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THE SOCIOECONOMIC CONDITIONS OF SAVING BEHAVIOURS IN POLISH HOUSEHOLDS[1]

Paulina Anioła-Mikołajczak, Zbigniew Gołaś
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Abstract. The study attempts to identify the socioeconomic determinants of propensity to save and saving rate in Polish households. The research was done on the individual data of the Social Diagnosis by means of the method of logistic regression The results of logistic regression analysis confirmed the fact that above all, the significant factors affecting the propensity to save in households are as follows: the householder's sex, place of residence, level of education, socio-occupational status and marital status, health aspects (disability and health problems), the biological type of the family, the number of people in the household and the income level in its absolute and relative aspect. On the other hand, the saving rate is chiefly determined by: the householder's sex, age, level of education, disability as well as the socio-occupational status and income level.

Key words: households, savings, logistic regression

INTRODUCTION

The starting point for analyses of households' saving behaviour are Keynes' [1936] and Friedman's [1957] income theories and the life cycle theory [Modigliani 1954]. These hypotheses, chiefly based on the income structure and demographic structure, continue to be widely used in the analysis of saving behaviour. However, as Japelli [2005] thinks, none of these theories on their own provides a sufficient explanation to saving behaviours in households. Too narrow approach to these hypotheses may result in omission of many other important aspects and factors affecting the financial behaviour of households. These hypotheses became the starting point of further research, which enriched and modified those theories with the elements omitted in starting theories and revoked hardly realistic assumptions, trying to bring the theories closer to reality [Rha et al. 2006, Wójcik 2007].

[1]The study is based on a research project done as part of the research project contest organised by the National Bank of Poland, to be completed in 2012, financed from the funds of the National Bank of Poland.

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The main goal of the study was an analysis of the socioeconomic conditions of households in Poland, such as the propensity to save and saving rate. The propensity to save in this study is understood as the percentage of households with savings. On the other hand, the saving rate was designated on the basis of the relation between the savings value and income gained by the household.

THE SOCIOECONOMIC CONDITIONS OF SAVING BEHAVIOURS

The factor which unquestionably significantly determines the saving behaviours of households is their income. The income level determines the very fact of having savings, thus affecting the propensity to save. An increase in income causes a decreased consumption tendency in favour of increased propensity to save [Schmidt-Hebbel 1992, Wójcik 2007]. The positive influence of increased income on saving behaviours, measured with different methods, was proved by a wide range of other studies [Beer et al. 2006, Rószkiewicz 2008, Liberda, 1999, 2000, Fatuła 2010].

Another factor affecting saving behaviours, which was already exposed in the life cycle hypothesis, is age. The life cycle hypothesis assumes a negative saving rate in youth, followed by an increase in savings with age and its positive level during the working age. The peak of savings gathered to satisfy one's needs in old age can be seen between the age of 60 and 65 years. In old age the gathered savings enable the owner to retain the quality of life despite lower income. This hypothesis has frequently been verified by numerous researchers. Avery and Kennickell [1991] found evidence to question the life cycle hypothesis. In the USA elderly people's households do not use the savings gathered during the working age to the extent assumed by the life cycle hypothesis. Demery and Duck [2006] did not positively verify the life cycle hypothesis, either. When they analysed the financial behaviours of British households, they also observed that the saving rate was positive and it grew in old age.

On the other hand, when Rószkiewicz [2006] analysed the financial behaviours of Polish households, she also found regularities related with the life cycle hypothesis. She proved the low saving rate at early stages of the family life cycle was caused by the negative attitude to saving. When Beer et al. [2006] analysed the financial behaviours of Austrian households, they observed the dependence between the age of the head of the household and the level of financial assets gathered in the household, which followed the life cycle hypothesis. Young people's households (aged 19–29 years) had net financial assets of the lowest value. The value of richness increased with age to reach its peak in the households where the household head was aged 60–69 years.

Differences between the sexes in their saving behaviours were widely researched by Fisher [2010], who observed that it is important to understand differences between men's and women's saving behaviours. Women's lower earnings, lower wealth level, higher aversion to risk, longer life and lower saving rate than men's is a significant challenge both to financial specialists and educators. Also, in Poland researchers noticed that the saving rate was one third lower in the households headed by a woman [Liberda 2000]. Besides, studies show that differences between men's and women's saving behaviours result from the differences in the level of their financial awareness [Lusardi and Mitchell 2007].

The level of education, which strongly determines one's future earnings, is another factor which has a significant positive influence on financial behaviours, including saving behaviours in households [Liberda 1999, Beer et al. 2006, Wójcik 2007, Fatuła 2010]. As results from Liberda's [1999] research, people with higher education tend to save the most (% of income). On the other hand, Fatuła [2010] in his research points to the positive correlation between the increase in the mean saving rate and the education level. The highest saving rates were characteristic [Fatuła 2010] of the households where the household head had higher education, whereas the lowest and simultaneously negative saving rates were characteristic of the households managed by people with primary school education. Rha et al. [2006] also indicate the ambiguity of the influence of the level of education on savings. They stress the fact that people with higher education may save less (have a lower saving rate) due to their expectations of higher earnings in the future. On the other hand, Wójcik [2007] notices that society's insufficient financial education may also have negative influence on saving behaviours in Polish households

Saving behaviours in households are also perceived in the aspect of the place of residence [Wójcik 2007], socio-occupational status [Avery and Kennickell 1991, Liberda 1999, Guariglia 2001, Fatuła 2010], the biological type of the family and size of the household [Liberda 1999, Guariglia 2001], and even cultural and racial diversification [Gutter et al. 1999, Rytelewska and Kłopocka 2009]. Households in big cities are characterised by stronger propensity to save, which is determined by their better access to the banking infrastructure [Wójcik 2007]. Numerous empirical studies also prove the fact that the households of married couples save more than the other types of households [Avery and Kennickell 1991, Guariglia 2001, Rha et al. 2006, Rytelewska and Kłopocka 2009]. On the other hand, Douthitt and Fedyk [1989] empirically proved that households with children save less because they need to struggle with the expenses to support the children.

SOURCE MATERIAL AND RESEARCH METHODS

The study used the individual data of the households under the survey of the Social Diagnosis in 2011. The Social Diagnosis is a complex survey of the Poles' living standard and quality of life in their own assessment. It contains information about more than 12 thousand households [Czapiński and Panek 2011].

In order to identify the factors of propensity to save and the saving rate the logistic regression method was used. In order to estimate the parameters of logistic regression models the same set of independent variables was assumed, which characterises different socioeconomic aspects of households. Then the variables were presented in Table 1.

In order to avoid collinearity in the estimation of logit model parameters selected categories of each qualitative variable were omitted, which in consequence led to the generation of a reference group in comparison with which the results were analysed. The reference group in logit models consists of the households where the heads of households are: men, people aged 25–34 years, people with higher education, people working in the private or public sector, inhabitants of cities with the population over 100,000 people, married people, childless people, non-disabled people, people without health problems, in their households no family member has been hospitalised recently for other reasons than pregnancy.

Table 1. Independent variables assumed in logistic regression models

Trait (Independent variable)	Response categories
1	2
Age	up to 24 years
	25–34 years
	35–44 years
	45–59 years
	60–64 years
	65+ years
Sex	**man**
	woman
Type of place	village
	town with population up to 100 thousand inhabitants
	city with population over 100 thousand inhabitants
Education	primary school and lower
	vocational/middle school
	secondary school
	post-secondary school and higher
Socio-occupational status	**staff of private or public sector**
	private entrepreneurs
	farmers
	old age pensioners and disability pensioners
	schoolchildren and students
	other occupationally passive people
	unemployed people
Marital status	**married**
	single
	divorced
	widowed
Biological type of family	**childless married couples**
	married couples with 1 child
	married couples with 2 children
	married couples with 3 or more children
	single-parent families
	multifamily
	single non-familial
	shared non-familial
Household member in hospital for other reasons than pregnancy	yes
	no
Disability	disabled person
	non-disabled person

Table 1 cont.

1	2
Householder's health problems caused difficulties in everyday routines or participation in other activities	**never** often seldom
Number of people in household	number of people
Number of people aged over 15 years in household	number of people
Average net monthly income in household	thousand PLN
Average net monthly income in household per head	thousand PLN per head

Reference categories marked in bold type.

Source: The authors' own compilation based on Social Diagnosis: integrated database. www.diagnoza.com [downloaded on 2 January 2012].

RESULTS AND DISCUSSION

Table 2 presents the results of a logit model estimation, where the propensity to save in households was assumed as a dependent variable. The variable assumes the value of 1 for the households that declare savings and the value of 0 for the households that declare no savings.

Table 2. The results of estimation of the logit model for propensity to save

Variable	B	Significance	Significance level	Exp(B)
1	2	3	4	5
Sex (man) woman	–0.208	***	0.002	0.812
Type of place (**city with population over 100 thousand inhabitants**)		*	0.048	
town with population up to 100 thousand inhabitants	–0.131	*	0.048	0.877
village	–0.142	*	0.020	0.868
Education (**post-secondary school and higher**)		***	0.000	
primary school and lower	–1.314	***	0.000	0.269
vocational/middle school	–0.951	***	0.000	0.386
secondary school	–0.587	***	0.000	0.556
Socio-occupational status (**staff of private and public sector**)		***	0.000	
private entrepreneurs	0.173		0.104	1.189
farmers	0.307	***	0.005	1.360
old age pensioners and disability pensioners	0.217	***	0.001	1.243
schoolchildren and students	–0.062		0.785	0.940
other occupationally passive people	–0.463	*	0.012	0.629
unemployed people	–0.839	***	0.000	0.432

Table 2 cont.

1	2	3	4	5
Marital status (**married**)		***	0.000	
single	–0.334	***	0.004	0.716
divorced	-0.303	*	0.013	0.739
widowed	-0.590	***	0.000	0.554
Biological type of family (**childless married couples**)		***	0.003	
married couples with 1 child	–0.023		0.787	0.977
married couples with 2 children	–0.132		0.213	0.877
married couples with 3 or more children	–0.503	***	0.001	0.605
single-parent families	–0.133		0.321	0.875
Multifamily	–0.005		0.972	0.995
single non-familial	–0.164		0.202	0.849
shared non-familial	–0.123		0.656	0.884
Total number of people in household	–0.75	*	0.49	0.927
Disability (**non-disabled person**) disabled person	–0.205	*	0.04	0.815
Householder's health problems (**never**)		***	0.000	
seldom	–0.137	**	0.010	0.872
often	–0.365	***	0.000	0.694
Average net monthly income in household (thousand PLN)	0.135	***	0.000	1.144
Household income per head (thousand PLN)	0.311	***	0.000	1.365
Constant	0.024		0.876	1.025
N			11533	
N included in analysis			9413	
Cox and Snell's pseudo R2			0.150	
Nagelkerke's pseudo R2			0.206	

The bracketed and bold typed traits are reference categories.
* – significant variables for $p < 0.05$; ** – significant variables for $p < 0.01$; *** – significant variables for $p < 0.005$.
Source: The authors' own compilation based on Social Diagnosis: integrated database. www.diagnoza.com [downloaded on 2 January 2012].

Of the assumed set of potential statistically independent variables the following factors proved to be significant: the householder's sex, level of education, socio-occupational status and marital status, the biological type of the family, the average net monthly income in the household and the income per head in the household, the number of all members in the household and such health aspects as: disability and the householder's health problems.

As a result of statistical insignificance the following variables were eliminated from the model: the householder's age, the type of place, the number of people aged over 15 years in the household and hospitalisation of a household member.

In logit models one of the basic analytical parameters is the odds ratio Exp(B), which provides information about the ratio between the probability of occurrence of an event and the probability that the event will not take place. In Table 2 the bold type and bracketed traits refer to interpretation reference categories. The odds ratio value for individual variables is given in the last column and marked as Exp(B). If Exp(B) > 1, there is a higher chance that the household has savings. In a reverse situation the chance decreases.

As results from the presented results of the estimation of the logit model parameters (Table 2), if the household is run by a woman, its chance to have savings is reduced by 19%, as compared with the households where the head is a man.

Households in big cities, i.e. those with a population of more than 100 thousand inhabitants, have relatively higher chances for savings. In the other types of places the probability of savings drops by 15%.

One of the more important aspects of developing saving behaviours in households is education, which is measured with the education level. A higher level of education has significantly positive influence on the propensity to save. The households run by people with post-secondary school or higher education have definitely the highest chances for savings. For the households run by people with primary school or lower level of education the odds ratio is 0.269. This means that the chance of those households to have savings is more than 70% smaller than in the households of people with post-secondary school or higher education. In the families where the head of the household has vocational or middle school education the chance for savings is more than 60% smaller and in the households of people with secondary school education it is two times smaller than in the reference group, i.e. the group with higher education.

Another significant factor diversifying saving behaviours is the householder's socio--occupational status. In comparison with the reference group (the staff of the private and public sector) the households of farmers and those belonging to old age pensioners and disability pensioners have the highest chance for savings. The odds ratio for those groups is 1.360 and 1.243, respectively. On the other hand, the chances for savings dramatically decrease with occupationally passive and unemployed people. The chances for savings in these socio-occupational categories are nearly one third (occupationally passive people) and more than a half (unemployed people) smaller than in the group of people working in the private or public sector.

The results of the study also point to the fact that the householder's marital status significantly determines saving behaviours. The probability of savings is the highest in the households of married people. In comparison with them the propensity to save in the other marital status categories included in the analysis is considerably lower. As results from the data in Table 2, being single or divorced reduces the chance for savings by about 30% and for widowers – by nearly 50%.

The biological type of the family does not exert big influence on the savings in the household. Statistically significant differences can be observed only in the households of married couples with three or more children, where the chance for savings is 40% smaller than in the households of childless married couples. Similar conclusions can mostly be derived from the analysis of the number of people in a household. As the number increases by one, the chance for savings decreases by 7.3%.

The research also enhanced the significance of health aspects in saving behaviours. Confirmed disability, especially an increasing frequency of health problems, has negative influence on the propensity to save.

Another variable which significantly determines the propensity to save in households is their average net monthly income, both in the absolute and relative aspect (per head). The odds ratio for the variable of average net monthly income in a household, measured in thousand PLN, is 1.144, whereas the ratio per head is 1.365. This means that as the average net monthly income increases by one thousand PLN, the chance for savings in a household increases by nearly 15%. On the other hand, when the income per head increases by one thousand PLN, the chance for savings increases by more than one third (36.5%).

Table 3 presents the results of estimation of the logit model, where the saving rate in households was assumed as a dependent variable. The variable assumes the value of 1 for households with a higher saving rate, i.e. those which declare savings exceeding the value of income for three months, and it assumes the value of 0 for households with a lower saving rate, i.e. those which declare savings not exceeding the value of income for three months.

Of the assumed set of potential independent variables the following factors proved to be statistically significant: the householder's sex, age, level of education, socio-occupational status and disability as well as the average net monthly income per head in the household. As a result of statistical insignificance the following variables were eliminated from the model: the type of place, marital status, the biological type of the household, the total number of people in the household and the number of people aged over 15 years, the state of health and the average net monthly income in the household.

As results from the research, the householder's sex is a trait that strongly diversifies saving behaviours. The households run by women save less than those run by men. If the household is run by a woman, the chance for higher saving rate is reduced nearly by one third.

On the other hand, in general the householder's age does not have much influence on the saving rate. Statistically significant differences can only be seen in the households run by people aged 45–59 years and those aged 60–64 years. As far as these age groups are concerned, the chances to collect savings exceeding the value of income for three months are 50% higher in the group aged 45–59 years and 60% higher in the group aged 60–64 years in comparison with the reference group aged 25–34 years.

The householder's level of education determines the saving rate relatively strongly and positively. As the level of education increases, so do the chances for a higher savings level. The chances for savings exceeding the value of income for three months are as much as two thirds lower in the households run by people with primary school or lower education than in the households belonging to people with higher education. In the households run by people with vocational education the chances are lower by more than a half, whereas in those run by people with secondary school education they are more than 40% lower than in the reference group.

On the basis of the research results it is possible to notice the fact that the householder's socio-occupational status is also a factor that significantly diversifies the saving rate in households. The households of the staff of the private and public sector, which are the

Table 3. The results of estimation of the logit model for propensity to save in households

Variable	B	Significance	Significance level	Exp(B)
Sex (**man**)				
woman	–0.326	***	0.000	0.722
Age (**25–34 years**)		***	0.004	
up to 24 years	–0.936		0.076	0.392
35–44 years	0.206		0.191	1.228
45–59 years	0.409	*	0.005	1.505
60–64 years	0.476	*	0.014	1.609
65+ years	0.245		0.208	1.277
Education (**post-secondary school and higher**)		***	0.000	
primary school and lower	–1.064	***	0.000	0.345
vocational/middle school	–0.832	***	0.000	0.435
secondary school	–0.600	***	0.000	0.549
Socio-occupational status (**staff of private and public sector**)		***	0.000	
private entrepreneurs	0.543	***	0.001	1.721
farmers	0.391	*	0.026	1.478
old age pensioners and disability pensioners	0.416	*	0.004	1.515
schoolchildren and students	0.795	*	0.043	2.215
other occupationally passive	1.266	***	0.000	3.545
Unemployed	0.232		0.546	1.261
Disability (**non-disabled person**)				
disabled person	–0.263	*	0.028	0.769
Household income per head (thousand PLN)	0.332	***	0.000	1.394
Constant	–0.791	***	0.000	0.453
N		3208		
Cox and Snell's pseudo R2		0.084		
Nagelkerke's pseudo R2		0.113		

The bracketed and bold typed traits are reference categories.
* – significant variables for $p < 0.05$; ** – significant variables for $p < 0.01$; *** – significant variables for $p < 0.005$.
Source: The authors' own compilation based on Social Diagnosis: integrated database. www.diagnoza.com [downloaded on 2 January 2012].

reference category, are the least likely to collect savings exceeding the value of income for three months. The households of occupationally passive people have definitely the highest chances (OR = 3.54), which are more than 3.5 times greater than those of the working staff. In comparison with the reference group, the households belonging to private entrepreneurs (OR = 1.72), farmers (OR = 1.48) as well as old age pensioners and disability pensioners (OR = 1.52) have about 1.5 times greater chances for a higher saving rate. The households of disabled people have relatively smaller chances (by about 25%) for a higher saving rate.

Another factor affecting the saving rate in households is their average net monthly income per head. As the income increased by PLN 1 thousand, the chances for a higher saving rate increased by more than one third.

CONCLUSIONS

In view of the aforementioned analyses it is possible to state that above all the factors diversifying saving behaviours in households are income in the household and the householder's level of education. These traits are the best predictors of both the propensity to and saving rate in households. The households with higher income, run by better educated people, exhibit distinctly higher propensity to save and are characterised by a relatively high saving rate. Moreover the saving behaviours were determined by such factors like: the householder's sex, age, place of residence, socio-occupational status and marital status, health aspects (disability and health problems), the biological type of the family, the number of people in the household.

REFERENCES

Avery R.B., Kennickell A.B., 1991. Household saving in the U.S. Review of Income and Wealth 37(4), 409–432.

Beer Ch., Mooslechner P., Schürz M., Wagner K., 2006. Austrian Households' Financial Wealth: An Analysis Based on Microeconomic Data. Monetary Policy & The Economy Q2, 94–110.

Czapiński J., Panek T., 2011. Diagnoza Społeczna, Raporty 2011. www.diagnoza.com [Accessed: 2.01.2012].

Demery D., Duck N.W., 2006. Savings – age profiles in UK. Journal of Population Economics 19, 521–541.

Diagnoza społeczna: zintegrowana baza danych. www.diagnoza.com [Accessed: 2.01.2012].

Douthitt R.A., Fedyk J.M., 1989. The use of saving as a family resource management strategy to meet childrearing costs. Lifestyles: Family and Economic Issue 10(3), 233–248.

Fatuła D., 2010. Zachowania polskich gospodarstw domowych na rynku finansowym. Wyd. UE w Krakowie, Kraków.

Fisher P., 2010. Gender differences in personal saving behaviors. Journal of Financial Counseling and Planning Education 21, 1, 14–24.

Friedman M., 1957. A Theory of Consumption Function. Priceton. Princeton University Press, Princeton.

Guariglia A., 2001. Saving behaviour and earnings uncertainty: Evidence from the British Household Panel Survey. Journal of Population Economics 14, 619–634.

Gutter M.S., Fox J.J., Montalto C.P., 1999. Racial differences in investor deciosion making. Financial Services Review 8, 64–78.

Japelli T., 2005. The life-cycle hypothesis, fiscal policy and social security. Center for Studies in Economics and Finance Working Paper 140.

Keynes J.M., 1936/1997. The General Theory of Employment, Interest and Money. Harcourt, Brace and World, New York.

Liberda B., 1999. Stopy oszczędzania gospodarstw domowych w Polsce. Determinanty oszczędzania w Polsce. Raporty CASE 28, Warszawa.

Liberda B., 2000. Oszczędzanie w gospodarce polskiej. PTE, Dom Wyd. Belona, Warszawa.

Lusardi A., Mitchell L., 2007. Financial Literacy and retirement preparedness: Evidence and implications for financial education. Michigan Retirement Research Center Research Paper WP 2006-144.
Modigliani F., Brumberg R., 1954. Utility Analysis and the Consumption Function: An Interpretation of the Cross-Section Data. In: K. Kurihara (Ed.): Post-Keynesion Economics. Rutgers University Press, New Brunswick, NJ, 388–436.
Postawy Polaków wobec oszczędzania, 2011. Raport Fundacji Kronenberga przy Citi Handlowy, TNS Pentor.
Rha J., Montalto C., Hanna S., 2008. The Effect of Self-Control Mechanisms on Household Saving Behavior. Financial Counseling and Planning 17(2), 3–16.
Rószkiewicz M., 2006. Tworzenie zabezpieczenia materialnego w świetle badań polskich gospodarstw domowych. Gospodarka Narodowa 4, 69–85.
Rószkiewicz M., 2008. Oszczędzanie. Postawy i zachowania polskich gospodarstw domowych wobec oszczędzania. AUREUS, Kraków.
Rytelewska G., Kłopocka A., 2010. Wpływ czynników demograficznych na poziom i strukturę oszczędności gospodarstw domowych w Polsce. Bank i Kredyt 41/1, 57–80.
Schmidt-Hebbel K., Webb S.B., Corsetti G., 1992. Household saving in developing countries: first cross-country evidence. The World Bank Economic Review 6, 3, 529–547.
Wójcik E., 2007. Polskie gospodarstwa domowe na rynku oszczędności. Bank i Kredyt 7, 55–66.

SOCIO-EKONOMICZNE UWARUNKOWANIA ZACHOWAŃ OSZCZĘDNOŚCIOWYCH GOSPODARSTW DOMOWYCH

Streszczenie. Przeprowadzone badania miały na celu identyfikację czynników wpływających na zachowania finansowe gospodarstw domowych w aspekcie oszczędzania, tj. skłonności do oszczędzania (wyrażonej faktem posiadania oszczędności) oraz stopy oszczędzania (mierzonej relacją oszczędności do uzyskiwanych dochodów). W pracy wykorzystano dane jednostkowe Diagnozy Społecznej, na podstawie których zbudowano modele logitowe. Ich wyniki wskazują, że zachowania oszczędnościowe polskich gospodarstw domowych są najbardziej determinowane przez poziom uzyskiwanych dochodów oraz wykształcenie głowy gospodarstwa domowego.

Słowa kluczowe: gospodarstwa domowe, oszczędności, regresja logistyczna

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IMPACT OF ADVERTISING ON BEHAVIOUR OF CONSUMERS OF LOW AND HIGH LEVEL OF CONSUMPTION OF DAIRY PRODUCTS

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Abstract. The main goal of this work was to evaluate the influence of the advertising of dairy products on consumer behaviour on the specific market. The objective was completed based on the primary data from a research carried out on a sample of 550 interviewees. The study revealed that examined sample differed in sensitivity to advertising messages depending on the level of consumption. The effectiveness of advertising was measured by operationalizing theoretical model of the advertising impact, namely AIDA. Regression tree models were built across groups of consumers with different consumption levels of dairy products in order to illustrate the differences between them. It was observed that advertising messages of emotional nature have significant importance for heavy users while light users are more sensitive to rational communication.

Key words: consumer behaviour, advertising, dairy market, effectiveness of advertising, regression tree model

INTRODUCTION

Advertisement is an important tool for supporting marketing objectives of an enterprise. The essential features of an advertisement are commercialism, public presentation, high expressiveness and unilateralism [Kotler 2005]. The research shows that consumers succumb to advertisement even though they easily identify its persuasive nature. The reason is that the impact of the advertisement has a very complex nature and is considerably difficult to describe in a holistic way. Researchers can hardly identify the global impact of advertising messages and its importance in the process of purchasing decision [Colley 1961, Jachnis 2007]. Therefore most of the literature on this subject concerns studies on specific elements of the advertisement and how they influence consumer behaviour. Such an approach resulted in proving different meaning of rational and emotional communica-

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tion in advertising [Burke, Edell 1989, Smith 1993, Maison 1998, Terelak 1998, Doliński 2000, Berg, Lippman 2001], importance of different forms of expression, like image or colour [Evans et al. 2006], advertisement composition [Doliński 2003], the content of the advertising message [Maison 1998, Doliński 2003], sound elements [Macinnis, Park 1991, Gail 1995] or characters appearing in the advertisement [Ogilvy, Raphaelson 1982, Hatfield, Sprecher 1986, Heath 2006]. Relatively high importance is assigned to the form of the advertising. The most common are scenes from everyday life, animations or demonstration of the product [Jachnis 2007]. Depending on the chosen media, the sender of the advertising may choose from specific forms of expression and thus the senses that are affected. There's no doubt that the media of wider range and execution capabilities are more persuasive. In that context TV, radio or newspapers have different nature of influence. However, it was shown that the impact of other media of advertising such as outdoor advertising, where the posters are issued at a significant distance from consumers, point of sale advertising or advertisement in the cinema is also important when choosing the product [Miller 1976, Rook 1987, Kirmani 1990, Maddox, Metha 1997, Kuziak 2005, Dołhacz 2006, Kłeczek 2006].

The impact of the advertising is usually measured by the effectiveness of the messages defined as a degree to which the assumed objective of the advertising was achieved [Pociecha 1996]. Compared to the efficiency, i.e. the cost of the advertising to income ratio, effectiveness is rather associated with studying the impact on change in consumer behaviour towards the advertised product or whole product category. Studies on the effectiveness of advertising allow for gaining broader perspective and better look at the condition of advertising in the industry. It also helps to answer more general questions about consumers' sensitivity to advertising, optimal composition of marketing activities for a particular sector and optimal amount of spending on promotion. Additionally, effectiveness of advertising has a considerable impact on its efficiency and provides guidance on planning future marketing activities. Studies on effectiveness of advertising also have high educational value, therefore are commonly carried out for the purpose of exploratory research [Maison 2007].

There are many measures of the effectiveness of advertising that base on different aspects of the advertisement. There are mainly based on analysing the degree to which the advertisement reach the awareness of consumers, the extent to which particular aspects of advertising are memorized, how much consumers are interested in the message, the level of trust consumers have in the advertising message, the degree to which the consumers attitude (and consequently behaviour) toward an advertised product changes by expressing the desire to buy (and consequently buy).

The abovementioned analyses of impact of advertising on consumer behaviour gave birth to many detailed ideas expanding the stages of change in consumer behaviour towards advertising. The AIDA model, developed by L. Strong [Kotler 2005], is one of such concepts. AIDA is a hierarchical model that assumes cause-and-effect relationship between successive stages of the impact of advertising on consumer. Another assumption is the further the stage the lower the audience of the advertising message. The largest number of consumer is exposed to the advertising and inclined to pay attention (stage 1: attention), smaller number of consumer is interested (stage 2: interest) and show desire to

buy (stage 3: desire), and the lowest number is inclined to take action, i.e. buy a product (stage 4: action).

In the course of studies on the impact of advertising many modifications of the original AIDA model were proposed. These included AICA (attention – interest – conviction – action), AIDCAS (attention – interest – desire – conviction – action – satisfaction) or a well-known Coley's DAGMAR-ACCA model (awareness – comprehension – conviction – action). All these models share a common core drawn from AIDA model, i.e. the sequential information processing process with the following components: conscious perception of advertising, information processing and reaction (so-called think – feel – do). Perception phase consists of cognitive sphere, when consumer spots the advertising message, directs his attention and assimilates the information contained in the message (attention, definition, awareness, stay, perception, comprehension, interest). During the information-processing phase the emotional elements begin appearing when the consumer expresses his preferences or confidence towards the product and shows the desire to own it confronting the advertising message with the knowledge and beliefs (look, desire, conviction, confidence, acceptance). The reaction phase is the last one in the process of the direct impact on consumer and consists of elements related to decision (volitional) and in case of actual purchase also related to the purchase itself and to the post purchase reaction (intention, stimulation, action, buy, satisfaction). The described scheme, with AIDA being the most known representative, is widely used for the empirical verification of the effectiveness of advertising [Łodziana-Grabowska 1996, Pociecha 1996]. However, the model is mainly used for descriptive purposes, therefore it appears legitimate to also attempt statistical modelling based around AIDA.

It is also worth noting, that according to numerous studies [e.g. Maison 1998, Cline, Kellaris 1999, Jachnis 2007], consumers can be differentiated by their reaction to the advertising of different product categories, thus advertising should take this aspect into account. Similar relationships can be observed in different reaction of groups of consumers characterized by different level and specifics of consumption. As previous studies show [Chudzian 2013], consumers of dairy products consumers form clusters according to the level of consumption giving clear evidence for verifying their response to advertising separately. Therefore, the aim of this study is to evaluate impact of individual elements of advertising on market behaviour of consumers of dairy products belonging to different groups according to level of consumption.

MATERIAL AND METHODS

To achieve the goal of the study non-parametric regression models were created in the form of regression trees based on empirical data obtained from 550 respondents. The survey was carried using CAWI[1]method – questionnaires were obtained from the poll published on the website of this study. The sample was selected in a composite – the filtering criteria were applied and followed by random selection. The initial criteria for respondent selection were as follows:

[1]Computer-assisted web interview.

– at least incidental level of consumption of dairy products;
– place of residence at most 30 kilometres from one of the nine biggest Polish agglomerations according to CSO and the practice of marketing research agencies[2].

Filtering criteria were selected due to the goal of the study related to analysis of impact of advertising on consumer behaviour – the most interesting group from this perspective formed people who declare to consume dairy products and at the same time, due to living in proximity of big city, have access to wide range of dairy products.

Analysis of characteristics of the experimental group revealed three clusters of respondents differing in the level of consumption of dairy products. Level of consumption in individual product categories was assessed by verifying respondents' declarations (on 1–5 scale) concerning frequency of consumption of products of a given category. These declarations were used as an input to the cluster analysis using k-means method. The effect was three groups (clusters) of users that differed significantly in terms of the level consumption of dairy products. These groups were named with respect to increasing consumption: *light*, *medium* and *heavy*. Group *light* consisted of 124 individuals consuming the least dairy, and group *heavy* consisted of 155 people with high level of consumption. People from an intermediate category − *medium* (271 individuals) – formed the largest group. Differences of mean levels of consumption between groups of consumers (all differences statistically significant with p-value below 0.001) show that the clustering resulted from natural partition of surveyed respondents. Detailed characteristics of these groups, including differences in demographics characteristics and specific market behaviours, were published in a separate work [Chudzian 2013].

In order to achieve the goal of the study, i.e. to determine the impact of advertising on behaviour of consumers with different levels of consumption of dairy products, one of the non-parametric regression methods was used, namely regression trees modelling. Evaluation and interpretation of the results was carried out using SPSS and R statistical software.

Feature selection for regression tree

To build the regression tree AIDA model, presented in theoretical part of this paper, was restated into form allowing for empirical use. As follows from the construction of the model, the frequency of AIDA components decreases with successive stages – the most frequent is watching the advertisement, the least – purchasing under the influence of advertising. At the same time the effectiveness increases with successive stages – it is the highest when ends with purchase and the lowest when seeing the advertising is the last stage. In order to reduce these disparities individual elements forming the index were weighted accordingly. The element A (attention) was weighted 10%, element I (interest) – weighted 20%, element D (desire) – weighted 30% and element A (action) – weighted 40%. To keep AIDA index easily interpretable forming features were scaled to <0; 1> range, so the index itself took values from this range. Value of such AIDA index was evaluated for each of the respondents expressing individual susceptibility to advertising

[2]Qualified agglomerations: Warszawa, Poznań, Kraków, Trójmiasto, Katowice, Białystok, Łódź, Lublin and Wrocław.

messages and used in the further research as a dependent variable for modelling. Average value of AIDA index across the whole examined population was 0.32.

Aspects of advertising affecting the effectiveness of advertising messages were based on the analysis of literature. Features elements were divided into four groups: different advertising goals (information, demonstration – product application presentation, persuasion; attention – attracting consumer attention, offer; appreciation – thanks for the earlier purchase, recall; competitiveness – showing difference between competing products), different forms of advertising (banners, animation, scenes from everyday life, scenes from the kitchen, scenes with food, outdoor scenes, product manufacturing, product demonstration), elements of advertisement (music, humour, content, graphics, idea, realization, attractiveness, character, length, show time) and types of advertising media (TV, radio, newspapers, Internet, outdoor, vehicles, packaging, point of sale, cinema, e-mail). All these constituted the set of 26 independent variables taking values from <1; 5> range, with 1 corresponding to low intensity of a particular indicator and 5 to high intensity. During analysis of mutual relations between AIDA index and independent variables it turned out that some of these relationships have multinomial nature. Therefore the set of independent variables was extended with squares of selected indicators.

RESULTS AND DISCUSSION

The goal of the empirical study was to determine the impact of advertising on behaviour of consumers with different levels of consumption of dairy products. For this purpose the previously established levels were used. For identified groups of users consuming dairy products rarely (*light*), intermediate (*medium*), and often (*heavy*) three regression trees were constructed using C&RT[3] algorithm [Breiman et al. 1984]. All independent variables were considered during trees construction. C&RT capabilities were used to choose variables relevant from each model perspective. The procedure consisted of automatic binary division of respondents in subsequent steps into groups of similar AIDA index value within and possible highest variance of AIDA index between the groups. The division is performed through analysis of all factors and searching their values for potential points of split. Based on this analysis a factor and corresponding value are chosen to minimize AIDA variance in the whole regression tree. The tree was expanded as long as new divisions were causing decrease in the variance. Groups of respondents extracted in this was had similar value of AIDA index and similar opinions on factors used to distinguish them.

The impact of advertising on behaviour of *light* consumers

The mean square prediction error on 10-fold cross-validation of the tree constructed for dairy products consumers who belong to the *light* users group amounted to 0.063. This means that on average this is the error of predicting consumer's AIDA index given specific values of independent variables. Constructed regression tree was based on advertisement on packaging and sound elements used in other media (Fig. 1). The first split in

[3]Classification and regression trees.

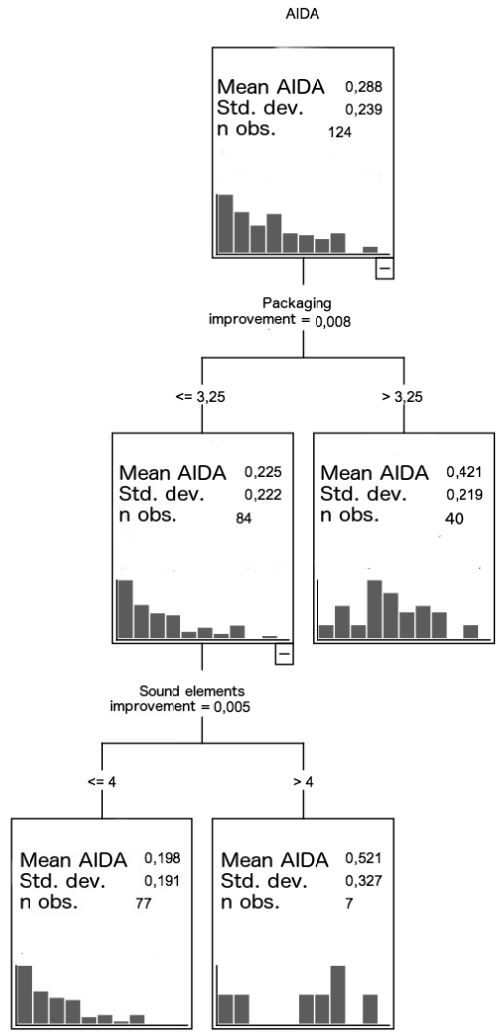

Fig. 1. Regression tree model for *light* users
Source: Own research.

the tree divided respondents with different opinion on importance of packaging. Those who saw it as important medium are more susceptible to the effects of advertising (avg. AIDA = 0.421). In contrast, among those who do not consider packaging as an important advertising medium but pay attention to sound elements there is a group characterized by even higher score (avg. AIDA = 0.521). The least susceptible to advertising from *light* users are those who neglect the significance of both packaging and music.

The result of regression tree modelling allow to conclude that sound elements and way of presenting the advertising content on product packaging have a particularly significant impact on behaviour of consumers who rarely purchase dairy products. It follows

that an effective advertising must first enkindle interest in a product through expressive sound elements or distinctive packaging. It is worth recalling that in the group of *light* users respondents were mostly educated people, what usually reduces susceptibility to persuasion [Aronson 2005], since it results in a greater awareness of the mechanisms of advertising [Maison 1997]. This may explain the limited number of advertising factors with impact on purchase of dairy products.

The impact of advertising on behaviour of *medium* consumers

The regression tree model was also constructed for group of *medium* users (Fig. 2). Corresponding mean squared error on 10-fold cross-validation equalled 0.044. There were three variables corresponding to advertising media among the splits of this tree: TV, outdoors and distinguished advertising on vehicles. Animation and sound elements complemented the list of variables-splits in the tree. The latter was the most important split in the entire tree and in the root of the tree distinguished respondents who considered music important in advertising (avg. AIDA = 0,415). Interestingly, respondents from this group are further differentiated by opinion on animation.

Respondents paying attention to music and animation constituted roughly 30% of the entire group of *medium* users and at the same time were the most susceptible to advertising (avg. AIDA = 0.480). This has been confirmed in previous studies [Macinnis, Park 1991], where the authors observed that music associated with image and content is usually distinguished by consumers as a single element, which magnifies effect of individual elements and directs the attention of consumers.

Among those who did not recognize importance of music there two more interesting groups. First of them, characterized by high susceptibility to advertising (avg. AIDA = = 0.430), consisted of respondents who paid significant attention to outdoors advertising and additionally to a variation of this form, namely advertising on vehicles and in public transport. The second one formed those who were the most resistant to the advertising (avg. AIDA = 0.117) and who rejected the importance of outdoors and TV advertising. This group consisted of as many as 27% of all respondents. Together with the most susceptible to advertising, these two extreme groups accounted for nearly 60% of all *medium* users.

The impact of advertising on behaviour of *heavy* consumers

The last regression tree (Fig. 3), constructed on group of *heavy* users, evaluated at value 0.057 of mean squared error calculated using 10-fold cross-validation schema. In this tree the important factors that allowed for differentiating users where sound elements and three types of media: TV, cinema and newspapers. However, the impact of the latter two is somewhat negligible, as evidence by only a slight improvement in the variance after their induction.

It is visible on the tree model that the first split of respondents was formed around their opinion on importance of TV media. Studies show [Collet for Kall 2002] that consumers differ in time they spend watching TV commercials and how they evaluate its effectiveness. High involvement of *heavy* users in receiving TV commercial has significant

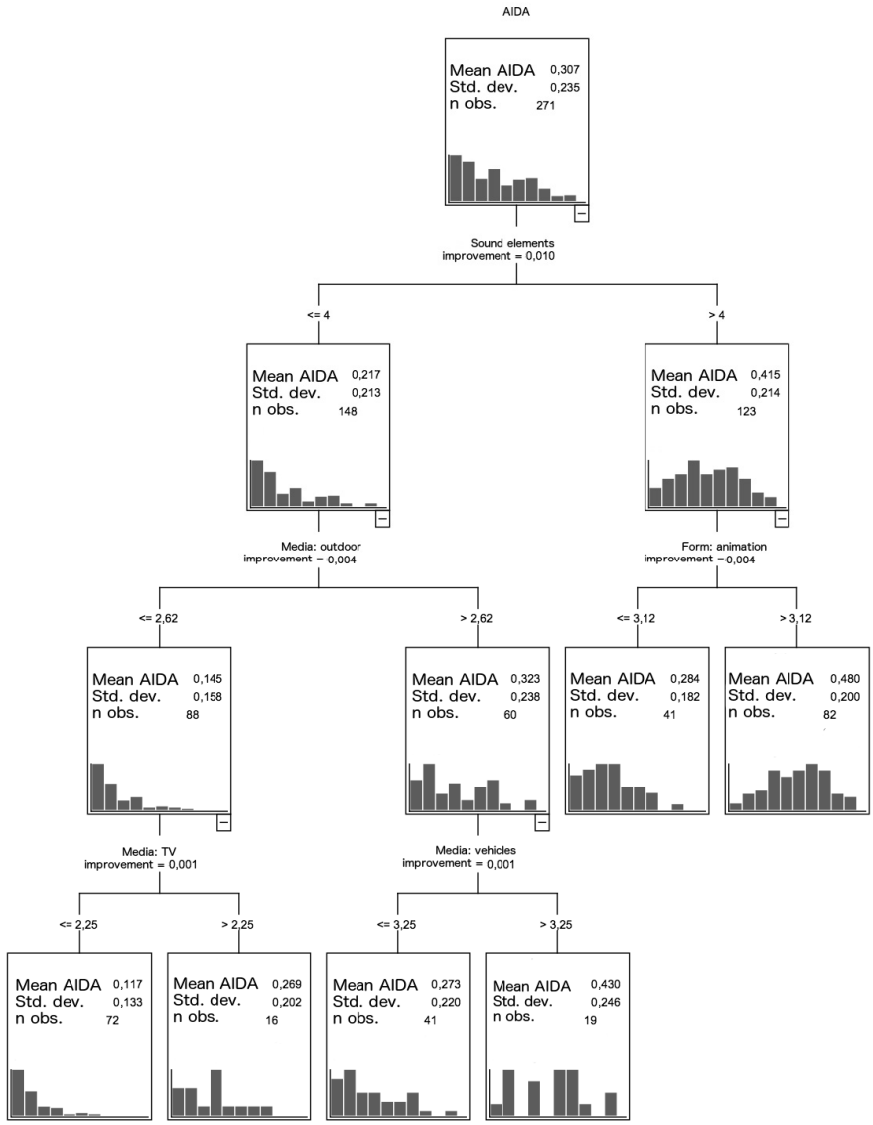

Fig. 2. Regression tree model for *medium* users
Source: Own research.

meaning here. Therefore those who completely rejected the importance of TV media factor constitute a group of the lowest susceptibility to advertising (avg. AIDA = 0.122).

Among the groups formed by further splitting respondent groups the most interesting one consisted of consumer who point out importance of sound elements and advertising in cinema. The impact of advertising on purchase decisions of this group is very high (avg. AIDA = 0.631), and the group represented 10% of all heavy users. The second

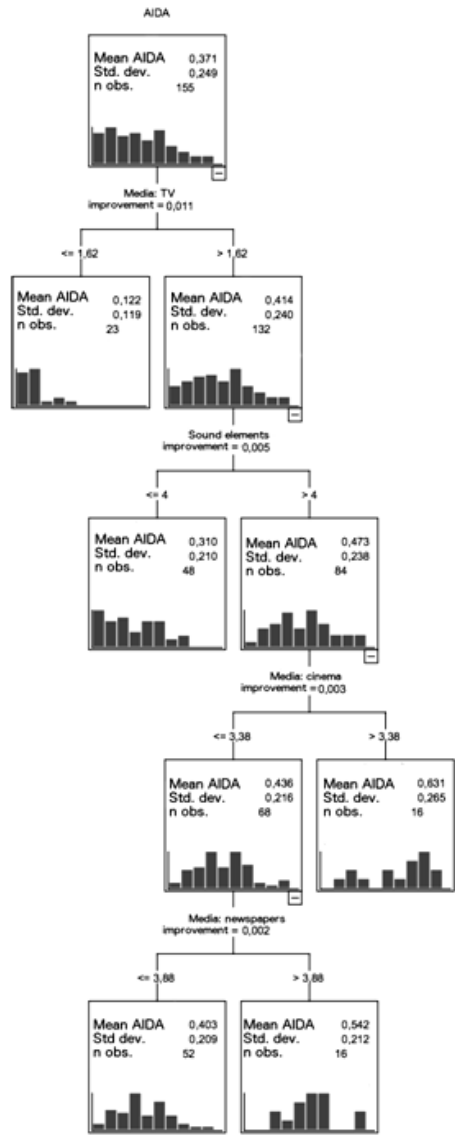

Fig. 3. Regression tree model for *heavy* users
Source: Own research.

most susceptible to advertising group (avg. AIDA = 0.542) consisted of people who did not recognize importance of advertising in cinema, but pointed to the newspapers ads. Respondents from both these group consume large amounts of dairy products and often buy them under the influence of advertisement though seek the information from different sources. They are therefore the group most open to advertising and characterized by frequent contact and active perception of advertising among all 550 respondents.

CONCLUSIONS

In conclusion, regardless of the group, the greatest influence on the purchase of dairy products has TV advertising. This media is effective in reaching all consumers regardless of the level of consumption of dairy products. Studies from other authors show [Dołhasz 2006] that TV is the most popular advertising media in Poland, which – through use of video and audio – has the greatest potential in terms of realization and persuasion. The effectiveness of television commercial may depend significantly on the broadcast conditions (place, time of day, frequency) and its characteristics (duration, length) [Kamins et al. 1991]. Important role in enhancing the effectiveness of TV advertising plays the time of day the ad is broadcasted. Prime time fall between 18:00 and 22:00[4], but due to the nature of the food products and lifestyle of target group, it is more effective to place this type of commercials in the morning. Therefore, the most effective seems to be to focus viewer's attention at the beginning of the commercial and shortening its length to increase chances to receive the entire message. Similar effect is achieved by placing ads at the beginning of the advertising block. The research shows [Doliński 2003] that consumers, especially after engaging programs, have higher concentration when receiving the first seconds of advertising block, and then their attention decrease. The result of this observation is the practice of shortening the commercials to increase their frequency [Sutherland, Sylvester 2003]. Especially, as the frequency of exposure to the object is strictly linked with its liking [Zajonc, Markus 1982, Zajonc 1985]. It seems that due to the low involvement of consumers in purchase of dairy products, television is the form of intensive influence that can be effective as it intensively draw consumers' attention and at the same time does not require them to actively seek information.

In addition, design of advertising of dairy products that combines emotional and rational components appears to be important, with additional assumption that the rational components dominate when communicating to consumers from the *light* group and emotional elements outweigh others when reaching to consumer with high level of consumption of dairy products. Many authors emphasize that the impact of advertising is different depending on types of presented messages [Burke, Edell 1989, Terelak 1998]. These messages can take form of rational or emotional appeals, inducing positive or negative feelings. In advertising practice it is rare to observe purely emotional or purely rational messages and it should be rather considered to observe dominance of one of these elements [Maison 1998]. For this reason, dynamism of interweaving rational and emotional elements would be the most effective approach with regard to advertising dairy products. This is due to the change of direction and intensity of emotions (both strong and weak positive and negative emotions) and can facilitate the transfer of the consumer-character relation in advertising to consumer-product relation, which could help increasing commitment to the product. This is of particular importance in the context of studied dairy market, which is characterized by generally low level of involvement of consumers.

In conclusion, on the basis of the presented research one can notice that there are large differences in consumer behaviour and the impact of advertising on dairy market. At the same time, due to different models of advertising effectiveness, there is a need to measure consumer behaviour in a disjunctive way and then selectively reach recipients of the dairy products advertising.

[4]Measurements carried out regularly by TNS Polska.

REFERENCES

Aronson E., 2005. Człowiek – istota społeczna [The social animal]. PWN, Warszawa.
Berg E.M., Lippman L.G., 2001. Does humor in radio advertising affect recognition of novel product brand names. Journal of General Psychology 128, 194−205.
Breiman L., Fiedman J., Stone Ch.J., Olshen R.A., 1984. Classification and Regression Trees. Chapmann & Hall, Boca Raton.
Burke M.C., Edell J.A., 1989. The impact of feelings on ad-based affect and cognition. Journal of Marketing Research 26, 199−213.
Chudzian J., 2013. The specificity of the groups of dairy products users in Poland. EDAMBA Conference Proceedings. University of Economics, Bratislava, 587–598.
Cline T.W., Kellaris J.J., 1999. The joint impact of humour and argument strength in a print advertising context: a case for weaker arguments. Psychology and Marketing 16, 69−86.
Colley R.H., 1961. Defining Advertising Goals for Measured Advertising Results. Association of National Advertisers, New York.
Doliński D., 2000. Psychologia wpływu społecznego [Psychology of social influence]. Towarzystwo Przyjaciół Ossolineum, Wrocław.
Doliński D., 2003. Psychologiczne mechanizmy reklamy [Psychological mechanisms of advertising]. GWP, Gdańsk.
Dołhasz M., 2006. Telewizja i prasa jako główne media wykorzystywane w działalności reklamowej współczesnego przedsiębiorstwa [Television and newspapers as the main media used in advertising strategies in contemporary company]. Zeszyty Naukowe Akademii Ekonomicznej w Krakowie 720, 41−51.
Evans M., Jamal A., Foxall G., 2006. Consumer behaviour. J. Wiley & Sons, West Sussex.
Gail T., 1995. Classical conditioning of unattended stimuli. Psychology and Marketing 12, 79−87.
Hatfield E., Sprecher S., 1986. Mirror, mirror… The importance of looks in everyday life. Suny Press, Albany, New York.
Heath R., 2006. Ukryta moc reklamy. Co tak naprawdę wpływa na wybór marki? [The hidden power of advertising. What really affects the choice of the brand?]. GWP, Gdańsk.
Jachnis A., 2007. Psychologia konsumenta. Psychologiczne i socjologiczne uwarunkowania zachowań konsumenckich [Consumer psychology. Psychological and sociological determinants of consumer behaviour]. Oficyna Wydawnicza Branta, Bydgoszcz-Warszawa.
Kall J., 2002. Reklama [Advertising]. PWE, Warszawa.
Kamins M.A., Marks L.J., Skinner D., 1991. Television commercial evaluation in the context of program induced mood: congruency versus consistency effects. Journal of Advertising 6, 1−14.
Kirmani A., 1990. The effect od perceived advertising costs on brand perceptions. Journal of Consumer Research 17, 160−171.
Kłeczek R., 2006. Techniki przyciągania uwagi w reklamach prasowych. W: J. Kall, R. Kłeczek, A. Sagan (Eds). Zarządzanie marką [Techniques to attract attention in newspaper advertisements. In: Brand management]. Oficyna Ekonomiczna, Kraków: 223–236.
Kotler P., 2005. Marketing management. 11th edn. Prentice Hall, Harlow.
Kuziak M., 2005. Formy reklamowe w Internecie [Forms of online advertising]. Zeszyty Naukowe Akademii Ekonomicznej w Krakowie 677, 145−157.
Łodziana-Grabowska J., 1996. Efektywność reklamy [The effectiveness of advertising] PWE,Warszawa.
Macinnis D.J., Park C.W., 1991. The defferential role of characteristics of timing on attribute importance. Journal of Consumer Research 13, 643−654.
Maddox L., Metha D., 1997. The role and effect of web addresses in advertising. Journal of Advertising Research 2(37), 47−59.
Maison D., 1997. Uleganie reklamie [Succumbing the advertising]. Marketing i Rynek 5, 30−35.

Maison D., 1998. Przez serce czy przez rozum? Drogi oddziaływania przekazu reklamowego. W: A. Strzałecki (Ed.). Percepcja reklamy [Through the heart or the mind? Impact of advertising. In: Perception of advertising]. ATK, Warszawa.
Maison D., 2007. O badaniach reklamy, czyli jak na podstawie badań przewidzieć skuteczność reklamy i ocenić skuteczność przeprowadzonej kampanii. W: D. Maison, A. Noga-Bogomilski. (Eds). Badania marketingowe. Od teorii do praktyki [About the advertising research how to predict the effectiveness of advertising and to assess the effectiveness of the campaign. In: Marketing Research. From theory to practice]. GWP, Gdańsk: 153–177.
Miller N., Maruyama G., Beaber R.J., Valone K., 1976. Speed of speech and persuasion. Journal of Personality and Social Psychology 1, 173−195.
Ogilvy D., Raphaelson J., 1982. Research on advertising techniques that work and don't work. Harvard Business Review 4, 14−18.
Pociecha J., 1996. Metody statystyczne w badaniach marketingowych [Statistical methods in marketing research]. PWN, Warszawa.
Rook D.W., 1987. The buying impulse. Journal of Consumer Research 1, 189−199.
Smith S.M., 1993. Does humour in advertising enhance systematic processing? In: L. McAlister, M.L. Rotschild (Eds). Advanced in Consumer Research 20. Provo, UT: Association for Consumer Research: 155−158.
Sutherland M., Sylvester A.K., 2003. Reklama a umysł konsumenta [Advertising and the mind of the consumer]. PWN, Warszawa.
Terelak J.F., 1998. Modele psychologiczne zachowania się konsumenta. W: A. Jachnis, J.F. Terelak (Eds). Psychologia konsumenta i reklamy [Psychological models of consumer behavior. In: Consumer and advertising psychology]. Oficyna Wydawnicza Branta, Bydgoszcz: 19–66.
Zajonc R.B., 1985. Uczucia a myślenie: nie trzeba się domyślać, by wiedzieć, co się woli [Affection vs thinking: you do not have to guess to know what you prefer]. Przegląd Psychologiczny 28, 27−72.
Zajonc R.B., Markus H., 1982. Affective and cognitive factors in preferences. Journal of Consumer Research 9, 123−131.

