of York, 2004: Affordability differences by area for working households buying their homes. Project funded by Joseph Rowntree Foundation. http://www.jrf.org.uk/knowledge/findings/housing/024.asp
Cornishman, 2003: Not local and never will be! The Cornishman 30th October.
Cornishman, 2003: Wry solution to housing problems in West Cornwall. The Cornishman 18th December.
Cornishman, 2003: Providing a foot in the door for ordinary working folk. The Cornishman 23rd December.
Cornwall County Council, 2002: Cornwall Structure Plan – Deposit Draft 2002. County Hall, Truro.
Countryside Agency, 2002: Second homes in rural areas of England. Research notes, issue CRN 54.
Coppock J.T., 1977: Second homes: Curse or blessing? Pergamon, Oxford.
Cymuned, 2002: Cornwall's Housing Crisis. www.cymuned.org/pdfs/cornwall.pdf Accessed 17.1.04.
Darke J., Gurney C., 2000: Putting up? Gender, hospitality and performance hospitality. In: Lashley, C., Morrison, A. (Eds.) In Search of Hospitality: Theoretical perspectives and debates. Butterworth and Heinemann, Oxford, 77–99.
Delphy C., Leonard D., 1986: Class Analysis, Gender Analysis and the Family. In: Crompton R., Mann M. (Eds.) Gender and Stratification. Polity Press, Cambridge.
Hall M.C., Muller D.K., 2004: Introduction: Second Homes, Curse or Blessing? Revisited. In: Hall M.C., Muller D.K. (Eds.) Tourism, Mobility and Second Homes – Between Elite Landscape and Common Ground. Channel View Publications, Clevedon, 1–14.
Hansard, 2003: Rural Housing, HMSO, Column 31WH.
Hennessy S., 1994: Female employment in tourism development in South West England. In: Kinnard. V., Hall, D. (Eds.) Tourism : A Gender Analysis. Wiley, Chichester, 35–51.
Hirsch T., 2003: Radical change for rural areas. BBC News, http://news.bbc.co.uk/go/pr/fr/-/1/hi/_politics/3261535.stm
Ireland M.J., 1987: Planning Policy and Holiday Homes in Cornwall. In: Bouquet M., Winter M. (Eds.) Who From Their Labours Rest? Conflict and Practice in Rural Tourism. Gower.
Ireland M.J., 1996: Gender and Class Relations in Tourism Employment. In: Apostolopoulus Y. et.al. (Eds.) The Sociology of Tourism: Theortical and Empirical Investigations. Routledge, London.
Ireland M.J., Vetier L., 2002: The British foot and mouth crisis: the impact on a community and its businesses. Hospitality Review 4, 31–36.
Ireland M.J., 2004: Tourism, Kinship, and Social Change in Sennen Cove, Cornwall. In: Boissevain J., Selwyn T. (Eds.) Contesting the Foreshore: Tourism, Society, and Politics on the Coast. Amsterdam University Press, Amsterdam, 109–150.
Ireland M.J., Ellis L. 2005: Is the conscience collective black and white? Experiencing cultural identity and ties of kinship through the photographic image in a Cornish fishing village. Visual Anthropology 18 (2), 1–4.
Jordan B., 1996: A Theory of Poverty and Social Exclusion. Polity Press, Cambridge.

Lynch P., MacWhannell D., 2000: Home and commercialised hospitality. In: Lashley C., Morrison A. (Eds.) In Search of Hospitality: Theoretical perspectives and debates. Butterworth and Heinemann, Oxford, 100–117.
Marshall L., 1961: Sharing, talking and giving: Relief of social tensions among Kung bushmen. Africa 31, 231–249.
Mebyon Kernow, 2003: MK perspective on Cornwall's housing crisis.
Mitchell J.C., 1956: The Kalela Dance. Manchester University Press.
Monaghan J., Just P., 2000: Social and Cultural Anthropology: A very short introduction. Oxford University Press.
Office of the Deputy Prime Minister, 2003: Sustainable Communities Plan for the South West.
Parkin M., Powell M., Matthews K., 1997: Economics. (3rd Edition). Addison-Wesley, Harlow.
Pearce P.L., Moscardo G.M., 1986: The concept of authenticity in tourists' experiences. Australian and New Zealand Journal of Sociology 22, 121–132.
Purbeck District Council, 2005: Purbeck Housing Issues Paper. PDC, Warham.
Sahlins M., 1974: The Spirit of the Gift in Stone Age Economics. Tavistock, London, 149–183.
Shokeid M., 1971: The dual heritage: Immigrants from the Atlas mountains in an Israeli village. Manchester University Press.
Van Velsen J., 1964: The Politics of Kinship: A study in social manipulation among the lakeside Tonga of Nyasland. Manchester University Press.

DOMY WAKACYJNE: MILCZĄCY KRYZYS

Streszczenie. Artykuł przedstawia obawy osób zamieszkałych w regionach peryferyjnych Wielkiej Brytanii, zachęcających turystów, którzy poszukują domów wakacyjnych. Na przykładzie Zachodniej Kornwalii, artykuł prezentuje wpływ zmian ekonomicznych i społecznych na życie lokalnej ludności wyłączonej z rynku nieruchomości. Autorzy zastosowali nowe podejście, badając efekty interakcji rynku nieruchomości oraz postawy lokalnej społeczności.

Słowa kluczowe: Cornwall, wymiana prezentów, pokrewieństwo, dom wakacyjny, nieuczciwe zachowanie, zakwaterowanie z możliwością korzystania z kuchni

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INCOME SITUATION OF STARCH POTATOES PRODUCERS IN POLAND

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Abstract. As the results of researches it can be concluded that profitability of starch potatoes production has decreased in Poland. Strong dependence of income of starch potatoes producers on Euro exchange rate should be stressed. This rate exchange was advantageous in the first year of membership but it changed negatively for producers. There were also other factors which influenced on financial results of starch potatoes production to large extent, like climate conditions, mainly long-lasting droughts or too much rain, which caused losses in field cultivations.

Key words: starch potatoes, efficiency, profitability

INTRODUCTION

Three full years of Polish agriculture's functioning in the European Union's structures passed on May 1, 2007. There were a lot of changes in the agricultural sector, which were undoubtedly the result of involving Polish agricultural market into instruments of the Common Agricultural Policy (CAP). Poles saw both chances as well as opportunities in Polish accession to the EU at the beginning of this process. Access to the EU financial resources and direct support for Polish farmers from the EU budget were perceived as these chances. Direct payments became a substantial instrument influencing profitability and competitiveness of agricultural production. Farmers' vocational situation [Bórawski 2006] has changed significantly after Polish accession to the EU because Polish farmers have gained prestige and respect. It is a result of farmer's improving social position as producer of food accessible on the European market. Direct payments are transfers of resources from public budget which increases directly farmers' income.

It should be noticed that these changes of conditions of particular market segments' functioning are diversified. There is a price increase in milk branch, farmers are more interested in purchase of additional quotas for milk production. Milk cooperatives raise

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milk prices in order to gain new suppliers. Different situation takes place on pig meat market where a critical situation is recognized as a result of too much supply of pig meat on market, which causes unprofitable purchase prices.

The aim of this paper is to analyze income situation of starch potatoes producers in the period of fours seasons of potato campaign, since 2003/2004 to 2006/2007 and attempt to indicate main factors generating financial results of this production activity.

The goal of the paper was also an endeavor of determination of development possibilities of starch potatoes producers and starch's producers in Poland in the perspective of production quota negotiated for Poland within accession to the European structures. Empirical data comes from 17 farms located on the area of two poviats: Siedlce and Sokołów in Mazovia voivodship.

LEGAL REGULATIONS OF STARCH POTATOES' MARKET

Potatoes' market is not involved in regulation of the Common Agricultural Policy (CAP). Only potato starch is under regulations but as an element of cereal's market regulations. Starch' market was joined to the CAP in 1964. There is a guaranteed minimal price paid potatoes producers for potatoes provided to processing plants by starch's producers. Starch' market is regulated with use of contingents of starch production, which is 144.985 tones for Poland [ARiMR 2003]. Starch's quantity produced above this contingent has to be exported obligatory outside the EU borders before January 1, after economic year's end. Allotted low production quota [Ginter 2004] of potato starch indicates that the Community accession can causes problems because processing potential as well as national demand exceed this negotiated limit.

Next forms of regulation of potato starch production are contract agreements made between starch's producers and farmers producing starch potatoes. These agreements cannot exceed the contingent allotted to particular processing plants.

Starch's producers receive premium for each tone of starch production on condition that they pay the minimal price for farmers, which is a form of protection for potato producers. Premium for companies producing potato starch aims at evening production costs of starch with use of potato and corn starch. Premium is not accessible for potato starch production with use of potato, which do not fulfill determined health standards. It is paid for starch produced with potato consisting not less than 13% of starch.

There are also additional payments for starch production for non-food purposes, which aims at keeping competitiveness of European products towards the imported ones.

There are also instruments used within trade policy, like custom duties, SSG, contingent, licenses, export subsidies as well as export and import licenses.

POTATO PROCESSING INDUSTRY IN POLAND

Industrial and food processing has become the main direction of potato utilization in many countries (Germany, The Netherlands, Denmark) [Lewandowski 2000]. Potato processing connects producers with customers to larger extent than edible potato market, it results from the determined requirements of the Common Agricultural Policy.

Starch is the main direction of potato processing in Poland. It should be noticed that this direction of potato processing has characterized by substantial changes in Poland recently. After the increase in the season 2003/2004 there were evident decrease in potato production for starch (Fig. 1). There was a considerable decline in the season 2004/2005 because in comparison with 2003/2004 it was 23% less. Observed situation was caused by limitation of contract agreement making between processing plants and farmers resulted from production quota allotted to Poland. The limit at the level of 145 thousand of tones restrained processing capacities of Polish plants.

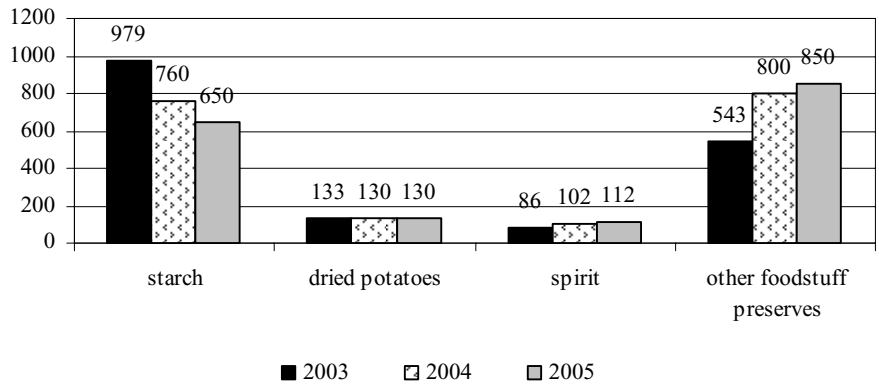

Fig 1. Industrial potato processing in Poland (thousand of tones)
Rys. 1. Przemysłowy przerób ziemniaków w Polsce (tys. ton)
Source: Own elaboration on the basis of [6].
Źródło: Opracowanie własne na podstawie [6].

Other directions of processing have not changed so much in these years. Industrial processing of potato into starch was 650 thousand of tones in the campaign of 2005/2006. Starch quota production allotted to Poland was not used at the level of 145 thousand of tones. Processing for dried potato was similar in subsequent potato campaigns. Increasing tendency was observed in processing potato into spirit. The same situation was also noticed in potato processing into other food commodities.

RESEARCH RESULTS

Researches were conducted in farms producing starch potatoes in order to evaluate the income situation of starch potatoes producers. Researches were carried out on 5 farms on the area of Siedlce poviat and on 12 farms on the area of Sokołów poviat. The average area of examined farms was slightly changing in the analyzed period. It should be noticed that the area of investigated farms was very diversified – the value of coefficient of variation (CV) exceeded 100% (Table 1). The smallest examined farm has 10.0 ha of agricultural land and the largest about 20 times more – 205.0 ha of agricultural land. The area of starch potatoes cultivation was quite stable on the researched farms in particular years. The most differentiation was in the largest farms (Table 2).

Table 1. Land resources and area of starch potatoes cultivation (ha) on the examined farms in the years 2003–2007

Tabela 1. Zasoby ziemi oraz powierzchnia uprawy ziemniaków skrobiowych (ha) w badanych gospodarstwach w latach 2003–2007

	Analyzed years							
	2003/2004		2004/2005		2005/2006		2006/2007	
	Farm area (ha of agricultural land)	Of which potatoes (ha)	Farm area (ha of agricultural land)	Of which potatoes (ha)	Farm area (ha of agricultural land)	Of which potatoes (ha)	Farm area (ha of agricultural land)	Of which potatoes (ha)
	Siedlce poviat							
x	19.4	4.9	20.2	4.8	20.2	5.7	21.0	4.5
SD	11.2	2.7	11.0	2.9	11.0	3.9	10.5	2.3
CV(%)	57.9	55.1	54.6	61.4	54.6	67.5	49.8	50.3
	Sokołów poviat							
x	50.5	9.5	50.8	10.1	51.5	10.7	51.5	8.4
SD	56.8	10.9	56.6	11.4	57.0	10.9	57.0	8.2
CV(%)	112.5	114.5	111.3	112.2	110.6	101.8	110.6	98.3
	Total							
x	41.4	8.1	41.8	8.6	42.3	9.2	42.5	7.2
SD	49.6	9.4	49.4	9.9	49.8	9.5	49.6	7.2
CV(%)	120.0	115.0	118.0	115.1	117.7	103.2	116.7	98.9

Source: Own researches.
Źródło: Badania własne.

Increase in the average area allotted to starch potatoes cultivation took place in the second and third years of analyzed period on the examined farms There was raise of 5% in the season 2004/2005 in comparison with 2003/2004 and in the next season there was increase of 7% in comparison with 2004/2005. There was significant decrease of average area of starch potatoes cultivation and it was at the level of 22% in 2006/2007.

There was considerable increase in starch potatoes' prices observed in the first year of Polish membership in the European Union. It caused more interest in increase in this plant cultivation among Polish farmers. This situation can explain increase in the cultivation area of this material in the season 2005/2006. However it should be stressed very clearly that attempts to enlarge contract agreements taken up by farmers after the season 2004/2005 were negatively perceived. First of all, processing plants did not suffer from lack of this material and secondly rigid negotiated production quota did not allow to gain easily more material for processing. There was decrease in starch potatoes' prices in the season 2005/2006 as a result of lower Euro exchange rate than in the first year of membership.

Considerable changes in starch potatoes crop were observed in the time of researches on the examined farms (Table 2, Fig. 2).

The highest starch potatoes crop was observed in the year 2004/2005. It was influenced by very advantageous climate conditions. There were no long lasting periods without

Table 2. Production and economic results of starch potatoes production in the years 2004–2007
Tabela 2. Wyniki produkcyjno-ekonomiczne w produkcji ziemniaków skrobiowych latach 2004–2007

Specification	Analyzed years			
	2003/2004	2004/2005	2005/2006	2006/2007
Crop (dt·ha^{-1})	260	278	232	190
Starch content (%)	19.8	19.3	20.5	15.8
Starch quantity (kg·ha^{-1})	5148	5365	4756	3002
Potatoes price (zl·dt^{-1})	17.82	17.42	16.28	14.44
Payment (zl·ha^{-1})	2.06	5.70	5.13	4.41
Price + payment (zl·ha^{-1})	19.88	23.12	21.41	18.85
Income from sales (zl·ha^{-1})	5168.80	6427.36	4967.12	3581.50
Average production costs for 1 ha on the researched farms (zl·ha^{-1})				
1. Seed material	900	1050	1200	1300
2. Fertilizers	338	372	484	498
3. Plant protection chemicals	260	315	370	375
4. Transport services	650	700	800	800
5. Other	600	750	750	700
Total direct costs	2748	3187	3604	3673
Indirect costs	275	319	360	367
Total costs	3023	3506	3964	4040
Income from starch potatoes production per 1 ha on the researched farms (zl·ha^{-1})				
Gross margin	2420.80	3240.36	1363.12	–91.50
Agricultural income	2145.80	2921.36	1003.12	–458.50

Source: Own calculations.
Źródło: Obliczenia własne.

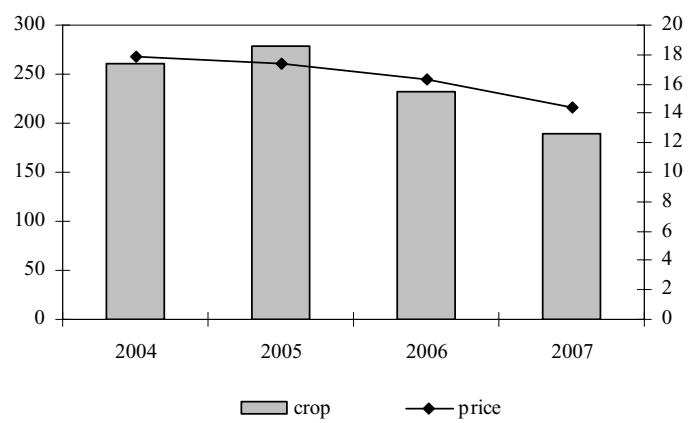

Fig. 2. Potatoes crop (dt·ha^{-1}) and purchase price (zl·dt^{-1}) in the years 2004–2007
Rys. 2. Plonowanie ziemniaków (dt·ha^{-1}) i cena skupu (zł·dt^{-1}) w latach 2004–2007
Source: Own elaboration.
Źródło: Opracowanie własne.

