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THE PROFESSIONAL ACTIVITY OF WOMEN IN NGOs IN POLAND

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INTRODUCTION

Non-governmental organisations (NGO), in the vernacular, are entities that act independently of public administration. The Act on public benefit and volunteer work [Act 2003] defines a non-governmental organisation as "not a public finance sector entity and not operating for the purpose of making a profit, a legal person created under the provisions of laws, including foundations and associations, among others, with the exception of political parties, trade unions and employers' organisations, professional associations, foundations, whose sole founder is the State Treasury". Other terms considered to be synonymous with NGO include non-profit organisation, volunteer organisation (which depend on the work of volunteers to operate), the "third sector" (public administration and business being the first and second sectors, respectively). The scope and form of NGO activities vary widely, but culture, the environment, human rights, education and technology are among the most common fields such organisations operate in.

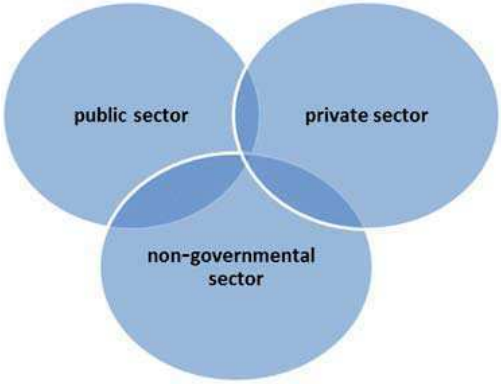

FIG. 1. The classification of sectors in Poland
Source: the authors.

The phrase "third sector", the collective name of NGOs, alludes to the division of a socio-economic democratic state into three sectors (Fig. 1). The first sector is public administration, and is also called the state sector. The second is the business or private sector, and com-

prises all institutions and organisations functioning to make a profit. The third sector, then, is made up of private, non-governmental organisations operating for society, not for profit.

THE AIM AND METHOD USED

The aim of this article is to assess the situation of women in non-governmental organisations in Poland. The source of empirical materials used to conduct the assessment is data from Poland's Central Statistical Office (CSO) as part of the study "Foundations and associations and organisational units of the Catholic Church, other churches and religious associations" (SOF-1) as well as the study "employer, self-governing economic and professional organisations" (SOF-4) in the years 1997–2012. A review of the literature was conducted and reports and studies by the Klon/Jawor Society were used.

NGOs IN THE CONTEXT OF EQUAL CHANCE FOR WOMEN AND MEN

The non-profit sector has been a subject of interest for researchers for at least 40 years [WWW 1]. In the European Union, NGOs are recognised as a welcome manifestation of civic life. They strengthen the institutional aspect of EU political life and are characterized by the capable articulation of different and complementary perspectives on particular aspects of collective life. Women's issues, their participation in the labour market, the position they hold in the different sectors of the economy have in recent times been widely analyzed in the majority of works, publications and analyses from this area. The level of analysis and its detail are contingent in large measure on the need for this type of knowledge, which in recent times, due to one of the EU's sector policies – equal opportunity policy – has become much more widespread.

Gender is one of the key characteristics used to analyse the labour market. Numerous phenomena are divided into the categories of male and female. Individual chances and decisions of workers and individuals seeking work are dictated by gender [CSO 2014a]. Women often work in other professions and industries than men, are compensated at different rates and spend different amounts of time at work. The differences are attributable to characteristics including education, involvement in family life and even what women expect of life. Because management models and market trends have penetrated all three sectors, the definitions and descriptions adopted in the article concerning labour market phenomena also characterise the third sector. In the development of the NGO sector, as with other sectors, the issue of diversity management, including equal opportunities for men and women, cannot be underestimated. Most private and public grant underwriters supporting NGOs now consider the principle of equal opportunity and gender mainstreaming in their programmes and require grant recipients to observe and implement them.

Gender discrimination is a form of differentiation, restriction or exclusion, which prevents one of the sexes from exercising, on an equal footing with the other, human rights and freedoms in the fundamental spheres of life, be it political, economic, social, cultural,

civil or others). Labour market phenomena associated with discrimination as they apply to gender fall under the label of the glass ceiling [Sawicka 2013]. These are a form of discrimination – whether intended or not – that are difficult to observe and define but which, deeper analysis reveals, occur widely in all three sectors of the economy [Kapuścińska 2014, WWW 3]. The following phenomena most commonly characterise the NGO sector:

– Vertical and horizontal segregation of the labour market – horizontal segregation is the division of sectors and professions into "male" and "female" ones, or division as a consequence of gender stereotypes. With vertical segregation, it is difficult for women to gain promotions and occupy positions of leadership and decision-making.
– Professional feminisation, which is associated with a prevailing number of women in a particular sector of the economy, profession or specialisation. Furthermore, the domination of women in less appreciated and worse paying segments of the labour market, often in professions stereotypically seen as female, commonly associated with caretaking and peripheral functions.
– The glass ceiling – the phenomenon in which women performing the functions of director encounter barriers that prevent them from advancing. As a result, women are relatively underrepresented in the highest positions and it is rare that they break in to those areas associated with power.

THE CHARACTERISTICS OF NGOs IN POLAND

In Poland, there are tens of thousands of NGOs operating in areas as diverse as sport, culture and the arts, education, social work and environmental protection. According to statistics of the Central Statistical Office in Poland (CSO, GUS), the number of third sector organisations grew threefold between 1997 and 2012. Revenue rose nearly threefold as well, while the number of individuals with full-time employment rose by more than half. In 1997, there were 27,400 organisations in the third sector, 67,500 in 2005, and 80,400 in 2010. In 2012, the number grew to 83,400, 83% of which were associations and social organisations of a similar character, including 10% foundations, 4% professional and trade associations, and just 2% social religious bodies (Fig. 2). Every tenth entity of the group was registered as a public benefit organisations – there were 8,000 of these.

Most of the organisations operating in 2012 were headquartered in Masovian voivodeship (13,400), Wielkopolskie (8,400) and Małopolskie (7,400). The greatest number of organisations operated in a medium-size administrative range: 38% operated within municipalities and 22% at the county level. Share of 18% of organisations carried out activities beyond the county level but within the voivodeship while 17% reached beyond the voivodeship to the national level. The least numerous were organisations with the widest and the narrowest scope of activities – 6% of organisations were involved in international activity while 9% were active only in their immediate surrounding neighbourhood. Three--fourths of the respondents conducted only statutory non-profit activities. The number of organisations that engaged in both non-profit and for-profit statutory activities was, at 18%, relatively high; however, they did not conduct, at the same time, business activity. Only 7% of organisations surveyed by GUS did conduct economic activity, regardless of whether it was accompanied by non-profit or for-profit activity.

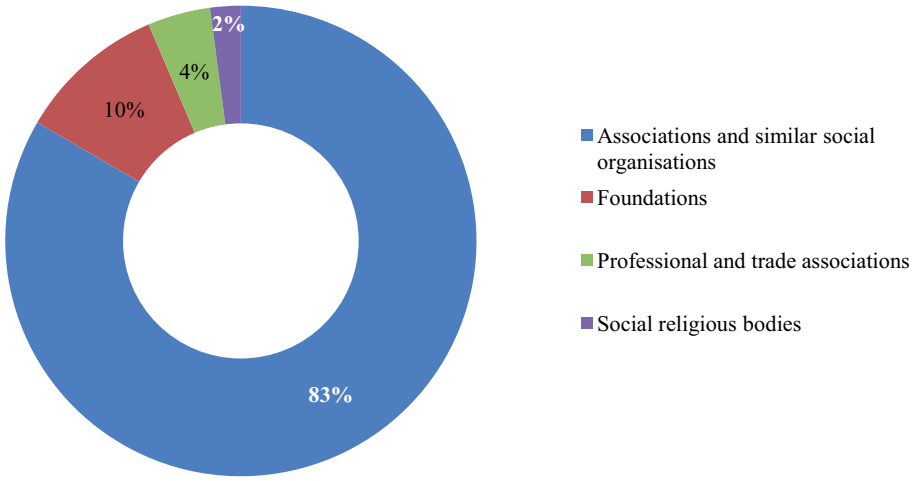

FIG. 2. The third sector organisations by organisation type in 2012
Source: CSO 2014b.

The main areas of organisational activity were most often declared to be sport, tourism, recreation, hobby and rescue services – while nearly half of the entities indicated one of the letter two areas (30 and 18%, respectively). The next most popular fields were culture and arts (11%), education and care, and research (9%), and social assistance and humanitarian aid (7%) – Figure 3.