WPŁYW REKLAMY NA ZACHOWANIA KONSUMENTÓW O NISKIM I WYSOKIM POZIOMIE KONSUMPCJI PRODUKTÓW MLECZARSKICH

Streszczenie. Celem niniejszej pracy było określenie wpływu reklamy na zachowania konsumentów na rynku produktów mleczarskich. Cel ten został zrealizowany z wykorzystaniem danych pochodzących z badania własnego przeprowadzonego na próbie 550 respondentów. Wyniki badania pokazały, że badani cechują się różną wrażliwością na komunikaty reklamowe w zależności od stopnia spożycia produktów mleczarskich. Zoperacjonalizowany model teoretyczny oddziaływania reklamy AIDA posłużył do przedstawienie skuteczności reklamy. Dla wskazania różnic pomiędzy grupami konsumentów zbudowano drzewa regresji dla grup konsumentów różniących się poziomem spożycia produktów mleczarskich. Zaobserwowano istotne znaczenie komunikatów o charakterze emocjonalnym wśród użytkowników intensywnych oraz komunikatów racjonalnych u sporadycznych użytkowników produktów mleczarskich.

Słowa kluczowe: zachowania konsumenckie, reklama, rynek mleczarski, skuteczność reklamy, drzewa regresji

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THE ACTIVITY OF LOCAL GOVERNMENTS IN THE ABSORPTION OF EU FUNDS AS A FACTOR IN THE DEVELOPMENT OF RURAL COMMUNES

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Abstract. Development relates to such research areas as local development and activity of local governments in obtaining external sources of financing for development in rural communes. The article includes theoretical considerations and the results of empirical studies conducted in the general area of all rural communes of the province of Lublin (171 units). The choice of the region was intentional, as it was classified as problem areas where accumulation of development barriers is observed. The scope of research covered the years 2004–2010 including programming periods related to financial assistance as part of the EU Structural Funds in the periods 2004–2006 and 2007–2013.

Key words: local government, the absorption of EU funds, local development, rural communes, Lublin Voivodship

INTRODUCTION

The occurrence of the problem of inequality in both the global, regional as well as local systems becomes increasingly important to identify factors that determine the development. Poland joining the European Union in 2004 received the opportunity to transfer funds representing a substantial contribution to socio-economic development and the opportunity to increase investment opportunities [Sawicka 2009]. Sum of financial transfers from the EU to Polish on the support provided under the cohesion policy exceeded EUR 55 billion, of which the structural funds accounted for almost 70% of this amount. EU membership is a good chance inflow of structural funds to poorer regions through which it is possible to intensify the processes of many areas. Local governments were granted the chance to actively participate in the allocation of aid. In the programming period 2004–2006, the structure of the beneficiaries of the programs financed by the Structural Funds accounted for the largest percentage of local government units (48%) [Słomińska 2007]. The situation was similar in 2007–2013 (until the end of January 2012 governments accounted for 43.9% of the beneficiaries) [Experts debate 2012].

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METHODOLOGY AND RESULTS OF A RESEARCH

Objectives of a research

The main purpose of this study was to determine the level of activity and rural municipalities in the province of Lublin absorption of EU funds and to determine its relation with the level of local development. For the key objective achievement four specific objectives were adopted. Firstly the focus of understanding and defining the level of socio-economic development of rural Lublin Voivodship is presented. Secondly diagnosis of maturity of the basic units of local government to absorb EU aid was done. Thirdly, the focus was on understanding and determining the level of activity of local governments in the acquisition and use of aid funds. Finally, efforts were made to identify factors differentiating self-governments in the absorption of aid funds. The aim was to develop synthetic methodology of measurement used to measure the level of local development and measurement of activity in absorbing EU funds by local government units.

The research process was adopted to verify the main hypothesis: there is a both sides relationship between the activity of rural communes in the absorption of EU funds, and the level of their development. The higher absorption activity is manifested by communes, the higher the level of their development is, and the higher the level of this development is, they are more active in the absorption of EU funds.

There was also provided the following specific hypotheses:

1. Location of the communes with respect to the main urban center in the subregion is a factor differentiating activity of absorption and level of development of rural communities.
2. Activity in the absorption of EU funds is determined by institutional [Gralak 2008] and organizational factors.
3. Having strong leadership with clear vision of the direction of development increases the level of activity in the absorption of EU funds.

Material and methods

The study used primary and secondary sources of research material. For primary sources, results of research conducted among two groups of multipliers were included. These two groups are: mayors of rural municipalities and employees involved in the handling of investments co-financed from European funds. Secondary sources of research material include: literature in the field: economics, finance, management, statistical material developed and published in the database CSO Regional Data Bank (RDB CSO) for the 2004–2010 period, and reports on the implementation of the budgets of local governments of Lublin Voivodship for the years 2004 to 2010 published by the Regional Audit Office (RIO) in Lublin, as well as data Marshal's Office in Lublin (as at 31 December 2010), which analyzed implementing institution support programs.

Among the methods of collecting the material following issues were used: Polish and foreign literature, information and data from studies published in the database BDR CSO RIO in Lublin, the Marshal's Office in Lublin and the method of diagnostic survey using the survey technique. Among the methods of analysis of the research material following methods were used: methods of qualitative analysis (questionnaire) and quantitative,

which included statistical analysis, i.e. Hellwig's taxonomic method – basis used in the assessment of the level of development of municipalities and the activity level of absorption, cluster analysis – basis used in the making of two-stage grouping the communes with regard to diagnostic variables used to assess the level of local development and activity level of absorption and gauge the relationships between variables (Pearson's correlation coefficient r). All analyzes were performed within the framework of the doctoral thesis. Calculated absorption synthetic indicators of activity and level of development of municipalities and compiled them together in search of the relationship. The results helped establish the existence of a moderate positive relationship between these measures.

In reality it can be noted that the community in different degrees cope with the emerging new challenges. On the map of Poland the communes as growth centers, or commune of success, as well as the peripheral regions, which are much less developed easily can be found [Wróblewska 2010]. Lublin region is classified for these areas because of the level of development of this area and such difficulties as economic, social and spatial: lowest GDP per capita among voivodships of Eastern Poland, i.e. 67.1% of the total for Poland and only 40.9% of this value for the EU. Recalled data show that the studied area are divided by a large development distance in relation to other regions of our country. This region is characterized by economic backwardness, unfavorable structure of the economy, deficiencies in infrastructure and lower than the national average macroeconomic indicators [Leszczewska 2010]. A particularly difficult situation applies to rural areas, the development of which depends on many factors, among others: location factors, socio-economic, technical and organizational [Bański, Czapiewski 2008].

Activity in the absorption of EU funds refers to funds for investment and a completely new factor in the competitiveness of regions. These investments can significantly affect the level of environmental infrastructural and institutional companies quality of life, but will also condition the level of economic development of the areas in the future [Barczyk 2010]. Where governments fight for funding its development, in the future there may occur multiplier effect of investment: an increase in expenditures on individual elements of the system of local ties (people – institutions – infrastructure) will result as an an increase in the effects of rapid economic development of the whole region [Chmieliński 2008].

Diagnostic variables used in the synthetic measure of local development

The construction of synthetic measure of local development [Wojewódzka 2007] was carried out using 25 variables divided into 5 groups, i.e. the potential of economic, labor market and human capital, quality of life, infrastructure management, education, and education (Table 1).

Components of the synthetic measure of the activity of absorption

In the case of the construction of the absorption of synthetic activity measurement there was used a comprehensive approach taking into account the absorption activity of three dimensions (Fig. 1).

The above dimensions of activity are included in the set of determinants [Wojtach 2012] chosen for the design of diagnostic synthetic measure of absorption activity (Table 2).

Table 1. Diagnostic variables used to assess the level of local development

Symbol	Variables
	Economic potential
y1	total revenue per 1 inhabitant (PLN)
y2	share of own revenues in total income (%)
y3	value of community investment expenditures per 1 inhabitant (PLN)
y4	share of capital expenditure in total expenditure (%)
y5	share of income for the tasks financed by foreign funds in total income (%)
y6	share of spending on investment projects co-financed by foreign investment expenditure (%)
y7	ratio of public debt to total income (%)
	Labour market and human capital
y8	employment rate (%)
y9	share of the unemployed registered in the population of working age (%)
y10	number of units registered in the company registration number, per 1000 inhabitants. age (entities)
y18	expenditure on public administration in 1000 inhabitants (thousand PLN)
	Quality of resident's life
y11	number of people using the gas network in population (thousand persons)
y15	share of homes equipped with sanitary installations – bathroom in the total number of homes (%)
y16	average usable floor space for one person in m^2
y20	expenditure on health care per 1000 inhabitants (thousand PLN)
y21	expenditure for physical culture and sport per 1000 inhabitants (thousand PLN)
y22	expenditure housing per 1000 inhabitants (thousand PLN)
y24	expenditure for libraries, cultural centers, community centers and clubs for 1000 inhabitants (thousand PLN)
y25	number of buildings newly completed to use (pcs.)
	Infrastructure development
y12	active length of the sewerage network (km)
y13	population using sewage system per 1000 population (person)
y14	number of people using the water mains per 1000 population (person)
y23	expenditure for municipal public roads per 1000 inhabitants (thousand PLN)
	Education
y17	percentage of people with higher education among councilors (%)
y19	expenditure on education per 1000 inhabitants (thousand PLN)

Source: Own study.

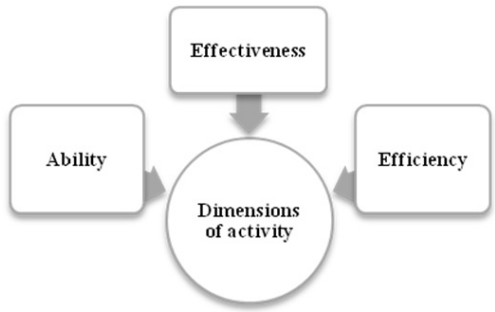

Fig. 1. Dimensions of the absorption activity
Source: Own study.

Table 2. Diagnostic variables included in the construction of the synthetic activity of the absorption measure

Symbol	Variables
	Capacity absorbed funds
x1	amount of debt per 1 inhabitant (PLN)
x2	share of expenditure on salaries in public administration in the total amount of expenditure (%)
x3	number of applications (pcs.)
x4	number of activities under the various programs in which the municipality dished out by means of (pcs.)
x7	share of projects that received a positive formal evaluation in all complex applications (%)
	Efficiency absorbed funds
x6	share of the number of contracts signed in the number of all applications – the success rate (%)
x5	average percentage of points obtained in the technical assessment with respect to the maximum possible score (%)
x9	part of the amount of co-financing in all community investment expenditure (%)
	Efficiency of absorbed funds
x8	grant amount per 1 inhabitant (PLN)
x10	part of the amount of co-financing in the general level of salaries in the public administration (%)

Source: Own study.

Substantive considerations, and above all limitation of the catalog of potential beneficiaries determined the choice of actions in the operational programs enabling to support the development of local importance, and therefore targeted at rural communities. The choice of the programs has decided about support programs with the highest percentage of rural communities among the beneficiaries. The proposals submitted in the operational programs from the perspective of 2004–2006 and 2007–2013 (Fig. 2) were analyzed.

Fig. 2. Selected for the analysis of the absorption activity of operational programs from programming periods 2004–2006 and 2007–2013
Source: Own study.

Comprehensive approach based on the three dimensions of activity included the absorption path analysis of each of the 2,321 projects for which the path from the moment of receipt of the application by an assessment of the formal as well as substantive, and ultimately decision to award the grant was traced. Analysis of a total of 56 competition procedures within the analyzed four support programs was done.

The basis of the synthetic indicator was used to organize local development and the creation of linear ranking rural districts of the Lublin voivodship because of the level of local development in 2004, 2008 and 2010. The obtained values of taxonomic indicate significant differences in rural districts of Lublin voivodship in terms of their level of development. In the years 2004, 2008 and 2010, the highest values obtained the Puchaczów commune – value ratio respectively 0.3578, 0.3598, 0.3183 (subregion of Lublin). The lowest value in 2004 and 2008 reached the Chrzanów commune – value ratio respectively 0.0149, 0.0094 (Puławski subregion). In 2010 the last position was the Miączyn commune with the value of index equal to 0.0091 (Chełmsko-Zamojski subregion).

There have also been made grouping of rural communes in the province of Lublin four homogeneous groups of objects including the values of the synthetic indicator of growth coming in at certain intervals taking into account the standard deviation of the meter around its average value. In 2004 to the group of the communes with a very good level of development 22 communes were bracketed, of which the top 10 were 4 communes from Bialski subregion, 3 communes from Chełmsko-Zamojski subregion, 2 communes from Puławski subregion and only 1 from subregion of Lublin. In the group of the communes with a good level of development there were 58 units, while the sufficient level of development reached 70 communes that represent 40.9% of the total. An insufficient level of development showed 21 the communes, of which from the last 10 communes, 6 of them were from Chełmsko-Zamojski subregion, 3 from Puławy subregion and 1 from Lublin subregion.

In 2010 the number of communes with a very good level of development increased by 5 units and was 25 communes. In the 10 highest values of aggregate measure of development there were 5 subregion communes of Lublin, 3 communes from Bialski subregion and 2 communes from Puławy subregion. Number of communes with a good level of development was 51 units, which increased by 5 units compared to 2008. The largest group

consisted of communes with a sufficient level of development acting 45% of the total. Between 2008 and 2010 the number of the communes with a sufficient level of development was reduced 10 times. Number of communes in the group of under-development levels did not change between 2008 and 2010, and amounted to 18 units.

Taking into account the level of development, changes in the size of individual groups of level of development are observed. Group of the communes with a very good level of development between 2004 and 2010 increased by 3 communes, the number of communes with lower growth decreased by 3 units. It is worth emphasizing the fact that between 2004 and 2010 showed an increase in the communes of good and very good and the decrease in the number the communes with sufficient and insufficient level of development.

In the class of the lower activity in 2008 there were 28 communes, while in 2010 it was 19 communes. Sufficient level of activity reached 65 communes in 2008 and 71 in 2010. Communes with a good level of absorption activity in 2008 was 55 units and 58 in 2010. Number of communes with a very good level of activity in 2008 and 2010 was 23 units. Due to the decreasing number of the communes with lower activity must be concluded that the situation of the communes in this area is still improving.

In own studies the factors determining the level of activity of the absorption of rural communes were analyzed. The results made it possible to extract a few key factors of a group of organizational, financial and institutional (Table 3).

Table 3. Selected factors differentiating the level of activity of the absorption of rural communes of Lublin Voivodship

Specification	The activity level of absorption Share of responses in the group (%)			
	very good	good	sufficient	insufficient
Long-term strategic planning: the period provided for in the current Communes Development Strategy: 6 or more years	92.3	90.6	75.0	37.5
Percentage of employees participating in training in the field of acquisition and use of funds: over 6 training	84.6	78.1	53.6	50.0
Continuity of power: more than 5 term of office of the mayor	38.5	12.5	25.0	25.0
Number of employees involved in service projects co-financed from EU funds: more than 6 employees	15.4	0	0	0
Assessment of the financial resources of commune: sufficient for the implementation of planned activities	15.4	0	3.6	0
The most important factors for the implementation of projects co-financed by EU funds: the competence and knowledge of employees	13.6	38.3	33.3	9.9
Education mayor: economic direction	7.7	3.1	7.1	0
Percentage of employees involved in the handling of EU projects with university code: 3–4 employees	7.7	0	3.6	0
Cooperation with the implementing institution (Marshal Office): bad rating	7.7	0	0	0

Source: Own calculation based on data from communes administration.

Carried analyzes allow to conclude that municipalities, which could in the long-term plan for self-development proved to be the most active in the absorption of EU funds. An important factor determining the activity level of absorption was the level of human capital. Communes that have achieved the highest scores in terms of: the number of employees serving EU projects, the number of training received by them in this regard were characterized by the highest level of absorption activity. In this group also reported the highest proportion of staff with professional education related to the management of EU funds. Also factors related to the characteristics of the local leader proved to be important. It was noted that the ability to obtain the support and trust of residents have their expression in the exercise of the office of mayor for many terms most often concerned the communes with the highest level of absorption activity. Communes with the lowest activity level of absorption were mostly managed by mayors exercising his office for the first time. Deserves to be highlighted is the fact that among the mayors of rural municipalities, with the highest percentage of economic education, concerned individuals with the highest level of absorption activity. This allows you to conclude that the direction of education determined mayor absorption activity. Economic education is closely connected with the possession of knowledge, including the management unit and management of its finances. As part of the institutional factors, assessment of the quality of cooperation with the institution implementing the EU support programs was analyzed. It was found that the most active in the absorption of EU funds communes with the most contact with the said institution, evaluate cooperation the worst. The list of factors to apply for EU support is presented in Figure 3.

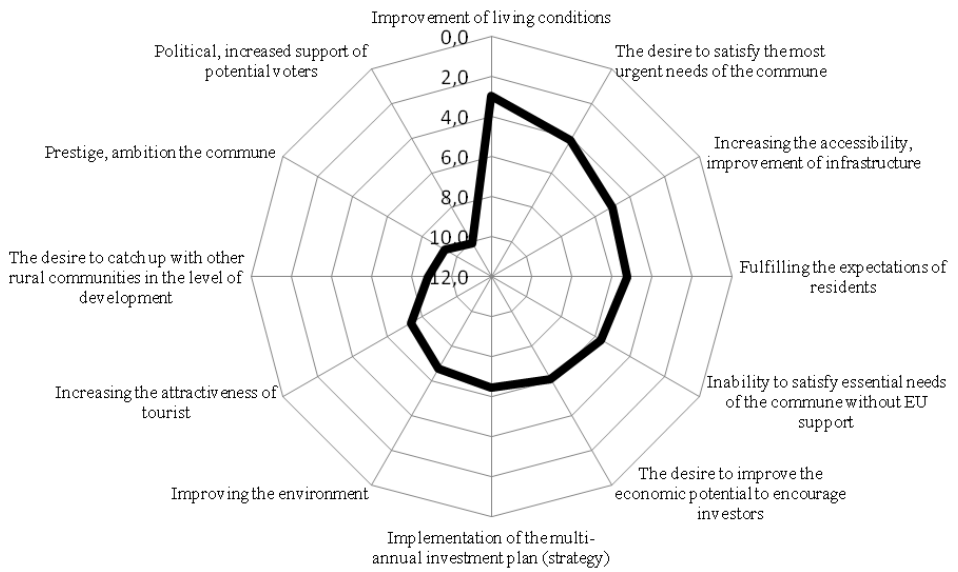

Fig. 3. Factors influencing the choice of applying for aid in the evaluation of governors surveyed municipalities (factors listed from quintessential – 1 to the least important – 12)
Source: Own study.

In conclusion it should be noted that the governors of the communes as the most important factor in deciding to apply for aid acknowledged the improvement of living conditions, which is the main objective of local development.

The main areas of use of EU support for rural communities implementing projects in 2004–2006 and 2007–2013

In the next stage of the analyzed areas of use of EU funds for investments in support offered in the programming periods 2004–2006 and 2007–2013 (Fig. 4).

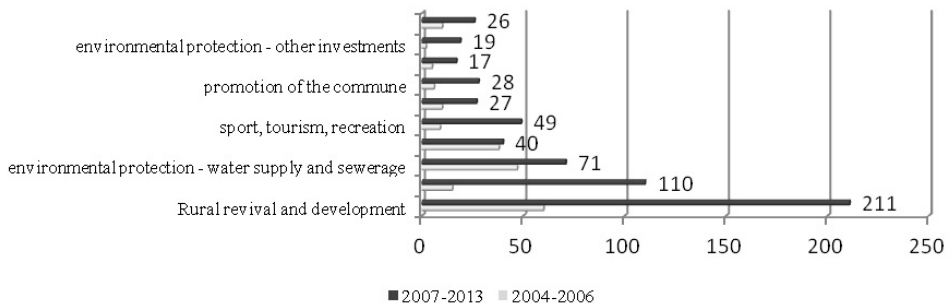

Fig. 4. Number of projects implemented by municipalities rural areas of Lublin Voivodship by utilizing the support of perspectives 2004–2006 and 2007–2013
Source: Own study.

In the group of municipalities with the highest activity absorption included such units, which implemented more than 10 projects in the field of human resources (7.7% of the group). These results confirm that the municipalities with the highest level of activity absorption observe the role of the human factor and the need for investments related to it. Municipalities with a good level of activity of absorption more than 10 projects were carried out in the area of sport, tourism and recreation (7.7% of the group) and village renewal and development (6.3% of the group). In groups of municipalities with sufficient and insufficient activity level of absorption was not on any that would achieve more than 10 projects in the analyzed areas. In both programming periods the commune most often implemented projects in the area of health and rural development, environmental protection (water and sewer) and road infrastructure. Investments in these fields helped in narrowing the gaps in terms of basic infrastructure. In the 2007–2013 perspective is shown a significant increase in investment in human resources, sports, tourism and recreation, information society and promotion of the municipality. The obtained data testify to the fact that rural communities in the first place pursue investments in technical infrastructure, and in the next programming period often reached after measures to support the development of social infrastructure.

CONCLUSIONS

The methods used for classification of municipalities and measuring the relationship between the level of activity and the level of absorption of local development made it possible to combine these two very important categories, as well as to answer the question

whether there is a relationship between them. It is worth emphasizing that the obtained data related to half of the programming period 2007–2013. It must therefore be concluded that the experience of municipalities in terms of absorption of structural funds translate into their greater activity, and hence the observed moderate correlation of two indicators will increase in the coming years.

The research and analysis showed that rural municipalities of the province of Lublin are diverse in terms of absorption activity and level of development. Analysis of activity of the absorption in the two programming periods 2004–2006 and 2007–2013 showed that on the map of the region can be found both municipalities success (which in both periods, reached the highest level of activity absorption, e.g. Firle, Głusk, Ostrówek, Terespol, Ułęż and Zalesie) and municipalities passive (Alexandroff, Rams, Chrzanów, Radecznica, Stanin, Rudnik). Increasing number of municipalities moving from lower to higher classes of the activity level of absorption was accompanied by increase in the number of municipalities achieving a higher level of development. Summary of studies of two financial perspective shows that the situation in the area of active participation in EU structural policy is greatly improved, which clearly indicates an increase in the experience, competence and skills of the staff involved in the handling of EU projects.

All the accepted hypothesis were verified positively. The main hypothesis was confirmed which assumes the existence of bilateral relations between the activity of rural municipalities in the absorption of EU funds, and the level of their socio-economic development. Partly confirmed is also a hypothesis that the position of municipalities with respect to the main urban center in the subregion is a factor differentiating activity of absorption and level of development of rural communities (in 2010 the occurrence of negative dependence was recorded which suggests that the farther from the urban center of the municipality is situated, the lower the level of its development). The hypothesis regarding institutional factors and organizational were confirmed, which define the activity in absorbing EU funds. In addition, positively were verified the hypothesis stating that having strong leadership with clear vision of the direction of development increases the level of activity in the absorption of EU funds.

In conclusion it is worth noting that in the third Cohesion Report of 2004 regional policy was indicated as one of the three main pillars of the European Union. Also it was noted that its evolution will strive to create a dynamic-oriented instruments for precise and purposeful intervention especially in regions where there is still untapped capital accumulation and development barriers, including undoubtedly the Lublin Voivodship.

REFERENCES

Bański J., Czapiewski K. 2008. Identyfikacja i ocena czynników sukcesu społeczno-gospodarczego na obszarach wiejskich, Ekspertyza [Identification and evaluation of the success factors of socio-economic development in rural areas, Expertise]. Zespół Badań Obszarów Wiejskich, IGiPZ PAN, Warszawa, 84.

Barczyk S. 2010. Przedsiębiorczy samorząd lokalny i jego instytucje [Entrepreneurial local government and its institutions]. Wydawnictwo AE, Katowice, 174.

Chmieliński P. 2008. Polityka spójności, wspólna polityka rolna a rozwój obszarów wiejskich. Razem czy osobno? W: Polityka spójności – ocena i wyzwania. Materiały z konferencji [Cohesion policy, the common agricultural policy and rural areas development. Together or separately? In: Cohesion Policy – evaluation and challenges. Materials from the conference]. Wydawnitwo. MRR, Warszawa, 116.

Debata ekspertów [Experts debate] 2012. Fundusze europejskie – realistyczne spojrzenie na przyszłość! W: Samorządność i Suwerenność [European Union Funds – a realistic view of the future! In: Self-governance and Sovereignty]. Biuletyn Fundacji Akademii Samorządności 2, 7.

Gralak K. 2008. Wykorzystanie instrumentów zarządzania publicznego w doskonaleniu potencjału instytucjonalnego administracji samorządowej w Polsce [The use of public management instruments to improve the institutional capacity of local government in Poland]. Acta Scientiarum Polonorum, Oeconomia 4, 53–64.

Kulesza M. 2000. Transformacja ustroju administracyjnego Polski (1990–2000). Prawo jako instrument przemian ustrojowych w Polsce 1989–1999 [Transformation of Polish administrative system (1990–2000). Law as an instrument of political transformation in Poland, 1989–1999]. Studia IURIDICA 38, 81–83.

Leszczewska K. 2010. Aktywność ekonomiczna regionów peryferyjnych. Nierówności społeczne a wzrost gospodarczy. Spójność społeczno-ekonomiczna a modernizacja gospodarki [Economic activity of the peripheral regions. Social inequality and economic growth. Consistency and socio-economic modernization of the economy]. Zeszyty Uniwersytetu Rzeszowskiego 17, 215–216.

Potoczek A., Pyrzyk I. 2011. Administracja i zarządzanie. Perspektywa społeczna i organizacyjna [Administration and management. Social and Organizational Perspective]. Wydawnictwo WSHE we Włocławku, Włocławek, 82.

Nowe partnerstwo dla spójności – konwergencja, konkurencyjność, współpraca. III Raport na temat spójności społecznej i gospodarczej z dnia 18 lutego 2004 r. [A new partnership for cohesion – convergence, competitiveness and cooperation. Third report on economic and social cohesion]. Retrieved from http://www.mir.gov.pl (Accessed 05.09.2013).

Sawicka J. 2009. Rozwój obszarów wiejskich w świetle reform wspólnej polityki rolnej i polityki spójności Unii Europejskiej [Rural development in the light of the reform of the common agricultural policy and cohesion policy of the European Union]. Acta Scientiarum Polonorum, Oeconomia 8 (2), 140.

Słomińska B. 2007. Przedsiębiorczość na poziomie gmin jako przejaw realizacji europejskiej polityki spójności. W: Zachowania rynkowe w teorii i praktyce [Entrepreneurship at communal level as a sign of the implementation of European cohesion policy. In: Market behavior in theory and practice]. D. Kopycińska (Ed.). Wydawnictwo Uniwersytetu Szczecińskiego, Szczecin, 115–125.

Wróblewska E. 2010. Działalność inwestycyjna małych gmin Polski Wschodniej na przykładzie gminy Ryki [The investment activities of small communes of Eastern Polish on the example of Ryki]. Acta Scientiarum Polonorum, Oeconomia 9 (1), 123–130.

Wojtach A. 2012. Uwarunkowania zdolności absorpcyjnej funduszy unijnych w administracji publicznej [Determinants of the absorption capacity of EU funds in the public administration]. Zarządzanie i Finanse 3, 432–445.

Wojewódzka A. 2007. Klasyfikacja gmin miejsko wiejskich województwa mazowieckiego według poziomu rozwoju. W: Gospodarka lokalna i regionalna w teorii i praktyce [Classification of urban rural Mazovia province by level of development. In: Local and regional economy in theory and practice]. D. Strahl (Ed.). Prace Naukowe AE 1161.

AKTYWNOŚĆ SAMORZĄDÓW LOKALNYCH W ABSORPCJI ŚRODKÓW UNIJNYCH JAKO CZYNNIK ROZWOJU GMIN WIEJSKICH

Streszczenie. Opracowanie dotyczy takich obszarów badawczych jak rozwój lokalny oraz aktywność samorządów w pozyskiwaniu zewnętrznych źródeł finansowania rozwoju gmin wiejskich. W artykule zawarto rozważania teoretyczne oraz przedstawiono wyniki badań empirycznych przeprowadzonych na obszarze ogółu gmin wiejskich z województwa lubelskiego (171 jednostek). Wybór województwa był celowy, jako że jest ono zaliczane do obszarów problemowych, gdzie obserwuje się kumulację barier rozwojowych. Zakres badań obejmował lata 2004–2010 i dotyczył okresów programowania finansowej pomocy w ramach Funduszy Strukturalnych Unii Europejskiej w latach 2004–2006 i 2007–2013.

Słowa kluczowe: samorząd lokalny, absorpcja funduszy unijnych, rozwój regionalny, gminy wiejskie, województwo lubelskie

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ASSESSMENT OF THE FINANCIAL SITUATION OF FOOD INDUSTRY IN POLAND IN 2005 AND 2010

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Abstract. The article assesses the financial situation of branches of the food industry in Poland in 2005 and 2010 and provides a linear order and classification of the branches by means of synthetic development measure, which was constructed using the TOPSIS method, basing on unpublished statistics of the Central Statistical Office. As results from the research, the financial situation of individual branches of food industry sector was diversified. Four typological classes differing in profitability, indebtedness level and financial liquidity were distinguished on the basis of the synthetic measure values. In spite of increasing crisis, in comparison with 2005, in 2010 the financial situation of food industry slightly improved, both in terms of profitability and management of current assets.

Key words: food industry, synthetic meter, TOPSIS method

INTRODUCTION

Apart from agriculture and from branches providing means of production and services for agriculture, food industry is one of major sectors of the national economy and industrial branches [Davies, Goldberg 1957, Baourakis et al. 2002]. Long-term transformations in Polish food industry affected changes in production, property and entity structures, which favoured improvement in the competitive position of the industry on the Single European Market. Poland's accession to the European Union was a significant factor increasing the importance of food industry. In consequence, there was a remarkable boom in Polish foreign trade, which enabled Polish producers of agri-food products to gain competitive advantage. As a result of market changes, the branch structure of food industry was brought considerably closer to the structures of this industry in highly developed countries. This fact is also reflected by changes in the nutrition model and structure of the demand for food products. At present, Polish food industry is a match to the producers of food and beverages from other countries of the European Union. Before the accession, i.e.

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from 2000 to 2002, the rate of development in food industry was slow, rising 1.6% a year [Statistical Yearbook of Industry 2001, 2003]. Poland's accession to the EU structures created new possibilities for the food sector and simultaneously enforced the adjustment of mechanisms of Polish food economy to the requirements of common European market. According to the data of the Institute of Agricultural and Food Economics (National Research Institute), in 2003 the sold production of the sector increased by 7.7% on average and from 2004 to 2007 it increased by 6.3%.

The gross added value generated by the Polish food industry is about EUR 7.5 billion, which makes more than 4% of the GDP. This fact may also be confirmed by the share of the food industry in the sales value of the entire industry, which was nearly 24% in 2010. It is one of the highest shares in the industry among EU countries [Mroczek 2011]. The significant role of food industry in Poland is also proved by its share in employment – in 2005 nearly 417.6 thousand people were employed in food industry. In spite of layoffs in 2010, 395,000 people were employed in the industry, i.e. 4.9% of all people employed in Poland. In 2005, 18,000 entities ran their businesses, whereas in 2010 there were 16,000 entities [Statistical Yearbook of Industry 2005, 2011]. In food industry, sector of small entities, employing up to 9 people, accounted about 65% of all entities in food industry, whereas the percentage of large enterprises, employing 250 or more people, was systematically increasing. This trend was accompanied by an increasing scale of concentration. It is proved by the fact that more than 49% of value of sold production of food and beverages accounts for large entities. The importance of food industry is much greater than it would result from the figures quoted. It is decisive to feeding people and market balance. Thus, it is important to the condition of economy and to national economic security. Due to big importance of food industry to national economy, it is necessary to monitor the financial situation both in the entire sector and in its individual branches.

The aim of the article was to assess the financial situation of branches of food industry in Poland in 2005 and 2010 and to make a linear order and classification of branches by means of a synthetic development measure, which was constructed using the TOPSIS method, basing on the unpublished statistics of the Central Statistical Office.

THEORETICAL BACKGROUND

The assessment of financial situation, defined as financial condition of a business entity, expressing its solvency and capacity to generate profit and increase financial and capital resources [Kowalak 2003], is a complex phenomenon, which means that it cannot be expressed with one trait or measured directly. Its precise and exhaustive description requires a large number of different aspects. In order to do so, usually a wide range of financial ratios are used, as they enable measurement of individual elements affecting the financial condition [Glynn et al. 2003]. The multidimensional character of the problem makes unequivocal assessment of financial situation difficult. Some ratios may point to a very good financial situation, whereas others may signal problems at the same time [Damodaran 2001, Block, Hirt 2005, Wędzki 2009]. In consequence of the diversified rules of assessment there is excessive subjectivity of interpretation. The synthetic trait (synthetic development measure) is a useful tool for assessment of financial situation

[Yurdakul, Ic 2003, Wang 2007]. The synthetic trait is constructed as a real function of directly observable simple traits, representing significant elements and relations of a complex phenomenon. According to Robertson [1984], in practice, without taking into account the usefulness of taxonomic methods for assessment of financial situation, they are given up in favour of simple ratio rules only. This article assesses the financial situation on the basis of synthetic trait, which was constructed on the basis of ratios, describing the enterprise's activity in fields of: profitability, indebtedness, financial liquidity and productivity [Forster 1996]. The selection of areas for analysis resulted from the fact that profitability, financial liquidity, financial independence and risk are four basic and interrelated criteria of assessment of financial situation of an enterprise, which enable assessment of its real income power [Kirsch 2004].

Profitability is usually measured as a ratio between the net financial result and income volume (ROS) or equity involved (ROE), i.e. the two categories which significantly contributed to achievement of those results [Palepu et al. 2000, Jansky 2002, Fabozzi 2003, Hawawini, Viallet 2006].

Debt ratios enable assessment of degree of financial security and the use of financial leverage, which is presented in this analysis as a capital multiplier, expressing the share of equity in total capital [Forster 1996, Birgham, Houston 2001]. The long-term debt ratio was calculated as the quotient of long-term debt and equity [Schroeder et al. 2011, Soboh et al. 2011]. The indebtedness level should correspond to the degree of debt protection and, above all, to the ability to pay back credit cost on time, i.e. interest. This element can be assessed with interest coverage ratio, which enables us to determine how many times the profit from the enterprise's activity (before taxation and interest payment) covers the annual value of interest paid [Wild et al. 2001, Kowalczyk, Kusak 2006]. The value of this ratio depends on the financial condition of entities and on the volume of incurred credits.

As results from the studies by Deloof [2003] and Lazaridis and Tryfonidis [2006], enterprises need to manage their inventory and receivables well and to have good payment capacity in order to be more effective. In view of this fact, another area of assessment of financial situation, concerned the financial liquidity. Liquidity ratios enable assessment of enterprise's capacity to settle their liabilities on time and to finance its current activity [Moyer et al. 1992, Weston, Birgham 1993]. In this group of ratios this analysis includes quick ratio, working capital cycle, inventory cycle and accounts receivable cycle.

The quick ratio provides information which part of high liquidity components of working capital, i.e. corrected with inventory, covers current liabilities. It is more rigorous than current liquidity ratio, because it is assumed that the enterprise's inventory is one of its least liquid assets [Moyer et al. 1992]. Zaleska [2002], Czekaj, Dresler [1998], Gołębiowski and Tłaczała [2005] report that the enterprise may settle its short-term liabilities on time if the ratio ranges between 1.0 and 1.2. Besides, the working capital cycle ratio was used to test liquidity as it enables us to assess for how many days of turnover there is enough working capital. Working capital, understood as the difference between current assets and current liabilities, is a financial category that is fundamental for assessment of liquidity and enterprise's valuation [Shulman, Cox 1985, Bernstein 1988]. The inventory cycle and accounts receivable cycle supplement the analysis of liquidity and at the same time they are an element of assessment of effectiveness of enterprise's activity.

The accounts receivable cycle shows a period of time that must elapse between deferred payment sales and encashment. Too long period of repayment is unfavourable to the enterprise, because it entails higher engagement of working capital or the possibility of occurrence of uncollectible receivables or hardly collectible receivables [Robertson 1983]. The inventory cycle is an important measure of the enterprise's operating effectiveness, which provides information within how many days of activity the inventory will run out. The less time elapses between the date of purchase and the date of sales, the better it is, because there is less inventory waiting in warehouses to be sold [Price et al. 1993].

MATERIALS AND RESEARCH METHOD

In order to assess the financial situation of the food industry, unpublished statistical data of the Central Statistical Office for 2005 and 2010 were used (unpublished data from 2006 and 2011 – F-02. Statistical finencial statements...). The source materials concerned the financial data in branch system of food industry sector according to the Polish Classification of Activities (PKD). The system enabled assessment of 30 branches of food industry sector altogether, including 25 branches of food production and 5 branches of beverage production.

The financial situation of branches of food industry was assessed by means of a financial situation synthetic measure, which was constructed with the classic TOPSIS (Technique for Order Preference by Similarity to an Ideal Solution) method. The TOPSIS method belongs to the group of multi-criteria methods and it was first presented in 1981 [Hwang, Yoon 1981]. It can be regarded as a modification of Hellwig's taxonomic development model. The values of the synthetic measure of financial situation in branches of food industry were determined at following stages [Wysocki 2010, Aryanezhad et al. 2011, Florek et al. 2013]:

1. The selection of simple traits for partial determinants of financial situation was done on the basis of factual premises so that they would represent different groups of ratios, i.e. profitability, liquidity, effectiveness of activity and indebtedness. In order to eliminate simple traits, statistical analysis was applied. Excessively correlated traits with low variation of values were eliminated [Wysocki 2010]. Finally, nine simple traits were accepted for analysis, where the quick ratio and long-term debt ratio were assumed as nominants, the inventory cycle and accounts receivable cycle were assumed as destimulants and the others as stimulants of the financial situation. The research did not apply weights, assuming that each trait had the same share in the constructed synthetic trait. The traits assumed for analysis as ratios were calculated according to the following formulas (Table 1).
2. Normalisation of simple traits values by means of linear normalisation (zeroed unitarisation) – the character of the traits was standardised by conversion of destimulants and nominants into stimulants and by reducing the values of all traits to comparability.
3. Determination of coordinates of model units – the development model and the antimodel.
4. Calculation of the Euclidean distance of individual branches from the development model.

Table 1. The formulas of financial ratios applied in the study

Name of ratio	Formula
Return on equity – ROE (%)	Net profit / Equity × 100%
Return on sales – ROE (%)	Net profit / Sales income × 100%
Equity multiplier – ER (–)	Total liabilities / Equity
Long-term debt ratio – LD (%)	Long-term liabilities/ Equity × 100% × 100%
Interest coverage ratio – ICR (–)	Net profit + Income tax + Credit interest / Credit interest × 100%
Quick ratio – QR (–)	Current assets – Inventory / Short-term liabilities
Working capital cycle – WCC (–)	Working capital / Sales income × 365 days[a]
Inventory cycle – IC (days)	Inventory / Sales income × 365 days[a]
Accounts receivable cycle – ARC (days)	Short-term receivables / Sales income × 365 days[a]

[a]The working capital was calculated as the difference between current assets and short-term liabilities.
Source: The authors' own compilation based on Baourakis et al. [2002], Sierpińska, Jachna [2004], Gołębiowski, Tłaczała [2005], Czerwińska-Kayzer et al. [2013].

5. Calculation of the synthetic trait value. The answer is the best when a particular branch is at the shortest distance from the model unit – the development model and simultaneously it is at the longest distance from development antimodel. The measure q_i assumes values from interval <–1, 1>. Higher values of measure indicate a better financial situation of the i^{th} branch.
6. Linear ordering and classification of distinguished branches of food industry sector in terms of level of their financial situation. The classification was based on a statistical criterion using the arithmetic mean and standard deviation from the synthetic measure value.

RESULTS OF RESEARCH – CLASSIFICATION OF BRANCHES OF THE FOOD INDUSTRY SECTOR

The synthetic measure value was calculated on the basis of standardised values of simple traits. It was used for linear ordering and classification of branches of food industry in 2005 and 2010.

As a result of the research, four typological classes differing in profitability, indebtedness level, financial liquidity and effectiveness of asset management were distinguished. The research results point to relatively high similarity in the distribution of branches of food industry according to the financial situation in 2005 and 2010.

Table 2 shows a classification of branches of food industry according to the values of synthetic measure TOPSIS in the years under analysis. Table 3 presents the intraclass values of partial measures of financial situation for the distinguished typological classes.

In the years under analysis, Class I comprised five branches of food industry, but only one of them, i.e. beer production, was included in this class in both years under study. In 2005 the following branches were also included in the class: production of prepared meals, production of other food products, production of other non-distilled fermented beverages and other soft drinks. On the other hand, in 2010 the class also included: production of

Table 2. The classification of branches of the food industry sector based on the value of the synthetic measure of financial situation

Typological class	Level	Years	Synthetic measure limit values	Values of synthetic measure of financial situation for distinguished branches of food industry
I	High	2005	>0.5436	Prepared meals and dishes (0.5805), Other food products n.e.c. (0.5631), Beer (0.5501), Other non-distilled fermented beverages (0.5494), Soft drinks; mineral waters and other bottled waters (0.5440)
		2010	>0.4721	Prepared feeds for farm animals (0.5048), Bread; fresh pastry goods and cakes (0.4927), Distilled alcoholic beverages (0.4766), Beer (0.4794), Margarine and similar edible fats (0.4738)
II	Upper intermediate	2005	0.4808–0.5436	Condiments and seasonings (0.5426), Processed tea and coffee (0.5418), Margarine and similar edible fats (0.5412), Prepared feeds for farm animals (0.5310), Bread; fresh pastry goods and cakes (0.5204), Meat and poultry meat products (0.5091), Processed and preserved poultry meat (0.5082), Malt (0.5031), Wine from grape (0.4879), Cocoa, chocolate and sugar confectionery (0.4870), Distilled alcoholic beverages (0.4849), Processed and preserved meat (0.4826)
		2010	0.4140–0.4721	Prepared meals and dishes (0.4647), Prepared feeds for farm animals (0.4619), Condiments and seasonings (0.4589), Dairy and cheese products (0,4577), Rusks and biscuits; preserved pastry goods and cakes (0.4522), Sugar (0.4453), Meat and poultry meat products (0.4440), Processed and preserved poultry meat (0.4440), Processed and preserved meat (0.4359), Processed tea and coffee (0.4258), Ice cream (0.4192)
III	Lower intermediate	2005	0.4180–0.4808	Rusks and biscuits; preserved pastry goods and cakes (0.4774), Dairy and cheese products (0.4609), Ice cream (0.4608), Processed and preserved potatoes (0.4606), Processed and preserved fish, crustaceans and molluscs (0.4505), Cider and other fruit wines (0.4492), Other processed and preserved fruit and vegetables (0.4311), Homogenised food preparations and dietetic food (0.4272)
		2010	0.3560–0.4140	Macaroni, noodles, couscous and similar farinaceous products (0.4119), Soft drinks; mineral waters and other bottled waters (0.4087), Other food products n.e.c. (0.3990), Processed and preserved fish, crustaceans and molluscs (0.3977), Wine from grape (0.3953), Cocoa, chocolate and sugar confectionery (0.3897), Processed and preserved potatoes (0.3822), Grain mill products (0.3697), Starches and starch products (0.3574),
IV	Low	2005	<0.4180	Grain mill products, starches and starch products (0.4040), Oils and fats (0.4037), Fruit and vegetable juices (0,3757), Macaroni, noodles, couscous and similar farinaceous products (0.3648), Sugar (0.3334)
		2010	<0.3560	Homogenised food preparations and dietetic food (0.3426), Cider and other fruit wines (0.3270), Other processed and preserved fruit and vegetables (0.3157), Oils and fats (0.3117), Fruit and vegetable juices (0.2799)

Source: The authors' own calculations.

Table 3. The intraclass trait values – partial measures of the financial situation for branches of the food industry sector – median values

Ratios	Class								Total	
	I		II		III		IV			
	2005	2010	2005	2010	2005	2010	2005	2010	2005	2010
ROE	14.85	27.19	11.84	16.78	12.03	10.80	7.59	7.36	11.50	13.44
ROS	2.18	7.38	3.43	3.72	3.53	5.04	3.04	3.13	3.32	4.56
ER	2.52	1.96	2.07	2.07	2.14	1.80	2.12	2.36	2.11	2.02
LD	22.47	23.43	23.50	25.68	20.79	11.54	14.35	20.81	20.20	21.33
ICR	3.76	14.67	6.70	9.83	6.83	8.70	3.79	4.61	5.86	8.70
QR	0.77	0.99	0.95	1.08	0.78	1.16	0.60	0.62	0.76	0.94
WCC	21.20	13.00	40.07	29.10	16.66	58.01	22.84	25.65	22.23	27.38
IC	29.17	13.30	27.00	23.71	31.73	31.39	63.35	68.54	34.29	31.39
ARC	58.81	33.07	49.94	39.99	52.15	67.49	46.74	48.24	53.16	46.15

Source: The authors' own calculations.

prepared pet foods, bread, distilled alcoholic beverages and margarine and similar edible fats. In the years under investigation Class I had the highest return on equity (14.85% in 2005 and 27.19% in 2010) and higher than average level of long-term debt (22.47 and 23.43%, respectively). In 2005 the indebtedness level had decisive influence on relatively high return on equity in the class. In 2005 the capital multiplier in Class I amounted to 2.52 and the mean value was 2.11. This points to the fact that enterprises from this class used the financial leverage effect in management. The return on sales had less influence on the return on equity. In 2005 its value was below average in food industry. In 2010 the situation changed, because the indebtedness level decreased, but simultaneously the share of long-term debt and financial costs coverage ratio increased. Besides, the return on sales grew by 5.2%, which points to greater control of factors related with sales. In that period, financial liquidity and management of inventory and receivables was also improved. In Class I, the inventory period shortened from 30 days in 2005 to 14 days in 2010. On the other hand, the accounts receivable cycle was 26 days shorter and it amounted to 34 days in 2010. On this basis we can say that branches in Class I had very high financial effectiveness, which they achieved thanks to effective management adjusted to the situation in economy. Depending on the needs, mechanisms of financial policy were used or assets were effectively managed.

In 2005 Class II was made up of 12 branches and in 2010 it consisted of 11 branches. 6 branches were included in the class in both periods, i.e. all branches related with meat processing, production of tea and coffee, condiments and seasonings and production of prepared feeds for animals. In 2005 Class II also included following branches: production of margarine, bread, grape wines, cocoa and chocolate, malt and distilled alcoholic beverages. On the other hand, in 2010 following branches were classified in this group: production of prepared meals ad dishes, dairy processing, production of rusks and biscuits, ice cream and sugar. The branches included in Class II had much lower return on equity than branches in Class I, but their level was higher than the average value for total food industry. Apart from that, the indebtedness in the class, including long-term debts was higher

than average in the whole sector. It is necessary to stress the fact that relatively high long-term debts, which reached 25.68% (the average was 21.33%) in the class in 2010, did not cause a danger of increased risk of solvency loss. In both periods under study, the interest coverage ratio was higher than average and it amounted to 6.70 in 2005 and 9.83 in 2010. In both periods under investigation, the financial liquidity in Class II was also higher than average in the whole sector. Its level was determined by shorter periods of inventory cycle and accounts receivable cycle. Inventory in this class was replenished on average every 27 days in 2005 and every 24 days in 2010. The average waiting time for receivables was 50 days in 2005 and 40 days in 2010. The average for the total food industry was 54 and 47 days, respectively. In the years under investigation, Class II had similar values of the return on sales and capital multiplier, which are partial measures of the ROE. This may point to the fact that in branches of this class, sales and financial policies had similar influence on the achieved results.

Class III was made up of eight branches in 2005 and of nine branches in 2010. Only two of them, i.e. the processing of potatoes and fish and crustaceans, appeared in the class in both years. In 2005 the following branches were also included in the class: production of homogenised food preparations, cider, ice cream, rusks and biscuits, dairy and cheese products and other processed and preserved fruit and vegetables. In 2010 Class III also included branches related with production of soft drinks, other food products, grape wine, cocoa and chocolate, noodles and similar farinaceous products, grain mill products and starch. In 2005 in Class III the return on equity was 12.03% and in 2010 it was 10.80%, where the average values in the food industry were 11.50 and 13.44%, respectively. At the same time, the return on sales in this class was the highest of all classes. In 2005 the ROS was 3.53%, and in 2010 – 5.04%, where the average values were 3.32 and 4.56%, respectively. High dynamics of indebtedness level was characteristic in this class. In comparison with 2005, the equity debt decreased by 44.49%. In 2005 it was higher and in 2010 it was lower than the average value in total food industry. In the years under study, the financial liquidity was higher than an average value in the sector and in 2010 it was the highest of all classes. Higher liquidity in 2010 resulted from lower level of short-term liabilities, which coincided with higher level of receivables. In 2010 the accounts receivable cycle was 15 days longer than in 2005 and it amounted to 68 days. Poor collectability of receivables was accompanied by good management of inventory, which was replenished every 32 days in this class in both years. The branches of Class III had low financial effectiveness, conservative financial policy and quick rotation of material working assets.

Class IV, which was characterised by the poorest financial situation, was made up of five branches, two of which remained there during the whole period under analysis – juice production and oil production. In 2005 the class also included production of sugar, noodles, grain mill products, starches and starch products. In 2010 the following branches were also classified in the group: production of homogenised food preparations, cider and other processed and preserved fruit and vegetables. The branches in Class IV had the lowest return on equity, which was determined by low return on sales, poor effectiveness of inventory management and low financial liquidity. Simultaneously, there was high total debt and low capacity to settle financial costs. The lowest liquidity (0.60 in 2005

and 0.62 in 2010) was the consequence of high level of short-term liabilities, which was higher than in the other classes, and low level of receivables and cash. It is necessary to stress the fact that in Class IV in both years under study there was a branch with the lowest level of liquidity (production of oils). Besides, the class included branches with the longest inventory cycles. The average inventory storage period in Class IV was 64 days in 2005 and 69 days in 2010, where the average time in the whole sector was 35 days and 32 days, respectively. Longer inventory periods in this class cannot be negatively assessed, because they result from the need to have an appropriate amount of reserves of raw materials rather than from the collection of product inventories. Class IV included fruit and vegetable processing plants, oil factories and the enterprises producing starch. Long periods of receivables payment combined with the low liquidity ratio point to the accumulation of receivables, which may threaten payment backlogs and further deterioration of financial situation in branches in this class.

SUMMARY AND CONCLUSIONS

This article used a synthetic measure of assessment of the financial situation for linear order and classification of branches of food industry in Poland in 2005 and 2010.

As results from the study, the financial situation of individual branches of the food industry was diversified. Four typological classes differing in profitability, indebtedness level and financial liquidity were distinguished on the basis of synthetic measure values. Branches in Class I had the best financial situation. Enterprises operating in those branches in the years under study had the highest return on equity, which was accompanied by higher than average long-term debt. It is worth stressing that in 2010, total debt level decreased, but simultaneously long-term debt value increased. This situation may be explained with banks' stricter credit policy, resulting from the increasing economic crisis. The return on sales also increased and financial liquidity improved during that period, which points to the fact that enterprises in this class paid special attention to control of times of receivables collectability and settlement of liabilities. Enterprises in the branches of Class IV had the weakest financial condition. In 2005 and 2010 they had low return on equity, which was the consequence of worse inventory management and mistakes in their sales policy. This also determined the enterprises' level of financial liquidity and their solvency.

