



INSTITUTE OF AGRICULTURAL
AND FOOD ECONOMICS
NATIONAL RESEARCH INSTITUTE

***The Polish
agro-food economy
after the four years
of the EU membership***

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THE ECONOMIC AND SOCIAL CONDITIONS
OF THE DEVELOPMENT OF THE POLISH FOOD
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Multi-author work

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All the authors are the researchers of the Institute of Agricultural and Food Economics – National Research Institute (IAFE – NRI).

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I. The dispute flared up about globalization influence

Globalization and a technology revolution, in particular the development of a global telecommunications infrastructure and information technology, result in growth of competition. What in the past could be produced only in the developed countries for technological reasons, nowadays can as well be produced in almost every place in the world, because of global nature of modern technologies.

For this reason many researchers point to the need for liberalization of the global economy giving the example of many countries which overcame an economic and social crisis thanks to their economic freedom. The results of research by Sachs and Warner published in 1995, concerning 135 countries in the period 1970-1985, show that the poorer countries following reasonably efficient economic policies, mainly open trade policy, have the growth rates higher by 2.5% per annum.

The analysis of the relation between the size of the public sector in the national economy and the growth rate confirmed a definite negative correlation – the smaller the public sector the higher the growth rate¹. There is also a similar relationship between the growth rate and the taxation rate. Also in this case there is a negative, although not very high correlation, with the correlation coefficient at the medium level².

The above observations lead to the conclusion that liberalization of the economy is conducive to the country's wealth. Most of economists and sociologists can agree with that conclusion. Controversy arises over the assessment of social effects of the economic growth.

Growth – that is the production of bigger amounts of goods and services – for growth's sake should not be the only aim. The growth process is almost by definition unbalanced. In no economy, be it developed or developing, do the benefits of the growth process accrue equally to all individuals. The general opinion is that the rich are the main beneficiaries of the economic growth. The tendencies observed in the world economy and the widening income gap between the rich and the poor countries seem to support the opinion. At the beginning of the 1960s an average income per capita in the seven richest countries was 25-fold higher than in the seven poorest countries, while at

¹ J. Gwartney, R. Lawson, R. Holcombe, *The Scope of Government and the Wealth of Nations*, „Cato Journal” 1998, Vol. 18 (2), pages 163-190).

² See among others OECD reports.

the turn of the millennium the figure was 39-fold higher³. However, there are various criticisms of the measurement, because of some methodological problems involved in measuring income distribution. The results do not take into account the purchasing power parity. These indicators inform about the changes in the economic situation of countries only to some extent. The research taking into consideration the purchasing power of different currencies conducted by the Norwegian Institute of International Affairs shows that the disparities between the countries in fact have been on the decrease since the late 1970s. The fast convergence was recorded particularly between the years 1993 and 1998 when the globalization process speeded up. The study conducted at Columbia University by Xavier Sala-i-Martin, whose works include the topics of economic development, leads to similar conclusions⁴. When considering the disparities between individuals, not between countries, the global inequality in the year 2000 appears to have been at the lowest level since the World War II. Between the years 1965 and 1998 the average income per capita of all individuals of the world – taking into account purchasing power and annual average inflation – grew from 2,497 to 4,839 USD, i.e. more than doubled. The rise of the average income was not only a result of growing incomes in the richest and most developed countries. Over the aforementioned period one-fifth of the world population living in the richest countries increased their average income from 8,315 to 14,623 USD (that is by approx. 75 per cent), while another one-fifth living in the poorest countries managed to increase their average income per capita from 551 to 1,137 USD, which is even more than by 100 per cent. The global consumption is nowadays over twice as much as in the 1960s.

Thanks to the growth in the second half of the 20th century, over 3 billion people live above the poverty line. The UNDP reports that the poverty has decreased over the last fifty years more than during the last five centuries.

The area of poverty is still shrinking. Extreme poverty is often defined as living on less than 1 USD per day. In 1820 approx. 85 per cent of the world population lived on the equivalent of 1 USD a day. Until 1950 this number fell to 50 per cent, and in 1980 it accounted for approx. 30 per cent. The World Bank data shows that the proportion of the world population living in extreme economic poverty has fallen from 31 per cent in 1980 to the current level of approx. 20 per cent (most often the number quoted is 24 per cent which is the share of the developing world population in the total world population).

³ See A. Dylus, *Globalizacja. Refleksje etyczne*. Warszawa Ossolineum 2005, page 37 and the UNDP *Human Development Report* of 1999.

⁴ Xavier Sala-i-Martin, "The Disturbing "Rise" of Global Income Inequality", National Bureau of Economic Research Working Paper no. 8904, <http://www.nber.org/papers/w8904>.

However, the improvement that occurred over the last twenty years is an unprecedented phenomenon. It is also worth underlining that during the last two decades the world population has increased by above 1.5 billion people, whereas the number of people living in extreme poverty has declined by as much as 200 million. This fall is due to the economic growth.

This data seems to be reflected in the Human Development Index (HDI) according to the UNDP. It shows even a greater decrease in poverty and inequalities than the Norwegian report does. The HDI is a combination of different indicators of development: income, educational attainment, life expectancy. It varies between 0 denoting extreme poverty and 1 denoting economic prosperity. Over the last forty years the HDI has increased in all groups of countries, but its value increased the fastest for the poorest countries. Between the years 1963 and 1993 in the OECD countries the HDI increased from 0.8 to 0.91, while in the developing countries – from 0.26 to 0.56.

When analysing the disparities in the 70 selected countries, a prominent American economist G.W. Scully came to the conclusion that more equal income distribution is observed in the countries having a liberal economy, an open market and respecting ownership rights. In such countries the middle class has more economic assets than the upper class. The share of the gross domestic product received by the richest one-fifth of the population in the countries with liberal economies was by 25 per cent lower than in the other ones. Despite the fact that some part of the gross domestic product received by the poorest one-fifth of the population did not depend on the degree of economic freedom of a particular country, the real incomes of the poorest in the countries with liberal economies were significantly higher⁵.

This tendency is reflected in the transition process in the Central and Eastern European countries and the Commonwealth of Independent States (CIS). The countries that increased the degree of economic freedom and civil liberties recorded also the higher growth rates of work efficiency and the higher real incomes per capita as well as the smaller growth of income inequalities than the countries which were reluctant to launch economic reforms. The countries with liberal and market oriented economies recorded the relatively smaller growth of differences in real incomes between individuals than the countries where the reforms never achieved the high level. The comparison of the dynamically developing economy of China with the economies of India and Pakistan leads to the similar conclusions. The income inequality in the communist Republic of China is significantly greater than in India or Pakistan.

⁵ G.W. Scully, *Constitutional Environments and Economic Growth*, Princeton University Press, 1992.

There are also more chances in the countries with liberal economies to get out of poverty. In the USA the total wealth of the richest 1% of the population, i.e. 2.7 million people is equal to the total wealth of the poorest 38% of the population, i.e. 100 million people. The poorest one-fifth of the U.S. population receives only 3.6 per cent of the gross domestic product. However, thanks to the great mobility of individuals, taking advantage of the skills acquired at school and practical work experience, only 5.1 per cent of those who in 1975 had belonged to the poorest one-fifth of the population remained in that social group until 1991. At the same time almost 30 per cent of them moved to the richest one-fifth of the population and 60 per cent of them – to the richest two-fifths of the population.

The best cure for poverty is the chance to improve the socio-economic status. In the USA it takes 4 months on average to get out of poverty for people who live below the poverty line. The percentage of people who are absolutely poor i.e. living below the poverty line for more than two years is 4% only.

Disparities in the distribution of economic assets and income are reflected in the health of populations and life expectancy. People in the developing countries live on average 25 years shorter in comparison with the developed world. It should however be underlined that the life expectancy has greatly increased in the developing world in recent years and is starting to close the gap to the developed world where the improvement has been smaller. In the 1960s the average life expectancy in the poor countries was at the level by over 40% lower than in the richest countries, whereas at present – by 20%.

The best measure of the standard of living is probably the infant mortality rate. In the developing countries the infant mortality rate is on the decrease. In 1950 18 per cent (almost one in five) newborns died, but in 1976 this rate declined to 11 per cent, in 1995 it declined to 6 per cent. Over the last thirty years the infant mortality has fallen by more than half, from 107 deaths of infants per 1000 live births in 1970 to 59 deaths of infants per 1000 live births in 1998. Despite living in poverty more and more people can survive nowadays. Because people in the poor countries live longer and the number of people living in poverty is decreasing, it means that the area of poverty is shrinking faster than it would appear from the superficial analysis of the statistics.

One of the most effective ways of improving the socio-economic status and achieving better perspectives is education. Unfortunately, many people have still no chance of it. There are also gender differences in the access to education: 65 per cent of people doomed to illiteracy is female. Education is related to the problem of poverty. In many countries the poorest people do not get any education. Poor families cannot afford to send children to schools because

the school fees are too high and the scholarships and other forms of financial assistance are insufficient. Not surprisingly therefore, the level of education is correlated with the economic development. On the other hand, the higher level of education is one of the main factors stimulating economic growth.

The share of the world population educated at primary level is rising fast reaching nearly 100% with the exception of Sub-Saharan Africa, but even there the share has already increased to three-fourths of the population. The percentage of the world population with secondary education increased from 25 per cent in 1960 to 67 percent in 1995. At the same time the number of children who started their education increased to 80 per cent. Unfortunately, there are still approx. 900 million adult illiterates in the world.

The rapid deterioration of the environment is attributed to the globalization process. It is often claimed that many factories are moved from the developed world to the developing countries where there are no environmental regulations and therefore they can pollute freely. To cope with the competition, the Western countries will also have to lower the environmental standards. Thus it seems that there is a connection between better opportunities, advances in technology and better access to natural resources and pollution. But does the conflict between development and nature conservation really exist?

Contrary to popular belief, it is wrong to assume that technological advance brings environmental damage. There is no massive inflow of foreign investments to the countries with low environmental standards, neither is there any global pressure to lower the standards. The majority of American and European investors move to the countries respecting environmental protection. There was much concern over a rush of the U.S. companies to invest in Mexico after signing the agreements within the NAFTA, but without mentioning the fact that the free trade agreements obligated Mexico to enforce the environmental laws. Also the new member states of the enlarged EU increased the public expenditures on environmental protection.

Some economists believe that the globalization leads to marginalization of many sectors such as agriculture. The position of agriculture, as geographically and economically distant from consumers, is regarded as weak. Agriculture is characterized by many specific features in comparison with industry. The speed of technological innovation is much slower and moreover, new technologies are beyond the reach of many small holdings, particularly in the developing countries. Agricultural markets are rather unstable because of the changeable climatic conditions and a high incidence of speculation, which lead to the significant fluctuation in prices and agricultural incomes. Agriculture encompasses many other spheres in addition to the production sphere. Living standards, the natural

environment, the landscape as well as the social balance depend to a significant extent on the type of agriculture. That is why many governments adopt more active agricultural policies with systems of guaranteed prices, import tariffs and direct payments. However, these measures distort the competition.

In the 30 most developed countries 311 billion USD was allocated for national agricultural support in 2001⁶. However, the agricultural support in the rich countries simultaneously hit agricultures in the poor countries. The average support for one dairy cow in European countries amounts to approx. 2 USD per day, that is as much as the daily income per capita of numerous residents of what we used to call the Third World⁷.

The barriers to imports imposed by the developed countries put serious obstacles in the way of some countries trying to enter their markets, while the developed countries enjoy free trade within the WTO and implement various structural adjustment plans. Moreover, export subsidies and direct payments in the EU, the U.S. and Japan can create bottleneck to market development, affecting strongly the development of the agro-food sectors in the less developed countries in particular. The inflow of grain from the countries characterised by 200 to 300 times higher production efficiency caused in the years 1965-1985 the fall in the volume of grain production in the countries of Tropical Africa. In the case of poultry meat a similar phenomenon is observed in Sub-Saharan Africa, and in the case of milk production in Ecuador or Peru. The impoverishment of small agricultural producers (whose number accounts for two-thirds of the vocationally active people in Sub-Saharan Africa) contributes to the difficulties experienced by the countries on their way to strong and stable economic growth.

Despite such unequal conditions of competition, during the last fifty years the global production of food has doubled and in the developing countries it has even tripled. The largest growth was recorded in the developing countries, but only a small part of it results from the enlargement in the area of crops. Since the early 1980s the prices of food have fallen by half and the agricultural productivity has increased by 25 per cent. This process was faster and more visible in the poor countries.

However, the issue of the impact of globalization and liberalization on the economic and social development remains unresolved. Also contentious is the impact of the liberalization on world and Polish agricultures.

⁶ M. Kuźmicz, *Bogaci i biedni przy jednym stole*, „Gazeta Wyborcza” of 27 December 2002.

⁷ J.E. Stiglitz, *Komu pomoże szczyt w Cancun?* – cited after W. Szymański *Interesy i sprzeczności globalizacji. Wprowadzenie do ekonomii ery globalizacji*, Warszawa 2004, p. 189.

II. Development strategy of the Polish agri-food economy in the EU structures

Poland joined the EU in 2004, in the hope of obtaining assistance from the EU for the development of rural areas and the agri-food sector. One of the reasons in favour of the accession was the stabilisation of foundations of agricultural policy which would enable farmers to make long-term plans and ensure predictability of the production and investment operations. The accession to the EU raised hopes of deep restructuring and modernization of the agri-food sector, increasing competitiveness of the food production and reaching the significant growth of surplus in the balance of foreign trade in agri-food products as well as an improvement in income situation of rural inhabitants, multi-functional development of the rural areas and conservation of precious natural resources. To achieve these goals substantial funds were needed both from the EU and the national budget in the form of financial support for investments, direct payments and further actions to enhance competitiveness.

There were also some reasons for concern of the Polish farmers and institutions associated with agriculture about the integration with the EU, among others because of: unequal conditions of competition (lower level of direct payments in comparison with the old EU member states), lower competitive position due to lower labour productivity in the agriculture and the food industry than in the EU-15 on average, limitation of the production capacities by production quotas and other limits, restructuring of the agricultural sector on the basis of the structural policy of the old member states (e.g. reduction of support funds for the investments which indirectly cause the growth in production potential of agricultural holdings) and the CAP reform approved in June 2003 without Poland's (nor the other candidate countries') participation.

However, Poland's accession to the EU has exerted more beneficial influence on the agricultural and food sector and the rural areas than expected. As a result, the growth in exports and the increase in domestic demand were observed, followed by the growth in agricultural incomes and the improvement in profitability in the food industry. Although the global agricultural production stayed at the similar level in the years 2001-2003 and 2004-2007, but the signs of revival appeared, among others, in the production of live cattle, poultry and

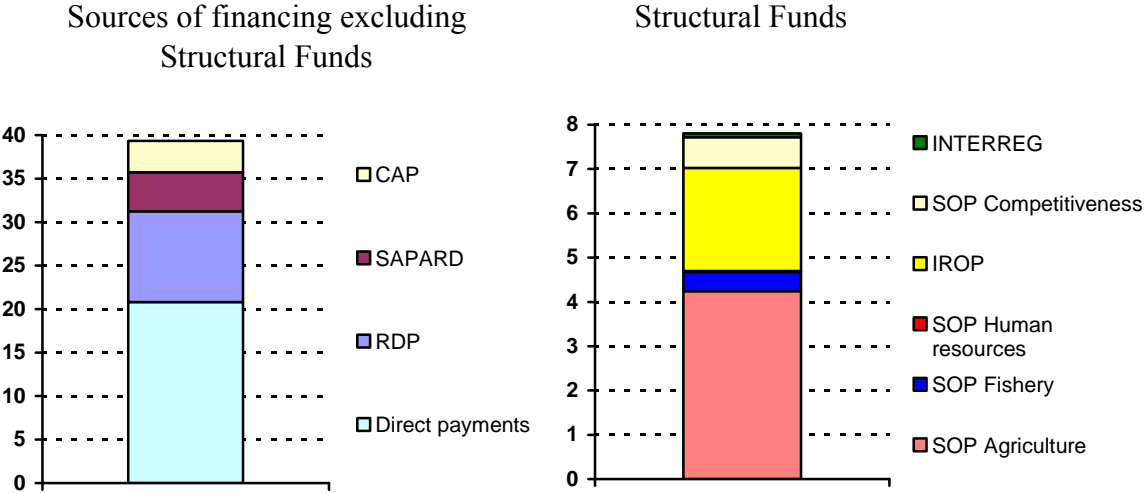
eggs. At the same period the commercial agricultural production was on the increase (by 6-8% per annum) and its linkages with the market strengthened. In 2004, as a result of introducing direct payments, the agricultural incomes more than doubled and in the following years the tendency of growth by approx. 3% per annum has been noted (in relation to the year 2004). The main reasons of the situation favourable to the farmers whose incomes grew faster than production costs were: significant development of production techniques, replacement of more expensive production means by cheaper ones, improvement in the agrarian structures and the growth in the commercial agricultural production.

Also the economic results and the position of the Polish food industry in the years 2004-2007 show that also that sector of the national economy was very well prepared for the integration with the European Union. The processes of restructuring and modernization of the food industry in the whole transition period and the adjustments of food processing plants to the EU standards have proved that the food industry made good use of the chances that had appeared as a result of the opening of the lucrative EU market. Starting from 2003, the sold production of the food industry has been growing at the pace of 7-9% per annum. Exports of agri-food products in the years 2003-2007 increased from 4 billion euros to 9.8 billion euros, while imports from 3.6 billion euros to 7.8 billion euros. The surplus in the foreign trade of the agricultural and food products grew fourfold, to almost 2 billion euros. The long-standing trend towards improvement and stabilization of the economic and financial results of the main segments of the food production was observed. It was accompanied by the stabilization of the organizational structures of the food sector. The high competitiveness of the Polish food producers resulted from the lower costs of the production factors, in particular lower labour costs, as well as the huge investments in modernization of the food industry and technological innovation, estimated at 5-6 billion zlotys per annum in recent years, which led to their cost and price advantages.

The positive trends in the food sector and in the rural development had their source in the utilisation of the Structural Funds (SF) and the financial support within the Common Agricultural Policy (CAP). Their beneficial effects were related to agriculture, fishery, food processing, entrepreneurial activity, development of human resources, modernization of physical infrastructure, environmental protection and other more complex actions. The investments conducted in the pre-accession period and during the membership contributed to the modernization, the increase in competitiveness and the adjustment to the EU sanitary and veterinary standards of almost 3,000 food companies. Over 140,000

agricultural holdings invested in modernization and new production techniques or in diversification of the sources of incomes. Approximately 1.5 mill. farmers receive the direct payments every year. The total value of financial support to agriculture, food economy and rural areas in the period from May 2007 to the end of September 2007 was above 48 billion zlotys of which almost 40 billion zlotys was disbursed from the CAP funds. The value exceeded fivefold the total value of payments for rural areas within the structural funds (8 billion zlotys). The transfers via the agricultural fund, i.e. the FEOGA fund, exceeded 44 billion zlotys, while the remaining transfers of Structural Funds directed to rural areas (apart from the SOP Transport programme) amounted to over 3 billion zlotys. The support funds and the capital flows progressively contribute to increase competitiveness of the food sector as well as to improve the situation of the rural areas lagging behind in development, although the present capabilities to finance much needed infrastructure and other projects are still too small.