Volunteers work in NGOs and some organisations also hire paid employees. As research carried out in 2013 by the Statistical Office of Cracow shows, the organisations active in Poland at the end of 2012 had 10 million members in total (or 3.4 million fewer than in 2005). The most numerous organisations are those of employers, and trade and professional associations excluding agricultural associations (the average number of members was 563 in each), and standard associations and social organisations (each with an average of 206 members). Share of 90% of organisations indicated they used volunteer work while there were a total of 2.3 million people volunteering to work for them. This number comprised the organisation members as well as people who work free-of-charge and voluntarily assist the organisation, even though they were not registered members.

Most organisations operate exclusively using social work, with 61% stating they had no paid employees. At the end of 2012, third sector organisations hired almost 150,000 people on employment contract. For almost 126,000 people, these were the main place of work and up to 72% of the employees were women. In the organisations that hired paid employees, civil law contracts were more common (22%) (contract of mandate, contract for specific work) followed by employment contracts (17%). The total number of employed people was 128,400, nearly 30,000 more than the 81,200 in 1997. Over 90% of organisations that participated in the survey were self-funded or received funds.

In the vast majority of cases the amounts were not high – 41% of the organisations stated that their annual income was lower than 10,000 PLN, while only 5% had income

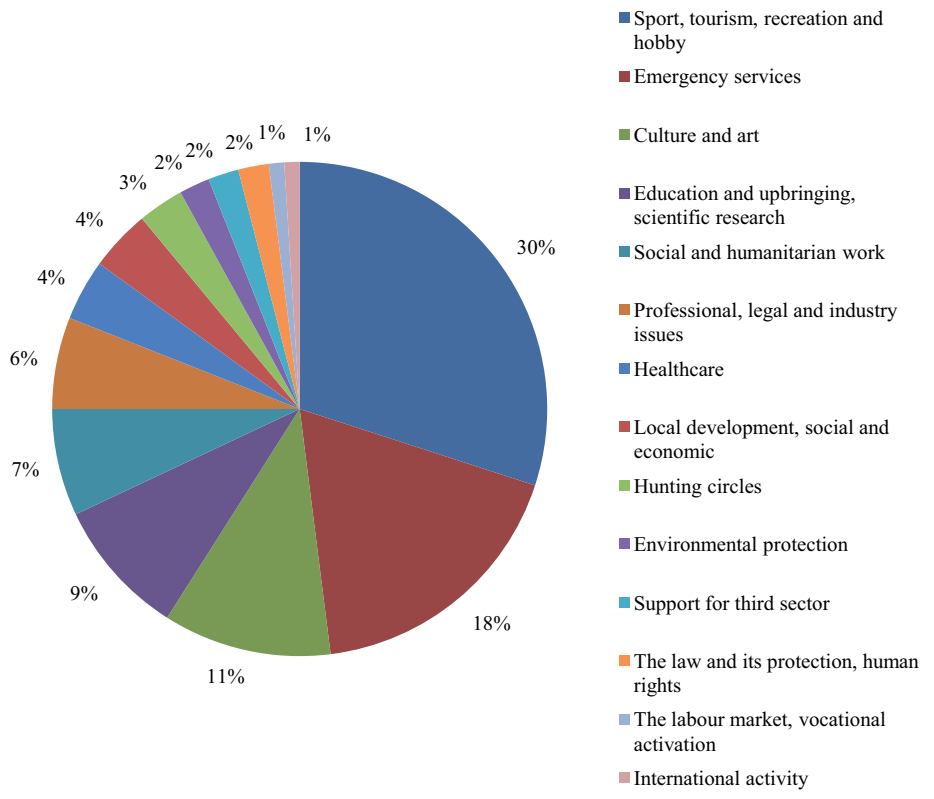

FIG. 3. Third sector organisations by most important statutory activity in 2012

Source: CSO 2014b.

exceeding 1 million PLN. The total combined income of all the organisations in 2012 amounted to 23.9 billion PLN – 15.8 billion PLN more than in 1997. The activity of Polish non-governmental organisations is mainly based on their members volunteering and authority representatives, and the scale of their activity and effectiveness depend, to a large extent, on how enthusiastically people embrace the work. Despite that, diversity within the sector is evident when their business models are compared. Most NGOs ensure that they are loyal to their mission and statutory provisions, while only every seventh admits to being forced to adjust its activity to meet sponsors' expectations [Kapuścińska 2014].

THE EMPLOYMENT OF WOMEN IN THE THIRD SECTOR IN POLAND

Wysocka's research suggests that women who work in the third sector were pleased with the positive atmosphere at work, the opportunity for self-improvement and professional development, and the tolerant approach to maternity prevailing in the sector [Wysocka 2009]. This research revealed neither discriminatory practices towards women hired in the third sector, nor a fear of redundancy.

Women stated they felt a sense of responsibility for the organisation where they work. Research conducted by Bogacz-Wojtanowska and Rymsza [2009] showed the positive characteristics of working in non-governmental organisations, which may help promote increase women's employment by developing women's qualifications, less formal relations at work, flexicurity and especially flexible work schedules. The flexible forms of work are considered to be among the best solutions (in terms of Poland's socio-economic situation), enabling the reconciliation of family and professional life. Part-time work is relatively common in non-governmental organisations and this makes it possible to combine professional and family responsibilities [Borowska 2012]. This leads them to opt for this type of employment. The labour market also provides many other models that make it possible to adjust work and other life commitments.

Against the background of the public and private sectors, for employed women the third sector is the friendliest, as opposed to work in corporations or the bureaucratic public sector organisations, weighed down by so much routine. At the same time, research has proved that women lack stable employment and higher salaries, which still today are a relative rarity in the third sector.

Studies on the social involvement of Poles show, first of all, that, by the numbers, women are slightly more likely to engage in volunteer work (37% of women and 31% of men declared that they volunteered in 2013), and less likely to have an antisocial attitude and to lack trust in others [WWW 2]. As research done by the Klon/Jawor Society shows, feminisation of the third sector in Poland concerns both employees and volunteers, but does not in turn apply to all members of the organisations and their governments (boards and councils), which clearly shows the division of roles between women and men in the Polish sector [Herbst and Przewłocka 2012].

Among NGO employees, there are far more women than men, though among their members and executives there are slightly more men than women (Fig. 4). The average organization has a third more men than women among association members. This results from the large number of sports organizations, which comprise more than a third of all organisations in Poland, and women make up the vast minority of their employees. Men also outnumber women on the boards of organizations – on a third of boards, in fact, there isn't a single woman. However, when sports organisations are removed, the ratio among members and the boards are balanced, and closer to half and half. Even on the boards of organisations that have a majority of women (those involved in social work, education and healthcare) there are men – six females to four men. However, among volunteers and workers, there is a preponderance of women. On average, among all non-governmental organisations, they represent approximately 60%, and when sports organisations are removed from the equation, the share of women rises to nearly 70%.

In the third sector, as on the entire labour market, there are industries where there are a prevailing number of women or men. Figure 5 presents those areas of non-governmental activity dominated by women. As indicated above, NGOs working in the sports, tourism, recreation and hobby sectors are dominated by men. Women make up a third of employees in the associations in those sectors. On the other hand, there are many more women in organisations working in education, social issues, healthcare and culture.

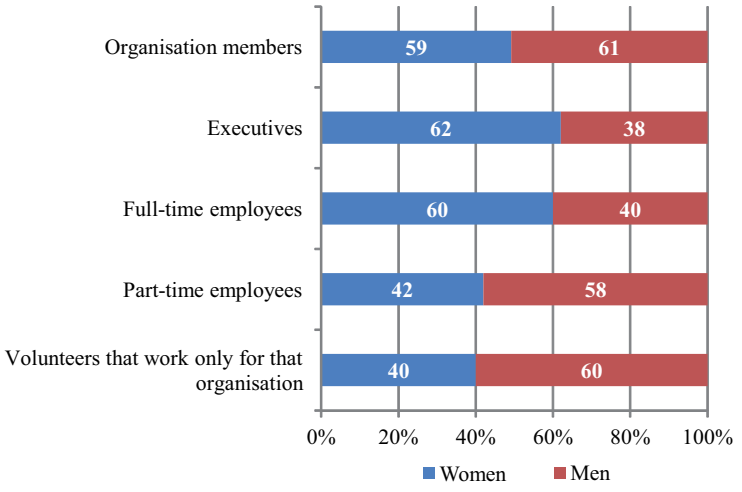

FIG 4. Individuals active in organisations by gender

Source: the authors, on the basis of Herbst and Przewłocka [2012].