To sum up, on the basis of the study we can conclude that in comparison with 2005 in 2010, the financial situation in branches of food industry sector slightly improved both in terms of their profitability and management of current assets. The distribution of branches in food industry indicates that a vast majority of them have a similar approach to the risk of engagement of borrowed capital to finance their business activity and they have a conservative trade credit strategy.

The presented results should be treated with caution for individual branches, as only full multivariate causal analysis of individual branches would allow for the actual assessment of their financial situation.

REFERENCES

Aryanezhad B., Tarokh, M.J., Mokhtarian M.N., Zaheri, F., 2011. A fuzzy TOPSIS Method Based on Left and Right Scores. International Journal of Industrial Engineering & Production Research 22 (1), 5–62.

Baourakis G., Doumpos M., Kalogeras N., Zopounidis C., 2002. Multicriteria Analysis and Assessment of Financial Viability of Agribusinesses: The Case of Marketing Co-operatives and Juice-Producing Companies. Agribusiness 18 (4), 543–558.

Bernstein L., 1988. Analysis of Financial Statements. Irwin, Homewood.

Birgham E.F., Houston J.F., 2001. Fundamentals of Financial Management. Concise 3rd Edition. Harcourt Publishers, Fort Worth TX.

Block S.B., Hirt G.A., 2005. Foundations of Financial Management. 11th Edition. McGraw-Hill Irwin, Boston, Mass.

Czekaj J., Dresler Z., 1998. Zarządzanie finansami przedsiębiorstw – podstawy teorii (Management of corporate finance – Basic theory). PWN, Warszawa.

Czerwińska-Kayzer D., Florek J., Stanisławska J., 2013. Zastosowanie metody TOPSiS do oceny sytuacji finansowej przemysłu spożywczego (Application of TOPSiS method to evaluate the financial situation of the food industry). Zagadnienia Ekonomiki Rolnej 2, 22–37.

Damodaran A., 2001. Corporate Finance: Theory and Practice. 2nd Edition. John Wiley & Sons, New York.

Davies J.H., Goldberg R.A., 1957. A Concept of agribusiness. Harvard University, Boston.

Deloof M., 2003. Does working capital management affect profitability of Belgian firms? J. Bus. Financ. Account. 30 (3–4), 573–588.

F-02. Statystyczne sprawozdanie finansowe, produkcja artykułów spożywczych, produkcja napojów (F-02. Statistical financial statements, manufacture of food products, beverages). GUS, Warszawa 2006, 2011 [unpublished].

Fabozzi F.J., Peterson P.P., 2003. Financial management & analysis. Wiley Finance.

Florek J., Czerwińska-Kayzer D., Stanisławska J., 2013. Klasyfikacja branż sektora przemysłu spożywczego według ich sytuacji finansowej (Classification of food industry sectors according to their financial situation). Journal on Management and Finance 11, 1, part 3, 151–163.

Forster D.L., 1996. Capital Structure, Business Risk, and Investor Returns for Agribusinesses. Agribusiness 12 (5), 429–442.

Glynn J.J., Murphy M.P., Perrin J., Abraham A., 2003. Accounting for Managers. 3rd Edition. Thomson Learning, Melbourne.

Gołębiowski G., Tłaczała A., 2005. Analiza ekonomiczno-finansowa w ujęciu praktycznym (The financial and economic analysis in practical terms). Difin, Warszawa.

Hawawini G., Viallet C., 2006. Finance for Executives. Managing for Value Creation.

Hwang C.L., Yoon K., 1981. Multiple attribute decision making. Methods and applications. Springer, Berlin.

Jansky J., 2002. Evaluation of the financial situation of farms. Agricultural Economics 11, 485–489.

Kirsch H., 2004. Finanz – und erfolgswirtschaftliche Jahersabschlussanalyse nach IFRS. Verlag Vahlen, München, 125.

Kowalak R., 2003. Ocena kondycji finansowej przedsiębiorstwa (The assessment of company's financial condition). ODDK, Gdańsk.

Kowalczyk J. Kusak A., 2006. Decyzje finansowe firmy. Metody analizy (The company's financial decisions. Methods of analysis.). Wyd. C.H. Beck, Warszawa.

Lazaridis J., Tryfonidis D., 2006. Relationship between working capital management and profitability of listed companies in the Athens stock exchange. J. Financ. Manage. Anal. 19 (1), 26–35.

Moyer R.C., McGuigan J.R. Kretlow W.J., 1992. Contemporary Financial Management. West Publishing Company, New York.
Mroczek R., 2011. Procesy dostosowawcze polskiego przemysłu spożywczego do zmieniającego się otoczenia rynkowego (The adjustment processes of Polish food industry to the changing market environment). IERiGŻ, Warszawa.
Palepu K.G., Healy P.M., Bernard V.L., 2000. Business Analysis and Valuation, Using Financial Statements. Southwestern Publishing Company, Cincinnati, OH.
Price J.E., Haddock M.D., Brock H.R., 1993. College Accounting. 7th Edition. Macmillan/McGraw-Hill, New York.
Robertson J., 1983. Company Failure. Measuring Changes in Financial Health through Ratio Analysis. Management Accounting, November.
Robertson J., 1984. Research Directions in financial Ratio Analysis. Management Accounting, September.
Rocznik Statystyczny Przemysłu (Statistical Yearbook of Industry) 2001, 2003, 2005, 2011 2005, 2011: GUS, Warszawa, www.stat.gov.pl, 2002, 2004, 2006, 2012.
Schroeder R.G., Clark M.W., Cathey J.M., 2011. Financial Accounting. Theory and Analysis: Text and Cases.
Shulman J., Cox R., 1985. An Intergrative Approach to Working Capital Management. Journal of Cash Management, November-December.
Sierpińska M., Jachna T., 2004. Ocena przedsiębiorstw według standardów światowych (Evaluation of enterprises according to world standards). PWN, Warszawa.
Soboh R.A.M.E., Lansink A.O., van Dijk G., 2011. Distinguishing Dairy Cooperatives from Investor-Owned Firms in Europe Using Financial Indicators. Agribusiness 27(1), 34–46.
Wang Y.J., 2007. Applying FMCDM to evaluate financial performance of domestic airlines in Taiwan. Expert Systems with Applications, in press, doi:10.1016/j.eswa.2007.02.029.
Wędzki D., 2009. Wskaźniki finansowe. Charakterystyka wskaźników, systemów wskaźników i metod oceny (Financial indicators. Characteristics of indicators, indicators' systems and assessment methods). Oficyna a Woltters Kluwer Business, Kraków.
Weston J.F., Brigham E.F., 1993. Essentials of managerial finance. 10th Edition. Southwest Press, India.
Wild J.J., Bernstein L.A., Subramanyam K.R., 2001. Financial Statement Analysis. McGraw-Hill International Editions.
Wysocki F., 2010. Metody taksonomiczne w rozpoznaniu typów ekonomicznych rolnictwa i obszarów wiejskich (Taxonomic methods in the diagnosis of economic types of agriculture and rural areas). Wydawnictwo Uniwersytetu Przyrodniczego w Poznaniu, Poznań.
Yurdakul M., Ic Y.T., 2003. Türk otomotiv firmalarinin performans ölcümü ve analizine yönelik TOPSIS yöntemini kullanan bir örnek calisma. Gazi Üniversitesi Mühendislik Mimarlik Fakültesi Dergisi 18(1), 1–18.
Zaleska M., 2002. Ocena ekonomiczno-finansowa przedsiębiorstwa przez analityka bankowego. The economic and financial assessment od company carried out by banking analyst). Oficyna Wydawnicza SGH, Warszawa.

OCENA SYTUACJI FINANSOWEJ PRZEMYSŁU SPOŻYWCZEGO W POLSCE W 2005 I 2010

Streszczenie. W artykule dokonano oceny sytuacji finansowej branż sektora przemysłu spożywczego w Polsce w latach 2005 i 2010, a także ich uporządkowania liniowego i klasyfikacji przy zastosowaniu syntetycznego miernika rozwoju, skonstruowanego za pomocą metody TOPSIS, na podstawie niepublikowanych danych statystycznych, pochodzących z Głównego Urzędu Statystycznego. Z przeprowadzonych badań wynika, iż sytuacja

finansowa poszczególnych branż sektora przemysłu spożywczego była zróżnicowana. Na podstawie wartości syntetycznego miernika wyodrębniono cztery klasy typologiczne, różniące się pod względem rentowności, poziomu zadłużenia i płynności finansowej. Mimo pogłębiającego się kryzysu w 2010 roku sytuacja finansowa przemysłu spożywczego nieznacznie poprawiła się w porównaniu do 2005 roku, zarówno pod względem rentowności, jak również gospodarowania majątkiem obrotowym.

Słowa kluczowe: przemysł spożywczy, syntetyczny miernik, metoda TOPSIS

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PERCEPTION OF COOPERATION AND TRUST IN INTERNATIONAL COOPERATION. A STUDY ON POLISH EXPORTERS AND IMPORTERS COOPERATION WITH PARTNERS FROM CHINA AND GERMANY

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Abstract. Trust is a basic coordination mechanism in interfirm relations while lack of trust is perceived as a cooperation barrier. However, building trust across cultural or national borders can be difficult because of cultural differences between partners. This study presents the results of the research on 278 Polish exporters and importers cooperating with partners from China and Germany and proves that the general perception of cooperation with partners from a given country influences the trust level in the cooperation with a given partner coming from this country. This dependence is the weakest in case of starting to trust the partner after the beginning of the cooperation.

Key words: trust, international cooperation, Polish exporters and importers, culture

INTRODUCTION

International interfirm cooperation differs from cooperating with domestic partners, since its conditions are much more complex. Both the macroenvironment and the microenvironment can be different from the domestic one. In highly complex and competitive conditions (i.e. also in international business conditions) the company's competitive advantage is based not only on in-house but also on network-generated resources [Castaldo 2007, p. 31]. The importance of relational resources has been discussed, i.a. by Dyer and Singh [1998], Morgan and Hunt [1999] and Castaldo [2007, pp. 30–36], but the knowledge about the relationship quality determinants seems to be still incomplete.

The literature devoted to international business (including handbooks) regards culture itself, cultural differences and single cultural aspects to be of crucial importance for the international business relations. Cultural distance is being presented as one of the

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factors, of which a company must be aware, and which should be monitored and controlled [Johanson and Wiedersheim-Paul 1975]. It is stressed that understanding partners' culture becomes critical for the expansion success [Czinkota and Ronkainen 2007, p. 53]. Cultural differencesare being perceived to be international cooperation barriers [Arteaga-Ortiz and Fernández-Ortiz 2010, Leick 2011] and cultural similarity – to be one of the conditions of efficient cooperation [Stępień 2011, p. 229]. This study concentrates on the issue of the perception of cooperation with partners from a given country (including questions related to their business culture) and its influence on trust.

Trust, defined by Anderson and Narus [1990] as "the firm's belief that another company will perform actions that will result in positive outcomes for the firm, as well as not take unexpected actions that would result in negative outcomes for the firm" is being perceived as one of the key attributes/components of the relationship quality [i.a. Morgan and Hunt 1994, Naudé and Buttle 2000, de Búrca, Fynes and Roche 2004, Ulaga and Eggert 2006, Holmlund 2008, Provan and Sydow 2008, Ashnai et al. 2008, Kim et al. 2010, Danik and Duliniec 2014]. Trust is also regarded to be one especially immediate antecedent of cooperation [Smith et al. 1995, Obodia 2008] and a basic coordination mechanism in interorganizational relations [Bachmann and Zaheer 2008]. Furthermore, lack of trust is being perceived as a barrier to both domestic and international cooperation [Nowak 2009, Danik and Lewandowska 2013].

The establishment and development of trust across cultural/national borders can be difficult. According to Bachman and Zaheer [2008], different trusting norms in partners' country of origin can raise problems for interorganizational relationships, e.g. resulting in misunderstandings, unfulfilled potential and lower cooperation potential. Child [2002, p. 250] also agrees that in case of international cooperation the development of mutual understanding and trust could be hampered by cultural differences.

According to Castaldo [2007, p. 193], the main trust's determinants are:
1) past experiences with the partner and relative level of satisfaction;
2) the trustee's perceived capabilities and competencies;
3) the partner's motivations to pursue joint goals without opportunistic behavior;
4) the trustee's perceived integrity and values.

However, the perception of partner's motives and/or competence depends not only on the structural and situational factors, but also on trusting person dispositional factors [Kee and Knox 1970, Sztompka 2007, pp. 142–143]. Kee and Knox [1970] claim, that both the structural and situational factors and dispositional factors are being influenced by the previous experience. This paper refers to Kee and Knox model [1970] arguing that trust to members of a given group depends on the general perception of this group. This perception/opinion depends not only on the experience but also on the knowledge and stereotypes regarding this group. According to Herz and Diamantopulos [2013], country stereotypes are "stored beliefs about characteristics of a specific country which are socially shared. Country stereotypes are formed through direct experience or indirectly via education and/or media exposure and can evoke cognitive as well as affective processes". Consequently the country perception and stereotypes can be interrelated as stereotypes influence country perception and they both base on knowledge and experience. In this study the term "perception" (perception of cooperation with partners coming from a given country) will be used as it is broader than the term "stereotypes".

This paper presents partial results of the research project regarding dependencies between firm relationships and cultural differences carried out in January and February 2013 on Polish exporters and importers cooperating with partners in China or Germany. China and Germany as the partners' countries of origin were chosen according to their positions as Poland's trade partners [Rocznik statystyczny… 2012] and because of cultural differences between them and between them and Poland revealed in other studies [e.g. Gesteland 1999, House et al. 2004, Hofstede et al. 2010]. In author's previous study [Danik and Duliniec 2014] it was stated that most of the relationship quality factors do not differ significantly depending on the partner's country of origin, what indicates rather limited influence of "real" cultural differences on the relationship quality. The other author's study (under revision) confirmed that all aspects of relations between the surveyed enterprises depend more or less on observed cultural differences in the behavior of Polish enterprises and their foreign partners. This study aims to investigate whether the general perception of cooperation with partners from a given country influences the trust in the cooperation with a given partner coming from this country.

The study will answer following research questions:

1. Does the perception of cooperation with partners from China and Germany influence perceiving partner (coming from this countries) to be trustworthy?
2. Does the perception of cooperation with partners from China and Germany influence trusting partner (coming from this contries) from the beginning of cooperation?
3. Does the perception of cooperation with partners from China and Germany influence starting to trust the partner just after beginning the cooperation and being convinced that the partner is trustworthy?

The research questions apply to general trust level, trusting the partner from the very beginning and starting to trust the partner after the beginning of the cooperation as trust is a dynamic phenomenon and can change during the relationship [Gabarro 1978].

RESEARCH METHOD

The data was collected using the CATI method. A random-stratified sampling was applied. The entry frame (gross sampling) was N = 41,520 records (firms dealing in industrial processing employing 1 to 249 employees). Eventually (net sample), interviews covered 280 SMEs operating in Poland and developing cooperation with partners in China or Germany. The response coefficient was 0.67%. The maximum standard estimation error was 0.058. Two companies were not taken into consideration in the final analysis as their employees' number exceeded the SMEs limit.

64 companies under study cooperated with partners from China as exporters, 84 companies were importers cooperating with Chinese partners, 83 firms exported goods to Germany, and 76 were importers from Germany, whereas some of them were both importers and exporters and/or cooperated with both Chinese and German partners. 239 companies had the Polish capital, 26 – mixed and 13 – foreign. Two thirds of the companies reached the 30% or higher share of exports in total sales over past three years, whereas in case of 54.1% of companies the share of imports in total supply over past three years was under 30%. 8.6% of the companies employed 1–9 employees, 38.5% – 10–49 and 52.9% – 50–249.

The respondents were employees responsible for the company's cooperation with foreign partners. The cooperation was defined as relationships lasting for at least one year and consisting in a regular, no one-time, completing the tasks by partners when the partners are independent, i.e. with no capital ties, or (if capital ties exist) none of the firms enjoys supervision powers over a partner [Stępień, Ed. 2011, pp. 15–33].

To measure the perception of cooperation with partners coming from a given country a scale was developed referring to cultural dimensions discussed in the literature. The present critique of the Hofstede and GLOBE studies on culture and especially the dimensions identified by them was taken into consideration by formulating the questions. However although not only the authors of those studies [Hanges and Dicskon 2004, pp. 99, 127, Minkov and Hofstede 2011], but also the other up-to-date literature emphasizes that the Hofstede and GLOBE studies refer only to the country level and one can

Table 1. Questions measuring perception of cooperation with partners coming from China/Germany

Cultural dimensions	Author	Questions refered to a given dimension
Approach to time, monochronism / / polychronism, long- / short-term orientation	Hall 1959; Hofstede and Bond 1988; Trompenaars and Hampden-Turner 1997; Gesteland 1999; House et al. 2004	partners from China/Germany often do not meet deadlines (reverse scale) partners from China/Germany require meeting deadlines partners from China/Germany always think long term
Gender egalitarianism	House et al. 2004	men not women should negotiate with partners from this country (reverse scale)
Ceremoniousness	Gesteland 1999	partners from this country pay a lot of attention to business etiquette
Contextuality	Hall 1976	partners from China/Germany never say directly what they mean
Uncertainty avoidance	Hofstede 1983; House et al. 2004	one cannot trust partners from China/Germany in case of cooperation with partners from China/Germany one should take care of a contract as detailed as possible partners from China/Germany pay a lot of attention on formal aspects of the contract
Deal-focus / relationship-focus	Gesteland 1999	in order to be successful in cooperation with partners from China/Germany one have to meet their representatives in person partners from China/Germany take care of good relations during cooperation
Femininity / masculinity (assertiveness)	Hofstede 1983; House et al. 2004	partners from China/Germany are aggressive negotiators
Power distance	Hofstede 1983; House et al. 2004	mature and not young people should negotiate with partners from this country people who are high in the company's hierarchy should negotiate with partners from this country
Questions not referring to cultural dimensions partners from China/Germany look down on Poles one needs to became acquainted with the partner's culture before the cooperation the cooperation with a partner from this country is difficult		

Source: Own elaboration.

not transfer their results to the organizational or individual level [Bond 2002, Sousa and Bradley 2006, Brewer and Venaik 2012, McSweeney 2013], one can find such approach both in the research and in the teaching (see for example the research of Jin et al. [2008] or the academic handbook titled International Management: Culture, Strategy and Behavior [Luthans and Doh 2012], which is balancing between the country, organizational and individual level). Assuming that the "knowledge" presented in handbooks and research is shaping the perception of cooperation with partners coming from a given country one has to consider the dimensions of culture presented in the literature. In this part of the study no questions referring directly to the collectivism and individualism were asked, as this dimension relies more to intra- and not interfirm relations.

Three additional general questions about the cooperation with partners coming from countries under study were also asked (Table 1).

After the respondents were asked about the general perception of cooperation with Chinese/German partners a set of questions was asked regarding the cooperation with their most important partner from China/Germany. In order to examine the level of trusting the partner, a 5-point Likert type scale was applied (1 = absolutely disagree, 5 = absolutely agree). The respondents were asked to respond to following statements:

- partner is trustworthy;
- we trusted partner from the beginning of cooperation;
- we started trusting partner after the beginning of the cooperation, after we became convinced that we can trust this partner.

RESEARCH RESULTS

The Pearson correlation analysis revealed that the general perception of cooperation with partners coming from China/Germany is correlated with trusting the most important cooperation partner. The most significant correlations were observed in case of perceiving partner to be trustworthy and trusting partner from the beginning of cooperation. The least (only two significant correlations) were stated for starting to trust partner after beginning the cooperation and being convinced that the partner is trustworthy. Both high contextuality, uncertainty avoidance, power distance ascribed to Chinese/German partners and theneed to became acquainted with the partner's culture before the cooperation were negatively correlated with the trust level, while gender egalitarianism, ceremoniousness, deal-focus and perceiving the cooperation with a partner from this country to be difficult were correlated positively with the trust level (Table 2).

A stepwise linear regression analysis of the partners country's business culture perception indicators was applied in order to identify statistically relevant models which confirmed their influence on the trust to the partner coming from given country (listed in Table 3). Similarly as in case of the correlation analysis, most relationships were indicated for perceiving partner to be trustworthy, and least – for starting to trust partner after the beginning of the cooperation. A variable having negative influence on any trust indicator is high contextuality.

Table 2. Pearson correlation

Partner's country perception index	Perceiving partner to be trustworthy	Trusting partner from the beginning of cooperation	Starting to trust partner after the beginning of the cooperation
Monochronism/long-time orientation	0.009	–0.047	0.006
Gender egalitarianism	0.153*	0.136*	0.078
Ceremoniousness	0.240**	0.169**	0.093
High contextuality	–0.326**	–0.299**	–0.179**
Uncertainty avoidance	–0.205**	–0.170**	–0.108
Deal-focus	0.248**	0.288**	0.127*
Masculinity/assertiveness	–0.066	0.008	–0.011
Power distance	–0.170**	–0.185**	–0.099
Looking down on poles	–0.031	–0.022	–0.040
Need to became acquaint with the partner's culture before the cooperation	–0.201**	–0.076	0.021
Perceiving the cooperation with a partner from this country to be difficult	0.347**	0.276**	0.071

* $p < 0.05$, ** $p < 0.01$.
Source: Own elaboration.

Table 3. Characteristic of models obtained in linear regression analysis

Variables explained	Explanatory variables	Model	R2	Model estimate			Collinearity stats	
		F		B	SE	Beta	Tolerance	VIF
Perceiving the partner to be trustworthy	perceiving the cooperation with a partner from this country to be difficult	17.20***	0.261	0.145	0.037	0.222***	0.809	1.237
	deal-focus			0.257	0.063	0.221***	0.900	1.111
	high contextuality			–0.095	0.039	–0.142*	0.800	1.251
	ceremoniousness			0.140	0.044	0.180**	0.845	1.183
	uncertainty avoidance			–0.162	0.059	–0.157**	0.828	1.208
	need to became acquaint with the partner's culture before the cooperation			–0.075	0.036	–0.116*	0.891	1.122
Trusting the partner from the beginning of cooperation	high contextuality	22.00***	0.186	–0.169	0.054	–0.186**	0.850	1.176
	deal-focus			0.425	0.085	0.274***	0.977	1.024
	perceiving the cooperation with a partner from this country to be difficult			0.192	0.051	0.220***	0.861	1.161
Starting to trust the partner after the beginning of the cooperation	high contextuality	9.03**	0.032	–0.154	0.051	–0.179**	1.000	1.000

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.
Source: Own elaboration.

As significant differences in the trust level between the companies cooperating with Chinese or German partners were observed (Table 4) additional analysis was conducted in order to check, if there is no country moderation effect between the country perception and trust level. A two-way analysis of variance did not show any country moderation effect for any of the factors (Table 5). Therefore one can assume, that the effects observed do not depend on the partner's country of origin.

Table 4. Descriptive statistics and results of the t-test for independent samples

Effect	China		Germany		t
	M	SD	M	SD	
Perceiving the partner to be trustworthy	4.12	0.89	4.42	0.61	3.18**
Trusting the partner from the beginning of cooperation	3.61	1.12	3.98	0.91	2.92**
Starting to trust the partner after the beginning of the cooperation	3.62	1.05	4.03	0.85	3.45***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.
Source: Own elaboration.

Table 5. Partners country of origin influence on dependency between perception and trust level

Effect	F	p	Partners country perception index
1	2	3	4
Perceiving the partner to be trustworthy	0.416	0.519	monochronism/long--time orientation
Trusting the partner from the beginning of cooperation	0.491	0.484	
Starting to trust the partner after the beginning of the cooperation	0.064	0.8	
Perceiving the partner to be trustworthy	1.674	0.197	gender egalitarianism
Trusting the partner from the beginning of cooperation	0.279	0.598	
Starting to trust the partner after the beginning of the cooperation	0.436	0.51	
Perceiving the partner to be trustworthy	0.09	0.765	ceremoniousness
Trusting the partner from the beginning of cooperation	1.421	0.234	
Starting to trust the partner after the beginning of the cooperation	0.477	0.491	
Perceiving the partner to be trustworthy	1.467	0.227	high contextuality
Trusting the partner from the beginning of cooperation	0.408	0.523	
Starting to trust the partner after the beginning of the cooperation	0.024	0.876	
Perceiving the partner to be trustworthy	0.092	0.762	uncertainty avoidance
Trusting the partner from the beginning of cooperation	3.778	0.053	
Starting to trust the partner after the beginning of the cooperation	0.043	0.835	

Table 5 cont.

1	2	3	4
Perceiving the partner to be trustworthy	0.004	0.947	deal-focus
Trusting the partner from the beginning of cooperation	0.018	0.892	
Starting to trust the partner after the beginning of the cooperation	1.04	0.309	
Perceiving the partner to be trustworthy	0.31	0.578	masculinity/assertiveness
Trusting the partner from the beginning of cooperation	0.985	0.322	
Starting to trust the partner after the beginning of the cooperation	2.206	0.139	
Perceiving the partner to be trustworthy	0.003	0.956	power distance
Trusting the partner from the beginning of cooperation	0.645	0.423	
Starting to trust the partner after the beginning of the cooperation	0,000	0.985	
Perceiving the partner to be trustworthy	0.088	0.767	looking down on Poles
Trusting the partner from the beginning of cooperation	0.588	0.444	
Starting to trust the partner after the beginning of the cooperation	0.266	0.607	
Perceiving the partner to be trustworthy	0.095	0.759	need to became acquaint with the partner's culture before the cooperation
Trusting the partner from the beginning of cooperation	0.03	0.862	
Starting to trust the partner after the beginning of the cooperation	0.6	0.439	
Perceiving the partner to be trustworthy	0.575	0.449	perceiving the cooperation with a partner from this country to be difficult
Trusting the partner from the beginning of cooperation	0.031	0.861	
Starting to trust the partner after the beginning of the cooperation	0.128	0.721	

Source: Own elaboration.

CONCLUSIONS AND DISCUSSION

Both the correlation and regression analysis revealed a relationship between trust level and opinions about the cooperation with partners from this country. The dependence was the weakest one in case of starting to trust the partner after the beginning of the cooperation, what leads to a rather obvious conclusion that the perception is of the higher importance at the initial stage of cooperation. Other factors (probably the experience in cooperation with a given partner) affect the trust level at the later stages.

A positive relationship of perceiving the cooperation with a partner coming from a given country to be difficult and the trust level is a bit surprising and should be carefully investigated in the future. However, one can suppose that perceiving the cooperation to be difficult can effect in more careful partner selection and more effort to maintain good relationship, what explains the higher trust level.

Although all the other positive and negative dependencies revealed in the study could be also intuitively explained (especially the uncertainty avoidance correlation with trust

level, as the uncertainty avoidance variable indicates, i.a. the uncertainty avoidance of respondents), the further research should give detailed explanation to the nature of this relationships.

The results of this study are limited only to Polish companies cooperating with partners from China and Germany. Research on companies coming from other countries could reveal other dependencies between trust and perceived partner's country business culture. However, the conclusion that the international business decision maker's perception of doing business with partners from a given country is one of the determinants of trust in international relationships is a contribution to the international business theory.

REFERENCES

Anderson J.C., Narus, J.A. 1990. A Model of Distributor Firm and Manufacturer Firm Working Partnerships. Journal of Marketing 54, 42–58.

Arteaga-Ortiz J., Fernández-Ortiz R. 2010. Why Don't We Use the Same Export Barrier Measurement Scale? An Empirical Analysis in Small and Medium-Sized Enterprises. Journal of Small Business Management 48(3), 395–420.

Ashnai B., Smirnova M., Kouchtch S., Yu Q., Barnes B., Naudé P. 2008. Assessing relationship quality in four business-to-business markets. Marketing Intelligence and Planning 27(1), 86–102.

Bachmann R., Zaheer A. 2008. Trust in Inter-organizational Relationships. In: S. Cropper, M. Ebers, Ch. Huxham, P. Smith Ring (Eds). The Oxford Handbook of Inter-Organizational Relations. Oxford University Press, New York, 533–554.

Bond M.H. 2002. Reclaiming the individual from Hofstede's ecological analysis – a 20-year odessey: comment on Oyserman et al. 2002. Psychological Bulletin 128(1), 73–77.

Brewer P., Venaik S. 2012. On the misuse of national culture dimensions. International Marketing Review 29(6), 673–683.

Búrca S. de, Fynes B., Roche E. 2004. Evaluating Relationship Quality in a Business-to-Business Context. Irish Journal of Management 25(2), 61–75.

Castaldo S. 2007. Trust in Market Relationships. Edward Elgar Cheltenham, Northampton.

Child J. 2002. Trust in International Strategic alliances: The Case of Sino-Foreign Joint Ventures. In: L. Christel, R. Bachmann (Eds). Trust within and between organization. Conceptual Issues and Empirical Applications. Oxford University Press, Oxford, 241–272.

Czinkota M.R., Ronkainen I.A. 2007. International marketing. Thomson Higher Education, Mason.

Danik L., Duliniec E. 2014. Różnice kulturowe a międzynarodowa współpraca przedsiębiorstw [Cultural differences and international interfirm cooperation]. Gospodarka Narodowa 2(270), 125–152.

Danik L., Lewandowska M. 2013. Motives and barriers in the field of cooperation between companies. Research outcomes based on the Polish engineering industry. Journal of Economics & Management 14, 21–34.

Dyer J.H., Singh H. 1998. The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage. Academy of Management Review 23(4), 660–679.

Gabarro J.J. 1978. The development of trust, influence and expectations. In: A.G. Athos, J.J. Gabarro (Eds). Interpersonal behavior, communication and understanding in relationships. Prentice-Hall, Englewood Cliffs, 290–303.

Gesteland R.R. 1999. Cross-Cultural Business Behavior. Marketing, Negotiating and Managing Across Cultures. Copenhagen Business School Press Copenhagen.

Hall E.T. 1959. The silent language. Doubleday Garden City, New York.

Hall E.T. 1976. Beyond culture. Anchor Press Garden City, New York.
Hanges P.J., Dicskon M.W. 2004. The development and validation of the GLOBE culture and leadership scales. In: R. House et al. (Eds). Culture, Leadership and Organizations: The GLOBE Study of 62 Societies. Sage Thousand Oaks, 122–151.
Herz M.F., Diamantopulos A. 2013. Activation of country stereotypes: automaticity, consonance, and impact. J. of the Acad. Mark. Sci. 41, 400–417.
Hofstede G. 1983. The cultural relativity of organizational practices and theories. Journal of International Business Studies, Fall, 75–90.
Hofstede G., Bond M.R. 1988. The Confucius connection: from cultural roots to economic growth. Organizational Dynamics 16(4), 5–21.
Hofstede G., Hofstede G.J., Minkov M. 2010. Cultures and Organizations. Software of the Mind. McGraw-Hill, New York.
Holmlund M. 2008. A definition, model, and empirical analysis of business-to-business relationship quality. International Journal of Service Industry Management 19(1), 32–62.
House R.J., Hanges P.J., Javidan M., Dorfman P.W., Gupta V. (Eds) 2004. Culture, Leadership and Organizations: The GLOBE Study of 62 Societies. Thousand Oaks Sage.
Jin B., Park J., Kim J. 2008. Cross-cultural examination of the relationships among firm reputation, e-satisfaction, e-trust, and e-loyalty. International Marketing Review 25(3), 324–337.
Johanson J., Wiedersheim-Paul F. 1975. The Internationalization of the Firm, Four Swedish Case Studies. Journal of Management Studies 2(3), 305–322.
Kee H.W., Knox R.W. 1970. Conceptual and methodological considerations in the study of trust and suspicion. The Journal of Conflict Resolution 14(3), 357–366.
Kim K.K., Park S.-H., Ryoo S.Y., Park S.K. 2010. Inter-organizational cooperation in buyer-supplier relationships: both perspectives. Journal of Business Research 63(8), 863–869.
Leick B. 2011. Barriers to co-operation and competitive advantage: Cross border business networks of Saxon and Northern Bohemian firms. Journal for East European Management Studies 16(2), 162–184.
Luthans F., Doh J. 2012. International Management: Culture, Strategy and Behavior. McGraw-Hill Irwin, New York.
McSweeney B. 2013. Fashion founded on a flaw. The ecological mono-deterministic fallacy of Hofstede, GLOBE, and followers. International Marketing Review 30(5), 483–504.
Minkov M., Hofstede G. 2011. The evolution of Hofstede's doctrine. Cross Cultural Management: an International Journal 13(1), 10–20.
Morgan R.M., Hunt S.D. 1994. The Commitment-Trust Theory of Relationship Marketing. Journal of Marketing 58, 20–38.
Morgan R.M., Hunt S.D. 1999. Relationship-based competitive advantage: the role of relationship marketing in marketing strategy. Journal of Business Research 46(3), 281–290.
Naudé P., Buttle F. 2000. Assessing Relationship Quality. Industrial Marketing Management 29(4), 351–361.
Nowak D. 2009. Bariery rozwoju powiązań kooperacyjnych w ocenie polskich przedsiębiorstw [Barriers of the cooperative links development according to Polish companies]. Zeszyty Naukowe Uniwersytetu Szczecińskiego (after) B. Stępień (Ed.), 2011. Międzynarodowa kooperacja gospodarcza z polskiej perspektywy [International business cooperation from a Polish perspective]. Polskie Wydawnictwo Ekonomiczne, Warszawa.
Obodia C. 2008. Cross-border interfirm cooperation: the influence of the performance context. International Marketing Review 25(6), 634–650.
Provan K.G., Sydow J. 2008. Evaluating Inter-organizational Relationships. In: S. Cropper, M. Ebers, Ch. Huxham, P. Smith Ring (Eds). The Oxford Handbook of Inter-organizational Relations. Oxford University Press, New York, 691–716.
Rocznik statystyczny handlu zagranicznego [Yearbook of foreign trade statistics of Poland] 2012. GUS, Zakład Wydawnictw Statystycznych, Warszawa.

Smith K.G., Carroll S.J., Ashford S.J. 1995. Intra- and Interorganizational Cooperation: Toward a Research Agenda. The Academy of Management Journal 38(1), 7–23.
Sousa C.M., Bradley F. 2006. Cultural distance and psychic distance: two peas in a pod? Journal of International Marketing 14(1), 49–70.
Stępień B. (Ed.) 2011. Międzynarodowa kooperacja gospodarcza z polskiej perspektywy [International business cooperation from a Polish perspective]. Polskie Wydawnictwo Ekonomiczne, Warszawa.
Sztompka P. 2007. Zaufanie. Fundament społeczeństwa [Trust. Foundation of the society]. Znak, Warszawa.
Trompenaars F., Hampden-Turner Ch. 1997. Riding The Waves of Culture: Understanding Diversity in Global Business. McGraw-Hill, New York.
Ulaga W., Eggert A. 2006. Relationship value and relationship quality: Broadening the nomological network of business-to-business relationships. European Journal of Marketing 40(3/4), 311–327.

POSTRZEGANIE WSPÓŁPRACY A ZAUFANIE WE WSPÓŁPRACY MIĘDZYNARODOWEJ. BADANIE WSPÓŁPRACY POLSKICH EKSPORTERÓW I IMPORTERÓW Z PARTNERAMI Z CHIN I NIEMIEC

Streszczenie. Zaufanie jest podstawowym mechanizmem koordynującym relacje między przedsiębiorstwami, podczas gdy jego brak uznaje się za barierę współpracy. Budowanie zaufania we współpracy międzynarodowej może być trudne ze względu na różnice kulturowe między partnerami. Artykuł prezentuje wyniki badania 278 polskich eksporterów i importerów współpracujących z partnerami z Chin i Niemiec. Badanie wykazało, że ogólne postrzeganie współpracy z partnerami z danego kraju wpływa na poziom zaufania podczas współpracy z konkretnym partnerem pochodzącym z tego kraju. Zależność ta jest najsłabsza w przypadku, gdy zaufanie pojawia się dopiero po rozpoczęciu współpracy.

Słowa kluczowe: zaufanie, współpraca międzynarodowa, polscy eksporterzy i importerzy, kultura

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THE IMPORTANCE OF THE SMALL AND MEDIUM-SIZED ENTERPRISE SECTOR OF THE VOIVODESHIPS OF EASTERN POLAND

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Abstract. The aim of this paper is to analyze the development of the SME sector in Poland, with particular emphasis on regions belonging to the Eastern Poland. The period of analysis covers the years 2001–2011. Throughout this period we note arise in the number of active SMEs in all voivodships. However, the density ratio of SMEs in the eastern voivodships is very low compared to other regions. Beneficial seem larger share of employment in SMEs in total employment in the eastern regions, similar trends exist in the case of revenue which is due to, however, low activity of large corporations in these provinces. Should be assessed positively increasing expenditures incurred for small and medium-sized enterprises located in eastern voivodships, which may result in an increase in the activity of SMEs in the future, which finally may contribute to the increase of competitiveness of the regions of Eastern Poland.

Key words: SME sector, dynamics of enterprises' indicators changes, comparisons between regions, regional development

INTRODUCTION

Publications on economic development argue for the prime importance of small and medium-sized enterprises (SMEs) in the economy of all the developed countries of the world. The experience of highly developed countries indicates that small and medium-sized enterprises can considerably affect the development of economic growth, significantly contribute to the creation of gross domestic product, facilitate the reduction of unemployment, supplement the market in the production of goods and the provision of services, and activate the local economy [Ayyagari et al. 2007, Ayyagari et al. 2011, Tewari et al. 2013, Berreneche Garcia 2014, De Wit and De Kok 2014]. Owing to small and medium-sized companies allocative changes to production factors take place in the region

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as a result of searching for market niches the constant efforts of small and medium-sized companies not only to survive in a given market, but also to continuously develop [Foreman-Peck et al. 2013]. The available reference books widely document the importance of SMEs and stress the mobility of this sector, quoting the examples of Portugal, Spain, Greece and such developed countries as Germany, France and the United Kingdom. The importance of this sector is particularly emphasised in the process of increasing the range of goods, the absorption of modern design, and the minimisation of production and distribution costs [Kokocińska 2012].

The local nature of small and medium-sized enterprises means that there is a close correlation between their development and regional development [Sobczyk 2006]. Entrepreneurs, largely committing their own capital, usually locate their businesses in their places of residence, and try to use local resources (especially labour), and the local market is the principle place of activity for them [Varum and Rocha 2013]. The scope and intensity of this process is conditioned by the level of regional development. There is also a reverse dependency. The development of this sector equalises regional disparities, contributes to the improvement of the living conditions of local communities, and creates new jobs, therefore generally helping to improve the economics of the region. Thus, as M. Strużycki points out, a thesis about the dependence of the development of small and medium-sized enterprises on the regional level of socio-economic development and, on the other hand, about the impact of the development of small and medium-sized enterprises on this level, can be noted – this is a classic feedback on the analysed phenomena [Strużycki 2004]. Also J. Chądzyński notes that the importance of the development of the SME sector plays a very important role in the development of regions [Chądzyński et al. 2007]. On the one hand, it allows making better use of their inner potential, and on the other, counteracting the problems arising from the rapidly changing economic situation. The dynamic functioning of the SME sector is indicated as one of the determinants of the competitiveness of regions [Wach 2008].

The importance of the issue led the authors to undertake research on the functioning of the SME sector with particular consideration of the regions of Eastern Poland in terms of regional development. The paper will verify following research theses: (1) the dynamics of changes in the number of SMEs in the regions of Eastern Poland is slower than in Western Poland, and the entrepreneurship of the residents of Eastern Poland is at a low level compared to the rest of the country; (2) the importance of the SME sector in the creation of jobs is the greatest in the voivodeships of Eastern Poland, but the share of the SME sector in these voivodeships in the country's economy is decreasing, which goes hand in hand with the low level of economic development in the eastern voivodeships; (3) the share of revenues generated by SMEs in total revenues is high in the voivodeships of Eastern Poland; (4) since Poland's accession to the EU, the expenditures invested in SMEs in the voivodeships of Eastern Poland, as well as throughout the country, have been increasing.

THE RESEARCH METHOD

The main objective of this paper is to analyse and assess the functioning of the small and medium-sized enterprises sector in the voivodeships of Eastern Poland compared to the whole country, while taking into consideration regional development conditions over

a period of one decade. More specifically, the main objective will be pursued through a statistical analysis of selected indicators describing the developmentof the SME sector: the number of active SMEs, the SME density ratio, the number of jobs generated by SMEs, the revenues and expenditures per enterprise, and the share of revenues and expenditures in SMEs in total revenues and expenditures. The paper will analyse the indicators characterising the SME sector, examine the directions of changes to these indicators depending on the socio-economic development conditions of the regions, using an observation method and a critical analysis of statistical data.

THE DYNAMICS OF CHANGES IN THE NUMBER OF ACTIVE SMEs

At the end of 2011, in Poland there were 1,781,414 active entities included in the SME sector. More than half (55.2%) of the active SMEs were located in five voivodeships – Mazowieckie, Śląskie, Wielkopolskie, Dolnośląskie and Małopolskie – and this share remained at a similar level throughout the analysed period. In five voivodeships of the so-called Eastern Wall, 16.7% of the active SMEs were located in 2011, a slight decrease compared to 2001 of 0.3 pp. The development of the SME sector in Poland and the eastern voivodeships in the years 2001–2011 is shown in Table 1.

Analysing changes in the number of active SMEs in the years 2001–2011, it can be observed that from among the voivodeships of the Eastern Wall only in the Warmińsko-Mazurskie Voivodeship was there a decrease in SMEs by 5%, and a similar trend

Table 1. The number of active SMEs in the years 2001–2011

Specification	2001	2002	2003	2004	2005	2006
Poland, in total	1 654 823	1 732 701	1 706 877	1 712 229	1 673 939	1 711 935
Lubelskie Voivodeship	73 491	74 720	71 825	73 988	74 214	74 076
Podkarpackie Voivodeship	66 645	64 799	67 288	64 344	65 197	66 815
Podlaskie Voivodeship	39 408	40 737	43 936	41 475	40 078	42 288
Świętokrzyskie Voivodeship	45 281	48 995	47 528	47 658	41 623	46 038
Warmińsko-Mazurskie Voivodeship	56 569	57 575	51 079	50 188	55 693	58 252
	2007	2008	2009	2010	2011	2011/2001
Poland, in total	1 773 831	1 859 211	1 670 415	1 723 497	1 781 414	1.08
Lubelskie Voivodeship	77 583	71 054	70 581	73 187	76 368	1.04
Podkarpackie Voivodeship	69 606	75 043	63 161	68 667	74 027	1.11
Podlaskie Voivodeship	45 493	47 674	40 149	41 674	44 514	1.13
Świętokrzyskie Voivodeship	46 520	49 558	45 378	47 231	50 025	1.10
Warmińsko-Mazurskie Voivodeship	56 536	59 505	53 911	55 476	53 813	0.95

Source: Own research on the base of GUS and PARP data.

occurred in the Kujawsko-Pomorskie Voivodeship. In the Podkarpackie, Podlaskie and Świętokrzyskie Voivodeships the growth rate of active enterprises exceeded the national average, while in the Lubelskie the increase was relatively small, at only 4%.

A rapid decrease in the number of active SMEs in the voivodeships of Eastern Poland, much sharper compared to other voivodeships, occurred at the time of Poland's accession to the EU, which involved the need to introduce adjustments to the requirements of the common market, and not all enterprises managed to cope with this situation. Enterprises located in Eastern Poland performed worse compared to the rest of the country during the economic crisis in 2008 and 2009, as illustrated in Table 2.

Table 2. Dynamics of changes in the number of active SMEs in the years 2001–2011

Specification	2002/ /2001	2002/ /2003	2003/ /2004	2004/ /2005	2005/ /2006	2006/ /2007	2007/ /2008	2008/ /2009	2009/ /2010	2010/ /2011
Poland, in total	1.05	0.99	1.00	0.98	1.02	1.04	1.05	0.90	1.03	1.03
Lubelskie Voivodeship	1.02	0.96	1.03	1.00	1.00	1.05	0.92	0.99	1.04	1.04
Podkarpackie Voivodeship	0.97	1.04	0.96	1.01	1.02	1.04	1.08	0.84	1.09	1.08
Podlaskie Voivodeship	1.03	1.08	0.94	0.97	1.06	1.08	1.05	0.84	1.04	1.07
Świętokrzyskie Voivodeship	1.08	0.97	1.00	0.87	1.11	1.01	1.07	0.92	1.04	1.06
Warmińsko--Mazurskie Voivodeship	1.02	0.89	0.98	1.11	1.05	0.97	1.05	0.91	1.03	0.97

Source: Own research on the base of GUS and PARP data.

The spatial concentrations of SMEs are usually created close to large urban areas and in regions with well-developed industry. The relationship between the number of SMEs and the number of residents is determined not merely by the entrepreneurship of residents of individual regions, but also the degree of accessibility to production and services provided by local SMEs. This index is unfortunately unfavourable, particularly in the eastern part of the Poland, as shown in Figure 1.

THE IMPORTANCE OF THE SME SECTOR IN THE CREATION OF JOBS

The small and medium-sized enterprises sector has a dominant share in employment in developed Western countries. The SME's share in the total number of those employed in the private sector in the European Union exceeds 69% [Sobczyk 2006]. In Poland, at the end of 2011, all enterprises employed 9.03 million people, of which – 70%, was in the SME sector and the share of enterprises employing up to 50 people represented 50.5%. In 2001, 40% of Polish SME employees were employed by entities located in three voivodeships – Mazowieckie, Śląskie and Wielkopolskie. About 16% of those employed worked in the voivodeships of the Eastern Wall. Employment increased in the analysed period both throughout Poland and in each of the voivodeships in the eastern part of the country, where the leader was the Lubelskie Voivodeship. However, the employment growth rate in the SME sector in the voivodeships of Eastern Poland was slower compared to

Fig. 1. The number of active SMEs per 1,000 inhabitants in 2011

Source: Own research on the base of GUS and PARP data.

the whole country, which resulted in a decrease in the share of those employed in these voivodeships to 11.5% in 2011. In particular, these voivodeships did not record as fluctuating dynamics after the economic crisis as the rest of the country, where employment increased from 2010 to 2011 by 47%. Changes in the number of those employed in SMEs in Poland and eastern voivodeships are shown in Table 3.

Table 3. Employed persons in SMEs in the years 2001–2011

Specification	2001	2002	2003	2004	2005	2006
Poland, in total	5 481 300	56 62 600	5 512 935	5 811 991	5 869 176	5 993 811
Lubelskie Voivodeship	21 4300	234 100	221 954	239 242	248 133	249 974
Podkarpackie Voivodeship	222 600	233 700	229 050	239 287	242 009	247 443
Podlaskie Voivodeship	129 000	136 700	133 423	137 266	137 509	140 173
Świętokrzyskie Voivodeship	147 200	157 100	151 932	155 750	149 229	154 609
Warmińsko-mazurskie Voivodeship	172 200	173 900	169 559	184 587	194 181	200 043
	2007	2008	2009	2010	2011	2011/2001
Poland, in total	6 219 555	6 620 482	6 230 873	6 191 657	9 026 526	1.65
Lubelskie Voivodeship	255 717	259 352	256 520	252 402	261 109	1.22
Podkarpackie Voivodeship	260 017	286 868	260 657	267 320	276 211	1.24
Podlaskie Voivodeship	146 217	155 463	141 167	139 824	145 938	1.13
Świętokrzyskie Voivodeship	167 551	174 520	164 012	165 359	171 053	1.16
Warmińsko-mazurskie Voivodeship	199 672	208 498	192 545	192 083	191 932	1.11

Source: Own research on the base of GUS and PARP data.

The index reflecting the importance of the SME sector in the absorption of the labour force in individual regions is the share of those employed in the SME sector in the total number of employees in the voivodeship. On the basis of Figure 2 it can be stated that the importance of the SME sector is the greatest in the least industrially developed voivodeships (including the three voivodeships of the Eastern Wall).

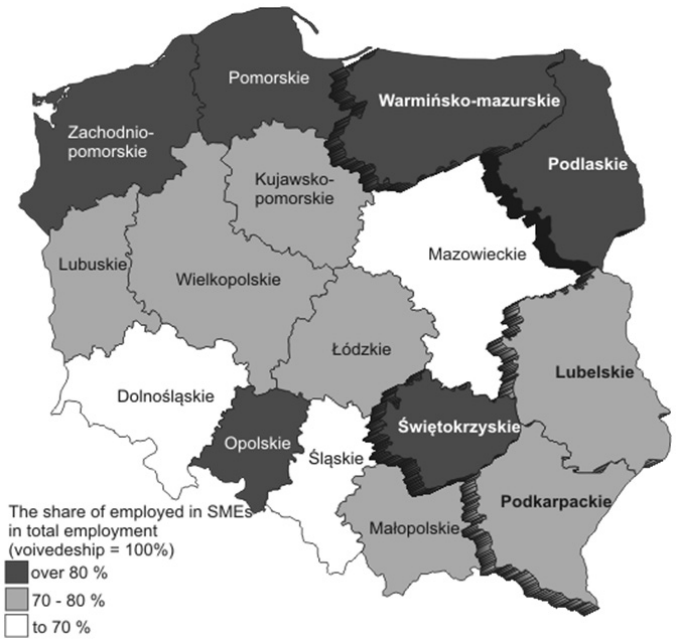

Fig. 2. Employed personsin SMEs in 2011
Source: Own research on the base of GUS and PARP data.

CHANGES IN THE SALES REVENUES OF SMES

Analysing the effectiveness of the activities of SMEs in various regions, sales revenues and revenues per enterprise should be taken into account. Almost 50% of SME revenues in Poland were generated by entities located in the Mazowieckie, Śląskie and Wielkopolskie Voivodeships (45.9% in 2001, 48.1% in 2011). In the eastern part of Poland less than 15% of total revenues (11.6 and 13.4%, respectively) were generated (Table 4).

The biggest share of SME revenues in total revenues (voivodeship = 100) was generated, i.a. in the voivodeships of the Eastern Wall and this resulted mainly from the structure of entities' size and the lack of so-called big industry and big investments. However, taking into account the value of revenues per enterprise, the most effective entities were in the Mazowieckie, Lubuskie, Śląskie and Wielkopolskie Voivodeships, and the eastern voivodeships belonged to the weakest group (Fig. 3).

Table 4. Revenues from sales of products, goods and materials in SMEs in the years 2001–2011 (in thousand PLN)

Specification	2001	2002	2003	2004	2005	2006
Poland, in total	1 018 570.0	1 044 457.0	1 136 222.00	1 352 796	1 377 001	1 530 435
Lubelskie Voivodeship	38 445.7	36 835.6	39 340.42	43 875	47 002	64 945
Podkarpackie Voivodeship	36 192.8	37 887.6	39 403.10	45 212	49 515	51 916
Podlaskie Voivodeship	21 245.7	23 146.0	27 474.30	31 005	32 805	32 697
Świętokrzyskie Voivodeship	29 747.1	25 263.0	28 521.93	32 808	31 673	33 864
Warmińsko-Mazurskie Voivodeship	27 566.0	27 733.7	27 428.63	33 831	36 511	40 072
	2007	2008	2009	2010	2011	2011/2001
Poland, in total	1 705 742	1 911 633	1 773 335	1 857 935	2 050 259	2.01
Lubelskie Voivodeship	69 510	60 973	58 814	60 109	71 468	1.86
Podkarpackie Voivodeship	60 026	70 478	59 199	62 065	70 790	1.96
Podlaskie Voivodeship	36 921	39 426	38 296	40 010	43 302	2.04
Świętokrzyskie Voivodeship	39 064	42 328	40 046	43 735	44 370	1.49
Warmińsko-Mazurskie Voivodeship	40 846	44 319	39 156	40 375	45 296	1.64

Source: Own research on the base of GUS and PARP data.

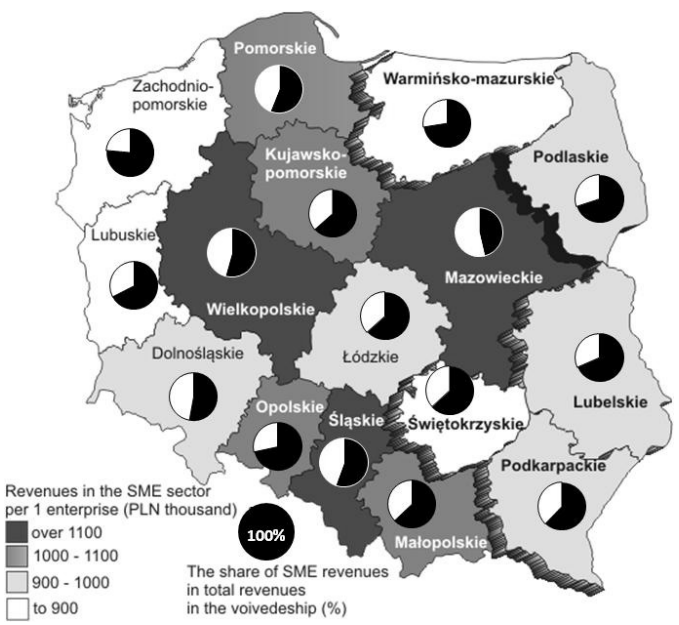

Fig. 3. Revenues from sales of products, goods and materials in the SME sector in 2011
Source: Own research on the base of GUS and PARP data.