**The financial transfers to the food economy and rural areas
(in the period from May 2004 to September 2007, in billion zlotys)**



The shift from closed markets to open and competitive markets was not, however, an easy task for agriculture and the food economy. The fact that the prices of agri-food products in Poland edge up to the level recorded in the “old” EU member states has a negative impact on the economy which leads to the growing inflationary pressure and the decrease in price competitiveness of the Polish food products. The price relations on the agricultural and food market were also unfavourable for the agriculture. The downward tendency in the prices of agricultural products, in relation to both prices of means of production and prices of processed food products has been observed. As a consequence, the index of price relations was on the decrease, which

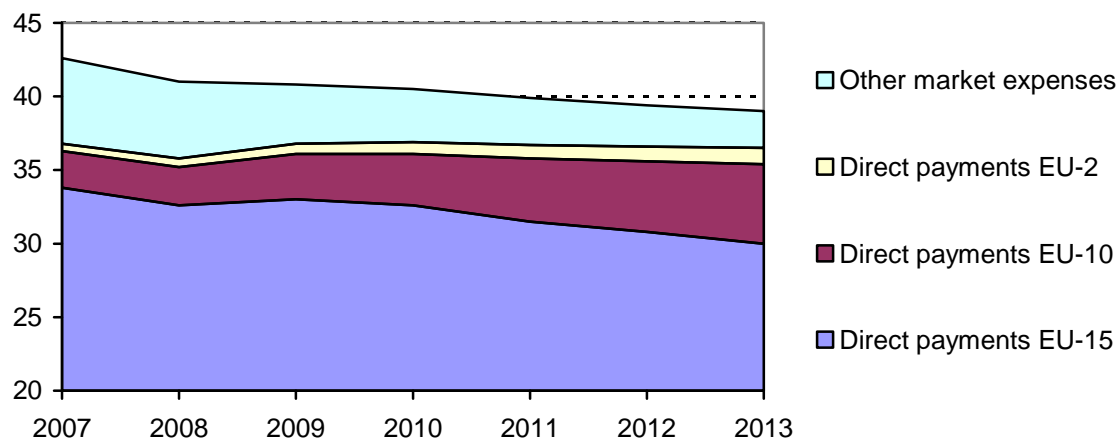
meant that the suppliers of the means of production gained a greater part of the additional income of agriculture.

The specialization and concentration of production and the requirements in the scope of standardization and quality of food products required many structural changes which resulted in the decline in biological diversity in farming environments. As a consequence, there are fewer species in intensive agricultural production regions with little diversity in the landscape structure due to among others the decrease in grazing and cattle husbandry. In the past years, agricultural landscape has lost many of its features: cows grazing in farms' surroundings have become increasingly rare, horses are replaced by farm tractors, meadows and pastures – by plantations of conifer trees. The process of depopulation in peripheral rural areas is also observed. Young people often leave their villages to look for jobs and a higher living standard in urban areas. This outflow of young people deprives the villages of their valuable human capital. The social and cultural picture of villages is dynamically changed. Cultivation of energy crops is harmful to the environment and probably to health of people too. This problem can manifest itself when the cultivation becomes more popular. These actions will have also their consequences in the form of pressure for the further growth of food prices.

When considering the development strategy of the Polish food economy in the EU structures the forthcoming „health check”¹ on the existing CAP policies and the review of all aspects of EU budgetary spending planned for the period 2008/2009 should be taken into account. The “health check” of CAP will be a continuation of the debate over the reforms initiated in 2003 with regard to: the introduction of the single payment system (SPS), the principle of modulation and further decoupling of direct payments, the changes in Pillar 2 of the CAP and the reforms on the sugar market (2006) and the fruit and vegetable market (2007). Therefore the „health check” will include a debate about future CAP reforms. They will be focused on further simplification of the CAP, the increase in efficiency of the direct support system, the adjustment of the existing market support instruments to the needs of the enlarged EU-27, highlighting the major challenges for future agricultural and rural policy, such as climatic changes, biofuel, water resources management and maintaining the biological diversity. The European Commission hopes that some of them will enter into force in 2008. The aim of the reform will also be the limitation of the EU budgetary spending for agriculture.

¹ fr. bilan de sante

Proposal for changes in the net expenditure from the FEOGA agricultural budget (in billion euros)



There are a range of options available for the renewed CAP, among others the evolution scenario and the scenario of full liberalization. The former means further decoupling of support from production, the higher rate of compulsory modulation for direct payments, the limitation of the payments for the biggest holdings, the gradual decline in intervention on the agricultural markets and the moderate liberalization of the world trade. The latter means the application of the market economy in agriculture, i.e. the abandonment of intervention purchases and direct payments and the liberalization of the world trade in agricultural and food products. The scenario also assumes the reinforcement of Pillar 2 of the CAP and the evolution of the CAP into the policy stimulating structural changes in agricultural holdings, directing the stream of support payments to market-oriented production only and on the basis of the *cross-compliance* criteria. The numerous analyses show that the mixed model for the future CAP from the perspective of the European agriculture would be optimal. Nevertheless, it seems that all actions both undertaken and planned are necessary to create a stable and balanced model of the European agriculture for the 21st century in spite of the fact that the EU member states (especially new ones) are not quite agreeable to some instruments.

Poland so far has been lagging behind the „old” EU member states in development of production and economic structures of agriculture. The average economic farm size, measured in ESU², is significantly lower in comparison with agricultural holdings in most of the EU-15 member states (except for the similarly weak holdings in Greece, Ireland and Portugal). Poland is therefore still at the beginning of the transformation path that the majority of the „old”

² eng. European size unit

member states passed in previous decades. They underwent the fundamental structural transformation in agriculture before under cover of the intervention and protection policy. Obviously, it was not possible to create so excellent conditions for development of the Polish agriculture as for the „old” member states till the end of the 1980s. It is advisable to exploit to the maximum the existing EU agricultural policy in order to enhance the competitiveness of the Polish agriculture within a possibly short time.

On accession to the EU in 2004 Poland became a member of one of the multinational systems which exert influence on the European and the world food markets. The future shape of the CAP should therefore be an effect of a compromise between all member states taking into account the country-specific problems in order to strengthen the EU negotiating position and to enhance the competitiveness on the global market. Taking into consideration the Polish experience from the process of transformation of the economy a certain hierarchy of objectives in relation to the renewed CAP should be defined:

- to maintain its community character (the common rules of functioning and financing from the EU budget). Otherwise the fair competition within the Community would be threatened. The further reforms of CAP, resulting both from the internal and external conditions, should be implemented in accordance with the basic principles of this policy, i.e. the principle of the Single European Market, the principle of preference for the Community members, the principle of uniformity of instruments and the principle of financial solidarity;
- to ensure equal conditions of competition in the enlarged EU, e.g. to reduce differences in the amounts of direct payments;
- to support investments in the agriculture and the food industry directed at quality, competitiveness as well as production growth;
- to simplify the existing market instruments;
- to unify the tax laws in agriculture and then in the whole EU economy;
- to increase the support for multifunctional and sustainable development of rural areas;
- to stimulate investment activity aimed at environmental protection, animal welfare, conservation of the countryside and natural resources of agriculture.

The main area of trade in the Polish food products is (and will continue to be) the single market of the EU together with the domestic market. For that reason the investments in the food sector co-financed from the public funds should be directed to the improvement of food quality and competitiveness of production, adoption of new technologies, expansion of trade into new markets,

innovative activities and better waste and by-product management. The necessity for the EU to abolish export refunds, as a result of the negotiations led within the Doha Round (by the end of 2013), the tariff reductions by at least 50% and the reduction of domestic support disturbing the agricultural trade (by approx. 70% in the form of Aggregate Measure of Support – AMS) will speed up the EU decision to abolish production quotas also. The system of production quotas is a market instrument, adjusting supply to existing demand, but simultaneously it creates barriers to market development. The growth of production and exports is limited by the amounts of production quotas even in the conditions of competitive advantages over other countries. As a result of the elimination of quotas and the expected growth of agricultural production, the producers from the non-EU countries will not be able to capture a large share of the EU food market.

Future national rural policy, related also to agriculture, ought to take into account the continuous process of polarization of rural areas into agricultural and non-agricultural spheres. This polarization concerns rural inhabitants, households and individual enterprises (including also agricultural enterprises). The tendency to harmonise these two spheres of economic activity of the rural inhabitants is growing in importance. The support for development of rural areas from public funds should be allocated according to the concept of integrated development of rural areas. This concept is based on the comprehensive approach that takes into account the production, social and environmental aspects of development. The strategy of integrated development embraces activities that are launched at different levels: the EU, national, regional and local ones. It is essential that the resources available for the support are used so that they yield the maximum amount of positive influence in the rural areas.

III. Impact of the EU funds on the development of agriculture and rural areas in the first years of the membership

Introductory remarks

The development of the agriculture and the rural areas in the first years of the membership was influenced first of all by two programmes initiated after Poland's accession to the EU and co-financed from the EU funds: Rural Development Plan 2004-2006 (hereinafter referred to as RDP) and Sectoral Operational Programme „Restructuring and Modernization of the Food Sector and Rural Development 2004-2006” (hereinafter referred to as SOPR), as well as the pre-accession programme SAPARD. Despite the fact that SAPARD had been implemented mainly in the pre-accession period, the effects of the investments supported by the resources under SAPARD were fully visible after the accession. As RDP and SOPR were implemented in accordance with the n+2 rule¹, some co-financed projects (to be completed by the end of 2008) are still at the stage of implementation and settlement. Their cumulative effect will manifest itself no sooner than in 2009.

The Rural Development Plan 2007-2013 had no influence on the development of the agriculture and the rural areas in the period concerned because it was put into operation in the second half of 2007, that is why it is not covered by the analysis.

The total amount of both the EU and the national funds directed to the Polish agriculture and rural areas under SAPARD, RDP and SOPR programmes was over 6.3 billion euros, that is over 24 billion zlotys. Of this total, the EU financing amounted to almost 4.8 billion euros and the national funds (from the state budget as well as the budgets of local self-governments) amounted to almost 1.6 billion euros (see table below). The exact amount of the support is still unknown, because only the payment implementation under the SAPARD has been completed so far. The settlement of accounts of the two other programmes will have been completed by the end of 2008.

Despite the substantial public resources available within the three programmes, beneficiaries were obliged to make own contributions, sometimes exceeding 50% of the real costs of the project, as well as to have the resources to finance either the whole investment or the subsequent part of it at least (in case

¹ According to the n+2 principle, the amount concerned is left open and is not subject to decommitment until the end of the second year after the decision is taken.

of large investments). One of the EU principles is that the reimbursement follows the completion of the whole project or one of its parts.

The above mentioned programmes were not the only EU sources of financing agricultural and rural development in the first years of the membership. Direct payments were also an important source of the support. Until 30 June 2007 the direct payments received by farmers totalled approx. 20.8 billion zlotys and farmers were free to decide how to spend them. Obviously, some part of the money was used for consumption, another part – for investment in the agricultural holdings. There are no reliable data regarding the way of utilization of the direct payments by beneficiaries. Therefore, their direct influence on the development of agriculture is unknown. The indirect influence of the direct payments on farm incomes after the accession and the economic situation of the Polish agriculture was big, but not easy to estimate as well. The improvement in the economic situation was reflected in the level of investments in the period concerned.

The development of rural areas is also co-financed from the funds directed towards the development of technical infrastructure, environmental protection and regional development. The special programmes include also active measures affecting rural development. The highest value of funds – approx. 470 million euros under the Integrated Regional Operational Programme (IROP) is dedicated to the purpose of construction and modernization of technical infrastructure in rural areas (e.g. water and sewage systems, waste water treatment, solid waste management, roads and motorways, adaptation of areas for business needs, tourist facilities and restoration of cultural heritage). Moreover, under IROP and the other programmes there are some measures which the self-governments in rural as well as urban areas can apply (e.g. supporting micro-enterprises employing less than 10 workers). However, there is some concern that the urban self-governments will tend to absorb most of these funds because of their ability to seek assistance. We will be able to verify the opinion just after the settlement of accounts of the EU programmes (to be completed by the end of 2008), which based on the resources within the previous multi-annual budget. Some projects implemented at the country scale and co-financed from the EU funds, but not directed towards rural areas, stimulated their development anyway. For example, the construction and modernization of roads and motorways always greatly increase the attractiveness of the land as investment and tourist areas.

SAPARD programme

The aim of SAPARD programme was to help the candidate countries, including Poland, to tackle the problems confronting rural areas as well as in the implementation of the EU veterinary, food safety, food quality, environmental and animal welfare standards by the agricultural holdings and the plants in four sectors of the agro-food industry: dairy, meat, fish, fruit and vegetable. The adjustment to the EU standards proved to be a challenge much harder than expected. According to the Polish veterinary and sanitary inspections, only a small group of enterprises in each of the four sectors had matched them at first. The plants that did not fulfil the EU standards on the day of the accession automatically lost the right to sell their products not only on the EU markets, but also on the less restrictive domestic market (with the exception of some companies which were allowed to continue the adjustments after the accession). No possibilities to sell the products meant for them liquidation or temporary closure at least.

The situation prior to the SAPARD implementation in the three sectors processing raw materials of animal origin threatened not only the particular companies. It posed also a threat to the strong development of the whole food economy after Poland's entry into the EU structures which resulted among others in the elimination of the tariff and non-tariff barriers to trade. If the Polish agro-food sector had not ensured sufficiently big supplies of milk, meat, fish and fruit and vegetable products fulfilling the EU standards, Poland would not have been able to take up the export opportunities arising from the membership.

The resources available under SAPARD helped to finance the adjustments to the EU standards and contributed to better preparations of the four sectors for the membership. The investments co-financed by the SAPARD resources enabled the implementation of the HACCP system in 581 plants, including 300 plants of the meat sector, 127 plants of the milk sector, 102 plants of the fruit and vegetable sector and 52 plants of the fish sector. At the same time 747 plants succeeded in adjusting to the EU standards, including 412 plants of the meat sector, 154 plants of the milk sector, 130 plants of the fruit and vegetable sector and 51 plants of the fish sector. The plants of the milk sector bought also 320 cisterns for transportation of raw milk, which definitely improved its quality². The adjustment of many plants in the four sectors of the agro-food industry to the EU standards is a major success of the program. After the accession exports increased, and Poland recorded the growing surplus

² *ARiMR – trzy lata po akcesji*, ARiMR, Warszawa 2007, page 133.

in the total balance of trade in agricultural and food products including the trade balance with the EU member states.

The other measures under the SAPARD aimed at supporting (1) investments in agricultural holdings, (2) improvement in technical infrastructure in rural areas and (3) projects enhancing the non-agricultural activity in rural areas. The investment projects in the scope of the technical infrastructure, prepared by local self-governments, were implemented without any problems. The self-governments, supported by the SAPARD funds financed among others the construction of approx. 6,200 km of pipeline networks, 191 water treatment facilities, approx. 6,200 km of sewage systems, 189 sewage treatment facilities and 2,403 farm sewage treatment facilities as well as the construction or modernization of over 3,700 km of local and district roads.

The biggest difficulties arose in connection with the investment process on farms. At the beginning farmers were not interested in receiving the support from the SAPARD programme and there was much concern that the appropriated resources would not be fully utilised. In the last months of the operation of the programme many farmers decided to take advantage of the SAPARD aid, but they most often tried to obtain support for purchases of agricultural machinery, especially tractors. However, the main assumption of the programme was the modernization of holdings specialized in rearing milk and beef cattle, sheep, poultry for slaughter and pigs. The assumptions of the programme were therefore unsatisfied³. The SAPARD contribution was used only by about 40 holdings rearing beef cattle and 27 holdings rearing sheep⁴, and the effects of the support are insignificant (e.g. 30 pieces of machinery for the production of fodder and 79 pieces of other types of machines as well as 534 heads of cattle and 348 heads of sheep were purchased only). The effects of support in the case of the holdings rearing milk cattle and pigs are bigger, but also much less than assumed⁵. The period was characterised by huge scale of modernization of holdings rearing milk cattle (which was proved by

³ The programme assumed the modernization of 8-9 thousand holdings rearing milk cattle, 3-3.5 thousand holdings rearing beef cattle, 800-1000 sheep holdings and 1.8-2 thousand pig holdings, SAPARD, The operational programme for Poland, version of 12 September 2000, page 90.

⁴ The number of holdings which took advantage of the support is unknown, only the number of the settled agreements is recorded, as above, page 133.

⁵ 1,017 projects implemented by holdings rearing cattle have been settled, including 157 barns (construction, modernization), purchase of 252 milking machines and 177 chillers, the construction of 203 manure pads and 206 containers for liquid manure. Among the settled 768 projects concerning pig holdings, among others 208 buildings were repaired, 155 manure pads were constructed and 212 containers for liquid manure and slurry were installed.

the fast improvement in quality of raw milk) thanks to the own financial resources or the preferential credits (the milk sector programme).

The funds available under one of the SAPARD measures („Diversification of economic activity in rural areas”) were used to purchase more than 24,000 pieces of machinery, so the programme of modernization of agricultural holdings became in fact the programme of their mechanization. The agricultural holdings that were supported by the SAPARD funds invested mostly in agricultural machinery and equipment, and therefore the SAPARD programme had little impact on the development of their production potential. Because rather a small number of beneficiaries were financed by SAPARD, the macro-scale effects of the programme were insignificant.

RDP and SOPR programmes

The total value of funds allocated to agro-food sector under both the RDP and the SOPR programmes, which were launched after Poland’s accession to the EU, was almost six times higher than under SAPARD. Taking also into account almost 0.5 billion euros under IROP appropriated to the improvement in technical infrastructure in rural areas, the amount of the support directed to agriculture and rural areas in the first three years of the membership was significantly greater than in the pre-accession period. However, contrary to SAPARD, these programmes are characterized by dispersion of the resources among many measures, including also ones having little in common with development. Under RDP there was also almost 0.7 billion euros allocated to the complements to area-based payments. An agreement on this complement was reached in the accession negotiations during the Copenhagen Summit in 2002, when Poland was granted the right to complement the direct payments from the EU resources dedicated to the development of the agriculture and the rural areas during the first three years of the membership (apart from national supplements to the direct payments). Therefore, this amount was available under the RDP, but had no direct connection to its aims.

The SAPARD programme was characterised by the concentration of resources (within the SAPARD for Poland 6 measures were implemented, including 2 additional ones – vocational training and technical assistance), while the funds under RDP and SOPR are dispersed among 23 measures (Poland selected them out of 37 available ones). It seems that the creators of the programmes, having to distribute so enormous amount of public resources, decided that the concentration of funds was unnecessary, because more resources were allocated to the most important measures regarding modernization of agricultural holdings and the agro-food industry than

previously under the SAPARD. As a result, they decided to allocate large amount of the resources (almost 30%) to the structural pension scheme and the support of agriculture on less favourable areas.