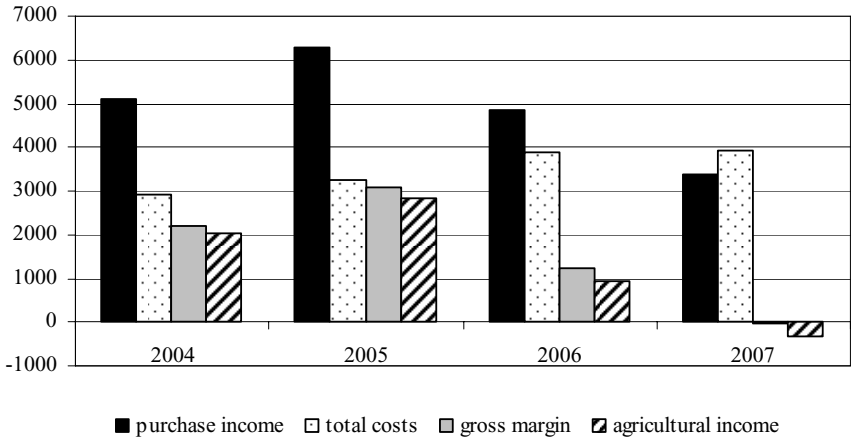

Fig. 3. Value of gross margin and agricultural income in starch potatoes production (zl·ha^{-1}) in the years 2004–2007

Rys. 3. Kształtowanie się wartości nadwyżki bezpośredniej i dochodu rolniczego w produkcji ziemniaków skrobiowych (zł·ha^{-1}) w latach 2004–2007

Source: Own elaboration.

Źródło: Opracowanie własne.

rain, especially in August, which to large extent decides on volume of gained crops in the case of starch potatoes. There was decline in crop of 19% in the season 2005/2006, which was caused by long lasting drought in this season. That is why potatoes producers for this purposes could not fulfill contract duties.

There were especially disadvantageous climate conditions in the season 2006/2007, which caused decrease in starch crop to the level of 190 dt·ha^{-1}. The lowest contents of starch in the material was also observed, which is the main factor influencing on purchase price in the case of starch potatoes.

It should be added that the price is one of the basic parameters deciding on profitability of particular production activity. There were crucial changes in payments for one kg of produced starch in the analyzed period. The fact of Polish accession to the EU created very advantageous sell conditions for starch potatoes through high Euro rate exchange on the level of 4.30 zl €$^{-1}$. It influenced substantially on 30% increase in agricultural income in the first year after accession. Also very high potatoes crop, the highest in the analyzed period, was very important factor. According to the data, decline in financial results started in this year on the examined farms till the deficit, which was observed in the season 2006/07.

Increase in direst costs was observed on the investigated farms during the analyzed period. Rise of expenditures involved seed material, level of applied fertilization, use of plant protection chemicals as well costs of transport to PEPEES JSC Starchworks in Łomża, the place of destination for all investigated farms. Level of indirect costs also increased in the analyzed period. High price increase [Rembeza 2007] of seed potatoes in 2006 and lack of seed potatoes from own production was a supply barrier in 2007. It influenced especially negatively on starch potatoes production.

Starch potato production characterized by crucial decline of profitability, which negative results were able to noticed in the season 2006/2007.

It should be stated that increasing production costs in the seasons 2005/2006 and 2006/2007 were not recompensed by rise of starch potatoes prices on researched farms. Negative relationship was observed, costs were being increased whereas prices were being decreased. Decline in potatoes crops also contributed to worsening income situation in these seasons. Peculiarly dramatic income situation formed in the last year included in the analysis, which revealed lack of profitability of starch potatoes production.

SUMMARY AND CONCLUSIONS

On the basis of conducted researches it can be stated that profitability of starch potatoes production in Poland is diversified. Polish accession to the EU had surely positive influence on income situation of Polish starch potatoes producers. Strong relationship between starch producers' income and Euro exchange rate should be stressed, which in the first year of membership was advantageous (4.30 zł·€$^{-1}$). Euro exchange rate formed on the lower level in the following two seasons 2005/2006 and 2006/2007, respectively 3.90 zł·€$^{-1}$and 3.70 zł·€$^{-1}$.

There are also other factors which influenced on financial results of starch potatoes production to large extent, like weather conditions. Unfortunately disadvantageous conditions are more and more frequent in Poland (long-lasting droughts, too much rain). They are described as weather abnormalities and cause losses in field cultivations inter alia in starch potatoes.

Contract agreements between starch potatoes producers and plants producing starch are the guarantee of potatoes' purchase. The contingent allotted to Poland at the level of 145 thousand of tones does not allow to increase in the number of agreements with farmers or limits quantity of starch potatoes for particular producers of this material. It limits the scale of starch potatoes processing, which influences on rise of unit production costs, which subsequently decreases competitiveness of Polish potato processing plants.

REFERENCES

Bórawski P., 2006: Postawy i oczekiwania rolników indywidualnych po wejściu Polski do UE. [Attitudes and expectations of individual farmers after Polish accession the EU] [w:] Zeszyty problemowe postępów nauk rolniczych. Wyd. PWR SP. z o.o. Warszawa [In Polish].

Ginter A., Soczewka I., Niewęgłowski M., 2004: Implikacje przystąpienia do UE dla polskich producentów ziemniaków skrobiowych. [Implications of accession to the EU for Polish starch potatoes producers] Wyd AR Szczecin [In Polish].

Lewandowski J., 2000: Regionalne zróżnicowanie technologii i produkcji ziemniaków w Polsce. [Regional differences in potatoes technology and production in Poland] Wyd. P.H.U.P. Sanpollac Sp. z o.o. , Warszawa [In Polish].

Rembeza J., 2007: Informacja o rynku [W:] Ziemniak polski nr 2. Wyd. IHiAR Radzików.

Biuletyn informacyjny. Polskie rolnictwo w UE, wydanie specjalne, [Information bulletin, Polish agriculture in the EU, special edition] 1–2/2003. Wyd. ARiMR, Warszawa [In Polish].

Rynek ziemniaka – stan i perspektywy [Potato market – present state and perspectives], nr 29 maj/2006. Wyd. IERiGŻ, Warszawa [In Polish].

SYTUACJA DOCHODOWA PRODUCENTÓW ZIEMNIAKÓW SKROBIOWYCH W POLSCE

Streszczenie. Na podstawie przeprowadzonych badań stwierdzono, że opłacalność produkcji ziemniaków skrobiowych w Polsce ulegała obniżeniu. Należy zaznaczyć ścisłą zależność wpływów pieniężnych dla producentów ziemniaków skrobiowych od kursu Euro. Kurs ten w pierwszym roku członkostwa był korzystny, natomiast w kolejnych latach ukształtował się na poziomie niekorzystnym dla producentów. Czynnikami istotnie wpływającymi na wynik finansowy z produkcji ziemniaków skrobiowych były warunki klimatyczne, a przede wszystkim długotrwałe susze bądź nadmierne opady, które powodowały straty w uprawach polowych.

Słowa kluczowe: ziemniaki skrobiowe, efektywność, dochodowość

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THE ROLE OF AGRICULTURAL SECTOR IN THE DIVERSIFICATION PROCESS OF LIBYAN ECONOMY

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Abstract. The aim of the paper is to present the role of agricultural sector in the diversification process of Libyan economy. which is very important issue taking into consideration that due to extremely high dependence on oil as a source of national income formation, Libya may face a huge problem in case of decrease in oil prices. However there are some difficulties even in quite well developing agricultural sector. The main ones are: the low growth rate of domestic agricultural product and its low percentage contribution to the Libyan GDP formation. The reasons of these problems are presented as the results of conducted analyses.

Key words: Libya, agricultural sector, GDP

INTRODUCTION

As one of the main oil producing countries Libya enjoys a high level of per-capita income and a high standards of living, where during the last three decades due to the radical increase of oil prices, the per-capita income and the standard of living of Libyans have witnessed great and tangible improvement.

However, due to the high dependence on oil as a source of GDP formation, Libya may face a huge problem, where the fluctuation of oil price from time to time may leave its negative influence on the per-capita income and consequently on the living standards of Libyan population. Moreover, in the long-run the problem will be more acute especially if the current and future energy scientific researches succeeded to find new source of energy can replace oil, or if oil reserves exhausted. In these cases, Libya may face an economic catastrophe due to the high dependence of national income formation on oil.

To avoid the negative influences of the high dependence of national income on one source, it seems necessary for Libya to start the process of national economy diversification through the development of the non-oil sectors of the Libyan economy.

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During the last three decades, great efforts were done for the development of industrial sector, however despite these efforts and good results achieved, the development of industrial sector still facing many problem such as:
- high cost of production per-unit,
- relatively low quality of industrial products compared with the imported ones,
- the idle production capacities due to the low level of local demand on the Libyan industrial goods because of it higher quality and low prices as compared with the Libyan ones.

For these reasons, efforts should be done for the development of agricultural sector. The importance of such kind of development comes from the fact that agriculture sector is seriously developed and better managed can contribute effectively to the diversification of the Libyan economy and at the same time contribute to the realization of the food security strategy of Libya.

The question now is to what extent agriculture sector can contribute in the diversification of the Libyan economy and contribute to the realization of food security strategy of Libya.

To answer this question it is necessary to investigate the following aspects:
- The efforts done by the Libyan government for the development of the rural sector through the investigation of the agricultural development strategy, agricultural investment and the agricultural development performances;
- The contribution agricultural sector to the Libyan gross domestic product formation during the period 1996–2005;
- The problems, which should be solved to accelerate the tempo of agricultural development to maximize the participation of the rural sector to the Libyan GDP formation.

AGRICULTURAL DEVELOPMENT STRATEGY IN LIBYA

The Libyan Agricultural Development Council has set a clear strategy for the development of agricultural sector. This strategy aimed and still aiming at the achievement of the following goals:
- Expanding the cultivated area through land recantation and giving a serious attention to water and soil studies;
- Protection of agricultural soil from erosion and controlling sand creeping by planting wind breakers;
- Maximization of agricultural production and raising potential crop productivity through the utilization of fertilizers, selected improved seeds and modern agricultural techniques;
- Searching for new water resources and improving the efficiency of the available water use;
- Diffusing agricultural knowledge among farmers through farmers training programmers;
- Establishing agricultural cooperative and agricultural banks to serve the farmers and provide them with leans and technical assistances and marketing their products;

– Development or animal wealth, improving range land and providing veterinary services and establishing producing stations for cows, sheep, camels and poultry in order to increase the production of meat, eggs and milk products.

AGRICULTURAL INVESTMENT DURING THE PERIOD 1996–2005

In an attempt to realize the above-mentioned goals of agricultural development strategy the Libyan government has allocated and realized certain investment found during the period 1996–2005.

As regards the realized agricultural investment, it is to be mentioned here that about 4154.7 million Libyan Dinars (LD) had been already spent on the development of the rural sector during the period 1996–2005. This means that about 15.8% of the total national investment took place in agricultural sector during that period (Table 1).

Table 1. The development of agricultural investment during the period 1996–2005
Tabela 1. Inwestowanie w rolnictwo w latach 1996–2005

Years	Total National investment (million LD)	Agricultural investment (million LD)	Agricultural investment as a percentage of the total national investment (%)
1996	1 639.7	436.4	26.6
1997	1 684.5	649.1	38.5
1998	1 396.6	345.5	24.7
1999	1 536.0	257.5	16.8
2000	2 213.9	492.3	22.2
2001	2 158.2	478.6	22.2
2002	3 579.5	498.2	13.9
2003	3 330.7	302.4	9.1
2004	3 987.5	252.3	6.3
2005	4 807.0	442.4	9.2
1996–2005 Total	26 333.6	4 154.7	15.8

Source: For the value of national investment and agricultural investment, see: The General Authority for information: 1. Statistical year book, Tripoli 2000, p. 59, 2. Statistical year book, Tripoli 2005, p. 139; Agricultural investment as a percentage of the total national investment is computed by the author.

Źródło: Wartość inwestycji narodowych i inwestycji w rolnictwie: The General Authority for information: 1. Statistical year book, Tripoli 2000, s. 59, 2. Statistical year book, Tripoli 2005, s. 139; Inwestycje w rolnictwie jako procent wszystkich inwestycji narodowych opracowanie własne.

PERFORMANCE IN AGRICULTURAL SECTOR

As a result, for the realization of the above-mentioned agricultural investment the following performances took place in agricultural sector:

– More than 1.9 million hectares of land have been reclaimed and put in use for agricultural purposes;

- More than 3035 water wells were drilled during the period under consideration what has led to the increase of the regular irrigated area;
- 28 million fruit trees have been planted;
- Land reclamation has been carried out through out the country replacing scrub lands and avid desert with modern farms. Several Large Contracts were awarded for land reclamation and irrigation, the Jebel Akhder Zone, Gefara Zone, Benghazi plain, Kufra Zone, Maknusa Zone and Fezzan Zone were the well-known Shems and fully irrigated providing for the establishment of modern farms, the building of agricultural roads, irrigation and drainage facilities were signs of the introduction of agro-industries. In addition, with the polish assistance 14853 modern farms had been prepared and transferred to private farmers in the eastern part of Libya (Al-marj);
- The realization of the first and the second stages of the great Man-Made River, in November 1983 the Korean Company (Dong Ah) was contracted to build a Man--Made River to pump 2 million cum of pure water per day through 2000 km of pipes, the diameter of each pipe is 2 meters. The long desert journey of the water starts from the natural underground reservoirs at Tazerbo and Sarir to Sirte and Benghazi via Agedabia to Tripoli and several Mediterranean Coastal towns. The second stage of the Great Man-Made River pumps 2 million cum of water per day from distance 600 km to Tripoli. Three additional stages were planned including the extension of the first phase in the South (doubling its pumping capacity to 4 million cum per day) and the const ruction of pipelines to serve eastern town of Tobruk bordering Egypt (from Agdabia) to link both the eastern and western water systems. The aim of pumping such water was to irrigate more than 300 thousand hectares on which some of 40.000 modern farms have been started to be prepared.

THE DEVELOPMENT OF AGRICULTURAL PRODUCTION IN QUANTITIVE TERM

As regards the development of agricultural production in quantities terms, the following table illustrates the production quantities and growth rates of some selected agricultural products during the period 1995–2005.

It is clear from table one that the Libyan agricultural sector has witnessed during the period 1995–2005 certain high growth rates in certain products meanwhile some other products had witnessed certain downward trend. As regards agricultural products of high growth rate, we can mention wheat production, which increased from only 23 thousand ton in 1995 to 90 thousand ton in year 2005; this means an average annual growth rate of 29.1%. The same applies to barley production, which grew at on average annual growth rate of 9.9%, and milk production, which grew at on average annual growth rate of 4.6%.

Regarding agricultural products which suffered from a downward trend in its production we can mention olive production (–0.9% as annual average), red meat (–1.6%) and eggs (–1.8%) as an annual average rate of decrease during the period 1995–2005. The decrease of egg production in the year 2005 may be explained by the bird flu, which took place in the region during the year.

Table 2. The development of agricultural and animal production quantities (selected products) during the period 1995–2005
Tabela 2. Produkcja roślinna i zwierzęca (wybrane produkty) w okresie 1995–2005

Product	Unit	1995	2000	2005	Changes through the whole period 1995–2005	Average animal change rate for the period 1995–2005 (%)
Wheat	Thousand ton	23.0	90.0	90.0	67.0	29.1
Barley	Thousand ton	117.0	200.0	233.0	116.0	9.9
Vegetables	Thousand ton	1183.0	1200.0	1201.0	18.0	0.2
Fruits	Thousand ton	599.0	660.0	662.0	63.0	1.1
Olives	Thousand ton	168.8	150.0	153.7	–15.1	–0.9
Red meat	Thousand ton	217.0	229.0	183.0	–34.0	–1.6
Milk	Million litres	213.0	250.0	310.0	97.0	4.6
Egg	Million eggs	1140.0	1200.0	932.9	–207.1	–1.8

Source: Secretariat of the general people committee for planning, "The performances of Economic and Social Development" Tripoli 2006. Also see Secretariat of the general people committee for agriculture, marine and animal wealth "Agricultural and Animal production" Tripoli 2006.
Źródło: Secretariat of the general people committee for planning, "The performances of Economic and Social Development" Tripoli 2006. Patrz także: Secretariat of the general people committee for agriculture, marine and animal wealth "Agricultural and Animal production" Tripoli 2006.

LIVE-STOCK PRODUCTION

As regards livestock production, Table 2 illustrates the development of cows, sheep, goats and camels during the period 2001–2005. From table 3 one can conclude that:

- Despite the decrease of the numbers of cows from 175 000 cows in 2001 to 150 150 cow in 2005. Cow production grew during the period 2001–2005 at on average annual growth rate of 1.45%.
- The number of sheep has increased from 4500 thousand sheep in 2001 to 5800 thousand in the year 2005. This means that the sheep production grew during the period 2001–2005 at on average annual growth rate of 6.6%.
- The goat production has grew during the period under consideration at on annual average growth rate of 7.0% where the number of goats increased from 1700 thousand goat in the year 2001 to 145 thousand in the year 2005.

THE DEVELOPMENT OF POULTRY PRODUCTION

Except for the two years 2001 and 2002, poultry production took a down-ward trend, where the number of chicken for meat production fell from 96 million chicken in the year 2002 to 94 million 93 million and 92 million in the years 2003, 2004 and 2005 respectively, and continued its decline to reach 86 million chicken in the year 2006. Such downward trend may be explained by the following factors:

Table 3. The development of live-stock production in Libya during the period 2001–2005
Tabela 3. Produkcja inwentarza żywego w Libii w latach 2001–2005

		2001	2002	2003	2004	2005	The average annual growth rate for the period 2001–2005
Cow	Numbers of cow in head	175 000	178 000	181 500	184 800	150 150	1.45%
	Growth rate (previous year = 100%)	–	1.7%	2.0%	1.8%	–0.2%	
Sheep	Numbers of sheep in thou. Heads	4500	4900	5300	5700	5800	6.6%
	Growth rate (previous year = 100%)	–	8.9%	8.2%	7.5%	1.8%	
Goat	Numbers of goats in thou. Heads	1700	1750	1775	1800	2200	7.0%
	Growth rate (previous year = 100%)	–	2.9%	1.4%	1.4%	22.2%	
Camel	Numbers of camels in thou. Heads	141	142	143	144	145	0.7%
	Growth rate (previous year = 100%)	–	0.7%	0.7%	0.7%	0.7%	

Source: 1. For the numbers of animals see: Secretariat of the general people committee for agriculture, marine and animal wealth. Agricultural and animal production during the period 2001–2005, Tripoli, 2006. Table 2.1, 2.2, 2.3 and 2.4 2. Growth rates are computed by the author.