CHANGES IN THE CAPITAL EXPENDITURES OF SMES

In the case of capital expenditures, raising the competitiveness and effectiveness of SMEs in the market, in 2001, 68% of the expenditures were generated in five voivodeships: Mazowieckie, Wielkopolskie, Śląskie, Dolnośląskie and Pomorskie. In 2011, the spatial concentration of the capital expenditures was lower – in five leading voivodeships (Małopolskie moved forward in the ranking and replaced Pomorskie) "only" 58% of the capital expenditures in the country were generated. The share of the five eastern voivodeships in the expenditures in 2001 was only 9.2%, in 2011 this share almost doubled, increasing to 16.4% (Table 5). The growth rate of the expenditures invested in the small and medium-sized enterprises of Eastern Poland was the highest compared to the rest of the voivodeships, while it considerably exceeded the average for the whole of Poland, but these voivodeships started from a very low base. For example, the lowest expenditures were invested in the Podlaskie Voivodeship in 2001 (PLN 554.1 million) represented only 3.3% of the expenditures invested in the Mazowieckie Voivodeship (PLN 16,523.8 million). In 2011, this relationship improved – the lowest expenditures invested in the Lubuskie Voivodeship represented almost 10% of the expenditures of the Mazowieckie Voivodeship.

The shares in the expenditures of SMEs in the Eastern Wall voivodeships in the total expenditures (voivodeship = 100) are relatively high, but per enterprise, the entities from these voivodeships rank in a group of medium voivodeships (Fig. 4).

Favourable trends in the voivodeships of Eastern Poland occurred in the case of the amount of capital expenditures invested per enterprise in the SME sector. Although in

Table 5. Capital expenditures in SMEs in the years 2001–2011 (in million PLN)

Specification	2001	2002	2003	2004	2005	2006
Poland, in total	44 975.2	3 0612.9	33 007.77	44 996.79	44 157.45	55 064.94
Lubelskie Voivodeship	1 126.7	894.9	878.7918	1 187.193	1 336.13	1 465.44
Podkarpackie Voivodeship	917.5	1 009.2	1 265.537	1 699.332	1 678.729	1 979.159
Podlaskie Voivodeship	554.1	602.8	631.7344	803.775	917.642	1 240.59
Świętokrzyskie Voivodeship	655.5	1 023.2	667.1264	1 245.483	1 075.966	1 108.304
Warmińsko-Mazurskie Voivodeship	889.8	824.4	845.01	1 023.799	1 126.35	1 593.425
	2007	2008	2009	2010	2011	2011/2001
Poland, in total	68 906.64	72 173.64	69 075.29	71 322.68	80 823.75	1.80
Lubelskie Voivodeship	1 897.857	2 373.933	2 338.5	2 341.993	3 131.075	2.78
Podkarpackie Voivodeship	2 533.45	2 611.763	2 694.175	2 890.050	3 359.523	3.66
Podlaskie Voivodeship	1 712.413	1 826.315	1 399.848	1 435.702	2 456.192	4.43
Świętokrzyskie Voivodeship	1 757.735	1 801.637	1 641.527	2 494.781	2 253.641	3.44
Warmińsko-Mazurskie Voivodeship	1 747.982	1 981.594	1 761.819	1 860.655	2 172.442	2.44

Source: Own research on the base of GUS and PARP data.

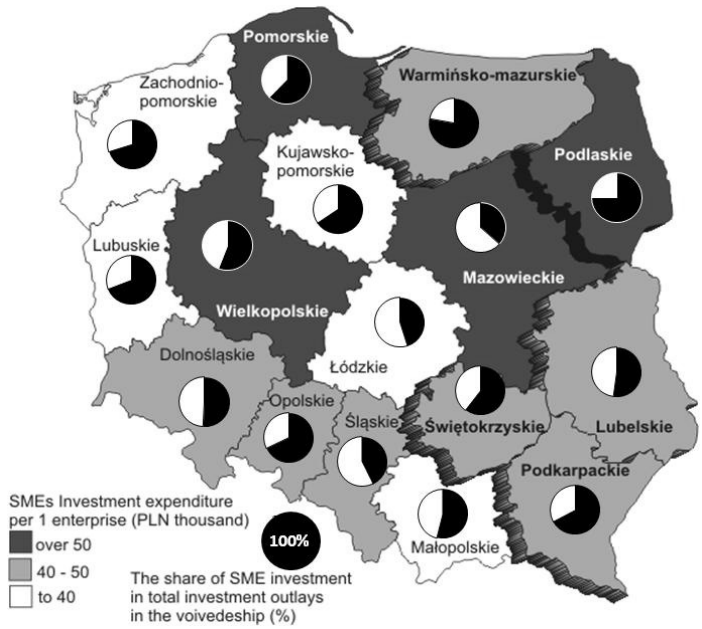

Fig. 4. Capital investments in SMEs in 2011
Source: Own research on the base of GUS and PARP data.

2001 these voivodeships were placed in the last five positions in the ranking and expenditures on SMEs in the Podkarpackie (16th place) represented 20% of the expenditures on SMEs in the Mazowieckie (1st place), in 2011, the Podkarpackie moved to 6th place, the Podlaskie from 15th to 2nd, the Świętokrzyskie from 14th to 7th, the Lubelskie from 13th to 10th, the Warmińsko-Mazurskie from 12th to 11th, and the ratio of the lowest (the Zachodniopomorskie) to the highest expenditures (the Mazowieckie) was 1 to 2.

CONCLUSIONS

The development of the regions of Eastern Poland is slower than the other regions of Poland, and in addition the difference in the level of development and the regional disparities between Eastern and Western Poland are increasing [Jarosz-Angowska 2012]. The main development barriers of Eastern Poland's region have been identified and described in many documents, including those which were the basis for the creation of the Strategy for Socio-Economic Development of Eastern Poland until 2020. The main weaknesses include, i.a. the low entrepreneurship of the residents, and among the risks, attention is drawn to strong competitive pressure from other voivodeships of Poland [Development Strategy..., 2008].

An interesting conclusion is that the importance of the SME sector is the greatest in the least industrially developed voivodeships, including the three voivodeships of the so-called Eastern Wall. A similar trend can be observed in Spain, where the low efficiency

of the economy is, i.a. the consequence of the structure of economic operators and the lower concentration of production compared to France and Germany. In Spain, small enterprises employing less than 50 persons are major employers in the economy (over 50% share of total employment), while employment in this type of small company represents 23% of the total labour force in Germany and 32% in France [Mucha-Leszko 2013].

On the basis of the analysis ofthe functioning and development of the SME sector in the voivodeships of Eastern Poland compared to Poland overall in the years 2001–2011, it can be concluded that the main research theses are confirmed. In addition, the following trends can be observed:

1. Throughout the analysed period an increase in the number of active SMEs in all voivodeships can be noted. In 2009, the upward trend was broken – in most voivodeships there were decreases in relation to 2008, which was connected with the economic crisis. The Lubelskie Voivodeship was ranked much below the national average in terms of the rate of decrease, but in the Podkarpackie and the Podlaskie Voivodeships the rate of decrease was higher compared to the country average. In 2010, the activities of SMEs were dynamically rebuilt, but at a slower pace in the case of the voivodeships of Eastern Poland than in other voivodeships.
2. The density ratio of SMEs in the eastern voivodeships is very low compared to other regions, which may be somewhat attributed to the low activity levels of both entrepreneurs of the SME sector and the residents of these regions.
3. The statistics on the number of those employed in the SME sector look interesting. Generally, Polish SMEs are employing more and more people. However, an increased share of those employed in SMEs in the total number of employees in the eastern regions is apparent. This is mainly due to the fact that there are no "big investments" and there is less and less "big industry" in these voivodeships. However, it should be appreciated that the SMEs in these regions are a factor mitigating the effects of development problems (absorbing the labour force and minimising the consequences of unemployment).
4. Similarly to employment, the sales revenues of SMEs show a significant share in their generation of small and medium-sized enterprises in the voivodeships of Eastern Wall, which, however, is not the result of strong activity and the effectiveness of entrepreneurs, but unfortunately due to the lack of, or insignificant other sources of, income in the region except for SMEs. An unfavourable trend is the quite low revenue per enterprise in the eastern voivodeships, which is maintained throughout the analysed period.
5. The growing capital expenditure invested in small and medium-sized enterprises located in the eastern voivodeships should be positively assessed. This is largely the result of programmes implemented under the Structural Funds, much of which was earmarked for co-financing the activities of SMEs. In the capital expenditure invested in SMEs a particular role should be assigned to the development of the innovation and technology transfer support scheme, which in turn should result in an increase in the activity and competiveness of enterprises.

REFERENCES

Ayyagari M., Beck T., Demirguc-Kunt A., 2007. Small and Medium Enterprises Across the Globe. Small Business Economics 29, 415–421.

Ayyagari M., Demirguc-Kunt A., Maksimovic V., 2011. Small vs. Young Firm across the World. Contribution to Employment, Job Creation, and Growth. The World Bank Publication, 3–6. Retrieved from http://documents.worldbank.org.

Berreneche Garcia A., 2014. Analyzing the determinants of entrepreneurship in European cities. Small Business Economics 42, 77–82.

Chądzyński J., Nowakowska A., Przygodzki Z., 2007. Region i jego rozwój w warunkach globalizacji (The Region and its development in the context of globalization). CeDeWu, Warszawa, 114–115.

De Wit G., De Kok J., 2014. Do small business create more jobs? New evidence for Europe. Small Business Economics 42, 293–294.

Foreman-Peck J., Nicholls T., 2013. SME takeovers as a contributor to regional productivity gaps. Small Business Economics 41, 359–363.

GUS, 2002. Rocznik statystyczny województw 2002 r. (Statistical Yearbook of the provinces 2002), Warszawa.

GUS, 2003. Rocznik statystyczny województw 2003 r. (Statistical Yearbook of the provinces 2003), Warszawa.

GUS, 2004. Rocznik statystyczny województw 2004 r. (Statistical Yearbook of the provinces 2004), Warszawa.

GUS, 2005. Pracujący w gospodarce narodowej w 2003 r. (Employment in national economy in 2003), Warszawa.

GUS, 2005. Pracujący w gospodarce narodowej w 2004 r. (Employment in national economy in 2004), Warszawa.

GUS, 2006. Działalność przedsiębiorstw niefinansowych w 2004 r. (Activity of non-financial enterprises in 2004), Warszawa.

GUS, 2006. Pracujący w gospodarce narodowej w 2005 r. (Employment in national economy in 2005), Warszawa.

GUS, 2007. Działalność przedsiębiorstw niefinansowych w 2005 r. (Activity of non-financial enterprises in 2005), Warszawa.

GUS, 2007. Pracujący w gospodarce narodowej w 2006 r. (Employment in national economy in 2006), Warszawa.

GUS, 2008. Działalność przedsiębiorstw niefinansowych w 2006 r. (Activity of non-financial enterprises in 2006), Warszawa.

GUS, 2008. Działalność przedsiębiorstw niefinansowych w 2007 r. (Activity of non-financial enterprises in 2007), Warszawa.

GUS, 2008. Pracujący w gospodarce narodowej w 2007 r. (Employment in national economy in 2007), Warszawa.

GUS, 2009. Pracujący w gospodarce narodowej w 2008 r. (Employment in national economy in 2008), Warszawa.

GUS, 2010. Działalność przedsiębiorstw niefinansowych w 2008 r. (Activity of non-financial enterprises in 2008), Warszawa.

GUS, 2010. Pracujący w gospodarce narodowej w 2009 r. (Employment in national economy in 2009), Warszawa.

GUS, 2011 Działalność przedsiębiorstw niefinansowych w 2009 r. (Activity of non-financial enterprises in 2009), Warszawa.

GUS, 2011. Działalność przedsiębiorstw niefinansowych w 2010 r. (Activity of non-financial enterprises in 2010), Warszawa.

GUS, 2012. Rocznik statystyczny województw 2010 r. (Statistical Yearbook of the provinces 2010), Warszawa.

GUS, 2013. Działalność przedsiębiorstw niefinansowych w 2011 r. (Activity of non-financial enterprises in 2011), Warszawa.

Jarosz-Angowska A., 2012. Struktura działalności gospodarczej a konkurencyjność regionu (The structure of economic activity and competitiveness of the region). Prace Naukowe UE we Wrocławiu, 269, 97–106.
Kokocińska M., 2012. Małe i średnie przedsiębiorstwa w gospodarkach europejskich (Small and medium-sized enterprises in European economies). Wydawnictwo UE w Poznaniu, Poznań, 88–120.
Mucha-Leszko B., 2013. Hiszpania w unii walutowej – czynniki rozwoju, przyczyny problemów gospodarczych i procesy dostosowawcze (Spain in the monetary union – the factors of development, reasons for the economic problems and adjustment processes). Annales UMCS Sectio H XLVII, 1, 118.
PARP, 2003. Raport o stanie sektora małych I średnich przedsiębiorstw w Polsce w latach 2001––2002 (The Report on the Conditions of the Small and Medium-Size Enterprise Sector in Poland for the Years 2001–2002), Warszawa.
PARP, 2004. Raport o stanie sektora małych i średnich przedsiębiorstw w Polsce w latach 2002––2003 (The Report on the Conditions of the Small and Medium-Size Enterprise Sector in Poland for the Years 2002–2003), Warszawa.
Sobczyk G., 2006. Strategie konkurencji małych i średnich przedsiębiorstw (Competitive strategies of small and medium-sized enterprises). Wydawnictwo UMCS, Lublin, 29–35.
Strategia rozwoju społeczno-gospodarczego Polski Wschodniej do roku 2020 (Strategy for Socio--Economic Development of Eastern Poland to the year 2020), 2008. Ministerstwo Rozwoju Regionalnego Warszawa, 41. Retrieved from www.polskawschodnia.gov.pl.
Strużycki M., 2004. Małe i średnie przedsiębiorstwa w gospodarce regionu (Small and medium--sized enterprises in the region's economy). PWE, Warszawa, 10–18, 256.
Tewari P.S., Skilling D., Kumar P., Wu Z., 2013. Competitive Small and Medium Enterprises: A diagnostic to help design smart SME policy. The World Bank Publication, 5–6. Retrieved from http://documents.worldbank.org.
Varum C.A., Rocha V.C., 2011. Employment and SMEs during crises. Small Business Economics 40, 9–11.
Wach K., 2008. Regionalne otoczenie małych i średnich przedsiębiorstw. Wydawnictwo UE w Krakowie, Kraków, 8.

ZNACZENIE SEKTORA MŚP WOJEWÓDZTW POLSKI WSCHODNIEJ

Streszczenie. Celem pracy jest analiza rozwoju sektora MŚP w Polsce, ze szczególnym uwzględnieniem regionów należących do Polski Wschodniej. Okres analizy obejmuje lata 2001–2011. W okresie tym można odnotować wzrost liczebności aktywnych MŚP we wszystkich województwach. Jednakże wskaźnik gęstości MŚP w województwach wschodnich jest bardzo niski w porównaniu z pozostałymi regionami. Korzystny wydaje się większy udział zatrudnienia w MŚP w całkowitym zatrudnieniu w regionach wschodnich, podobne tendencje występują w przypadku dochodów, co jest jednak spowodowane słabą aktywnością dużych korporacji w tych województwach. Należy ocenić pozytywnie zwiększenie wydatków poniesionych na rzecz małych i średnich przedsiębiorstw zlokalizowanych w województwach wschodnich, co może skutkować wzrostem działalności MŚP w przyszłości i w rezultacie przyczynić się do wzrostu konkurencyjności regionów Polski Wschodniej.

Słowa kluczowe: sektor MŚP, dynamika zmian wskaźników przedsiębiorstw, porównanie regionów, rozwój regionalny

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REGIONAL DIFFERENCES IN OBTAINING EU FUNDS SUPPORTING COMPETITIVENESS OF AGRI-FOOD SECTOR IN POLAND IN THE YEARS 2002–2013

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Abstract. This paper presents the EU support for the competitiveness of the Polish agri-food sector in the years 2002–2013. Authors singled out 15 measures of SAPARD, SPOROL, RDP programmes, which directly and indirectly affected the achievement of the objective of this analysis. Authors evaluated budget support across the country and in particular provinces (voivodships). Agri-food entities and general business environment in rural Poland has been subsidised to the tune of PLN 30,452 million. Most of the funds were assigned to farmers (80%), whereas the processing industry and infrastructure improvements acquired similar amounts of around 10% of the budget allocated for this purpose.

Key words: EU support, agriculture, processing industry

INTRODUCTION

The development of agriculture in the modern world is the result of both spontaneous economic processes and implementation of national agricultural policy, taking into account both internal conditions and global trends, which define the place of the agricultural sector in the economy of each country and its importance and direction of development [Kowalski et al. 2011].

Agriculture is a sector of the economy, which is not, by itself, able to produce a specific economic surplus that ensures a continuous development. In developed countries, subsidizing of investments in the agricultural sector has been common and widespread [Poczta 2005, Bożek 2010]. However, in Central and Eastern Europe the situation was the

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opposite, and after the fall of communism there has been a general decline in state support for agriculture [Donald et al. 2002]. In Poland, in spite of the importance of socio-economic development, agriculture received much less support than that in other countries. Particularly low levels were observed in the period before the accession to the EU. It indicated the possibilities of production development capacity in Polish agriculture, and as a result, the ability to compete with farmers in other countries [Poczta 2005].

Polish agri-food sector, therefore, required certain measures to be taken in order to improve its competitiveness. Any adoption of investment activities naturally required huge capital investment [Żuk 2006].

However, modernization of Polish agriculture would not have been possible without external financial support from the European Union, both in the period before and after accession [Chmurzyńska 2008, Kowalski 2008, Czubak 2009, Kiełbasa 2009, Kusz 2009, Podstawka 2009].

The support system for the countries of Central and Eastern Europe, which were to join the EU after 2000, was essential because of the need of the agricultural sector in each country to adjust to the new market regulations, to improve competitiveness and to improve the overall economic climate [Hertel et al. 1997]. The candidate countries implemented various agricultural policies and the integration required comprehensive harmonization across the EU [Regorsek et al. 2011]. Due to the relatively high share of agriculture in the economy and significant structural differences among the candidate countries and the EU-15 [Bożek 2010] various integration scenarios were carried out, as a result of which financial assistance was finally formed [Swaminathan et al. 1997, Bach et al. 2000, Nello 2002]. The main pre-accession assistance programme for agriculture and rural areas was SAPARD (Special Accession Programme for Agriculture and Rural Development) [Buchta 2005, Iacovoiu 2006, Kesner-Škreb 2006, Kónya 2012], and after the accession, the support was implemented within the framework of the Structural Funds [Jankowska et al. 2004].

Assistance programmes were aimed at improving the economic efficiency of farms and increase the quality of manufactured products. This process was closely associated with the investment and implementation of innovations. [Juchniewicz 2008, Grębowiec 2009, Jurkowski 2009, Lizińska 2009, Wasilewski et al. 2010]. The effect of these measures was to reduce the technological gap, which characterized the Polish agri-food sector in relation to other member states [Łapińska 2008].

The aim of the study was to analyze the competitiveness of EU support for the Polish agri-food sector in the period 2002–2013 in terms of regions (provinces, voivodships). The analysis covered the following programmes: SAPARD, Sectoral Operational Programme "Restructuring and modernization of food sector and rural development" (SOP-ROL) and the Rural Development Programme (RDP), implemented in the years 2002–2013.

MATERIAL AND METHOD

The source material was the statistical information sourced from the Agency for Restructuring and Modernisation of Agriculture. We used information on the funds allocated to the Polish beneficiaries in the years 2002–2013 applying for funding aimed at

improving the competitiveness of farms, agri-food businesses, as well as the financing of infrastructure.

For the analysis, the following activities within individual programmes were taken into account:

a) SAPARD:
- Improving the processing and marketing of agricultural and fishery products,
- Investments in agricultural holdings,
- Development and improvement of rural infrastructure,
- Reparcelling (land consolidation);

b) SOP-ROL:
- Investments in agricultural holdings,
- Setting up young farmers,
- Improving the processing and marketing of agricultural products,
- Development and improvement of infrastructure related to agriculture;

c) RDP 2004–2006:
- Early retirement of farmers,
- Support for semi-subsistence farms;

d) RDP 2007–2013:
- Setting up young farmers,
- Early retirement for farmers,
- Modernisation of agricultural holdings,
- Improving and developing infrastructure related to agriculture,
- Agricultural producer groups.

Source materials used in the study were systematized and analyzed using statistical and analytical methods. The object of the study was the budget of support for the competitiveness of the agri-food industry across the country, and as well as broken down by particular provinces. The analysis also covered the structure of this budget because of the components forming it, both in relation to programmes within which a specific pool of support was acquired, as well as in relation to particular groups of beneficiaries (farmers, entrepreneurs and local governments).

RESULTS AND DISCUSSION

Beneficiaries in Poland in the years 2002–2013 received a total of PLN 30,452 million[1] to improve the competitiveness of the agri-food sector. The budget was made up of 69% of RDP funds, 17% of the SOP-ROL and 14% of SAPARD funds (Fig. 1).

The highest funding in excess of the national average of PLN 1,903 million, was received by six provinces, which together acquired 62% of the pool of contracted resources, and the support in the remaining 10 provinces ranged between 2 and 6% of the total funding paid out (Fig. 2).

The deployed support budget for changes and adjustments in the agri-food sector accounted for the largest share of the funds raised to improve the competitiveness of

[1]Information Management System of ARMA, data retrieved 30 April 2014.

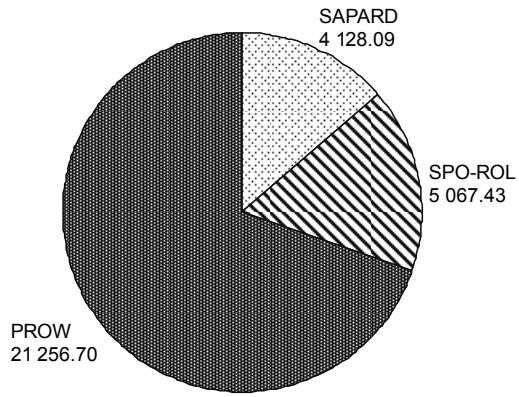

Fig. 1. The budget of support of agri-food sector competitiveness in Poland in the years 2002–2013 (in million PLN)

Source: Author's calculation based on data of ARMA.

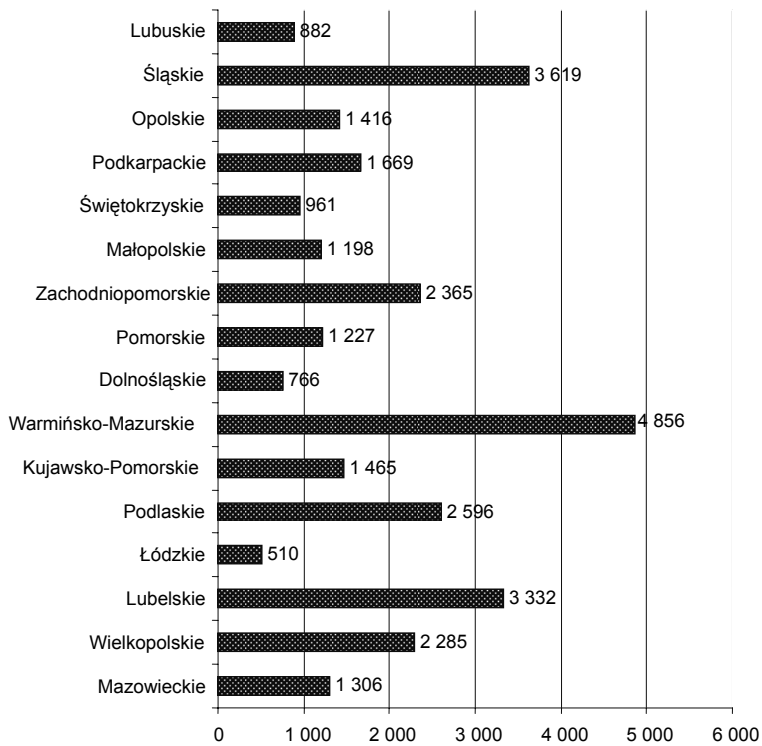

Fig. 2. The regional diversity of the competitiveness support of agri-food sector in Poland, by region (in million PLN)

Source: Author's calculation based on data of ARMA.

agriculture, namely 80%. About 10% of the funds were addressed to companies within the processing industry, and similar levels of funding were allocated for the improvement of infrastructure in rural areas (Fig. 3).

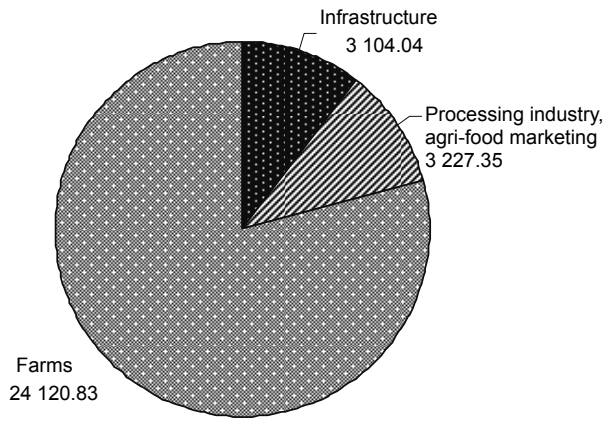

Fig. 3. Structure of support the changes and adjustments in the agri-food sector in Poland in the years 2002–2013 (in million PLN)
Source: Author's calculation based on data of ARMA.

The acquired funds were intended to increase the efficiency of farms by making better use of production means, the introduction of modern technology, improvements in the quality of production and the adjustment of the agricultural production to EU standards. Projects in receipt of funding included the construction and modernization of production buildings, purchase of technical equipment, livestock and agricultural land, establishment of permanent crops, preparation of the production base for the implementation of special branches of agricultural production and measures to improve the agrarian structure.

The competitiveness of agriculture in Poland in the years 2002–2013 was supported with PLN 24,120.83 million. For this purpose, funds were allocated from SAPARD (2%), SOP-ROL (20%) and RDP (78%). The main beneficiaries were Mazowieckie, Wielkopolskie, Lubelskie, Łódzkie, Kujawsko-Pomorskie, Podlaskie Provinces, which used 65% of the total budget. The remaining amount (35% of the budget) went to other provinces, whose funding did not exceed the average grant in the region (PLN 1,507.55 million) – Figure 4.

In the financing structure of agriculture the largest share of resources were those for investment in agricultural holdings – 44%. These projects were funded primarily of funds applied for in 2007–2013. As much as 72% of all funds allocated for this purpose were obtained in those years. In previous years, 23% of funding came from the SOP-ROL and only 5% were sourced from SAPARD. These proportions are due, of course, to the size of the budgets of individual programmes, because the level of funding use of the sanctioned limit in each of them was always on a very high level. Most of the money was in fact received in Poland between 2007 and 2013. A high proportion of the funding pool for farms were used by funds for early retirement (37%). The purpose of this

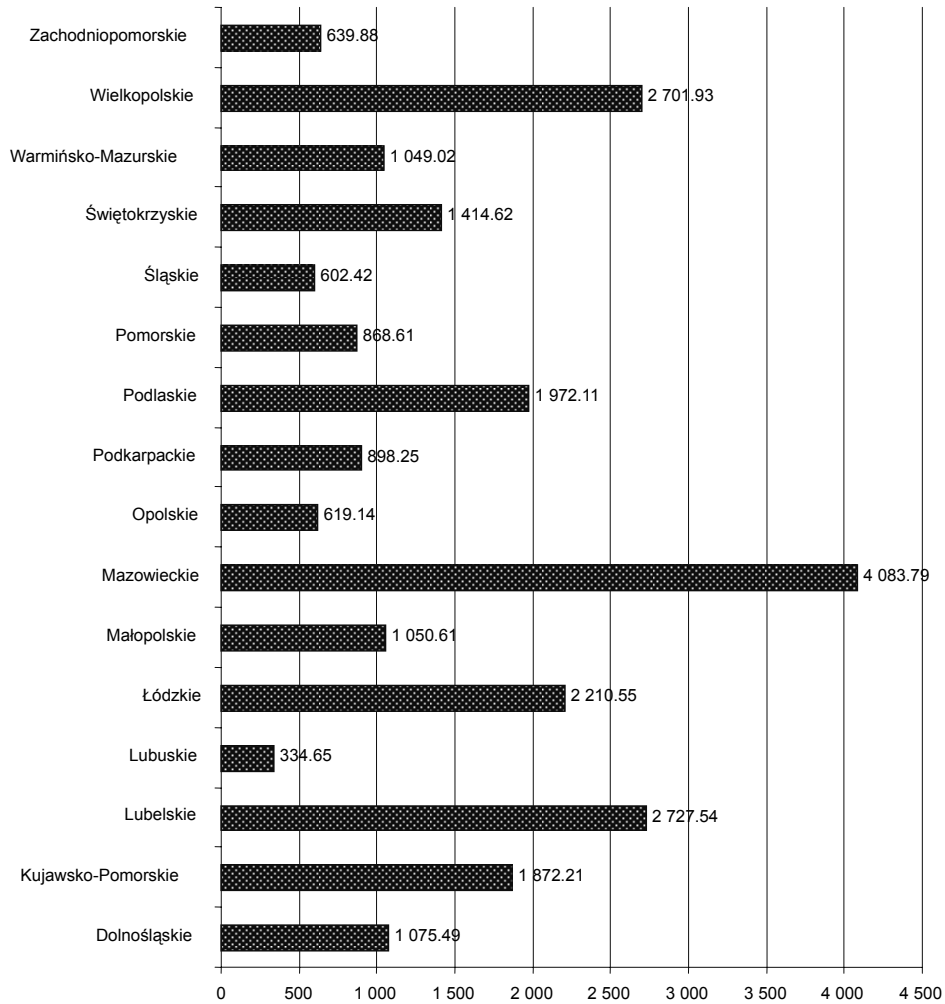

Fig. 4. Support of agriculture in Poland in the years 2002–2013, by region (in million PLN)
Source: Author's calculation based on data of ARMA.

measure was to accelerate the transformation of the agrarian structure and speed up the process of generation exchange among agricultural operators and to improve the profitability and competitiveness of farms and their transfer to younger people, well prepared for the tasks of professional farmers. Stimulation of structural changes in the agricultural sector was also a major purpose of the funds allocated in 2004 and aimed at facilitating young farmers. In Poland, the funds obtained in this area at that time accounted for 10% of the budget for the financing of agriculture. The research literature shows that the result is more than 37 thousand new farms run by young, well-educated and prepared farmers, and the average age of Polish farmers is the lowest in the EU [Department of Communications ARMA 2014]. That budget also included funding (9%) to support farm holdings

facing structural problems, especially farms with low levels of market participation. Only 0.21% of funds were attracted by the measures aimed at strengthening the institutional structure in the primary agricultural production by encouraging manufacturers to create groups of agricultural producers. In April 2014, the records of Province Administration recorded 1,379 agricultural producer groups. In 2004, 31 groups were recorded, in 2007, 104 producer groups, and in 2013 – 486 groups. The best organized groups were present in the following provinces: Wielkopolska (427 groups), Lower Silesia (130) and Kujawsko-Pomorskie (126 groups). The fewest groups were present in Świętokrzyskie and Małopolska (http://ksow.pl/grupy-producentow-rolnych). The smallest amount – 0.38% of support was given to land consolidation – a measure aimed at improving the economic conditions in agriculture (Fig. 5).

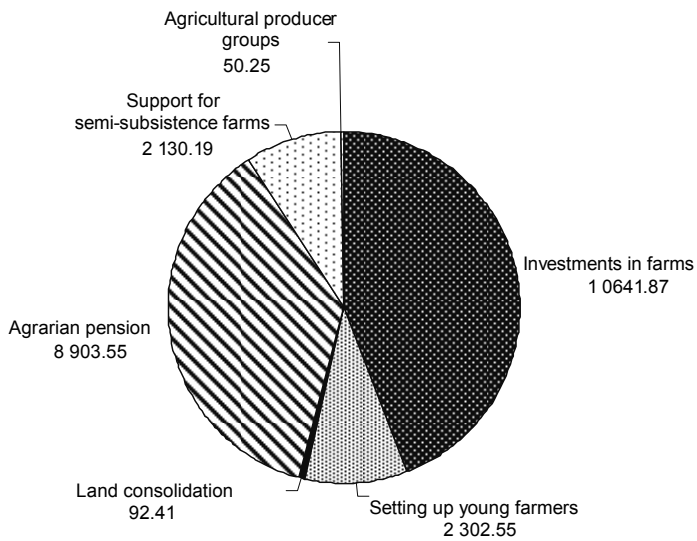

Fig. 5. The structure of agricultural financing in Poland in the years 2002–2013 (in million PLN)

Source: Author's calculation based on data of ARMA.

Another group of beneficiaries obtaining funds for improving the competitiveness of their enterprises were the processors of agricultural products. The primary purpose of supporting projects in the field of processing and marketing of agricultural products was a fast adaptation of meat, dairy, fruit and vegetable enterprises to the requirements of the domestic and international standards relating to veterinary – sanitary and hygienic conditions, and quality; in other words, the preparation of these entities to functioning in conditions of strong competition in the Single Market. Funding could be used for keeping production in line with foreseeable market trends, supporting the development of new markets, improving or rationalizing marketing channels, new technologies, improvement of quality control, implementation of the HACCP system, as well as environmental protection [Drożdziel 2007].

Agri-food industry in Poland was financed by funds from SAPARD and SPO-ROL in the proportions of 47 and 53% respectively. For the improvement of processing and marketing of agricultural products a total amount of PLN 3,227.35 million was obtained. Grants in excess of the provincial average (PLN 202 million) were received by the beneficiaries in 7 provinces of Wielkopolska, Mazowieckie, Lubelskie, Łódzkie, Podlaskie, Kujawsko-Pomorskie and Warmińsko-Mazurskie – 70% of the budget allocated for this purpose (Fig. 6).

Infrastructure development was supported with funds coming from the state budget, budgets of municipalities and aid funds (domestic and foreign). Measures for the im-

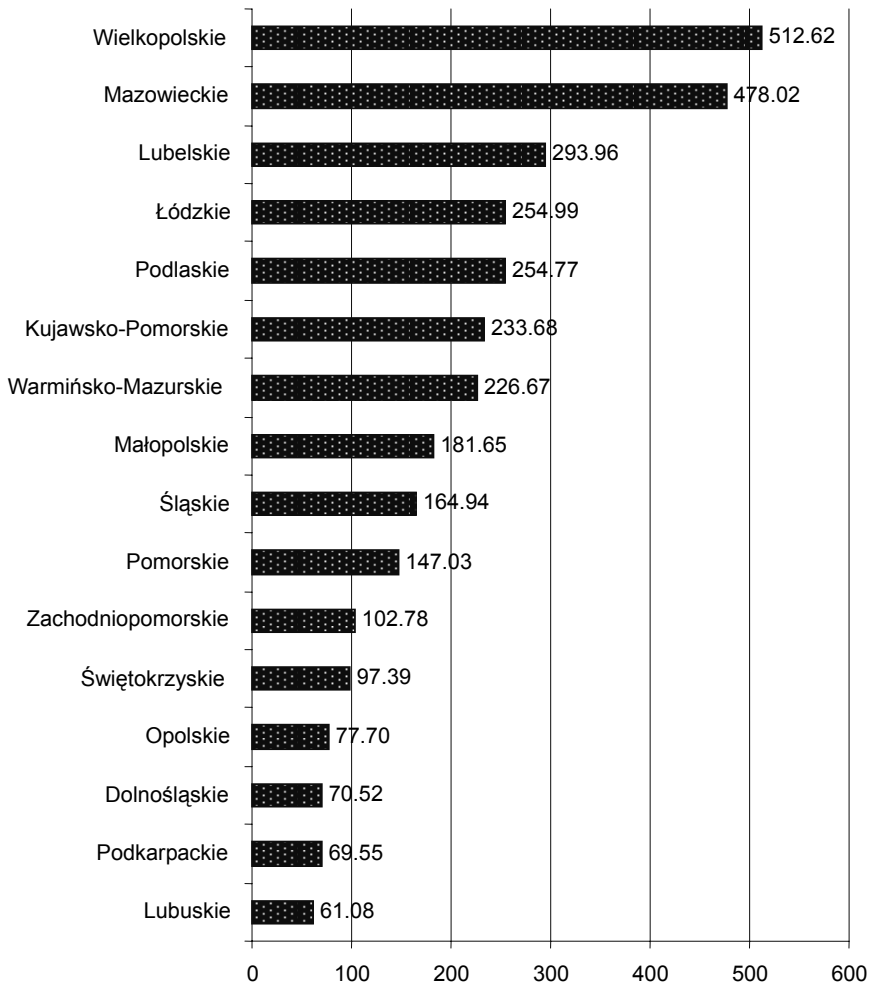

Fig. 6. Support for the processing sector in Poland in the years 2002 – 2013, by region (in million PLN)

Source: Author's calculation based on data of ARMA.

provement of infrastructure in rural areas indirectly contribute to improving the competitiveness of the agri-food industry by improving the business environment. For this purpose a total of PLN 3,104.04 million was acquired, of which 65% of the support came from the SAPARD Programme, 30% – RDP and 5% were measures originating from SOP-ROL. The activity of the beneficiaries in raising funds for the development of infrastructure varied. Projects with the highest value were realized in the regions of Wielkopolska, Lubelskie, Mazowieckie, Podkarpackie, Małopolskie and Śląskie – the total value representing 55% of the budget allocated for the financing of infrastructure investments (Fig. 7).

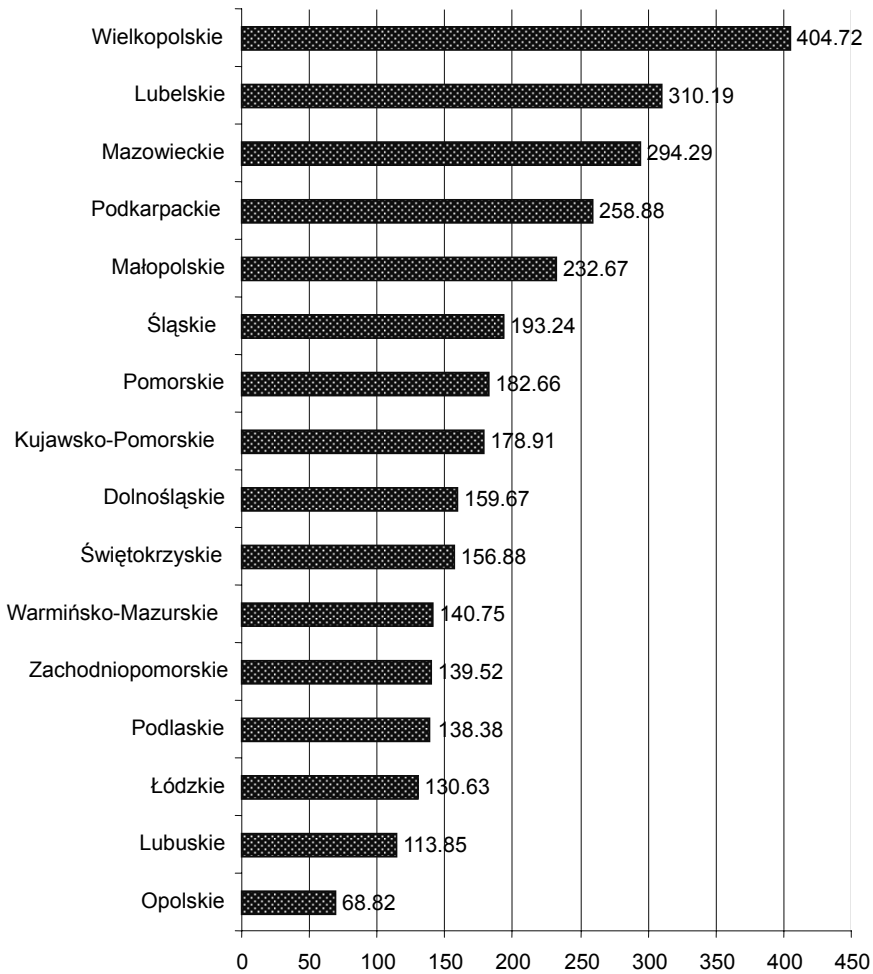

Fig. 7. Financing infrastructure investments in Poland in the years 2002–2013, by region (in million PLN)

Source: Author's calculation based on data of ARMA.

CONCLUSIONS

The analysis showed regional differences in raising funds for the improvement of the competitiveness of the agri-food industry, both for farmers, businesses and local governments. Agri-food entities and the measures aimed at improving the business environment in rural Poland received subsidies amounting to PLN 30,452 million. Most of the funds were directed at farmers (80%), whereas the processing industry and infrastructure improvements acquired similar amounts of around 10% of the budget used for this purpose.

Financial support, both before and after the Polish accession to the European Union was of great importance because of the huge investment needs in this area. The analyzed support instruments in the period 2002–2013 were primarily addressed for the improvement of the technical condition of farms and processing plants to adapt to the veterinary and sanitary requirements of the EU standards. Investment in tangible assets, for particular periods of time, lead to lower production costs and thereby increase financial profits, leading in turn to development of businesses and shaping their competitive advantage.

The possibility of obtaining support from EU funds and their proper use has been and still is an important factor in improving the competitiveness of both farms and processing sector entities.

REFERENCES

Bach C.F., Frandsen S.E., Jensen H.G., 2000. Agricultural and Economy-wide effects of European enlargement: Modelling the Common Agricultural policy. Journal Of Agricultural Economics 51 (2), 162–80.

Bożek J., 2010. Typologia krajów Unii Europejskiej pod względem podobieństwa struktury agrarnej. (Typology of European Union countries in terms of the similarity of the agrarian structure). Acta Scientiarum Polonorum, Oeconomia 9 (3), 17–23.

Buchta S., 2005. Regional aspects of the SAPARD programme implementation in the Slovak Republic. Agric. Econ. – Czech 51 (12), 539–546.

Chmurzyńska K., 2008. Wpływ SPO-Rolnictwo na poprawę konkurencyjności gospodarstw rolnych i przedsiębiorstw przemysłu spożywczego. (The eEffect of SOP-Agriculture on improving the competitiveness of farms and food industry companies). Annals of The Polish Association of Agricultural and Agribusiness Economists X, 3, 67–72 [in Polish].

Czubak W., 2009. Ocena procedur pozyskiwania środków UE na cele inwestycyjne w gospodarstwach rolnych. (The assessment of procedures for obtaining EU funds for investment in agriculture). Zeszyty Naukowe SGGW. Polityki Europejskie, Finanse i Marketing 2 (51 – T. II), 319–330 [in Polish].

Departament Komunikacji Społecznej, 2014. 10 lat WPR w Polsce. (10 years of the CAP in Poland). ARiMR – Biuletyn Informacyjny 6, 24–29 [in Polish].

Donald P.F., Pisano G., Rayment M.D., Pain D.J., 2002. The Common Agricultural Policy, EU enlargement and the conservation of Europe's farmland birds. Agriculture, Ecosystems & Environment 89, 3, 167–182.

Droździel L., 2007. ARiMR – trzy lata po akcesji. (ARMA – three years after accession). ARiMR, Warszawa [in Polish].

Grębowiec M., 2009. Wpływ integracji polski z UE na przemiany jakości produkcji przedsiębiorstw rolno-spożywczych. (The influence of Polish integration with the EU on the transforma-

tion the quality of production agri-food companies). Zeszyty Naukowe SGGW. Problemy Rolnictwa Światowego 8 (XXII), 64–74 [in Polish].
Hertel T.W., Brockmeier M., Swaminathan P.V., 1997. Sectoral and economy-wide analysis of integrating Central and Eastern European countries into the EU: Implications of alternative strategies. Eur. Rev. Agric. Econ. 24 (3–4), 359–386.
Iacovoiu V., 2006. The role of pre-accession funds in the Romanian Economy. Buletinul Universitatii Petrol – Gaze din Ploiesti LVIII, 2, Seria Stiinte Economice, 65–70.
Jankowska A., Kierzkowski T., Knopik R., 2004. Fundusze pomocowe dla Polski po akcesji – fundusze strukturalne i Fundusz Spójności. (Polish aid funds for the accession – Structural Funds and the Cohesion Fund). Polska Agencja Rozwoju Przedsiębiorczości, Warszawa, 1–92 [in Polish].
Juchniewicz M., 2008. Jakość jako czynnik wzrostu konkurencyjności przemysłu spożywczego w Polsce. (Quality as a factor of increasing the competitiveness of the food industry in Poland). IERiGŻ, PIB. Wybrane aspekty konkurencyjności polskich producentów żywności 110, 101–120 [in Polish].
Jurkowski R., 2009. Finansowanie działalności rolniczej ze środków publicznych. (Financing of agricultural activities from public funds). Annals of The Polish Association of Agricultural and Agribusiness Economists XI, 5, 100–105 [in Polish].
Kesner-Škreb M., 2006. The pre-accession programmes. Financial Theory and Practice 30 (3), 295–297.
Kiełbasa B., 2009. Ocena działalności inwestycyjnej przedsiębiorstw sektora rolno-spożywczego z uwzględnieniem wykorzystania funduszy europejskich. (Assessment of the investment companies agri-food sector including the use of EU funds.) Zeszyty Naukowe SGGW. Problemy Rolnictwa Światowego 8 (XXIII), 95–103 [in Polish].
Kónya E., 2012. Impact of the Sapard Programme on the Rural Develoment System in Eastern-Central European Countries. Thesis of doctoral (PhD) dissertation. PhD School of Management and Business Administration, 1–32. Retrived from https://szie.hu//file/tti/archivum/Konya_Edit_thesis.pdf.
Kowalski S., 2008. Wykorzystanie środków pomocowych UE do modernizacji gospodarstw rolnych (The use of EU aid funds for modernization of farms). Inżynieria Rolnicza 5 (103), 15–19 [in Polish].
Kowalski A., Figiel S., Halamska M., 2011. Społeczne i ekonomiczne uwarunkowania rozwoju sektora rolno-żywnościowego. (Social and economic conditions of development of the agri-food sector). Polish Journal of Agronomy 7, 29–42 [in Polish].
Kusz D., 2009. Nakłady inwestycyjne w rolnictwie polskim w latach 1990-2007. (Capital expenditures in Polish agriculture in the years 1990-2007). Annals of The Polish Association of Agricultural and Agribusiness Economists XI, 2, 131–136 [in Polish].
Lizińska W., 2009. Wyzwania rynku unijnego wobec polskich eksporterów sektora rolno-żywnościowego. (The challenges of the EU market to Polish exporters of agri-food sector). Zeszyty Naukowe SGGW. Problemy Rolnictwa Światowego 8 (XXII), 116–123 [in Polish].
Łapińska J., 2008. Pozycja konkurencyjna polskiego handlu rolno-spożywczego. (The competitive position of Polish agri-food trade). Annals of The Polish Association of Agricultural and Agribusiness Economists X, 4, 243 [in Polish].
Nello S.S., 2002. Preparing for Enlargement in the European Union: The Tensions between Economic and Political Integration. International Political Science Review 23, 3, 291–317.
Poczta A., 2005. Poziom i struktura wsparcia finansowego rolnictwa w krajach OECD po powstaniu WTO. (The level and structure of financial support for agriculture in OECD countries after the establishment of the WTO). Annals of The Polish Association of Agricultural and Agribusiness Economists VII, 7 [in Polish].

Podstawka M., 2009. PROW w perspektywie 2007–2013 (RDP in the perspective of the 2007––2013). Roczniki Naukowe SERiA XI, 4, 251–260 [in Polish].
Regorsek D., Erjavec E., Kozar M., Kavcic S., 2011. Economic Effects of Integration and Reform Processes – Partial Equilibrium Approach. Bulg. J. Agric. Sci. 17, 721–729.
Swaminathan P.V., Hertel T.W., Brockmeier M., 1997. European Union enlargement: What are the agricultural trade models missing? American Agricultural Economics Association Annual meeting, July 27-30, Toronto, Canada. Retrieved from http://ageconsearch.umn.edu/bitstream/21030/1/spswamin.pdf.
Wasilewski M., Wasilewska A., Bezat A., 2010. Innowacyjność przedsiębiorstw przetwórstwa rolno-spożywczego: stan wiedzy i kierunku badań (Business innovation agri-food processing: state of knowledge and research direction). Zeszyty Naukowe SGGW. Ekonomika i Organizacja Gospodarki Żywnościowej 82, 103–114 [in Polish].
Żuk J., 2006. Perspektywy rozwoju rolnictwa i gospodarki żywnościowej w Polsce po przystąpieniu do UE (Prospects for the development of agriculture and food economy in Poland after EU accession). Zeszyty Naukowe SGGW. Problemy Rolnictwa Światowego XV, 104––114 [in Polish].

ZRÓŻNICOWANIE REGIONALNE W POZYSKIWANIU ŚRODKÓW UNIJNYCH WSPIERAJĄCYCH KONKURENCYJNOŚĆ SEKTORA ROLNO-ŻYWNOŚCIOWEGO W POLSCE W LATACH 2002–2013

Streszczenie. W artykule przedstawiono unijne wsparcie konkurencyjności gospodarki rolno-żywnościowej Polski w latach 2002–2013. Wyodrębniono 15 działań z programów SAPARD, SPO-ROL, PROW, które w sposób bezpośredni i pośredni miały wpływ na realizację celu niniejszej analizy. Oceniono budżet wsparcia w skali kraju i w układzie województw. Analiza wykazała, że na poprawę warunków prowadzenia działalności gospodarczej na obszarach wiejskich Polski oraz na rozwój podmiotów sektora rolno-żywnościowego wydano kwotą 30 452 milionów PLN. Najwięcej środków trafiło do rolników (80%), natomiast na przemysł przetwórczy oraz poprawę infrastruktury pozyskano zbliżone kwoty wynoszące ok. 10% budżetu wykorzystanego na ten cel.

Słowa kluczowe: wsparcie UE, rolnictwo, przemysł przetwórczy

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DEVELOPMENT OF ORGANIC PRODUCTION AND ORGANIC FOOD MARKET IN EUROPE

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Abstract. The article aims to present the size and pace of development of organic production and organic food market in Europe. The biggest areas of agricultural land utilized for organic farming are in the countries, where the organic food market is the biggest, i.e. in the richest countries of Western Europe. However, meeting the demand for organic food based on those countries' own production is not possible and must be supported by import i.a. from Poland. Therefore, organic production in Poland is developing quickly, which is also a great opportunity to develop for many farms, especially the smaller ones, and to utilise a surplus of labour force that exist in Polish agriculture.

Key words: organic farming, organic production, organic food market

INTRODUCTION

The interest in the growth of organic farming started in the highly developed countries as a result of social awareness about the negative side effects of the highly intensive agricultural production, including the high level of input into industrial means of production (fertilizers and pesticides). The motive power for the development of agriculture that was created in the second half of the 20th century aimed to increase production and forced the use of modern technologies with a big share of means of production, that decreased physical and chemical quality of soil [Woś 2004]. Hence the need to limit their use, as well as to take measures improve soil fertility. Moreover, this mechanism resulted in the increase in production that exceeds demand and in the decrease in the quality of food products and raw materials [Łuczka-Bakuła 2007]. Hence the interest in high-quality food, including organic food.

Organic farming responds to the food market demand, increases the fertility of soil and protects natural environment. The essence of organic farming is adequate crop rotation and natural fertilizing [Tyburski, Żakowska-Biemans 2007], which improves

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physical and chemical features of soil and increases its humus content and thus is favourable for the use on low quality soil. Organic methods of agricultural production also serve the maintenance of clean water and soil as well as protect and enrich the diversity of plant and animal life in natural environment [Runowski 2012]. Thus, they contribute to the improvement of the state and conservation of natural environment.

MATERIAL AND METHODS

The aim of the article is to present the size and pace of growth of organic production and organic food market in Europe based on available statistics with regard to organic farming and organic food market. Source of data for analyses were primarily yearbooks titled The World of Organic Agriculture – Statistics and Emerging Trends, which are published by the Research Institute of Organic Agriculture (FiBL) in Frick (Switzerland) and International Federation of Organic Agriculture Movements (IFOAM) in Bonn (Germany). Data on the area of organic crops in the world were collected for the first time in 2004, therefore, the analyses presented in the article cover the years 2004–2012.