The inclusion of structural pensions in the programme was justified by the need to accelerate the replacement of generations in agriculture – the improvement in the size of holdings or at least in the management efficiency was expected in consequence of taking over the agricultural holdings by young, better educated successors (structural pensions were classified by the Council Regulation (EC) No. 1698/2005⁶ as the measures improving the competitiveness of the agricultural and forestry sectors). Another argument in favour of introducing a system of structural pensions was that this instrument used to be applied by the other member states and Poland could not make an exception. The purpose of natural handicap payments was to ensure the continuation of farming in the mountain areas and the areas with handicaps such as poor soils (this measure was classified by the Regulation 1698/2005 as one of the measures improving the environment and the countryside). Also in this case it was argued that in all the member states the farmers who operated on less favourable areas were eligible to subsidies. Moreover, it was decided that the principles of the LFA designation system in Poland and in the other member states should be similar⁷.

When considering the arguments for including the two measures to the Polish programmes of the agricultural and rural development, the question to be raised is: why had Poland established the structural pensions at such a high level that in the programme for the years 2007-2013 the number of the new pensions as well as the amount of pension had to be limited? If such decision was not taken despite criticism, almost 5 billion euros would have to be appropriated for the structural pensions in the years 2007-2013 (30% of the total public resources under the RDP 2007-2013), which would break the reasonable proportions of the programme. As the programme must include appropriations for the pensions granted between 2004 and 2006, this decision leads to an odd situation: the system will soon embrace „old” (higher) structural pensions and „new” (lower) ones.

⁶ The basic regulation concerning the issue of co-financing the development in rural areas from the EU budget: Council Regulation (EC) No. 1698/2005 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), Official Journal of the EU, L 277 of 21.10.2005.

⁷ The delimitation principles, developed at the Institute of Soil Science and Plant Cultivation were discussed among others in „Rural Development Plan 2004-2006” Annex D „Justification of delimitation and payment for LFAs”.

Furthermore, it is necessary to tighten the eligibility criteria for less favoured areas. According to the current LFA designation system, as much as 54% of agricultural land is located in less favourable areas. Because of the area size and the amount of LFA support per hectare, it is one of the most costly measures of the programme. The study prepared by a team led by W. Józwiak shows that the agricultural holdings located on less favourable areas were in the first two years of the membership in similar and sometimes even better economic situation than the ones operating on more favourable areas⁸. According to the basic assumptions with regard to calculating LFA payment amounts, the amount compensate for the differences in opportunities resulting from different farming conditions.

As a consequence of the application of the instruments supporting farm incomes (social protection measures) at such a high level, the resources allocated for development purposes were smaller than required. In distribution of the support funds paid directly to Polish agriculture from the agricultural budget of the EU, the opinions and suggestions of the European Commission agreed in the negotiations before approval of the plan were taken into consideration. The creators of the Polish programmes were faced with an difficult task of distributing the available resources between individual measures, especially when there was a strong pressure of various lobbies and interest groups.

The critical opinions that too much financial resources was dedicated to some measures, and even many doubts whether some measures ought to have been included in the Polish programme, related not only to social protection measures⁹. The measure regarding the semi-subsistence farms carrying out restructuring efforts was controversial, because in order to receive the support the potential beneficiaries had only to submit a plan of farm restructuring. If they did not keep to the plan in the first three years, the only consequence would be the refusal of the paying agency to pay the support in the next two years. Nevertheless, the aid was too small to have a negligible effect on any restructuring decisions. It would be hard to implement any farm restructuring scheme with that amount of money (approx. 5 thousand zlotys per year, that is 25 thousand in total). It is not quite clear why these holdings were not subject to the same control procedures as the holdings co-financed under the measure „Modernization of agricultural holdings”. Perhaps it would also be better to

⁸ W. Józwiak, *Dochody rolnictwa i polskie gospodarstwa w pierwszych latach członkostwa*, typescript.

⁹ For details see: J. Rowiński, *Koncepcja wsparcia rozwoju rolnictwa i obszarów wiejskich z PROW 2007-2013*, Program Wieloletni: Ekonomiczne i społeczne uwarunkowania rozwoju polskiej gospodarki żywnościowej po wstąpieniu Polski do Unii Europejskiej, IERiGŻ-PIB, Warsaw 2007 (printed).

apply the measure to smaller number of semi-subsistence farms with a potential to become commercial holdings, but to ensure them higher amount of resources that would really support them in their efforts.

Controversy arises also over the measures with a very limited range of operation resulting from the small amount of the public resources allocated for them. Taking into consideration the areas characterised by high fragmentation and split-up of parcels within a farm, the amount of approx. 20 million euros appropriated for the purpose of land consolidation was insufficient to meet the target. Also the measures regarding afforestation, as well as some agro-environmental programmes (supporting incomes of organic farms) were rather controversial. Finally, it should be also considered whether it is advisable to co-finance from the EU funds the measures regarding advisory services and vocational training.

Another important set of problems includes the principles to be applied in determining the level and distribution of the financial resources among the measures as well as the procedures of benefiting from the EU funds. Undoubtedly, the experience of SAPARD was of use, and significantly less strict conditions were established for the measure „Modernization of agricultural holdings”. As a result, the farmers who conducted animal production and intended to implement the modernization scheme, had easier access to the SOPR funding than it had been before with the SAPARD resources. Unfortunately, the simplification of some procedures did not cause any significant change in the directions of the modernization. Also the support under SOPR consisted first of all in co-financing the purchases of machinery and equipment (over 80% of the support paid under the measure), instead of enabling the agricultural sector to fully develop its production potential.

Final comments

Despite some criticism, the positive impact of the programmes in promoting the agricultural and rural development in the first years of the membership is evident. First, they definitely accelerated the pace of the development, because they provided substantial funds supporting the national resources, i.e. the public ones, and the own contributions of beneficiaries. The assistance in adjustments to the EU standards of the four sectors of the agro-food industry was particularly important (although it is worth noticing that the food enterprises managed to implement many projects without any support from the EU). Secondly, the programmes contributed to the improvement in the climate of opinion about agriculture and attracted more interest in agricultural investment. In the 1990s and the first years of the new decade the returns from farming were poor and

some types of production were regarded as unprofitable. Thirdly, thanks to the programmes, more attention is now paid in Poland to the protection of natural environment in the rural areas. In connection with this, it is worth underlining that the measure under RDP „Adjustment of agricultural holdings to the EU standards”, to which approx. 630 million euros of the public resources was dedicated was highly successful. Almost 76,000 agricultural holdings make good use of the support. The most popular type of investment represented projects aimed at building storage facilities for natural fertilizers (farm manure) – over 70,000 holdings and modernization of barns – approx. 5,500 holdings. Fourth, there is greater awareness of a need for implementation the agro-environmental programmes.

However, the investments directed to the development of agriculture and rural areas in the first years of the membership could not be the solution to all of their problems, although many investments were financed also under other programmes or even from own resources only. For that reason, the Rural Development Plan for 2007-2013 is of considerable importance¹⁰.

¹⁰ Unfortunately, as M. Drygas states: „The programme, contrary to the verbal declarations, is not oriented at the most important priorities and aims, but is dispersed, as it encompasses 23 measures. Such approach has little in common with the declared intentions to increase the competitiveness of the Polish food sector” and concludes: „The short-term social aims in the form of income supporting measures predominate, at the expense of growth in competitiveness of agricultural holdings and better conditions for achieving higher incomes in the longer run” – M. Drygas, *Ocena instrumentów WPR* [in:] *Wyzwania przed obszarami wiejskimi i rolnictwem w perspektywie 2014-2020*, „Nowe Życie Gospodarcze”, Special supplement, November 2007.

IV. Competitiveness of the Polish food producers after the accession to the European Union

Foreign trade in agricultural and food products and export orientation of the main sectors of food economy

The first years of Poland's membership in the European Union show that the Polish food producers have displayed great adaptation capabilities and mobilisation in the face of new opportunities offered by Poland's EU membership. Thus their position on the competitive Common European Market (CEM) has strengthened. The period was characterised by fast growth of the Polish foreign trade turnover in agricultural and food products, especially exports. As a result of the faster growth in exports and the slower in imports, Poland very soon recorded a surplus in the foreign trade balance in foodstuffs and became their important net exporter. The mutual opening of the markets has not hampered the development of the Polish food economy and its positive influence is indicated by the following phenomena:

- Over the four years of our membership in the EU exports of agri-food products increased by above 144% and imports by above 120%.
- The trade turnover with the other EU countries grew even faster. Exports of food from Poland to the EU-25 countries in the years 2003-2007 grew almost threefold and imports increased by over 142%.
- The CEM became for the Polish trade in agricultural and food products a dominant market both for buyers and sellers. The share of the EU-25 in the agri-food exports has been increasing year by year – from approx. 65% in 2003 to almost 74% in 2005 and over 78% in 2007. The share of the EU-25 in the imports of agricultural and food products was more stable and in the years 2003-2006 varied between 61% and 63%, and only in 2007 it has increased to over 67%.
- The increase in trade turnover with not only the EU-15 countries but also the „new” member states was recorded. The membership in the EU gave a strong impulse for the export of the Polish agri-food products to the EU-10 countries. In the years 2003-2007 the exports to the EU-15 increased by over 185%, and to the EU-10 by over 216%. The imports from the EU-15 increased at that time by almost 136%, and the imports from the EU-10 by almost 178%.

- As a result of such directions of the foreign trade development, in the years 2003-2007 the agri-food trade balance has improved significantly:
 - in total from 454 to 1,959 million euros,
 - with the EU-25 countries from 441 to 2,380 million euros,
 - with the EU-15 countries from 193 to 1,469 million euros.
- The coverage ratio of imports of agricultural and food products to exports of those products (TC – *Trade Coverage*) has increased from 1.13 in 2003 to 1.25 in 2007.
- However, in 2007, compared to the period 2004-2006, the lower average growth rate of the agri-food exports per year and a little higher growth rate of the imports were recorded, and in consequence the balance of trade in this group of products was at a lower level (especially with third countries).

The market openness turned out to be favourable for the Polish food economy. The benefits gained in the first years of Poland's membership in the Community with regard to the foreign trade of agricultural and food products are higher than anticipated in the pre-accession period. The inclusion in the CEM structures did not cause also any excessive influx of imported food from the EU onto the Polish market, which had been a matter of considerable public concern before the accession.

Results of the foreign trade in agricultural and food products

| Specification | 2003 | 2004 | 2005 | 2006 | I-VIII 2007 ^a | 2007 ^b |
|--|---------------|--------|--------|--------|--------------------------|-------------------|
| | million euros | | | | | |
| Exports of agricultural and food products | 4010.4 | 5242.2 | 7028.0 | 8467.5 | 5981.2 | 9788.4 |
| including to EU-25 | 2616.7 | 3781.8 | 5190.8 | 6481.7 | 4615.0 | 7648.4 |
| <i>of which to EU-15</i> | 2041.6 | 2988.2 | 4063.0 | 4914.2 | 3497.9 | 5828.3 |
| <i>of which to EU-10</i> | 575.1 | 793.6 | 1127.8 | 1567.5 | 1117.1 | 1820.1 |
| Imports of agricultural and food products | 3556.9 | 4406.5 | 5373.5 | 6391.1 | 4738.9 | 7829.1 |
| including from EU-25 | 2175.9 | 2763.8 | 3388.1 | 3997.4 | 3140.8 | 5268.6 |
| <i>of which from EU-15</i> | 1848.5 | 2395.9 | 2938.0 | 3415.1 | 2645.0 | 4359.4 |
| <i>of which from EU-10</i> | 327.4 | 367.9 | 450.2 | 582.3 | 495.8 | 909.2 |
| Balance of the foreign trade in agricultural and food products | 453.5 | 835.7 | 1654.5 | 2076.4 | 1242.3 | 1959.3 |
| including from EU-25 | 440.8 | 1018.0 | 1802.7 | 2484.3 | 1474.2 | 2379.8 |
| <i>of which from EU-15</i> | 193.1 | 592.3 | 1125.0 | 1499.1 | 852.9 | 1468.9 |
| <i>of which from EU-10</i> | 247.7 | 425.7 | 677.7 | 985.2 | 621.3 | 910.9 |

^a preliminary data, ^b forecast

Source: Author's own calculations on the basis of data coming from „Analizy Rynkowe: Handel zagraniczny produktami rolno-spożywczyymi”, issue 21-26, Warsaw 2005-2007.

The analysis of competitiveness of the Polish food producers after Poland's accession to the EU is conducted on a regular basis by means of examining the relations of the value of the agricultural and food exports from Poland to the value of the production sold in the main sectors of agri-food industry (the so called export orientation ratio).

The ratios indicate that a strong export orientation is observed for the following types of the agricultural production: production of fruit and vegetables, rearing cattle and calves, rearing sheep and goats. Exports of horses was also at a high level. In these sectors of agricultural production, except for the production of fruits, there were big surpluses of exports over imports. In the fruit production, despite large exports, a negative balance of turnover was observed, due to the high share of imports of fruits coming from other climatic zones. The remaining types of agricultural production were characterized by a significantly lower export orientation, although in the year 2005 the exports of cereals, particularly oat and rye, were also high.

**The share of export in the production sold in the main types
of agricultural production (in percentage)**

| Specification | 2004 | 2005 | 2006 |
|-------------------|-------|------|------|
| Vegetables | 32.8 | 43.5 | 41.8 |
| Fruits | 35.5 | 36.1 | 28.2 |
| Cattle and calves | 30.4 | 29.1 | 24.4 |
| Sheep and goats | 104.9 | 90.6 | 79.8 |
| Horses | 86.5 | 63.5 | 57.2 |
| Cereals | 3.5 | 18.8 | 18.5 |
| Potatoes | 2.0 | 0.7 | 0.3 |
| Pigs | 0.7 | 1.4 | 3.3 |
| Poultry | 1.1 | 1.3 | 1.7 |
| Eggs | 4.4 | 7.5 | 9.6 |
| Milk | 0.5 | 1.9 | 2.6 |

Source: Own calculations on the basis of GUS and CIHZ data.

Also the following sectors of the food industry are characterised by a strong export orientation: fish processing, processing of potatoes, fruit and vegetables, production of pet food, production of biscuits, chocolate and other sweets, coffee and tea processing and the production of spices. After the accession these sectors of food production either maintained or even increased the share of exports in the total sale of their products. Free access to the EU market was a stimulus to the growth in exports in the following sectors of the food economy: production of vegetable oils, tobacco products and non-alcoholic beverages, and also in the basic sectors of the food processing industry,

i.e. production of milk, meat, sugar, alcoholic beverages and manufacturing of grain milling products. The improvement in the export orientation ratio proves the greater capabilities of the Polish food sector for exporting their products to the foreign markets and its growing export specialization.

The high competitiveness of the Polish food producers results first of all from the fact that they have competitive advantages, mainly in terms of costs and prices. The source of the Polish price competitiveness are lower costs of the production factors, including in particular significantly lower labour costs. Poland in the whole period of functioning in the EU structures, despite the unfavourable changes in the currency exchange rates, has maintained the price competitiveness of the food sector in relation to the other EU member states.

**The share of export in the sold production of the basic sectors
of the food industry (in percentage)**

| Specification | 2003 | 2004 | 2005 | 2006 |
|---|------|------|------|------|
| Fish and fish products | 62.2 | 61.5 | 58.3 | 57.6 |
| Starch and potato products | 30.3 | 33.2 | 41.2 | 43.7 |
| Juices, fruit and vegetable drinks | 42.2 | 43.7 | 39.6 | 47.4 |
| Fruit and vegetable products | 40.8 | 42.2 | 34.9 | 38.0 |
| Pet food | 20.9 | 30.6 | 38.1 | 33.0 |
| Biscuits | 37.2 | 51.8 | 58.0 | 64.1 |
| Cocoa, chocolate and other sweets | 31.8 | 29.8 | 28.1 | 31.3 |
| Tea and coffee | 41.1 | 51.8 | 59.6 | 81.1 |
| Spices | 21.9 | 27.6 | 28.6 | 22.4 |
| Red meat, poultry and their products | 15.0 | 13.2 | 16.2 | 20.3 |
| Oils, margarines and other fats | 7.1 | 9.8 | 20.4 | 25.7 |
| Milk and milk products | 11.7 | 17.0 | 21.9 | 20.8 |
| Sugar | 14.4 | 14.9 | 20.3 | 20.9 |
| Alcoholic beverages | 10.8 | 13.4 | 15.4 | 15.0 |
| Tobacco and tobacco products | 13.0 | 16.4 | 23.1 | 40.7 |
| Ice cream | 5.6 | 8.5 | 14.6 | 18.6 |
| Manufacturing of grain milling products | 4.9 | 5.6 | 8.6 | 8.6 |
| Fresh bread | 0.4 | 0.4 | 0.4 | 0.4 |
| Cakes | 4.5 | 6.3 | 11.5 | 11.0 |
| Pasta | 9.8 | 11.8 | 14.6 | 8.3 |
| Wines | 1.3 | 1.4 | 2.5 | 2.8 |
| Beer and malt | 1.4 | 2.4 | 2.4 | 3.2 |
| Non-alcoholic beverages | 3.4 | 7.8 | 11.0 | 11.6 |

Source: Own calculations on the basis of GUS and CIHZ data.

The competitiveness on the EU market and on the world market is based, however, on competition for trade not only by prices but also by offering attractions, such as better quality of product. These factors enhance the competitiveness and are decisive for the acceptance of the Polish products by potential consumers from other countries. The Polish agri-food sector has its chances of further development because of the incorporation of the Polish agriculture into the mechanisms of the CAP, which stabilizes the agricultural markets and ensures the access for the producers to basic raw material. The chances of development also result from the liberalization of trade on the world market as well as the absorption of the EU structural funds.