Źródło: 1. Liczba zwierząt na podstawie Secretariat of the general people committee for agriculture, marine and animal wealth. Agricultural and animal production during the period 2001–2005, Tripoli, 2006. Stopy wzrostu – obliczenia własne.

– The problem of bird flu, which killed a considerable part of chickens and hens during that period.
– The decline of consumption demand level on poultry meat due to the bird flu what has discouraged poultry producers to expand their production.

Table 3. Poultry production during the period 2001–2006
Tabela 3. Produkcja drobiu w latach 2001–2006

Years	Numbers of chicken for meat production (in million bird)	Poultry meat production (in thousand ton)	Number of hens for egg production (in million hen)	Egg production (million eggs)
2001	92	104.0	5.1	969
2002	96	106.0	5.4	1200
2003	94	105.0	5.2	1050
2004	93	103.0	5.2	1100
2005	92	100.0	5.0	932
2006	86	93.5	5.0	932

Source: Secretariat of the general people committee for agriculture, marine and animal wealth. Agricultural and animal production op.cit. Table 2.

Źródło: Secretariat of the general people committee for agriculture, marine and animal wealth. Agricultural and animal production oraz jak w tabeli 2.

The same applies to the poultry meat (white meat) where it felt from 106 thousand ton in the year 2002 to 105 thousand, 103 thousand and 100 thousand ton in the years 2003, 2004 and 2005 respectively and continued its decline to reach 93.5 thousand ton in the year 2006. Such downward trend may be also explained by the above-mentioned factors (mainly bird flu – avian influenza).

As regards hen and egg production, the number of hen for egg production increased from 5.1 million hens in the year 2001 to 5.4 million hen in the year 2002. However, after the year 2002 the number of hen felt to reach 5.2 million in each of the two years 2003 and 2004 and continued its decrease to reach 5.0 million in 2005 and 2006 (Table 3).

THE DEVELOPMENT OF THE DOMESTIC AGRICULTURAL PRODUCT

According to the available statistic data (Table 4), the value of the Libyan domestic agricultural product at constant prices of 1997 has grew during the period 1995–2005 at a slow growth rate, except for the year 1999 which witnessed certain decrease in the domestic agricultural product (DAP) amounted to –2.9% as compared with its level in 1998, the Libyan DAP grew during the period 1995–2005 at a growth rate ranged between 0.6% and 4.1%.

Taking into consideration the whole period (1995–2005) the Libyan DAP grew at an average annual compound growth rate or 2.1 percent against 3.2% for the whole economy. This means that domestic agricultural product grew during the period 1995–2005 at a growth rate less than that of the Libyan Gross Domestic product. The following table illustrates the development of the Libyan DAP.

Table 4. The development of the Libyan domestic agricultural product during the period 1995–2005 at constant prices of 1997

Tabela 4. Produkt krajowy w sektorze rolniczym w latach 1995–2005 w cenach stałych z 1997 roku

Years	The valve of domestic agricultural product in million LD	Index number 1995 = 100	Annual growth rate yearly of proceeding year	The average annual compound rate for the whole period 1995–2005
1995	1175.0	100.0	–	
1996	1188.6	101.1	1.1%	
1997	1267.0	107.8	6.6%	
1998	1274.0	108.4	0.6%	
1999	1236.9	105.2	–2.9%	
2000	1277.3	108.7	3.3%	2.1%
2001	1330.0	113.1	4.1%	
2002	1356.6	115.4	2.0%	
2003	1383.7	117.7	2.0%	
2004	1411.1	120.0	2.0%	
2005	1446.4	123.0	2.5%	

Source: 1. For the valve of domestic agricultural product see: The Central Bank of Libya, Economic bulletin, No 45 and 46. 2. Growth rates and index numbers are computed by the author.

Źródło: 1. Wartość produktu krajowego w sektorze rolniczym na podstawie: The Central Bank of Libya, Economic bulletin, No 45 and 46. 2. Stopy wzrostu oraz indeksy – obliczenia własne.

THE CONTRIBUTION OF AGRICULTURAL SECTOR TO THE LIBYAN GDP FORMATION

As regards the relative importance of the domestic agricultural product as a percentage of the Libyan gross domestic product at constant price of 1997 it can be summarized as follows (see Table 5):

- The relative importance of the domestic agricultural product to the Libyan GDP (including oil and gas sector) ranged between 8.1% and 9.2% of the GDP during the period 1995–2005.
- The relative importance of the domestic agricultural product to the GDP reached its top level in the years 1997 and 1998 where it amounted to 9.2% of the GDP.
- The Lowest level of the relative importance of the domestic agricultural product to the Libyan GDP took place in the year 2005 where it amounted to 8.1 percent of the GDP.
- The relative importance of the domestic agricultural product to the Libyan GDP still low and far from the desired level.

The following table illustrates the relative importance of the domestic agricultural product to the Libyan GDP (including oil and gas sector) during the period 1995–2005.

Even if we excluded the oil and gas sector from the value of the Libyan GDP, the percentage contribution of agricultural sector to the GDP still low and far from the

Table 5. The percentage contribution of agricultural sector to the Libyan GDP formation (including oil and gas sector) at constant prices of 1997, during the period 1995–2005 (value in million LD)

Tabela 5. Udział procentowy sektora rolnego w tworzeniu PKB Libii (razem z sektorem paliwowym) w cenach stałych z 1997 roku, w latach 1995–2005 (miliony LD)

Years	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
The Libyan GDP	1310 6.3	1362 0.3	1380 0.5	1386 1.5	1416 9.7	1447 9.6	1492 7.6	1509 5.3	1616 0.6	1696 3.6	17940.6
Domestic agricultural product	1175.5	1188.6	1267.0	1274.0	1236.9	1274.3	1330.0	1356.6	1383.7	1411.1	1446.4
The percentage contribution of agricultural sector to the Libyan GDP formation (% of GDP)	9.0%	8.7%	9.2%	9.2%	8.7%	8.8%	8.9%	9.0%	8.6%	8.3%	8.1%

Source: The Central Bank of Libya, Research and statistical department: The Economic Bulletin Vol. 45, the second quarter 2005. Table 27, The Economic Bulletin Vol. 46, the third quarter 2006. Table 27. Percentage contribution of agricultural sector of the Libyan GDP formation is computed by the author.

Źródło: The Central Bank of Libya, Research and statistical department: The Economic Bulletin Vol. 45, drugi kwartał 2005, tabela 27, The Economic Bulletin Vol. 46, trzeci kwartał 2006, tabela 27. Udział procentowy obliczony przez autora.

desired level, where it ranged between 11.4% and 13.6% of the GDP during the period 1995–2005. The following table illustrates the percentage contribution of agricultural sector to the Libyan GDP (excluding oil and gas sector).

Table 6. The percentage contribution of agricultural sector to the Libyan GDP (excluding oil and gas sector) during the period 1995–2005
Tabela 6. Udział procentowy sektora rolnego w tworzeniu PKB w Libii (bez sektora paliwowego) w latach 1995–2005

Years	The Libyan GDP (excluding oil and gas sector)	Domestic agricultural product value in million LD	The percentage contribution of Domestic agricultural product to the Libyan GDP
1995	8 643.0	1 175.5	13.6%
1996	9 104.2	1 188.6	13.1%
1997	9 294.2	1 267.0	13.6%
1998	9 348.0	1 274.0	13.6%
1999	9 500.2	1 236.9	13.0%
2000	9 880.0	1 274.3	12.5%
2001	10 354.4	1 330.0	12.8%
2002	10 905.4	1 356.6	12.4%
2003	11 205.3	1 383.7	12.3%
2004	11 730.7	1 411.1	12.0%
2005	12 635.0	1 446.4	11.4%

Source: As in Table 5.
Źródło: Jak w tabeli 5.

CONCLUSIONS

The question now is what are the main factors responsible for the low growth rate of domestic agricultural product and its low percentage contribution to the Libyan GDP formation during the period 1995–2005? The factors responsible for the low performance in agricultural sector concerning its growth rate and its contribution to the Libyan GDP can be summarized as follows:

- The major part of agricultural movement had been concentrated in agricultural projects of long-term nature, such as the establishment of man-made river, land reclamation etc. Investment in such kind of projects usually gives its effect in the long run.
- The concentration during the period 1995–2005 on the extensive use of land, meanwhile the intensive use of land through land productivity maximization was completely neglected during that period.
- The high dependence of agricultural land on rain as a source for irrigation, where more than 75% of agricultural land area depends on its irrigation on rain.
- The low productivity of the new cultivated land, these lands still need further improvements to be qualified for agricultural production and this needs a long time.
- The low level of production technology used in agricultural sector especially in private farms where the majority of these farms still use traditional methods of production.

Even in the public sector, which uses technical machines and tools, the number of these machines per 1000 hectares took a downward trend. For example the number of tractors per 1000 hectares felt from 24.3 tractors in the year 2001 to 15, 1 tractors in the year 2003. This is due (among other factors) to the lack of an effective system for repairs and periodical conservation of agricultural machines and tools, what has left its negative influence upon the productivity of these machines.

– The lack of effective scientific agricultural research centers which can contribute to the acceleration of agricultural development.
– The insufficient level of agricultural investment during the period 1995–2005. It is true that agricultural sector has received a relatively better investment priority during that period where it occupied the third place in investment priority (among 14 places), but such investment priority within a low level of national investment was insufficient to bring the desired level of performance in agricultural sector especially if we knew that agricultural investment during that period ranged between only 0,6% and 5% of the Libyan GDP and this is extremely low.

However, it is to be mentioned here that the low contribution of agricultural sector to the Libyan GDP does not mean that agricultural sector has no possibilities to participate effectively in the diversification process of the Libyan economy. Agricultural sector has potential possibilities, but no mobilize these possibilities, the above mentioned problems should be solved first of all through the allocation of an ambitious investment fund for agricultural development, such type of investment fund represent the key factor for the mobilization of the potential possibilities of the Libyan agricultural sector.

REFERENCES

Arab Food Agriculture Organization, "Agricultural development in Arab Countries", The Annual Report for the Year 2005, Khartoum. Sudan. 2006.
The General People Committee for Planning, "The Performances of the Economic and Social Development". Tripoli, 2006.
The Central Bank of Libya.
Economic Bulletin, vol. no 45, Tripoli. 2005.
Economic Bulletin, vol. no 46, Tripoli. 2006.
The general Authority for information – Libya.
Statistical Year Book, Tripoli. 2000.
Statistical Year Book, Tripoli. 2000.
Secretariat of the General People Committee for Agricultural, Marine and Animal.
Wealth, "Agricultural and Animal Production". Tripoli. 2006.

ZNACZENIE ROLNICTWA W PROCESIE DYWERSYFIKACJI GOSPODARKI LIBIJSKIEJ

Streszczenie. Celem pracy jest prezentacja znaczenia rolnictwa w procesie dywersyfikacji gospodarki libijskiej, co jest kwestią szczególnie ważną, biorąc pod uwagę wysoką zależność dochodu narodowego od ropy naftowej w tym kraju oraz możliwe problemy, na przykład w przypadku spadku cen tego surowca. Jednakże nawet w stosunkowo dobrze rozwijającym się rolnictwie libijskim można wskazać pewne trudności. Główne z nich to

małe tempo wzrostu wytwarzanej produkcji rolniczej oraz niski udział tego sektora w tworzeniu produktu krajowego brutto. Przyczyny takiego stanu rzeczy zostały przedstawione jako wnioski z przeprowadzonych analiz.

Słowa kluczowe: Libia, sektor rolniczy, PKB

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INCOME EFFECTS OF THE SOCIAL INSURANCE SYSTEM IN POLAND – EVALUATION

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Abstract. The paper presents evaluation of income effects of the social insurance system in Poland. Social insurance system can realise so-called insurance solidarity for farmers and those employed in other sectors. However, this system can also be based on progression. The insurance solidarity has been examined in two aspects: macro- and micro-economic. The analysis shows that in macro-economic aspect, there is no solidarity of social insurance among insurance beneficiaries forming either the group of the employed in non-agricultural sectors or those running a farm. There is the solidarity among people employed in farming sector and running non-agricultural economic activity. However, in case of larger farms, the share of contributions in their income makes barely few per cent.

Key words: insurance solidarity, social insurance system

INTRODUCTION

This paper discusses social policy of the state. Social security system in Poland consists of social insurance and welfare system, health insurance system, system of benefits in respect of unemployment and accidents as well as social assistance system etc.

Tasks in the field of social security are exercised by many institutions, including two most important:

1. Social Insurance Institution (Polish name abbreviation ZUS),
2. Agricultural Social Insurance Institution (Polish name abbreviation KRUS).

In case of SII, the social group covered by compulsory pension insurance include: employees, members of agricultural production cooperatives, freelancers, persons running non-agricultural businesses, clergy people, Members of Parliament receiving remuneration, recipients of unemployment benefits, persons in the course of child-care leaves or recipients of maternity allowances.

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In case of ASIF, the Law on the farmers' social insurance provides two forms of insurance: either on the strength of a law (obligatorily) or on demand (voluntarily). The following persons are covered obligatorily by farmers' social insurance:

1. A farmer who conducts agricultural activity on his own account as the owner (independent or dependent) of the farm situated in the Republic of Poland and possessing above 1 hectare of arable land or a special section of agricultural production, according to the interpretation of tax regulations,
2. Farmer's spouse who works constantly on the farm, in the special section of agricultural production or runs the house which is directly connected with a farm;
3. A member of the household, i.e. farmer's relative, who:
   - is at least 16 years old,
   - remains a farmer in the mutual household or lives on the farm or in the neighbourhood,
   - works constantly on the farm and is not employed by a farmer as a worker, if those persons are not covered by other social insurance and do not have right to receive old-age pension or disability pension from the farmers' social insurance or other social insurance.

People, who conduct agricultural activity or work on the farm and at the same time conduct non-agricultural economic activity or cooperate in conducting such activity, are an exception to the above discussed rule. According to the Law of 1 January 1997, these people may choose the system by which they want to be covered, according to the Law. Figure 1 presents the number of insured people.

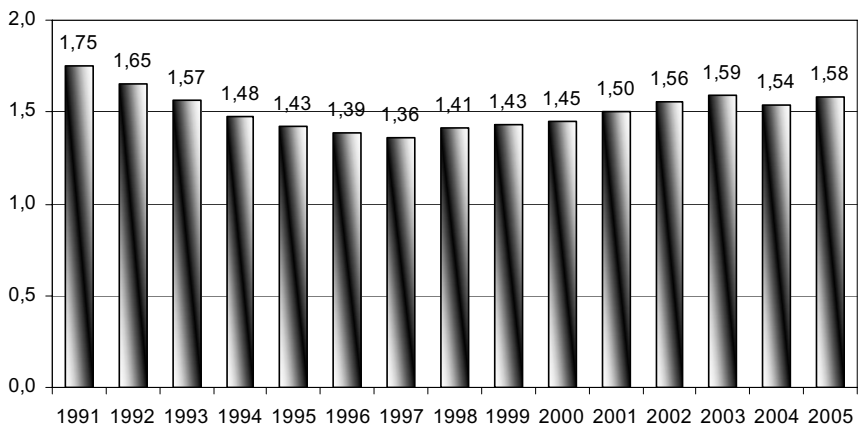

Fig 1. Number of insured people (million)
Rys. 1. Liczba ubezpieczonych osób (w milionach)
Source: Authors elaboration based on KRUS data [in:] http://www.krus.gov.pl/en/insurance
Źródło: Opracowanie własne na podstawie danych KRUS [w:] http://www.krus.gov.pl/en/insurance

The social policy consumes huge budget sums in Poland. In 2005, state budget expenses on social prevention and social welfare reached 70 billion PLN, which made nearly 1/3 of expenses total. It made 25 billion dollars. Through social insurance system, authorities support population employed in agriculture and in other sectors, but to a different degree.

In 2004, about 15 billion PLN (approx. 6 billion dollars) was spent as donations to the system of farmers' social insurance, while at the same time donations to the employees' social insurance made 24.5 billion PLN (9 billion dollars) and donations to the insurance subsystem of so-called 'uniform service' made 8 billion PLN (3 billion dollars). In total, the employees of the system received 32.5 billion PLN (12 billion dollars).

METHODOLOGICAL REMARKS

Social insurance system can realise so-called insurance solidarity for farmers (ASIF) and those employed in other sectors (SII). However, this system can also be based on progression. Insurance solidarity will be estimated by comparison of income of the two groups, which can be done by comparison of insurance contributions paid by them and by the level of donations for both these insurance systems. To do this, we will calculate the value of insurance solidarity index. Insurance solidarity between these two groups will be calculated in macro- and microfinancial aspect. Macro calculation will use official statistics data from the Central Statistical Office (CSO), Social Insurance Institution (SII) and Agricultural Social Insurance Fund (ASIF). Micro-level calculation will be based on data both from farms that run FADN accountancy and from the CSO and SII.