DEVELOPMENT OF ORGANIC PRODUCTION

Organic farming develops in most countries on all continents. Especially big interest in the development of agricultural production obtained with the use of ecological methods can be observed in the European countries. In 2012, the acreage of agricultural land cultivated with the use of ecological methods in Europe was estimated to be 11.2 million ha while in the early 1990s it was only 0.5 million ha. In 2012 in the European Union countries, the area was estimated to cover 10 million ha. In the period 2004–2012, especially big (almost threefold) increase in the organic farming acreage was registered in the countries that joined the EU after 2004 (EU-N12). The biggest increase took place in Poland (eightfold). Despite a considerable increase of the acreage in the countries of the EU-N12, most of it (almost 80%) is in the countries of the old fifteen (EU-15). This is the result of both the high demand for organic products in the EU-15 countries, as well as the long-lasting support from many years the development of organic agriculture in these countries (Table 1).

Table 1. Acreage of agricultural land utilised with the use of ecological methods in Europe in 2004–2012

Region	Area of agricultural land (million ha)								
	2004	2005	2006	2007	2008	2009	2010	2011	2012
Europe	6.5	6.8	7.4	7.8	8.2	9.3	10.0	10.6	11.2
EU-27	6.0	6.5	6.9	7.3	7.8	8.5	9.2	9.6	10.0
EU-15	5.3	5.5	5.7	5.9	6.3	6.9	7.1	7.3	7.6
EU-N12	0.8	1.0	1.1	1.3	1.5	1.6	1.9	2.1	2.3

Source: Author's own development based on The World of Organic Agriculture… 2006–2014 [2014].

The biggest areas of agricultural land utilised with the use of ecological methods are in Spain (1.6 million ha), Italy (1.2 million ha), Germany (1.0 million ha), France (1.0 million ha) and Poland (0.66 million ha). The share of organic farming area in the total agricultural area, i.e. ecological management of land resources in agriculture in the EU countries in 2012 amounted to 5.6%, while generally in Europe – 2.3%. The largest was in Austria (19.7%), Sweden (15.6%), Estonia (15.3%) and Switzerland (12.0%). In Poland it was at the level of 4.3%.

The acreage of the agricultural land cultivated with the use of ecological methods used for arable crops in Europe in 2012 was 4.7 million ha (42%), for permanent crops 1.1 million ha (10%) and for permanent grassland 4.9 million ha (44%) – Figure 1.

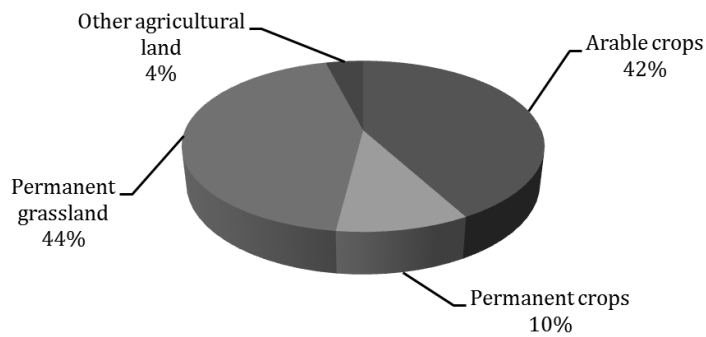

Fig. 1. Structure of agricultural land use for organic farming in Europe in 2012
Source: Author's own development based on The World of Organic Agriculture… [2014].

In 2012, in comparison to 2004 the acreage of organic arable crops in Europe more than doubled (increased by 114%), of permanent crops increased by 120% and of permanent grassland by 58% (Table 2). Thus, the area of organic arable crops and permanent crops cultivation is increasing faster than the area of permanent grassland.

Table 2. Acreage of agricultural land utilised for organic farming in Europe in 2004–2012

Type of plant cultivation	Area of agricultural land (million ha)								
	2004	2005	2006	2007	2008	2009	2010	2011	2012
Arable crops	2.2	2.7	2,9	3.2	3.3	3.7	4.1	4.4	4.7
Permanent crops	0.5	0.5	0,7	0.7	0.8	1.0	1.0	1.1	1.1
Permanent grassland	3.1	3.0	3,3	3.3	3.9	4.1	4.5	4.5	4.9

Source: as in Table 1.

The area of organic arable crops includes the cultivation of cereals, vegetables, protein crops, oilseeds, potatoes, sugar beet and fodder plants. Moreover, the cultivation of strawberries is included in the group. The acreage of organic arable crops in Europe constitutes a major part of the total acreage of organic arable crops in the world (in 2012 it was over 60%). Organic cultivation of cereals in Europe in 2012 was on the area of 1.9 million ha and it was 40% of all the organic arable crops in the region (Fig. 2) and over 70% of the organic cereals cultivation area in the world (2.65 million ha).

The biggest areas of organic cereals farming are in Italy (0.21 million ha), Germany (0.20 million ha), Spain (0.17 million ha), France (0.13 million ha), Ukraine (0.13 million ha) and Poland (0.12 million ha). Wheat holds a dominating position among all the types of cereals (over 40% of organic cereals farming both in Europe and in the world).

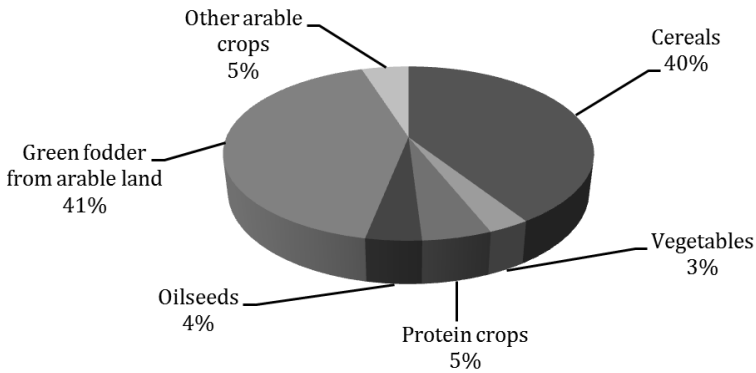

Fig. 2. Structure of organic arable crops cultivation area in Europe in 2012
Source: as in Figure 1.

Organic vegetables cultivation in 2012 covered the area of 0.12 million ha and constituted almost 3% area of organic arable crops in Europe and a half of the organic vegetable cultivation in the world (0.24 million ha). The biggest areas of organic vegetables farming are in Italy (21,000 ha), France (14,000 ha), Germany (11,000 ha), Great Britain (11,000 ha), Spain (10,000 ha) and Poland (9,400 ha). Organic cultivation of protein crops in the same period covered the area of 0.24 million ha and constituted over 5% of the organic arable crops cultivation area in the region and almost 80% of organic protein crops in the world. The biggest areas of organic protein crops cultivation are in France, Spain, Germany, Italy and Austria. The cultivation of oilseeds with the use of organic methods in 2012 covered the area of 0.19 million ha (4% of the arable crops cultivation area in Europe and 30% of the oilseeds cultivation area in the world). The biggest areas of organic oilseeds cultivation are in Romania, Ukraine and France.

The area of organic permanent crops in Europe includes plantations of fruit trees and shrubs for fruit production in the temperate zone (apple, pear, plum, sweet cherry, cherry, peach, raspberry and currant), olive groves and plantations of grapes, nuts, citrus fruit and medicinal plants. Organic plantations of fruit trees and shrubs for fruit production in the temperate zone are located mainly in Europe and in 2012 their area covered 120,000 ha, i.e. 11% of the permanent crops in the region (Fig. 3) and almost 80% of organic plantations of fruit trees and shrubs for fruit production in the temperate zone in the world (157,000 ha).

Poland is the country with the biggest plantations area of fruit trees and shrubs for fruit production in the temperate zone both in Europe and in the world (Fig. 4). The area of organic fruit trees and shrubs plantations in Poland in 2012 was estimated to cover 42,000 ha and constituted 35% of organic fruit trees and shrubs plantations in Europe and 27% of organic fruit trees and shrubs plantations in the world. Within the organic

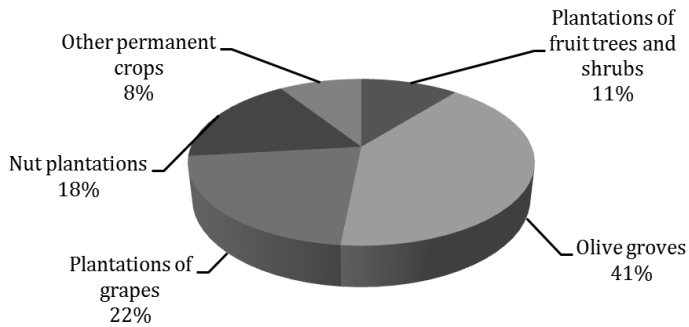

Fig. 3. Structure of organic permanent crops area in Europe in 2012
Source: as in Figure 1.

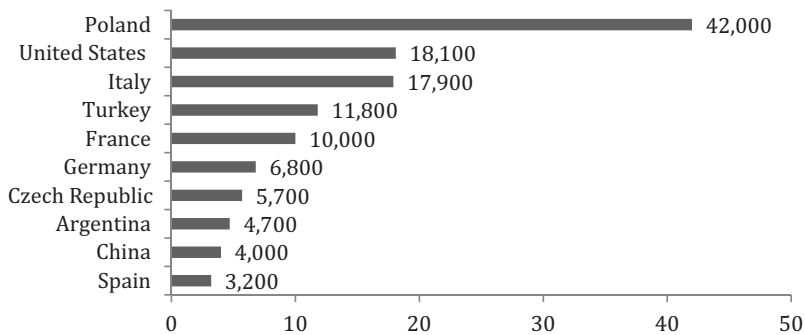

Fig. 4. Countries with the biggest area of organic fruit trees and shrubs plantations for fruit production in the temperate zone in the world in 2012 (thousand ha)
Source: as in Figure 1.

plantations of fruit trees in Poland, apple trees plantations dominate but there are also plantations of pears, plums, sweet cherries and cherries. The area of organic apple trees plantations in 2012 constituted 44% of the organic apple trees plantations acreage in the world. In Poland, there are also the biggest areas of organic plantations of fruit shrubs, especially raspberries and black currants.

The research shows that organic cultivation of fruit and vegetables in Poland are mainly located in small and medium size farms [Komorowska 2012]. It creates conditions for better use of labour resources and prospect of the development of these farms because fruit and vegetables occupy an important position among the best-selling products on organic food market. It must be emphasised here that almost half of organic farms in Poland cover the area of up to 10 ha of agricultural land and 70% of organic farms in our country cover the area of up to 20 ha of agricultural land [Raport o stanie… 2013]. Thus, we have a big number of small and medium size organic farms that are involved in laborious cultivation of fruit and vegetables as well as potatoes for consumption. That is why the size of production of these products in our country is large. A big part of these products is exported. A comparative analysis of the average organic farm set on arable crops in Poland and Germany shows that the share of fruit and vegetables in the value of

production obtained in this type of farm in Poland is almost 50%, whereas in Germany it is less than 18% [Nachtman 2008]. However, the average organic farm focused on arable crops in Poland is much smaller than in Germany, which results in difficulties in the organisation of the sale of products produced on a small scale.

The biggest share in the area of permanent crops in Europe belongs to organic olive groves. In 2012, they covered 456,000 ha and constituted 40% of permanent crops area in the region (Fig. 3) and almost 80% of organic olive groves in the world (576,000 ha). The biggest areas of organic olive groves both in Europe and in the world are in Spain (168,000 ha in 2012) and in Italy (165,000 ha). In 2012, the area of organic olive groves in Spain covered 37% of organic olive groves area in Europe and almost 30% of organic olive groves area in the world, while in Italy, respectively 36 and 29%. Considerable areas of organic olive groves are also in Greece (63,000 ha) and in Portugal (17,000 ha).

Organic grapes plantations are mainly located in Europe. In 2012, organic cultivation of grapes in Europe was on the area of 241,000 ha and constituted almost 22% of the acreage of all permanent crops in the region (Fig. 3) and 83% of the organic grapes plantation area in the world (284,000 ha). The biggest areas of organic grapes plantations both in Europe and in the world are in Spain (81,000 ha), France (65,000 ha) and Italy (57,000 ha). In 2012, the area of organic grapes plantations in Spain constituted 34% of organic grapes plantations in Europe and almost 30% of organic grapes plantations in the world, in France 27 and 23% respectively and in Italy 24 and 20% respectively. There are also considerable areas of organic grapes plantations in Germany (7,400 ha) and Greece (5,000 ha).

It must be emphasised that in Europe, there are also big areas of organic nut plantations (first of all in Spain and Italy) and organic citrus fruit plantations (especially in Italy, Spain and Greece). The biggest areas of organic strawberry plantations are in Spain, Poland, Germany and Italy.

Statistics regarding livestock population on organic farms are incomplete, however, the data published by Eurostat show that in the EU countries, organic husbandry of cattle, sheep and goats is of a considerable size. In 2011, organic farms of the EU countries had 2.6 million head of cattle, i.e. 2.9% of all cattle in these countries, including 0.7 million head of dairy cattle, i.e. 3.0% of dairy cattle in the EU countries (Table 3). The number of head of cattle on organic farms is rising with the growth of the area of agricultural land cultivated with the use of organic methods and the increase in the demand for products of cattle, especially milk and milk products. The biggest organic cattle breeding share in the whole cattle population belongs to Austria (19%), Sweden (17%), Latvia and the Czech Republic (13%) and Denmark (10%). The biggest share of organic dairy cattle in the whole dairy cattle population belongs to Austria (18%), Sweden (12.7%), Denmark (10.9%) and Great Britain (8.1%).

In 2011, on organic farms in the European Union countries, it was estimated that there were 4 million head of sheep and 0.5 million head of goats, i.e. 2.8% of all sheep and goats in these countries. Organic husbandry of sheep is found mainly in Great Britain (1.2 million head), Italy (0.7 million head) and Spain (0.6 million head), and also in France (0.3 million head) and Greece (0.2 million head). In Great Britain organic sheep are raised mainly for meat, in Italy and Greece for milk and dairy produce, mainly cheese, including Feta in Greece. Organic goat farming is located mainly in Greece (0.2 million

Table 3. Livestock population on organic farms in the European Union countries in 2011

EU countries	Livestock population (million head)						
	cattle	of which dairy cows	pigs	sheep	goats	poultry	of which laying hens
EU-27	2.6	0.7	0.9	4.0	0.5	26.2	12,7
EU-15	2.2	0.65	0.8	3.6	0.46	25.7	12.4
EU-N12	0.4	0.06	0.1	0.4	0.04	0.5	0.3

Source: Facts and figures on organic agriculture… [2013].

head) and its main production is milk to make Feta. In most European Union countries, goats are raised for milk to make goat cheese.

Organic pig farming does not play so important role in agriculture as cattle, sheep and goat husbandry. The pig population on organic farms in the European Union countries in 2011 was 0.9 million head and it was only 0.33% of the whole pig population in these countries. The biggest organic pig farming is found in Germany (0.2 million head), Denmark (0.2 million head) and France (0.2 million head).

The population of poultry on organic farms in the EU countries in the discussed year was 26.2 million head (only 1% of the whole poultry population in these countries), of which almost half were laying hens because of big demand for organic eggs. Organic poultry farming is found mainly in France, where in 2011 were 10.9 million head of poultry, of which one third were laying hens.

DEVELOPMENT OF ORGANIC FOOD MARKET

Organic food market is developing in many countries in the world but mainly in rich countries because organic food prices are in general much higher than those for conventional products [Łuczka-Bakuła 2007, Runowski 2012]. Although the share of organic food market in the whole food market is small, it is continually growing year by year. The European organic food market is found mainly in Western European countries and is systematically developing. In 2012, it was estimated to be worth EUR 22.8 billion, including the EU market – EUR 20.9 billion. In comparison with 2004, its turnover doubled (Table 4). Especially fast development of organic food market is observed in Germany, France, Switzerland and the Netherlands.

The country with the biggest internal organic food market in Europe is Germany, where in 2012 it was estimated to be worth EUR 7 billion, i.e. almost one third of the

Table 4. Development of organic food market in Europe in 2004–2012

Region	Organic food market (billion EUR)								
	2004	2005	2006	2007	2008	2009	2010	2011	2012
Europe	10.8	12.1	13.5	15.2	17.1	18.2	19.7	21.5	22.8
EU	10.0	11.2	12.6	14.3	15.9	17.0	18.2	19.7	20.9

Source: as in Table 1.

European organic food market turnover (31%). The second biggest organic food market in the region is France with the 2012 turnover of EUR 4 billion, i.e. 18% of the European organic food turnover, and the third biggest one is Great Britain, which was estimated to be worth EUR 2 billion, i.e. 8% (Fig. 5). Other countries with a considerable organic food market in Europe are Italy, Switzerland, Austria, Spain, Sweden, Denmark and the Netherlands. Poland's organic food market is estimated at EUR 120 million.

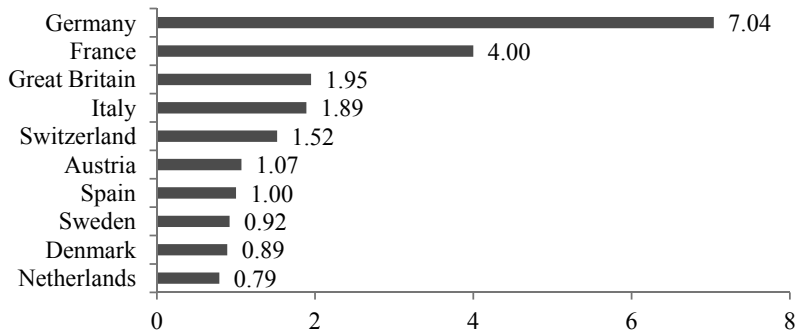

Fig. 5. Countries with the biggest internal organic food market in Europe in 2012 (billion EUR)
Source: as in Figure 1.

The most popular products of the organic food market are fresh produce, especially fruit and vegetables that have an absolutely bigger share in the organic food market than in the conventional one. Fruit and vegetables are the pioneering organic products in Europe. Their share in the organic food market, depending on the country, stands at between 20 to over 30%. Fruit and vegetables have a big share in the organic food market in Italy, Ireland, Norway, Sweden and Germany [Willer et al. 2013].

With the development of organic animal husbandry and animal production, the share of animal products, especially milk and milk products, in the organic food market is growing. In 2011, the sales value of these products constituted 30% of the organic food turnover (Fig. 6). Milk and milk products are the majority of the organic food products in many countries, especially of Northern Europe. In addition, sales of meat and meat

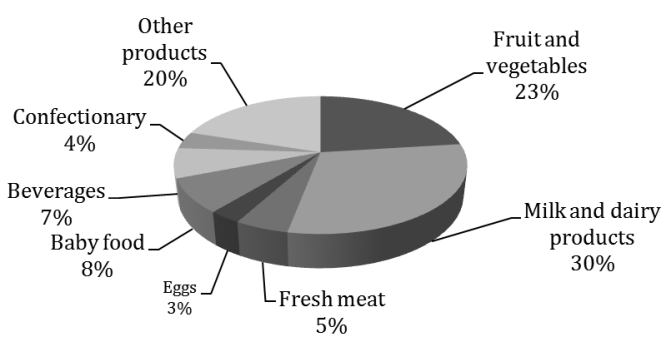

Fig. 6. Structure of organic food market in Europe in 2011
Source: Willer et al. [2013].

products have a considerable share in this market, especially in Belgium, the Netherlands, Finland and France (about 10% of organic food in these countries). Sales of organic eggs make on average 3% of organic products sales.

Cereals and their products, especially those that are easy to store and sell, but also bread, play an important role within the organic food range, especially in such countries as Switzerland, the Netherlands, France, Sweden, Finland and Germany.

The share of organic food market in the whole food market in Europe is rather small because it is less than 3%. The biggest organic food market share in the domestic food market is in such countries as Denmark (7.6% in 2012), Austria (6.5%), Switzerland (6.3%), Sweden (3.9%), Germany (3.7%), Luxembourg (3.1%) and France (2.4%). In Poland it is only 0.2% and that is why a significant portion of domestic production (it is estimated that about 50%) is targeted for export. The reasons for that small share of organic food in the Polish food market are first of all the relatively lower level of the Polish society affluence and the belief and trust in the domestic conventional food, which results from a low level of agrochemicals used in our agriculture. For this reason, Polish conventional food is also appreciated on foreign markets.

In countries with the developed organic food market, the main points of sale are the grocery outlets. Their importance in the distribution of organic food is rising with the increase in the supply for those products [Gulbicka 2007]. The organic food market in Poland is in the initial stage of developing distribution channels and due to that there are two dominating forms of sale: directly from organic farms and in specialist shops [Smoluk-Sikorska, Łuczka-Bakuła 2013]. Although organic food products are now available in many grocery outlets, specialist shops are still important because customers trust organic food sold in them. Forms of selling organic food that consumers like and appreciate are various organic food fairs organised by producers. Their popularity is constantly growing and they are a form of organic products promotion as well as provide knowledge about their production methods.

The biggest spending on organic food per capita in Europe is in the richest Western European countries and Switzerland (Fig. 7), i.e. in the countries where the share of organic food market in the domestic food market is the biggest. In Poland, spending on organic food is small and reaches only EUR 3 per capita annually.

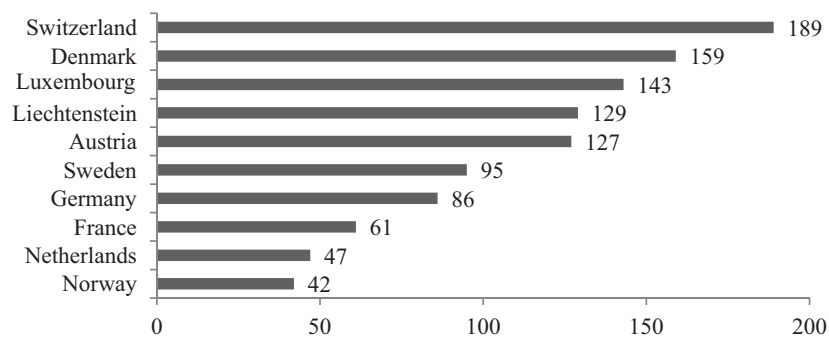

Fig. 7. Countries with the highest spending on organic food consumption in Europe in 2012 (EUR per capita)

Source: as in Figure 1.

CONCLUSIONS

Organic farming is developing in most countries on all continents, but the most dynamic development of organic production is observed in the European countries. It results from the growing demand for organic food and support for organic farming. The biggest areas of agricultural land utilised for organic farming are in the countries, where the organic food market is the biggest, i.e. in the richest countries of Western Europe. Also the spending on organic food per capita in these countries is the biggest. However, meeting the demand based on those countries' own production is not possible and they have to import a considerable amount of organic food, also form Poland. That is why organic food production in Poland is developing very fast, which is an opportunity to develop for many farms, especially the smaller ones, and to utilise the surplus of labour force that exists in our agriculture.

REFERENCES

Facts and figures on organic agriculture in the European Union. European Commission, Brussels, 2013.

Gulbicka B., 2007. Rynek żywności ekologicznej. W: Wpływ globalizacji na wyżywienie ludności w Polsce. B. Gulbicka, M. Kwasek (Eds), "Program wieloletni 2005-2009" 75 (The organic food market. In: The impact of globalization on the nourishment patterns in Poland, "Multi-annual program 2005-2009" 75). IERiGŻ-PIB, Warszawa, 54–59.

Komorowska D., 2012. Organizacja produkcji i wyniki ekonomiczne gospodarstw ekologicznych o różnej wielkości (The organization of production and economic performance of organic farms of various areas). Zeszyty Naukowe SGGW: Ekonomika i Organizacja Gospodarki Żywnościowej 95, 41–52.

Łuczka-Bakuła W., 2007. Rynek żywności ekologicznej. Wyznaczniki i uwarunkowania rozwoju (The organic food market. Determinants and conditions of development). PWE, Warszawa.

Nachtman G., 2008. Ekologiczne gospodarstwa w Polsce i w Niemczech – analiza porównawcza (Organic farms in Poland and Germany – a comparative study analysis). Zagadnienia Doradztwa Rolniczego 2 (53), 50–60.

Raport o stanie rolnictwa ekologicznego w Polsce w latach 2011-2012. Inspekcja Jakości Handlowej Artykułów Rolno-Spożywczych, Warszawa, 2013 (Report on the state of organic farming in Poland in 2011-2012. Quality Inspection of Agricultural and Food Products, Warsaw, 2013).

Runowski H., 2012. Rolnictwo ekologiczne w Polsce – stan i perspektywa. W: Z badań nad rolnictwem społecznie zrównoważonym, Zegar J. (Ed.), "Program wieloletni 2011-2014" (Organic farming in Poland – status and perspectives. In: Research on socially sustainable agriculture. "Multi-annual program 2011-2014", IERiGŻ-PIB, 50 (15) 38–78.

Smoluk-Sikorska J., Łuczka-Bakuła W., 2013. Sale of organic food in specialist and general retail grocery outlets – a comparative analysis. Acta Scientiarum Polonorum, Oeconomia 12 (1), 35–44.

Tyburski J., Żakowska-Biemans S., 2007. Wprowadzenie do rolnictwa ekologicznego (Introduction to Organic Farming). Wyd. SGGW, Warszawa.

Willer H., Lernoud J., Schaack D., 2013. The European Market for Organic Food 2011. Research Institute of Organic Agriculture (FiBL), Frick, Switzerland and Foundation Ecology and Agricultural Informatio Company (AMI), Bonn, Germany.

The World of Organic Agriculture – Statistics and Emerging Trends. Yearbooks editions of 2000--2014. Research Institute of Organic Agriculture (FiBL), Frick, Switzerland and International Federation of Organic Agriculture Movements (IFOAM), Bonn, Germany.
Woś A., 2004. W poszukiwaniu modelu rozwoju polskiego rolnictwa (In search of Polish Agriculture Development Model). IERiGŻ-PIB, Warszawa.

ROZWÓJ PRODUKCJI EKOLOGICZNEJ I RYNKU ŻYWNOŚCI EKOLOGICZNEJ W EUROPIE

Streszczenie. Celem opracowania jest przedstawienie rozmiarów oraz tempa rozwoju produkcji ekologicznej i rynku żywności ekologicznej w Europie. Największe powierzchnie użytków rolnych zagospodarowanych pod uprawy ekologiczne są w tych krajach, w których rynek żywności ekologicznej jest największy, czyli w zamożnych krajach Europy Zachodniej. Jednak pokrycie zapotrzebowania na produkty ekologiczne z własnej produkcji w tych krajach nie jest możliwe i opiera się w znacznym stopniu na imporcie, w tym także z Polski. Z tego też względu produkcja ekologiczna w Polsce w szybkim tempie rozwija się, co jest szansą rozwoju dla wielu gospodarstw, zwłaszcza mniejszych obszarowo, oraz okazją do zagospodarowania nadwyżek siły roboczej tkwiących w polskim rolnictwie.

Słowa kluczowe: rolnictwo ekologiczne, produkcja ekologiczna, rynek żywności ekologicznej

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INNOVATION BARRIERS AND INTERNATIONAL COMPETITIVENESS OF ENTERPRISES FROM POLISH FOOD PROCESSING INDUSTRY. RESEARCH RESULTS

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Abstract. Innovativeness is crucial in building competitive advantage of firms. Enterprises are facing many innovation barriers that distort innovation performance. The aim of the paper is to assess the influence of innovation barriers on the innovation performance as well as international competitiveness of firms from Polish food processing industry. The analysis is conducted on the representative sample of 1216 medium and large enterprises (NACE Rev. 2, C 10) participating in the survey GUS PNT-02/CIS for the years 2008–2010. The results showa statistically significant relationsbetween innovation barriers and both innovation performance and international competitiveness of surveyed firms. Various advanced statistical methods were used in order to verify research hypotheses. The results of the study reveal complexity of interactions between analysed variables, leading to the conclusion that innovation process cannot be reduced to linear relationships only.

Key words: innovativeness, competitiveness, Polish firms, Community Innovation Survey questionnaire

INTRODUCTION

Recent literature as well as business practices provide evidence that innovation is one of the critical factors affecting the competitive advantage of firms and countries.

In this context, the aim of the paper is to examine the importance of innovation obstacles and their impact on innovation performance (introduction of product and/or process innovation) as well as on internationalization of firms from Polish food processing industry.

The paper is organised as follows: the first part provide an overview of the literature and research hypotheses. The second part contains the sample description, methods applied and the operationalization of variables. In the third part, the results ofthe data analysis are presented. Conclusions, implications and limitations of the research make up the final section.

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OVERVIEW OF LITERATURE AND HYPOTHESES DEVELOPMENT

The firm-level studies reveal a positive relationship between innovation and exports, an important indicator of international competitiveness [Soete 1981, Halpern 2007, Montobbio 2003], also in the case of Polish food processing industry [Zalewski and Góralski 2011].

Bleaney and Wakelin [2002] argue that non-innovating firms are more likely to export if they have cost advantage, while innovating firms are more likely to export if they implement more innovations. Another studies show, that the probability of exporting as well as the intensity of export are positively influenced by R&D and successful innovations [Gourlay and Seaton 2004].

As for the impact of process innovation on firms export behaviour no such strong evidence has been found [Clausen and Pohjola 2009], but it is to note that majority of studies refer to mature economies where firms compete mostly based on differentiation rather than cost/price advantage, whereas firms' competitive strategies in CEE countries, including Poland, suggest that they still resemble many characteristics of cost/price advantage and their abilities to increase differentiation-based competitive advantage are still insufficient, although improving [Wziątek-Kubiak et al. 2009, Stojcic et al. 2011].

Given the results of above studies, the first research hypotheses are placed:

- H1a. There is a positive influence of product innovation on intensity of export sales of firms from Polish food processing industry.
- H1b. There is a positive influence of process innovation on intensity of export sales of firms from Polish food processing industry.

Economic approach to research on innovation address a number of innovation policy issues, such as reasons for firms' innovation, innovation driving forces and barriers. There are several studies that focus on the relation between innovation output and its determinants, which can be broadly divided into two groups: factor that enhance innovation performance and those that hamper innovation, important also in Polish food processing industry.

In this article I will argue, following the proposal of Oslo Manual [2005], that innovation barrier is every factor that slows down or even prevents innovation activity. It can also adversely affect innovation activity to the extend, that it does not bring in the expected results. Most often those obstacles are categorized according to resource/competence firm resources or grouped as internal and external ones. Larsen and Levis [2007] distinguish financial and marketing skills shortages, as well as management and personal characteristic barriers and other barriers (such as long-time of new product development, lack of external professional partners, lack of trust).

Saatcioglu and Ozmen [2010], after extended literature revision, have distinguished a list of 7 internal (lack of qualified personnel; bureaucracy; lack of R&D, design, test and other technical problems in companies; too long time for return for innovation; perception of innovation as risky; difficulty to control innovation costs; finance of innovation and 4 external barriers (patent and license policy; lack of incentives applied by government; foreign trade policy and competition policy), important in innovation process undertaken by Turkish firms. The result of barriers interaction show that financial ones affect all other obstacles.

Canadian Survey of Innovation and Advanced Technology (SIAT) divide impediments to advanced technology adoption into five categories: cost-related; institution-related; labour-related; organization-related and information-related [Baldwin and Lin 2002]. Similar list of internal and external barriers present Buse et al. [2010]. Authors argue, that without a thorough understanding of internal business processes and profound analysis of business environment, including both internal and external barriers, full usage of global opportunities, that may strengthen innovation capabilities, is significantly limited.

Innovation barriers are expected to be more important for non-innovation firms. Surprisingly, some research indicate, that they appear to be reported much higher by innovators and those who use advanced technology more often. Baldwin and Lin [2002], based on the representative sample of Canadian manufacturing firm, have found, that the group of innovators and adopters of advanced technology declare innovation obstacles more often, than the group of non-innovators and non-adopter of advanced technology. Similar results, based on the sample of service firms from Canada, were obtained by Mohnen and Rosa [2000].

Looking for factors affecting perception of importance of innovation barriers, Iammarino et al. [2009], using the data from Italian CIS3 questionnaire, have found, that it is influenced by the ownership of firms capital. Foreign-owned firms were more sensitive to innovation barriers than domestic ones.

The impact of different innovation barriers on product, process and management innovation among Spanish firms present Guijarro-Madrid et al. [2009]. Process and management innovations are negatively influenced by internal barriers – human resources and weak financial position. At the same time barriers originating from the environment influence them positively.

The importance of barriers to innovation in new product development process is raised by Larsen and Lewis [2007]. Based on investigation of several case studies of British awarded firms for "ground-breaking product innovation", authors argue, that surprisingly, enterprises are as likely to overcome the existing barriers, as to ignore them, meaning that both strategies may led to success. The majority of studies suggest, that barriers related to cost are most important [Baldwin and Lin 2002, Guijarro-Madrid et al. 2009], whereas those associated with management resistance are least important [Guijarro-Madrid et al. 2009].

Those results are similar also for Polish economy [Okoń-Horodyńska and Zachorowska-Mazurkiewicz 2007, Okoń-Horodyńska 2008, Lewandowska 2012, Wziątek-Kubiak and Pęczkowski 2013], as well as for enterprises from Polish food processing industry, where significant innovation barrier, especially for small enterprises,are insufficient financial resource and high cost of innovation [Kaczorowska 2009], of which the importance decline together with enterprise size [Nieć 2011], followed by law constraints as well as tax law [Biernat-Jarka and Grzymska 2010]. Another reasons for low innovativeness is the conservatism of Polish consumers, not willing to accept innovative products [Gutkowska et al. 2009, Juchniewicz 2011], followed by the lack of sufficient awareness of the innovation necessity among firms' managers [Firlej and Makarska 2012].

Following this extended literature review, covering both international as well as domestic positions, the following hypotheses are placed:

– H2a. Innovation barriers adversely affect introduction of product innovation in firms from Polish food processing industry.
– H2b. Innovation barriers adversely affect introduction of process innovation in firms from Polish food processing industry.

Having in mind the high probability of the link between innovation and export intensity as well as the link between innovation barriers and innovation performance, the last hypothesis is proposed:

– H3. Innovation barriers negatively affect intensity of export sales of firms from Polish food processing industry.

The conceptualization of relations between innovation performance, innovation barriers and internationalization is presented in Figure 1.

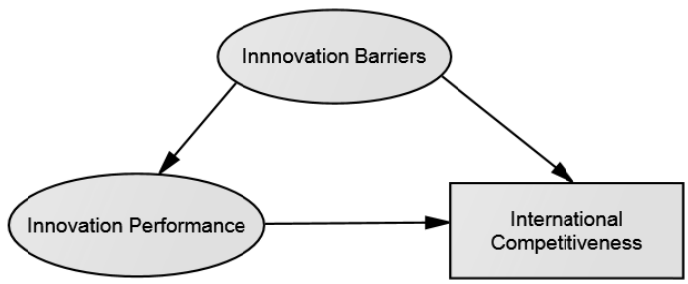

Fig. 1. Conceptual model of the relations among innovation barriers, innovation performance and international competitiveness of enterprises from Polish food processing industry
Source: Own study.

MATERIAL AND METHOD

The study uses the micro data from questionnaire PNT-02 (Polish version of Community Innovation Survey) for the period 2008–2010, conducted in Poland in 2011 by Polish Main Statistical Office (GUS). The research covered the original sample of 988 medium sized (50–249) and 228 big enterprises (of more than 250 employees) from Polish food processing industry (NACE Rev. 2, section C 10). Chi-square with column proportions was applied to verify statistically significant differences between distinguished clusters of *Active Innovators* (those who introduced product and/or process innovation in 2008––2010) and *Non Active Innovators* ($p < 0.05$) – Table 1.

Within the sample of innovative firms 75.1% of them declare introduction of product innovation, 73.2% – the introduction of process innovation, 46% – marketing innovation and 41.2% – organisational innovation. Medium size firms constitute 63.6%, and large firms 36.4% of the sample. The share of firms belonging to Polish owned capital groups accounts for 12.7%, whereas of firms – members of foreign capital groups amounts to 16.4%. The remaining 70.9% firms in the sample are independent firms.

The explorative character of our study influenced the data analysis methods.

To verify the relationship between the introduction of product and process innovation and sales orientation of surveyed firms, as well as relation between innovation barriers and innovation performance, logistic regression models (a type of probabilistic statisti-

Table 1. Sample characteristic

Sample characteristic		*Active Innovators* N = 354		*Non Active Innovators* N = 862		Total sample N = 1216	
		N	%	N	%	N	%
Introduction of product innovation		266	75.1a	0	0	266	21.9
Introduction of process innovation		259	73.2a	0	0	259	21.3
Introduction of marketing innovation		163	46a	94	10.9b	257	21.1
Introduction of organizational innovation		146	41.2a	50	5.8b	196	16.1
Firms size	Medium	225	63.6a	763	88.5b	988	81.3
	Large	129	36.4a	99	11.5b	228	18.8
Capital group	Polish capital group	45	12.7a	51	5.9b	96	7.9
	Foreign capital group	58	16.4a	47	5.5b	105	8.6
	Independent firm	251	70.9a	764	88.6b	1 015	83.5

Note: Each letter (a, b) denotes a subset of categories whose column proportions (Bonferroni method) do differ significantly from each other at the 0.05 level.
Source: Own calculations in IBM SPSS 21 based on data for Polish food processing industry from questionnaire PNT-02 for 2008–2010.

cal classification model used to predict a binary response from a binary predictor) were constructed.

In order to minimized the number of variables factor, Oblimin rotation with Kaiser normalization [Kaiser 1958] was used. The Bartlett's test of sphericity [Bartlett 1954] was applied to test the null hypothesis that the variables are uncorrelated in the population. Kaiser-Meyer-Olkin (KMO) test was used to measure the sampling adequacy. The reliability of the factor analysis results was proven with the Cronbach's α.

One-way ANOVA Linear Model Univariate Analysis with Bonferroni post hoc was used in order to verify statistically significant differences in innovation barriers importance.

Based on the analysis of critical values between parameters, a hierarchy of barriers determining innovation performance as well as international competitiveness was established.

Detailed description and operationalization of variables is presented in Table 2.

Table 2. Description and construction of variables

Variable	Description and construction of variables
1	2
	Filter variable – "Innovation Activity "
EntInnoAct	"1" if the firm introduced product innovation; "0" otherwise and/or "1" if the firm introduced process innovation; "0" otherwise
	Variable – "Sales orientation of firms"
Local Market	Filter "1" if the firm declared sales on local / regional (within country) market during the three years 2008–2010 and final declaration if this geographic areas was largest market in terms of turnover during the three years 2008–2010
Domestic Market	Filter "1" if the firm declared sales on national (other regions of country) market during the three years 2008–2010 and final declaration if this geographic areas was largest market in terms of turnover during the three years 2008–2010

Table 2 cont.

1	3
EU, EFTA and EU candidate countries	Filter "1" if the firm declared sales on other European Union (EU), EFTA, or EU candidate countries markets during the three years 2008–2010 and final declaration if this geographic areas was largest market in terms of turnover during the three years 2008–2010
Other Markets	Filter "1" if the firm declared sales on all other countries markets during the three years 2008–2010 and final declaration if this geographic areas was largest market in terms of turnover during the three years 2008–2010
Latent variable – "Innovation Performance	
ProdInno	"1" if the firm introduced product innovation; "0" otherwise
ProcInno	"1" if the firm introduced process innovation; "0" otherwise
Latent variable – "Innovation Barriers"	
InnoBarrFin	A count if a firm declared a highly important economic factor of hampering innovation activities such as: the lack of funds within the enterprise or group; lack of finance from sources outside the enterprise; innovation costs too high
InnoBarrMarkKnow	A count if a firm declared a highly important factors of hampering innovation activities such as: the lack of qualified personnel; the lack of information on technology; the lack of information on markets; the difficulty in finding cooperation partners for innovation; markets dominated by established enterprises; uncertain demand for innovative goods or services; no need to innovate due to the innovation introduction in the prior period; no need to innovate due to no demand for innovations

Source: Own calculations in IBM SPSS 21 based on data for Polish food processing industry from questionnaire PNT-02 for 2008–2010.

RESULTS

Logistic regression results for the relationship between the implementation of innovation and sales destinations of firms will be broken down into "local market" (within the home country), "domestic (national) market"; "EU, EFTA or EU candidate country (EU/ /EFTA)"[1] and „other markets". Another logistic regression models will be constructed in order to investigate the influence of financial as well as market/knowledge related barriers on both the innovation activities and sales orientation of surveyed firms.

Results show, that there is positive relationship between introduction of process innovation and sales on "other markets" (B = 0.53). The probability of being in a group of Polish firms selling on "other markets" increases by a bit less than twice (Exp(B) = = 1.69) with each additional indication for the process innovation. Other relations were not statistically significant.

This leads to the conclusion that hypotheses H1b was supported for sales on "other markets", whereas H1a about the possible relation between introduction of product innovation and international sales orientation, was rejected. For details see Table 3.

Factor analysis of innovation objectives using Oblimin rotation (KMO = 0.886; $x^2(36) = 8079.95$; $p < 0.001$) allowed to determine 2 underlying factors which explain

[1]Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Ireland, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Slovakia, Switzerland, Turkey, Spain, Sweden, the United Kingdom.

Table 3. Results of logistic regression for the relation between the introduction of product and process innovation and the market of sales for enterprises from Polish food processing industry in 2008–2010, split for local, domestic, European Union and other foreign markets, results for *Active Innovators*, N = 354

Type of innovation	Target market							
	local market		domestic market		EU, EFTA and EU candidate markets		other markets	
	B	Exp (B)	B	Exp (B)	B	Exp (B)	B	Exp (B)
Product (*ProdInno*)	0.29	1.33	0.65^a	1.92	0.36	1.43	0.40b	1.50
Process (*ProcInno*)	0.41	1.50	0.56a	1.74	0.35	1.42	0.53*a	1.69

B – Logistic regression estimate of the predictor; Exp(B) odds ratio for p at the level of: $p < 0.10$, *$p < 0.05$, **$p < 0.01$, *** $p < 0.001$. Note: Each letter (a, b) denotes a subset of categories whose column proportions (Bonferroni method) do differ significantly from each other at the 0.05 level; ^ – statistical tendency.
Source: Own calculations in IBM SPSS 21 based on data for Polish food processing industry from questionnaire PNT-02 for 2008–2010.

74,48% of the Variance. The first factor named – "market and knowledge barriers" (*InnoBarrMarkKnow*) explains 60.01% (Crombach's $\alpha = 0.910$) of the Variance, the second one – "financial barriers" (*InnoBarrFin*) explains 14.47% (Crombach's $\alpha = 0.888$) of the Variance (details see Table 4).

Table 4. Rotation Matrix for innovation barriers of firms from Polish food processing industry, results for the whole sample, N = 1216

Type of innovation barrier	Component	
	InnoBarrMarkKnow	*InnoBarrFin*
Lack of information on technology	0.919	×
Lack of information on markets	0.916	×
Lack of qualified personnel	0.863	×
Difficulties in finding cooperation partner	0.825	×
Market dominated by established firms	0.640	×
Uncertain demand for innovative goods or services	0.579	×
Lack of funds within firms or group	×	0.903
Innovation cost too high	×	0.888
Lack of finance from sources outside firm	×	0.858

Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization.
Source: Own calculations in IBM SPSS 21 based on Polish CIS 2008–2011 for food processing industry.

The group of "market/knowledge barriers" (*InnoBarrMarkKnow*) consists of such obstacles as: lack of information on technology; lack of information on markets; lack of qualified personnel; difficulties in finding cooperation partner; market dominated by established firms; uncertain demand for innovative goods or services; whereas the group of "financial barriers"(*InnoBarrFin*) covers: lack of funds within firms or group, lack of finance from sources outside firm; too high cost of innovation.

There are significant differences in perception of those two groups of innovation barriers by firms of different level of innovation performance (*Non Active Innovators* and *Active Innovators*). Although for both groups "financial barriers" (*InnoBarrFin*) are more important that "market/knowledge barriers" (*InnoBarrMarkKnow*), the financial ones are more important for *Active Innovators* whereas those related to the market/knowledge obstacles are perceived as slightly more important by *Non Active Innovators*. Details presented in Table 5.

Table 5. Perception of financial and market/knowledge innovation barriers

Group		Mean	Std. Deviation	N
InnoBarrFin	*Active Innovators*	1.64a	0.96	354
	Non Active Innovators	1.35b	1.12	862
	Whole sample	1.43	1.08	1 216
InnoBarrMarkKnow	*Active Innovators*	0.91a	0.71	354
	Non Active Innovators	1.02a	0.99	862
	Whole sample	0.99	0.92	1 216

Each subscript letter denotes a subset of categories whose column proportions (Bonferroni method) do differ significantly from each other at the 0.05 level.
Scale: "1" not important; "2" average importance"; "3" highly important".
Source: as in Table 4.

The relation between both financial (*InnoBarrFin*) and market/knowledge (*InnoBarrMarkKnow*) related barriers and introduction of innovation show, that they have significantly important influence on introduction of both product (*ProdInno*) as well as process innovation (*ProcInno*) by firms from Polish food processing industry.

For both types of innovation, "financial barriers" (*InnoBarrFin*) have more significant impact on introduction of innovation than "market/knowledge related barriers" (*InnoBarrMarkKnow*). Details see Table 6.

Table 6. Results of logistic regression for the relation between the perception of financial and market/knowledge innovation barriers and introduction of product and process innovation in 2008–2010 by firm from Polish food processing industry, results for *Active Innovators*, N = 354

Type of innovation barriers	*InnoProd*		*InnoProc*	
	B	Exp (B)	B	Exp (B)
InnoBarrMarkKnow	0.29**a	0.75	0.39***b	0.68
InnoBarrFin	0.32***a	1.38	0.51***a	1.66

B – Logistic regression estimate of the predictor; Exp(B) odds ratio for p at the level of: $p < 0.10$, *$p < 0.05$, **$p < 0.01$, *** $p < 0.001$.
Each subscript letter denotes a subset of categories whose column proportions (Bonferroni method) do differ significantly from each other at the 0.05 level.
Source: as in Table 4.

The above mentioned results of logistic regression allows us to support hypotheses H2a and H2b.

Another logistic regression model were built in order to verify the relation between both "financial" (*InnoBarrFin*) and "market/knowledge-related barriers" (*InnoBarrMarkKnow*) and market orientation of firms from Polish food processing industry. The results revealed, that there is statistically significant relation between "financial barriers" and market orientation of surveyed firms, also this related to external markets. Based on the above, the hypothesis H3 has been supported for financial barriers influence. Details see Table 7.

Table 7. Results of logistic regression for the relation between the perception of financial and market/knowledge innovation barriers and the market of sales for enterprises from Polish food processing industry in 2008–2010, split for local, domestic, European Union and other foreign markets, results for the whole sample, N = 1216

Type of innovation barrier	Target market							
	Local market		Domestic market		EU, EFTA and EU candidate countries'		„Other markets"	
	B	Exp(B)	B	Exp(B)	B	Exp(B)	B	Exp(B)
InnoBarrMarkKnow	–0.13b	0.88	0.01b	1.01	–0.08b	0.930	–0.09b	0.91
InnoBarrFin	0.39a	1.46	0.19a	1.21	0.19a	1.21	0.20a	1.28

Each subscript letter denotes a subset of categories whose column proportions (Bonferroni method) do differ significantly from each other at the 0.05 level.
Source: as in Table 4.

CONCLUSIONS

Taking the above results, it can be argued, that they do not confirm the re-orientation of firms from Polish food processing industry toward gaining differentiation-based international competitive advantage resulting from product innovation. It seems that surveyed firms still base their strategies on international markets on cost/price advantage resulting, among others, from introduction of process innovation.

The importance of financial and market/knowledge related barriers for the introduction of both product and process innovation as well as internationalisation (in case of financial barriers) show, that there is a striking need for both improving financial standing of firms as well as their knowledge base. Deeper analysis may reveal which type of financial obstacles – those related to lack of financial resources within the firm or those coming from external sources are perceived as more important obstacles for both: innovation performance as well as internationalisation of firms from Polish food processing industry.

Certain limitations of study provide opportunities for future research. The research setting is restricted to the medium and big enterprises, and the results cannot be transferred towards the small firms, which sill constitute the majority of Polish food processing industry.

Also analysis based on single-period PNT-02/CIS panel limits the opportunities to assess the long-term trends of the causal effects under study. The limitations of the paper are also caused by the structure of the PNT-02/CIS questionnaire itself, like for example lacking information regarding firm age, share of foreign equity, strategic motives for exporting.

Nevertheless, the analysis provides some hints for further research of connections between innovation and market orientation as well as the impact of innovation barriers on both innovation performance and international competitive advantage of firms.

REFERENCES

Baldwin J., Lin Z., 2002. Impediments to advanced technology adoption for Canadian manufacturers. Research Policy 31(1), 1–18.

Bartlett M.S., 1954. A note on multiplying factors for various chi-squared approximations. Journal of the Royal Statistical Society B, 16.

Biernat-Jarka A., Grzymska E., 2010. Bariery wzrostu innowacyjności przedsiębiorstw w Polsce na przykładzie firm sektora MSP. Acta Scientiarum Polonorum, Oeconomia 9(1), 23−28.

Bleaney M., Wakelin K., 2002. Efficiency, innovation and exports. Oxford Bulletin of Economics and Statistics 64, 3–15.

Buse S., Tiwari R., Herstatt C., 2010. Global innovation: An answer to mitigate barriers to innovation in small and medium-sized enterprises? International Journal of Innovation and Technology Management 7(3), 215–227.

Clausen T.H., Pohjola M., 2009. International competitiveness: internal capabilities and open innovation as sources of export performance. MICRO-DYN, EU Sixth Framework Programme, Working Paper 05/09.

Firlej K., Makarska A., 2012. Działania innowacyjne firm przemysłu spożywczego jako element ich strategii, Folia Pomeranae Universitatis Technologiae Stetinensis. Oeconomica 68, 37–46.

Gourlay A.R., Seaton J.S., 2004. UK export behavior at the firm level. Economic Issues 2, 3–20.

Guijarro-Madrid A., Garcia D., Van Auken H., 2009. Barriers to innovation among Spanish manufacturing SMEs. Journal of Small Business Management 47(4), 465–488.

Gutkowska K., Żakowska-Biemans S.M., Sajdakowska M., 2009. Preferencje konsumentów w zakresie możliwych do zastosowania innowacji w produktach tradycyjnych. Żywność. Nauka. Technologia. Jakość 3(64), 115–125.

Halpern L., 2007. Literature survey on the links between innovation, competition, competitiveness, entry & exit, firm survival and growth. MICRO-DYN, EU Sixth Framework Programme. Working Paper, 02/07.

Iammarino S., Sanna-Randaccio F., Savona M., 2009. The perception of obstacles to innovation. Foreign multinationals and domestic firms in Italy. Revue d'Economie Industrielle 125, 75–104.

Juchniewicz M., 2011. Determinanty konkurencyjności przemysłu spożywczego. In: Studia Ekonomiczne. Zeszyty Naukowe Wydziałowe Uniwersytetu Ekonomicznego w Katowicach. Przegląd Wybranych Zagadnień Rozwoju Ekonomiczno-Społecznego, 173–180.

Kaczorowska J., 2009. Innowacyjna działalność produktowa polskich przedsiębiorstw przemysłu spożywczego. Zeszyty Naukowe SGGW w Warszawie. Problemy Rolnictwa Światowego 50–57.

Kaiser H.F., 1958. The varimax criterion for analytic rotation in factor analysis. Psychometrika 23.

Larsen P., Lewis A., 2007. How Award-Winning SMEs Manage the Barriers to Innovation, Creativity and Innovation Management 6(2), 142–151.

Lewandowska M.S., 2012. Bariery finansowe a sprawność innowacyjna polskich przedsiębiorstw. In: Znaczenie innowacji dla konkurencyjności międzynarodowej gospodarki. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Poznaniu 246, 350–362.

Mohnen P., Rosa J., 2004. Les obstacles a l'innovation dans les industries de services au Canada. CIRANO Scientific Series. Retrived from http://www.cirano.umontreal.ca/publication/documents.html [Accessed 08.04.2014].

Montobbio F., 2003. Sectoral patterns of technological activity and export market share dynamics. Cambridge Journal of Economics 27, 523–545.