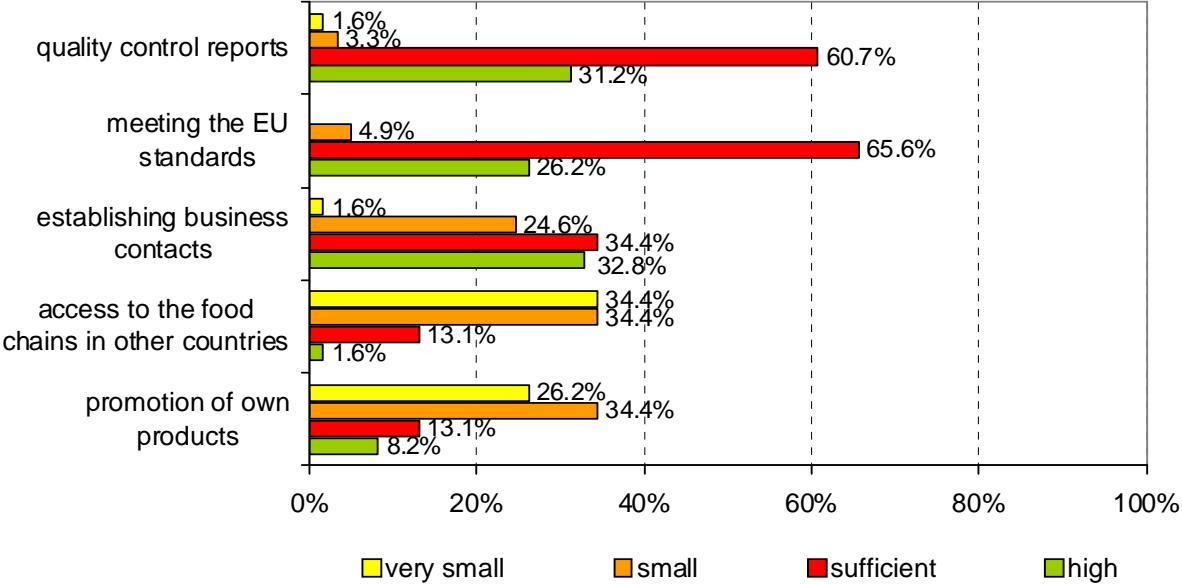
The changes in the food sector that have taken place after Poland's accession to the EU, revealed also the barriers that lessen competitiveness of this sector. The Polish food economy particularly suffered from the system of quotas in the production of milk, isoglucose, starch and sugar. Another barrier to development of the sector is the appreciation of the Polish zloty, which reduces our price competitiveness. The Polish food producers face also the increasingly higher requirements in respect of the consumer protection, market competition and environmental protection involving much paperwork. The tendency to excessive control of the production and sale of food seems to be one of the main obstacles to market access, weakening at the same time the position of the EU producers on the world market.

The assessment of competitiveness from the producers' viewpoint

In December 2006 was conducted the direct survey in selected 72 enterprises of the food industry belonging to the six sectors of the food economy (meat, poultry, milk, grain, refrigeration and confectionery) concerning the food producers opinions about competitiveness of the sector. The answers to the questions how the food producers' judge their competitive position on the EU market, did not always confirm of the general opinion about a high competitiveness of the Polish food sector. The answers varied greatly. The entrepreneurs regarded their capabilities to compete as the best in terms of adjustments to the EU requirements and quality management reports (as many as 92% respondents considered them good or even high). Also the high abilities to establish business contacts were underlined (67% of companies under survey thought them to be good or high). The abilities to cooperate with the foreign largest food chains were assessed lower (nearly 69% of entrepreneurs found them to be small or very small), similarly to the abilities to promote their products (they are small or very small in the view of 60% of respondents). This general assessment indicates that the Polish food producers became

competitive in these spheres, where they had to fulfil particular production requirements (e.g. in terms of sanitary, veterinary, quality management issues) in order to comply with the EU regulations.

The assessment of the competitive abilities of the Polish food producers on the EU markets (in percentage of answers)



Source: Author’s own calculations on the basis of data from the survey.

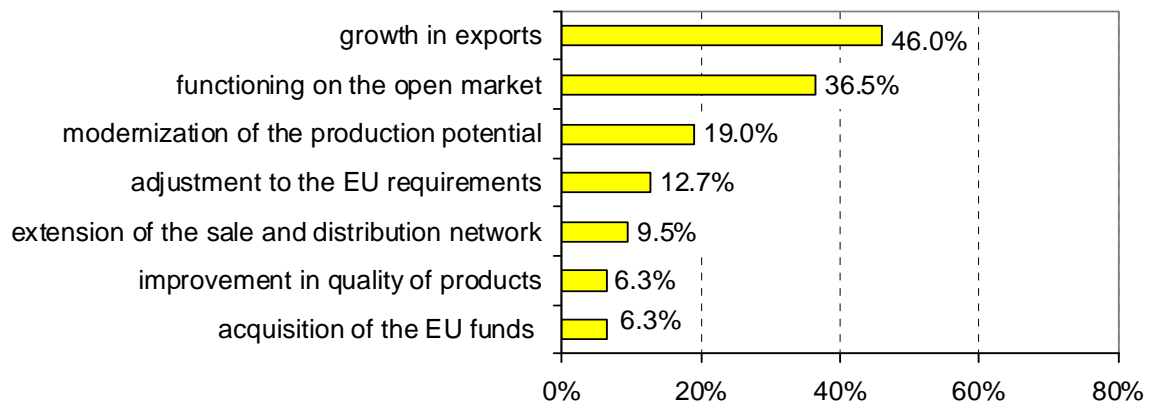
The Polish food producers were also asked about the determining factors in improvement of their competitiveness. The entrepreneurs stated that they were: food safety and quality (85% of answers), commercial quality (diversified range of products in terms of assortment, the ability to identify and satisfy the needs of individual customers etc.) – 69% of answers and, though to a lesser extent, the innovation activities (technological, productive, organizational) – 34% of answers. These answers indicate that companies appreciate the significance of non-price aspects of competitiveness.

The respondents underlined also their great capabilities for price competition. Although obviously the role of non-price competition is growing, prices still remain the most important aspect of competitiveness of the Polish food producers. Over 65% of respondents assessed that the prices of their products are lower compared with their competitors in the EU (in 30% of enterprises they are much lower). Over 25% of the entrepreneurs stated that the level of their prices is close to the EU prices, and only 9% thought their prices to be higher than in the EU on average.

Main factors in the improvement of competitiveness from the producers viewpoint

Poland's membership to the EU caused some problems for food producers, but on the other hand it offered them new opportunities. The most important success for 46% of the entrepreneurs was the growth in exports. For 37% of the respondents the success meant their capability to operate on the competitive EU market, i.e. in the conditions of the free flow of goods, capital and people. This is reflected in growing sales of their products abroad and in their ability to cope with the competition of the imported products on the market. Other companies associate their successes first of all with the modernization of the production potential (19% of answers), adjustments to the EU production requirements (13% of answers) and the wide spread of sale and distribution network (10%). Their capabilities to gain support funds from the EU and the improvement in the quality of products are less often indicated.

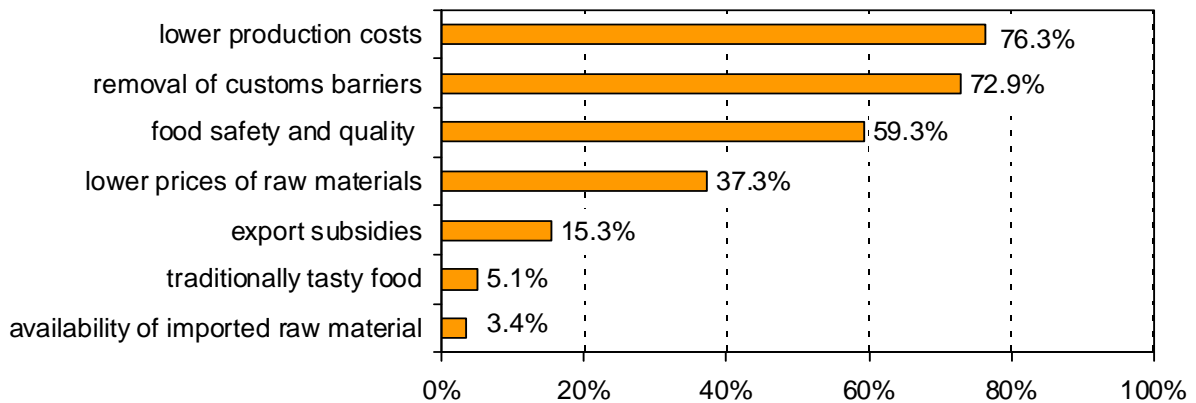
The most important successes of the Polish food producers after the accession to the EU (in percentage of answers)



Source: Own calculations on the basis of data from the surveys.

Lower production costs, the source of price advantages, are considered to be the main factor of increase in exports (by as many as 76% of the respondents) which leads to growth of competitiveness. Price advantages are rooted in lower costs of the production factors, including in particular significantly lower labour costs. The removal of customs barriers was judged to be another stimulus to growth in exports (73% of answers). All barriers to free trade in agri-food products on the single market were thus dismantled. The growth in exports of the Polish food products was also determined by such attributes of the products as high quality and food safety (59% of answers). The increase in sales on the competitive EU market proves that the Polish food is not only good but also tasty and appreciated by consumers in other EU countries.

Factors of growth in exports of the Polish food products after the accession to the EU (in percentage of answers)



Source: Own calculations on the basis of data from the survey.

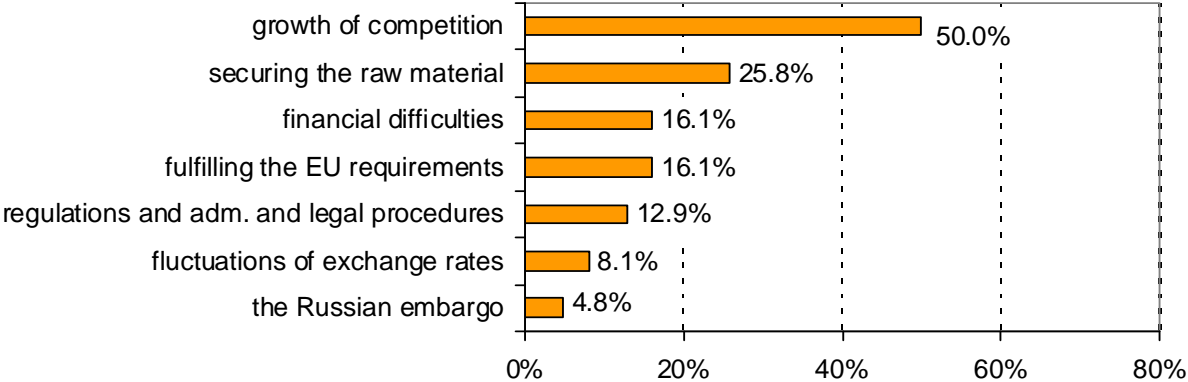
Poland's accession to the EU and the necessity to adjust the food economy to the EU structures encouraged the entrepreneurs to make many investments. The Polish food producers in the years 2003-2006 invested first of all in: modernization of production lines (83% of answers), modernization or construction of production facilities (76%), machinery and equipment improving the quality of products and services (72%), implementation of modern quality management systems (66%), implementation of new technologies (56%), launching new products on the market (48%), growth of production capacities (45%) and development of the sale networks (41%). Investments in modernization of the means of transport, computerization and R&D activities were rather rare. The investments (often innovative) first of all aimed at meeting the EU production standards. They contributed to the implementation of modern quality management systems and new marketing techniques as well as the development of human capital and resulted in narrowing the technological gap between the food industries in Poland and in the EU-15 countries.

The main problems and weak points of food companies

The main problem that the food companies had to face after the accession to the EU was the increased pressure from traditional and new competitors on the market (this problem was indicated by 50% of the respondents). The market openness gave free access to our market for the producers from the EU countries. Thus there was some concern among the Polish entrepreneurs about possible influx of imported food from the EU. 26% of the companies pointed to the necessity to secure raw material of good quality for the production as one of the problems. They also complained about the necessity to fulfil the EU standards and to obtain financial means for modernization and other

adjustments (16% of the respondents). Other difficulties included changing, unclear and complicated regulations and administrative and legal procedures, volatility in the currency exchange rates, and in the case of the meat sector also the Russian embargo on imports of meat and meat products.

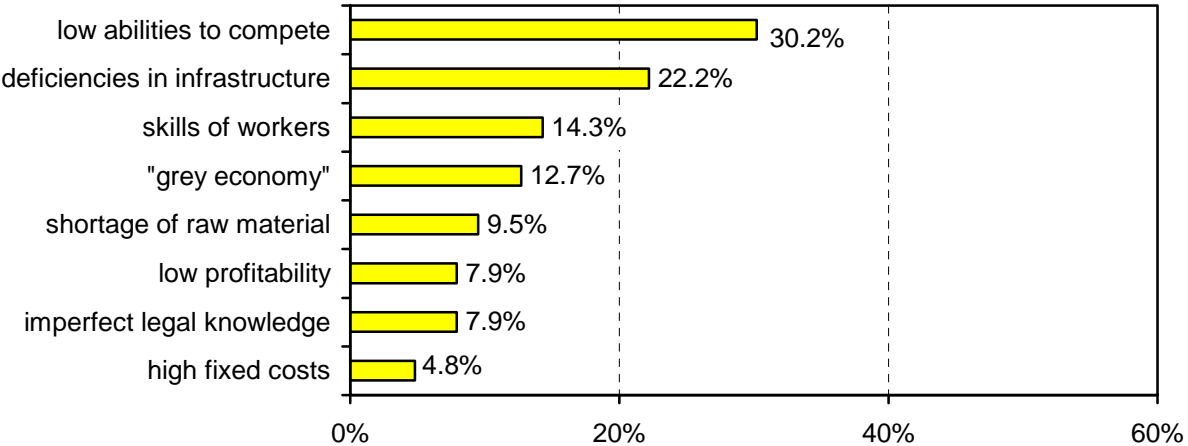
Main problems of the Polish food producers after the accession to the EU (in percentage of answers)



Source: Own calculations on the basis of data from the survey.

The main weak points in view of the respondents were: imperfect knowledge of the open market (over 30% of answers), deficiencies in physical infrastructure (22% of answers), low skills of employees (14%), problems with the so-called „grey economy” (13%) and shortages of high quality raw material (10% of the respondents). Other impediments to achieve a success were low profitability, imperfect knowledge of the legislation and the high burden of fixed costs.

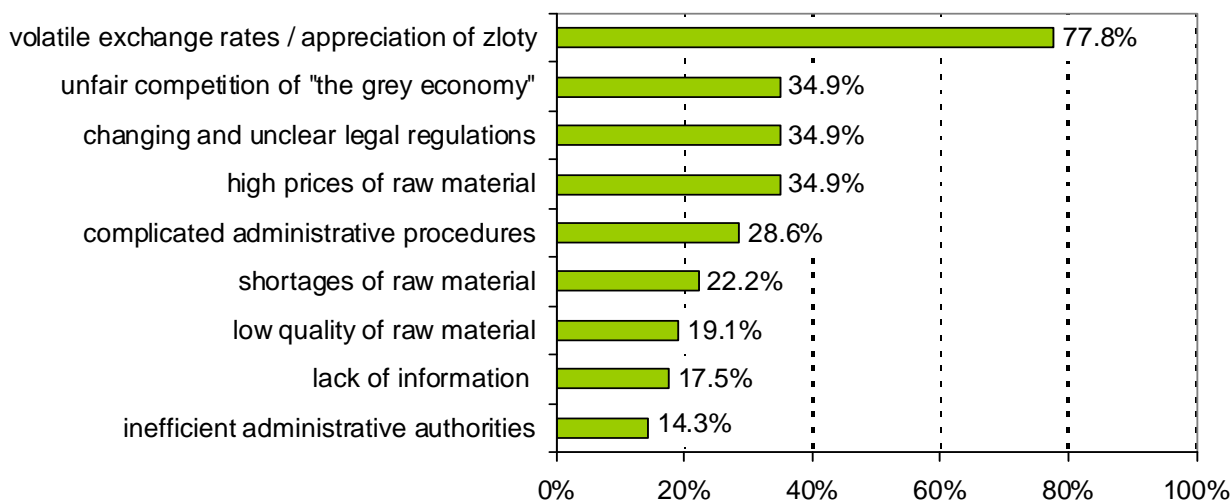
The weak points of the Polish food producers (in percentage of answers)



Source: Own calculations on the basis of data from the surveys.

As the basic impediment to growth in exports to the EU the entrepreneurs judged the volatile exchange rate of zloty to euro resulting from the significant appreciation of the zloty (78% of answers). This situation is unfavourable to exporters and it significantly deteriorates the competitiveness of the domestic products on the foreign markets. It also leads to decrease of our price advantages and the changes in labour costs. Moreover, the gradual strengthening of the national currency increases the competitiveness of the imported goods which poses additional threat for the development of the sector (43% of the entrepreneurs have already been under threat of imports). Other three barriers, indicated by 35% of the respondents, were: dishonest competition from the part of „grey economy”, changing and unclear legal regulations and too high prices of raw material (particularly in the grain sector). The remaining obstacles to export i.e. complicated administrative procedures (29% of answers), shortages of raw material (22%) and low quality of raw material (19%) were reported rarely. They also complained about the lack of relevant information and inadequate level of professionalism represented by local administrative institutions.

Barriers to the growth in exports of the Polish agricultural and food products to the EU (percentage of answers)



Source: Own calculations on the basis of data from the surveys.

The entrepreneurs also encounter barriers to export trade to the non-EU markets. The respondents judged critically first of all the policy of protection of Eastern markets, particularly the Russian embargo (57% of answers). The partial loss of „the Eastern markets” is very acute for the Polish agricultural and food sector. The Russian embargo on the Polish food products hit our exports and in consequence affected the economic situation of the food

enterprises. The ban on imports from Poland may also in the long run result in the reduction of the production level of some types of agricultural production (mainly the production of pigs and fruit and vegetable). As other barriers, connected with specific conditions on the non-EU markets, the respondents pointed to big commercial and financial risk on those markets (49% of answers) and quality requirements (29%). 37% of the respondents complained also about the difficulty in obtaining export subsidies.

The majority of respondents (82%) noticed also threat from the multinational food companies which conquered market shares from smaller units. They mentioned first of all their bigger financial resources, continuous presence on the world market (59%), selling products at dumping prices (32%) and the popularity of the own-brands (21%). They also indicated the higher level of their organizational and management systems (18%).

Final remarks

Polish food producers are aware of their competitive advantages and are able to use them skilfully. They are rather careful and sometimes full of concern, but generally they assess their abilities to compete on the EU markets as sufficient or even high. The opinions of entrepreneurs on the key factors of their competitiveness are optimistic. The price is and will continue to be the most important factor in determining the competitive position of the Polish food producers, but the entrepreneurs notice also the more and more important role of the non-price competition, particularly in terms of quality. They give particular attention to food safety and quality as well as technological innovation. The effects of other factors are smaller and more indirect.

The high competitiveness is proved first of all by the substantial increase in agri-food exports to the EU countries. Exports to the non-EU countries have been growing at a slower pace, although the domestic producers' capabilities to compete on those markets were strengthened by the incorporation of Poland in the EU system of export subsidies.

Poland's integration with the EU provided a strong stimulus to the development of the Polish food sector. The food producers were forced to make many adjustments to the EU standards which led to the considerable development of the sector. The investment activity and the readiness to embrace new technologies – in order to meet the EU production standards – resulted in their good position to compete on the single market.

V. Evolution of the meat market and its effects on the price transmission process

Change of the economic conditions of the meat sector

Economic conditions of the meat sector significantly changed under the influence of the market mechanisms. First of all, the demand for meat and meat products was redefined, according to new principles and preferences, which was expressed by the changes in retail prices. The prices of meat and meat products are among the food prices which increase at the slowest pace, although meat is particularly appreciated by the Polish consumers, and in the centrally planned economy its shortages were so severe that it was necessary to limit the sales. The prices of meat and meat products increased almost fivefold in nominal terms in 1991-2006, while the inflation rate increased almost 12-fold, remunerations grew 16-fold and the prices of food increased over eightfold on average. The prices of meat grew also significantly slower in comparison with other animal-food sources of protein, especially dairy products. The relative decrease in meat prices took place in all sub-periods under analysis, except for the years 2004-2006 and 2007, when the so called integration effect coincided with the trough of the pig cycle and the destabilization of the world market of poultry caused by epizootic diseases. We may put forward a thesis that the significant decline in the real prices of meat and meat products was the basic reason for the relative decrease in the food prices in the aggregate.