It is quite a complicated task to evaluate social insurance solidarity of these two groups, i.e. farmers and the employed in other sectors. First, we should analyze it in macroeconomic aspect.

In order to calculate the index of social insurance solidarity, we shall analyze burden of farmers' income and income of the other group by insurance contributions. Here, we can analyze three different compositions of this index.

1. Index of contribution share in income (F and P) $= \dfrac{\text{sum of social insurance contributions}}{\text{income + benefits}}$

where: F – farmers, P – Population employed in other sectors.

However, his index has some disadvantages. It does not show the operating costs of social insurance systems. As it is known, they use a significant share of the budget donation transferred to co-finance them. In case of population employed in non-agricultural sectors, SII operating costs are much higher than ASIF operating costs. The second version of the discussed index, including donations level, enables to evaluate social insurance solidarity more correctly.

2. Index of contribution share in income (F and P) $= \dfrac{\text{social insurance contributions}}{\text{income + donations}}$

This index shows the influence of SII and ASIF operating costs on the level of social insurance solidarity.

In the third composition, we can evaluate both the influence of social insurance on income of the surveyed two groups and to relate them to social insurance system operating costs.

3. Index of share of social insurance policy effects in income (F and P) $= \frac{\text{donations} - \text{contributions}}{\text{income}}$

It seems that among the above presented indexes, index 3 is the best to evaluate social insurance solidarity.

As it was said in the introduction, in case of the micro-economic aspect we will evaluate index of social insurance share in income and 60 per cent of the average salary in national economy. These two micro-economic indexes will relate to so-called current situation of the social insurance solidarity, which does not take into account effects of donations and benefits.

INCOME EFFECTS OF THE SOCIAL INSURANCE SYSTEM IN MACRO-ECONOMIC ASPECT

Applying the index defining share of social insurance policy effects in income of population working in non-agricultural sector, we can calculate its value (sums in thousands PLN).

Index of share of social insurance policy effects in employees' income $= \frac{-24.483.424^{1} - 82.7706.806^{2}}{243.900.000^{3}}$

Index of share of social insurance policy effects in employees' income $= \frac{-58.223.382}{243.900.000}$

Index of share of social insurance policy effects in employees' income $= -23.9\%$

In a similar way, we can calculate it for population working in agricultural sector, taking into account retirement and annuity insurance, prevention and rehabilitation, as well as sickness insurance, accidents and maternity insurance, ASIF activity and its operating costs (in thousands PLN).

Index of share of social insurance policy effects in farmers' income $= \frac{14.936.671^{4} - 1.705.315^{5}}{64.701.840^{6}}$

Index of share of social insurance policy effects in farmers' income $= \frac{13.231.356}{64.701.840}$

Index of share of social insurance policy effects in farmers' income $= 27.4\%$

[1] SII data for 2006, http://www.zus.pl
[2] SII data for 2006, http://www.zus.pl
[3] Data for 2006, from the Central Statistical Information of the CSO.
[4] ASIF data.
[5] ASIF data.
[6] Data from the Central Statistical Information of the CSO.

Results of the above presented calculations show, that social insurance policy effects are quite different for these two groups, i.e. farmers and population employed in non--agricultural sectors.

Income of population employed in non-agricultural sectors is decreased by nearly 24 per cent, due to social insurance system contributions. It means that insurance policy significantly decreases income of this group. On the other hand, farmers take advantage of their social insurance system, when compared to their income. Their income increases by more than 27 per cent. Still, we have to remember that despite this advantageous insurance system, farmers' income is much lower than income of population employed in non-agricultural sectors.

At the end of this evaluation, we would like to present indexes of contribution share in income of these two groups. This will be helpful in estimating so-called current insurance solidarity.

$$\text{Index of social insurance contribution share in employees' income} = \frac{82.706.806}{243.900.000}$$

$$\text{Index of social insurance contribution share in employees' income} = 33.9\%$$

$$\text{Index of social insurance contribution share in farmers' income} = \frac{1.705.315}{64.701.840}$$

$$\text{Index of social insurance contribution share in farmers' income} = 2.6\%$$

The above presented indexes show what the social insurance contributions would look like in case of analysed groups, if there were not insurance donations. In such case, population employed in non-agricultural sectors would pay one-third of their income, while farmers would pay only 2.5 per cent of their income. It should be stressed that budget donations support social insurance system payments what actually results in increasing beneficiaries' income. Policy of supporting them by the system is different for those, who worked in non-agricultural sectors and for farmers.

Thus, using the indexes of social insurance contribution share in income of these groups, we can conclude that there is no insurance solidarity. We can notice some kind of insurance progression, which means that employees gaining higher income per person are liable to relatively higher insurance contributions when compared to farmers'.

SOLIDARITY OR PROGRESSION OF SOCIAL INSURANCE IN MACRO-ECONOMIC ASPECT?

In order to check whether there is solidarity or a progression in social insurance system, in micro-economic aspect, we will take for analysis persons running businesses and one- two- or three-person families of farmers who have farms of different area. In case of a person running a business, the basis for calculating the contribution is the declared

income, but it cannot be lower than 60 per cent of the average salary in enterprise sector (Table 1). Table 1 shows social insurance contributions calculated as 60 per cent of the average salary.

Table 1. Social insurance contribution calculated at the minimum level, for person running a business

Tabela 1. Wysokość składki na ubezpieczenie przy minimalnej podstawie wymiaru dla osoby prowadzącej działalność gospodarczą

Specification	Contribution calculation basis in PLN	Insurance contributions in PLN			
		pension	annuity	sickness	accidents
July, August 2007	1625.48	317.29	162.25	40.64	10.89
Sum of contributions* in 2007 in PLN	531.37 × 12 = 6376.44				

*There was taken the same contribution calculation basis for the whole year, although it changes every month.
*Przyjęto tę samą podstawę wymiaru składek dla całego roku, mimo że ulega ona zmianie co miesiąc.
Source: Author's elaboration.
Źródło: Opracowanie własne.

Having calculated social insurance contribution total, we can calculate their share in income of a person running a business, taking into account the average monthly salary in national economy. If 2709.13 PLN is the average monthly salary in 2007, then yearly salary equals 32 509.56 PLN. Thus, the index of social insurance share in average salary of a person running a business equals 13.6 per cent.

$$\text{Index of contribution share in income of a person running a business} = \frac{6376.44 \text{ PLN}}{32509.56 \text{ PLN}}$$

$$\text{Index of contribution share in income of a person running a business} = 13.6\%$$

In the next part of this paper, we will present indexes and their values relating to farms. Table 2 includes necessary data.

Data in Table 2 indicate, that there is insurance solidarity in some organization and income situations. We can observe it in farms of 10–20 ha area, run by two persons. For these farms, index of social insurance contribution share in their income reaches 11.19 per cent. This index is higher for farms of 5–10 ha area and it equals 18.34 per cent. We can observe a similar situation in case of farms of area smaller than 5 ha and from 10–20 ha, run by three persons. In these farms, the index of social insurance contribution share in income equals correspondingly: 11.05 per cent and 16.78 per cent.

On average, the social insurance contribution share in income of farms run by three persons makes 12.84 per cent and is quite similar to the one calculated for persons running a business, which is 13.6 per cent.

It should be stressed, that especially in case of bigger farms, the index of the social insurance share in their income is quite insignificant – about few per cent only.

Table 2. Farmers' income and farmers' social insurance contributions
Tabela 2. Dochód rolniczy a wysokość składek na ubezpieczenia społeczne rolników

Specification	Unit	Mean	Farm size (ha)					
			up to 5	5–10	10–20	20–30	30–50	more than 50
Farmer's income earned from the farm	PLN	21 942	25 499	10 240	16 790	29 651	48 324	113 801
Social insurance of one person running the farm	PLN	939.20	939.20	939.20	939.20	939.20	939.20	939.20
Social insurance share in income of a farm run by one person	%	4.28	3.68	9.17	5.59	3.17	1.94	0.83
Social insurance of two persons running a farm	PLN	1 878.40	1 878.40	1 878.40	1 878.40	1 878.40	1 878.40	1 878.40
Social insurance share in income of a farm run by two persons	%	8.56	7.37	18.34	11.19	6.34	3.89	1.65
Social insurance of three persons running a farm	PLN	2 817.60	2 817.60	2 817.60	2 817.60	2 817.60	2 817.60	2 817.60
Social insurance share in income of a farm run by three persons	%	12.84	11.05	27.52	16.78	9.50	5.83	2.48

Source: Author's elaboration based on data from farms running FADN accountancy in 2005.
Źródło: Opracowanie własne na podstawie danych gospodarstw prowadzących rachunkowość rolną FADN za 2005 r.

CONCLUSIONS

The analysis allows to formulate following conclusions.

1. In macro-economic aspect, there is no solidarity of social insurance among insurance beneficiaries forming either the group of the employed in non-agricultural sectors or those running a farm.
2. There is insurance progression between these two groups of beneficiaries. Beneficiaries from the group of employed in non-agricultural sectors pay higher social insurance when compared to farmers-beneficiaries.
3. Currently, social insurance solidarity exists among people employed in farming sector and running non-agricultural economic activity. Index of social insurance contribution share in their income is on the same level, i.e. approximately 13 per cent. However, in case of larger farms, the share of contributions in their income makes barely few per cent.

REFERENCES

Act of 20 December 1990 on farmers' social insurance (full text: Official Journal No 7 of 1998, item 25 with later amendments.

http://www.krus.gov.pl/en/insurance
http://www.zus.pl
The law of 13 October 1998 on social insurance system (Official Journal No 137, item 887 with later amendments).

OCENA EFEKTÓW DOCHODOWYCH SYSTEMU UBEZPIECZEŃ SPOŁECZNYCH W POLSCE

Streszczenie. W artykule poddano ocenie efekty dochodowe systemu ubezpieczeń społecznych w Polsce. System ten może realizować tzw. solidaryzm ubezpieczeniowy dla rolników i ludności zatrudnionej poza rolnictwem, czyli proporcjonalność obciążania dochodów składkami ubezpieczeniowymi poszczególnych grup społecznych. Może on także funkcjonować na zasadzie progresji. Solidaryzm ubezpieczeniowy rozpatrzono w dwóch aspektach: makroekonomicznym i mikroekonomicznym. Wyniki analizy wskazują, iż w aspekcie makroekonomicznym brak jest solidaryzmu wśród świadczeniobiorców wywodzących się z osób pracujących i prowadzących gospodarstwa rolne. Solidaryzm występuje wśród osób pracujących w rolnictwie i prowadzących działalność gospodarczą, jednak w gospodarstwach rolnych większych obszarowo udział składek na ubezpieczenie społeczne w ich dochodach stanowi zaledwie kilka procent.

Słowa kluczowe: solidaryzm ubezpieczeniowy, system ubezpieczeń społecznych

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CROSS-BORDER SHOPPING IN POLAND IN THE EARLY 21ST CENTURY

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Summary. Cross-border shopping which has been analysed in this study was particularly intensive in the first years of the transformation period, and as the economic differences between Poland and her neighbours decreased the intensity of this phenomenon declined. Certain regional differences regarding the citizenship of the cross-border shoppers have been revealed. At Poland's western border Germans prevailed among citizens crossing the border, and Polish citizens, too, constituted a sizeable proportion. Poland's southern border was mainly crossed for shopping purposes by Polish citizens, and Czechs and Slovaks also came in large numbers. Among persons crossing the eastern border the largest group consisted of the citizens of the neighbouring countries; there was also a certain number of the Poles and persons from the remaining countries which emerged after the collapse of the Soviet Union. Among persons crossing the air and maritime borders the most sizeable group consisted of the Poles and of the citizens of West European and non-European countries.

Key words: cross-border shopping, goods in cross-border shopping, regional differences

INTRODUCTION

The period of transformation in Poland which was initiated on the fourth of June 1989, i.e. the day of the first democratic elections, and which was completed on the first of May 2004 is characterized by numerous changes in social and economic sphere including the sphere of cross-border shopping which has been analysed in this study. Unrecorded trade turnover was particularly intensive in the first years of the transformation period, and as the economic differences between Poland and her neighbours decreased the intensity of this phenomenon declined. However, it should be emphasized that the nature and rate of transformation of the cross-border shopping varied depending on the particular border sections [Powęska 2002].

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In world literature cross-border shopping is most often understood as border crossings by large numbers of residents of a given country for shopping reasons coupled with other purposes such as: consumption, services and tourism [Wang 2004; Timothy, Butler 1995]. Meanwhile, in Polish literature this phenomenon has been termed as "cross-border shopping" [Macieja 1997], "unrecorded trade" ["Cross-Border Travel and the Expenditures of Foreigners in Poland..."] "unrecorded trans-border trade" or "shopping unrecorded in the documents of customs clearance" [Borzym 1998]. Regardless of the terminology used, in almost all studies the entire unrecorded foreign turnover carried out by travellers was viewed as cross-border shopping. Illegal sales and purchases, however, carried out by both private persons and business entities operating in the grey area were regarded as smuggling[1]. For the purpose of the present study cross-border shopping has been defined as an unregistered trans-border trade carried out in an unrecorded way by private persons making use of legally permitted quantities of goods to be carried across the border as specified by customs allowances and norms.

The goal of this study is to present the commodity pattern of goods brought to Poland within the framework of cross-border shopping depending on border sections, to answer the question to what extent the shopping was the major purpose of border crossings and to what extent this phenomenon accompanied other reasons for cross-border travel, as well as to identify demographic characteristics of the cross-border shoppers.

WORK METHODOLOGY

The main information source used in this study are data obtained from the questionnaire addressed to the persons involved in cross-border shopping conducted by the customs officers in June and July 2001. The survey was conducted on each day of the week for twenty-four hours, and the days of the interviews did not come in succession but were chosen at random for approximately two months. Customs officers were notified about the date of interviews on the day preceding the survey. Travellers to be interviewed were chosen at random and the daily number of questionnaires designed for the given border crossing-point was implemented successively throughout twenty-four hours keeping the proportions stemming from daily oscillations in the intensity of travel. However, the final qualification of travellers to be questioned was made by customs officers. A very important assumption was that the customs officer who was to conduct an interview should not be guided by the presumption that a given person was a cross-border shopper. It was assumed that the group of people interviewed should include also persons who did not take part in such activity and that the luggage of each person questioned should have been checked. The control should take place after the filling out of the questionnaire, so that the traveller who was answering questions would not know whether he or she would be controlled. The decision as to the degree of control was to be taken by the customs officer who was obliged to act on his or her own discretion. The data obtained from the questionnaires were shown in Tables 1–6 being the basis of the analysis made.

[1] The phenomenon of smuggling has not been analysed in this study.

STATISTICAL ANALYSIS OF THE PHENOMENON

Altogether, 20,426 persons took part in the survey. The number of the interviews conducted on the particular border sections was proportional to the magnitude of cross-border travel. Thus, most of the interviews were conducted at the Polish-Czech border (6565), and next came the Polish-German border (4823), Polish-Ukrainian border (2664), Polish-Belarusian border (2029) and Polish-Slovak border (1962 questionnaires). A slightly smaller number of people were questioned at the Polish-Russian border (973), Polish-Lithuanian border (628), air border (422) and at the maritime border (269). Most of the people interviewed were between 30 and 50 years old (55.95% of the total number of respondents; see Table 1). A sizeable group included also persons who were between 19 and 30 years of age (24.62%). A less numerous group consisted of children (4.5%) and persons aged between 51 and 65 years (12.5), whereas the proportion of elderly people above 66 years of age was very small (1.75%). Proportionately, most persons aged between 30 and 50 years were found at the Polish-Lithuanian border (67.36%) and at the Polish-Belarusian border (60.52%), as well as at the Polish-Ukrainian (58.26%) and air border (59.24%), whilst on the remaining border sections the percentage of persons aged between 30 and 50 years ranged from 50% to 55%. Persons aged 19–30 years prevailed at Poland's border with Russia (37.10%), and with Slovakia (27.27%) and Ukraine (27.89%). Among the population aged above 50 years a higher proportion than the national average was recorded at the air border (19.19%), Polish-German border (14.24%) and Polish-Czech border (14.96%).

Among the travellers interviewed most people were secondary school graduates (45.27%; see Table 2), less persons had technical or professional diploma (22.56%) and university degree (18.15%), and the smallest group had primary education (4.02%). The

Table 1. The age of travellers crossing the border by border section in Poland in 2001
Tabela 1. Wiek przekraczających granicę podróżnych według odcinków granicznych w Polsce w 2001 roku

Border section	Age group						
	Unspecified	0–18	19–30	30–50	51–65	66+	Total
	%						
Unspecified	97.80	–	–	2.20	–	–	100.00
Belarusian	7.29	0.30	22.67	60.52	8.72	0.49	100.00
Czech	3.23	0.79	24.87	53.82	14.96	2.33	100.00
Maritime	2.60	0.74	21.93	53.53	17.47	3.72	100.00
Air	0.95	1.42	16.59	59.24	19.19	2.61	100.00
Lithuanian	7.64	0.48	16.88	67.36	7.17	0.48	100.00
German	4.15	0.64	22.00	56.67	14.24	2.30	100.00
Russian	1.44	0.62	37.10	52.52	7.71	0.62	100.00
Slovak	5.05	0.87	27.27	53.62	11.88	1.33	100.00
Ukrainian	3.72	0.56	27.89	58.26	8.52	1.05	100.00
Total	4.50	0.68	24.62	55.95	12.50	1.75	100.00

Source: Author's findings.
Źródło: Badania własne.