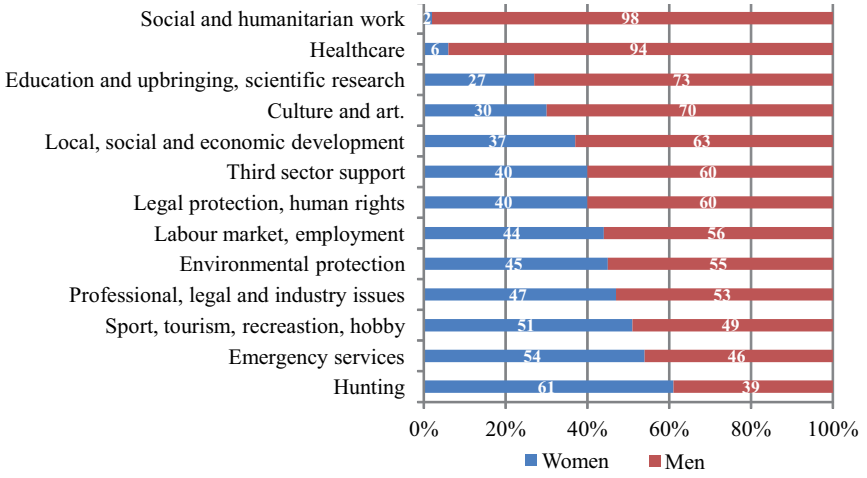

FIG. 5. The share of women and men in the bodies of collective organizations by activity in 2012

Source: CSO 2014b.

CONCLUSIONS

The non-governmental sector in Poland is not entirely dominated by women, though it is in public often referred to as such. Assessment of the professional situation of women in Polish non-governmental organisations may lead one to conclude that there are only a few areas dominated by women in the third sector, which is associated with horizontal

segregation – such sectors as health, education and social assistance. The more frequent promotion of men in female-dominated organisations – the glass ceiling, as the phenomenon is called on the labour market – is also present in non-governmental organisations. Men outnumber women on boards. Even on executive boards of organisations with a prevailing number of women (in the social, education and health sectors), for every six females there are four men. However, volunteers and employees of these organisations are predominantly women. The mission of the third sector and the ideology it's founded upon is largely based on philanthropy, solidarity, a sense of community and support for those at risk of social exclusion.

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Summary. The aim of the article is to assess the professional situation of women in non-governmental agencies in Poland. The study draws on data from Poland Central Statistical Office for empirical evidence. A review of the subject literature is done, and additional reports and published material from the Klon/Jawor Society complement the research. NGOs are a welcome manifestation of civic life in the European Union. In the development of the NGO sector, as in other sectors, the issue of diversity management, including equal opportunities for men and women, cannot be swept aside. In Poland there are tens of thousands of non-governmental organisations involved in sports, arts and culture, education, social assistance and healthcare.

Key words: labour market, non-governmental organisation, women

JEL: J08, J40, J71

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ECONOMIC DETERMINANTS IN THE SUPPORT OF ORGANIC ORCHARDS LAID DOWN IN THE RURAL DEVELOPMENT PROGRAMME 2014–2020

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INTRODUCTION

In the European Union's (EU) new financial framework for 2014–2020, pro-environment measures for reducing the impact of agriculture on the environment were given far greater priority than they had been previously. The most obvious example of how is the process known as greening, which consists in making the large part of payments to farmers under the system of direct payments contingent upon compliance with three basic requirements: appropriate crop diversification, maintaining proper pro-environmental land area and prohibiting the conversion of permanent grassland.

Organic farming has likewise gained in importance, a fact reflected by its being classified as a separate activity (from the Agri-environment programme) under the Rural Development Programme (RDP 2014–2020). This type of farming is the opposite of conventional agriculture – the priority is to protect the environment and provide products free of chemical residues. There's a total ban on the use of substances of industrial origin (fertilisers, pesticides and the like), which, while lowering production efficiency and significantly increasing costs [Runowski 2009], remains safer for the environment. Without the appropriate subsidies, however, organic farming simply cannot compete with conventional production.

In some EU countries organic farms incur losses in production that are compensated by a system of subsidies [Kuś 2012]. This is because the market for organic products has only begun to develop, and there is a lack of established sales channels. Therefore, the majority of those producing organics receive prices that are only marginally higher than those growers of conventional products command [Tyburski and Żakowska-Biemans 2007]. The rules for granting aid and the extent of subsidies for organic production are therefore very important as to a large extent they determine the rationale for organic production.

GOALS, SOURCE MATERIAL AND METHODOLOGY

The aim of the article is to describe measures supporting organic orchards as laid down in the RPD 2014–2020 and how that support has changed compared to the RDP 2007–2013. The research task was to present the economic situation of organic orchards relative to other farms engaged in the production of organics and to identify the results of changes in the system of supporting organic orchards.

Data on individual farms were used for the calculations. They were acquired by the Institute of Agricultural and Food Economics-National Research Institute in the framework of FADN (Farm Accountancy Data Network) for the year 2011 from 12,000 farms. The observation of commercial farms falls within FADN's purview. When the minimum economic size is exceeded, drawing a farm within FADN's field of observation, was established from the 2010 financial year on the basis of the analysis of the sum Standard Production (SO) from GUS (Poland's Central Statistical Office) data in particular classes of economic size. In practice, the calculation is done using the cumulative sum of the SO final classes, starting from the highest, to achieve approx. 90% of the population SO test. The lower limit of the range in which this occurs is the minimum threshold of economic size [FADN 2013]. The calculation was done according to the income statement in the FADN's current system.

In the sample, there are 270 individual farms certified compliant with the rules governing organic production. These farms were not chosen deliberately and are not representative in statistical terms of commercial organic farms found in the Polish FADN's field of observation. However, this is one of the largest sources of data on organic farms, and allows conclusions to be drawn about their economic situation.

The article also draws on data from Poland's Agency for the Restructuring and Modernisation of Agriculture (ARMA) and the Supreme Audit Office in Poland (SAO) from 2011 and 2015 on the use of public money for fruit orchards and berry farming within the framework of the agri-environmental programme.

LEGAL DETERMINANTS

Organic farming in Poland currently functions on the basis of both community and national legal acts. The most important include Council Regulation (EC) 834 of 28 June 2007 on the issue of organic production and the marking of organic products (Official Journal of the EU of 20.07.2007, 189/1) and the Act of 25 June 2009 on organic farming (Journal of Laws 2009 No 116, pos. 975). Under these laws, every farmer undertaking organic farming must apply with the relevant certifying body, which conducts annual inspections of the entire production process. Once farmers have met all the requirements, they receive a certificate and can sell product bearing the EU's organic foods label. Subsidies for farmers engaging in organic farming is a separate issue. The amount and rules of such subsidies were defined in the Rural Development Programme 2007–2013 and published by the Minister of Agriculture on the basis of their regulations.

THE GUIDELINES FOR SUPPORTING ORGANIC PRODUCTION UNDER THE RDP 2007–2013

If a farmer starting up organic production has managed a surface area of at least 1 ha of agricultural land, he or she could receive additional support for initiating the Agri-environmental Programme – Package 2 (organic farming). The additional support is contingent upon a 5-year agri-environment obligation being taken. The essential element of that requirement was the agri-environmental measures, which defined all the requirements and recommendations the farmer must meet. Beyond that, farmers had to commit to using the principles of good farming practices across the entirety of the farm. The payment request itself was submitted on the same form as the application for area payments. Table 1 lists the amount of payments in the framework of Package 2 (organic farming) in 2012.

TABLE 1. Amount of payments for organic farming in the RDP 2007–2013 (PLN/ha)

Specification	Period of conversion		
	years 1–2	years 3–5	post-conversion
Agricultural cultivation	840	790	790
Permanent grasslands	330	260	260
Cultivating vegetables	1 550	1 300	1 300
Cultivating fruits and berries	1 800	1 540	1 540
Cultivating other fruits and berries	800	650	650

Source: the author's own elaboration on the basis of the Regulation of the Minister of Agriculture and Rural Development of 26 February 2009 on detailed conditions and procedures for granting financial assistance under the Agri-environmental Programme of the Rural Development Programme 2007–2013.

For orchard cultivation, there is a three-year conversion period during which, despite meeting the requirements of organic farming, the grower cannot sell products as organic, but is entitled to increased support for production. In the framework of orchard cultivation, the group other fruit and vegetable cultivation was highlighted. These include low cost crops chokeberry, for example which qualified for lower subsidies than other fruit crops.

THE CURRENT ECONOMIC SITUATION OF FRUIT FARMS RELATIVE TO OTHER ORGANIC FARMS

At the end of the RDP 2007–2013 support period, the economic and organisational situation of organic farms broke down as follows (on the basis of FADN data).

The average size of permanent crop-classified fruit farms was 18 ha. Conventional farms surveyed by the FADN were similarly small, where fruit farms, with the exception of gardens, have the lowest average surface.

Despite their small acreage, however, organic fruit farms have the highest economic value. This is because the majority of farms involved in this type of farming operate at a high level of production, which translates into substantial income. Subsidies for the

production of organics, as a part of agri-environment subsidies, do not differ in terms of amount of subsidies in other types of farms (Table 2). This will be of particular importance for issues discussed further on in this article.