Altogether, over the 17 years the prices of meat and meat products decreased by 55% in real terms, including the prices of pork by 62%, poultry by 70%, meat products by 49%, and beef by 28%. The analysis of changes in prices indicates that despite the fact that pork remains the basic type of meat consumed in Poland, its influence on shaping the retail prices on the meat market has been weaker year by year.

One of the important factors causing the relative decrease in the prices of meat and meat products were the business strategies used in competition. The basic strategy was the price competition, which resulted in the reduction of the production costs. Advance in technology, which lead to smaller usage of raw material per one unit of final product, turned out to be an effective method. However, the strategies are implemented at the expense of deteriorating quality of meat products and decreasing demand for raw meat. The barrier of demand

resulting from the low living standard partly explains the situation whereas a low price is an important criterion of choice for wealthy consumers¹ also.

The comparison of price indexes on the particular levels of the marketing channels shows that although the growth of selling prices in the years 1991-2007 was slightly smaller than the growth of retail prices, but starting from the mid 1990s the changes of prices at the processing and retail levels took place simultaneously. Time asymmetry was almost not observed. The price interrelations at both levels of the livestock market are prompt, which indirectly proves the effectiveness of the market mechanism.

Price indexes at the particular levels of the meat market

| Specification | 1991-2006 | 1991-1994 | 1995-1999 | 2000-2003 | 2004-2006 | I-IX 2007 |
|-----------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Retail prices | 496 | 277 | 153.5 | 108.2 | 108.0 | 108.3 |
| Selling prices | 466 | 281 | 140.0 | 108.0 | 109.6 | 108.0 |
| Procurement prices of live pigs | 453 | 323 | 119.7 | 104.8 | 111.7 | 123.4 |
| Procurement prices of live cattle | 962 | 416 | 145.9 | 99.5 | 159.1 | 102.3 |
| Procurement prices of poultry | 403 | 349 | 125.0 | 101.1 | 91.6 | 139.2 |

Source: Own calculations on the basis of data from the Central Statistical Office.

The results of such significant changes of prices in the form of the growth in consumption were rather small. The average consumption of meat, after the fall in the years 1992-1994, increased in the years 2004-2005 to approximately 71-72 kg per capita, while in the year 1990 it amounted to almost 69 kg per capita. The decrease may be attributable to: the fall in real incomes, the adjustments in the level of consumption in the first period of the systemic transformation and the fast growth in non-food costs of living which had to be covered by a considerable part of incomes.

Total consumption of meat (kg per capita)

| Specification | Poland | | | | | | EU-15 2005 |
|----------------|--------|------|------|------|------|------|------------|
| | 1990 | 1995 | 2000 | 2004 | 2005 | 2006 | |
| Meat in total | 68.6 | 63.4 | 65.4 | 71.8 | 71.2 | 74.0 | 91.5 |
| including pork | 37.6 | 39.1 | 38.7 | 39.1 | 39.0 | 41.0 | 42.8 |
| beef | 16.4 | 8.7 | 7.0 | 5.3 | 3.9 | 4.0 | 17.5 |
| poultry | 7.6 | 10.2 | 14.5 | 22.2 | 23.4 | 23.5 | 23.2 |
| other | 7.0 | 5.4 | 5.2 | 5.2 | 4.9 | 5.5 | 8.0 |

Source: Data of GUS, ZMP Vieh and Fleisch 2006.

¹ These technologies were purchased in the old member states, where they have been commonly used to date, despite significantly higher living standards. According to the EUROSTAT data, the GDP per capita in the UE-16 exceeded 26 thousand euros in 2005, whereas in Poland it amounted to 6.2 thousand euros.

The incomes grew in the years 1991 – 2006 by almost 37% in real terms on average, while in the years 2004 – 2007, that is after the integration, by almost 13%. In 2007 the consumption of meat reached the level of 74 kg per capita i.e. it returned to the level recorded at the beginning of the 1980's and was by 20% lower than the average in the UE-15. The structure of the consumption of meat changed significantly, because the consumption of beef decreased in the years 1990-2006 from 16.5 kg to approx. 4 kg per capita, and the consumption of poultry grew from 7.6 to almost 24 kg per capita. The consumption of pork almost did not change and varied from 38 to 41 kg per capita according to the pig cycle. The total consumption of pork and poultry in Poland is very similar to the average consumption in the EU-15, and the difference in the levels of meat consumption is determined first of all by the consumption of beef, which average level in the "old" EU is 4-5 times higher than in Poland (17.5 kg in 2005), and by the consumption of other types of meat to some extent.

Changes of the meat supply

In the first years of the market economy, the fall of incomes and the fulfilment of the domestic demand for meat caused a deep fall in the production of meat, followed by the decrease in consumption. After the first euphoria, resulting from the liberalization and the abolition of government restrictions limiting consumption (rations of food), the production of all types of meat, without any exceptions, decreased. In 1995 the gradual growth of meat production, which fluctuated according to the pig cycle, was observed, and under the influence of the progressing liberalization of trade with the European Union the general tendency was upward. As a result, the production of meat exceeded 3.7 mill. tonnes in the years 2006-2007 and was by approx. 23% bigger than in 1990. The growth of the production of meat was usually followed by some growth in consumption, which from 1995 to 2002 almost did not change, and the self-sufficiency index increased from approx. 98% in the years 1992-1994 to 114-120% in the years 2005-2007.

The adjustment processes, especially the changes in the production volumes and the production efficiency, in the particular segments of the meat market were taking place in a different way. They were particularly intense in cattle and poultry production. Relatively small changes were, however, in the production of slaughter pigs as pork is the basic type of meat produced in Poland. As a result, in the analyzed period the structure of the meat market have changed. Although pork has still the highest share, i.e. approx. 60%, but the share of poultry has increased in the years 1990-2007 from approx. 10% in

1993 to almost 30% in 2005, at the expense of beef, whose share decreased at that time from 26% to approx. 11%.

**Production and consumption of meat
(on average per annum in thousand tonnes of warm slaughter weight)**

| Period | Production | Consumption | Index of self-sufficiency % |
|-----------|------------|-------------|-----------------------------|
| 1989-1991 | 3091 | 2961 | 104.4 |
| 1992-1994 | 2851 | 2912 | 97.9 |
| 1995-2002 | 3036 | 2827 | 107.4 |
| 2003-2007 | 3544 | 3112 | 113.9 |
| 1989-2007 | 3149 | 2937 | 107.2 |

Source: Own calculations on the basis of GUS data.

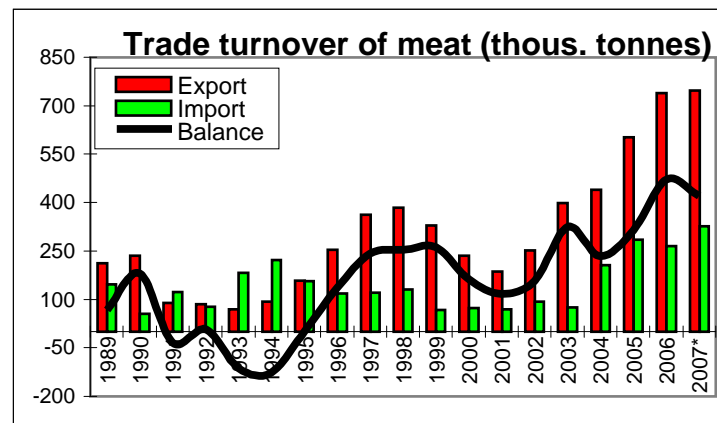
The situation in the production, and particularly in the distribution of red meat, were reflected in the great changes in slaughtering and meat processing. A clear tendency towards industrialization of meat processing appeared at the third stage (after 2002), because of the adjustments to the EU veterinary standards. In the current decade the industrialization of slaughtering is a long-term tendency. In the years 2003-2006 the commercial slaughtering of pigs increased by 19%, and the commercial slaughtering of cattle and calves increased by almost 50%. The share of commercial slaughtering in the production of live pigs increased from 67.5 to 82%, and in the case of cattle and calves increased from 64 to 82%.

Also at the same time a clear tendency to fast growth in the production and commercial slaughters of poultry appeared, accompanied by the growth in the production of poultry processing products, however it was not as high as in the previously mentioned segment. In the period from 1992 to 2007 the production of poultry meat has increased almost sevenfold, and the production of poultry products – almost threefold.

Changes in the foreign trade

The situation resulted from too liberal policy concerning foreign trade and the elimination of export subsidies in the conditions of extra protection in the neighbouring countries, particularly in the European Union, and the recession on the world market. In 1996 Poland recorded a surplus in the balance of trade in meat and meat products, in terms of both value and volume. This surplus grew together with the progressing liberalization of trade with the EU member states and the increasing index of self-supply. The growth tendency in the foreign trade of meat was stopped in consequence of the Russian crisis making the access to the Russian market much more difficult. The Russian

crisis hit agricultural exports. The situation was changed by the “double zero option” and the liberalization of trade with the EU countries.



The accession to the EU changed the terms of trade. First of all, the meat sector had free access to the single European market, and it was also covered by the common trade policy, which included the consistently built system of import duties and export subsidies. After the accession the trade turnover, first of all with the member states of the EU, significantly increased both on the export side and the import side. In the years 2003-2007 the volume of exports doubled, and the volume of imports increased threefold. The value of exports in 2007 increased to almost 1.5 billion euros, and the value of imports exceeded 352 mill. euros, while the figures for 2003 were 638 mill. euros and 128 mill. euros respectively. In sum the balance of foreign trade of the Polish meat sector in the years 2006-2007 exceeded 1.1 billion euros, while in 2003 it was 510 mill. euros.

Changes in the production structures

Changes in the supply were accompanied by important changes in the production structures. Since the mid-1990s the concentration processes have been accelerated. It is particularly visible in the poultry production, where at the turn of the millennium the pace of industrialization started to grow. The concentration is supported by the progressing vertical integration, which since the late 1990s have been built more and more intensively, first of all by the sector leaders. It is estimated that 90% of the raw material of the top poultry companies, having a share of over 70% in the domestic market, came from contracting in 2007. Therefore, the Polish poultry production in terms of the production scale and the level of integration is comparable to the same type of production in the European leading countries. In the production of pigs as well as the production of cattle the situation is different, although the processes of concentration have also speeded up.

Over 15 years the number of holdings rearing pigs halved, the average herd grew from 14 to over 25 heads, and the production of live pigs increased to 3.4 tonnes per holding. However, the corresponding figures for the EU-15 holdings, where an average herd size was 243 heads, and the production of hogs was 46 tonnes per holding in 2003, were over 10 times higher. The considerable disintegration of pig production in Poland is also confirmed by the fact that the number of pig producers is by 60% higher than in the whole EU-15, while the number of pigs in Poland accounts for only 16.5% of the total number of pigs in the EU-15, in the case of pigs for slaughter the share of Poland is a mere 12%. The low concentration of pig production in Poland is connected with the unfavourable structure of the domestic pig stocks. The basic source of the supply of pigs for slaughter on the domestic market are still small farms with 10-99 fatteners. These holdings, rearing on average over 28 pigs, with the production of approx. 4 tonnes of pork annually, usually in the closed cycle on the basis of own feed, had in 2005 a share of about 48% in the domestic pigs stocks. Their number decreased in the 1990s by 16% only and it amounted to approx. 300,000 in 2005.

Production of pigs by category in 2005

| Specification | Size of herds (heads) | | | | | Total |
|--|-----------------------|-------|---------|---------|--------------|-------|
| | up to 9 | 10-99 | 100-199 | 200-499 | 500 and more | |
| Number of holdings (thousand) | 375 | 299 | 18.9 | 7.14 | 2.10 | 702 |
| Number of pigs (thousand heads) | 1313 | 8516 | 2538 | 2108 | 3242 | 17717 |
| Share in the number of holdings (%) | 53.4 | 42.6 | 2.7 | 1.0 | 0.3 | 100 |
| Average herd size (heads per holding) | 3.5 | 28.5 | 134.0 | 300.0 | 1540 | 25.2 |
| Share in the pig stocks (%) | 7.4 | 48.1 | 14.3 | 11.9 | 18.3 | 100 |
| Share in the production of live pigs (%) | 7.3 | 47.6 | 14.2 | 11.8 | 19.1 | 100 |
| Production of live pigs per holding (t) | 0.5 | 4.04 | 19.1 | 42.6 | 231 | 3.6 |

Source: GUS data

Fast development the years 1990-2005 was noted in the group of pig farms rearing on average 200-499 pigs per year. Their number increased over 14-fold, reaching almost 7.2 thousand ones in 2005. The structure of pig stocks in 2005 kept its balance better than at the beginning of the 1990s. However, the pig production in Poland is only at the first stage of the concentration whereas the system of vertical and horizontal integration is still at the initial stage.

Relations of prices in the market channels and the price transmission on the meat market

The incorporation of the meat market into the EU market mechanisms did not cause the decrease in the share of procurement prices in the selling prices of meat products, contrary to the previous expectations. In the periods of low supply and high prices of livestock, the producers of processed meat products were not able to move the burden of higher costs of raw material to the procurement side, and the processing margin was smaller and smaller. They used to compensate themselves for the losses incurred at that time by low prices paid to farmers in the periods of high supply. This situation was particularly visible on the pig market.

The share of selling prices in retail prices of meat products in particular is gradually decreasing. Starting from 1996, the share of selling prices in retail prices of frankfurters, sausages and boiled ham decreased by 5.5-10 per cent. The drop in the share of selling prices in retail prices of raw meat is less visible, especially in the case of poultry and beef. The faster growth of retail prices of meat products and meat than their selling prices seems to indicate that the production costs are decreasing and the efficiency of meat processing has so improved that the decline in selling prices is now taking place. It may, however, also suggest that the position of the processing industry on the market in relation to the trade is worsening. The wholesalers, who strongly compete for trade by prices, take advantage of their position on the market and make their suppliers offer them products at lower prices, reducing therefore the processing margin. In the years 2006-2007 this tendency has been hampered. Probably the reason for the fact is the growing interest of customers in high-quality cured meats as well as the considerable growth in the supply of cured meats manufactured with the application of traditional methods.

The share of procurement prices in retail prices of pork loin or boiled ham fluctuated similarly as the share of procurement prices in selling prices, but contrary to the previous expectations the share of procurement prices of live pigs in retail prices after the accession was the same as at the beginning of the 1990s. The similar situation was in the case of the price relations of poultry meat to live poultry and live cattle to boneless beef. Roast beef was an exception because the significant drop in the share of its procurement price in retail price was recorded. The only explanation for the fact is the change in consumers' preferences.

Poland's accession to the EU had a significant influence on the level of prices of livestock, especially the prices of cattle for slaughter. Also the prices of

pigs and poultry grew, but to a smaller extent. The reaction of prices of pigs and poultry to the changes of grain prices mainly consists in the long-run adjustments towards the market stabilisation. The current reaction of the prices of animals for slaughter to the changes in grain prices is weak. In the case of poultry prices the full transmission of the external price shock from the grain market lasted around two quarters. In the case of pig prices it lasted more than 5 quarters. There is a correlation between the prices of pigs, poultry and slaughter cattle.

The conducted analyses show that the influence of the changes in poultry prices to the changes in slaughter pig prices is the greatest. The changes in procurement prices of animals for slaughter had a strong influence on the changes in processing margins on the market of meat and meat products. The changes in retail margins resulted first of all from the changes in selling prices of meat products set by meat processing plants. The selling prices of meat products set by meat processing plants responded weakly and with big delays to the changes in procurement prices of animals for slaughter. During the analyzed period no significant changes occurred in this respect. However, the price relations changed slightly. In the second sub-period the prices of meat products were more affected by the growths in slaughter animals prices than by their falls.

The retail prices of meat products were characterized by a strong short-run adjustment to changes of selling prices quoted by the processing plants. In most cases the total value of retail price coefficients related to both current and delayed by one period changes in the selling prices was above 0.7, so the growth in the current and delayed by one month selling prices by 1% caused the growth in retail prices by over 0.7%.

In most cases asymmetric adjustments of retail prices to the changes in selling prices were observed. The asymmetry usually consisted in the situation when the increases in selling prices led to bigger changes in retail prices than the decreases. Poland's accession to the EU exerted its great influence on the growth in links between prices of pigs in Poland and on the Western European markets. The acceleration of the process of price adjustments in Poland in response to changes of prices in Holland and Denmark was also observed.

VI. Incomes of agriculture and the polish holdings in the first years of the membership in the EU

Poland's accession to the European Union significantly changed the economic conditions of the Polish agriculture. The question to be raised is: what has changed in this sector of the national economy over the last three years? This study constitutes an attempt to provide an answer to this question, although still not full because of the shortage of data (empirical material). Issues, problems and questions concerning all holdings will be analyzed in comparison with the previous period as well as the capabilities of holdings of 2 and more ESU to compete with farms in the other member states. An attempt will also be made to evaluate the economic conditions of the agricultural holdings of 2 and more ESU: located on less favourable areas (LFA), family farms in which none of family members is insured in the Agricultural Social Insurance Fund (KRUS) and the large-sized holdings. The presented analysis partly enables us to formulate the conclusions for the year 2007 and the coming years.

The position of the Polish holdings in the years 2004-2006 compared with the year 2003

The results of 2004 had indicated the unexpectedly big (about 229%) growth of incomes of the total Polish holdings in comparison with the previous year. The incomes in the two consecutive years (2005 and 2006), however, remained at the new, high level¹. In 2005 they were slightly smaller than in the previous year, but in 2006 they increased by 2.6-3% in relation to the favourable 2004. Therefore a thesis arises that an substantial growth of incomes received by the Polish holdings, in comparison with the pre-accession period, is a long-term trend.

However, the sources of the income growth were subject to change. First of all, the revenues increased faster than the expenses. The total value of the revenues was bigger in 2006 by around 37% than in 2003, while the expenses rose at that time by only 17%. This situation had a couple of reasons. The value of agricultural production grew and even faster growth was recorded in the total amount of support payments (of different kinds) per year. The small

¹ In this part of the study Z. Floriańczyk's texts were used: (a) *Wyniki ekonomiczne rolnictwa polskiego w roku 2006*, IERiGŻ-PIB, typescript, October 2007 and (b): *Analiza wyników polskiego rolnictwa*, IERiGŻ-PIB, typescript, October 2006.

pace of growth in the production costs was brought about by technological progress and by replacing (substituting) more expensive production means with cheaper ones. The situation was also caused by changes in the agrarian structure: the process of eliminating smaller and economically weak agricultural holdings in favor of large-sized ones operating in a more effective way was observed.