Table 2. Education background of travellers crossing the border by border section in Poland in 2001

Tabela 2. Wykształcenie podróżnych przekraczających granicę według odcinków granicznych w Polsce w 2001 roku

Border section	Education						
	Unspecified	Refusal	Primary	Secondary	University degree	Technical/ /Profesional	Total
	%						
Unspecified	97.80	–	–	1.10	–	1.10	100.00
Belarusian	11.98	0.05	3.55	49.29	22.38	12.76	100.00
Czech	6.98	0.06	4.69	44.62	16.45	27.20	100.00
Maritime	8.55	2.23	3.72	44.61	21.19	19.70	100.00
Air	7.11	–	1.18	39.81	45.02	6.87	100.00
Lithuanian	14.81	–	2.23	46.02	23.57	13.38	100.00
German	10.95	0.17	3.50	42.50	16.09	26.79	100.00
Russian	6.89	0.21	6.47	49.95	11.41	25.08	100.00
Slovak	10.40	4.08	4.38	37.56	19.16	24.41	100.00
Ukrainian	7.73	–	3.53	55.07	19.33	14.34	100.00
Total	9.50	0.49	4.02	45.27	18.15	22.56	100.00

Source: Author's findings.
Źródło: Badania własne.

percentage of secondary school graduates was highest at the Polish-Ukrainian border (55.07%), as well as at the Polish-Russian border (49.95%), Polish-Belarussian border (49.29%) and Polish-Lithuanian border (46.02%). Persons who had technical or professional diploma prevailed at the Polish-Czech border (27.20%), Polish-German border (26.79%), Polish-Russian border (25.08%) and Polish-Slovak border (24.41%). University graduates prevailed among respondents at the air border (45.02%), as well as at the Polish-Belarusian border (22.38%) and at the Polish-Lithuanian border (23.57%). The smallest number of the respondents who held university degree was reported at the Polish-Russian border (11.41%).

The analysis of the frequency of travels to Poland (see Table 3) shows that the largest number of persons crossed Polish borders less frequently than once in a month (41%) and once in a month (36%). Fifteen percent of travellers came to Poland once a week and only 3% visited Poland every day. On a nationwide scale, the percentage of people crossing the border several times a day was very small (less than 1%). The largest percentage of travellers crossing the Polish border less frequently than once in a month was recorded at airports (85.78%), maritime crossing-points (73.98%), and at the Polish-Slovak border (55.66%). Travellers coming to Poland once in a month prevailed at the Polish--Lithuanian border (46.02%) and at the Polish-Russian border (41.83%), whereas those coming once in a week prevailed at the border crossing-points with Russia (37.10%), Ukraine (26.13%), Belarus (20.95%) and Germany (16.90%). At the same time, the number of weekly crossings of the air border (0.24%) and of the maritime border (1.49) was very small. Daily travels to Poland were primarily undertaken by travellers coming from Ukraine (4.99%), Czech Republic (3.91%) and Belarus (3.35%).

Table 3. Frequency of travels by border section in Poland in 2001 [%]
Tabela 3. Częstotliwość odbywania podróży według odcinków granicznych w Polsce w 2001 roku [%]

Border section	Frequency						
	Unspecified	Every-day	Several times a day	Once a month or more frequently	Once a week or more frequently	Less frequently	Total
Unspecified	97.80	–	–	2.20	–	–	100.00
Belarusian	5.22	3.35	0.30	40.61	20.95	29.57	100.00
Czech	3.24	3.91	0.59	36.83	12.03	43.38	100.00
Maritime	8.55	0.37	–	15.61	1.49	73.98	100.00
Air	4.74	0.47	–	8.77	0.24	85.78	100.00
Lithuanian	6.21	0.64	–	46.02	8.28	38.85	100.00
German	5.00	2.49	0.12	33.96	16.90	41.53	100.00
Russian	2.16	1.85	–	41.83	37.10	17.06	100.00
Slovak	3.52	0.51	0.05	36.90	3.36	55.66	100.00
Ukrainian	1.84	4.99	0.53	36.56	26.13	29.95	100.00
Total	4.26	3.00	0.32	36.01	15.72	40.69	100.00

Source: Author's findings.
Źródło: Badania własne.

The purpose of arrivals in Poland which was most often indicated by the respondents (see Table 4) was shopping (31.19%). Tourist travels constituted 22.98% of arrivals, business trips made up 19.98%, 14.13% of respondents pointed to visiting relatives as the purpose of their arrivals in Poland, and 3.98% of those interviewed pointed to small

Table 4. Purpose of travel by border section in Poland in 2001
Tabela 4. Cel podróży według odcinków granicznych w Polsce w 2001 roku

Border section	Purpose of travel							
	Unspecified	Small trade	Other	Visiting relatives	Business trip	Tourist	Shopping	Total
	%							
Unspecified	97.8	–	–	–	–	2.2	–	100
Belarusian	4.3	6.4	3.1	12.9	22.6	21.2	29.5	100
Czech	1.6	0.9	6.3	13.3	19.2	21.2	37.5	100
Maritime	3.0	–	6.3	23.4	23.8	37.6	6.0	100
Air	0.7	–	10.2	26.1	35.6	27.5	–	100
Lithuanian	4.6	6.9	4.5	7.0	41.6	23.7	11.8	100
German	2.3	1.0	5.6	16.5	18.1	21.6	34.9	100
Russian	1.6	3.7	0.6	9.8	8.9	49.7	25.6	100
Slovak	1.5	1.3	3.1	11.7	21.8	27.2	33.5	100
Ukrainian	0.9	17.6	6.8	15.4	18.9	16.7	23.7	100
Total	2.5	4.0	5.3	14.1	20.0	23.0	31.2	100

Source: Author's findings.
Źródło: Badania własne.

trade. Most travellers who declared shopping in Poland came from the Czech Republic (37.52%), next come the citizens of Slovakia (33.49%) and, finally, visitors from Germany (34.97%). In most cases, the tourist purpose was indicated by visitors from Russia (49.74%), by persons crossing the maritime border (37.55%) and the air border (27.49%), as well as by tourists crossing the Polish-Slovak border (27.22%). Business trips to Poland were most often made via air border (35.55%), Polish-Lithuanian border (41.56%), Polish-Slovak border (21.76%), and Polish-Belarusian border (22.62%). Visiting relatives constituted a significant percentage of respondents crossing the air border (26.07%), maritime border (23.42%), Polish-German border (16.50%) and Polish--Ukrainian border (15.43%).

Among persons interviewed on land border crossing sections the majority was made up by the citizens from the neighbouring countries and by the Polish citizens, while at the maritime and air borders those crossing the border were mainly the citizens of West European countries (see Table 5). Altogether, the majority of the respondents were the

Table 5. Citizenship of travellers by border section in Poland in 2001
Tabela 5. Obywatelstwo podróżnych według odcinków granicznych w Polsce w 2001 roku

Citizenship	Border section										
	Unspecified	Belarusian	Czech	Maritime	Air	Lithuanian	German	Russian	Slovak	Ukrainian	Total
	%										
Unspecified	98.9	4.98	0.87	0.37	–	6.05	1.2	0.21	0.31	1.99	1.99
Non--European countries	–	0.05	0.23	–	15.88	0.16	0.23	–	0.15	–	0.48
Former socialist countries	–	0.74	1.04	0.37	1.18	18.15	0.75	–	5.61	1.8	1.94
West European countries	–	–	2.71	37.92	24.64	0.64	4.25	–	2.5	0.08	3.15
Belarusian	–	66.58	0.17	1.12	0.47	0.8	1.12	–	–	0.04	6.99
Czech	1.1	0.34	27.24	1.49	0.71	0.48	1.58	–	0.36	0.15	9.27
Lithuanian	–	0.59	0.38	3.35	–	49.68	1.8	0.62	0.82	0.34	2.33
German	–	0.49	4.8	0.37	6.16	0.64	48.04	–	1.27	0.26	13.24
Polish	–	17.1	59.74	52.42	46.68	22.61	37.07	46.25	65.95	18.88	43
Russian	–	8.82	0.44	0.37	0.95	0.48	1.22	52.83	0.2	0.6	3.96
Slovak	–	0.1	1.93	1.12	–	0.32	0.21	–	22.32	–	2.85
Ukrainian	–	0.2	0.46	1.12	3.32	–	2.53	0.1	0.51	75.86	10.8
Total	100	100	100	100	100	100	100	100	100	100	100

Source: Author's findings.
Źródło: Badania własne.

Polish people (43%), and next came the Germans (13%), the Ukrainians (11%), the Czech people (9%), and the Belarusians (7%), and the smallest number of visitors came from Russia (4%), Slovakia (3%) and Lithuania (2%). Citizens of West European countries constituted 3% of all the respondents, and visitors holding the passports of the former Eastern European bloc totalled 2% of all the persons interviewed.

To sum up, at the Polish-German, Polish-Czech and Polish-Slovak borders shopping was indicated most often as the purpose of cross-border travel; however, at the border crossing-points with Slovakia a sizeable number of visitors came also for tourist and business reasons. Those were secondary school graduates, and less frequently the graduates of technical and professional schools and university graduates, and the lowest percentage of cross-border travellers had primary education. The largest group included people aged between 30 and 50 years. The respondents came to Poland from Germany and the Czech Republic less frequently than once in a month, however a sizeable proportion of the persons interviewed pointed also to more frequent visits (once in a month and once in a week). Among travellers crossing the Polish-German border Germans formed the largest group, but there was also a remarkable number of the Poles. At the Polish-Czech and Polish-Slovak borders, on the other hand, most of the travellers were the Polish people, and the percentage of the Czechs and Slovaks respectively was also fairly high.

At the Polish-Ukrainian, Polish-Belarusian, Polish-Lithuanian and Polish-Russian borders the majority of travellers crossing the border were Ukrainians, Belarusians, Lithuanians and Russians respectively. The next largest national group was composed of the Poles. The significant proportion of people crossing the Polish-Belarusian border was also represented by the Russians, and a large group of those crossing the Polish--Lithuanian border comprised the citizens of the countries which emerged after the collapse of the Soviet Union. People crossing Poland's eastern border were most often secondary school graduates, less frequently graduates of technical/professional schools and university graduates, and the smallest proportion included persons who had primary education. The largest group included people aged between 30 and 50 years. Among the respondents the largest number of people came once in a month or more frequently, and a sizeable group of the persons interviewed pointed also to more frequent visits than once in a week. At the Polish-Ukrainian, Polish Belarussian and Polish-Russian borders respondents pointed to shopping as the most frequent purpose of their travels, just as at the western and southern borders, whilst on the Lithuanian border section people usually reported tourist and business purposes.

At the air and maritime borders the largest groups of travellers crossing the border were the Polish citizens and the citizens of West European and non-European countries. The most frequent purposes of travels indicated in the questionnaires were business and tourist trips and visiting relatives. The air travel was chosen by people who had university diploma and secondary education, whereas graduates of secondary schools, universities and technical and professional schools arrived by sea. The largest group of travellers included people aged between 30 and 50 years. The respondents travelling by air and by sea arrived in Poland less frequently than once in a month.

COMMODITIES BROUGHT TO POLAND MOST FREQUENTLY

The most important group of goods in cross-border shopping in Poland in 2001 comprised alcoholic beverages and cigarettes (see Table 6). Next came foodstuffs, clothing as well as washing agents and chemical agents. Almost 36% of all the travellers questioned carried vodka or other high-proof alcohols, that is to say those having pure alcohol content above 38%. The next nineteen percent of travellers brought beer or wine into Poland, and almost sixteen percent imported cigarettes or tobacco products. Foodstuffs were imported by more than 17% of people. Washing agents were found in travelling bags and luggage of some 3% of the persons interviewed. The remaining commodity groups were less important and were brought in by less than 1% of the respondents. It should be emphasized that within the framework of cross-border shopping vodka was imported mainly from the Czech Republic (almost 36%), and in lesser amounts from Belarus (about 16%), Ukraine (about 15%), Slovakia (more than 12%) and Germany (5.5%) Spirits, on the other hand, were mainly brought from Ukraine (44%), Belarus (29%) and Germany (17%), and lesser amounts of this beverage were imported to Poland from the Czech Republic (7%) and Slovakia (4%). Cigarettes came primarily from Ukraine (32%), Belarus (30%) and Russia (25%), whilst tobacco products were imported mainly from the Czech Republic (72%), and in smaller amounts from Belarus (22%). Foodstuffs were brought most often from the Czech Republic (56%), Germany (28%) and Slovakia (13%). The list of countries from which clothes and footwear were brought included Germany (51%) and the Czech Republic (33%), and less goods were bought in Slovakia (5%). Of some importance in this field was also the maritime border (3%) and the air border (4%). Washing agents and chemical agents were mainly brought from Germany (69%) and the Czech Republic (28%). It should be pointed out that from among the remaining commodity groups which were not brought to Poland on a large scale the major countries of unrecorded imports were Germany and the Czech Republic. The main commodities brought from those countries were cars and their spare parts, tractors and agricultural appliances, furniture, works of art, ceramics and other goods.

CONCLUSIONS

The analysis of statistical material leads us to the following conclusions. Goods which were imported most frequently by cross-border shoppers were excise goods, including vodka and other high-proof alcohols (38% and more), cigarettes, wine and beer. In addition, some foodstuffs were also purchased abroad. Thus, it can be concluded that the most important factor affecting the scope and intensity of cross-border shopping in Poland was the difference in prices and in the income of the population. This conclusion has also been supported by the analysis of the conditioning of the phenomenon, since it shows that shopping is the main purpose of travels of a remarkable number of respondents. On the other hand, this survey of cross-border shopping did not reveal any illegal import to Poland of large quantities of fuels from her eastern neighbours. Since, however, it is regarded as smuggling, it is not within the scope of the phenomenon analysed in the present study.

Table 6. Commodities brought to Poland within the framework of the cross-border shopping by border section in 2001 [in %]
Tabela 6. Przewożone do Polski w ramach handlu przygranicznego towary według odcinków granicznych w 2001 roku [w %]

Commodity	Border section									Total
	Belarusian	Czech	Maritime	Air	Lithuanian	German	Russian	Slovak	Ukrainian	
Alcohols above 38%	15.47	35.76	1.31	0.98	1.40	5.44	12.40	12.55	14.69	100.00
Other foodstuffs	0.17	55.67	0.77	0.74	0.97	27.44	1.11	12.63	0.49	100.00
Cigarettes	29.75	1.73	1.50	0.29	5.97	3.69	24.66	0.91	31.51	100.00
Beer	1.30	57.05	0.36	0.07	1.01	12.11	2.27	25.55	0.29	100.00
Wine	5.70	42.30	0.84	1.87	1.31	16.06	3.45	25.40	3.08	100.00
Other articles	2.05	27.59	3.37	4.70	3.61	50.36	–	4.10	4.22	100.00
Clothes and footwear	1.02	32.86	3.06	4.49	0.82	51.02	0.20	5.31	1.22	100.00
Washing agents	–	27.85	0.48	–	–	68.52	–	3.15	–	100.00
Spirits	28.83	6.76	–	–	–	16.67	–	4.05	43.69	100.00
Other tobacco products	21.77	72.11	0.68	–	2.04	3.40	–	–	–	100.00
Household appliances	0.73	10.22	1.46	–	1.46	83.94	–	–	2.19	100.00
Electronic appliances	0.60	14.97	1.20	9.58	1.20	68.86	–	2.99	0.60	100.00
Alcohols below 38%	8.73	52.38	2.38	0.79	3.17	4.76	–	26.19	1.59	100.00
Perfumes	–	18.35	9.17	20.18	0.92	50.46	–	–	0.92	100.00
Cars	–	6.94	–	–	–	88.89	–	4.17	–	100.00
Other appliances and machinery	1.47	19.12	–	1.47	–	75.00	–	1.47	1.47	100.00
Car spare parts	–	16.67	–	–	–	81.82	–	1.52	–	100.00
Others	13.33	24.44	4.44	–	4.44	20.00	4.44	8.89	20.00	100.00
Building materials	2.38	30.95	–	–	–	54.76	–	2.38	9.52	100.00
Furniture	2.33	4.65	–	–	–	90.70	–	–	2.33	100.00
Glass and ceramics	6.06	57.58	–	–	3.03	21.21	–	6.06	6.06	100.00
Fuels	–	34.78	–	–	–	4.35	56.52	4.35	–	100.00
Wood products	11.11	–	11.11	11.11	16.67	22.22	–	5.56	22.22	100.00
Meat	–	50.00	–	–	16.67	16.67	–	16.67	–	100.00
Dairy produce and eggs	–	45.45	–	–	–	36.36	–	9.09	9.09	100.00
Medicines	–	–	–	–	–	–	–	100.00	–	100.00
Leather products	–	60.00	20.00	–	–	20.00	–	–	–	100.00
Works of art	–	–	–	25.00	–	75.00	–	–	–	100.00
Precious metal products	–	–	–	–	–	100.00	–	–	–	100.00
Total	10.92	36.03	1.23	1.12	2.01	17.15	8.67	12.06	10.81	100.00

Source: Author's findings.
Źródło: Badania własne.

The demographic analysis of the cross-border shoppers has shown that shopping is carried out mainly by people aged between 30 and 50 years who have secondary education, less frequently university degree and technical/professional diploma, and most rarely primary education and who come to Poland once in a month or more frequently. It can be concluded that cross-border shopping in Poland was a local activity since it was undertaken primarily by Polish citizens and by the citizens of countries bordering Poland on the given border section.

Certain regional differences regarding the citizenship of the cross-border shoppers have been revealed. At Poland's western border Germans prevailed among citizens crossing the border, and Polish citizens, too, constituted a sizeable proportion. Poland's southern border was mainly crossed for shopping purposes by Polish citizens, and Czechs and Slovaks also came in large numbers. Among persons crossing the eastern border the largest group consisted of the citizens of the neighbouring countries (Ukraine, Belarus, Russia and Lithuania); there was also a certain number of the Poles and persons from the remaining countries which emerged after the collapse of the Soviet Union. Among persons crossing the air and maritime borders the most sizeable group consisted of the Poles and of the citizens of West European and non-European countries.