TABLE 2. Economic-organisational data on organic farms

Specification	Field crops	Permanent crops	Dairy cows	Grazing animals	Mixed
Economic size (PLN)	26 825.80	32 375.00	22 895.40	24 655.60	17 068.50
Surface area of agricultural land (ha)	43.4	18	20	39.9	19.1
Total production (PLN)	76 573	159 479	77 855	47 713	58 055
Total costs (PLN)	85 524	54 264	65 415	61 048	55 772
Subsidies for operations (PLN)	79 136	38 229	39 161	70 937	35 185
Agri-environmental subsidies (in the framework of operational subsidies) (PLN)	30 259	20 709	13 758	24 024	12 758
Income from family farms (PLN)	66 247	147 612	50 549	54 729	36 376

Source: the author's own research based on FADN standard results obtained in 2013 by ecological farms participating in the Polish FADN. Part I. Performance Standards, Warsaw, 2015.

Figure 1 shows the share of environmental payments in farm incomes in 2011 and 2013. Between 2011 and 2013 the share of environmental payments in the income of permanent crop-classified farms fell from 32 to 14%. The share grew in all other farm types with the exception of dairy farms. This means that orchard production became less dependent on environmental payments during this period.

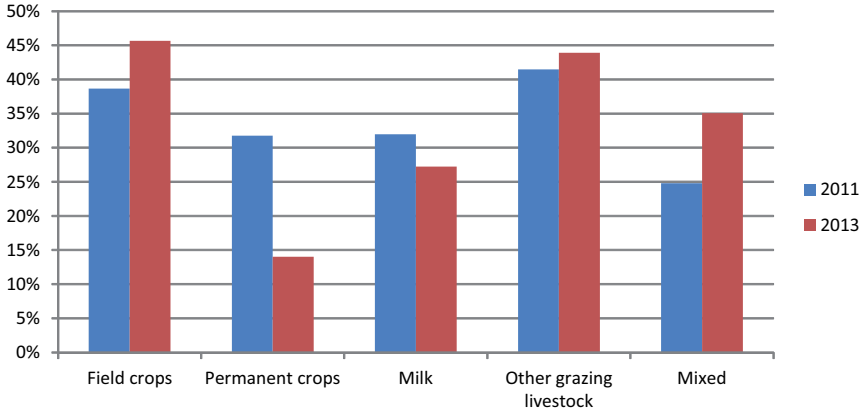

FIG. 1. The share of subsidies for organic production in organic farm revenues

Source: the author's own research on the basis of FADN data, Standard results 2011 from the organic farms participating in the Polish FADN. Part I. Standard Results, Warsaw, 2013 and Standard Results 2013 gained from the organic farms participating in the Polish FADN. Part I. Standard Results, Warsaw, 2015.

It should be emphasised that the system for supporting organic production (and particularly fruit farms) during the RDP 2007–2013 stirred a good deal of controversy, as reflected in a report on the inspections conducted by Poland's Supreme Audit Office [SAO 2010]. In it, SAO reported a large number of irregularities in the system for supporting the cultivation of organic fruit, including:

– a lack of legal requirements on the minimum crew (employees), seedling quality and agrotechnical operations to be carried out;
– high payments (1,800 PLN/ha) for nuts and the lack of the above requirements led to a situation where almost 60% of subsidies for organic orchard production was awarded for walnut crop.

Aware of these problems in 2008 and 2009, The Ministry of Agriculture and Rural Development in Poland (MARD) changed the Agri-environment programme, laying down the minimum agricultural treatments, minimal crews, lowering payments for walnuts and cutting off subsidies for new non-fruit nut farms.

The Agri-environment reforms were not revolutionary changes – they had to take place within the framework of the RDP 2007–2013. However, RDP 2014–2020 brought the opportunity to properly regulate organic orchard production.

A DISCUSSION OF THE CHANGES TO SUPPORT FOR ORGANIC PRODUCTION UNDER RDP 2014–2020

From the programme's very start, the RDP 2014–2020 measures on organic orchards caused a great deal of controversy among growers, food-processing companies and decision-makers alike. The biggest concerns related to the system of annual reductions of subsidies, according to which orchard keepers are entitled to 100% only for an area of 10 ha and 50% for 10 to 20 ha. No subsidies are currently available for anything above 20 ha. In addition, the payment is intended "exclusively for areas on which there are cultivated species of fruit trees during fruiting periods/or fruiting shrubs as laid down in the regulation". In justifying these measures, MARD reported:

– the rapid increase in the area of ecological fruit cultivation (including apple trees) was not translating into production of certified fruit. This is what led the European Commission to initiate its audit;
– support of the agri-environmental programme in accordance with the principle of additionality cannot be the sole reason for the decision to start organic production;
– major abuses on the part of beneficiaries – growers combatting misuse of ecological payments. Reducing environmental payments to 10 ha of orchards was intended to limit the setting up of large-scale cultivation only in order to obtain grants [Ministry of Agriculture and Rural Development 2013a].

Unfortunately, these arguments are confirmed by the results of SAO's most recent control [SAO 2015]. The inspector called out particularly the very low yields being produced by organic fruit farming. In 2005, the yield was 15.5 t/ha, but the figure came in as low as 0.7 t/ha in 2013. Inspections carried out among organic growers explained the reasons for the dramatic decline. Of the 20 farms visited, with a combined area of 600 ha, only 11 received marketable yield, and only 6 farms sold part of their crops as

actually organic. SAO estimated that fruit was sold as organic by only 3–5% of the areas inspected. Most growers (13) declared that when the RDP 2007–2013 came to a close, organics would be liquidated. This was because a large part of the controlled cultivation was established in areas that were thoroughly unsuitable for this purpose (the soil was too dry or wet), and the minimum agricultural measures had not been taken (fencing, protection against animals, elimination of weeds). Examples of such crops are depicted in Figures 2 and 3.

FIG. 2. 30-year-old multi-strain apple orchard, weeds preventing movement, protective cuts not made for a long time

Source: SAO, Information on the results of controls "the use of public means for the cultivation of fruits and berries under the agri-environmental programme".

FIG. 3. The cultivation of apple trees, wetlands, on neighbouring meadows. No fence. Trees destroyed by animals

Source: SAO, Information on the results of controls "the use of public means for the cultivation of fruits and berries under the agri-environmental programme".

Farming of this type arouses justified suspicion that it has been undertaken solely to obtain subsidies, and after the 5-year agri-environmental commitments their continuation will not make economic sense. Of course, not all of the organic fruit farms inspected failed. Some were in good shape, and their owners expressed their intention to maintain production even in the absence of subsidies. Nonetheless, state authorities bear partial responsibility for the problems that remain. By changing the regulations governing organic orchards, MARD has itself failed to lay a solid foundation for the production, particularly in light of the fact that investments (planting the trees) will not bear fruit literally and figuratively for a few years or even decades.

The results of SAO's inspections showed that numerous changes must be made to the system of support for organic fruit farming. Proceeding to establish rules and payment rates for organic farming in the RDP 2007–2014 was calculated based on the balance of lost income and additional costs incurred. Calculations are done for the country divided into four regions, though the payment rates were standardised for Poland as a whole (Table 3).

TABLE 3. Payments for organic farming in the RDP 2014–2020 (PLN/ha)

Specification	During the conversion period	After conversion
Agricultural cultivation	966	792
Permanent grassland	428	428
Vegetable cultivation	1 557	1 310
Basic fruit cultivation	1 882	1 501
Extensive fruit cultivation	790	660
The cultivation of fodder on arable land	787	559

Source: the author's own elaboration on the basis of Regulation of the Minister of Agriculture and Rural Development of 13 March 2015 on detailed conditions and procedures for granting financial assistance under the "organic farming" measure of the Rural Development Programme 2014–2020.

Experience gained from the RDP 2007–2013 also had an effect on the rates, related to the number of applications for specific activities, and defining the "attractiveness" of individual payments [RDP 2014–2020]. As part of the payment for orchards, two types of rates — for basic orchard crops and extensive ones were distinguished.

CURRENT RDP 2014–2020 DETERMINANTS

In the final version of the RDP 2014–2020, there remained the matter of reducing subsidies. "Economies of scale", reflected in the calculations of the Polish FADN, was the justification offered for the reduction. They show that the additional costs arising from compliance with environmental requirements are negatively correlated with the surface area of agricultural land. Large farms are relatively easier to adapt to these requirements, and can also obtain better prices for their products, a fact confirmed elsewhere [Gołasa 2015]. Large farms can offer sizable, homogenous batches, which is extremely important given the often large distances separating these growers from processing plants and the

need to test raw materials for the presence of residues. The cost of such a study can run up to 1,000 PLN (250 EUR). With the low volume of supply, organic processors face a dilemma: risk and take the raw material without examining whether the farmer has actually not used chemicals, or refuse to purchase the product. Unfortunately, experienced processors indicate that particularly small farmers fail to respect the environmental requirements, which can lead to the presence of residual chemicals in the finished product. The economies of scale are also reflected in fixed costs incurred on the farm, in the share of preparatory and auxiliary work during the agrotechnical operations, amortisation of newly purchased machines, and the ability to profitability hire specialised machinery. All of this justifies the degression of subsidies for organics to the following levels:

– surface areas not exceeding 50 ha are 100% subsidised;
– each additional hectare between 50 and 100 ha is 75% subsidised;
– each additional hectare over 100 ha is 60% subsidised.