Nieć M., 2011. Bariery wprowadzania innowacji w przedsiębiorstwach przetwórstwa przemysłowego w latach 2002-2010. Roczniki Nauk Rolniczych, Seria G, 98, 4, 23–35.
Okoń-Horodyńska E. (Ed.), 2008. Tendencje innowacyjnego rozwoju polskich przedsiębiorstw. Instytut Wiedzy i Innowacji, Warszawa.
Okoń-Horodyńska E., Zachorowska-Mazurkiewicz A. (Eds), 2007. Innowacje w rozwoju gospodarki i przedsiębiorstw, siły motoryczne i bariery. Instytut Wiedzy i Innowacji, Warszawa.
PNT-02 2008-2010. Retrived from http://form.stat.gov.pl/formularze/2010/passive/PNT-02.pdf.
Oslo Manual, 2005. Guidelines for Collecting and Interpreting Innovation Data, OECD Publishing.
Saatcioglu O.Y., Ozmen O.N., 2010. Analyzing the barriers encountered in innovation process through interpretive structural modeling: Evidence from Turkey. Yonetim Ve Ekonomi 17(2), 207–225.
Soete L., 1981. A general test of technology gap trade theory. Weltwirtschaftliches Archiv 117, 638–660.
Stojcic N., Hashi I., Telhaj S., 2011. Innovation activities and competitiveness: empirical evidence on behaviour of firms in new EU member states and candidate countries. CASE Network Studies and Analyses 424.
Wziątek-Kubiak A., Balcerowicz E., Pęczkowski M., 2009. Differentiation of innovation behavior of manufacturing firms in the new member states – Cluster analysis on firm-level data, MICRO-DYN, EU Sixth Framework Programme. Working Paper 08/09.
Wziątek-Kubiak A., Pęczkowski M., 2013. Sources and barriers of persistence of innovation of Polish manufacturing companies. Research Papers of Wrocław University of Economics 305, 872–883.
Zalewski R.I., Góralski K., 2011. Innovativeness of Food Production Enterprises in Wielkopolskie Voivodship from the Perspective of Producers. Acta Scientiarum Polonorum, Oeconomia 10(1), 139−148.

BARIERY INNOWACJI A MIĘDZYNARODOWA KONKURENCYJNOŚĆ PRZEDSIĘBIORSTW POLSKIEGO PRZEMYSŁU SPOŻYWCZEGO. WYNIKI BADAŃ

Streszczenie. Innowacyjność ma kluczowe znaczenie w budowaniu przewagi konkurencyjnej przedsiębiorstw. Napotykają one jednak na wiele barier, które zakłócają ich działalność innowacyjną. Celem niniejszego opracowania jest ocena wpływu barier innowacji na sprawność innowacyjną, jak również międzynarodową konkurencyjność przedsiębiorstw polskiego przemysłu spożywczego. Analizę przeprowadzono na reprezentatywnej próbie 1216 średnich i dużych przedsiębiorstw (PKD, sekcja C 10), biorących udział w badaniu GUS PNT-02 za lata 2008–2010. Wyniki wskazują na statystycznie istotne zależności między barierami innowacyjności, sprawnością innowacyjną i poziomem międzynarodowej konkurencyjności badanych firm. W celu weryfikacji hipotez badawczych w badaniu zastosowano wiele zaawansowanych metod statystycznych. Wyniki wskazują na złożoność interakcji pomiędzy analizowanymi zmiennymi, prowadząc do wniosku, że proces innowacji nie może być zredukowany wyłącznie do relacji liniowych.

Słowa kluczowe: innowacyjność, konkurencyjność, polskie przedsiębiorstwa, kwestionariusz CIS

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NETWORK INTERCONNECTIONS AS A DRIVER OF INNOVATIVENESS IN MEAT INDUSTRY COMPANIES

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Abstract. The article presents the outcomes of survey research conducted among meat industry companies located in the Wielkopolska Voivodeship. The aim of the research was to diagnose the innovativeness in these companies and to identify its determinants and particularly – the significance of network interconnections. It was concluded on the basis of the research that the majority of companies did not participate in modern network interconnections. This is caused by a number of factors, both on the part of the companies and on the part of other subjects – potential network participants. It mainly results from not noticing the scale of advantages resulting from network interconnections and insufficient knowledge in this area. Although companies remain open to cooperation with the science sector and other institutions dealing with the transfer of knowledge, they do not take actions aimed to initiate it.

Key words: economy, transfer of knowledge, cooperation

INTRODUCTION

A great deal of research shows that building competitive advantage of companies rests on their innovativeness, though not merely limited to product and process innovativeness, but also the innovativeness of marketing and organisational changes indicating newness. Newness is the driving force behind the improvement in the market position of companies, especially under the circumstances of predominant globalisation of investments, R&D, science and technology. This is vital for Polish companies which, in this respect, have been occupying final positions among EU countries for a few years. Therefore, Poland is still included in the group of catching-up-countries, aiming to diminish the differences between them and highly innovative countries.

The food-and-farming sector has each and every chance to improve its competitiveness through innovative efforts. Although it has been modernised in the last decade, it is

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still not using all the opportunities for increasing its effectiveness, which results, among others, in its relatively low degree of competitiveness on foreign markets. The key factor which affects its further development is the disintegration of producers, which, in turn, impede economies of scale. At the same time, lack of essential consolidation processes results in insufficient level of using the production potential. The condition of the meat industry has also been affected by the decrease in the number of livestock, increasing prices of raw materials and, consequently, increased production costs that result in a lower degree of competitiveness on foreign markets.

Although the modernisation of the meat industry has resulted in widening the assortment of products and increasing the turnover in international trade, it is still characterised by insufficient use of all the available opportunities for improving its profitability and competitiveness. In order to improve the competitiveness in the sector, it is essential to intensify innovative efforts on the part of companies [Szopik 2007, Szybiga, Prymon 2009]. Therefore, it is vital to identify both internal and external determinants of innovative efforts, defining the meaning of network interconnections between science and economy, particularly in the area of transferring new technological, production- and product-oriented solutions [Rosińska 2005, Plawgo, Klimczuk 2009].This justifies the need to conduct research that would allow to define the degree to which the companies participate in network interrelations, possible limitations and opportunities for their successful overcoming in the future [Ratajczak-Mrozek 2009, Łuczka-Bakuła 2011]. They can also be used as a basis for further recommendations for public authorities that can be understood as an institutional factor supporting the innovative efforts of companies.

DATA AND RESEARCH METHODOLOGY

In order to diagnose the innovative efforts of companies in the meat industry in the Wielkopolska Voivodeship as the source of an improvement in their competitiveness as well as in order to identify its external and internal determinants and particularly – network interconnections, survey research was conducted in 2012. The survey questionnaire was sent to 109 companies operating in the meat industry, dealing with animal slaughter and processing meat, located in the area of the Wielkopolskie Voivodeship. 52 surveys were received of which 48 were approved for final analysis. The survey questionnaire consisted of 19 one- and multiple-choice questions. The dominating part was built with closed questions with the possibility to give answer in „Other" field in case, when the provided cafeteria was not sufficient. Part of the answers contained a five-point scale from 1 (the lowest assessment) to 5 (the highest assessment).

Building competitive advantage requires from companies innovative efforts, understood as a range of activities of scientific (research), technical, organisational, financial and commercial nature whose aim is to compile and implement new or significantly improved products or processes, while the goods or processes are new, at least from the point of view of the company that introduces them [The innovative activity… 2006]. The diagnosis of these activities was conducted on the basis of identifying the follo wing problems: (1) the signs of innovative efforts in companies; (2) their external and internal

determinants; (3) the meaning of network interconnections as an element of improving innovation capability in companies.

RESEARCH OUTCOMES AND DISCUSSION

Nearly a half of the studied companies were established in the first half of the nineties while one in five companies were set up before 1990. The companies established most recently only accounted for relatively low percentages (10.4% were set up between 2000 and 2004 and 4.2% were created between 2005 and 2009). The analysed group included mostly small companies, employing between 10 and 49 people (52.1%). Every third company belonged to medium companies (29.2%) while only a relatively small percentage of the studied companies (8.3%) were big companies (Fig. 1). The meat industry is dominated by small enterprises, which results in the dispersion of supply and, consequently, leads to a low use of production potential.

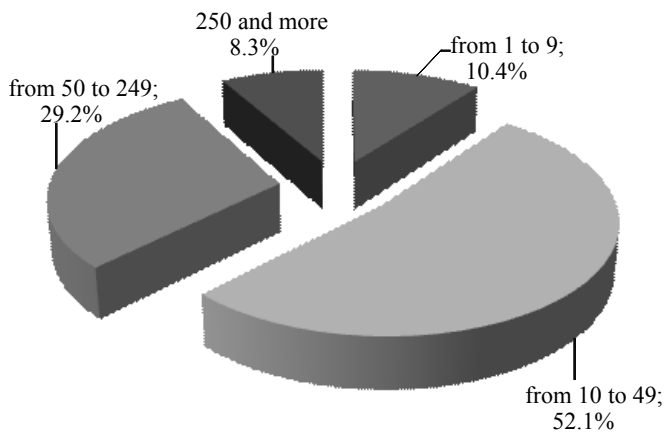

Fig. 1. The distribution of the analysed companies according to their employment figures
Source: Author's own study.

As regards the legal and organisational form, the analysed group was dominated by the one-man businesses (47.9%). Each one in five companies was a registered partnership (20.8%), while limited liability companies constituted 14.6% of all companies and only 4.2% of companies were joint stock companies.

The first group of research questions included the companies' evaluation of financial, material and organisational assets in the context of their influence on innovative efforts in enterprises. The firms evaluated the influence of particular resources on innovative efforts using a five-grade scale (1 represented the lowest evaluation while 5 stood for the highest evaluation). As far as financial resources are concerned, the most commonly accepted statement was that implementing innovations involves bearing high costs (Table 1). The research shows that it is mainly equity that is the source of financing innovation and, consequently, its insufficiency constitutes one of the major barriers of making innovative

Tabele 1. Evaluation of company's resources and innovative efforts

Evaluation of resources	Mean score (scale 1–5)
Financial resources in companies	
Implementing innovations involves high costs	4.1
Introducing innovation is connected with a very high financial risk	3.6
The company does not possess financial resources inevitable to implement innovation	3.0
Material and organisational resources in companies	
The company's machinery stock is insufficient to introduce product and process improvements	3.4
The company possesses material resources to implement the innovation	2.6
The company possesses R&D background for creating innovativeness	2.2

Source: Author's own study.

efforts by companies. Therefore, in order to handle the problem, companies should switch to obtaining external funds and take actions aimed to include other subjects in financing innovations at various stages of their implementation. Each one in three companies perceives innovation as linked with high financial risk. Companies do not usually own resources which would enable them to design and implement innovation on their own. However, it is an interesting fact that in order to minimise the risk of innovation, the companies do not consider new opportunities of using venture capital or business angels or using EU funds for financing the modernisation of the food industry. It seems that the low level of activity in accessing external funds is mainly caused by two factors:

- firstly, adopting defensive strategies, especially by small companies, in times of market weakening and increasing risk of investment connected with a general deterioration of the financial condition of the meat industry;
- secondly, the information policy of the subjects of financial markets and insufficient level of information concerning the possibilities of external funding of investments.

As far as material and organisational resources are concerned, most companies believed that the machinery stock which they possessed was sufficient to introduce product and process improvements (3.4). On the other hand, possessing appropriate R&D background was only indicated by a relatively small proportion of respondents (mean score 2.2).

With reference to investment outlay, the purchase and modernisation of machines and appliances accounted for the highest percentage (65.8%), followed by the purchase of software (57.9%) which was connected with the needs of accounting department and for stock management purposes rather than in order to improve decision making processes (Fig. 2). Innovative efforts also consituted a relatively high percentage. These included innovation-focused professional trainings for employees (39.5%). The rank of expenditure on increasing the competence and skills of employees (third position) can be seen as evidence of perceiving human capital as important in making innovative efforts, which can result in positive changes in this respect in the future. One in five companies also indicated that expenses were made on purchasing of projects and pattern design. On the other hand, expenditure on research and development in companies was only made in 7.9% of companies. It is mainly caused by the lack of research infrastructure in small and medium-sized companies, which were the majority of participants in the research.

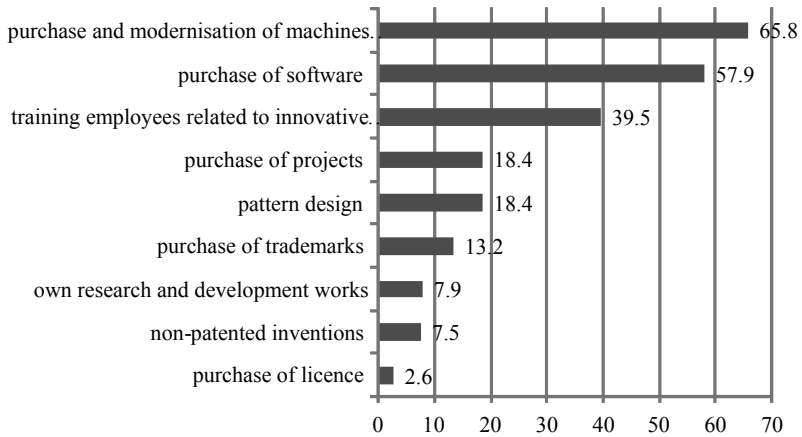

Fig. 2. Investment outlays (%)
Source: Author's own study.

Companies make innovative efforts in order to achieve certain aims, mainly relevant to their strategic objectives. The analysed companies indicated three main objectives (Fig. 3): improving the quality of their products (84.8%), increasing or maintaining their market research (76.1%) and increasing their product range (58.7%). Respondents stressed that they paid a lot of attention to the quality of their products due to the fact of its increasing role in buyer decision processes and, consequently, in reaching competitive advantage. Success in gaining competitive advantage results, in turn, in maintaining market share or its increase. The majority of companies focus on maintaining their market share, which is not easy given the local scope of their sales and increasing competition on the part of huge commercial chains offering products at lower prices. Another aim of companies' innovative efforts is increasing their product range, which is also perceived as an efficient tool of gaining competitive advantage.

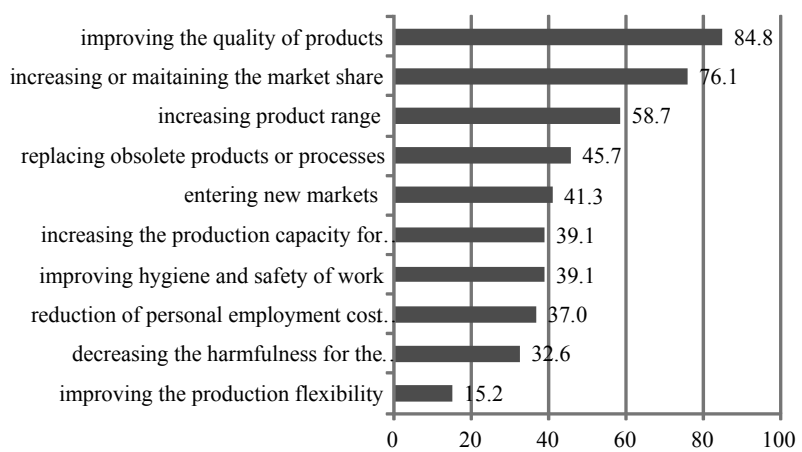

Fig. 3. Aims of companies' innovative efforts (%)
Source: Author's own study.

The majority of the studied companies (66%) evaluated their innovative efforts as average and a relatively low percentage (23.4%) described it as minimal. As regards various sorts of innovation, in the last three years, most of the studied companies have implemented product innovations, focusing mostly on improving the taste and colour of their products. Innovative changes in most companies included organisation and marketing department while only a low proportion of these changes were connected with production processes. All sorts of innovation were implemented on a microeconomic scale and their newness was limited to the area of a given company. At the same time, it is worth noticing that when it comes to organisational and marketing innovations, including "soft" elements, they were qualified intuitively [Kalinowski 2008]. For example, some companies treated exchanging the label on packaging as marketing innovation while others claimed that this activity could not be regarded as innovative.

Among the extrinsic determinants of innovative efforts, formal and informal network interconnections between the company and its environment are becoming increasingly important. These include various forms of cooperation with different subjects, aimed to boost, implement and diffuse innovation. The complexity of the phenomenon of innovation in contemporary economy makes it necessary to involve a number of subjects, not merely from the areas of business and science, but also from the area of finance and consulting [Martin 2010]. More than a half of the surveyed companies (53.2%) claimed that they had made innovative efforts in cooperation with other subjects in the last three years. However, the cooperation mainly included vertical links within the value chain, with suppliers and customers. Business support centres only played a minor part, which was indicated by nearly one in four studied companies. The range of cooperation with research and development centres and universities can be perceived as slightly worrying, as it was only indicated by 13.3 and 6.7% respectively (Fig. 4).

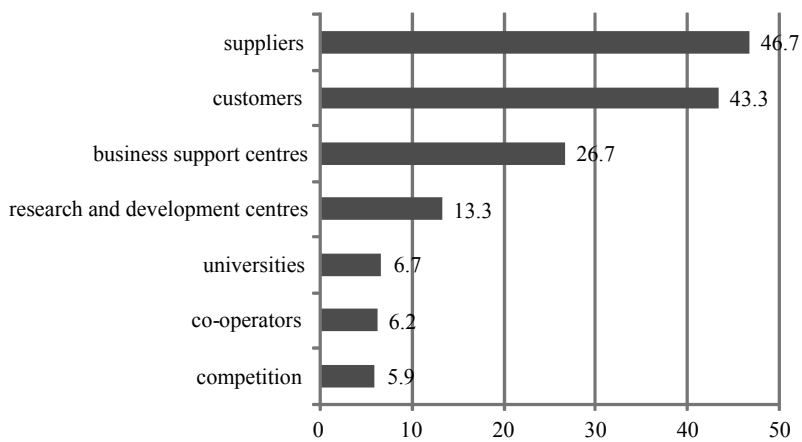

Fig. 4. Cooperation in the area of innovation in the last three years (%)
Source: Author's own study.

Companies' expectations concerning the cooperation with business support centres show that for most of them (65.9%) it is most important to obtain information about new technologies (Fig. 5). Every one in two enterprises would appreciate it if training

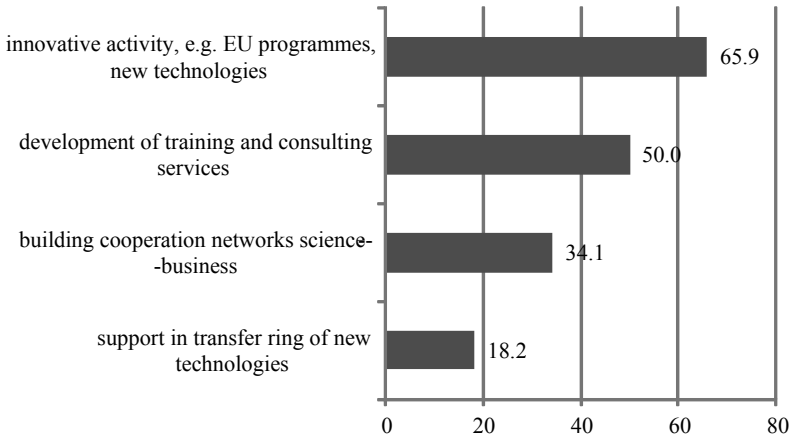

Fig. 5. Companies' expectations concerning their cooperation with business support centres with respect to innovation (%)
Source: Author's own study.

and consulting services were developed by these centres. A relatively low percentage (34.1%) of companies expect the centres to build interconnection networks between science and economy, which is mainly caused by not perceiving any advantages from it and by a relatively low level of knowledge in this area. Research shows that the process of gaining competitive advantage and increasing the degree of companies' innovativeness (including SME) is going to be influenced by network interconnections between economy and science more and more increasingly. Knowledge transformation and its adaptation for the needs of economy requires cooperation on the part of the subjects creating knowledge with the subjects creating economy. It is particularly true of small and medium-sized enterprises which are in general unableto create innovations on their own in global economy.

Research shows that opportunities provided by cooperation of companies with various scientific institutions are not used in the meat industry. Hence, increasing competitiveness in this sector may be in question. It is worth considering why there are hardly any initiatives to introduce a system of branch cooperation between business and science. Companies encounter difficulties to find appropriate partners in the research and development sector. This is frequently the case in the SME sector, whose companies do not possess sufficient human and financial resources to take actions aimed to introduce innovation. It seems that one of the causes of limited cooperation is a shortage of incentives that would encourage scientific organisations to commercialise research outcomes, which, in turn, is a consequence of the passive policy of public authorities in this respect and particularly, lack of legal regulations that would stimulate the commercialisation of science by, e.g. creating favourable fiscal conditions [Kłopotek 2002, Rychtowski 2004].

The conducted research shows (Fig. 6) that the greatest percentage of companies would appreciate it if they were given the opportunity to cooperate with universities and research and development institutions in preparing analyses and expert opinions (53.7%). They also see the need to educate highly qualified specialists (51.7%). Companies show

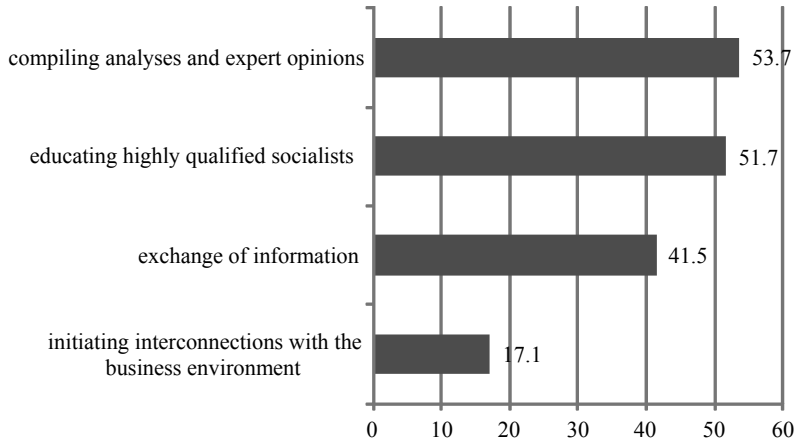

Fig. 6. Expectations of cooperation with universities and research and development institutions as regards innovation (%)
Source: Author's own study.

quite substantial differences as regards their expectations of initiating interconnection networks with business by scientific institutions. Most companies are not interested in these activities because they do not see the need of such cooperation. This means that the companies create a demand barrier and limit the transfer of knowledge. This confirms the necessity to popularise the best examples of cooperation between R&D institutions and companies and the need to create systematic solutions for the whole country in order to stimulate commercialisation of knowledge and technologies as tangible benefits of cooperation between business and science. It would also prove of value to popularise the new concept of cooperation between subjects, i.e. network approach, created to improve the generation of knowledge and innovations in economy [Kozioł-Nadolna 2011].

CONCLUSIONS

The innovativeness of economy and its subjects is currently one of the major determinants of its capability to handle the increasingly competitive environment, both in Poland and globally. The barriers of low innovativeness of Polish companies in the meat industry can be traced both in endogenous factors and in the factors that originate in the closer and further environment. Innovativeness requires a considerable involvement of human, material and financial resources, which can prove insufficient on the level of a single company. Therefore, the process of its initiation should be supported by various subject creating network interconnections between science and economic practice. Therefore, network interconnections should be addressed when looking for one of the ways to improve the innovativeness of the meat industry companies, which face a huge challenge imposed by the future decisions connected with restructuring. The conducted research shows that the majority of companies do not participate in modern network interrelations stimulating investments. It is caused by numerous factors, both on the companies' part

and on the part of other subjects, potential participants of these networks. The main cause is failure in noticing the benefits which can result from network interconnections and insufficient knowledge in this area. Although companies expect cooperation in this respect with scientific centres and other centres dealing with the transfer of knowledge, they do not take any actions to initiate it.

REFERENCES

Kalinowski T.B., 2008. Innovations in the light of the research outcomes. The Quality Problems 10, 29.

Kłopotek A., 2002. Proinnovative policy as the condition of the increase of company competitiveness. In: S. Jurek-Stępień (Ed.) Competitiveness-Marketing-Information. IFGN, SGH, Warsaw.

Kozioł-Nadolna K., 2011. Network relationships of companies. Internet Financial Quarterly "e-Finance" 1.

Łuczka-Bakuła W., 2011. The role of network relationships in company innovativeness. The Scientific Annals SERiA XIII, 2.

The Main Statistical Office, 2006. The innovative activity of manufacturers in years 2002–2004. Warsaw, 77.

Martin M., 2010. The trends and priorities of development of small and medium innovative enterprises in Poland. In: T. Baczko (Eed.) The report on the innovativeness of Poland's economy in year 2009. PAN, Warsaw, 65–66.

Plawgo B., Klimczuk M., 2009. Innovativeness and network relationships of companies. In: K. Meredyk, J. Sikorski, K. Turowski (Eds) Innovativeness of the Polish economy. The level and conditions of growth, The State High Professional School. Suwałki, 305–306.

Ratajczak-Mrozek M., 2009. The main features of companies network relationships (network approach). The Organization and Managing, 4, 75–76.

Rosińska M., 2005. The network approach as an element of the concept of improving companies competitiveness in modern economy (on the example of strategy of the European Union entrepreneurship development) In: J. Bilski, A. Kłysik-Uryszek (Eds) Poland on the market of European community. The world economy at the edge of XXI century. Lodzkie Science Society, Lodz.

Rychtowski S., 2004. External and internal conditions of innovativeness and the situation of companies in Poland. The Science Works of Economic Academy in Wroclaw, 1045, 589–591.

Szopik K., 2007. Companies innovativeness in the face of improvement of economy competitiveness. Scientific Book of the Szczecin University 453, 296–297.

Szybiga K., Prymon K., 2009. Competitiveness and innovativeness of meat industry companies, FOOD. Science. Technology. Quality 3(64), 84–85.

POWIĄZANIA SIECIOWE JAKO STYMULATOR INNOWACYJNOŚCI PRZEDSIĘBIORSTW PRZEMYSŁU MIĘSNEGO

Streszczenie. W artykule przedstawione zostały wyniki badań ankietowych przeprowadzone wśród przedsiębiorstw przetwórstwa mięsnego zlokalizowanych na terenie województwa wielkopolskiego. Celem badań była diagnoza działalności innowacyjnej tych przedsiębiorstw oraz identyfikacja jej uwarunkowań ze szczególnym uwzględnieniem znaczenia powiązań sieciowych. Na podstawie przeprowadzonych badań stwierdzono, że większość przedsiębiorstw nie uczestniczy w nowoczesnych powiązaniach sieciowych stymulujących

działalność innowacyjną. Jest to spowodowane wieloma przyczynami leżącymi po stronie samych przedsiębiorstw, ale także innych podmiotów będących potencjalnymi uczestnikami owych sieci. Główną tego przyczyną jest niedostrzeganie skali korzyści, jaka może wynikać z powiązań sieciowych oraz niedostatecznej wiedzy na ten temat. Wprawdzie przedsiębiorstwa oczekują współpracy w tym zakresie z nauką i innymi ośrodkami zajmującymi się transferem wiedzy, ale nie podejmują działań zmierzających do jej inicjowania.

Słowa kluczowe: gospodarka, transfer wiedzy, współpraca

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ORGANIZATION AND CHANGES OF LOCAL GOVERTNMENT FINANCE SYSTEM IN VIEW OF IMPLEMENTATION OF PARTICIPATORY BUDGETING

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Abstract. According to the Constitution of the Republic of Poland, the basic unit of local government in the country is a commune (Constitution of the Republic of Poland 1997). Since 27 May 1990 the term "commune" is used to refer to every basic unit of local government. In the relevant literature one can find the idea that "...the primary task of local government is to provide adequate living conditions to local communities with regard to population growth, progressive urbanization, dangers to the natural environment of humans and the willingness to provide equal living conditions to the populations of cities and rural areas" [Kosek-Wojnar, Surówka 2007]. For this reason, it seems essential for the local government finance system, in particular with regard to the possibility of funding the growing needs and expectations of the local communities, to continuously improve and become more flexible when it comes to the adjustment to the changing surroundings. The principal aim of this paper was to demonstrate new possibilities in the organization and performance of the tasks of local authorities offered by the implementation of participatory budgeting in Poland.

Key words: commune, residents, budget, participation, expenditure

INTRODUCTION

Participatory budgeting is a new form of dialogue with the citizens who are allowed to decide how to allocate public funds with regard to selected projects [Hartz-Karp 2012]. According to the Act on local governments and the Act on public finance, councillors, directly elected representatives of local communities, are those who, as a rule, are entitled to decide how the budget is allocated.

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In the participatory budgeting, the citizens may submit proposals and then vote. The project proposal which receives the highest number of votes is then granted funding from the local budget [Thompson 2012].

First participatory budgeting processes were developed in America and Southern Europe, and the best known and, at the same time, the most successful case is the implementation of this kind of budgeting in Porto Alegre, Brazil. The participatory budgeting there has been practiced since 1989.

In 2011 Sopot became the first Polish city implementing participatory budgeting [Kłębowski 2013]. Since then, the city has seen dozens of investments, both large-scale and small ones, and the residents feel they play significant role in the public debate on the city's appearance and its functionality. Shortly after the success of participatory budgeting in Sopot, the system has been introduced in other Polish cities.

MATERIAL AND METHODS

In this paper the Authors attempted to present selected formal and legal aspects of the organization of financial economy and implementation of participatory budgeting in local governments in Poland (since 2004 until 2014). In the study the Authors analyzed the provisions of legal acts, relevant literature and the experiences of local authorities who decided to develop participatory budgeting process. The theory is presented as a description, with the use of tables, schemes, charts and pictures. The aim of the paper was accomplished through elemental and casual analysis and deductive and inductive reasoning.

RESULTS AND DISCUSSION

Local goverment tasks and role in community management

All the actions undertaken by local government are performed by local authorities which are chosen by election. Commune council is the legislative and supervisory body, commune head (in rural communes) or mayor (in communes whose local authorities reside in a city within the territory of the commune) or a city mayor (in cities with a population of at least 100,000) is the executive body. The most important tasks of the commune council include budget and commune statute adoption. The executive body manages the current affairs of the local government, represents the commune and implements the resolutions of commune council [Borodo 2006].

Figure 1 shows a classification of tasks of communes. The internal tasks are financed with the commune's own financial resources and on the basis of the presumption of competence. This means that the commune performs all the tasks which are not reserved to districts and provinces. It is worth to mention that a detailed list of tasks imposed on communes can be found in the Local Government Act (Act of 8 March 1990 on local governments). The obligatory tasks, singled out from the internal tasks, concern basic public services with which the citizens have to be provided by the commune. To be able to do so, the commune should secure an adequate amount of financial resources. The optional

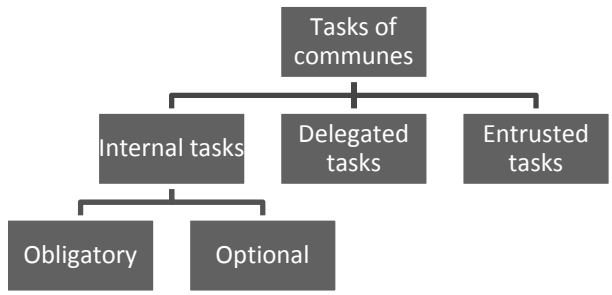

Fig. 1. The tasks of communes
Source: Authors' on the basis of: M. Podstawka (Ed.). Finanse. Instytucje, instrumenty, podmioty, rynki, regulacje (Finance. Institutions, instruments, subjects, markets, regulations). Wydawnictwo Naukowe PWN, Warszawa, 151–152.

tasks are accomplished to the extent allowed by the remaining financial resources at the disposal of the local government. The delegated tasks are those tasks which are delegated to the communes by central authorities. These authorities have to provide the funds indispensable to perform such tasks, and the communes are obliged to complete them. The entrusted tasks are fulfilled through an agreement or contract with central authorities or other local government entities [Podstawka 2010].

The internal tasks of communes concern, above all, the so-called public utilities which include, among others, providing the residents with energy sources and water, providing fire protection systems, road lightning, and the basic social services in the area of education, social care and health care [Sochacka-Krysiak 2008]. Thus, the tasks of local government inevitably entail budgetary expenditure.

The amount of expenditure depends on the regulations connected with the scope of public tasks performed. Current expenditures which ensure commune's operation hold a leading position. These include: purchase of goods and services, assistance to natural persons, debt service and the remuneration of employees. The aim of capital expenditures is to upgrade assets of the local government, and at the same time ensure social and economic development in a commune [Borodo 2006].

According to the Act of 27 August 2009 on public finance, a budget, an annual plan of expenditure and revenue, income and costs of the entity is a foundation of financial economy of a commune.

One should notice, however, that a budget adopted as an act concerns state finances, while the most important financial plan which concerns local finances assumes the role of a resolution. A well-prepared budget shows the availability of internal sources of funding and commune's demand for external sources. Moreover, it allows local authorities to control and verify the expenditures. For the residents of a commune it may serve as an indicator of the efficiency of decision-making processes of local government.

While a draft of budget resolution is prepared by the executive body, the resolution itself is passed by the commune council and has to take place before the year preceding the financial year ends. One should remember that communes are supervised by the Regional Chambers of Accounts with regard to their finances. The Chambers supervise

budgeting procedures, collection and usage of public funds. For more information see A. Miszczuk's "Gospodarka samorządu terytorialnego (The economy of local government)" [2007].

The local government and the decentralization process

The notion and specificity of local finances, with regard to widespread decentralization, take on a new significance in the light of public finances.

According to Kornberger-Sokołowska [2009], the term decentralization means: "delegating public tasks to be performed at a local and regional levels. As a result, such an organization structure of the public administration is founded, where alongside the central entity there are other entities entitled and obliged to perform some part of the public tasks". The advantages of decentralization have been emphasized in the literature many times. Among the most significant one could list efficient recognition of priority needs by local authorities, lack of anonymity of the said authorities which makes them feel more responsible for the consequences of their decisions in an attempt to earn the trust of a local community. It also increases the control over expenditure and the efficiency of operation [Ziółkowska 2005]. Decentralization connected with the right to generate income exercised by local authorities is called an income decentralization. One can also analyze this process from the perspective of expenditure. Expenditure decentralization is connected with the right of local governments to manage the acquired public funds. Decentralization is also a result of the subsidiarity principle which says that the public tasks and the relevant expenses should be handled at the lowest possible level, as close to the citizens as possible, satisfying the requirements of efficiency and reasonable costs at the same time [Czudec 2010].

The situation of Polish public funds contributed to the introduction of a new Act of 27 August 2009 on public finance. In practice, the Act contains solutions with regard to performance-based budgeting. The prudential standards concerning the government debt were reinforced both for the country and the local governments. For more information see C. Kosikowski's, "Reforma finansów w Polsce w świetle nowej ustawy o finansach publicznych (Reform of finances in Poland in the light of the new public finance law)" [2009].

Changes in legislation and numerous amendments of the existing acts introduced after 1989 resulted in increased instability of the public finance system, in particular local finance systems, in this period.

Financing system and sources of income at the commune level

To enable commune governments to operate efficiently it is essential to provide a solid fundraising system and instruments, i.e. a financing system. In this system, the sources of budgetary funds which point to the resources of local governments play a key role. They are divided into internal sources – created within the commune system, and external sources – created outside such systems [Dylewski et al. 2006]. The financing systems of local governments are inseparably connected with the quality of public goods offered by local governments at a given time [Jones 1996]. This is why it is vital for the created financing mechanism to be able to guarantee the provision of goods and services of a specified quality.

The funds which the commune uses for its operation consist of public income and public revenue. The former are more permanent and prevail.

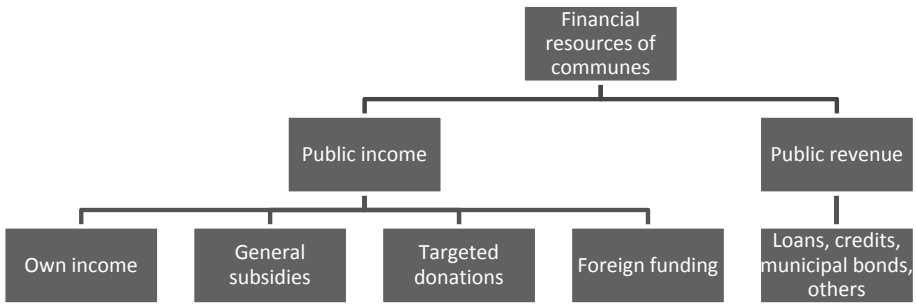

Fig. 2. Classification of financing resources of communes
Source: Authors' work on the basis of: Act of 13 November 2003 on the income of local governments.

Own income is "the inflow whose source is located within the territory of a given commune and has been allocated to the commune in whole and for an indefinite period" [Guziejewska 2005].

This type of income comprises, first and foremost, public levies such as taxes and charges.

According to the Act, taxes and charges which constitute a source of income for communes include (Act of 13 November 2003 on the income of local governments):

- property tax,
- land tax,
- forestry tax,
- vehicle tax,
- personal income tax, paid as constant amount tax,
- inheritance tax,
- tax on civil law transactions,
- stamp duty
- toll,
- visitor's fee,
- dog fee,
- service charge.

The taxes of local governments apply only to commune budgets. As a consequence of the system, since 1998 the communes in Poland are the only local governments to have their own tax income. Districts and provinces which came into being in 1999 took over part of the responsibilities of the government, thus leaving the scope of responsibilities of communes untouched. Hence, the communes did not have the income from local taxes taken away [Mackiewicz-Łyziak 2008].

Apart from the items listed, own income includes the income generated by local governments or their organizational units during their operation and the income earned from fixed and current assets which belong to a commune. The Act lists, as follows (pursuant to Art. 4):

- income generated by budgetary units and the income of commune budgetary entities and auxiliary enterprises of commune budgetary units,
- income from commune assets,
- inheritance, legacy or donation for the benefit of a commune,
- income from financial penalties and fines,
- 5.0% of the income generated for the benefit of state budget with regard to the performance of tasks connected with government administration and other tasks which the Act mentions,
- interests earned from loans granted by a commune,
- interests earned from overdue amounts which constitute income for a commune,
- interests earned from the amounts accumulated by a commune in a bank,
- donations from the budget of other entities of local government.

External sources of funds, such as subsidies from the central budget, are also an essential instrument used by the state at the time of decentralization of public funds. However, they will not be considered in this paper.

The analysis of the organization of the income system which is carried out in this part of the article is justified. For whenever one speaks of participatory or traditional budgeting, it should be noted that the citizens, as a rule, do not exert influence over the type and amount of the income (with the exception of levies imposed on residents as a result of local referendum). There are no consultations between the local authorities and the community on the material and practical scope, rates (or taxation scale) or tax reliefs and exemptions. They are non-refundable, compulsory and unilateral. Only the expenditure is subject to negotiation with the citizens.

Participatory budgeting in Poland

As has been already mentioned, the first participatory budgeting process in Poland was developed in Sopot. From May to November 2011 the residents had a chance to submit their own proposals of future projects, which in their opinion could be financed from the local budget. The next stage involved a voting procedure in order to make a decision on the recommendation of the project which would be funded in the end.

To engage the residents in the decision-making process concerning the expenditures from the local budget, information on the procedure were made available on the Town Council website, in the local press, the radio and the municipal newsletter. 18,000 leaflets were printed and distributed among the households of Sopot (in the first stage they included information on the procedure and project proposal application form, then a voting paper and further information about consultation meetings). Additionally, posters were put up throughout the city, e.g. on advertising columns.

From the 30 August to 14 October 2011 the residents could submit their own proposals on special forms. The proposals were not limited to any thematic range or any particular level of expenditure – the residents could submit a proposal from any area and regardless of its costs[1]. In practice, the proposals which were submitted were mainly small-scale investments which concerned infrastructure and renovations. One should observe though

[1]http://partycypacjaobywatelska.pl/uploads/pdf/praktyka_budzet_obywatelski_sopot.pdf [accessed 14.04.2014].

that a lack of limitations placed on the proposals is not an ideal solution. It has to be remembered that local governments operate under strict legal and formal conditions (scope of internal tasks). Independence in the process of decision-making with regard to expenditure is not equal with unlimited freedom. In 2014 the residents of other local community – Kraśnik commune (Lubelskie province) – had a chance to experience it. The residents chose an investment which concerned roof covering of a new sacral building. The investment, however, could not be realized as it is outside the scope of commune tasks[2]. The Regional Chamber of Accounts rejected this part of the resolution of the commune councillors which concerned the roof covering of the sacral building.

In Sopot there were in total 500 proposals and comments on the 2012 budget submitted by 200 residents of the city. It took almost two weeks to process all the applications. Each of the four electoral areas of the city had several proposals selected and there were 22 proposals which concerned the whole city. The proposals were put on the voting paper in two tables along with their estimated costs and anticipated completion date. The first table contained small-scale investments in the immediate proximity which could be completed in 2012 and whose total cost would not exceed PLN 1 million, such as: construction of new playgrounds, minor renovations of engineering structures, acquisition of new benches etc. The second table contained more elaborate projects aimed at the benefit of the whole city, such as: new bus connection between Sopot and Gdańsk, modernization of the animal shelter, construction of a Contemporary Art Museum. Each resident could select 5 projects which concerned the immediate proximity and the whole city, which in his opinion were the most important.

The Town Council received in total 2448 completed surveys, out of which 136 were delivered through the Internet (Sopot has a population of around 33,000 which means the turnout of voters was around 7%).

With the votes counted by a special committee which consisted of councilors and clerks, the Mayor decided to recommend the realization of investments of a total value of PLN 7 million of the 2012 budget. The projects concerned:

- waste sorting,
- subsidizing and renovation of the animal shelter,
- road renovation and construction of bicycle trails,
- constructing facilities for families, playgrounds – sports facilities.

In 2012 Elbląg, Gorzów Wielkopolski, Poznań and Zielona Góra followed the example of Sopot. Moreover, ideas inspired by the participatory budgeting formed at the level of provinces (Podlaskie province), quarters (in Gdańsk, Lublin and Kraków) and institutions.

The last case concerns participatory budgeting which was implemented in one of the cultural centers in Warsaw – Śródmieście Cultural Centre. On 24 November 2012 a final meeting concerning the expenses of this institution in 2013 took place. During the meeting the residents selected one of the projects prepared at earlier meetings. The project 4

[2]http://krasnik.naszemiasto.pl/artykul/dach-na-kosciele-w-krasniku-rio-stwierdzi-niewaznosc,2260106,t,id.html [accessed 06.05.2014].

"Creativity and Education" which was selected emphasized the need to involve the residents and the importance of activities which encourage creativity[3].

In 2012 1564 residents of Sopot participated in the survey (almost 400 of whom participated via the Internet) and in 2013 there were 2151 votes (556 persons voted via the Internet).

This year, with the fourth edition of the participatory budgeting, the voting took place between 9 and 22 June. In total 4800 voters have participated, which makes 15.14% of the residents who are entitled to vote. 2982 voters participated via the Internet.

In all the years considered, the residents voted mainly on investments in the area of infrastructure. Since 2012 to this day 56 investments and projects were realized thanks to the participatory budgeting process of a total value of over PLN 10 million. This year, the residents of Sopot had PLN 4 million to use, half of which was dedicated to general investments in the city, the other half to local investments (half a million for each electoral area).

The residents of Warsaw will for the first time have a say in the expenditure of the municipal budget, in the scope of 2015 quarter budgets. The total amount at the disposal of the residents will not be lower than 0.5–1.0% of the quarter budget. According to the schedule, the proposals were submitted during the first months of 2014 and were subsequently discussed. In the end they were put to the vote of the residents. The voting took place between 20 and 30 June 2014. In each of the 63 areas, the voting papers were different and contained different projects to choose from. The residents could vote in three ways[4]:

- on the website: www.twojbudzet.um.warszawa.pl/glosowanie;
- by completing a form (which they placed in a ballot box in the Borough Hall or other designated places);
- by sending their vote in a letter at the address of a Borough Hall chosen in view of the place of residence of the voter with a note "Participatory budgeting 2015" (the latest possible date of the letter's arrival was 30 June).

The residents could select at most 5 projects, granting each of them a vote of equal value. In a few of the boroughs (Białołęka, Ochota, Wola) it was possible to vote both for projects which concerned the whole quarter (at most 5), and projects aimed at particular areas (at most 5) – thus, in these boroughs one could vote for 10 projects in total.

CONCLUSIONS

The introduction of participatory budgeting in Poland is a new phenomenon. The participation of residents in decision-making on part of the expenditure from the local budget raises many questions and is not free of errors. In order to understand rules of operation of budget, one should know more about own tasks of the self-government, the possibility of financing them and provisions of the local law. The first misunderstandings are occurring at the stage of planning the budget procedure, since citizens do not have a full economic

[3]http://konsultacje.um.warszawa.pl/budzet_partycypacyjny_DKS [accessed 30.04.2014].
[4]https://twojbudzet.um.warszawa.pl/o-bud-ecie-partycypacyjnym/o-bud-ecie-partycypacyjnym [accessed 30.05.2014].

and legal awareness and offices are often awkward (or reluctant) for sharing this knowledge. This knowledge is often given for residents in the incomprehensible form, therefore they are not having chances of free acquainting oneself, understanding and concluding. The ignorance of these procedures is leading for incorrect accepting assumptions of participatory budget what in consequence the impossibility of his realization causes (for example Kraśnik commune).

Increase awareness of the inhabitants and the necessary changes in the law in the long run it will avoid mistakes and inaccuracies.

A properly constructed budget not only creates the possibility of co-residents of the priorities of many years of development of the commune, but also strengthens democratic institutions. Helps build and integrate the local community. This contributes not only to the financial performance but also to citizen participation and to introduce a more open and horizontal way of making key decisions. On the example of other countries can point out that to a large extent also facilitates the integration of local communities.

REFERENCES

Act of 8 March 1990 on Local Governments (Journal of Laws 2001 no. 142, item 1591).

Act of 13 November 2003 on the income of local governments (Journal of Laws 2003 no. 203, item 1966, as amended).

Act of 27 August 2009 on Public Finance (Journal of Laws 2009 no. 157, item 1240).

Borodo A., 2006. Samorząd terytorialny: system prawno-finansowy (Local self-government: legal-financial system). Wydawnictwo LexisNexis, Warszawa, 43, 241, 243.

Czudec A., 2010. Znaczenie transferów z budżetu państwa w kształtowaniu sytuacji finansowej jednostek samorządu terytorialnego (Significance of transfers from the state budget in the forming of the financial standing of self-government units). Finanse Komunalne 1–2, 103.

Dylewski M., Filipiak B., Gorzałczyńska-Koczkodaj M., 2006. Finanse samorządowe. Narzędzia, decyzje, procesy (Self-government finances. Instruments, decisions, processes). Wydawnictwo Naukowe PWN, Warszawa 71–73.

Guziejewska B., 2005. Kontrowersje w ocenie niezależności finansowej samorządu terytorialnego (Controversies in the evaluation of the financial independence of the local self-government). Samorząd Terytorialny, 7–8, 63.

Hartz-Karp J., 2012 „Laying the Groundwork for Participatory Budgeting – Developing a Deliberative Community and Collaborative Governance: Greater Geraldton, Western Australia." Journal of Public Deliberation 2, Available at: http://www.publicdeliberation.net/jpd/vol8/iss2/art6.

Jones B., 1996. Public Sector Financial Management. McGraw Hill, London, 95.

Kłębowski W., 2013. Budżet partcypacyjny. Krótka instrukcja obsługi (Participatory budget. Short operating manual), Instytut Obywatelski w Warszawie, Warszawa.

Konstytucja Rzeczypospolitej Polskiej (Constitution of The Republic of Poland) of 2 April 1997 (Journal of Laws 1997 no. 78, Item 483), Art. 164

Kornberger-Sokołowska E., Mekiński M., 2009. Finanse jednostek samorządu terytorialnego (Finance of local self-government). In: E. Chojna-Duch, H. Litwińczuk (Eds), Prawo finansowe (Financial law). Wydawnictwo Wiedza i Praktyka, Warszawa 153, 155.

Kosek-Wojnar M., Surówka K., 2007. Podstawy finansów samorządu terytorialnego (Bases of finance of the local self-government). Wydawnictwo Naukowe PWN, Warszawa 21.

Kosikowski C., 2009. Reforma finansów w Polsce w świetle nowej ustawy o finansach publicznych (Reform of finances in Poland in the light of the new public finance law) Państwo i Prawo 12.

Mackiewicz-Łyziak J. et. al., 2008. Wyrównywanie dochodów jednostek samorządu terytorialnego. Możliwości wykorzystania w Polsce doświadczeń niemieckich krajów związkowych (Leveling incomes of self-government units. Possibilities of exploiting experience of German federated states in Poland). Instytut Badań nad Gospodarką Rynkową, Warszawa 31.

Miszczuk A., Gospodarka samorządu terytorialnego (The economy of local government) Wydawnictwo Naukowe PWN, Warszawa 48, 57–58.

Podstawka M. (Ed.), 2010. Finanse. Instytucje, instrumenty, podmioty, rynki, regulacje (Finance. Institutions, instruments, subjects, markets, regulations). Wydawnictwo Naukowe PWN, Warszawa, 151–152.

Sochacka-Krysiak H. (Ed.), 2008. Gospodarka finansowa jednostek samorządu terytorialnego w warunkach decentralizacji zarządzania sektorem publicznym (Financial management of self-government units in conditions of the decentralization of the management in public sector). Wydawnictwo Oficyna Wydawnicza SGH, Warszawa, 41.

Thompson N.K., 2012 "Participatory budgeting – the Australian way. Journal of Public Deliberation 8, 2. Available at: http://www.publicdeliberation.net/jpd/vol8/iss2/art5.

Ziółkowska W., 2005. Finanse publiczne. Teoria i zastosowanie (Public finances. Theory and Application). Wydawnictwo Szkoły Bankowej, Poznań, 221.

ORGANIZACJA I PERSPEKTYWY ZMIAN SYSTEMU FINANSÓW LOKALNYCH W ASPEKCIE WPROWADZENIA BUDŻETU PARTYCYPACYJNEGO

Streszczenie. Zgodnie z treścią Konstytucji Rzeczpospolitej Polskiej podstawową jednostką samorządu terytorialnego jest gmina. W literaturze przedmiotu odnaleźć można pogląd, iż: „...podstawowym celem działalności samorządu jest stworzenie warunków życia wspólnotom lokalnym w związku ze wzrostem m.in. liczebności ludności, postępem urbanizacyjnym, zagrożeniami dotyczącymi środowiska naturalnego człowieka, chęcią zrównania poziomu życia ludności miast i wsi" [Kosek-Wojnar, Surówka 2007]. Rozwój ten oraz zmiany zachodzące w otoczeniu społeczno-gospodarczym powodują ciągłe zwiększenie skali oferowanych dóbr publicznych. Dlatego też niezbędne wydaje się, aby finanse samorządowe, a w szczególności możliwości finansowania stale rosnących potrzeb i oczekiwań społeczeństwa lokalnego ulegały ciągłej poprawie i dostosowywaniu się do otoczenia. Głównym założeniem artykułu było ukazanie obecnych oraz nowych możliwości w organizacji i realizacji zadań jednostek samorządu terytorialnego poprzez wprowadzenie budżetu partycypacyjnego w Polsce.

Słowa kluczowe: gmina, mieszkańcy, budżet, partycypacja, wydatki

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COMPARISON OF APPROACHES TO REDUCE AND PREVENT FROM CHILDREN OBESITY WITHIN THE CONTEXT OF UK AND POLAND

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Abstract. The problem of obesity relates to adults as well as children and teenagers. In the last decade it has become a crucial public health problem all over the world. It has been acknowledged by various organisations and bodies globally, nationally, and regionally, such as for example: World Health Organisation, European Union Commission, national governments, National Health Service, and other non-governmental institutions, as well as media. The paper focuses on two case studies on children obesity prevention and reduction activities in the example of two selected European countries: the United Kingdom, and Poland. Findings for the analysis were obtained from variety of sources such as: various literature, reports of Organisation of Economic Cooperation and Development (OECD), World Health Organisation (WHO), National Health Service (NHS) – National Obesity Observatory, British Broadcasting Corporation (BBC), Chief Sanitary Inspectorate (Główny Inspektorat Sanitarny – GIS). The results highlight the significance of understanding the current situation regarding obesity and the future trends of this problem, emphasising that investment in programmes and activities to fight it and prevent from it will bring benefits to countries and societies from an individual perspective as well as globally.

Key words: childhood obesity, UK, Poland

INTRODUCTION

It has been observed over the last three decades that the obesity epidemic has become a staggering reality. This problem concerns not only adults but starts with even very young children and teenagers [Mazur et al. 2006, Lob-Corzilius 2007, DeMattia and Denney 2008, Huberty et al. 2010]. Growing obesity trends can be observed both in de-

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veloping and developed countries globally. It has been claimed by the Overseas Development Institute [Obesity quadruples..., 2014] that 1 in 3 people worldwide is overweight, whereas according to the Health at a Glance Report [2013] 1 in 5 children suffers from overweight problem, including obesity.

According to the World Health Organisation there was a huge worldwide prevalence of childhood overweigh and obesity starting from the level of 4.2% in 1990, reaching the level of 6.7% in 2010, with a prognosis of 9.1% in 2020 [De Onis et al. 2010, cited in Engelman 2014].

Within the European Union (EU) countries similar trends can be noticed, however, differences can be observed among some of the countries. According to OECD data [2013] the highest proportion of obese adult population can be found in the UK, which as of 2009 amounted to 1 in 4. In Italy it amounted to 1 in 10. In terms of obesity amongst children in the EU it can be noticed in Greece and Italy – about 40% of children. In the UK around 1 in 4 children suffer from obesity, and in Poland this amounts to 1 in 6 children.