REFERENCES

Borzym K., 1998: Nierejestrowane wydatki cudzoziemców w Polsce oraz Polaków za granicą (Unrecorded Expenditures of Foreigners in Poland and of the Poles Abroad), Materiały i Studia No 73.

Macieja J., 1996: Rozwój przygranicznej współpracy gospodarczej w latach 1994–1995 (Development of Cross-Border Economic Cooperation in the Years 1994–1995), Zeszyty Centrum im. Adama Smitha No 17.

Powęska H., 2002: Przestrzenny wymiar handlu transgranicznego w Polsce w ostatniej dekadzie XX wieku (Spatial Dimension of Trans-Border Trade in Poland during the Last Decade of the 20th Century), Geopolitical Studies, Vol. 9, IGiPZ PAN, Warszawa 2002, 118 p., 12 addenda.

Ruch graniczny i wydatki cudzoziemców w Polsce oraz Polaków za granicą w 1997 roku (Trans-Border Travel and the Expenditures of Foreigners in Poland and of the Poles Abroad in 1997), Warszawa 1998, GUS, Studia i analizy statystyczne.

Timothy D.J., Butler R.W., 1995: Cross-border shopping. A North American Perspective, Annals of Tourism Research, Vol. 22, No 1, 16–34.

Wang D., 2004: Hong Kongers' cross-border consumption and shopping in Shenzhen: patterns and motivations, Journal of Retailing and Consumer Services 11, 149–159.

HANDEL PRZYGRANICZNY W POLSCE NA POCZĄTKU XXI WIEKU

Streszczenie. Zjawisko handlu przygranicznego było szczególnie intensywne w pierwszych latach okresu transformacji, a w miarę zmniejszania się różnic ekonomicznych między Polską a sąsiednimi krajami jego natężenie było coraz mniejsze. W analizowanym okresie uwidoczniły się pewne różnice regionalne w zakresie obywatelstwa uczestników handlu przygranicznego. Na granicy zachodniej wśród przekraczających granicę obywateli dominowali Niemcy, znaczny był również udział Polaków. Granicę południową przekraczali

w celach handlowych głównie obywatele Polski, odnotowano również znaczny udział Czechów i Słowaków. Na granicy wschodniej wśród przekraczających granicę największą grupę stanowili obywatele kraju sąsiadującego, był również pewien udział Polaków oraz osób z pozostałych państw powstałych z rozpadu ZSSR. Na granicy powietrznej i morskiej wśród przekraczających granicę obywateli wyraźnie dominowali Polacy oraz obywatele państw Europy Zachodniej i państw pozaeuropejskich.

Słowa kluczowe: handel przygraniczny, towary w handlu przygranicznym, zróżnicowanie regionalne

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DIRECT PAYMENTS IN POLAND IN THE CONTEXT OF COMMON AGRICULTURAL POLICY REFORM

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Abstract. The paper presents rules of calculation and administrative service of direct payments in Poland after the accession to European Union. There is a description of payments campaign in the period of 2004–2006 together with Polish model characteristic considering big number of the farmers and changing forms of farms support. There is a presentation of legal foundation of current payments system and their realisation through the Agency of Restructuring and Modernisation of Agriculture (Polish paying agency). Moreover one can find the level of individual quota of payments different for various crops and plants. Then it is a proposed reform of payments calculation presented connected with introduction of Single Payment Scheme (SPS) detached from the production gradually implemented in all member countries of EU. The conclusion of the paper comprise possible directions of Common Agricultural Policy evaluation influencing the level and structure of direct payments.

Key words: Common Agricultural Policy, direct payments, evolution, support system

INTRODUCTION

Common Agricultural Policy is the only one such sophisticated European Union set of policy measures towards selected economy sector. Agriculture as the specific branch of economy became a subject of strong state intervention in the membership countries from 1962. Up till now the farms have been modernised, scale of the production has been increased and the number of employees in direct farming has been decreased. Nowadays the productivity of European agriculture is much higher and economic intensity is on high level. But the costs of these transformations occurred to be very high and mechanism of agricultural product prices maintain influenced the level of inflation in the most countries.

Thus in 1992 it was a beginning of agricultural policy reform through the changes in the measures from market ones into income support. Instead of prices subsidies and

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intervention activities European Commission introduced direct payments system initially connected with the agricultural output but gradually depended on the used land area. After implementation of Luxembourg reform of Common Agricultural Policy rules of decoupling, modulation and single payment for the farm are introduced in the membership countries according to the needs of globalisation processes.

Poland accepted in the Accession Treaty the Single Area Payment Scheme (SAPS) which doesn't connect payments level with the production level and enables for adjustment support to the national agricultural policy directions. From 2009 next Luxembourg rule should be implemented in Poland and all EU countries-it means cross-compliance. The main concept of this instrument is to provide the payments only to the farmers running the production according to the natural environment protection standard, fulfil the rules of animal welfare and food safety requirements. It means that current good agricultural practices will be enlarged and number of individual controls will grow up.

In this context it is important to analyse current model of payments in Poland in the view of CAP changes and considering the amount of subsidies for Polish farmers.

The base of presented researches comprises statistical data of Agency of Restructuring and Modernisation of Agriculture (ARMA) that means the paying agency in Poland for direct payments.

During research program comparison analysis was used as well as descriptive statistics and deductive concluding methods for the confirmation of the hypothesis.

POLISH SAPS CHARACTERISTICS

Poland has been using (from the beginning of 2004) simplified system of direct payments according to concept of Common Agricultural Policy reform presented in the following EU regulations: Regulation of the Council No 1782/2003, Regulation of the Commission No 795/2004, Regulation of the Commission No 796/2004, Regulation of the Commission No 1973/2004.

Main principle of this system is that farmers receive the support from European Union budget to the arable land area kept in good agricultural practices regarding basic ecological requirements. There is no need of agricultural production on these fields. All the details and rules of farming activity are determined in two Polish acts:

1. Regulation of December 18/2003 about direct payments to arable land (Official Journal from 2004 pos. 40 No 6 and pos. 386 No 42).
2. Regulation of December 18/2003 about National System of Producers Register, Farms Register and Register of Payments Applications (Official Journal from 2004 No 10 pos. 76).

Last update of these acts has been issued in January 2007 (Official Journal No 35 pos. 217) and introduced the conditions of payments authorisation:

– farmer should posses individual identification number given according to the system of national producers register,
– the area of agricultural land should be minimum 1 hectare. All the implemented plots should be a comprised land of minimum 0.1 hectare as an element of the farm,
– the land should be treated according to ecological standards described by Regulation of Ministry of Agriculture and Rural Development (Official Journal No 46 pos. 306).

First applications for direct payments in Poland have been collected in April 2004. That year was the first of Poland membership in European Union and paying agency (ARMA) system has calculated 1 400 370 applications all over the country for total crop area of 13 689 141.41 ha.

The second direct payments campaign in 2005 was characterised by increase of applications to 1 483 628 which means 6% up connected with 4% of area enlargement. The biggest applications increase was observed in Podkarpackie region (10%) and the smallest one in Opolskie district (0.3%). The biggest amount of applications were collected in Mazowieckie region (15% of total amount) and the smallest amount were observed in Lubuskie district (1.5%).

The third payments campaign in 2006 (March 15 till May 15) has brought total number of farmers applications1 468 732 which means decrease of 0.1% comparing to 2005. It was possible to apply in the period of 25 working days after the official deadline (May 15) it means until June 9, 2006. But each day of delay caused the 1% of reduction of the farmers' payments (Table 1).

Table 1. Number of collected applications for direct payments during the campaigns of 2004, 2005 and 2006

Tabela 1. Liczba złożonych wniosków o płatności bezpośrednie w kampaniach 2004, 2005 i 2006

Regions	Number of applications in 2004	Number of applications in 2005	Change 2005/2004 in %	Number of applications in 2006	Change 2006/2005 in %
Dolnośląskie	61 459	63 195	2.8	61 160	–1.6
Kujawsko-Pomorskie	69 303	70 190	1.3	69 500	–1.0
Lubelskie	173 373	186 035	7.3	185 272	–0.4
Lubuskie	20 342	21 516	5.8	21 405	–0.5
Łódzkie	127 818	134 567	5.3	133 179	–1.0
Małopolskie	131 907	142 869	8.3	140 361	–1.8
Mazowieckie	207 851	223 438	7.5	221 577	–0.8
Opolskie	30 539	30 551	0.0	29 863	–2.3
Podkarpacie	119 279	131 511	10.3	130 125	–1.1
Podlaskie	80 675	84 691	5.0	84 303	–0.5
Pomorskie	39 091	40 668	4.0	40 273	–1.0
Śląskie	52 978	56 702	7.0	55 488	–2.1
Świętokrzyskie	92 108	97 212	5.5	95 989	–1.3
Warmińsko-Mazurskie	41 864	44 093	5.3	44 122	0.1
Wielkopolskie	122 592	26 042	2.8	125 083	–0.8
Zachodniopomorskie	29 191	30 348	4.0	30 032	–1.0
Total	1 400 370	1 483 628	5.9	1 468 732	–1.0

Source: Informatics and Telecommunication Department of ARMA, Warsaw 2007.
Źródło: Departament Informatyki i Telekomunikacji ARiMR, Warszawa 2007.

Total number of presently registered producers in Poland amounts 1.857 million of farmers. The range of Polish direct payments comprises of:

– single area payment to the arable land regardless the utilised crops kept in good agricultural practices e.g., arable land, pastures, meadows, orchards, long term crops, willow crop used to cane,

– accompanying area payment to the crops selected for support especially: corns, oil plants, string plants, bean, fodder plant, tobacco, hop and potato for the processing,
– sugar payments as the compensation for sugar beet producers because of sugar market reform calculated for 1 tone of output,
– energetic plants payments implemented in 2007 as the incentive for alternative (non food) usage of the crops.

This range of the payments can be flexible according to the priorities of National--Polish agricultural policy. In 2007 for example there has been introduced the mechanism of animal production farms support and higher payment for pastures and meadows for the owners of the herd minimum 0.3 Big Unit of an Animals per hectare (cows, sheep, goats and horses).

The level of financial support as far as direct payments are considered is the result of calculation of basic annual financial envelope for the membership country. Its size depends on arable land eligible for payments, it means on the sum of crops area, multiannual plants, pastures and meadows and house garden and on the reference yield determining on the base of historical regional data. All these parameters were appointed for Poland at the level of June 30, 2003 and consecutive for the next references periods (Fig. 1).

As one can see from the Figure 1 in the first reference period (2004) the applied area offered by the beneficiaries differed from the reference area calculated with the use of

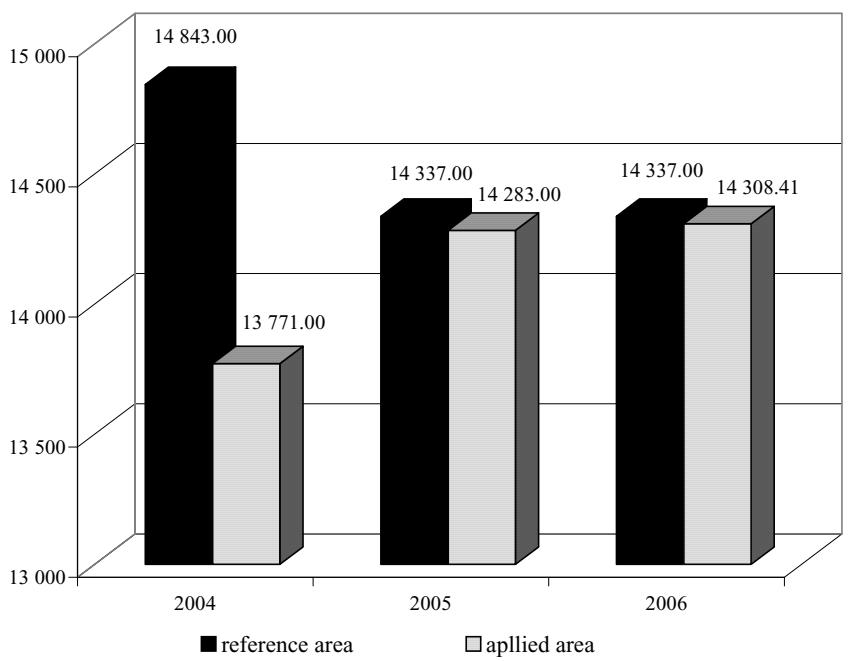

Fig. 1. Single area payment scheme. Reference area and applied area [in thousand ha]
Rys. 1. System jednolitej płatności obszarowej. Powierzchnia referencyjna i powierzchnia wnioskowana [w tys. ha]
Source: ARMA, Warsaw 2007.
Źródło: ARiMR, Warszawa 2007.

historical data. It was caused by the farmers mentality and their distrust for that kind of support. During next campaigns the farmers applied much eager to the agency and the observed area of eligible crops equalled with the reference land area.

The individual flat rate per hectare of payments increase in Poland year by year initially by 5% and from 2008 by 10% according to the phasing in principle and amounts determined part of the old membership countries level. The Accession Treaty enables the new membership countries for adding to these rate up to 30% of total support from the national budget. In this way with the shift of some funds of second pillar of CAP Polish rates of direct payments reached the level of 55%, 60% and 65% of old membership countries of EU in 2004, 2005 and 2006 and are going up to 2010 with the full compensation (Fig. 2).

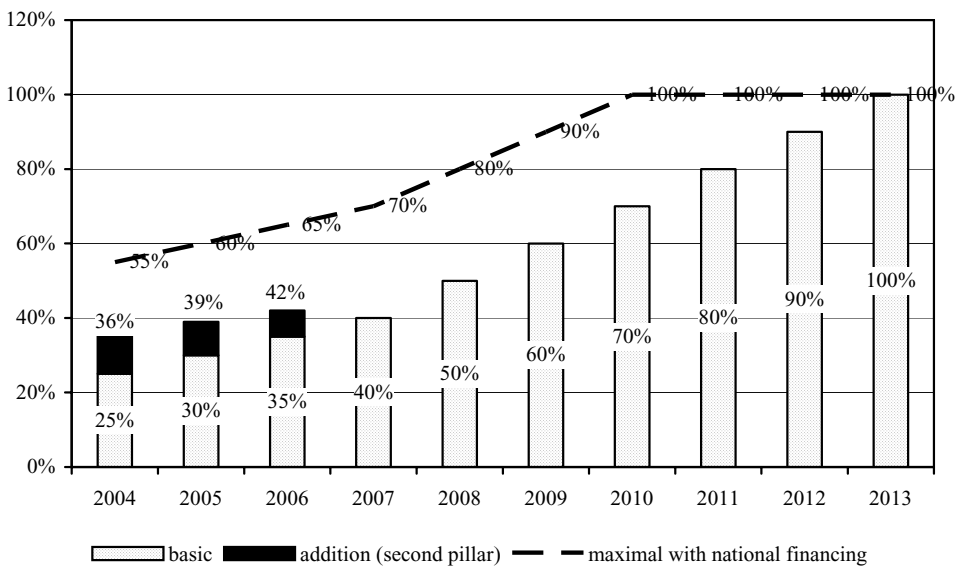

Fig. 2. Level of financial support in the area of direct payments in Poland in comparing to the old membership countries (EU-15)

Rys. 2. Poziom wsparcia finansowego w ramach płatności bezpośrednich w Polsce w porównaniu ze starymi państwami członkowskimi (EU-15)

Source: ARMA, Warsaw 2007.
Źródło: ARiMR, Warszawa 2007.

Total reference area for the whole country of Poland in the period 2004–2006 for single area payments differed from 14.34 mln of ha to 14.84 mln ha of arable land but for accompanying area payments from 12.58 to 13.01 mln of ha eligible for support. Total financial envelope for single payments in 2004 equalled 659 mln euros and gradually increased to the amount of 997 mln euros in 2006.

Individual flat rate was equal 210.5 PLN in 2004 and 276.3 PLN in 2006 but for accompanying payments adequately rate was 292.8 in 2004 and 313 PLN in 2006 per year and 1 hectare (Table 2).

Table 2. Campaigns 2004–2006. Single area payments
Tabela 2. Kampanie 2004–2006. Jednolite płatności obszarowe

	2004	2005	2006
Reference area	14 843 000.00	14 337 000.00	14 337 000.00
Applied area	13 771 710.28	14 283 072.37	14 308 410.63
Surplus per-cent	0.00	0.00	0.00
Financial envelope (mln EUR)	659.95	823.166	997.483
Flat rate in euro	44.46	55.46	69.93
Flat rate after reduction	–	57.42	–
Flat rate in PLN	210.53	225	276.28
Euro price	4.73521	3.9185	3 9713
Number of collected applications	1.400.180	1.486.189	1.471.745

Source: ARMA, Warsaw 2007.
Źródło: ARiMR, Warszawa 2007.

This system provided for Polish farmers support in the farm cultivating basic crops in 2004 503.3 PLN per hectare and in 2006 – 589.8 PLN. While the farm is located in the less favoured area (poor soil) the benefits are increased of next 240–280 PLN.

Administrative procedures require preparing and organisation of accredited paying institution. In Poland this role is appointed to Agency of Restructuring and Modernisation of Agriculture. This public institution according to European Commission Regulation No 1663/1995 has to distinguish in its activity three functions run by separated organisational unit:

1. Payments authorisation function prepared in 314 local branches of ARMA.
2. Payments accounting function done by Central Office of ARMA in departments responsible for registering and reporting.
3. Financial transfers function executed by Finance Department in Central Office.

Farmers after receiving the registering number of their farms, bring the application for the payments to the local offices every year. Agency sends the application formula to each eligible farmer with the basic individual data regarding the agriculture land and visualisation of the plots.