The fast growth of the share of support payments in income formation of the producers needs some comments. In 2003 this share was 1.4%, while in 2006 it grew to 15.3%. The share will still be growing and the position of the Polish farms in the coming years will be close to the holdings in the EU-15 countries in terms of the structure of income. This situation, however, will have not only positive effects, but also negative ones. On the one hand, it will guarantee large incomes of the agricultural producers but on the other hand it will lead to a kind of economic inactivity of the producers. In the Polish literature this phenomenon was noticed in relation to holdings in some EU-15 countries (e.g. Austria, Denmark, Germany and Sweden)². The return on agriculture of their holdings cover the costs with a small surplus, which results from the fact, that a considerably larger part of incomes of the holdings has its source in the support payments. This situation does not stimulate the growth of the production efficiency, which is proved by the fact that their incomes are close to the incomes of Polish and Hungarian holdings, where the support payments play less important role at present.

The above observations enable us to formulate the second thesis, which relates to the situation initiated in 2004. The growing economic inactivity of the Polish producers under the influence of the growing role of subsidies in their incomes will put them in 2013 and the following years in a difficult situation, because the CAP will be then probably less beneficial to them than now. This thesis has however only a cognitive, not practical, value because this trend is unstoppable.

The third important issue relates to the economic balance of the Polish agricultural holdings that was created as a result of the fast changes in the economic environment. Such observations emerged from the econometric analysis of the holdings with different types of production (i.e. with the dominant income from typical crop production, specialized in the production

² W. Józwiak and Z. Mirkowska: *Zdolność polskich gospodarstw rolnych do konkurencji*, IERiGŻ-PIB, typescript, March 2007. In the study materials coming from the all-EU FADN for the year 2004 were used.

of milk, combining crop production and rearing livestock of different breed and age group etc.)³.

A very big productivity of land leasing was recorded (the relation of the marginal gain from 1 ha of agricultural land to the cost of lease, expressed in percentage), which varied from around 400% to over 1200%. The situation was different in the case of the other material factors of production. The productivity of own capital invested in agriculture varied from 5% to around 17%. Thus, the income earned was bigger in relation to the deposit interest rates at commercial banks. Investments of borrowed capital (credits, loans) in the own holdings were also profitable, because the growth in incomes exceeded the cost of lending rates at commercial banks. A more complex situation was in the case of labour inputs. The income from increasing the labour inputs by 1 hour amounted in some holdings to 2.19 zlotys, which represents only approx. 26% of the parity remuneration⁴. Moreover, with such low productivity of labour, it would be unprofitable to employ hired workers, because the cost per hour of labour would be around 4.6 zlotys. On the other side there were the holdings, for which marginal labour productivity was greater than the parity remuneration of work and the productivity coefficient of increasing the inputs of seasonal hired work was above 200%.

The review of the profitability and productivity of the material factors of production in the groups of holdings separated according to their size and type of production showed that the changes in the economic conditions since 2004 have led to the situation of imbalance on farms. The biggest imbalance has occurred in the case of land, most probably as a result of the long-term lease contracts concluded before 2004 with the Agricultural Property Agency (the majority of leased land comes from that source). The leasehold rent has been determined in dt of wheat (1 dt = 100 kg), whose price increase at a slower pace than the incomes of holdings. The economic balance in this respect will be redressing over the next several years, i.e. as soon as the lease contracts become more adequate to the conditions. The process of redressing the economic balance in the case of capital and labour inputs is significantly faster.

³ In this case, T. Czekaj's studies were used: (a) *Dochodowość materialnych czynników produkcji w gospodarstwach rolnych osób fizycznych w 2005 roku*, IERiGŻ-PIB, November 2007 and (b) *Dochodowość pracy w gospodarstwach ogrodnich*, in the multi-author study entitled *Wzrost kosztów pracy najemnej a kondycja polskich gospodarstw ogrodnich*, IERiGŻ-PIB; Komunikaty, Raporty, Ekspertyzy; issue 526, Warsaw, 2007.

⁴ Income equal to the average net remuneration of work in the national economy.

The competitive ability of the Polish agricultural holdings in comparison with the agricultural holdings in Germany and Hungary

The competitive ability of holdings is reflected first of all in their incomes and investment activity. Big incomes indicate their strong economic position which is reflected not only in the level of farmers' living standards, but also the possibilities of financing the investments from own funds (at least partially). The investments indicate their managerial skills as well as willingness to adjust their farms to the changeable operating environment which plays an important part in the maintenance of competitive abilities of the farms in the long-term perspective.

The incomes of holdings were divided into two parts. One of them represented the cost of farm family labour (conventionally calculated costs of own work), the other part represented the return on own capital invested in these holdings.

The calculated level of costs of own work was not high in comparison with the average wages in industrial enterprises employing 10 and more people. These relations amounted to 55% in Germany, 56% in Poland and almost 60% in Hungary. The average figures, however, do not reflect the complexity of the situation, because the unit costs of own work were positively correlated with the size of holdings. In the biggest holdings (100 and more ESU) these relations amounted to respectively: 76%, 83,5% and 95%. It is obvious that the smaller the holdings were, the worse the relation, and in the smallest holdings (2-4 ESU) it reached only 50%.

The calculated average rate of return on own capital for the Polish holdings was very big and amounted to 10.5%. The rate was negative only for approx. 9% of the analyzed groups of holdings and for the rest of them it varied from 1.8% to 30.4%. For about two-thirds of the analyzed groups the rate of return amounted to 5% and more, which means that it was at least equal to the deposit interest rates at commercial banks.

In 13% of the analyzed groups of Hungarian holdings the rate of return on fixed assets was negative, and in the remaining ones it varied from 0.2% to 15.5%. In German holdings, however, in as many as 73% of the analyzed groups the rate of return was negative, while in the remaining ones it varied from 0.5% to 13.4%. Generally, the average rate of return on fixed assets in the Polish holdings was about 71% higher than in the Hungarian ones and as many as 16-17 times higher than in the German ones.

In view of the above we can state that the Polish agricultural holdings have big competitive advantages in comparison with the holdings in the other EU countries operating in similar natural conditions.

The rates of return on own capital had different values in each size group of holdings in the three countries under analysis. They were smaller in the Polish holdings of 2-16 ESU than the rates calculated for the Hungarian holdings (in Germany the incomes of such small holdings were not recorded). Therefore a thesis can be put forward that the production efficiency of the Polish small though market-oriented agricultural holdings was far from being good in the period concerned. In the case of larger holdings these differences were in favour of the Polish holdings, in relation to both Hungarian and German ones.

The analysis was done on the basis of the statistical data for 2004 as well as the attempt was made to estimate the return on own capital employed in the Polish agricultural holdings in 2007. The starting point was the data for 2004, partly revised. The incomes of holdings were made bigger because of the growing amount of support per year as well as the growing material costs of production caused by the changes in prices of production means and the costs of hired and own work. The analysis was also based on the assumption that the holdings were not able to substitute labour inputs with capital as the period between 2004 and 2007 was too short. It was stated that the changeable operating environment of the Polish agricultural holdings in the years 2004-2007 led to the deterioration of the rate of return on own capital for the holdings of up to 16 ESU and simultaneously they caused the growth in the rate for larger holdings.

The decrease in the rate of return on own capital was observed in vegetable holdings and its very small growth in pig and poultry holdings, orchard holdings and holdings with mixed plant production, which combine typical field production with the production of vegetables and fruits. The reason of this situation is probably the fact that capital and labour inputs play the crucial role in these types of production while land is less important. However, the amount of support payments depends mainly on the area of agricultural land, which in turn leads to worse situation of holdings with smaller area of land. Therefore, they suffer more from the growth in costs, particularly labour costs, because the higher costs are not compensated for by the growth in support payments.

On the basis of the analysis of the situation in the years of 2004-2007 we can formulate a thesis that the changes in operating environment since 2004 have led to the differentiation of the competitive abilities of the Polish agricultural holdings of different sizes and the types of farming. The polarization of holdings into smaller (of up to 16 ESU) and less competitive ones and bigger

and more competitive ones as well as by the types of production is now observed. The holdings with the production largely based on the use of labour and capital inputs, but with the small area of land, are losing their abilities to compete.

The evaluation of the economic situation and the economic activities of different groups of the Polish holdings

According to the introductory paragraph, this part of the study is devoted to the three big groups of the Polish agricultural holdings. One of them is the group of holdings functioning on less favourable areas (LFA) which encompass around 56% of the agricultural land in Poland.

The analysis of the holdings run by natural persons, prepared on the basis of the empirical materials for 2005 shows that the holdings located on LFA have almost the same average area of agricultural land as the holdings with land of better quality, but they are characterised by smaller value of the other fixed assets and lower labour inputs⁵. These differences together with less favourable conditions led to the smaller incomes of the holdings by 7% in 2005 (in 2004 this difference was bigger and amounted to 26.5%) than the incomes of holdings functioning in better conditions. When analyzing the incomes of groups of holdings separated according to the type of production and their size expressed in ESU, some exceptions to this average picture were found. The holdings belonging to eight out of thirteen groups separated according to the type of production and the size gained higher incomes in 2005 compared to the previous year. This means a clear improvement in income situation of the holdings located on LFA in comparison with the year 2004.

The holdings on LFA had the scale of investment bigger by 42%, measured by the net investment (the gross investment reduced by depreciation of fixed assets) and were characterised by the extended reproduction of the fixed assets. The reproduction rate (the relation of the net investment to the value of fixed assets, in percentage) was slightly higher than in the compared holdings. The indebtedness of the holdings (the relation of the borrowed capital including liabilities to the total capital) was similar in both groups of holdings.

According to the above analyses, we can state that the first year after Poland's accession to the European Union as well as the next year were favourable for the Polish holdings of 2 and more ESU, which operated on LFA. These holdings were characterized by similar economic position to the holdings

⁵ J. Juźwiak: (a) *Potencjał produkcyjny i sytuacja ekonomiczna gospodarstw rolnych na terenach ONW*, IERiGŻ-PIB typescript, October 2007 and (b) *Gospodarstwa rolne na terenach ONW*, „Zagadnienia Ekonomiki Rolnej”, 3/2007.

with better quality of land, and the farm holders were even more interested in their modernization and enlargement of resources.

The analysis of holdings functioning on LFA was extended by some other issues⁶ which enabled us to formulate the following conclusions.

- No differences were noted in the migration process from the LFA in the pre-accession period and at the beginning of the membership.
- The modulation of payments for holdings on account of location on LFA lands led to unfavourable changes in the size of holdings. The process of growth in the number of holdings with the area of more than 50 ha of agricultural land was hampered in favour of the size group of 15-50 ha.
- The area of idle and fallow land was in 2004 by approx. 39% smaller than in 2002, which limited the succession of the undesired plants (weeds, sedges, etc.) on the agricultural land, so the LFA payments exerted a positive effect on the environmental protection.

The second issue under consideration in this part of the study relates to the economic position of family farms of 2 and more ESU on which no-one is insured in KRUS⁷ as well as their intentions to invest. These farmers and their families gain the majority of incomes from paid work outside the holdings (and for that reason the social insurance premiums are paid in other institution), despite the fact that they run relatively big holdings. The problem is important because it concerns approx. 36% of the agricultural holdings with the area of more than 1 ha of agricultural land.

The holdings with no-one insured in KRUS were on average by approx. 6 ESU (i.e. by 38%) bigger than the remaining holdings, on which at least one person paid the social insurance premium in this institution. They were characterized by a slightly better technical equipment and therefore less labour-intensive production, which was rather obvious. Their incomes were in 2005 on average by 4% smaller than the incomes of the remaining holdings. The averages however were not completely confirmed in the analysis of the holding groups separated not only by the relation to KRUS, but also by the type of production and the size expressed in ESU. The incomes of holdings with no-one insured in KRUS belonging to the size class of 8-40 ESU and conducting pig or poultry production had significantly higher incomes.

⁶ K. Ł. Czapiewski and G. Niewęłowska: *Ocena realizacji płatności ONW, ze szczególnym uwzględnieniem zachowań migracyjnych ludności na obszarach wiejskich*, IERiGŻ-PIB, typescript, Warsaw, November 2007.

⁷ This fragment of the text was based on two studies by M. Zieliński: (a) *Sytuacja ekonomiczna gospodarstw nie rozliczających się z KRUS*, IERiGŻ-PIB, typescript, Warsaw, November 2007 and (b) *Charakterystyka gospodarstw indywidualnych ubezpieczonych w KRUS*, „Zagadnienia Ekonomiki Rolnej”, 3/2007.

However, in the case of holdings with larger incomes from plant production, they were bigger only in the size class of 8-16 ESU. The holdings in which no one was insured in KRUS were also characterized by the extended reproduction of fixed assets, although the reproduction rate was slightly smaller than in the remaining holdings. The amount of debt per farm was about the same. The analysis of the figures for 2004 lead to similar conclusions, although the difference in incomes (by approx. 30%) between holdings of both groups, to the disadvantage of holdings without persons insured in KRUS, was significantly bigger then.

The presented observations allow us to formulate a hypothesis that the modern production techniques enable to extend the circle of agricultural producers who can gain their incomes either from agricultural holdings and from paid work outside agriculture. If this trend is confirmed in subsequent studies, then under the conditions of the growing demand for work in non-agricultural sectors of the Polish national economy, more and more rural residents will combine the incomes from agriculture with off-farm work. This practise will be common particularly among the agricultural producers who own relatively big holdings.

Third and the last big group of agricultural holdings includes large-sized holdings (with the area of at least 100 ha of the agricultural land). In 2002 they encompassed almost 3.5 million ha, i.e. 21.2% of the total agricultural land in the country and generated almost a fourth of the total agricultural commercial production of agriculture on the market. In recent years the number of large--sized holdings has increased (in 2006 there were 7,800 of them), although their average area has decreased and amounted to around 400 ha of the agricultural land in 2006.

The attention in this study was focused on the group of about two-thirds of large-sized holdings, i.e. on the privatized former state-owned holdings. In majority of them there is no threat to continuation, or even development, of the current and investment activities. Such threats however are faced by the holdings which are located on LFA or on leased land (also partially), conducting plant production or being state-owned companies.

The large-sized farms have undergone the changes resulting from the realization of the principle of modulation for direct payments for holdings functioning on LFA. According to this principle, farms with the area of agricultural land exceeding the specific limit have to cope with the cuts in direct payments and in some cases they are deprived of them. Furthermore, there is an uncertainty concerning the continuation of the production in the long run because of the pressure of farmers who run the smallest holdings to revise

the land lease contracts concluded by the Agricultural Property Agency with the very large holdings of latifundium size. The uncertainty leads to the reduction of investments in buildings and land meliorations, because the lessees attempt rather to buy out the leased property first, which reduces the financial liquidity of holdings. The need to reorganize the holdings specialized in plant production should be reminded here, because since the moment of the accession to the European Union the prices of animal products have been on the increase. Also the one-man companies of the State Treasury have economic problems, because in part of them the deficit is of a permanent character (in 2006 around a third of those companies incurred a loss).

From the above formulations the following conclusions are drawn:

- The criteria of entitlement to support funds for holdings located on LFA should be revised. The support payments should cover the whole area of a holdings, regardless of their size.
- Legal measures to reinforce leases, especially in a long-term perspective, are required.
- The further privatization of the one-man companies of the State Treasury is necessary, particularly because their employees express their readiness and need to take an active part in this process.

VII. Economic performance of the selected agricultural products in 2006

Introduction

The study aims to analyse the following types of agricultural production, which were covered by the survey under the AGROKOSZTY Agricultural Products Data Collection System in 2006:

- in conventional farms – winter wheat, winter rye, winter triticale, buckwheat, winter rape, milk cows, bovines for slaughter, laying hens and chicken broilers;
- in organic farms – winter wheat, winter rye, winter triticale, oats, buckwheat, potatoes for human consumption, field strawberries, milk cows and porkers.

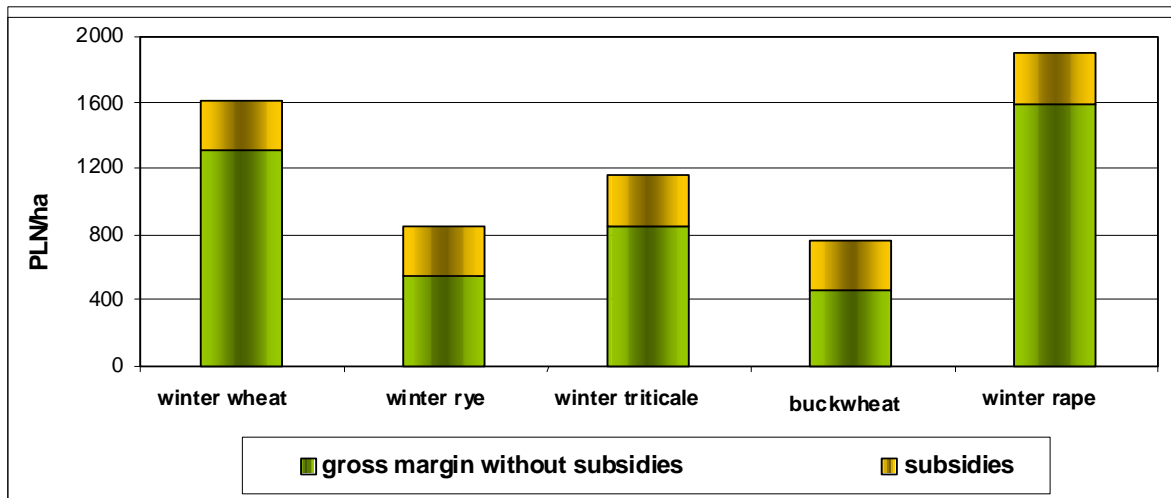
The sample from which the data was drawn is not representative of Poland as a whole. The farms are economically stronger and achieve higher production levels than the average individual farms in the country. The sample does not allow for the generalisation of the results to the whole population of individual farms. They provide, however, a reliable picture of the income situation of the activity in groups of farms, properly reflect the cost and may serve as a basis to study the interrelations between profitability of production and its determinants.

The aim of the analysis, whose selected results are presented in this study, is to evaluate the production and economic situation of the activities and to show, on the basis of reliable source data, the changes in the level and relation of inputs, as well as changes in incomes in the form of gross margin (gross margin = gross margin without subsidies + subsidies). What is also shown is the impact on financial support in the form of subsidies (i.e. received complementary payments and subsidies from the organic farming package).

Results of production activities in conventional farms

In 2006, the level of gross margin, which was provided by the surveyed activities of agricultural production, had a quite vast range of values, the highest value was accounted for by winter rape and winter wheat and the lowest ones were related to buckwheat and winter rye.

**Gross margin obtained from crop production
in 2006, on average in the surveyed set of farms (in PLN/ha)**



In the selected groups of agricultural holdings, i.e. **the best, the average and the weakest**, in the case of all types of the crop production under survey, the basic determinant of the achieved economic performance were production and price conditions. Considering the farms one by one, the downward tendency of the crop level and the selling price of the products is clear and, as a consequence, also the income in the form of gross margin. It should be noted that the yield variation between the extreme groups of farms was very high, e.g. in the case of winter wheat – 1.7 times, and winter rape even 2 times; the level of obtained yield was not always related to the quality of soils. The variation of selling prices of particular products was not so strong (did not exceed 7-30%), which can be justified, as agricultural producers usually do not have the possibility to change the selling prices of their products too much.