The overweight and obesity problem was acknowledged by WHO and EU Commission, as well as respective governments of each country. Several initiatives and actions have been undertaken to address the social awareness of the problem and to imply methods to prevent and fight against the growing obesity. Within the specific governmental National Programmes Preventing Overweight and Obesity, which are treated as civilisation diseases, a number of other local governmental and non-governmental organisations and bodies were involved by giving their support.

LITERATURE REVIEW

Overweight and obesity studies

Within the academic literature to date, there has been a number of studies investigating the problem of overweight and obesity both globally and in a specific context of a selected country. Obesity has been acknowledged as a worldwide problem for both developed and developing countries in the case of not only adults but also young children and teenagers.

It is worth explaining what is meant by ‘overweight’ and ‘obesity’. According to OECD [2013] ‘overweight and obesity are defined as excessive weight presenting health risks because of the high proportion of body fat. The most frequently used measure is based on the body mass index (BMI), which is a single number that evaluates an individual’s weight in relation to height (weight/height with weight in kilograms and height in metres). Based on the WHO classification, adults with a BMI between 25 and 30 are defined as overweight, and those with a BMI over 30 as obese’. According to British NHS [2014], BMI is a measure of whether you’re a healthy weight for your height. They distinguish among overweight (a BMI of 25 to 29.9), obese (a BMI of 30 to 39.9), and severely/morbidly obese (a BMI of 40 or above). In Poland GIS adopts definitions of ‘overweight’ and ‘obesity’ in line with OECD.

There are high levels of concern about childhood obesity, with obese children being at higher risk of poorer health both in the short and longer terms [Butland et al. 2007,

cited in Rees et al. 2011]. This is alarming because BMI in childhood is associated with a number of diseases and health problems, for example: type 2 diabetes, arterial hypertension, fat metabolism, coronary heart disease, breathing difficulties, orthopaedic handicaps, mental health problems, such as low self-esteem, depression, quality of life, body dissatisfaction, behavioural problems, and premature death in adulthood [Lob-Corzilius 2007, Griffiths et al. 2010, Park et al. 2012].

Diet linked to income and time impoverishment. Consumption of fastfoods and high level of sugar and fat

The respective literature and research points out a number of reasons, which contributed to such a rapid development of overweight and obesity globally. One of the main reasons, which could be indicated are the changes in the nutritional and physical activity habits of people. Today's diet typically contains a high proportion of fat and protein with a considerable decrease of fiber consumption. In terms of drinks consumers tend to choose sweetened ones, for example Coca-Cola. This usually results in high caloric intake of energy-dense foods, which fail to reduce hunger sensations [Lob-Corzilius 2007].

The reason why consumers decide to select such unhealthy option is usually caused by the relatively low cost of such food. However, this is not the only motive, as this option is not selected exclusively by families of the poorer end of the society but also the medium and of high socio-economic background.

We live in very busy times where we tend to suffer from 'time poverty', meaning that we spend many hours working, which results in the reduction of cooking time at home. Families consume meals together very rarely, even it has become accepted that each family member consumes meals alone at different times, which suit them the best. Quite often fast food is perceived as 'time saver' and is selected as an option by families and also some institutions, like for examples schools, giving children no other option.

All of these changes have been found to be associated with a loss of control in food intake. Even the characteristic of meal being a pleasant social or family event has lost its traditional meaning as the number of joint meals becomes smaller.

Change of lifestyle – lack of physical activities, watching TV, playing computer games

Besides the changes in nutritional habits, also daily physical activities and recreational activities have changed dramatically over the past two generations [Lobstein et al. 2004]. Montignac [2010] claims that the obesity at children is caused by low physical activity, long time watching TV and playing video games.

The development in modern technology (TV, PC, notebook etc.) and the motorisation has greatly contributed to a decrease in physical activity. In the past children were more physically active whereas at present majority of them would have a TV, and PC in their bedroom and would spend many hours being passive. Also the greater use of cars for individual transportation contributed to less physical activity as children are quite often being chauffeured to school rather than walked. Also as a result of urbanisation and a greater traffic a safe use of bicycles and space for running is limited. There is also a decrease in playgrounds where children could spend time actively.

This clearly creates imbalance of energy intake and energy expenditure, which contributes towards obesity [Lobstein et al. 2004].

The results from the Freiburg Children Study [Blinkert 2001, cited in Lob-Corzilius 2007] show some of these issues in the case of Germany. Looking at the data from 1960 it can be seen that more children than cars existed in cities, but this changed considerably in 1990, where there were more than four times as many cars as children. It can be also concluded from the findings of this study that the less dangerous the children's recreational area outside of the apartment was, the more time the children spent outdoors without their parents' supervision. However, when there were no such recreational areas, the amount of media consumption, especially in the afternoon, increased resulting in less physical activity. This led to lower energy expenditure, and gaining on weight.

Ellaway et al. [2005] conducted a study in 8 selected European cities. Their aim of research was to investigate the association between the residential environment and the prevalence of extreme obesity. The results indicated clearly that the more parks and greenery in the area and the cleaner the neighbourhoods were the three times higher was the level of physical activity and 40% lower the likelihood of overweight and obesity was. However, for those who stated that their residential environment contained a lot of litter and had only few green areas, the prevalence of being overweight or obese amounted to as much as 50% or even higher and the likelihood of physical activity was reduced by about 50%.

METHODOLOGY

The aim of the paper is to analyse the problem of children obesity and investigate programs and activities which are designed to prevent and to reduce obesity in the example of the UK and Poland. The objectives of the research were to look at the issues from the worldwide perspective, than narrow it down to the EU, and in the end purely focus on the UK and Polish context. The up-to-date literature on obesity and overweight was analysed thoroughly. The statistical data on overweight (including obesity) among children, prevention and reduction issues of the children obesity activities aspects in Poland and the UK were taken from the official sources such as: reports of the Organisation of Economic Cooperation and Development (OECD), World Health Organisation (WHO), National Health Service (NHS) – National Obesity Observatory, British Broadcasting Corporation (BBC), Chief Sanitary Inspectorate (Główny Inspektorat Sanitarny – GIS). In order to analyze the problem the authors applied descriptive and comparative methods as well as appropriate statistical methods.

RESEARCH ANALYSIS

At present the problem of overweight and obesity is faced by the whole society without any exceptions, such as age, gender or nationality. To a higher degree this issue is prevalent amongst children and teenagers. Overweight or obese children are in a higher risk to suffer from health problems in their adulthood. This can result in orthopaedic

and psycho-sociological problems, such as for example: low self-esteem, depression or a lower quality of life. Obese people are in a high risk of heart diseases and problems with blood circulation, type 2 diabetes, cancer, breathing difficulties and bone-joints issues [Narodowy program… 2009, Health at a Glance 2013].

Table 1 presents an overview of overweight and obesity among children of 2010 or latest years. This data was obtained from control measurements and self-reports collected amongst 15 year old boys and girls. The data presented in the table indicate that on average 23% of boys and 21% of girls from OECD countries suffer from the issue of being overweight (including obesity). Obesity index derived from self-reports indicates 18% for boys and 11% for girls from OECD countries. However, the self-reported data indicates underestimation of the observed tendencies.

Table 1. Overweight (including obesity) among children, 2010 (or latest years)

Specification	Measured overweight (including obesity) among children, 2010 (or latest years)			Self-reported overweight (including obesity) among children, 2009–2010	
	Various ages			15-year-olds	
	Age range	Boys (%)	Girls (%)	Boys (%)	Girls (%)
1	2	3	4	5	6
Greece	10–12	44	38	28	13
Italy	8–9	36	34	22	11
New Zealand	13–17	34	34	–	–
Slovenia	10–12	32	23	23	13
United States	5–17	30	30	34	27
Mexico	5–17	28	29	–	–
Hungary	10–12	28	23	19	11
Portugal	7	27	29	19	15
Chile	6	26	27	–	–
Spain	10–12	26	24	19	12
Canada	5–17	25	24	24	17
Korea	5-17	25	20	–	–
Israel	16–19	24	20	–	–
Finland	12	24	19	17	11
China	0–18	24	16	–	–
Japan	12–14	23	17	–	–
Luxembourg	18	23	22	22	12
UK (England)	5–17	22	26	12	11
Australia	2–16	22	24	–	–
Ireland	7	21	23	16	12
India	5–17	21	19	–	–
Iceland	14–15	21	13	20	13
Germany	5–17	20	20	18	10
Switzerland	6–13	19	17	14	7
Austria	8–12	18	18	19	11
Russian Federation	7–11	17	17	10	6

Table 1 cont.

1	2	3	4	5	6
Netherlands	10–12	17	15	11	5
Belgium	10–12	17	14	15	9
Poland	7–18	17	11	17	10
Denmark	5–8 and 14–16	16	20	10	8
Sweden	7–8	16	18	17	7
Estonia	7	16	16	16	9
Czech Republic	7	16	15	19	10
France	6–15	15	15	13	7
Slovak Republic	6–16	15	15	15	7
Brazil	10–15	15	15	–	–
Norway	10–12	15	14	17	11
Turkey	11–18	13	19	17	6
South Africa	14–18	11	29	–	–
Indonesia	6–12	11	8	–	–
OECD33	×	23	21	18	11

Source: Health at a Glance 2013 – © OECD 2013.

According to the data obtained from control measurements, the obesity problem is more often faced by boys rather than girls. The highest differences can be observed in Slovenia, China, and Ireland. Simultaneously, above 30% of boys and girls in Greece, Italy, New Zealand, and the USA suffer from obesity. In Turkey and South Africa girls presented higher indices of obesity than boys. Similar tendencies can be observed when looking at the data obtained from self-reports. One in four children in the UK and 1 in 6 children in Poland suffer from overweight (including obesity). However, the problem of obesity is encountered more often by boys in Poland (17% of boys) and girls in the UK (26% of girls).

CASE STUDY – POLAND

The obesity problem is faced quite often not only by adults but also children all over the world, including Poland. In order to fight against this epidemic a number of international initiatives took place. Poland has also joined them actively. In response to the guideline of 57th World Health Assembly, which was implemented by the Polish government, as well as in support of the European Commission initiative promoting healthy nutrition and physical activity at the UE level, presented in the Green Book, Poland implemented National Programme Preventing from Civilisation Illnesses [Narodowy program… 2009].

Since 1992 every 4 years the Mother and Child Institute, as a part of international project, performs Health Behaviour School-aged Children (HBSC) controlled measurement, which examines health behaviour of children and asks children and teenagers to perform self-tests on the body mass. The Report HBSC 2010 indicate that, 18.3% chil-

dren at the age of 11–12 suffer from overweight, and 3.4% are obese[1]. In the range of 13–14 years old – 14.9% are overweight, and 3.4% obese, whereas among 15–16 year old children – 11.6% are overweight, 2.7% are obese. In the group of 17–18 years old teenagers 10.9% are overweight, and 2.5% are obese. The problem of overweight and obesity are faced more often by boys than girls [Problem nadwagi…. 2011].

The results of research made by The Children's Memorial Health Institute (CMHI)[2], indicate that 18.6% of the examined boys and 14.5% of the examined girls suffer from overweight, including obesity. Within the range of 7–18 years old the proportion of Polish children suffering from excessive body mass amounts to 20%. For the last 10 years a tendency of levelling the proportion between overweight and obese children in cities and in the country has been observed. Before that this issue was mainly faced by teenagers in cities [Oblacińska 2013].

The examinations performed by CMHI enabled to estimate the links between causes of the obesity problem among children and teenagers. The results indicate that the most commonly the obesity problem is faced by children who live in cities above 500 thousand inhabitants, especially in the case when both parents are working, and in the country, where parents are farmers. Financial prosperity is also a factor which can be linked to obesity, however this issue is almost never faced by the really high earners. The excessive body mass can be also linked to being in possession of an own room, computer, and television, as well as being the only child. Children who do not walk to school, but are chauffeured by their parents, are usually also more inclined towards overweight and obesity.

20% of boys, who are the only child in the family, suffer from being overweight. Such problems occur twice less in the case of boys who have three brothers or sisters. In the case of girls such difference is smaller but also significant. 15% of girls, who are the only child in the family, suffer from being overweight, and 9% of those who have brothers or sisters. The results also indicate that overweight and obesity is 'contagious'. Bad eating habits are spread very easily among children, so if a child is surrounded by similar age children, who have excessive body mass, after some time the child also starts putting on weight. This can be also observed in the case of children, whose parents suffer from overweight or obesity problem.

The strategies to prevent from obesity are usually undertaken by public authorities with support from several governmental and non-governmental organisations. In order for these activities to be efficient they should include: education policy, health policy, transport and urban policy, audiovisual and media policy, fiscal policy, as well as social policy [Osiecka-Chojnacka 2012].

Chief Sanitary Inspector (Główny Inspektorat Sanitarny) and the Polish Federation of Food Industry (Polska Federacja Producentów Żywności Związek Pracodawców – PFPZ), following the recommendations of the World Health Organization (WHO) in the range of diet, physical activity and health, as well as following the recommendations of the European Commission White Book, titled 'A Strategy for Europe on nutrition, overweight and obesity related health issues' for 7 years have led all-Poland education programme

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'Keep fit!', which promotes a balanced diet and physical activity among schoolchildren and teenagers.

The BOŚ Foundation, as a part of their activities, led an educational programme 'Actively for Health'. The aim of this Programme is mainly focused on the extensive and complex education on healthy style of life, in particular healthy nutrition and physical activity. The Foundation organised social campaigns on Polish obesity. The first one in 2010 was entitled 'It's rubbish fattering children' („To śmieci tuczą dzieci"), and in 2012 'I-You-Eat' („Ja-ty-jemy"), which uses very skilfully a play of words implying putting on weight. These campaigns emphasise the problem of obesity and promote healthy nutrition.

Another educational initiative, as a part of fight against obesity among children, was the EU Campaign 'Eat it, Drink it, and Move it – The Tasty Bunch!' („Smakuj, pij i ruszaj się!"). The financial sources came from the EU Budget. This campaign aims at promoting the following EU Programmes 'Fruit at School' and 'Milk at School', which are important initiatives to support balanced diet and healthy eating habits among children. As a part of the EU Campaigns on healthy nutrition 'The Tasty Bunch' („Smakoszki")173 schools in the whole Europe were paid a visit. During 8 weeks 'superheroes' of the Tasty Bunch performance went through Belgium, Northern France, Great Britain, Ireland, Estonia, Lithuania, and Poland, organising competitions and various parties.

CASE STUDY – UK

In the last decade a rapid increase in children obesity could be observed among western countries, in particular in the UK. In order to tackle the issue the National Child Measurement Programme (NCMP) was implemented in the UK to help monitor changes in average body size amongst children who are starting or about to leave primary education [Rees et al. 2011].

According to National Obesity Observatory [NOO 2010] data, in 2008/2009 this classified almost 1 in 10 (9.6%) children aged 4–5 as obese and, for 10–11 year olds, almost 1 in 5 (18.3%).

HSE 2011 report [Eastwood 2013] shows that around 3 in 10 boys and girls aged 2–15 were classed as either overweight or obese (31 and 28% respectively), which is very similar to the HSE 2010 findings (31% for boys and 29% for girls). In 2011/2012, the NCMP data show that around 1 in 10 pupils in Reception class (aged 4–5 years) were classified as obese (9.5%) which compares to around a fifth of pupils in Year 6 (aged 10–11 years) (19.2%). Also, 13.1% of pupils in Reception class and 14.7% of pupils in Year 6 were reported as being overweight. Obesity prevalence was significantly higher in urban areas than in rural areas for both school years, as was the case in previous years.

In terms of physical activity HSE 2011 report indicates that in 2011, 43% of 5–16 year olds' main method of getting to and from school is walking, while the main method for 33% of this age group is being driven to school in a car. Only 2% used a bike to travel to school as their main mode of transport. In 2011/2012, 80% of 5–15 year old children reported they had done some form of competitive sport in the last 12 months. Over three

quarters (77%) had taken part in a competitive sport in school, whilst 37% had taken part outside of school. In terms of diet in terms of 5–15 year old boys, 16% consumed 5 or more portions of fruit and vegetables daily in 2011. Whereas for girls aged 5–15 the figure amounted to 20%.

That awareness has influenced not only researchers to analyse the obesity causes and recommend solutions to improve the situations, but also governments and a number of governmental and non-governmental organisations to create and implement policies, programs, and actions to prevent from of childhood obesity.

In the UK a number of actions were undertaken to fight obesity. The White Paper describes a new approach for public health in England and sets out examples of national level action to help tackle obesity. This includes: continuing to run the National Child Measurement Programme, to enable the local areas have information about levels of overweight and obesity in children, making consumers aware of healthier food choices through the Change4Life3 programme, as well as collaborating close with businesses and other partners via the Public Health Responsibility Deal regarding a healthy diet.

In October 2011, the Department of Health published 'Healthy Lives, Healthy People: A call to action on obesity in England' which explains in more detail how obesity will be tackled in the new public health and NHS systems. In 2011, the UK Chief Medical Officers (CMOs) published revised guidelines for physical activity. To tackle physical inactivity outside school, it was decided that initiatives such as the Change4Life continue to be driven forward (in conjunction with tackling obesity and healthier eating), for example through the 2012 Games4Life summer campaign. Current government also prepared diet recommendations suggesting the families that everyone should eat plenty of fruit and vegetables (at least 5 of a variety each day, which was the spread actively by media, especially TV adverts), plenty of potatoes, bread, rice and other starchy foods, some milk and dairy foods, meat, fish, eggs, beans and other non-dairy sources of protein. Foods and drinks high in salt, fat and sugar should be consumed infrequently and in small amounts [Eastwood 2013].

It needs to be also stressed that the media are also very active in tacking the issue of obesity in the UK. They are very active in communicating stories about the nation's expanding waistlines to the public. According to Hilton et al. [2012], there was a considerable rise in the amount of publications focusing on the obesity issues in the UK in the last decade. According to their study, between 1996 and 2010 a total of 2,414 articles on obesity were published in 7 newspapers they selected for their research in comparison to before 2000 when were less than 40 newspaper articles per year published on obesity.

Moreover, there are a lot of TV programmes discussing these issues and advising how to eat and live healthily and showing real stories of people who lead unhealthy life, which lead either to obesity or anorexia, creating a social awareness. Moreover more and more adverts on healthy life promotion could be seen on TV and heard on radio.

It also should be stressed that some of the global food corporations became active in fighting obesity by formulating some of their processed food products toward healthier options and promoted them in their marketing campaigns. For example, McDonalds gives now a salad as an option for healthy eating.

CONCLUSION AND RECOMMENDATIONS

Overweight and obesity amongst adults, children, and teenagers are becoming an even bigger problem of the 21st century population. Both Poland and the UK joined the group which included countries facing obesity problem among children, which needs to be actioned immediately. The worldwide literature as well as measurements performed on global level and by individual countries, proved that obesity in childhood leads to obesity on adulthood, and is strongly linked with development of civilisation diseases.

Strategies to fight and prevent from obesity are created by the World Health Organisation, the European Union, and individual countries. Public authorities of each country implement these Programmes with support of governmental and non-governmental institutions, for example: in Poland: Mother and Child Institute, Chief Sanitary Inspector, the Polish Federation of Food Industry, and BOŚ Foundation; and in the UK: National Obesity Observatory, National Health Service, Department of Health, and many others.

All of these Institutions undertake several educational and prophylactic actions, such as: measurements on obesity among children and teenagers, promoting healthy nutrition, physical activity and creating conditions to do sport activities. At the same time the media actively support these actions by making them more visible to the public, leading their own educational programmes, which emphasise obesity problem and the methods of fight against it.

It would be worth performing an analysis on a bigger sample of countries and see which of their individual isolated actions to fight and prevent from obesity have been most successful so they could be implemented on a larger scale.

REFERENCES

Blinkert B., 2001. Zerstörte Stadt – zerstörte Kindheit? Umwelt Medizin Gesellschaft 3, 232–241.

Butland B., Jebb S., Kopelman P., McPherson K., Thomas S., Mardell J., 2007. Tackling Obesity: Future Choices – Project Report London: Department of Innovation. Universities and Skills, London.

DeMattia L., Denney S.L., 2008. Childhood obesity prevention: Successful community based efforts. Annals of the American Academy of Political and Social Science 615, 83–99.

De Onis M., Blössner M., Borghi E., 2010. Global prevalence and trends of overweight and obesity among preschool children. Am. J. Clin. Nutr. 92, 1257–1264.

Eastwood P., 2013. Lifestyle Statistics Section Head Health and Social Care Information Centre, Lifestyles Statistics. Statistics on Obesity, Physical Activity and Diet: England. NHS The Information on Health and Social Care.

Ellaway A., Macintyre S., Bonnefoy X., 2005. Grafitti, greenery, and obesity in adults: secondary analysis of European crosses sectional survey. British Medical Journal 331(7517), 611–612.

Engelman C.D., 2014. Toward Personalized Prevention of Obesity: Can Vitamin D Negate the FTO Effect? Diabetes 63, 405–406.

Griffiths L.J., Parsons T.J., Hill A.J., 2010. Self-esteem and quality of life in obese children and adolescents: a systematic review. International Journal Pediatric Obesity 5(4), 282–304.

Health at a Glance 2013. OECD 2013.

Hilton S., Patterson Ch., Teyhan A., 2012. Escalating Coverage of Obesity in UK Newspapers: The Evolution and Framing of the "Obesity Epidemic" from 1996 to 2010. Obesity Journal 20, 8, 1688–1695. Retrieved from www.obesityjournal.org.

Huberty J.L., Balluff M., O'Dell M., Peterson K., 2010. From good ideas to actions: A model--driven community collaborative to prevent childhood obesity. Preventive Medicine 50, 36–43.

Lob-Corzilius T., 2007. Overweight and obesity in childhood – A special challenge for public health. International Journal of Hygiene and Environmental Health 210, 585–589.

Lobstein T., Baur L., Uauy R., 2004. Obesity in children and young people: A crisis in public health. Obesity Reviews 5.S1: 4–85.

Mazur A., Szymanik I., Matusiak P., Malecka-Tendera E., 2006. Rola reklam i mediów w powstawaniu otyłości u dzieci i młodzieży (Advertisements and media importance in obesity development in children and adolescents). Endokrynologia, Otyłość i Zaburzenia Przemiany Materii 2, 1, 18–21.

Montignac M., 2010. Obesity in children Preventive and Treatment Methods. Bucharest, Litera International, 15.

Narodowy program zapobiegania nadwadze i otyłości oraz przewlekłym chorobom niezakaźnym poprzez poprawę żywienia i aktywności i fizycznej na lata 2007–2011. POL-HEALTH (The National Programme for Prevention of Overweigth and Obesity and Chronic Non--communicable Diseases through Improved Nutrition and Physical Activity for the period of 2007–2011). Ministerstwo Zdrowia, Warszawa 2009.

Narodowy program przeciwdziałania chorobom cywilizacyjnym, moduł I „Programu zapobiegania nadwadze i otyłości oraz przewlekłym chorobom niezakaźnym poprzez poprawę żywienia i aktywności fizycznej" (The National Programme for Prevention of Diseases of Civilization Module I "Programme for the prevention of overweight and obesity and chronic non-communicable diseases through improved nutrition and physical activity".). Ministerstwo Zdrowia, Warszawa 2012.

National Obesity Observatory: NOO Data Briefing: Child Weight. 2010. Retrived from http://www.noo.org.uk/NOO_pub/Key_data. [NHS – Obesity 2014]. Retrieved http://www.nhs.uk/conditions/obesity/Pages/Introduction.aspx.

Obesity quadruples to nearly one billion in developing world. BBC 2014. Retrived from http://www.bbc.co.uk/news/health-25576400.

Oblacińska A. (Ed.), 2013. Wspieranie dziecka z nadwagą i otyłością w społeczności szkolnej (Supporting child with overweigth and obesity in the school community). Ośrodek Rozwoju Edukacji, Warszawa.

OECD Factbook 2013. Economic, Environmental and Social Statistics. Retrived from http://www.oecd-ilibrary.org/sites/factbook-2013-en/12/02/03/index.html?itemId=/content/chapter/factbook-2013-100-en.

Osiecka-Chojnacka J., 2012. Epidemia otyłości a interwencja władz publicznych (The obesity epidemic and the intervention of public authorities). INFOS. Zagadnienia Społeczno-gospodarcze 3(117), 1–4.

Park M.H., Falconer C., Viner R.M., Kinra S., 2012. The impact of childhood obesity on morbidity and mortality in adulthood: a systematic review. Obes. Rev. 13, 985–1000.

Problem nadwagi i otyłości w Polsce wśród dzieci i młodzieży – Dane epidemiologiczne, GIS 2011 (The Problem of Overweigth and Obesity among Children and Teenagers in Poland – the epidemiological Chief Sanitary Inspectorate data – GIS). Retrived from http://www.gis.gov.pl/ckfinder/userfiles/files/Nadwaga%20i%20oty%C5%82o%C5%9B%C4%87%20dzieci%20i%20m%C5%82odzie%C5%BC%20dane.pdf.

Rees R., Oliver K., Woodman J., Rees J.T., 2011. The views of young children in the UK about obesity, body size, shape and weight: a systematic review. BMC Public Health 11, 188. Retrieved from http://www.biomedcentral.com/1471-2458/11/188.

PORÓWNANIE METOD ZMNIEJSZANIA I ZAPOBIEGANIA OTYŁOŚCI WŚRÓD DZIECI W WIELKIEJ BRYTANII I POLSCE

Streszczenie. W ostatniej dekadzie otyłość zarówno dorosłych, jak i dzieci oraz młodzieży stała się zasadniczym problem zdrowia publicznego na całym świecie. Zostało to potwierdzone przez różne organizacje i instytucje na całym świecie na poziomach krajowym i regionalnym. Wśród tych instytucji można wyróżnić, na przykład: Światową Organizację Zdrowia, Komisję Unii Europejskiej, rządy krajowe, państwowe służby zdrowia i inne instytucje pozarządowe, a także media. Artykuł skupia się na dwóch studiach przypadku na temat działań mających zmniejszać oraz zapobiegać otyłości wśród dzieci na przykładzie dwóch wybranych krajów europejskich: Wielkiej Brytanii i Polski. Dane do analizy uzyskano z różnych źródeł: literatury przedmiotu, doniesień Organizacji Współpracy Gospodarczej i Rozwoju (OECD), Światowej Organizacji Zdrowia (WHO), Narodowego Obserwatorium Otyłości (National Health Service – NHS), British Broadcasting Corporation (BBC), Głównego Inspektoratu Sanitarnego (GIS). Wyniki podkreślają znaczenie zrozumienia obecnej sytuacji w zakresie otyłości i przyszłych trendów tego problemu. W artykule podkreślono, że inwestycje w programy i działania, aby walczyć i zapobiegać otyłości wśród dzieci, przyniosą korzyści dla poszczególnych państw i społeczeństw zarówno z indywidualnego punktu widzenia, jak i całego świata.

Słowa kluczowe: otyłość u dzieci, Wielka Brytania, Polska

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THE SHARE OF CROSS-BORDER SHOPPING IN POLAND'S TRADE TURNOVER OF FOOD PRODUCTS WITH THE NEIGHBOURING COUNTRIES ON THE EU'S EXTERNAL BORDER

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Abstract. The paper contains an analysis of the changes in the share of food products in the structure of Poland's trade turnover with Ukraine, Belarus and Russia taking into account registered and unregistered turnover. Also, trends related to the share of unregistered sector in the total value of turnover of food products are presented. By considering registered and unregistered sectors together, it was concluded that in the years 2010–2012 Poland's exports of foodstuffs into Ukrainian, Russian and Belarusian markets were definitely higher than its imports of food products from these countries. At the same time, considerable differences were noted in the volume of Poland's exports and imports with the particular countries. As regards the trade with Ukraine, the volumes of imports and exports were similar, while in the case of Russia and Belarus Polish exports were definitely higher than imports, which was recorded in both registered and unregistered sector.

Key words: cross-border shopping, foreign trade, food products

INTRODUCTION

Non-wholesale shopping in a neighbouring country which is not registered in the documents required for customs clearance and which is called cross-border shopping [Powęska 2008] is a phenomenon affecting the volume of foreign trade treated as the exchange of goods and services with partners localized outside the customs boundary of a given country [Dudziński 2006, Rymarczyk 2007]. The following basic similarities between cross-border shopping and foreign trade should be mentioned: (1) the necessity of establishing commercial relations between business entities operating in the territory of other countries; (2) transfer of goods across boundaries; and (3) the transaction involving the purchase and sale; whereas differences include: (1) differences in the volume of transactions; (2) a different approach to trade transactions in customs law; and (3) a different

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use of the commodities involved in transactions: cross-border trade is dominated by consumer goods, while foreign trade is largely an exchange of more differentiated products.

Poland's trade turnover with the countries situated along the Polish section of the EU's external border showed a growing trend over the period 2010–2012. It encompassed both the transactions performed within the framework of foreign trade, later called registered turnover, and cross-border purchases made within the framework of trans-border trading, which are referred to as unregistered turnover. The volume of foreign trade is determined on the basis of the SAD customs declaration forms and of the EBOPS system which registers the turnover of services provided and purchased. The value of cross-border shopping is estimated on the basis of the observation of border crossing points and by interviewing consumers participating in cross-border shopping trips. The methodological problem lies in the difficulty of distinguishing between cross-border shopping and illegal trade activity. If the amounts of goods carried across the border are conformable with the norms and customs tariffs of the neighbouring countries this can be called cross-border shopping; if, however, the tariff rates are exceeded, this activity is treated as smuggling.

From the perspective of the development of cross-border areas, which are functionally related to agriculture to a great extent, the possibility of selling agricultural produce to foreign consumers is an additional development factor at a local scale. It is also worth indicating that consumers who participate in cross-border shopping are mostly the lowest-income people and the unemployed persons [Powęska 2011].

Taking into consideration the special importance of increase in the share of food products in Poland's trade turnover with its eastern neighbours, the author aims (1) to explore the share of foodstuffs in the structure of trade turnover with the neighbouring countries, taking into account a registered and unregistered sector; and (2) to determine the importance of an unregistered sector in Poland's trade turnover of foodstuffs with Ukraine, Belarus and Russia.

RESEARCH METHODOLOGY AND SOURCES

The research problem presented in this paper is to identify the place and importance of food products in the trade turnover between Poland and its eastern neighbours by considering registered and unregistered sectors cumulatively. An important element of this issue is the relationship between registered and unregistered trade turnover of food products between Poland and its neighbours located on the Polish section of the EU's external border.

The survey was conducted during the years 2010–2012 on the basis of: (1) data collected by the Centre of Cross-border Areas Surveys and Statistics for Euroregions of the Statistical Office in Rzeszów [Ruch graniczny oraz… 2011, 2012, 2013 (Border Traffic and... 2011, 2012, 2013)]; and (2) the data of the Central Statistical Office of Poland published in the Yearbooks of Foreign Trade Statistics [2011, 2012, 2013]. The analysis of the statistical material began by calculating the value of Poland's trade turnover with Ukraine, Belarus and Russia. In calculations concerning registered turnover, in imports and exports alike, the following elements were taken into consideration: the volumes of imported commodities, registered in the SAD system, as well as the expenditures on

the services purchased (added to the Polish imports) or provided (included in the Polish exports) and recorded in the EBOPS system. In the second stage of the analysis, the percentage of food products was calculated in registered imports and exports to the particular countries. Next, the share of food products in unregistered turnover was examined. The final stage of the statistical analysis was to determine the relationship between the registered and unregistered sectors in trade turnover of food products between Poland and each of its neighbours at the EU's external border. This relationship was defined through: (1) the share of cross-border shopping in trade turnover of food products with the particular countries; and (2) the share of food products in trade turnover encompassing the registered and unregistered sectors together. In a qualitative analysis of the phenomenon the author's own findings and observations were used [Powęska 2012, 2013a, b].

REASONS FOR DEVELOPMENT OF CROSS-BORDER SHOPPING

The phenomenon of cross-border shopping is determined by a set of interrelated economic, social, administrative and legislative as well as behavioural factors. Among the most important of the above-mentioned factors one must point to economic reasons. The observation of differences in prices for goods of similar nature in the neighbouring areas across the state border provides an opportunity to make savings in household budgets and to earn extra income. For this reason, many people living in a zone of the influence of the border devote their time and resources to improve their own and their close relatives' living standards through the purchase of cheaper goods abroad. That is why, social aspects co-exist with the factors of economic nature. The low standard of living of the population, scarce labour supply and other problems characteristic of cross-border regions being the peripheral areas are the reasons why cross-border shopping is treated by the inhabitants and by the representatives of the authorities in many small towns and in rural areas located along the Polish-Belarusian border as an important factor of local development. From the perspective of consumers participating in cross-border shopping what is very important is their readiness to go on a trip and to make purchases in an alien environment. This may often be associated with facing additional difficulties stemming from the need to travel long distances and to cross the border. Cumulatively, these aspects of cross-border shopping are treated as behavioural determinants of the phenomenon. As regards the Polish-Belarusian border, administrative and legislative determinants are of great importance. They are regulated by the agreements between Poland and Belarus. The intensity of the movement of people who cross the Polish-Belarusian border in order to make purchases is also influenced by personal, family, cultural, social and tourist ties between persons living on both sides of the border.

THE EXPORT OF FOOD PRODUCTS FROM POLAND TO ITS NEIGHBOURS ON THE EU'S EXTERNAL BORDER IN THE YEARS 2010–2012

In the years 2010–2012 there was an increase in the importance of the sector of food products in Poland's exports to the neighbouring countries located at the external border of the European Union. This fact is important from the point of view of bilateral commer-

cial relations but it also has a positive effect on the development of Polish agriculture. The increase in the sales of food products onto Ukrainian, Belarusian and Russian markets has also been noted in both the registered exports (SAD and EBOPS) and in the unregistered cross-border shopping (Table 1).

Table 1. Share of food items in Poland's exports to eastern neighbours while taking into account the unregistered sector (cross-border shopping) and the registered sector (SAD and EBOPS) in the years 2010–2012

Year	Expenditures in Poland of cross-border shoppers from the neighbouring countries on the Polish section of the EU eastern border			The value of exports from Poland (SAD) and the value of services delivered by Poland (EBOPS) to the neighbouring countries on the Polish section of the EU eastern border			Unregistered expenditures of foreign consumers in Poland on food items (cross-border shopping) and Poland's exports of food items to the neighbouring countries in the SAD system	
	Total	Of which expenditures on food commodities		Total	Share of food items		Share of cross-border shopping in Poland's sales of food items	Share of food items in the sales to the neighbouring countries
	thous. PLN	thous. PLN	% of total	thous. PLN	thous. PLN	% of total	%	%
1	2	3	4	5	6	7	8*	9*
				Ukraine				
2012	3 658 884.4	432 152.7	11.8	22 764 356.6	2 091 093.6	9.2	17.1	9.5
2011	3 114 018.9	324 040.8	10.4	18 712 765.4	1 449 395	7.7	18.3	8.1
2010	2 282 677.3	286 944.8	12.6	16 543 981.0	1 414 866.5	8.6	16.9	9.0
				Belarus				
2012	2 628 790.6	342 725.4	13.0	10 111 351.3	1 285 685.4	12.7	21.0	12.8
2011	1 948 596.5	230 714.7	11.8	8 203 719.4	1 025 304.3	12.5	18.4	12.4
2010	1 417 413.6	156 872.6	11.1	6 978 870.5	633 844.2	9.1	19.8	9.4
				Russia				
2012	333 118.7	95 985.7	28.8	36 900 588.2	4 421 071.6	12.0	2.1	12.1
2011	188 063.3	49 193.5	26.2	29 057 321.2	3 293 290.6	11.3	1.5	11.4
2010	99 075.2	26 485.9	26.7	23 518 531.9	3 005 329.5	12.8	0.9	12.8

*Column 8 calculated by equation: [3: (3 + 6)] × 100; Column 9 calculated by equation: [(3 + 6) : (2 + 5)] × 100.

Source: Own elaboration based on: Rocznik Statystyczny Handlu Zagranicznego 2011, GUS, Warszawa [Yearbook of Foreign Trade Statistics of Poland 2011, Warsaw, Central Statistical Office]; Rocznik Statystyczny Handlu Zagranicznego 2012, GUS, Warszawa [Yearbook of Foreign Trade Statistics of Poland 2012, Warsaw, Central Statistical Office]; Rocznik Statystyczny Handlu Zagranicznego 2013, GUS, Warszawa; [Yearbook of Foreign Trade Statistics of Poland 2013, Warsaw, Central Statistical Office]; Ruch graniczny oraz przepływ towarów i usług na zewnętrznej granicy Unii Europejskiej na terenie Polski w 2010 roku, Warszawa-Rzeszów 2011 [Border Traffic and Movement of Goods and Services at The European Union's External Border on The Territory of Poland in 2010, Central Statistical Office, Statistical Office in Rzeszów, Warsaw-Rzeszów 2011]; Ruch graniczny oraz przepływ towarów i usług na zewnętrznej granicy Unii Europejskiej na terenie Polski

w 2011 roku, Warszawa-Rzeszów 2012 [Border Traffic and Movement of Goods and Services at The European Union's External Border on The Territory of Poland in 2011, Central Statistical Office, Statistical Office in Rzeszów, Warsaw-Rzeszów 2012]; Ruch graniczny oraz przepływ towarów i usług na zewnętrznej granicy Unii Europejskiej na terenie Polski w 2012 roku, Warszawa-Rzeszów 2013 [Border Traffic and Movement of Goods and Services at The European Union's External Border on The Territory of Poland in 2012, Central Statistical Office, Statistical Office in Rzeszów, Warsaw-Rzeszów 2013].

Based on the data collected in the SAD customs clearance forms one may say that among three above-mentioned countries the registered value of the export of food products to Russia was the greatest one. In 2012, as compared to 2010, registered exports to this country increased by approximately 68 percent (from approximately PLN 3 billion to more that PLN 4.4 billion). As regards Ukraine, the registered value of the sale of food products was 50 percent lower than in the case of Russia, and the growth dynamics of the absolute value of registered exports in 2012 as compared to 2010 amounted to over 66 percent (increase from PLN 1.4 billion in 2010 to PLN 2.1 billion in 2012). The registered exports of food products to Belarus were the lowest of the three countries under review (2010 – PLN 0.6 billion, 2012 – PLN 1.3 billion), and also the growth dynamics was very slow (only 46 percent).

Among food products exported from Poland to Ukraine and to Russia major items included products of plant origin, food preserves, live animals and products of animal origin. Poland's exports to Belarus, on the other hand, were dominated by live animals and products of animal origin, which were followed by products of plant origin and food preserves.

Unregistered purchases of food products made by foreign consumers in Poland within the framework of cross-border shopping increase the official export figures of food products to the eastern markets. The absolute value of unregistered expenditures on food products varied depending on the country; however, in all three cases a great increase in purchases of food products by foreign customers in Poland was reported. Most food products were bought by foreign consumers in Poland in the Polish-Ukrainian border area (from nearly PLN 300 million in 2010 to more than PLN 430 million in 2012); next came the Polish-Belarusian border area (from nearly PLN 150 million to PLN 340 million respectively), and the smallest purchases were reported in the Polish-Russian border area (from PLN 26 million to PLN 96 million respectively). At the same time, one must emphasize that in the years 2010–2012 in the Polish-Russian border area the share of food products in the total value of cross-border shopping was the biggest and it amounted to almost 30 percent, whereas in the Polish-Belarusian and Polish-Ukrainian border areas it totalled approximately 10 percent. It was observed that in the Polish-Belarusian border area the share of foodstuffs in the total value of unregistered turnover increased, while in the Polish-Ukrainian border area declining trends were reported in this field. The decrease was reported in spite of the growth of the absolute value of unregistered purchases of food products exported by Ukrainian citizens from Poland, since there was a much higher increase in the purchase of industrial goods, especially building materials. The structure of the unregistered purchase of food products on all three border sections was dominated by meat and meat products, as well as by fruits, vegetables and their preserves.

In the years 2010–2012 there was a slight increase in the share of unregistered sector in the total value of sales of food products to Poland's eastern neighbours. The highest

share of unregistered sales of food products was observed in trade with Belarus (from 19.8 percent in 2010 to 21 percent in 2012), a slightly lower share was noted in trade with Ukraine (from 16.9 percent in 2010 to 17.1 percent in 2012), and the lowest share was reported in trade with Russia (from 0.9 percent in 2010 to 2.1 percent in 2012). The small share of unregistered trade in the total value of the sale of food products in the case of Russia is determined by the character of the neighbourhood: Poland borders only the Kaliningrad Region.

POLAND'S IMPORTS OF FOOD PRODUCTS FROM ITS EASTERN NEIGHBOURS ON THE EU'S EXTERNAL BORDER IN THE YEARS 2010–2012

The volume of Polish imports of food products from the neighbouring countries on the external border of the European Union varied greatly over the years 2010–2012 (Table 2). Poland bought most food products in Ukraine (in 2010 – for approximately PLN 0.8 billion; in 2012 – for more than PLN 2.1 billion), Polish imports of food products from Russia were several times lower (in 2010 – PLN 0.2 billion; in 2012 – PLN 0.3 billion) and from Belarus they were several dozen times lower (in 2010 – PLN 0.04 billion; in 2012 – PLN 0.06 billion). Over the years 2010–2012, there was an increase in the absolute value of imports of food products registered in the SAD system from eastern neighbours. However, by comparing the data on imports with the data relating to exports presented in the previous chapter one may conclude that the export of food products from Poland to Russia is ten times higher, and in the case of Belarus it is even twenty times higher. It is only in the case of Ukraine that the volumes of imports and exports are balanced. Ukraine's imports are dominated by the products of plant origin, the share of food preserves as well as that of fats and oil being smaller. Poland's major import items from Russia include live animals and products of animal origin, while the main products imported by Poland from Belarus include products of plant origin.

The purchases of food products made by Polish cross-border shoppers in Ukraine, Belarus and Russia, which supplemented Polish imports, varied according to the country. In the case of Ukraine, where the absolute value of food products bought by Polish consumers was the highest one, a decrease of more than 30 percent was reported (from PLN 90 million in 2010 to PLN 60 million in 2012). In the case of Russia and Belarus, where the value of purchases of food products by Polish consumers was relatively lower, a certain increase was recorded in this regard. In Russia the value of purchases of food products by Polish citizens amounted to PLN 5 million in 2010, and in 2012 it totalled PLN 18 million. On the other hand, in 2010 Polish cross-border shoppers brought food products from Belarus for PLN 6.5 million, and in 2012 they bought food products in this country for PLN 9 million. Regardless of the border section, the major import items brought from the neighbouring country were alcoholic beverages. In addition, Polish consumers bought confectionery products, which were the most visible items in the basket of Polish buyers in Ukraine.

The share of unregistered trade in the total value of food products imported from Poland's eastern neighbours (considering the registered and unregistered segments together) was relatively insignificant. In the case of Ukraine, a declining trend was recorded (from

Table 2. Share of food items in Poland's imports from eastern neighbours while taking into consideration the unregistered sector (cross-border shopping) and the registered sector (SAD and EBOPS) in the years 2010–2012

Year	Expenditures of Polish cross-border shoppers in the neighbouring countries on the Polish section of the EU eastern border			Imports of Polish goods (SAD) and the expenditures on services purchased by Polish citizens (EBOPS) in the neighbouring countries on the Polish section of the EU eastern border			Unregistered Polish consumers' expenditures on food items in the neighbouring countries on the Polish section of the EU eastern border (cross-border shopping) and Poland's imports of food items from the neighbouring countries in the SAD system	
	total	of which food items		total	of which food items		share of cross-border shopping in Poland's imports of non-food items from the neighbouring countries	share of food items in Poland's imports from the neighbouring countries
	thous. PLN	thous. PLN	% of total	thous. PLN	thous. PLN	% of total	%	%
1	2	3	4	5	6	7	8*	9*
				Ukraine				
2012	295 224.7	58 819.7	19.9	9 302 061.8	2 147 248.6	23.1	2.7	23.0
2011	330 508.4	75 760.8	22.9	9 319 923.0	1 502 523.9	16.1	4.8	16.4
2010	340 018.0	90 918.5	26.7	6 624 025.7	836 611.1	12.6	9.8	13.3
				Belarus				
2012	72 302.1	8 950.2	12.4	3 750 873.6	61 557.7	1.6	12.7	1.8
2011	63 570.4	5 792.5	9.1	4 449 364.6	66 067	1.5	8.1	1.6
2010	72 889.2	6 511.9	8.9	2 993 925.9	38 759.7	1.3	14.4	1.5
				Russia				
2012	280 412.8	18 387.6	6.6	93 173 063.3	300 362.8	0.3	5.8	0.3
2011	113 597.8	9 422.5	8.3	76 980 813.5	255 806.7	0.3	3.6	0.3
2010	45 399.3	5 797.8	12.8	56 431 475.6	178 790.3	0.3	3.1	0.3

*Column 8 calculated by equation: [3: (3 + 6)] × 100; Column 9 calculated by equation: [(3 + 6) : (2 + 5)] × 100.
Source: See Table 1.

9.8 percent in 2010 to 2.7 percent in 2012). In the case of Russia, there was a slight increase in the share of unregistered purchases made by Polish consumers in the total value of imported food products (from 3.1 percent in 2010 to 5.8 percent in 2012), while in the case of Belarus the index of the share of unregistered sector in the import of food products varied in the particular years and it totalled: 14 percent in 2010, 8 percent in 2011 and 13 percent in 2012.

In the case of Ukraine, an increase in the share of foodstuffs in the absolute value of imports was recorded (when considering registered and unregistered sectors together): from approximately 13 percent in 2010 to 23 percent in 2012. On the other hand, the share of foodstuffs in the total value of Poland's imports from Ukraine, Belarus and Russia (inclusive of the SAD trade turnover and the unregistered trade) was very low and it totalled, over the entire period under consideration, 0.3 percent in the case of Russia and 1.5–1.8 percent in the case of Belarus.

CONCLUSIONS

The analysis conducted in this paper resulted in the following conclusions:

- Considering the registered and unregistered sectors cumulatively, one can conclude that Poland's exports of food products to Ukrainian, Belarusian and Russian markets in the years 2010–2012 were definitely higher than its imports of food products from these countries.
- The years 2010–2012 may be defined as a period of dynamic growth of trade turnover of food products between Poland and its eastern neighbours on the EU's external border, which is confirmed by the data relating to both exports and imports.
- Substantial differences were recorded with regard to the volume of exports and imports relating to the particular countries. In trade with Ukraine, the values of imports and exports were similar, while in the case of Russia and Belarus exports definitely exceeded imports, which was noted in both registered and unregistered sectors.
- During the period 2010–2012 there was an increase in the absolute value of unregistered purchases made by foreign consumers in Poland, whereas the value of unregistered purchases of food products made by Polish citizens in the neighbouring countries decreased. Thus, the unregistered trade had a positive impact on the volume of Poland's trade turnover of food products with its eastern neighbours.
- The share of unregistered trade in the exports of food products from Poland to Ukraine and to Belarus was higher than in imports, whereas the case of Russia was an exactly opposite situation: the share of unregistered imports of food products was higher than that of unregistered exports.
- The structure of unregistered purchases of food products made by Polish consumers in the neighbouring countries in the east was dominated by alcohol and confectionery products, while the items purchased by foreign consumers in Poland included meat, meat products as well as vegetables and their preserves.

REFERENCES

Dudziński J., 2006. Handel zagraniczny. Wybrane problemy [Foreign trade. Selected problems]. Wydawnictwo Zachodniopomorskiej Szkoły Biznesu w Szczecinie, Szczecin.

Powęska H., 2008. Cross-border shopping in Poland in the early 21st century. Acta Scientiarum Polonorum, Oeconomia 7(1), 111–121.

Powęska H., 2011. Functions of retail trade in borderlands of Poland – a theoretical perspective. Acta Scientiarum Polonorum, Oeconomia 10(2), 65–74.

Powęska H., 2012. The financial dimension of unregistered cros-border trade in the Polish segment of European Union's external border. In: Proceedings of the International Scientific Conference Marketing and Finance in Agribusiness, Section New Trends in Finance, Nitra, 88–98.
Powęska H., 2013a. Spatial extent of cross-border trade in the Polish-Ukrainian border area, 2013. Region and Regionalism 11, 2.
Powęska H., 2013b. The development of retail trade in the border areas in Poland in the Light of selected theoretical approaches. Acta Scientiarum Polonorum, Oeconomia 12(2), 77–84.
Rocznik Statystyczny Handlu Zagranicznego 2011 [Yearbook of Foreign Trade Statistics of Poland 2011], Warsaw, Central Statistical Office]. [Rocznik Statystyczny Handlu Zagranicznego 2012, Główny Urząd Statystyczny, Warszawa [Yearbook of Foreign Trade Statistics of Poland 2012, Warsaw, Central Statistical Office].
Rocznik Statystyczny Handlu Zagranicznego 2013, Główny Urząd Statystyczny, Warszawa [Yearbook of Foreign Trade Statistics of Poland 2013, Warsaw, Central Statistical Office].
Ruch graniczny oraz przepływ towarów i usług na zewnętrznej granicy Unii Europejskiej na terenie Polski w 2010 roku, Warszawa-Rzeszów 2011 [Border Traffic and Movement of Goods and Services at The European Union's External Border on The Territory of Poland in 2010, Central Statistical Office, Statistical Office in Rzeszów, Warsaw-Rzeszów 2011].
Ruch graniczny oraz przepływ towarów i usług na zewnętrznej granicy Unii Europejskiej na terenie Polski w 2011 roku, Warszawa-Rzeszów 2012 [Border Traffic and Movement of Goods and Services at The European Union's External Border on The Territory of Poland in 2011, Central Statistical Office, Statistical Office in Rzeszów, Warsaw-Rzeszów 2012].
Ruch graniczny oraz przepływ towarów i usług na zewnętrznej granicy Unii Europejskiej na terenie Polski w 2012 roku, Warszawa-Rzeszów 2013 [Border Traffic and Movement of Goods and Services at The European Union's External Border on The Territory of Poland in 2012, Central Statistical Office, Statistical Office in Rzeszów, Warsaw-Rzeszów 2013].
Rymarczyk J., 2007. Teoretyczne podstawy międzynarodowej wymiany handlowej. W: J. Rymarczyk, M. Niemiec (Eds). Współczesne tendencje w handlu międzynarodowym, Wrocław [Theoretical aspects of international trade. In: Contemporary trends in international trade, Wroclaw].

UDZIAŁ HANDLU PRZYGRANICZNEGO W OBROTACH TOWAROWYCH ARTYKUŁAMI ŻYWNOŚCIOWYMI POLSKI Z KRAJAMI SĄSIADUJĄCYMI NA ZEWNĘTRZNEJ GRANICY UE

Streszczenie. W artykule dokonano analizy zmian udziału towarów żywnościowych w strukturze obrotów handlowych z Ukrainą, Białorusią i Rosją, uwzględniając obroty rejestrowane i nierejestrowane. Przedstawiono także tendencje w zakresie udziału sektora nierejestrowanego w ogólnej wartości obrotów towarami żywnościowymi. Traktując łącznie sektor rejestrowany i nierejestrowany, wykazano, że eksport artykułów żywnościowych Polski na rynki ukraiński, rosyjski i białoruski w latach 2010–2012 był zdecydowanie większy niż import towarów spożywczych z tych krajów. Jednocześnie odnotowano znaczne różnice w zakresie wielkości eksportu i importu z poszczególnymi krajami. W handlu z Ukrainą wartości importu i eksportu były zbliżone do siebie, a w przypadku Rosji i Białorusi zdecydowanie eksport przewyższał import, co odnotowano zarówno w sektorze rejestrowanym, jak i w nierejestrowanym.

Słowa kluczowe: handel przygraniczny, handel zagraniczny, artykuły żywnościowe

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DEMAND OF POLISH HOUSEHOLDS FOR FRUIT AS AN OPPORTUNITY FOR THE DEVELOPMENT OF DOMESTIC FRUIT PRODUCTION

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Abstract. The basic research material comprised empirical data on household budgets conducted by GUS (Central Statistical Office), between 2005 and 2012. The changes in Polish demand for fruit and their products were analyzed, excluding bananas and citruses as they are not native to Polish fruit production. The changes in the consumption volume of fruit and their products in the households as well as in the structure of product type consumed were investigated. In order to determine the basic economic factors that might affect the demand development, the author presented the changes in incomes and general consumption structure and its transformations where the fruits are not considered to be basic goods (are not a basic need). The fruits represent a negligible part in the pattern of consumption, and with low incomes, the spending on them can be limited (are not necessary for life). Another key factor forming the volume of the consumed fruit is their prices which influenced the periodical changes in demand for particular species. These changes are partly attributed to variations in domestic production highly dependent on atmospheric conditions. The changes in demand were presented against this overall production showing its rate of utilisation and its potential changes in this respect.