While the application is delivered, agency clerk is obliged to implement it to the informatic system and control all the data. This phase of the procedure is called "administration control" in order to verify information from the system and from farmers. Check of the declared areas of particular plots and analysis of the last year application enables the authorisation of the support.

When the payment is appointed by administration procedure there are next steps of the agency activity performed. There are connected with on-spot control while the information about current cultivating crops are collected by the inspectors. Every single spot is usually measured and its area is compared with applications.

While the control on the farm is finished positively Agency calculates the level of support and prepares the administrative decision for the beneficiary. Afterwards the list of payments is prepared and the process of financial transfers starts. All the eligible amount of payments are sent to the farmers individual bank accounts (Fig. 3).

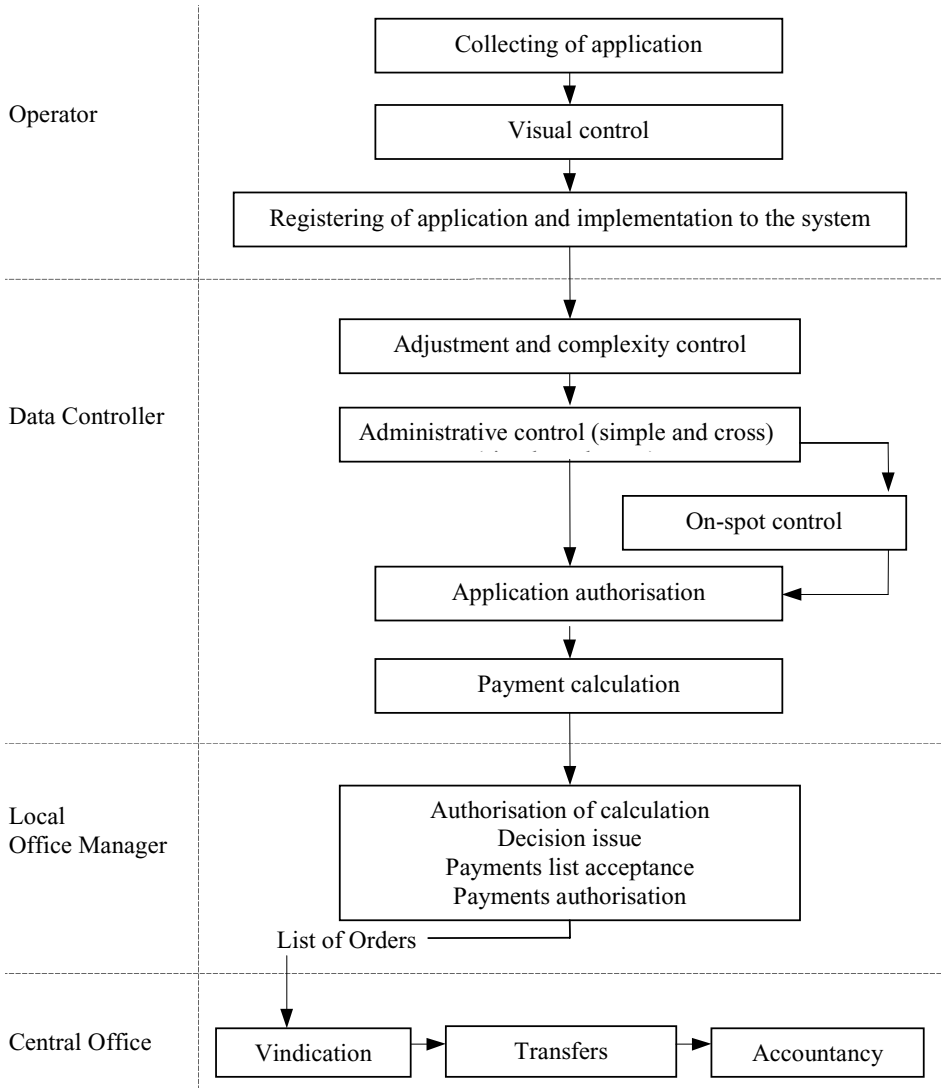

Fig. 3. Scheme of direct payments application service
Rys 3. System obsługi wniosków o płatności bezpośrednie
Source: ARMA, Warsaw 2007.
Źródło: ARiMR, Warszawa 2007.

All the procedures of direct payments service are executed by Agency of Restructuring and Modernisation of Agriculture during every year campaigns. Each of them starts with the printing of personally addressed application forms and is finished with bank transfers for the farmers. In Poland during 2004–2006 period quality of service has been increased which can be described by the ratio of number of transfers in the first 90 days of official date of beginning (December 1).

In the first 90 days of transfers of the campaign of 2006 the support were delivered to 1 153 928 beneficiaries in the area of single payments, accompanying payments and less favoured areas. They have been given total amount of 8 014 543 574.51 PLN it means 4.8 times more than the same time of campaign 2005 and 3.2 times more than in 2004 campaign (Fig. 4).

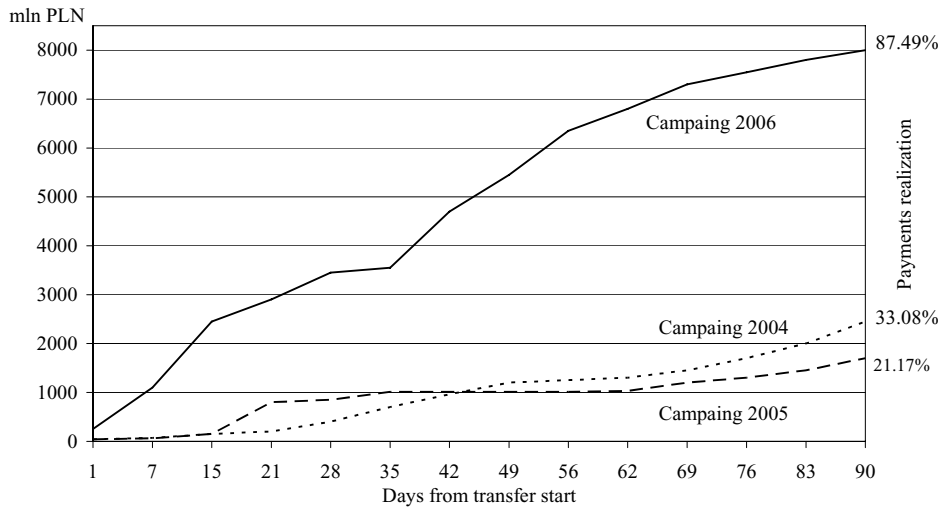

Fig. 4. Direct payments execution – comparison of three campaigns after first three months of transfer

Rys. 4. Realizacja płatności bezpośrednich – porównie trzech kampanii po pierwszych trzech miesiacach transferu

Source: ARMA, Warsaw 2007.

Źródło: ARiMR, Warszawa 2007.

In the field of single and accompanying payments in 2006 campaign until February 28, 2007 Agency payed out 6980 mln of PLN which equals 88% of total payments. This was 4.6 times more than during 2005 campaign and 2.8 times more than campaign of 2004. During analogical periods agency paid 39% total sum in 2004 and 23% of payments in 2005. Such poor indicators of 2005 campaign have been caused by the fact, that printing and delivering of individual applications forms were seriously delayed.

Anyway 2006 campaign was carried out specially carefully and intensively so the pace of administrative controls and on-spot controls together with financial transfers was really high. Thus all the non-controversial payments have been realised till the end of March 2007.

DIRECT PAYMENTS EVOLUTION

Though the system of direct payments works quite effectively in Poland there is still a way to go on the road of reform. According to established rules of changes in Common Agricultural Policy the aim is to implement Single Payment System (SPS)

totally decoupled from the production. Moreover it is able to modulate payments for the biggest farms as well as ensure cross-compliance verification.

Foundations of this system are as follows:

– implementation of the payment title for the farmers determined on the base of reference period and annual financial envelope,
– obligatory set-aside of part of the land mainly with 10% ratio of arable plots,
– introducing of limits for the biggest beneficiaries that can shift some funds from direct payments to the rural development funds (about 3–5%),
– acceptance of provisional system of regionalisation which allows for different flat rate in the same reference area[1],
– distinguish national (domestic) reserve from overall financial envelope (up to 3% of allocation) for other measures of support,
– implementation of cross-compliance principle considering control procedures and institutions co-operation.

Cross-compliance is a big challenge for the countries administration because of European Union law consisted of 19 regulations in the fields of: natural environment protection, animal welfare, agricultural products quality requirements, food safety and hygiene of the work. All these standards should be fulfilled by the farmers and effectively controlled by set of institutions. This will cause costs increase in paying agency that has to provide beneficiary service as well as integrated administration and control mechanism.

One can identify some serious risks in the cross-compliance implementation.

First it is social risk of SPS introduction. Many of the farmers currently receiving payments could not be able to conduct all the adjustment processes in particular areas of cross-compliance. Thus the member of beneficiaries can be decreased.

Another risk is connected with the SPS functioning in the Agency of Restructuring and Modernisation of Agriculture. Agency needs highly sophisticated information system supporting by computerised model of gathering and processing of all data. New task will be related to logical and formal checks of registers in different data bases. All agricultural land plots should be controlled not only from the direct payments scheme but also from the structural funds point of view.

Moreover in the process of beneficiaries farmers control apart from paying agency other institutions responsible for sanitation and veterinary safety of the production will take part which influence the level of the costs and will need lots of logistical effort in co-operation of the public units. Some European Union countries involved in these processes selfgovernments and local authorities as the integrator of the cross-compliance monitoring. In some cases special interinstitutional organisations are founded to administer whole procedures.

There is a necessity of construction of the legal and organisational foundations to prepare with co-operation of paying agency the integrated administration and control system based on computerised land register in the conditions of cross-compliance. Farmers should receive from that system detailed information considering requirements of natural environment managing, technical parameters of buildings and machinery and all standards needed in the official regulations.

[1] Evaluation of CAP reform from Luxembourg FAPA 2003, Warsaw.

On the other hand control institutions has to be equipped with the legal, personal and technical assets for complex verification of the obligatory norms in the selected farms. There is an important task not only for the domestic purposes, but for European Commission analysis of the efficiency of Common Agricultural Policy. Estimated costs of administrative system adjustment in Poland are equal 90 mln PLN only in the field of informatic activities[2]. Average number of on-spot control farmers is evaluated for 15 thousand of units per year.

The number of Polish beneficiaries direct payments, sophisticated system of administration and lack of the clear future of agricultural policy in Europe are the premises to maintain current model of simplified area payments until 2013. That could be a solution for many threats and fears among Polish farmers to the end of present budget period.

Together with the new foundations of the agricultural and rural development policy in Europe single payment scheme could be implemented with all the legal, organisation and technical measures.

CONCLUSIONS

Direct payments in Poland became the main instrument of agricultural policy by the transfer of significant support to the farmers. Integrated administration and control system has been developed gradually in the period of 2004–2006 and year by year its activity allows for fast transfers of eligible subsidies.

Common Agricultural Policy is still under evolution processes in the direction of simplification and increase of second pillar role.

One can predict four possible scenarios of the changes in the policy:

1. Significant reduction of total expenditures for CAP and rural development with the renationalisation of the measures.
2. Incorporation of the agriculture into system of other sector policies like fiscal policy, investment policy or scientific policy without any special preferences.
3. Sustenance of the current European model of agriculture support with small changes shifting priority from market measures to the income ones.
4. Division of the CAP into two separate systems:
   – kind of industrial policy for the large scale,
   – policy of ecological and income directions for the family farming (extensive production).

In the next 2008 there will be a beginning of the debate on principles and results of currently existing model of Common Agricultural Policy. Afterwards European Commission and membership countries will propose the future solutions of the objectives, measures and range in policy towards agribusiness and rural areas. Some elements of Lisbon strategy should be implemented into this scheme, it means liberalisation and world market orientation will be visible in particular decisions. European Union single market has be opened much wider in the context of World Trade Organisation negotiations.

[2] M. Drygas, G. Spychalski. Bariery i zagrożenia. Nowe Życie Gospodarcze No 1, 2006.

The priority of European policy is connected with the optimal usage of agricultural assets of particular regions with consideration of benefits for natural environment and rural society.

REFERENCES

Dygas M., Spychalski G., 2006: Bariery i zagrożenia. Nowe Życie Gospodarcze nr 10.
Ocena reformy WPR uzgodnionej w Luksemburgu z perspektywy Polski FAPA 2003. Sekcja analiz ekonomicznych polityki rolnej. Warszawa 2003.

PŁATNOŚCI BEZPOŚREDNIE W POLSCE W KONTEKŚCIE REFORMY WSPÓLNEJ POLITYKI ROLNEJ

Streszczenie. Artykuł przedstawia zasady przyznawania i obsługi administracyjnej płatności bezpośrednich w Polsce po przystąpieniu do Unii Europejskiej. Opis kampanii dopłat w latach 2004–2006 jest uzupełniony o charakterystykę polskiego modelu uwzględniającego dużą liczbę producentów i zmieniające się formy wsparcia gospodarstw. Przedstawiono podstawy prawne obecnego systemu dopłat i przebieg kampanii i ich realizacji w Agencji Restrukturyzacji i Modernizacji Rolnictwa wraz z poziomem stawek dla różnych rodzajów upraw. Następnie opisano przewidywane zmiany sposobu naliczania dopłat w modelu Jednolitej Płatności dla gospodarstwa, które wprowadzają stopniowo wszystkie kraje UE. W podsumowaniu zaprezentowano możliwe kierunki ewolucji Wspólnej Polityki Rolnej wpływające bezpośrednio na poziom i strukturę dopłat bezpośrednich.

Słowa kluczowe: Wspólna Polityka Rolna, płatności bezpośrednie, ewolucja, system wsparcia

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THE APPLICATION OF THE METHOD OF LOGARITHM FINDING IN THE CAUSAL ANALYSIS OF THE FINANCIAL RESULTS OF ENTERPRISES OF THE FOOD SECTOR

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Abstract. Causal analysis facilitates to determine the cause-and-effects relations between economic phenomena in order to understand the changes and prepare decision fundaments about the future. In the cause analysis financial results can be calculated as the result of a multiplication of two, three or four factors. In this paper a four factors model was applied. This approach looks into the causes which influence on the level of net profits as: changes in the level of employment, changes in the equipment per employee and other quality factors as assets' productivity and sales profitability. In order to determine the influence of particular factors on the result of the analyzed phenomenon the method of logarithm finding was applied. This method provides relatively exact results. The analysis contains selected enterprises of the food sector. Based on the results managing efficiency was evaluated for analyzed enterprises. These results could be useful in the future to improve the decision making process from an economic point of view and compare levels of resources efficiency utilization of enterprises of a similar production profile.

Key words: causal analysis, net profit, the method of logarithm

INTRODUCTION

The companies functioning in present conditions demand analyses which expose factors stimulating the increase of the management effectiveness. The financial analysis allows to estimate the financial state of the firm and gives a relatively comparable financial information. The financial estimation means a search for cause-effect relationships between economic phenomena, an assessment of causes of changes in those phenomena and a preparation of decisions concerning the future. The practical value of the financial analysis is subject to the adequate assessment of the factors influencing the financial condition of the firm and the exact assessment of their trends.

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This goal of this work is an attempt to assess the factors which are most powerful in affecting the financial result of the analyzed firms and an estimation of the management efficiency on the basis of the conducted investigations. The method of logarithm and the partial difference method were used. The study comprised the 2002–2005.

MATERIAL AND METHODS

Three confectionery manufacturers were subjected to an analysis. They are joint stock companies.

The first part of the investigations comprised the ratio analysis of the companies. It is possible to employ ratios of a variable economic substance and a various informative--analytical significance in the ratio analysis. Regarding a great number and similarities concerning both the components and the research areas, it is necessary to select the ratios and classify them correspondingly. The most typical solution allows to distinguish four areas of the ratio analysis: liquidity, financial support, productivity, rate of return [Bednarski 1997].

The second part of the investigation concerns the causal analysis of the financial result in the companies. The most universal model which shows the subjection of the net profit to the degree of the production factors usage is the four factors model. It allows to examine the dependencies affecting the profit rate of the quantitative factors such as the changes in the employment and the rate of the equipment per employee and the qualitative factors not often demanding supplementary expenses, i.e. the assets productivity and the return on sales [Urbańczyk 1997]. The profit in this method is considered as a product of four factors:

$$Z_n = R \times T \times W_{pm} \times W_{rs},$$

where:
Z_n – net profit,
R – employment,
T – equipment per employee (total assets/employment),
W_{pm} – assets productivity (yield on sales/total equipment),
W_{rs} – return on sale (net profit/yield on sales).

The causal analysis of the net financial result of the analyzed companies comprised a comparison of two periods. The results of the analysis were presented in the form of a comparison with the preceding year, therefore they refer to the years 2003–2005. The numerical assessment of the influence of the respective factors on the value of the investigated phenomenon uses various mathematical methods. This study applies the method of logarithm. The choice of the method of logarithm was caused by the possibility of its application with four factors and the achievement of exact results which are the closest to the deviation values calculated by means of the function method. Apparently this method can seem complicated regarding the necessity of logarithms calculation. Assuming, however, the use of a computer in the logarithm finding, the difficulty in this method and the laboriousness are considerably scarce [Bednarski et al. 1996].

The method of logarithm has, however, certain limitations. It cannot apply to a situation in which at least one ratio of the dynamics has a negative value (there is no logarithm of a negative number). Therefore, another method, e.g. the partial difference method, should be applied. However, its results are less accurate.

RESULTS OF RATIO ANALYSIS

Shareholders and managers of the companies assess the economic-financial situation upon the ratios. The conducted ratio analysis indicated a considerable diversification of the investigated companies in comparison of both time and space.