The highest level of gross margin of the surveyed activities, thus classification of agricultural holdings as the best ones, resulted from the highest yields, the highest selling prices of products, as well as relatively low direct costs incurred for most of the examined activities. One exception was buckwheat, in case of which the best production results were related to the highest level of direct costs. The lowest level of gross margin and classification of farms to the group of the weakest ones were determined by the lowest yields and the selling prices of the products, as well as most often quite high direct costs. In the structure of direct costs, the cost of mineral fertilisers, pesticides and the cost of seeding material had definitely the highest share.

High differentiation between the best and the weakest farms – in favour of the former – of the value of production and gross margin obtained from 1 ha of a given kind of crops was the consequence of the differences in yields and prices.

In the first case, the lowest difference, by 1.8 times, was observed for winter wheat, and the highest, by 6 times, for buckwheat. The differentiation of gross margin was contained within the range from 2.2 to 3.9 times, the lowest was recorded for winter wheat, while the highest for winter rape. It should be noted that the amount of obtained gross margin was more determined by the level of the production value, rather than the level of incurred direct costs. The best holdings obtained the most advantageous results from the examined activities while incurring relatively low direct costs. It means that material and labour inputs were incurred in a more efficient way.

The activities carried out in the best farms were competitive in terms of the incurred direct costs; their level calculated per 1 PLN of production value, in comparison to the weakest agricultural holdings, was several times lower. The detailed data are presented in the table below.

Direct costs per 1 PLN of the value of production (in PLN)

| Activity | Averages in agricultural holdings | | |
|------------------|-----------------------------------|----------------------------|----------------------------|
| | 25% of the best ones | 50% of the average ones | 25% of the weakest ones |
| Winter wheat | 0.31 | 0.43 | 0.54 |
| Winter rye | 0.27 | 0.41 | 0.66 |
| Winter triticale | 0.24 | 0.37 | 0.66 |
| Buckwheat | 0.23 | 0.26 | 0.59 |
| Winter rape | 0.30 | 0.44 | 0.75 |

To answer to the question what factors differentiate the gross margins obtained from grain crops, the data for wheat and rye were evaluated by means of statistical methods. The technique of grouping empirical data used in the research did not enable clear determination of the causes of the variation of the gross margin. Its amount was mainly determined by the yield level, while the cause of the variability of yield should be searched for among additional factors, such as weather conditions or the quality of the applied technologies. The relatively small significance of inputs and direct costs for explanation of the variability of yields of the two crops indicates that the farmers were operating in efficient way, adjusting the level of inputs to the volume of the expected yield.

An analysis of the results for the surveyed activities within the livestock production also shows their high variation, the factors which mostly decided about the results were different depending on the activity under survey.

Aggregation of holdings keeping milk cows showed a positive correlation between the amount of gross margin realised per 1 milk cow and the number of

cows kept on the farm. It means that the highest gross margin was obtained by farmers on the best farms, who kept on average – 31.7 heads, and the lowest on the weakest farms – with the average herd of 8.8 heads. It was also recorded that, along with the growth of the livestock number, the milk productivity of the cows and the milk selling price were growing as a consequence, the two factors had the great impact on the achieved economic performance. Farmers in agricultural holdings with the higher number of cows incurred much higher direct costs for maintaining them, which was mainly the effect of a different way of feeding. However, the level of direct costs indicated a clear decreasing tendency calculated per 1 litre of milk, in the weakest farms they amounted to PLN 0.58, the average ones – PLN 0.43, while in the best ones – PLN 0.39. Also the direct costs incurred on the production of 1 PLN of total production value were going down, in the weakest farms they amounted to PLN 0.57, in the average ones – PLN 0.39, while in the best ones – PLN 0.34.

The main factors differentiating the level of gross margin obtained from egg production, calculated per 100 laying hens, was the egg selling price and laying ability of hens, which was, at least to a certain degree, dependant on the number of laying hens. Also the level of direct costs was significant. In the best farms, the highest egg selling price (PLN 0.47 per item) and a relatively high laying capability (218 eggs per one hen), despite the highest direct costs, determined the highest level of obtained gross margin – PLN 5340. Egg producers in average holdings obtained income in the form of gross margin in the amount of PLN 2879, while in the weakest ones only PLN 887. It should also be noticed that the difference between the extreme farms, i.e. the best and the weakest ones, to the disadvantage of the latter, in the case of production value amounted to 2.4 times, while the gross margin – as much as 6 times. The main reason for the situation was very low laying capability of hens in the weakest holdings (113 eggs), as well as their lower selling price (by PLN 0.12 per item).

The analysis of the results obtained from the production of cattle for slaughter – in the successive groups of holdings, i.e. the best, the average and the weakest ones – indicates a clear downward tendency of their selling prices and gross margin and a growing tendency of direct production costs. The variation in their level between the groups of holdings was so strong that they were determining the amount of the obtained gross margin. Growing direct costs include the effect of a different way of feeding animals. It turned out after the calculation of the incurred direct costs per 1 PLN of the production value that they amounted to PLN 0.56 among the best ones, the average ones – PLN 0.80, and the weakest ones – PLN 0.99. The level of income in the form of gross margin was mainly

determined by the amount of production costs. The selling price of bovines for slaughter also influenced the obtained results, as it was gradually falling down, the difference between the extreme groups of holdings amounted to PLN 0.40 per 1 kg of slaughter weight. The gross margin obtained in the best farms in relation to the weakest was almost 10.8 times higher, farmers were obtaining PLN 227 and 21 for 100 kg of bovines' gross slaughter weight respectively.

The survey carried out revealed also huge differences in gross margin obtained from the production of poultry for slaughter. Just like in the case of cattle for slaughter, the factors which determined its level were the selling price of poultry for slaughter and direct production costs. The price was decreasing in all best, average and weakest holdings, whereas direct costs – had a reverse tendency. As a result, a gradual decline of the level of gross margin was recorded, which amounted to PLN 77 in the best farms and PLN 43 per 100 kg in the average ones. Farmers in the weakest ones, however, did not gain that income, the value of production obtained from 100 kg of gross slaughter weight covered direct production costs only in 99%. It is noted that the single use of feed and its cost were the main reasons of the differences in direct costs. It turned out after the calculation of their amount per 1 PLN of the value of production that they amounted to PLN 0.72 in the best agricultural holdings, PLN 0.83 in the average ones and as much as PLN 1.01 in the weakest ones.

Regional approach to the population of agricultural holdings practising production activities makes it possible to evaluate their profitability against the agricultural and natural, as well as economic and organisational conditions. Grouping of results for the examined activities showed some trends, which testify to different use of the production potential.

While analysing crop production, three out of five examined crops had the highest yield level in the region of Wielkopolska and Śląsk. However, taking into account the value of production as derivative of the yield and selling price, the highest value was obtained in the region in four kinds of activity, i.e. rye, triticale, rape and buckwheat. In the region of Wielkopolska and Śląsk, intensity of production activities was higher than in the other regions. For most activities, the use of NPK fertilisers was the highest, just like the cost of the applied plant protection substances, and therefore the direct costs of crop growing per 1 ha were also high. Besides, the labour consumption of crop growing were at a low or medium level.

Different tendencies were observed in the region of Małopolska and Pogórze, which, at least to some extent, results from the limiting impact of the structure of agricultural land. In the region, the yields of three activities (i.e. rape, rye and triticale) out of five examined ones was the lowest. For most of

the activities, the use of NPK fertilisers and the cost of pesticides was at a low or medium level. As a result, the direct costs of growing 1 ha of crops of three activities (i.e. rape, wheat and triticale) were the lowest. The labour inputs for all the examined kinds of crop production was the highest.

The income in the form of gross margin achieved for the surveyed activities is the effect of regional circumstances, among others the structure of the area of holdings, intensity of operations, natural conditions and the level of professional knowledge of farmers. The highest gross margin from two activities, i.e. buckwheat and winter rape, was achieved by producers in the region of Wielkopolska and Śląsk. In the case of two others (winter rye, winter triticale) – in Mazowsze and Podlasie, and in the case of one of them (winter wheat) in the regions of Małopolska and Pogórze.

Adoption of the regional approach to the production and economic results for the examined livestock production activities also showed their significant variation. It testifies to different concentration and intensity of the production carried out, also the natural and agro-technological background or location of the holding in relation to local markets are not without importance. The high share of permanent grassland in the regions of Mazowsze and Podlasie contributes to the maintenance of large herds of milk cows and the production of cattle for fattening. The survey revealed that this was the region where income in the form of gross margin for those activities was at a higher level in comparison with the other regions, despite the fact that direct costs related to the production were high. In the region Mazowsze and Podlasie, the gross margin calculated per 1 cow amounted to PLN 4111, which was determined by the high milk productivity of cows (5572 litres) and the milk selling price – PLN 1.02 per litre, which, compared with the other regions, was the highest. The lowest income in the form of gross margin – PLN 3829 per 1 cow was obtained by milk producers in the region of Małopolska and Pogórze. The determinant factors were only production and price conditions, as the direct costs were lower as compared to the other regions.

The level of gross margin obtained from the production of cattle for slaughter was influenced by the relations between the selling price and the unitary production cost in particular regions. In Mazowsze and Podlasie, the selling price of bovines for slaughter was relatively high (PLN 4.85 per kg), ensuring coverage of the direct costs and a gross margin at the highest level, i.e. PLN 128/100 kg of the gross slaughter weight.

The factors which determined the achieved results were different depending on the production activity. In the case of poultry for slaughter, its selling price in the considered regions was at a similar level. Thus, the income in

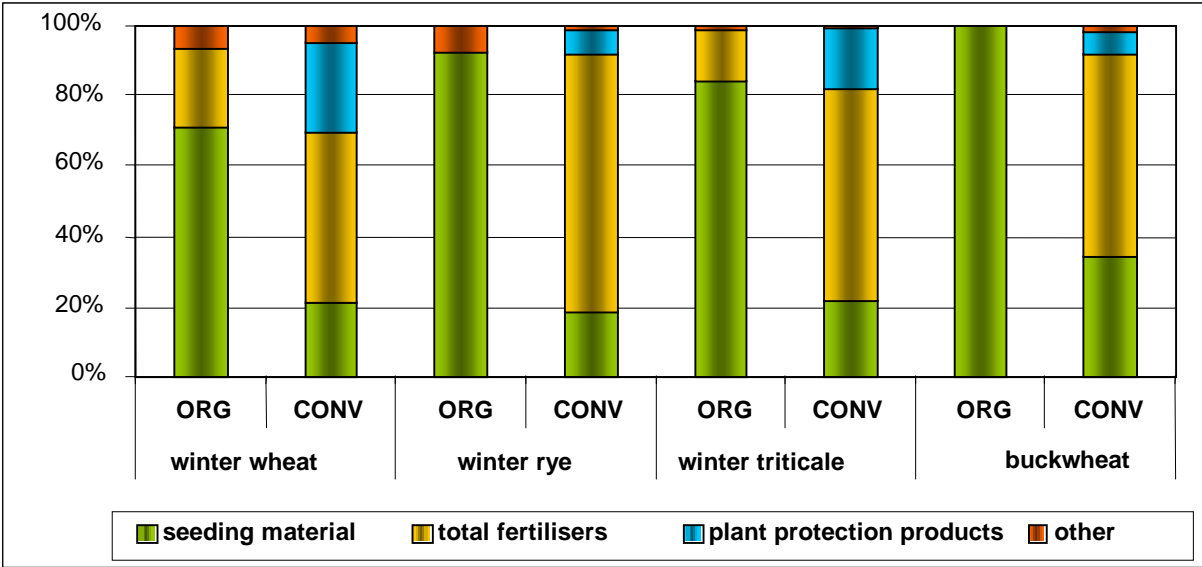
the form of gross margin was determined almost entirely by the amount of direct costs, and in particular the level of the cost of feed derived from outside of the agricultural holding.

Results of production activities in organic farms

In 2006, the organic farms, where the survey of production activities was carried out, were located mostly in the regions of Mazowsze and Podlasie and Małopolska and Pogórze. It results mainly from the intensive development of organic farming in the regions; the sample included only a few holdings from the region of Pomorze and Mazury.

The survey showed that the results of the grain production on organic farms against the selected sample of conventional farms was very poor. The yield level was lower by 5.9% for buckwheat to 36.4% for winter triticale. The selling price of most of the organic products was higher, for example buckwheat seeds even by 31.1%. The item which should be paid special attention to are direct costs incurred in relation to growing the examined grain crops, their level in organic agricultural holdings was several times lower than in the conventional ones (from 2.2 times for buckwheat to 5.2 times for winter triticale). The share in the structure of particular direct cost components was also different.

The structure of direct costs of selected grain crops in organic and conventional agricultural holdings in 2006 (per cent)

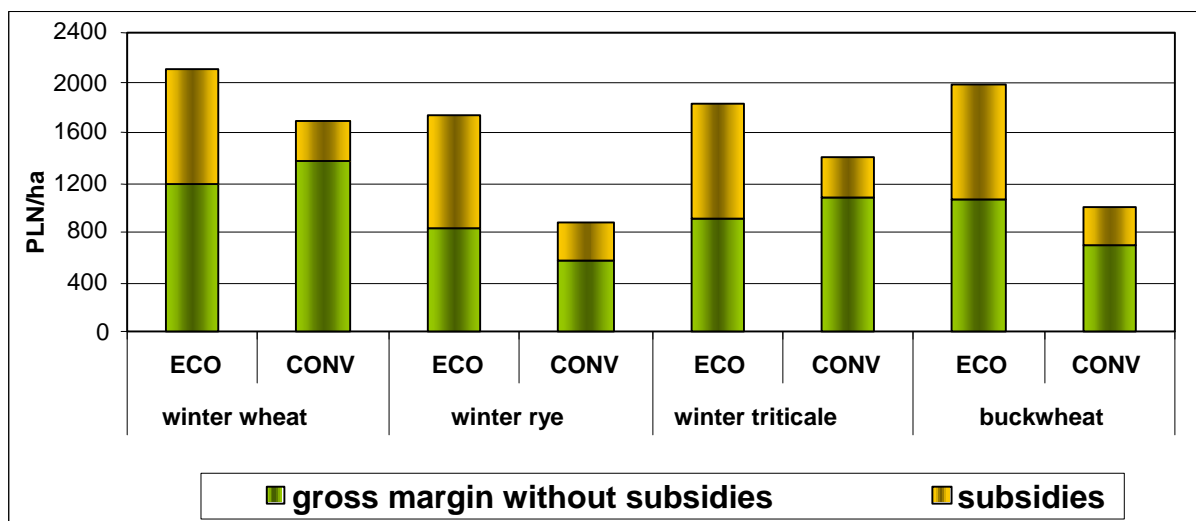


It should be borne in mind that mineral fertilisers of chemical origin are not allowed in organic farming, which is most probably the basic reason for the lower yield of grain. Significantly limited fertilisation and elimination of

plant protection chemicals determined the level of direct costs and their amount had the influence on the income in the form of gross margin.

Subsidies were a significant position in the gross margin calculation (organic + complementary), their share varied between 43.5% for winter wheat to 55.8% for oats. The impact of support in the form of subsidies was huge, the income in the form of gross margin from 1 ha of crops, in the case of winter wheat reached the level of PLN 2107, buckwheat – PLN 1972, winter triticale – PLN 1817, winter rye – PLN 1743, and oats – PLN 1636. The results obtained for the examined grain crops in organic farms were much better than in conventional ones.

Gross margin obtained from selected grain crops in organic and conventional agricultural holdings in 2006 (PLN/ha)



It should be noted that the gross margin without subsidies, for grain crops of smaller soil requirements, that is rye and buckwheat, was higher in organic farms. On the other hand, for wheat and triticale, despite higher selling prices and very low direct costs, it was lower than the one achieved in conventional holdings. However, the final, much higher level of gross margin in organic farming was influenced by the statutory payments received by farmers, the dependence of economic performance on support in the form of subsidies is, therefore, obvious.

Considering the level of gross margin for milk cows in organic and conventional agricultural holdings, such tendencies as observed for grain crops, are not so clear. In the organic livestock production, feed concentrates and complete mixed feed should be eliminated from nutritive fodder, therefore, to compare the results, those holdings were selected from the survey sample of

conventional farms, which also did not use them in feeding and kept a similar number of cows.

Results at the level of gross margin without subsidies indicate a slight advantage of milk production in conventional farms. It was determined by the higher milk productivity of cows (by 13.4%) and the milk selling price (by 2.3%). In spite of the fact that direct costs of cow maintenance in conventional agricultural holdings were much higher (by as much as 60.4%), the value of the obtained gross margin without subsidies – in relation to the organic farms – was higher by 5.2%, calculated per 1 cow it amounted to PLN 2716. However, after taking into account the subsidies to the relevant feeding area, milk producers in organic holdings obtained slightly better results, the gross margin calculated per 1 cow amounted to PLN 3076 and in relation to the level in conventional farms increased by 4.6%. What contributed to that were subsidies higher by as much as 2.2 times; it should be observed that the average area devoted to the production of fodder for on-farm purposes only was similar in both groups of holdings.

It is estimated that the improvement of the profitability of milk production in organic farms should be expected especially due to the growth of milk procurement prices, mainly caused by its quality. To make it possible, though, milk buyers must treat that product preferentially and accept higher prices paid to producers.

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VIII. Institutional factors in socio-economic development of rural areas

Rural development is influenced by many socio-economic, cultural, organisational and other factors. It is difficult to say, however, which of them is the most important. But it is obvious that the socio-economic development of rural areas depends to a great extent on effectiveness of the institutional system. We started with the assumption that the institutional system encompasses the social norms, principles, organisations and mechanisms, which represent mutual relationships between all participants in the process of socio-economic rural development.

The institutional system of rural areas has undergone many changes in recent years, resulting from further decentralisation of rural development policies. They have manifested themselves, among others, in the creation of the institutional environment (norms and principles) ensuring better conditions for the development of effective organisational structures and the formation of new economic, social, ecological and spatial spheres in rural areas.

Public organisations (governmental and self-governmental institutions) play the most important role in rural development. They can gather information and have substantial knowledge of specific problems in rural areas as well as the power to effectively influence human behaviour. The legislative and financial power of private and non-governmental organisations is much smaller.

The evaluation of the impact of the rural institutions/organisations on the local socio-economic development and the proposal for their reinforcement was prepared on the basis of the materials of the Central Statistical Office (CSO) Local Data Bank as well as the empirical materials collected in the surveyed gminas and institutions/organisations of the mazowieckie, opolskie, podkarpackie, podlaskie, warmińsko-mazurskie, wielkopolskie and zachodniopomorskie voivodeships. Of the 876 surveyed institutions supporting local socio-economic development, local self-governments accounted for 25.0%, private – 12.3%, and non-governmental – 72.7%.