Of note here is that additional degressivity for fruit cultivation has been abandoned (subsidies only to 20 ha). The opinions and conclusions of organisations of organic producers played an important role in the decision to do so, as they voiced a number of arguments against this solution. It seems that, at the Ministry of Agriculture, it was principally believed that organic agriculture (especially organic fruit farming) is done on small farms, with all work carried out manually by the farmer. This is patently false. Due to the completely different technology it involves, organic arboriculture requires extensive knowledge on the part of the grower, investment in specialised machinery, storage, and assistance from expert consulting services. True organic orchards employ all of these production factors and cover large areas. Only such holdings leave the realm of small, self-subsistence farms and manage actual commodity production, a fact FADN data on economies of scale confirms.

Additional degressivity of subsidies was waived; however, the final version of the RDP 2014–2020 included provisions on the obligation to cultivate species of fruit trees during the fruiting and/or fruiting shrubs. This means that newly planted crops that are not yet producing fruit are not eligible for support. These are sensible measures, as they limit the support of non-yielding production. The situation is somewhat different with the obligation to maintain farms with fruit trees for two years after the commitment had ended. In the first draft, that period was meant to run to five years, which would seem to go too far in limiting production. The new RDP also abandons another approach used in the RDP 2007–2013 linking agri-environmental-climate subsidies to organic farming subsidies, which organic farmers often took advantage of. While it is theoretically possible that commitments could be implemented under the agri-environmental climate measures and organic farming operations in a single farm, they must be implemented in different areas. This follows directly from EU Regulation 1305/2013.

CONCLUSIONS

The issue of subsidies for organic orchards in recent years has aroused great controversy and problems. On the one hand, support for organic production, which is safer for the environment and yields chemical residue-free product, is greatly needed. However,

there have been numerous examples of the use of subsidies contrary to their purpose, as inspections done by the SAO show. The solution to this problem must be very carefully balanced to eliminate the irregularities without wiping out the organic farming industry. Solutions implemented in the latest RDP seem to be a step in the right direction. The reduced subsidies, and the requirement that trees and shrubs be cultivated while they are fruiting, will help ensure the measures benefit real fruit farmers. As the FADN data show, organic orchards receive the lowest share of environmental payments in the income of all types of farms. In monetary terms, this means that organic fruit farming can yield significant revenues without the support of EU funds. The changes introduced will help plug the holes in the payment system, but ARMA and other inspection bodies have a huge role to play here. Without the education of farmers and spot inspections, even the best-designed legal standards will not be efficacious.

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Summary. The aim of the article is to describe measures aimed at supporting organic orchards in the the RDP 2014–2020 and how that support differs from that offered by the RDP 2007–2013. Drawing on FADN data, the article presents the current economic situation fruit farms face and discusses the importance of subsidies for organic production for those farms' incomes. The second part of the article examines the reasons the system of support for organic fruit farms was reformed and looks at the most important changes to the economic and legal determinants in the RDP 2014–2020 as they apply to the production of organic fruit farms. I assert that most of the new changes are justified and will allow real organic fruit farms to develop while also doing away with the planting of crops by farmers seeking merely to collect the subsidies for them.

Słowa kluczowe: Common Agricultural Policy, organic farming, orchard production

JEL: Q12, Q18

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ORGANIZATIONAL PRACTICE AND EMPLOYEE EXPECTATIONS IN THE PROCESSES OF PREPARATION AND IMPLEMENTATION OF EVALUATION SYSTEMS

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INTRODUCTION

Assessment and control processes are important to the proper functioning of an organization. They provide an overview of resources according to their usefulness and potential development possibilities. However, in practice they must be done efficiently and reliably, using appropriate evaluation methods and techniques so that the assessment process can provide a comprehensive overview of resources. It is also important to ensure that the assessment process is constant and systematic, not applied randomly and detached from the context. Another key element is the design of the evaluation process: it should enable each person who participates in it (not only the assessed, but also those doing the assessing) to have a full understanding of its purposes and principles.

In practice, however, these key elements are very often omitted, thus the evaluation is a fictional creation, or only a formality. This has a negative impact on employees' involvement, morale and attitude to the employing organization. Moreover, these are not the only mistakes that appear while rating personnel. Unfortunately, organizations are affected by diverse influences, fashions and trends in industry, and sometimes apply an evaluation method that is not compatible with their needs. This, of course, has a negative impact on the evaluation results, due to the inability to conduct fair situation analysis within the organization.

This article explores and describes the phenomenon of employee evaluation as practiced by Polish enterprises, and compares it to employee expectations. This subject matter is of the utmost importance today, because Polish organizations very often observe pronounced employee turnover, which may in part arise from mistakes made during the employee evaluation process. The study also aims to verify what assessment methods are most often applied and practiced by enterprises in Poland and how adequate they are

to the conditions prevailing in them. The study is based on the analysis of individuals' perception of the assessment process in the organizations examined. The research method used was a diagnostic survey, while the research tool was a questionnaire of my own design given to employees undergoing the evaluation process.

OBJECTIVES AND REQUIREMENTS OF EMPLOYEE EVALUATIONS

Today's organizations can use diverse techniques, forms and evaluation methods when making decisions about employee evaluations. Selection of the right evaluation method should depend not only on the organization's resources and competence of assessors, but should be closely associated with the specificity of the given organization and with the purpose of the evaluation. The basic aims of evaluation are: employment administration, motivation and instruction [Pocztowski 2016]. This means that results of an assessment process should be used to create the organization's personnel policy, not only in terms of promotion or reward, but also overall employment. Results of interim evaluations don't only provide knowledge about how employees are working, but also about their strong and weak points. The results can and should be the grounds for shaping career paths and stimulate the development of human resources. Of course, so that the evaluation fulfills its motivating role, it should provide employees with fair and constructive feedback [Sidor-Rządkowska 2013]. This element, in fact, enables employees to draw their own conclusions and correct their own behavior in the future. It is particularly important in the case of mature employees with a large degree of awareness and desires to create their own career paths.

Depending on the key purpose of evaluation in the organization, various assessment tools will be selected. These tools must above all be adapted to the specificity of the particular organization, i.e. size, organizational structure, span of control and industry in which it operates. It is also very important to ensure that the assessment tool has been chosen based on competences required from the employee – that means, based on the type of competence in question, its specificity and the level of progress [Oleksyn 2010]. The given tool must be practicable given the resources the organization has at its disposal – not only in financial terms, but also with regard to the competence of the people conducting the assessment process. During the creation of the assessment system in any enterprise, the fact that each method and technique has both disadvantages and advantages must be considered. When selecting an assessment for an organization, it is necessary to take into account the corporate culture, the standards adopted and the patterns of behaviour. This should be done to neutralize any weaknesses of the method and increase the likelihood it will carry out its function. Two basic groups of assessment methods are listed in the subject literature – absolute methods and descriptive methods [Sidor-Rządkowska 2013]. The difference between these two groups is that relative evaluation assumes comparison of employees between each of them, while the absolute evaluation appoints the comparision of employees to adopted models, standards and expectations [Król and Ludwiczyński 2016].

RELATIVE METHODS OF EMPLOYEE EVALUATION

Relative methods are rarely applied by today's organizations. Very often, however, the relative employee evaluations technique constitutes a basis for comprehensive enterprise policy in employee evaluations. It is usually achieved by creating rankings or using a normal distribution method. Ranking entails the ranking of employees in a specific order – from best to worst. A relatively simple method to apply, it consists in determining the employees position depending on how well they meet the company's expectations in terms of a defined criterion [Oleksyn 2011]. The assessor can also apply more criteria, which will be the basis for conducting the assessment, as per the assessor knowledge and idea of assessment criteria. Often the consequence of adopting this method is a so-called Australian race, where the employee in the last position leaves the organization [Sidor-Rządkowska 2013].

One of the biggest advantages of this method is it is simple and quick to use on teams with a smaller number of members. The disadvantage, however, is that employees are not given feedback and there are also limited comparisons to members of one group [Król and Ludwiczyński 2016]. The technique of normal distribution (forced) is based on the law of statistics, which states that the disintegration of every feature in any population is constant and thus possible to determine with a model. This means that the assessor assigns each of the evaluated employees to a specific range as a part of normal distribution. Thanks to that, the classification list breaks down thus: 10% of the employees assessed are the lowest or the highest, while 20% are slightly below and 20% slightly above the average, and the other 40% are assessed as being average [Pocztowski 2016]. This technique influences administrative decisions because assessors can identify with the highest and lowest levels of confidence.