The highest rate of the current liquidity in the investigated period was achieved by Jutrzenka Co., to be followed by Wawel Co. Those companies in the 2002–2005 did not have problems with the payment of their current liabilities. On the other hand, that ratio in Mieszko Co. was below 1.1 in all the analyzed years, what indicates the threat to the financial safety of the firm. The analysis of the rate of the gross debt allows to state that the highest share of the foreign equity in the firm activity was observed in Mieszko Co. in the 2002–2005. The average time of the payments amounted to 100 days in Jutrzenka Co., 99 days in Mieszko Co., and 90 days in Wawel Co. It is thus evident that those firms freeze liability assets for over 3 months. The calculated profitability ratios in Jutrzenka Co. and Wawel Co. indicated insignificant fluctuations while compared in time. The highest rate of the return on sales was noted by Jutrzenka Co. in 2004 (14.6%), whereas the highest rate of the return on assets and the return on equity were noted in Wawel Co. in 2004 (16.5% and 27.7%, respectively). The increase of all the profitability ratios in the years 2003–2005 was positively estimated in Mieszko Co.

RESULTS OF THE CAUSAL ANALYSIS WITH THE USE OF THE METHOD OF LOGARITHM

Extension of the ratio analysis with the causal analysis of the financial result employing the four factors model allows to assess its dependencies of the profit deviation on the degree of the production factors usage. For the number assessment of the influence of the respective factors on the deviation of the net profit, the method of logarithm was used in seven cases, whereas the partial difference method in two cases (Mieszko Co. in 2003 and 2004). The results of the causal analysis are shown in Table 1.

Jutrzenka Co. noted a betterment of the net profit in 2003 and 2004 in comparison to the previous year by PLN 4 953 000 and PLN 21 030 000, respectively. A positive effect on the above deviations was exercised in both years by the intensive factor, ie. the return on sale, the increase of which resulted in the betterment of the net profit by PLN 4 626 100 in 2003 and by PLN 19 798 900 in 2004. A drop in the employment contributed to a negative deviation of the profit by PLN 217 900 and PLN 1 513 900, respectively. The increase of the assets productivity in 2003 caused the increase of the net profit by PLN 683 000, whereas a decline of the equipment per employee affected a decline of the net financial result by PLN 138 200. A positive effect on the deviation of the net profit in 2004 was exercised by a betterment of the equipment per employee, whereas a negative

Table 1. Results of the causal analysis in the investigated companies
Tabela 1. Wyniki analizy przyczynowej w badanych przedsiębiorstwach

Company	Deviation of net profit (thousands PLN)	Partial deviations (thousand PLN)			
		Quantitative factors		Qualitative factors	
		Employment	Equipment per employee	Assets productivity	Return on sale
2003					
Jutrzenka	4 953.0	–217.9	–138.2	683.0	4 626.1
Mieszko	–18 331.0	–1 450.8	2 734.1	–1 123.9	–18 490.4
Wawel	1 973.0	–295.7	844.5	48.9	1 375.3
2004					
Jutrzenka	21 030.0	–1 513.9	10 417.9	–7 672.9	19 798.9
Mieszko	12 365.0	305.4	–193.3	–1 455.6	13 708.5
Wawel	13 707.0	–993.3	3 051.1	–165.8	11 815.0
2005					
Jutrzenka	–11 549.0	9 461.3	–7 222.5	7 101.5	–20 889.3
Mieszko	1 319.0	–21.7	67.6	–25.4	1 298.5
Wawel	4 254.0	–1 320.4	9 274.1	–6 101.6	2 401.9

Source: Author's calculations.
Źródło: Obliczenia własne.

one – by a decline of the assets productivity. The financial condition of Jutrzenka Co. worsened in 2005 when it noted a drop in the net profit by PLN 11 549 000 in comparison to the previous year. The company was still profitable, however, its return on sale significantly worsened which contributed to the decrease of the net profit by PLN 20 889 300. The other qualitative factor, i.e. the assets productivity, as well as the increase in the employment had a positive influence on the deviation of the profit.

Mieszko Co. noted a decrease of the net financial result by PLN 18 331 000 merely in 2003 as compared to the previous year. From a profitable company in 2002 it became a losing one, subject to the following factors: the return on sale, the assets productivity and the employment. Their decline caused a decrease in the financial result by PLN 21 065 100. The increase of the equipment per employee reduced merely a negative influence of the presented factors by PLN 2 734 100. The financial condition of the firm was successively improving in the following years. That resulted mainly from the intensive factor – the return on sale, the betterment of which caused an increase of the financial result by PLN 13 708 500 in 2004 and PLN 1 298 500 in 2005.

Wawel Co. was improving its financial result in each of the analyzed years. The highest increase of the net profit was noted in 2004 by PLN 13 707 000 in comparison to the previous year. A positive influence was exercised by two factors: a quantitative one – the equipment, and a qualitative one – the return on sale. Their betterment caused an increase of the net profit by PLN 3 051 100 and PLN 11 815 000, respectively.

On the basis of the conducted investigations and the positive effect of both qualitative factors on the deviation of the profit, it can be stated that Jutrzenka Co. and Wawel Co. were economically effective merely in 2003. Mieszko Co. was ineffective in using its resources in 2003. In the remaining years the investigated companies were characterized by a diversified effectiveness. The conducted analysis indicates that an immense effect

on the deviation of the financial result both positive and negative was due to the return on sale (intensive factor). In this connection the managing staff should analyze with full particulars the volume of sale, the production structure and the sales prices in order to improve that ratio.

CONCLUSIONS

The following conclusions emerge from the conducted study:

1. The ratio analysis indicated considerable diversification of the examined companies at the achieved rate of the respective economical ratios. It is hard to uniformly state if better management was in the firm which achieved a higher rate of productivity or in another, characterized by the optimum rate of the liquidity, considered as the basic measures in the estimation of the financial situation of the companies.
2. The causal analysis of the financial result has a practical application in the estimation of the effectiveness of the joint stock companies. Obtained results can be used by the managing staff in the more effective management of the possessed resources, while the continuation of the causal investigations concentrated on a separate, detailed estimation of each factor would allow to reach the root causes affecting the effectiveness of management.

REFERENCES

Bednarski L., Borowiecki R., Duraj J., Kurtys E., Waśniewski T., Wersty B., 1996: Analiza ekonomiczna przedsiębiorstwa, Wyd. Akademii Ekonomicznej we Wrocławiu, Wrocław.
Bednarski L., 1997: Analiza finansowa w przedsiębiorstwie, PWE Warszawa.
Urbańczyk E., 1997: Metody analizy sytuacji finansowej przedsiębiorstwa, ZAPOL Szczecin.

ZASTOSOWANIE METODY POSZUKIWANIA LOGARYTMU W ANALIZIE PRZYCZYNOWEJ WYNIKÓW FINANSOWYCH PRZEDSIĘBIORSTW SEKTORA ŻYWNOŚCIOWEGO

Streszczenie. Analiza przyczynowa umożliwia kształtowanie relacji przyczynowo-skutkowych pomiędzy zjawiskami ekonomicznymi w celu zrozumienia zmian i przygotowania podstaw decyzji dotyczących przyszłości. W analizie przyczynowej wyniki finansowe mogą być obliczane jako efekt pomnożenia dwóch, trzech lub czterech czynników. W artykule zastosowano model czteroczynnikowy dla poziomu zysku netto, przy użyciu takich czynników, jak: zmiany w poziomie zatrudnienia, zmiany w wyposażeniu na pracownika oraz innych czynników jakościowych, jak produktywność majątku i rentowność sprzedaży. W celu określenia wpływu poszczególnych czynników, zastosowano metodę poszukiwania logarytmu, która cechuje się relatywną dokładnością wyników. Analiza dotyczy wybranych przedsiębiorstw sektora żywnościowego.

Słowa kluczowe: analiza przyczynowa, zysk netto, metoda logarytmu

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LIVING STANDARD VS LIFE QUALITY BY DARIUSZ KORELESKI – A COMMENT

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Abstract. This comment discusses D. Koreleski's article in Acta Stientiarum Polonorum – Oeconomia 6 (3). The aim of the comment is firstly to discuss the article and secondly to present some completing ideas.

Key words: Gross Domestic Product per capita (GDP pc), Purchasing Power Parities (PPP), Human Development Index (HDI), quality of life, economic and social welfare, static and dynamic aspects

INTRODUCTION

According to Johnsson [1990], "the rate of growth of the economy is the most important single indication of a country's economic performance". Furthermore, "…it is the per head growth… which should be used as an indicator of the rise in human welfare. (Consumption or personal income per head more accurately reflect living standards.)" Though growth rates are often used as descriptions of economic progress, they are not always clearly defined in the literature. It is sometimes not clear, whether the changes of production possibilities or of production (in this case totally, per head of population or per employed person) are meant. In his interesting article, D. Koreleski [2007] discusses instead of growth rates the levels of living standard, i.e. the economic situation of the average individual person at a certain point of time or during a period. The level of living standard is an important information about the average person's economic situation. Furthermore, because many countries are members of international organization, the question of how to finance these organizations arises: average living standard could be a base of payments from individual member countries. Finally, by measuring the average level, when countries have different growth rates, we can investigate whether there are tendencies of convergence, whatever is meant by this.

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The objective of this comment is to firstly to discuss Koreleski's article[1]. Secondly, we want to mention some completing points of view. The comment is organized in the following way. After the introduction, in section 2 the aim of the article is presented. In section 3, different aspects of living standard and the quality of life are discussed. Section 4 presents several completing points of view, regarding the article. Section 5 consists of some final remarks.

THE AIM OF THE ARTICLE

Koreleski has in fact several aims. He is mainly interested in "…social welfare of inhabitants…". To discuss and describe this he uses the following variables:

- GDP per head of population in purchasing power parities (GDP pc PPP)
- The Human Development Index (HDI), presented by the UNDP. The HDI is a summary of GDP pc PPP, life expectancy at birth and an education index.

Furthermore, Koreleski combines GDP pc and HDI . Besides of this, he even discusses life quality, which is described by a ranking based on the Economist [2006]. Finally the article discusses the relations between living standards and quality of life.

LIVING STANDARD AND LIFE QUALITY

According to Koreleski, living standard is easier to measure than the quality of life, which is more subjective and personal, but even a more comprehensive measure. Usually living standard is expressed with the help of GDP pc PPP to eliminate differences in price levels between countries. It is not always sure, that there is a positive relation between living standard and quality of life.

The HDI comprises more dimensions than GDP pc and seems therefore to be a more complete measure of living standards than GDP pc. On the other hand, HDI includes GDP pc, and probably there are some relations between this measure and life expectancy and education.

While GDP pc can be seen as an absolute measure of living standard, HDI is more of relative character.

The quality of life index [The Economist 2006] is a ranking, consisting of nine different aspects.

- Cost of Living,
- Leisure and Culture,
- Economy,
- Environment,
- Freedom,
- Health,
- Infrastructure,
- Risk and Safety,
- Climate.

Though there are probably some positive relations between living standards and quality of life, it is not sure that economic growth always leads to an "…increase of social welfare" [Koreleski][2]. Higher GDP pc and therefore living standards could be achieved

[1] Which from now on is called "the article".

[2] Even Vogel and Wolf (2004) argue in this direction, while Johnsson (1990) seems to be more optimistic regarding the relation between growth and welfare.

through less leisure time and more working hours, which could lead to a lower quality of live. On the other hand, if people are healthier, even when they become older, a longer working life could have positive implications for life quality. Obviously, there are other aspects of the Quality of life index which could be related negatively to living standard, expressed as GDP pc or the HDI.

SOME COMPLETING POINTS OF VIEW

While both HDI and the Quality of life index are more about rankings than absolute differences, GDP and GDP pc in absolute figures can be found in many different international sources, which hopefully make country figures comparable. In this section some completing points of view regarding mostly the GDP measures in the article are presented.

First of all – though and Koreleski has mentioned this – we have to be careful when discussing welfare: GDP measures the value of goods and services production in a country during a certain period of time. After a natural disaster or war during the rebuilding period, a rise in production and therefore GDP can be observed. Nothing yet is said about the destruction of physical capital and infrastructure, which obviously influences welfare negatively. Furthermore, the informal sector of the economy is not directly included in the GDP[3].

The second point of view has to do with income distribution. If two countries have the same GDP pc and therefore even the same average standard of living, income distribution both between rich and poor and males and females matters. It is possible that a country with a lower GDP pc could have a higher standard of living – measured in a more comprehensive way – compared with another country with higher GDP pc, but very unevenly distributed incomes.

Thirdly, the question could be asked, whether GDP is the adequate measure of national income of national product. While the quantitative sizes of GDP and Gross National Income (GNI) are in most of the countries quite close, regarding Europe, we can observe large differences between these measures in Luxembourg and Ireland[4]. The level of GNI is one of the determinants of payments to Brussels for member countries of the EU. It could be a good idea to choose GNI pc as a measure of average standard of living, at least for those countries, which have large differences between GDP and GNI.

The fourth point of view is related to the idea of convergence of countries. Even Korelski discusses the question of convergence. In European Economy [1993], "real convergence" is defined as "…convergence in living standards…". To investigate whether there are tendencies of real convergence, figures from different points of time or time periods could be presented.

There seems to be an agreement that in international comparisons GDP should be measured in PPP, to eliminate the differences in price levels between countries. The fifth point of view is related to very open economies, with very high levels of imported

[3] Incomes which are earned in the informal sectors can be spent on goods and services bought and sold on markets. In this way even the informal sector can influence GDP.

[4] According to OECD, National Accounts (2007), in 2005 Irish GDP was 14.5 per cent lower and Luxembourg's GDP 18.3 per cent lower than GNI (at current prices).

consumption and investments commodities[5]. If there are large differences between a country's exchange rate and purchasing power parities in the sense that the national currencies is strongly undervalued, than PPP are probably not showing the living standard correctly. In this case, imported consumption and investment goods are paid according to the exchange rate. Probably PPP then is overestimating the average level of living standard.

Finally, Korelski's method of normalizing his figures by using the Zero Unitarization Method[6] makes it a little bit difficult to compare countries more in detail. If we are only interested in ranking, then it does not make any difference, whether we use absolute or relative figures. HDI and the Quality of Living index are more about rankings and relative situations. Regarding GDP pc, absolute figures in both exchange rates and PPP can easily be found. Probably it would have been interesting for readers to learn something about the absolute differences in GDP pc – and therefore even in living standard. Therefore, perhaps table 1 could have been presented both in the version as in the article, but even in absolute GDP pc figures.

FINAL REMARKS

According to the Presidency conclusions (even known as the Lisbon Agenda 2000), "the (European) Union has … a new strategic goal for the next decade: to become the most competitive and dynamic knowledge-based economy in the world…". The World Economic Forum [WEF 2002] "… defines a competitive country as one that"… "can provide its citizen with high and rising standards of living.…". It seems that the Lisbon agenda takes the development in the USA as a benchmark. The USA has on average higher GDP pc and employment rates than Europe. But is the quality of life higher in the USA too? In his article, Koreleski has discussed different measures of living standards. A comparison with the USA shows, that living standard and the quality of life in some European countries are higher than in the USA. As already discussed, rising living standard must not always mean rising quality of life. If rising living standard is achieved by more weekly and yearly hours of work and falling leisure time, then it is not sure that the quality of life is rising. As mentioned before, if healthier people are working more and a longer period of their life, both living standard and the quality of life can rise.

An intuitive example can illustrate that even low living standard must not mean low quality of life. Students have usually quite low standards of living during their years at the universities. Most of them yet expect that their incomes and possibilities to find interesting jobs will rise considerably after graduation. Probably when they are judging their quality of life, their actual living standard has only limited significance. The expected positive future is probably more important for students. The argumentation even shows (see more in Koreleski's article) that while living standard is a static concept, limited to a certain period or point of time, life quality has dynamic aspects, comprising the past, the present and the future.

[5] And usually even high exports of goods and services, which too are paid according to the exchange rates.

[6] The country with the highest value of GDP pc or HDI receives the value of 1, while the country with the lowest values receives 0.

Finally, the author of this comment wants to mention that Koreleski's article is very interesting, urgent and inspiring for future research.

REFERENCES

European Commission, 1993: European Economy No 54, Annual Economic Report, Luxembourg.
Johnsson C., 1990: Measuring the Economy, Penguin Books.
Koreleski D., 2007: Living Standard VS Life Quality. Acta Sci. Pol. Oeconomia 6(3), Warsaw.
Lisbon European Council, (2000: Presidency Conclusions, DOC/00/8; http://europa.eu.int/comm/off/index_eu.htm
OECD, 2007: National Accounts of OECD Countries – Main Aggregates, Paris.
The Economist, 2006: The Economist Intelligence Unit's 2006 Quality of Life Index, http://www.i-ireland.com/il/qofl06/index.php
United Nations Development Programme, 2006: Human Development Report 2006, Palgrave MacMillan, New York.
Vogel J., Wolf M., 2004: Sverige I täten, Välfärd Nr. 1, SCB, www.scb.se/valfard
World Economic Forum – WEF, 2002: The Lisbon Review 2002 – 2003; An Assessment of Policies and Reforms in Europe, Geneva.

STANDARD ŻYCIA A JAKOŚĆ ŻYCIA – KOMENTARZ DO ARTYKUŁU DARIUSZA KORELESKIEGO

Streszczenie. Autor poddaje dyskusji artykuł D. Koreleskiego pt. Standard życia a jakość życia, opublikowany w Acta Stientiarum Polonorum – Oeconomia 6(3). Celem komentarza jest dyskusja ze stanowiskiem autora komentowanej pracy, a następnie uzupełnienie go o dodatkowe aspekty.

Słowa kluczowe: Produkt krajowy brutto per capita, parytet siły nabywczej, wskaźnik rozwoju społecznego, jakość życia, ekonomiczny i społeczny standard życia, aspekt statyczny i dynamiczny

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