Key words: households, demand, fruit consumption, fruit production

INTRODUCTION

The Institute of Food and Nutrition (IZZ) recommends to incorporate 2–4 portions of fruit into a rational diet per day. They are a rich source of vitamins, folic acid, antioxidants and many mineral components. They provide human organism with natural fiber containing very few calories and 80–90% water (http://www.izz.waw.pl, accessed April 2014).

However, the recommendations of doctors and dieticians are not observed and the Polish was ranked low among the EU members in terms of fruit consumption. It is over

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3.5 times lower than in the Mediterranean countries and over 2 times lower when compared to the Scandinavian countries[1].

According to the Central Statistical Office (GUS) data, orchards account for approx. 2.4% of agricultural lands (343,265 ha in 2013), while home gardens cover 0.2% – however their area has decreased since 2012 [Land use... 2014].

It was observed that a differentiation of cultivation area takes place in particular years due to a special character of fruit production involving plant replacements.

In 2012 the orchards covered 368,400 ha and their area increased by 6,300 ha when compared to the previous year [Agricultural Stastistical Yearbook 2014]. The tree fruit crop accounted for 3,286,000 t (an increase by 400,000 t when compared to the previous year and by roughly 1,070,000 t since 2010). In 2012 a hike in berry crop to 557,000 t was reported. The commercial fruit farming amounted to 4,522,000,000 PLN (6% of overall agricultural output).

In comparison with the rest of European countries we are the leader in apple production (in 2012 the apple crop represented 26.5% that of the EU) as well as raspberries and currants (approx. 70% of the EU) [Poland in EU 2014]. Over the last years the overall fruit production in Poland has accounted for 70% of the EU-12 fruit production and 10% that of the EU-27 [Fruit and vegetables market 2013][2].

Based on the Central Statistical Office data, the apple is the most predominant crop in Polish orchards accounting for 71% (2012) of the agricultural land area with Idared being the most popular cultivar [Orchard production... 2013]. It is in accordance with other findings [Pizło 2011].

The remaining crops included: cherry – 13%, plums – over 6%, sweet cherries – 4.4% and pears – 2.9%. Other crops cultivated were as follows: walnut approx. 1.5%, peaches and apricots making up mere 1% of total orchard area. Since 2007 the apple and sweet cherry cultivation acreage increased whereas that of sweet cherry and walnut decreased[3].

As for berry fruit, the production of currants (mainly black), strawberry and raspberry predominated [Fruit and vegetables market 2013].

The fruit production concentrated in small farms covering up to 1 ha (67% fruit farms) widespread mainly in the following provinces: Mazowieckie, Łódzkie, Lubelskie and Świętokrzyskie (around 76% of orchard area).

The fruit are produced for consumption and industrial purposes. In 2012 the industry received 41% of apple production, 1/3 of plum crop and 17% of pear harvest as well as the overwhelming part of gooseberry (86%), currants (85%), raspberry (81%) and sour cherry (72%) cultivation. The production of fruit products in season 2012/2013 increased to 950,000 t (by approx. 10%) out of which 300,000 comprised concentrated apple juice (an increase by 30%).

[1]Per capita in 2005–2007; based on FAO database (http:/www.fao.org/economic, accessed database March 2014) Food consumption and population growth.

[2]The fruit production is characterized by a high variability due to a considerable effect of atmospheric conditions on crop volume being diverse in particular years.

[3]Since 2005 the cultivable area of walnuts significantly increased (10-fold) thanks to the EU subsidies. Then, they were reduced leading to a drop in the cultivable area of walnuts since 2012.

A high domestic production level of fruit and their products results in generating a positive balance in foreign trade due to twice higher value of fruit product export (approx. 800,000 t) in relation to their import [Agricultural Market 2013].

RESEARCH METHOD

The research was based on the empirical data on the household budgets conducted by the Central Statistical Office between 2005 and 2012 (34,700 households of 2005 year and about 37,500 in the following years). The households were selected at random leading to generalization of obtained results[4].

The empirical data were supplemented with an analysis of secondary materials obtained from the studies of the Central Statistical Office, the IERiGŻ-PIB[5] and the Eurostat.

The aim of the study was to characterize the changes in demand for fruit and their products in Polish households between 2005 and 2012. The changes in volume and pattern of fruit consumption were evaluated against the changing crop volumes, and thus, against the price changes in particular cultivars. As Poland does not have favorable climate conditions for banana and citrus cultivation, these fruit were excluded from the studies and only their consumption volume was presented.

RESULTS AND DISCUSSION

The obtained results indicate that between 2005 and 2012 on average almost 75% of Polish households consumed fruit and 18.5% – fruit products[6]. Nearly 53% of the investigated households admitted to consuming fruit juices[7]. In the analyzed period a concurrent increase in the percentage of households consuming both fruit (by 2.4 p.p.) and their products (by 4.2 p.p.), was observed, whereas the percentage of households consuming fruit juices dropped. Yet, there was a considerable decrease in the consumption of fruit and their products whose consumption amounted to approx. 4,413 t in 2012 (about 3.8 kg per capita per month) out of which 29% accounted for bananas and citruses. In addition, the consumption of fruit juices lowered to approx. 8,885,000 l (about 1.2 l per capita per month).

The decrease in consumption volume of fruit and their products was accompanied by a significant increase in the value of this consumption between 2005 and 2012 (Fig. 1).

[4]The two-stage stratified sampling with different variants of choice was performed in the first stage. At first, so called space-based elements were selected and in the stage II – particular households were chosen [Methodology of household... 2011].

[5]Institute of Agricultural and Food Economics – National Research Institute.

[6]In the questionnaire survey conducted by Central Statistical Office of Poland between 1998 and 2003 almost 4% households could not afford to buy fruit at all, and 1/3 could not satisfy full demand for fruit [Welfare of agricultural households... 2014].

[7]The consumption of fruit-vegetable juices – though existed – was not studied since it was impossible to determine the fruit content in the composition of the product.

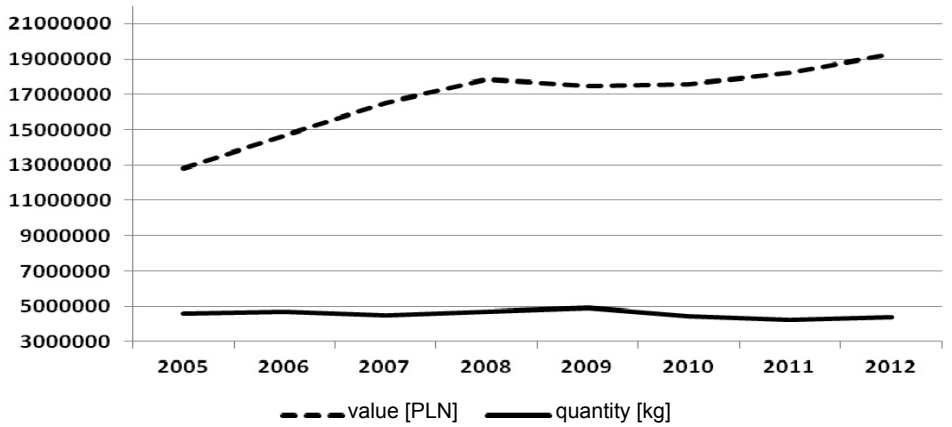

Fig. 1. The consumption of fruit and fruit products in the households in 2005–2012 (value and quantity)
Source: Own study based on unpublished data from the Central Statistical Office.

It means that in the studied period the prices of fruit and fruit products were increasing while the growth rate kept varying. Only in 2009 a marginal drop in fruit consumption was reported resulting from a decrease in the prices of domestic production.

Although the volume of consumption lowered, but there were some positive tendencies, not always corresponding to a price drop. The amplitude of changes in the volume of consumed fruit was much lower than the changes in its value which might be attributed to some species being substituted with the other as well as a big impact of other factors. Besides, it was observed that a price hike in the recent years have influenced negatively the demand for fruit – something unknown e.g. in 2006 as the present fruit prices are simply too high[8]. As a consequence, the prediction assuming a stable growth in consumption of fruit and fruit products until 2025 at the annual rate of 1.62 kg per person seems to be a fallacy [Włodarczyk and Adamowicz 2011].

The volume and pattern of the demand is also affected by the income level which was characterized, though, by an increase in a real value in the analyzed period. The growth rate was faster till 2008 [Stolarska 2014].

Therefore, regardless of constantly rising incomes, the fruit consumption in the investigated households lowered[9], thus deteriorating the downward tendency observed in the previous years [Stolarska 2009].

To alleviate the problem, the self-supply for fruit was increased, which is certainly the biggest among farmers and home garden holders e.g. pensioners accounting for 14% of consumption [Demand... 2013].

In 2012 the spending on fruit made up 6.3% of food expenditures and 1.5% of total consumer spending. The percentage of spending on food and soft drinks accounted for 26% of total consumption and increased by 5.1 p.p. since 2005. It was attributed to a significant

[8]Additionally, the costs of other commodities and consumption services are growing.
[9]Unfortunately, income growth was accompanied by an increase in prices of commodities and consumer services.

rise in food prices where meeting the demand for fruit is ranked as the last one. CCCI[10] had negative values giving further evidence to the worsening consumer mood, especially after 2010. What is more, the evaluation of consumer main purchases also showed the deepening downward trend [Consumer economic situation 2014].

The demand both, for fruit in total, and for particular fruit species is influenced by many factors and is also affected by various consumer preferences. The price volume and their relations are important as well as specificity of particular fruit species, their seasonal character, taste, availability, weight, transport and storage facilities (unit weight), modes of employment (e.g. in confectionary industry) and many other factors[11].

For many reasons apples are the core fruit in Polish households[12]. Not only do they come from the domestic production, but they can also be grown in home gardens or allotments and, first of all, are available all year round and can be easily transported and stored. They can be consumed raw as well as in various forms of fruit products. Finally, they have universal health properties and as such they can be consumed by small children and people on specific diets (it is sometimes necessary to cook or roast them). They can be easily taken to work, school or on a trip being a nice snack or a small lunch.

In 2012 on average 5 kg of apples were consumed per month in the analyzed households while in 2005 it was 7 kg. The demand for apples in Polish households dropped (Fig. 2). In the same period, the domestic production increased by 38% (in 2012 the crop amounted to 2,877,000 t).

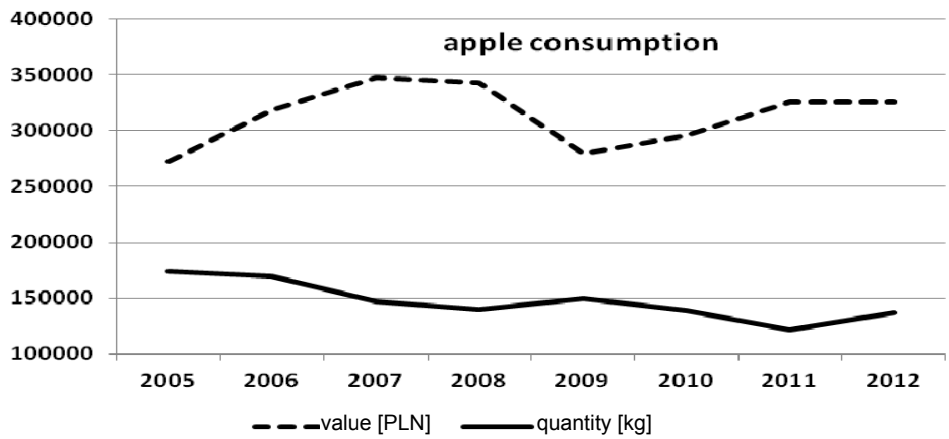

Fig. 2. Monthly apple consumption in the analyzed households, 2005–2012 (value and quantity)
Source: Own study based on unpublished data from the Central Statistical Office.

[10]Current Consumer Confidence Index is determined on the questionnaire results of Economic Situation.

[11]Weather conditions exert influence not only on crop volume and its distribution over time, but also on their taste and product shelf-life e.g. rain or drought during strawberry harvest; Another important factor can be e.g. the size of fruit (pineapple) and possibility to buy only a part of it e.g. it can too big for somebody who lives alone so this person has to give up on not only buying it but also eating it.

[12]And, then, bananas and citruses which have not been analyzed.

Figure 2 indicates the correlation between the demand for apples and their price[13]. The higher prices the lower consumption and vice versa. However, there is no correlation with the volume of domestic production (Fig. 3).

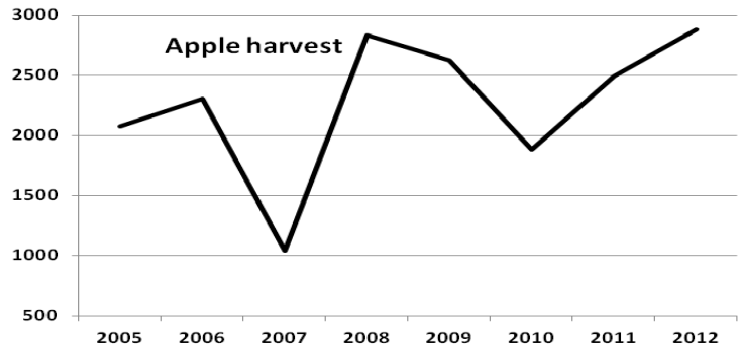

Fig. 3. Apple harvest in Poland, 2005–2012 (thousand t)
Source: Based on the Central Statistical Office data.

Whereas 2012 and 2008 witnessed the biggest apple harvest, the consumption, on contrary, was the lowest, and the lower apple harvest by half in 2007 (adverse weather conditions) did not cause so significant drop in consumption.

The demand for pears was declared by 17% of the analyzed households. This percentage slightly grew (from 14%) since 2005. The consumption in the investigated period (a little over 2 kg per month per a household) was stable accompanied by an increase in 2009 (both in quality and quantity) and a drop 2010 (Fig. 4).

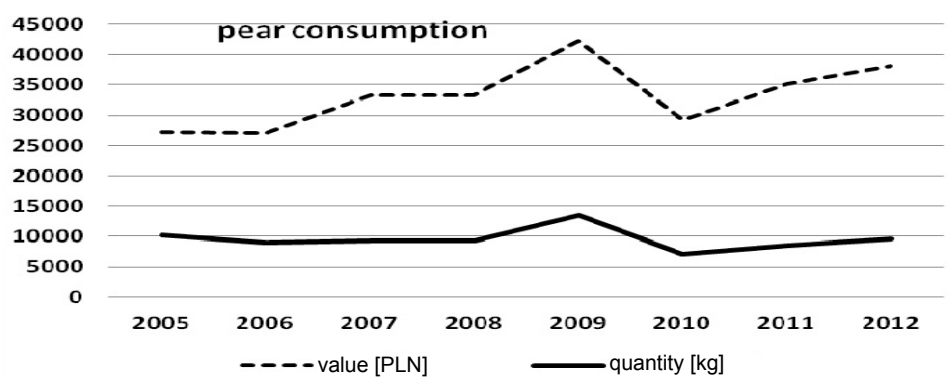

Fig. 4. Monthly pear consumption in the analyzed households, 2005–2012 (value and quantity)
Source: Own study based on unpublished data from the Central Statistical Office.

The pear harvest amounting to 73,000 t was the highest in 2008, while 2007 saw the lowest harvest (similarly to the apple harvest) with mere 31,000 t. The character of pear crop changeability was similar to that of apple production.

[13]The higher value in relation to a lower quantity indicates an increase in prices.

In over 44% of the studied households there existed a real demand for stone fruit. Though, their consumption decreased by nearly 21%, on average, to less than 2.9 kg per month (Fig. 5).

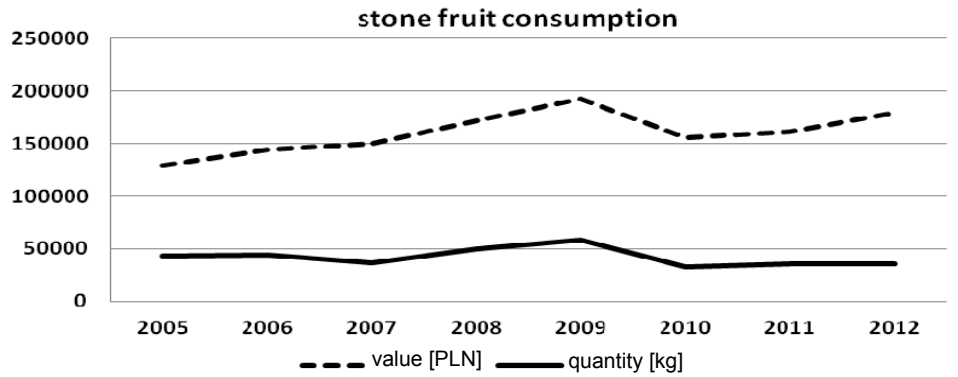

Fig. 5. Monthly stone fruit consumption in the analyzed households, 2005–2012 (value and quantity)
Source: Own study based on unpublished data from the Central Statistical Office.

The changes in stone fruit harvest were characterized by a considerably higher amplitude than their consumption and they did not completely correspond to its level. This level was the lowest in 2007 while the highest in 2008–2009 (two-folded difference). The higher crop volume in the recent years did not improve the consumption, which in fact dropped. The changes in stone fruit consumption corresponded to the changes in their prices, except for 2012 when they grew by about 12%[14].

Over the half of the studied households declared the consumption of berry fruit and their percentage increased. However, the consumption figures dropped (Fig. 6).

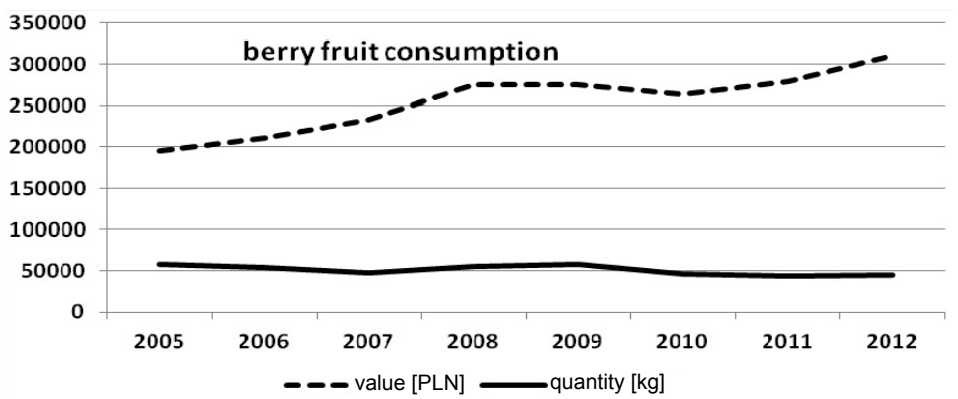

Fig. 6. Monthly berry fruit consumption in the analyzed households, 2005–2012 (value and quantity)
Source: Own study based on unpublished data from the Central Statistical Office.

[14]At other time intervals the prices of particular species were unstable, but the consumers could substitute one fruit with another due to a large variety of stone fruit.

Furthermore, in the analyzed period, the discrepancies between the berry fruit consumption in terms of quantity and value were reported resulting not only from price increases, but also, in part, from the consumption of their more expensive varieties.

The volume of domestic berry fruit production was much less diversified in particular years than that of other fruit species (Fig. 7)[15].

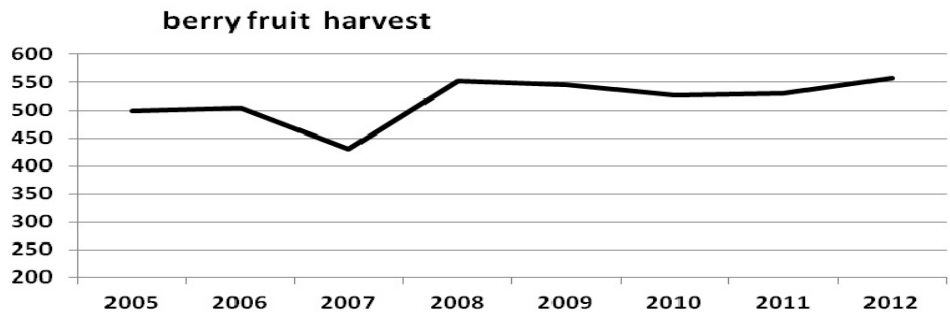

Fig. 7. The berry fruit harvest in Poland, 2005–2012 (thousand t)
Source: Based on the Central Statistical Office data.

A considerable collapse of crop output was found only in 2007, after which the figures bottomed out. The maximum domestic output was reported in 2012.

In 3% of households there was a demand for nuts, seeds and dried fruit. Between 2005 and 2012 the consumption volume grew by 39% for dried fruit and by 20% for nuts and seeds. The value of its consumption almost doubled showing an upward trend.

In 2012 1/4 of the investigated households declared the consumption of fruit products and since 2005 it grew by roughly 38%. However, the consumption lowered from 1 kg to 0.9 kg on average per one household[16]. Simultaneously, a considerable (almost 85%) increase in consumption of fruit products was reported accompanied by the price increase.

The apples accounted for over 50% of total non-tropical/exotic fruit (i.e. except for bananas and citruses) consumed and Poland boasts to be its biggest producer. This result has slightly decreased in the analyzed period and its drop in 2008 and 2009 was offset by an increase in the consumption of stone fruit (around 15%) and vice versa in 2010.

Another 18% of consumed fruit of moderate climate comprised berry fruit (a small drop in the last year). In addition, 3.5% pears were consumed whose share almost did not change.

Alongside with the fruit consumption – nearly 66% of households (over 71% in 2005) there existed the demand for fruit juice. On average from 4.6 l in 2005 to 4 l in 2012 was consumed per month per a household.

[15]The smaller cultivation acreage of individual crops and various production specificity lead to a partial compensation of negative influence of adverse weather conditions (flooding, frost-protection, e.g. strawberries).

[16]Globally, the demand for fruit products increased (by 26%) owing to a greater number of households interested in their consumption.

Based on the received results and additional evaluations taking into the consideration the number of Polish households[17], the total consumption of raw fruit in Polish households was calculated. Comparing these results with the crops from the previous year it was observed that the employment of fruit production for the direct consumption in our country was diversified for individual fruit species (Fig. 8).

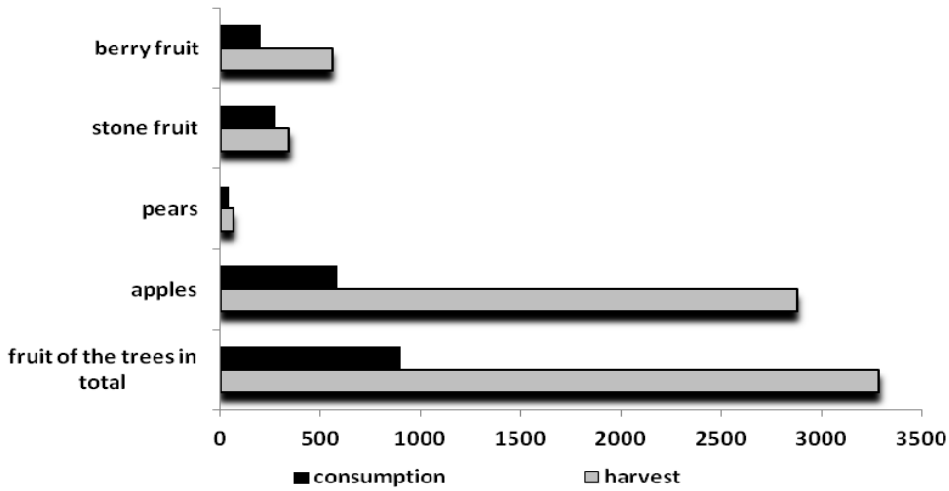

Fig. 8. Fruit harvest in Poland in 2012 and average consumption, 2010–2012 (thousand t)
Source: Based on own and the Central Statistical Office data.

The stone fruit were the most popular ones whose 80% production was consumed raw in Poland. The findings of other fruit were as follows: pears 65%, berries 35% and only 20% for apples – although they were mainly used for fruit juice and other fruit products (41% in 2012). The consumption of fruit products (and earlier their production) further boosts the efficient use of domestic fruit production.

CONCLUSIONS

1. Between 2005 and 2012 only 75% of Polish households showed a real demand for fruit: 53% for fruit juice and 18.5% for fruit products.
2. The percentage of households showing the consumption of fruit and fruit products increased whilst the percentage of households consuming fruit juices insignificantly dropped testifying to Poles' health-oriented dietary habits.
3. The consumption volume of fruit, fruit products and fruit juices lowered. Though, it was accompanied by a significant increase in the abovementioned consumption in the studied period being a sign of price increases and a bigger share of more expensive fruit species (e.g. blueberry).

[17]The 2011 National Population and Housing Census collected data on 13,572,000 households in Poland. Considering this fact and the average fruit consumption in the analyzed households for the last three years, the rough annual consumption volume for the whole country was computed.

4. A decrease in real demand for fruit and fruit products in Polish households was concurrent with an increase in volume of domestic fruit crop.
5. A drop in consumption volume of fruit and fruit products was attributed to the increases of their prices and prices of goods and consumer services in total, which grew faster than the real incomes of the population. The spending on food and soft drink rose up to 26% while the spending on fruit made up only 6.3%.
6. Insufficient fruit consumption volume in Poland and the education program into their role in balanced diets may create a growth in demand and, consequently, boost the production, especially, of stone fruit and pears being used at a relatively high level in the domestic market.
7. Future possibilities for an increase in demand for fruit are limited by low incomes of local population and disproportionally rising food prices, including those of fruit.
8. The production of some fruit species, particularly apples, exceeds the domestic demand, thus, its further development is mainly dependent on the development of export.

REFERENCES

Koniunktura konsumencka – kwiecień 2014, 2014 [Consumer economic situation – April 2014]. GUS, Warszawa.

Metodologia badania budżetów gospodarstw domowych, 2011 [Methodology of household budget analysis]. GUS, Warszawa.

Pizło W., 2011. Sytuacja ekonomiczna polskich gospodarstw sadowniczych w latach 1999–2009 [The economic situation of Polish orchard farms 1999–2009]. Acta Scientiarum Polonorum, Oeconomia 10 (3), 123–134.

Polska w Unii Europejskiej 2004–2014, 2014 [Poland in EU, 2004–2014]. GUS, Warszawa.

Popyt na żywność – stan i perspektywy, 2013. Analizy Rynkowe 14/2013 [Demand for food – state and potentials. Market analyses no 14/2013]. IERiGŻ-PiB, Warszawa.

Produkcja ogrodnicza. Badanie sadów w 2012 r., 2013. [Orchard production. Orchard study in 2012]. GUS, Warszawa.

Rocznik Statystyczny Rolnictwa 2013, 2014. [Agricultural Statistical Yearbook 2013]. GUS, Warszawa.

Rocznik Statystyczny Rolnictwa i Obszarów Wiejskich, 2008, 2009. [Rural Area and Agricultural Statistical Yearbooks 2008]. GUS, Warszawa.

Rynek owoców i warzyw – stan i perspektywy, 2013. Analizy Rynkowe 42 [Fruit and vegetables market – state and potentials. Market analyses 42]. IERiGŻ-PiB, Warszawa.

Rynek Rolny 12 (274), 2013. [Agricultural Market 12 (274)]. IERiGŻ-PiB, Warszawa.

Stolarska A., 2009. Tendencje i zróżnicowanie regionalne poziomu oraz struktury konsumpcji w Polsce w latach 2000–2007 [Trends and regional diversification of consumption level and structure in Poland between 2000–2007]. Roczniki Naukowe SERiA 11, 3.

Stolarska A., 2014. Zmiany sytuacji dochodowej polskich rodzin na wsi po akcesji do UE (maszynopis) [Changes in financial situation in Polish families in the countryside after EU accession (typescript)].

Sytuacja bytowa gospodarstw domowych w 2003 r., 2014. [Welfare of agricultural households in 2003]. GUS, Warszawa.

Użytkowanie gruntów i powierzchnia zasiewów w 2013 r., 2014. [Land use and and sown area in 2013 r.]. GUS, Warszawa.

Włodarczyk A., Adamowicz M., 2011. Prognoza oraz determinanty wzrostu konsumpcji owoców i ich przetworów w Polsce w perspektywie roku 2025. W: Konsumenci a innowacje na rynku owoców [Forecast and growth factors of fruit and their product consumption in Poland for 2025. In: Consumers and innovations in fruit market]. Ed. M. Adamowicz. Wyd. SGGW, Warszawa, 49.

POPYT POLSKICH GOSPODARSTW DOMOWYCH NA OWOCE SZANSĄ ROZWOJU KRAJOWEJ PRODUKCJI SADOWNICZEJ

Streszczenie. Podstawowy materiał badawczy stanowiły niepublikowane dane empiryczne, pochodzące z badań budżetów gospodarstw domowych przeprowadzonych przez GUS w latach 2005–2012. Badano zmiany popytu na owoce i ich przetwory w Polsce, z wyłączeniem cytrusów i bananów, gdyż nie pochodzą one z krajowej produkcji sadowniczej. Badaniom poddano zarówno zmiany poziomu konsumpcji owoców i przetworów owocowych w gospodarstwach domowych, jak również struktury spożywanych gatunków. W celu wskazania podstawowych, ekonomicznych czynników mogących wpływać na kształtowanie się badanego popytu, scharakteryzowano zmiany poziomu dochodów ludności oraz ogólną strukturę konsumpcji, gdzie owoce nie są dobrem podstawowym. Stanowią one znikomy odsetek w strukturze konsumpcji, a przy niskich dochodach wydatki na nie mogą być ograniczane. Kolejnym ważnym czynnikiem kreującym wielkość spożycia owoców są ich ceny, które wpływały na okresowe zmiany popytu na poszczególne gatunki. Zmiany cen wynikały częściowo z wahań wielkości krajowej produkcji w znacznym stopniu uzależnionej od czynników atmosferycznych. Zmiany popytu przedstawiono na tle owej produkcji, pokazując stopień jej dotychczasowego wykorzystania oraz możliwości zmian pod tym względem w przyszłości.

Słowa kluczowe: gospodarstwa domowe, popyt, spożycie owoców, produkcja owoców

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CREATING THE IMAGE OF THE UNIVERSITY

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Abstract. The main objective of this study is to present the impact of the Erasmus student exchange programme on the university image building. The first part of the paper, describes forms of promotion which are most commonly used by universities, namely: advertising, sponsorship, personal selling, online promotion and engagement marketing. The impact of the Erasmus programme on the university image building is exemplified by the Warsaw University of Life Sciences – SGGW. The paper presents the history, the strengths and the promotional potential of the SGGW. In addition, the paper offers results of a survey, conducted among grantees participating in the Erasmus programme, which aimed at examining the familiarity and effectiveness of applied forms of promotion.

Key words: university image, forms of promotion, promotional potential, effectiveness of promotional programmes, Erasmus programme

INTRODUCTION

The current situation on the market of Polish universities is significantly different from that of a decade ago. The realities are as follows: growing educational aspirations, expansion of mass-education, and demographic low and increasing number of private universities. All these factors affect the level of market saturation with educational services. In order to beat the competition, the university should conduct a series of informational and promotional activities aimed at persuading the prospective students to select its educational offer. In times of internationalisation of human capital, promotion of the university on an international scale is definitely worth considering. Participation of the university in student exchange programmes is one of the methods of such promotion. Established over 25 years ago, the Erasmus programme enjoys a growing popularity and interest both among grantees and host universities. It contributes to increasing

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the mobility of young people, improving the quality of knowledge and the attractiveness of education. Participation in the programme is of mutual benefit: young people have the chance to study outside their home country; they receive the opportunity to study in a foreign language and broaden their horizons. The university, in turn, gains a good reputation, extends its educational offer, and most importantly, enhances its public image.

MATERIAL AND METHODS

The study was based on a survey conducted among students who have studied under the Erasmus programme in Poland for one semester or one whole year. The survey comprised 25 questions and was drawn up in English.

The purpose of the survey was to learn the opinions of the grantees about the Warsaw University of Life Sciences – SGGW, the positive and the negative aspects related to their participation in the Erasmus programme, and most of all, to examine the impact of the Erasmus programme on the University image building.

The target group were the participants of the Erasmus programme who were trained at the WULS-SGGW in the academic year 2013/2014.

Among the respondents there were 29 students (18 female, 11 male). This proves that the Erasmus programme is equally popular with women and men. The age of all the respondents ranged from 21 to 33. From the total: 62% of students, participated in the survey, came for a term study, 31% of them for two terms and 7% of them came for long-term studies. The reasons for such statistics are most probably financial considerations, the grant under the programme is guaranteed for one semester, and students wishing to spend two semesters at the host university usually cannot count on the financial support of their parent university.

PROMOTION INSTRUMENTS USED IN THE EDUCATION MARKET

University promotion is based primarily on providing information about its educational offer, presenting its strengths and creating a positive opinion about it. The university should introduce a series of comprehensive measures in order to cope with increasing competition and convince the potential candidate to select its offer. The most popular forms of university promotion are: advertising, sponsorship, personal selling, public relations and the Internet [Zeller 2006].

Universities usually promote themselves through advertisements in printed form or outdoor advertising (mainly billboards). “Print Ads” include all kinds of information guides, leaflets, brochures, catalogues or advertisements appearing in the press, both general and thematic.

Another instrument applied in the promotion of universities is public relations. The term “public relations” is derived from English and means relations of a company with its environment. Activities in the field of public relations include a formula for creating public confidence in, and a positive image of, the company. The environment of the company is composed of various opinion-forming entities, such as: consumers, companies

supporting marketing activities, institutions supervising the activities of the company, and political circles [Szwacka-Mokrzycka 2012].

The process of establishment of relations of the company with its broadly understood environments should involve a number of rigidly planned activities with clearly predetermined objectives. Thus, public relations are a series of long-term activities which should help to reduce the gap in the relationship between the company and its environment as a result of increasing confidence in its operations.

In the process of establishment of relations with the environment, the company has to fulfil a number of functions, among which the following are worth noting [Sznajder 1994]:

- Creation and popularisation of the company image;
- Dissemination of information which characterises the operations of the company in its internal and external environments;
- Establishment of contacts and maintaining ties with all the elements of the environment which are of essence from the point of view of the objectives of the company;
- Harmonisation of social relations within and outside the company;
- Strengthening and fixing the position of the company, and mitigating risks.

Another material function in public relations is performed by "sponsorship", as one of the fastest growing forms of promotion, which consists in the investment of funds or property in a certain activity while using the activity to build a positive image of the sponsor. This form of promotion plays a significant role in enhancing the image of the university as it contributes to increasing its popularity and recognisability.

For this reason, universities usually sponsor scientific, cultural and sporting events or invest in the activities of scientific clubs. In university practice, this form of promotion is not a large-scale phenomenon due to limited budget resources.

"Personal selling" is the oldest form of promotion, and even in countries where modern sales techniques are quite widespread, it still plays quite an important role. Personal selling is a crucial form of promotion, involving direct presentation of a product or service to a potential customer.

The efficiency of personal selling originates mainly from its individualised nature, and thus, the possibility to adapt to the requirements of specific buyers and to respond to their needs, in a flexible manner, during negotiations. When it comes to universities, personal selling is an immensely effective tool. It may take on various forms, such as participation in educational fairs, symposia, scientific or training conferences, exhibitions, "open days" or competitions.

Nowadays, advertisements which are placed on the Internet become increasingly important in the promotional process of the university. "Online advertising" is a form of paid, impersonal promotion, making use of the global Internet network, affecting the attitudes, motivations and the manner of conduct of its recipients [Sznajder 2002].

Today, finding a university without its own website is not an easy task. What is more, schools place their advertisements and information on various thematic portals, and offer all types of online competitions. Universities gradually introduce distance learning, and e-learning has become an additional asset to traditional educational forms. These measures are taken in order to ensure that a specific university is associated with modernity.

Websites are composed of many essential elements, such as: content (text), graphic and visual design, video animations, sound, hyperlinks to related websites, contact forms, and many others.

As a form of promotion "engagement marketing", also known as participation marketing or experiential marketing, has not gained much popularity yet. It is a form of marketing activity which supplements the traditional marketing offer with powerful experience, positive memories and emotions. It combines elements of various scientific disciplines – psychology, philosophy and art. Engagement marketing does not involve the sale of services, but the sale of sensations. The consumers of today are more and more demanding. They do not want the mere service any more, but a service which is accompanied by a package of positive emotions, experiences and feelings. The same applies to students who take this aspect of services into account when choosing the university. Not only do they want to acquire knowledge and develop, but they also wish to learn in a student-friendly place, offering plenty of attractions and a considerable dose of colourful student life.

To a large extent, satisfaction of the student affects the image of the educational facility through his/her recommendation and the sharing of positive opinions with friends. It is the current and former students of the university who shape its reputation. Word-of-mouth plays an invaluable role in creating the image of the university. Therefore, the university authorities should aim to provide their students with as many sensations, especially those unique, surprising and memorable, as possible. Pine and Gilmore created the following 3-S model.

Figure 1 shows the assumptions of 3-S, i.e. satisfaction, sacrifice and surprise. At the top of the pyramid, its creators placed surprise, which requires the service provider, in this particular case the university, to deliver surprising sensations, exceeding all the possible expectations of the customer. Satisfaction, as the foundation of the pyramid, must be continuously increased, whereas sacrifice, placed in the middle, must be gradually reduced. The satisfaction level can only be achieved if the other stages have been successfully completed.

Fig. 1. Model 3-S
Source: Skowronek [2012].

CREATING THE IMAGE OF THE UNIVERSITY

Image can be defined as the representation of a given item in the consciousness of persons from its surroundings. It is not a static concept and is prone to changes resulting from a shift in such persons' tastes and views.

Image is the result of a long-term creation strategy, aiming to consolidate or change the attitudes, believes and decisions of the addressees of the entity's marketing operations. The following are the basic components of the university image:

- name of the university,
- its age, tradition, size and scope of operations,
- its financial strength and prospects for the future,
- its mission,
- its product offer,
- marketing strategy applied by it.

The image of the university [Łazorko and Niedzielska 2011] is very often the reason behind choosing it as a place of study and acquiring knowledge. It is created in the minds of all those who have had a direct or an indirect association with the university, and as such it is very complex and multidimensional. This is due to the different tasks performed by universities: provision of education to a large number of students, scientific discoveries or scientific research. The image of the university may be viewed from the perspective of the student, employee, entrepreneur or state administration. In other words, the image of the university is the summary of the following components: science creator, entity supported financially, moral authority, educator, investor and employer. It is of utmost importance that all of these components should integrate with one another and supplement each other to create a complementary image of the university.

A key role in the university image strategy is played by public relations, and within its framework, a good relationship with the press and opinions formed by students. The students are a key link in the process of university image building – through their opinions, they convey the contents of the image. They are the first recipients of the mission, the vision and the values recognised by the university. Thus, the most important stage of university image building is to develop a positive image of the university among its students and employees.

In recent years, the number of public and private universities, institutes, academies both in Poland and individual countries is rapidly growing. The reason of this matter brought by globalization is that the secondary school students studying anywhere in the world are able to reach potential students studying in other countries. For this reason, one of the most important issues facing every university in the 21st century is to win the competition and to attract potential, smart students with R&D skills to their universities from the country and throughout the world. Thus, one of the most important issues for university is to have image and the image formation. In general, what is the image?

An image (from Latin: imago) is an artifact that depicts or records of visual perception, for example a two-dimensional picture, that has a similar appearance to some subject – usually a physical object or a person, thus providing depiction of it.

Also the image is a drawing or a symbol that comes to mind, embedding in mind, creating positive or negative thoughts. For example, what is understood by the people while

saying America's universities, the UK universities or the Polish universities and how they accept it? The concept of corporate image having importance in regard of increasing the corporate success, competitive advantage and corporate value has an important place for the universities as for all institutions. The university's image and how the image is perceived is an important concept for to the corporate success. Corporate commitment may develop in relation with the corporate image or the high corporate commitment may cause the improvement of the corporate's image.

FACTORS AFFECTING IMAGE

Shaping the image of the university should be approached comprehensively. There are a number of positive and negative factors affecting the image. Let's list some of these factors:

1. Universities having old and well-established traditions. Universities such as Harvard, Oxford are able to protect their image and are the most preferred universities in many areas at present as they have very old and well-established traditions, and hosted different students.
2. Universities benefiting from the image of the developed countries. Developed countries such as the UK, the USA, Australia, Germany and so on can be given as example. While asking the people preferring this category where they want to study, they directly say the UK or the USA etc. The first preference for these people is to study in these countries. Of course, the university is also of importance, but they mostly emphasize the country. Every university in these countries has a greater opportunities.
3. Universities having Nobel prizes, which did inventions, innovations in the world at the expense of their own success. This type of universities can be proper for the first category. However, there may be a number of new universities soon gained a high profile because of the success in any field and people, who want to have serious speciality, prefer this type of universities. As it is not easy to study and graduate this type of universities.
4. The existence of a well-known professors in the university. It may happen that the university is not well-known in the world, but the existence of the professors famous in certain fields (for example, the existence of the professor well-known in genetics, marketing or law etc. in the university) will lead to the formation of the image of that chair and to the increase of the number of the students.
5. The strong universities in the underdeveloped countries. There is different way of approach to this type of universities. Here, cheapness factor may play a role as a positive factor. Perhaps, the factors such as not fully developed infrastructure in the country and so on cause a decline in the university's image. If these universities were in the developed countries, their image might be well formed.
6. Economic, political and social conditions in the country. These factors are also play an important role. Social and political situation in the country impacts the image of the university. For example, the University of Cairo in Egypt has always had a distinctive image. However, the current political situation in the country not only affected the preference of the foreign students to study there, but also it has become a risk

factor for the local students. Factors, such as human rights issues, unsafe/unsecure places and places under pressure, limited freedom, "tight and challenging prisons", "solid and severe laws", "repressive police states", "state of the army", "female-male inequality" and so on, are recognized as risk factors. The opposite is known as a great opportunity.

IDENTITY OF THE UNIVERSITY

Identity is the sum of the elements which identify the entity and distinguish it from other entities (expressed in visual form) [Szwacka-Mokrzycka 2011]. These elements include the following: mission, objective and forms of action distinguishing the entity from other entities. Identity defines what makes the entity recognisable. Identity is a certain set of attributes which are communicated by the entity to its environment.

The attributes which are most frequently mentioned as the ones building market attractiveness of the university include a high ranking place of the university, based on criteria, such as: prestige, innovativeness, scientific potential, student conditions or the internationalisation of the university. Such rankings are used to convince oneself of the rightness of one's choice, rather than determine the choice in the first place.

Another important attribute of the university listed by students is the length of its existence – the longer and more complex the history of the university, the more established reputation it enjoys and the greater attachment to its tradition [Marek 2013].

A significant attribute is the professional experience of the faculty – the availability of employees with high level of competence and specialised knowledge. In this regard, universities often quote the number of professors with scientific achievements valued all over the world.

The availability of new technologies in the educational process – such as classes conducted with the use of computers, the Internet, multimedia projectors or the increasingly popular e-learning – is also perceived as an attribute.

Another important element is a good infrastructure of the university, including: a library, well-maintained campus, spacious rooms, comfortable chairs, air-conditioning, WiFi access, proximity of facilities, such as Xerox, buffets, cafes or dormitories of high standard.

Other frequently listed advantages include: grants and scholarships offered by the university, assistance in finding accommodation and proposed student placement opportunities – the availability of the "career services". While building the identity of the university, its authorities should be consistent in their action. At this stage, they should answer a few basic questions:

- Tradition or modernity?
- A large number of students or elite studies?
- Partner relationship with the students, or rather a master and an apprentice relationship pattern?
- Focus on the acquisition of theoretical knowledge or classes centred on solving case studies?

DESCRIPTION OF THE WARSAW UNIVERSITY OF LIFE SCIENCES

The Warsaw University of Life Sciences – SGGW is one of the largest and most prestigious universities in Poland. It conducts research and educational activities, as well as work involving implementation of scientific research into the economy. Due to the "nature" profile of the University, the curriculum is dominated by natural sciences, supported by technical and economic sciences, as well as humanities.

The history of the SGGW dates back to 1816 and is associated with the establishment of the Institute of Agronomy in Marymont. The initiators of the Institute were Stanisław Staszic and Stanisław Potocki. In 1918, the Institute of Agronomy was renamed to the Royal – Polish Main School of Agriculture, and in 1919, the University was nationalised and changed its name to the Main School of Agriculture [official English name: The Warsaw University of Life Sciences].

SGGW is one of the largest educational centres in Poland. The University offers both first degree courses (licentiate or engineering – BSc), and second degree courses (MSc). After the successful completion of a BSc course, the student may continue his/her studies at the MSc level, at the same faculty or a different one. This enables the student to change his/her major after the first degree course and obtain two diplomas, from two different faculties. In addition, the SGGW conducts postgraduate and PhD courses at numerous faculties.

The educational process at the University is supported by the modernly managed Władysław Grabski Main Library. The library applies innovative technological solutions, offering access to the latest scientific publications and valuable fiction in Polish and English.

The University has a well developed infrastructure. The University campus is one of the best planned and equipped educational and research complexes in the country. The social facilities of the University are quite well developed as well, and include dormitories, canteens, a swimming pool, a tennis court and other sports facilities.

SGGW cooperates with app. 250 foreign partners from all continents. This enables the students and the staff to make numerous trips to partner universities, within the framework of internship or study. The number of foreign students, who come to Poland in order to study at the SGGW, is also systematically growing. As part of the cooperation, every year 500 students have the opportunity to receive training in the UK, Switzerland, Norway, the Netherlands and the USA.

The University has numerous science clubs and circles, as well as student organisations and institutions, such as Student Self-Government, the Academic Choir, PROMNI – A Folk Group, the Representative Orchestra, student clubs and all types of discussion clubs.

The University has been highly ranked among other Polish and foreign universities for many years. It was awarded the title of a "Student Friendly University" by its students. In 2010 and 2011, the SGGW took the first place in the competitions organised by the Academic Centre for Information as the "Most Innovative and Creative University in Poland". Later on, in 2012 and 2013, the SGGW received the title of the "Most Innovative and Creative University in Poland in terms of creating career prospects".

RESULTS

To the question "Are you satisfied with the time spent during the Erasmus?", 76% of them answered "yes a lot". Only 24% of them gave the answer "rather yes". If we pay attention to these students we will see that most of them came from the country, the economy of which is more developed than in Poland (7% of students came from France, 3% of students came from Germany, 3% of students from Spain). Of course, this factor affects to what extent of their satisfaction.

To the question "Why did you choose Poland as a place to go?", 72% of students (28% males, 44% females) answered as "economical reason: it is very cheap country", 7% of students (females) answered as "I was interested in culture in Poland", 21% of students answered as "My colleague recommended me this country".

As it can be seen, mainly the economic and cultural factors have great role in the preference of Poland.

To the question "How did you find this university?" – 10% of students (females) answered "from the website", 14% of students (7% males, 7% females) answered "my college has recommended it to me", 76% of students answered "from my school: this university was listed as a partner school".

As it can be seen, the main factor for the students in choosing this university is mutual cooperation between universities. It is true that some universities still try not to open the doors to many universities (especially the poor image of the university), but this factor is important to provide the flow of smart students to the university. Of course, as it seemed the role of site is an undeniable. We live in a time when computer technology is well developed. People have the opportunity to choose what they want to study in a home. For this reason, the readability of the site, its attractiveness, simplicity is one of the very important issues in forming the image of the webpage.

To the question "Would you recommend this university to your colleges as a perfect to spend Erasmus?", 86% of students (52% women, 34% men) gave the answer "yes", 14% of students (10% women, 4% men) answered "no". Here, a noticeable issue is that answering "no" these 14% of students are from prestigious European countries: 14% women are from Germany, Italy, Spain and 4% men from France.

To the question "Do you think that Warsaw University of Life Sciences is creating a positive image a part of Erasmus?", 93% – 27 students (17 women, 10 men) answered "yes". 7% of students (3.5% women and 3.5% men) gave the answer "no". Those who gave the answer "no" were from France.

To the question "Which of listed promotion activities during Erasmus you liked the most", 28% – 8 students (4 men and 4 women) gave the answer "Welcome day", 31% of students (17% women, 14% men) answered "Food Party", 55% of students (41% women, 14% men) answered "Well-organized trips".

Students draw attention to the importance of the social activities in the campus. In the same manner, other university students put forward this kind of activity as an important feature of the university.

To the question "Basing on your own observations, please write which is creating more friendly image for a foreigner", 38% of students (31% women, 7% men) answered

as "Warsaw University of Life Sciences", 7% of students answered as "My home university". At the same time 55% – 16 students (9 women, 7 men) said "the same".

They think positive about the quality of education and the quality of faculty. They defined that there was not distance between the student and the teaching staff, teachers spared time for the students, they interested in students, and they were happy with this.

To the question "Please appoint the attitude of teachers to Erasmus student in Warsaw University of Life Sciences", the most preferred section was "positive attitude" (59% – 10 women, 7 men) and 41% – 12 students (8 women, 4 men) said "rather positive attitude".

As it can be seen it is more important issue to have such programs in the formation of the university image. However, one issue that should not be forgotten is that if students do not see what they wanted to see while coming to the university, they may cause not only formation of the image, but in contrary to the collapse of the image.

The answer "mostly positive but were some unpleasant incident" to the question "What was the attitude of Polish students to Erasmus people?", chose 38% of students (28% women and 10% men), 28% – 8 students said "neutral", 34% – 10 student answered "positive".

As a result, it can be said that all of the factors shaping the image of the university should be approached comprehensively. Otherwise, the image may be negative.

CONCLUSIONS

The brand image has nowadays become a strategic tool allowing better positioning of the university on the market. The results of research allowed to determination of possibilities of implementation of brand image for marketing strategy on the educational market. In view of research results it can be concluded that the main factor for the students in choosing this university is mutual cooperation between universities. Warsaw University of Life Sciences is creating a positive image for 93% of Erasmus students. The crucial role in creating image of Warsaw University of Life Sciences plays promotion activities.

REFERENCES

Aaker D.A., 2002. Building Strong Brands. Free Press Business, Simon & Schuster, London.
Budzyński W., 1997: Public Relations. Zarządzanie reputacją firmy. Poltext, Warszawa.
Kall J., 2001. Silna marka. Istota i kreowanie. PWE, Warszawa.
Kapferer J.N., 1995. Strategic Brand Management – New Approaches to Creating and Evaluating Brand Equity. Kogan Page, London.
Kotler Ph., Pfoertsch W., 2006. B2B Brand Management. Springer, Berlin-Heidelberg-New York.
Łazorko K., Niedzielska A., 2011. Kreowanie wizerunku miejsca w koncepcji marketingu terytorialnego [Creating the image of a place within the concept of territorial marketing]. Wydawnictwo Politechniki Częstochowskiej, Częstochowa, 50, 76.
Marek P., 2013. Budowanie pozytywnego wizerunku uczelni wyższej na przykładzie uczelni Szent Istvan. Praca magisterska. SGGW, Warszawa.

Skowronek I., 2012. Marketing doświadczeń – od doświadczenia klienta do wizerunku firmy [Engagement Marketing – From Customer Experience to Corporate Image]. Instytut Zarządzania Wartością SGH, Warszawa, 190.
Sznajder A., 1994. Sztuka promocji, czyli jak najlepiej zaprezentować siebie i swoją firmę [The Art of Promotion, or how to present yourself and your business in the best possible manner]. Business Press, Warszawa.
Sznajder A., 2002. Marketing wirtualny [Virtual Marketing]. Oficyna Ekonomiczna, Kraków.
Szwacka-Mokrzycka J., 2011. A study on food brand. Wydawnictwo SGGW, Warszawa.
Szwacka-Mokrzycka J., 2012. Marketing – mechanizmy gry rynkowej [Marketing – market game mechanisms]. Wydawnictwo SGGW, Warszawa.
Zeller P., 2006. Promocja szkoły w środowisku lokalnym [School Promotion in a Local Environment]. Wydawnictwo CODN, Warszawa, 45.

KREOWANIE WIZERUNKU UCZELNI

Streszczenie. Celem głównym opracowania jest przedstawienie wpływu programu wymiany studenckiej Erasmus na budowanie wizerunku uczelni. W pierwszej części opracowania zostały opisane formy promocji najczęściej stosowane przez szkołę wyższą, czyli reklama, sponsoring, sprzedaż osobista, promocja internetowa oraz marketing doznań. Wpływ programu Erasmus na budowanie wizerunku uczelni przedstawiono na przykładzie Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie. Zaprezentowano historię, atuty a także potencjał promocyjny SGGW. Ponadto zbadano opinie stypendystów biorących udział w programie Erasmus na temat znajomości i skuteczności zastosowanych form promocyjnych.

Słowa kluczowe: wizerunek uczelni, formy promocji, potencjał promocyjny, efektywność programu promocyjnego, program Erasmus

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CONTENTS
SPIS TREŚCI