However, not all groups of employees are representative samples and it may happen that the percentage of average, outstanding and poor employees doesn't correspond to the pattern. The Pygmalion error also constitutes a high risk, which may be due to a decrease in both motivation and sense of justice amongst employees [Sidor-Rządkowska 2013]. Comparison of pairs is another technique used in employee evaluations, especially when a large number of employees have received similar ratings and the supervisor wants to create a ranking that scores employees according to the level of competence. Then each pair of employees is compared separately, according to the "peer to peer" principle. When a large number of employees is involved, this technique is unusually time-consuming and may cause a great problem in producing a reliable presentation of the results [Sidor-Rządkowska 2013].

ABSOLUTE METHODS OF EMPLOYEE EVALUATION

Absolute methods are definitely more often applied in the practice of assessing employees. They involve comparing the employee to the adopted pattern of behaviors, competence and self-reliance level [Stoner et al. 2011]. In practice, the companies most often apply a descriptive evaluation or rating scale; however, these are not the only absolute

assessment techniques. A descriptive evaluation usually provides unlimited freedom of evaluation, but in the process causes the risk of subjectivity. A few varieties may be applied: free description, structured, criteria-based or criteria-free [Pocztowski 2016].

Scoring the evaluations involves determining the criteria to be used. The assessor's task is then to assign points to each of the criteria for each of the individuals assessed [Sidor-Rządkowska 2013]. This method is relatively uncomplicated, but it may not be objective, due to the lack of an assigned degree of importance to individual criteria are not assigned a degree of importance. Therefore, a rating scale is more often applied with weighted scales, which express the degree of severity of specific criteria [Pocztowski 2016]. The evaluation is based on a questionnaire, with the assessor selecting the correct answers for each area assessed. Due to the limited number of responses, the results may be falsified in such an evaluation, thus the results are not reliable.

The critical events method is very controversial, and therefore relatively rarely applied in practice [Sidor-Rządkowska 2013]. It involves listing the extreme behaviour of employees, both positive and negative. However, due to the incidental nature of the evaluation process, it may not be objective. The biggest threat in this method is that employees' assurance behaviors are the grounds to obtaining higher average evaluation scores rather than outstanding achievements. Behavioural scales are more popular because they enable the assessor to get to know and evaluate the behaviour of employees, at the same time providing constructive feedback to the person assessed [Król and Ludwiczyński 2016].

Evaluation through target setting is related to management by objectives [Pocztowski 2016]. The basis for the application of this method is the analysis of achieved objectives set by the employee and supervisor at the beginning of an evaluation period. Such a presentation includes the employee in the assessment process; however, there is also a risk of the superior imposing objectives, so this method does not meet its basic function, also minimizing the employee's motivation to achieve his or her objectives [Sidor-Rządkowska 2013]. Multi-sourced methods, including 360, 270 or 180 degrees are more often applied, especially in management positions. In the 180-degree evaluation, information is collected from 2 sources – the supervisor and the employee. Three sources of evaluation – employee self-evaluation, superior evaluation, and coworkers – make up the 270-degree evaluation. The 360-degree evaluation differs in that it includes reporting employees in the group being assessed. In some models, the client is also involved in the evaluation.

RESEARCH METHODOLOGY

The diagnostic survey method was used to explore the research area, while questionnaires were the research tool given to persons who were the subject of employee assessments in the organizations. The questionnaire contained 13 single and multiple choice closed questions and basic information. The study had a cross-cutting nature and was conducted in January 2015 on a group of 35 respondents aged 24–45. It used the method of intentional selection on the basis of the respondents' professional experience in an organization with headquarters (or a representative office) in Poland. In terms of variables, the most important factor was the amount of experience in the given organization, which

enabled us to determine whether an employee should be familiar with evaluation methods and systems used. The study found that 60% of the individuals surveyed had worked in the given organization for longer than 2 years, while only 6% had been working less than 6 months. The adoption of this criterion allows us to state that respondents possessed sufficient knowledge and experience to take part in the study on their employers' practices. Due to its exploratory character, the applied research approach was undertaken in order to become more familiar with the research area and the possibility of formulating further questions. The method of analysis adopted was primarily the distribution of number and measures of central tendency. The variables studied were: employee evaluation understood as an assessment of competence, the quality with which employees completed tasks, and attitudes and personality traits relevant to the objectives of the employing organization. As a part of employee evaluations, the occurrence and frequency of different evaluation methods and techniques was studied.

RESULTS

As the studies show, the majority of respondents took part in employee evaluations. 60% of the companies researched conducted evaluations every 6 and 12 months. This seems adequate to the organizations' needs, as it minimizes the risk of too much time lapsing between the occurrence of specific behaviours and their being discussed. Nearly 80% of people surveyed stated that the frequency of evaluation is appropriate. Even individuals evaluated less than annually or more often than quarterly regard this frequency as appropriate. The preference for too long an interval in the assessment process may indicate a lack of willingness to participate in it, or may be a result of negative experiences from the past. Almost 70% of those examined were evaluated with the 180-degree method, as many stated that their self-evaluation is taken into account during the assessment process.

In democratically managed organizations, regarding efforts to encourage employee participation in the process of creating a place of employment, such an approach is essential to assure the employees of their role in the organization. This approach should have resulted in an increased sense of justice among employee, though the studies did not confirm that. The majority (63.3%) stated that evaluation results in their organization are not fair. This should be a warning sign for the company and people engaged in the assessment process, because it means a decline in team morale, and in the long term may lead to a lack of employee engagement and turnover. A sense of injustice in the assessment process may be due to the lack of consequences for employees. Only 6.7% of respondents stated that the evaluations conducted had any consequences. Of course, this claim may also result from a lack of awareness of employees, since almost 30% of respondents declared that they hadn't been acknowledged in the evaluation methodology, requirements and purposes. In such a situation, the evaluation system does not meet its basic motivation function. In addition, it does not have a positive impact on the participants of the assessment process. Participants of the study were asked in one of the questions to take a stance on a few statements concerning employee evaluation and to respond based on a five-level Likert's scale.

Figure 1 presents results of the response to this question.

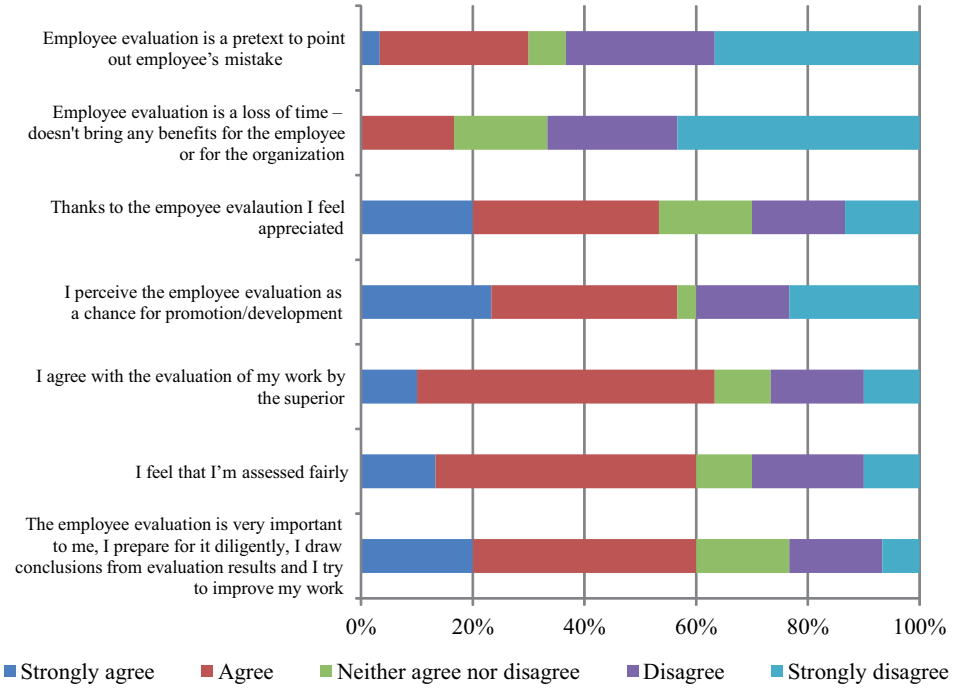

FIG. 1. Respondents' attitudes to the employee evaluation

Source: the author, based on the studies conducted.