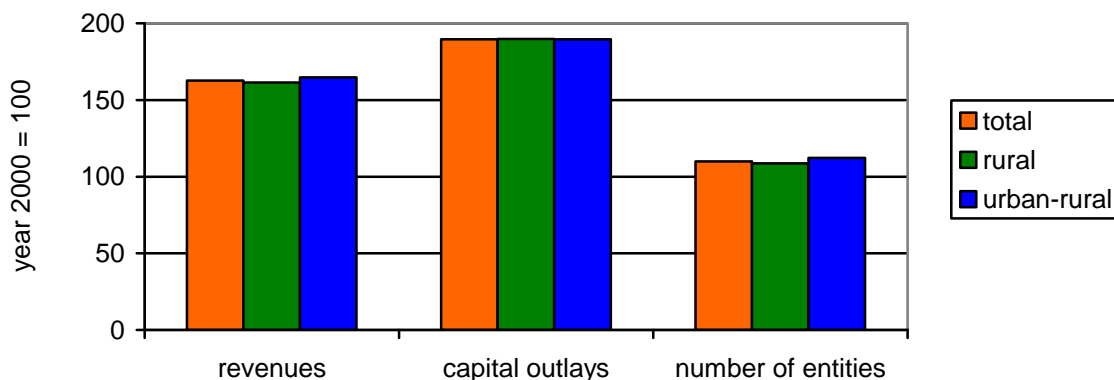
The role of the institutional system in the socio-economic development in rural areas was examined. The results of the survey show that the operations of

economic entities (enterprises) are of crucial importance for the creation of relations at the local level. Local self-governments are particularly important in supporting entrepreneurial activity in rural areas.

Gmina budget instruments

The impact of local governments on non-agricultural activities is based on the existing legislation. The most important in this regard are: the Act on gmina self-government¹, the Act on public finance² and the Act on freedom of business activity³. They specify these areas, in which a gmina (rural municipality) may contribute by its actions to the regular and lawful development of business activity. However, on one hand it depends on the effectiveness of local administration, on the other hand – on the dimensions of local development reflecting the financial situation of gminas.

Changes in the level of revenue and capital expenditure of gminas per capita and in the number of entities registered in the REGON system per 10,000 persons of working age in the period of 2000-2006



Source: Own calculations based on CSO data.

The research confirmed the relationship between the financial situation of a gmina, its investment activity and the development of non-agricultural business activities. It is proved by the clear positive correlation between gminas' revenues and capital expenditures and between capital expenditures and the number of economic entities in the period of 2000-2006. The correlation coefficient between the above mentioned variables was significant at the level of $\alpha=0,05$ in all years of the period concerned. The correlation coefficient between gminas' revenues and capital expenditures amounted to 0.77 in 2006, which

¹ Journal of Laws 1990 No. 16 item 95 with later amendments.

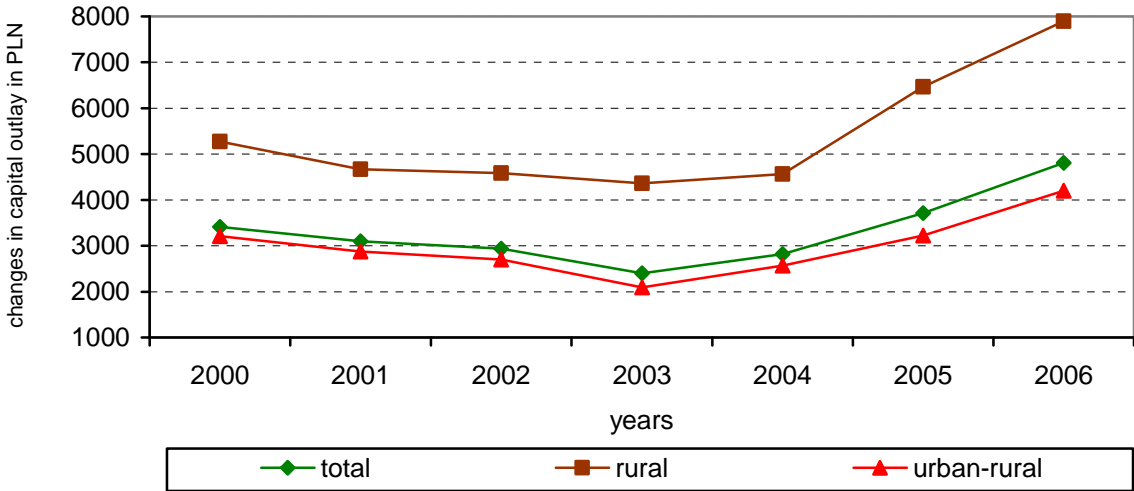
² Journal of Laws 1998 No. 155 item 1014 with later amendments.

³ Journal of Laws 2004 No. 173 item 1808.

means that the growth in revenues leads directly to the growth in investment. The relation between gminas' investments and the development of business activity was slightly different. It was also significant, but much weaker. It results from the fact that most investments are directed towards improvement in physical infrastructure which is indispensable for enterprise development and competitiveness. Not surprisingly therefore, access to infrastructural facilities is a key consideration when investors make decisions about locating their operations.

Local governments have their impact on the development of non-agricultural economic activities through investments in infrastructure, on condition of the substantial growth in revenues, especially gminas' own revenues, which they can distribute independently. Such tendency was observed in the years 2000-2006, with a significantly higher pace of growth in budget revenues since 2004. As a consequence, they reached the level of PLN 739 per capita in urban-adjacent rural and rural gminas in 2006 and it was over 60% higher than in 2000. In the same period, capital expenditures increased by almost 90% and amounted to PLN 431 per capita in 2006. It was, above all, the result of a clear increase in the pace of growth of capital expenditures in 2004, closely associated with Poland's accession to the European Union. The rise in the number of economic entities was, however, much slower than the growth of revenues and capital expenditures. In 2006, in urban-adjacent rural and rural gminas, there were 1005 economic entities per 10,000 persons of working age, i.e. only 10% more than in 2000.

The growth in capital expenditures of rural gminas connected with setting up an additional economic entity with a status of natural person in 2000-2006

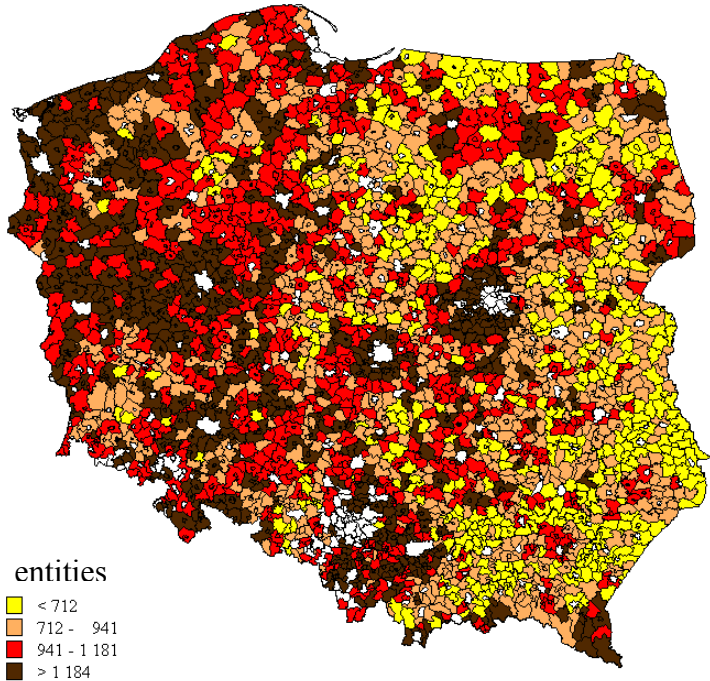


Source: Own calculations based on GUS data.

Therefore, legislative measures ought to be taken to encourage entrepreneurial activities and facilitate business operations. Otherwise, the costs of economic development incurred by gminas would be higher and higher, especially in rural gminas, where nowadays setting up a new entity having a status of natural person requires more than twice as high capital expenditures than in urban-adjacent rural gminas.

The necessity of the changes in legislation is due to the fact that the level of development of non-agricultural economic activities varies by region – the concentration of economic entities in the Western voivodeships is considerably higher. To narrow the gap – or at least to keep it at the current level – only by means of financial instruments being at the disposal of self-governments is practically impossible, because of significantly lower level of the budget revenues. Nevertheless, the local development policies will grow in importance e.g. thanks to elimination of external barriers to the development under the currently binding legal regulations.

The number of economic entities registered in the REGON system per 10,000 residents of working age in 2006



Source: Own calculations based on CSO data.

The research showed that the decisions on choosing rural locations for businesses were also determined by other factors. The entrepreneurs preferred gminas with the highest number of inhabitants and the highest population density as well. Most of them undertook business activity in gminas with the highest share of persons of working age as well as in those which were

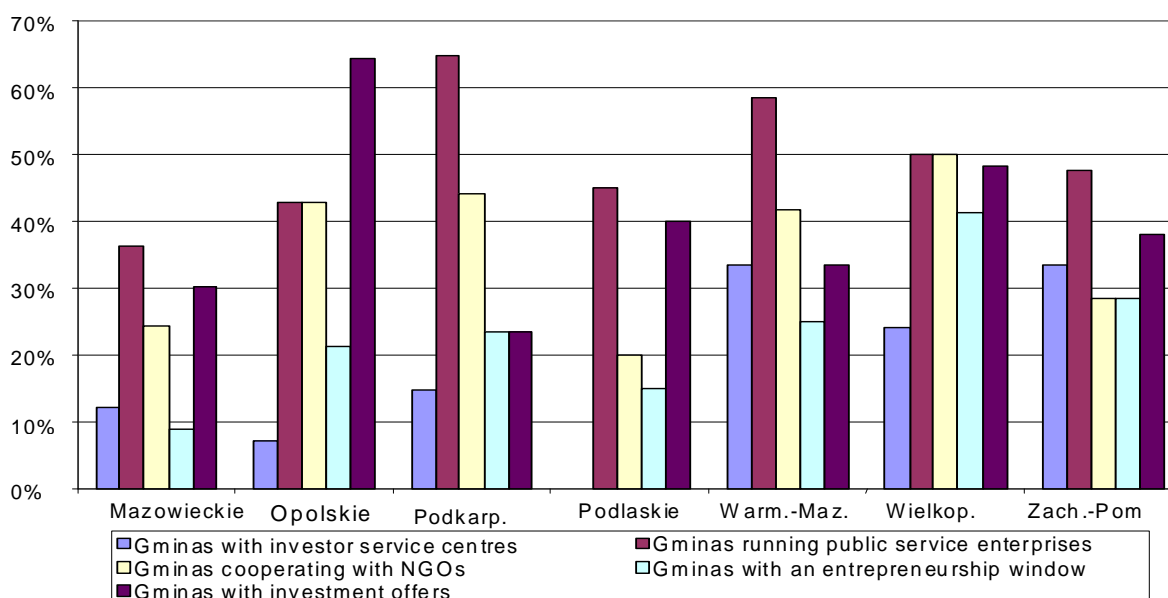
characterised by the growth of this share in the period concerned. Natural persons who start their businesses usually take into account the effectiveness of local authorities in gaining the EU funds for new investments.

In view of globalization and economic integration, local self governments now face the necessity of launching new actions to develop the non-agricultural spheres in their gminas. Various activities in the gminas⁴ make the rural areas more attractive to potential investors. A significant role in increasing the attractiveness of gminas as investment areas play local self-governments by means of direct and indirect instruments.

Direct instruments

The analysis made it possible to obtain empirical data concerning the application of direct instruments aimed at stimulating local economic activity and employment growth, especially in the production and service spheres of the examined gminas. Among direct instruments, public services rendered by local governments dominated. About 50% of the gminas under research declared their share in the public service enterprises existing on their territories. Many enterprises with the status of public-private partnership were able to launch actions for the benefit of a wider community and they had positive influence on local entrepreneurship.

Selected instruments of direct support to non-agricultural business activity (in percentage)



⁴ In the years 2006-2007, research was carried out in 193 gminas of mazowieckie, opolskie, podkarpackie, podlaskie, warmińsko-mazurskie, wielkopolskie and zachodniopomorskie voivodeships.

The growth of business activity enhancing the employability of rural areas depended on the appropriate preparation of building sites for business operations and the cooperation with local non-governmental organisations. Promotion efforts launched at the initiative of the local councils (promotional initiatives) and the separation of attractively located parcels of land connected to physical infrastructure for the purpose of selling them were declared by almost 40% of the gminas on average, while the highest shares of these gminas were in opolskie voivodeship – almost 2/3 and the lowest in podkarpackie – 23%.

Direct instruments and non-agricultural business activity

The analysis confirmed the thesis about the relationship between the level of non-agricultural business activity and the use of direct instruments by the gminas. The higher level of support for non-agricultural entrepreneurial activity led in most cases to the increase in the number of economic entities per 10,000 persons of working age. The relationship is particularly visible in the activities of local entrepreneurship windows and the advisory service centres. Also the demographic and socio-economic indicators of the gminas (e.g. the share of capital expenditures in total expenditures, the level of education) are positively correlated with the degree of implementation of the entrepreneurship supporting instruments. The leading gminas are characterised by the significantly higher indicators and better demographic structure of population.

Selected direct support instruments and non-agricultural business activity

| Selected direct instruments (percentage of gminas) | Number of entities per 10,000 rural residents | | | |
|--|---|---------|----------|-------|
| | < 600 | 600-900 | 900-1200 | >1200 |
| Advisory service centres | 6.7 | 13.5 | 19.2 | 23.4 |
| Public services enterprises | 20.0 | 53.4 | 50.0 | 54.0 |
| Cooperation with non-governmental organisations in favour of non-agricultural economic development | 20.0 | 39.7 | 45.3 | 29.7 |
| Local entrepreneurship windows | 13.3 | 24.6 | 28.1 | 32.4 |
| Investment offers | 40.0 | 32.9 | 37.5 | 51.3 |

Source: The data obtained from the survey, the CSO Regional Database.

Indirect instruments

The principal indirect instruments applied by gminas in order to support the non-agricultural activities are: development of physical infrastructure and strategic planning. The benefits from applying those instruments consist in the fact that they shape the spatial and economic structure of gminas and they may be implemented in the long-run. Physical infrastructure is needed to support economic activity and may be one of the methods of attracting potential

investors. The analysis indicated that the physical infrastructure in most of the surveyed gminas was underdeveloped and inadequate for the demands of a market economy. In around 90% of the surveyed gminas, the level of the physical infrastructure was two times lower in relation to the top gmina.

The analysis of activities of the local authorities showed that about 90% of the surveyed gminas had their development strategies, which enabled them to apply for the EU structural funds under the existing legislation. For 85% of the gminas, the physical infrastructure was a priority in long-term investment plans.

Local authorities focused their special attention on stimulating non-agricultural business activity by promotion of gminas, by means of various methods, such as publications, advertising (hoardings, posters), local press, magazines, radio and TV, Internet, conferences etc.

Significantly smaller number of gminas (about 50%) conducted actions aimed at raising the vocational qualifications of rural population as their skills often do not match the requirements of businesses. The high qualifications of rural workers make it possible to establish competitive socio-economic structures as well as introduce technological innovation. Among these activities, the dissemination of information on vocational trainings and courses represented the highest share (65% of answers), providing training facilities represented 39%, while the share of financial assistance (scholarships) was the lowest – 13%.

Spatial management plan is still a neglected instrument. Such plans that covered the whole territory of a gmina or the selected smaller areas, had only 14% of the surveyed gminas, despite the fact that they are of crucial importance for each investor. The plans may be used by local authorities to formulate their long-term economic policies at the local level which determines gminas' competitiveness.

In the geographical approach, the gminas in opolskie and zachodniopomorskie voivodeships were the leaders in application of the indirect instruments intended for the development of non-agricultural business activities. They had also better socio-economic and demographic indicators (e.g. the share of capital expenditure to total expenditure).

Indirect instruments and non-agricultural business activity

The results of the survey confirmed the relationship between the level of non-agricultural business activities and their support by the indirect instruments. According to the results of the research, local self-governments had significant influence, through their relations with economic entities and other organisational units among other things, on improvement in the conditions for

conducting economic activities on the territory of surveyed gminas and on local residents' lives.

Selected indirect instruments and non-agricultural business activities

| Selected non-agricultural instruments (percentage of gminas) | Number of entities per 10,000 persons | | | |
|---|---------------------------------------|---------|----------|-------|
| | < 600 | 600-900 | 900-1200 | >1200 |
| Development strategy | 60.0 | 72.6 | 89.1 | 72.9 |
| Absorption of EU funds | 53.3 | 34.2 | 28.1 | 32.4 |
| Projects in the scope of non-agricultural business activity | 6.6 | 13.7 | 26.5 | 16.2 |
| Actions towards the improvement of vocational qualifications | 53.3 | 71.2 | 64.0 | 54.0 |
| Spatial management plan | 6.7 | 20.5 | 18.7 | 16.2 |

Source: Survey of gminas, the CSO Regional Database.

Other organisations supporting rural development

Of the 683 organisational units (private and non-governmental) supporting local socio-economic development in 2005 and 2006, the most significant share (73%) was represented by non-governmental organisations. However, their financial bases were weak in comparison to both the public and the private sector entities. The results of the research indicate that various actions of the surveyed organisations had a significant impact on rural development. Their efforts aimed at promoting rural entrepreneurship, improvement in human and social capital, land development and environmental protection proved their comprehensive approach to rural development.

Economic situation of rural areas in the examined voivodeships according to the share of organisations supporting economic development to their total number in 2005.

| No. | Specification | Share of organisations supporting business activity | |
|-----|---|---|-----------|
| | | under 50% | above 50% |
| 1 | Own revenues of gminas per capita in PLN | 618.44 | 645.15 |
| 2 | Number of workers per 10,000 rural residents of working age | 1499 | 1813 |
| 3 | Number of economic entities per 10,000 rural residents of working age | 971 | 1054 |
| 4 | Aggregated indicator of gminas' economic development (national average = 100) | 96.9 | 104.3 |

Source: The data from survey of 2005 and the CSO data – Local Database.

Conclusions

The analysis of the gminas confirmed that the higher share of organizations supporting local development together with the generally higher level of development of the economy were observed in the gminas characterised by higher development potential. Such situation is conducive to launching local economic and social initiatives aimed at stimulating business activities which leads to:

- creation of new jobs for rural residents and farmers who combine their work in agriculture with off-farm jobs or farmers who have to quit agriculture,
- improvement in income situation of gminas and the local communities,
- increase in investments aimed at satisfying local needs,
- development of physical and human infrastructures.

Research showed that the improvement in competitiveness of the gminas is determined by pro-development initiatives launched by local authorities and the introduction of innovations. It is also advisable to ensure stable macro-economic conditions, such as proper fiscal policy and effective institutional structures, in order to enhance the competitiveness of the Polish agriculture. The mechanisms will have more and more significant share in the formation of local socio-economic structures.