As can be seen from Figure 1, as many as 60% of those examined declared that they diligently prepared for their evaluation, drew conclusions from its results and tried to improve their own work. Such a declaration means that the employee evaluation is treated seriously and employees take its result into account. Exactly the same number of respondents stated that they felt they were assessed fairly. This contradicts the previous conclusion, i.e. 60% of those examined think that evaluation results in their organization are unfair, but only on the surface. This suggests that members of the organization feel that other employees are being judged too harshly or not harshly enough in comparison to them. Such a feeling may cause the results of periodic assessments to lack both transparency and comparative criteria in the evaluations. Generally, the respondents examined (56.7%) have a rather positive attitude to the employee evaluation, citing the chance for career development and increased competence (56.7% of examined). More than half of those surveyed stated that thanks to the evaluation they felt appreciated (53.3%) and agreed with their superior's assessment of their work (63.3%). Such indicators show that the evaluation has a chance to fulfill its developmental function and to motivate employees to take initiative. Only 16.7% of respondents stated that it failed to bring tangible benefits and was a waste of time. This means the employees largely accepted the evalua-

tion processes. Just short of a third of those surveyed (30%) also stated that the evaluation constituted a pretext to point out mistakes, which may indicate that in the assessment processes conducted, there is too little emphasis placed on the employee's strong points and too much description of their weaknesses.

Certainly an applied method of the evaluation technique and how adequately it matches the organization has an impact on the perception of the evaluation. According to 50% of those examined, their organization method of assessment is not appropriate. Figure 2 presents common methods for the employee evaluations.

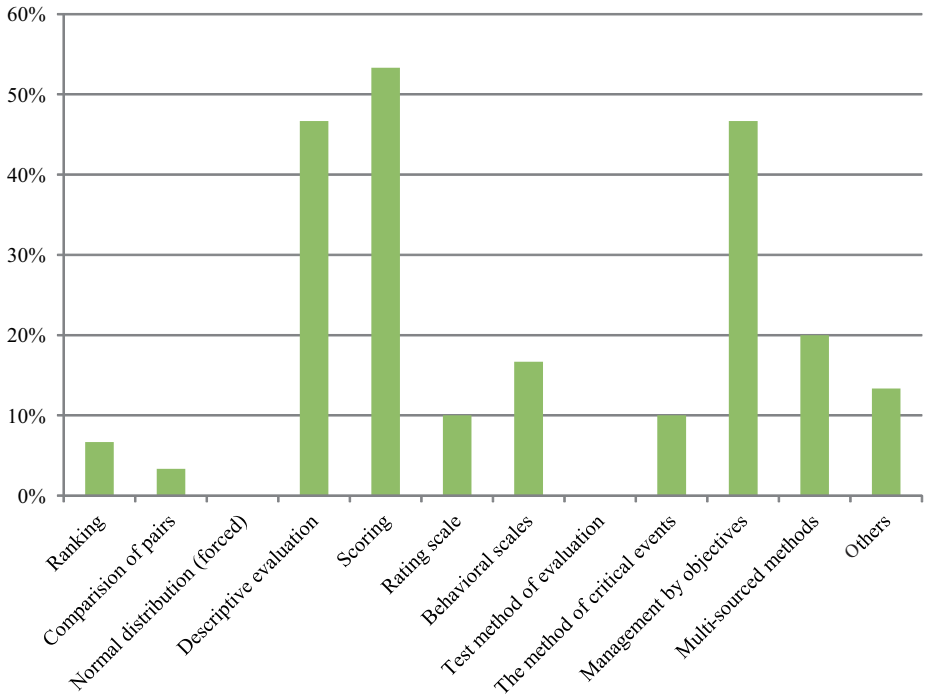

FIG. 2. Evaluation methods and techniques adopted in studied organizations

Source: the author, based on the studies conducted.

As can be seen from Figure 2, the most commonly used technique is a rating scale and descriptive evaluation, while the most commonly used method is management by objectives. A rating scale and the descriptive method are two different forms that may be used during employees assessment. The study proved that in organizational practice, the absolute methods are most often applied, because the majority of respondents declared exactly this type of methods in their professional practice. This, of course, has both disadvantages and advantages: On the one hand, it allows for an independent assessment of the employee, but it may also cause a sense of injustice. Only 26.7% of those examined stated that weighted or behavioral scales were applied in their organizations, while over

50% of respondents declared that a rating scale was used. This may mean that evaluation based only on criteria – and no assigned disadvantages or frequency of the appearance of given behaviours – is unreliable, and therefore employees don't have a sense of justice in the given evaluation system.

Employee evaluations in the organizations have different functions and do not always provide real consequences. From the point of view of creating the employee's engagement, the most important effect of evaluations is to meet his or her expectations. Figure 3 presents summary of the real consequences of the assessment processes versus employee expectations. As can be seen, the most common result of evaluation is financial gratification in the form of a bonus, a pay rise or an award, and in most indications it is also the basis for establishing the training plan and improvement in areas requiring improvement. Slightly less than half of those surveyed stated that they received feedback on their work and competence level alongside the results of their evaluation. This means that the employee evaluations don't meet their basic function – that is, they fail to apprise employees of their actual level of knowledge, competence and usefulness in the organization. Given that nearly 70% of those examined expected to receive reliable feedback and constructive criticism, this is a glaring weakness in the assessment processes.

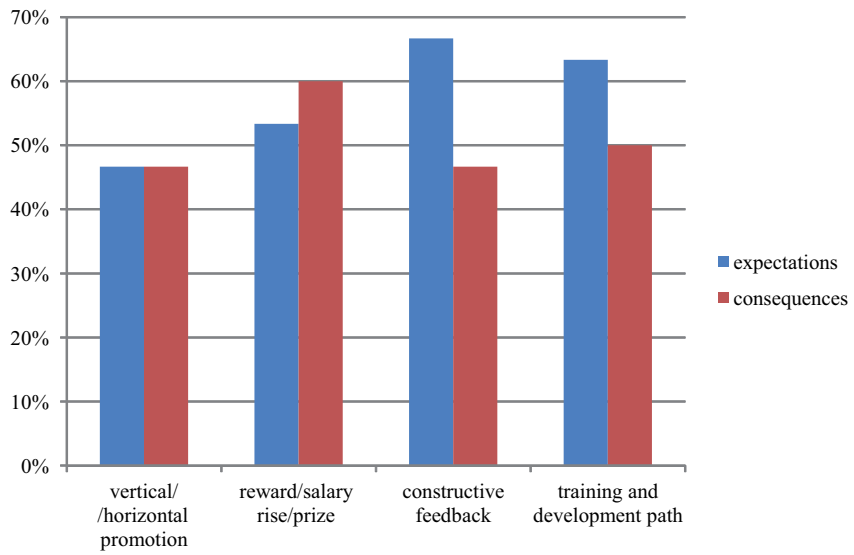

FIG. 3. Summary of consequence of the employee evaluation with the expectations of those assessed

Source: the author, based on conducted studies.

In most of the cases studied, the evaluation result led to material consequences, and the most common expectation employees had was to obtain feedback that would allow them to correct their own behaviours and improve work performance. In addition, more than 60% of the people surveyed stated that they expected to find out their

weak and strong points, as well as their developmental prospects. There is no balance between employee expectations and the actual effects of the evaluation. Regarding the issue of promotions (both vertical and horizontal), there is a balance between respondent expectations and the actual state of affairs – a total of 46.7% of respondents have such expectations with regard to the evaluation and they declare that these are the real consequences of conducted employee evaluations. It is worth noting that in organizational practice, the effect of evaluation has a material or financial dimension (promotions, bonuses, and pay rises). However, employees' requirements are different – they expect to obtain constructive feedback and outline a further development path by establishing a training plan and in-service training. It turned out that nearly 20% of participants in evaluations are not satisfied with the effects of the evaluation, which may affect the sense of justice felt in the organization. Certainly such a structure of employee expectations regarding the assessment process has an impact on their experience at work and professional maturity, which determines the level of awareness and responsibility they have as they forge their career paths.

CONCLUSIONS

The studies conducted illustrate that there is a certain disparity between the employees' expectations and the real consequences of their work. According to the subject literature, employees at the advanced stage of professional maturity expect, above all, non-material benefits; that is, not only to apply development possibilities, but above all to receive fair and constructive feedback. Unfortunately, organizations do not always manage to organize the assessment process in such a way that meets the employees' expectations in this regard, and hence fulfil the basic function of employee evaluations. However, the fact that the attitude of employees towards the assessment process is positive is very important, and suggest that enterprises manage to create an atmosphere of dialogue and sincerity. Nevertheless, it is clear that employees do not feel the evaluations instill a sense of justice, perhaps suggesting the evaluation method was badly selected, or the evaluation technique was inadequate. Indeed, the techniques most frequently indicated were the descriptive evaluation and the rating scale. From the point of view of a sense of justice, the behavioral scales or possibly weighted scales would clearly be more beneficial. Of course, it is possible that just such scales are applicable in the units analyzed here, though employees are not aware of this. This is a mistake, because only full transparency of the assessment process, as well as knowledge of evaluation principles and criteria, can guarantee that employees will feel they are being fairly assessed. The 180-degree technique and importance of the self-evaluation process in employee evaluation are extraordinarily important and certainly have a positive reflection on employees' entire assessment reception by employees. Results from the studies conducted show that these are not sufficient activities to ensure the assessment process is fully functional.

The results lead to further questions and areas of study, including the justness of assessment processes, the adaptation of the means and methods of evaluation to reality and the organization's needs, as well as the degree of employee participation in the assessment

processes. Finally, the ability to analyze the assessment processes, their requirements and criteria from the organizational perspective would be especially valuable.

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Summary. The aim of this work was to explore employee evaluation as they are used in organizations. The research method was a survey, and the research tool was a questionnaire. Results from the studies show that there is a discrepancy between employee expectations of the evaluation processes and their real effects. This can cause employees to feel a sense of injustice with regard to evaluations, which, according to research, is quite common. A lack of analysis of the evaluation practice from the organizational perspective was a substantial limitation of the research conducted for this article. Nevertheless, conclusions from the research can be used as pointers in creating and correcting evaluation systems in organizational practice.

Key words: employee assessment, employee assessment methods, employees' expectations, feedback, sense of justice

JEL: A14, M12, M51, M54

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AN EDUCATION VOUCHER AS A WAY TO INCREASE COMPETITIVENESS IN UPPER SECONDARY SCHOOLS EDUCATIONAL SERVICES MARKET

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INTRODUCTION

Since 1989 in Poland, there has been a clear trend towards liberalisation of economic policy. Privatisation has occurred, with ownership changes aimed at minimising state property and maximising private property. However, this process is not complete, and many segments of the Polish market are still dominated by the public sector. One is the educational services market. While private institutions providing education do exist, their market share is marginal (approx. 11% of all students [Jeżowski 2014]) and the main service providers are local governments, which own most of the schools in Poland. However, given their current financial situation, many families would have no choice but to turn to the government to finance their children's education. A failure to do so would require them to withdraw their children from schools. Nonetheless, the question as to which of the forms of property in the market of educational services is better is one to consider.

At this point, the question is, who should decide this. The answer would seem simple – every enterprise works to satisfy consumers' needs to the greatest extent possible; so the consumer decides from whom to buy a product or service. In the educational services market, consumers are students, but the decisions are made for them by their legal guardians (usually their parents), so the most optimum system would seem to be one in which the state budget does not avoid the financing of education. Meanwhile, the decision as to which entity should provide educational services would belong to the parents. Such a system is implementable through the use of education vouchers.

AIM AND METHOD

The main goal of the article is to present educational vouchers as an alternative to the current method of financing education in Poland. The vouchers would allow individuals greater access to the educational services market. The article:

– describes the current system of financing educational services in Poland;
– seeks to determine the best way to implement educational vouchers;
– proposes an algorithm for calculating the amount of the voucher.

The problem is considered from the perspective of local governments, which are responsible for providing access to educational service. It is therefore important that the new solution be possible to implement without changing the general law in Poland. It is also advisable that the reform should not cost local governments more money. To achieve these goals, descriptive analysis is used along with tabular and numerical examples. Legal acts and recent literature are the primary sources of information.

PUBLIC FINANCING CHARACTERISTICS OF EDUCATIONAL SERVICES IN POLAND – UPPER SECONDARY SCHOOLS

According to the Article 5, paragraph 5a of the Act of 7 September 1991 on education system (Journal of Laws of 1991 No 95, item 425, as amended) establishing and operating public upper secondary schools is the responsibility of the county. This means that financing education at the upper secondary level by the public sector, and issues attendant to it, are the responsibility of counties. Funds allocated by the counties for this purpose come in most from the educational part of the general subsidy paid to local governments by the state budget. The subsidy transfers funds from the state budget to local government budgets, which is a non-refundable, free, unconditional and objectively determined. Its purpose is to supplement the revenues of these budgets [Głuchowski 2001]. This definition suggests that the government may use funds from the grant in any way. The size of the subsidy is determined annually in the budget, but how it is divided is determined by the ordinance of the minister responsible for education (Journal of Laws of 2003 No 203, item 1966, as amended). Analysis of recent regulations on this issue shows that the amount of the subsidy that local governments receive depends on the number of students in the area (according to the principle "money follows the student") and the degree of professional advancement of the teachers working there. In brief, the subsidy for each local government is calculated as the product of the so-called financial standard (A) and the number of conversion students in the local government (Up_i) adjusted for weighting that recognises the professional advancement of teachers in the county (D_i).

Equations 1–6, presented below, have been prepared by the author, on the basis of the Ordinance of the Minister of Education of 15 December 2014 on the division of the educational part of the general subsidy for local governments in 2015 (Journal of Laws 2014, item 1977).

Equation 1. The algorithm for calculating the amount of the educational part of the general subsidy for local governments.

$$SO_i = Up_i \cdot A$$

The financial standard (A) is calculated according to the formula in Equation 2.

Equation 2. The algorithm for calculating the financial standard (A).

$$A = \frac{SO}{Up}$$

where:
SO – amount of the educational part of the general subsidy planned in the Budget Act for the year for all local governments;
Up – number of conversion students across the country.

As can be deduced from the formulas above, the A financial standard is the amount of the educational part of the general subsidy attributable to the so-called one conversion student. The amount of the subsidy which the local government receives depends on the number of conversion students in the local government, making it the most important value for the problem presented in the article. It is calculated as shown in Equation 3.

Equation 3. The algorithm for calculating the number of conversion students in each local government.

$$Up = \sum_{i=1}^{N} Up_i$$

$$Up_i = (Ur_i + Uu_i + Uz_i) \cdot D_i$$

where:
Ur_i – statistical number of students in the local government;
Uu_i – supplemental number of students in the basic school year in terms of school work;
Uz_i – conversion number of pupils or children and young people qualified in the base school year, in terms of extracurricular activities.

Source: the author, based on the Ordinance of the Minister of the Education of 15 December 2014…, op. cit.

The components of Equation 3 are calculated using the following formulas.

Equation 4. The algorithm for calculating the statistical number of students in the local government.

$$Ur_i = Sa_i + 0.7 \cdot Sb_i + 0.35 \cdot Sc_i + 0.5 \cdot Sd_i + 0.25 \cdot Se_i$$

where:
Sa_i – number of students of public and private schools for children and young people and students of teacher training colleges and social workers who provide education services full-time at the local government;
Sb_i – number of full-time students of public schools for adults, part-time students (or students sitting in or observing classes), and social workers training colleges who provide education services in evening courses or distance learning in the local government;
Sc_i – number of full-time students of private schools for adults in the local government;
Sd_i – number of part time students of public schools for adults in the local government;
Se_i – number of part time students of private schools for adults in the local government.

Equation 5. The algorithm for calculating the supplemental number of students.

$$Uu_i = P_1 \cdot N_{1,i} + P_2 \cdot N_{2,i} + \cdots + P_{33} \cdot N_{33,i}$$

signs:
P_1–P_{33} – weights for the numbers of students;
$N_{1,i}$–$N_{33,i}$ – numbers of students assigned to weights in the local government.

Table 1 shows the selected P_i values used to calculate the supplemental number of students in 2015.

TABLE 1. Selected values of weights used in the algorithm for the supplemental number of students to calculate the amount of the educational portion of the general subsidy in 2015

i value	P_i value	Students assigned to P_i value
4	1.40	– students who have mild mental retardation – socially maladjusted, behavioural disorders – risk of addiction, risk of social maladjustment, chronic diseases – requiring the use of special organisation of learning and working methods, and students of special primary schools, secondary schools, special schools in the special youth care centres and youth centres, social therapy – requiring special organisation of learning and working methods
6	3.60	students who are deaf, hard of hearing, or have moderate or severe intellectual disabilities
8	0.80	additionally for disabled students in integration classes in primary schools, secondary schools, upper secondary schools
9	0.082	students of upper secondary schools and art schools (excluding music schools)
14	0.40	students of classes at schools teaching in the national minority language or ethnic minority or regional language and students of classes at schools where educational activities are conducted in two languages: Polish and the minority language or regional language, which is the second language
15	0.20	students of sport classes
20	2.01	students of general music schools
22	0.92	students of art upper secondary schools
27	1.84	students of special extracurricular educational activities or educational groups conducted in primary schools, secondary schools and upper secondary schools – organised in medical facilities

Source: the author, based on Ordinance of the Minister of the Education of 15 December 2014…, op. cit.

Analysing the weights specified in the ordinance, it can be deduced that the higher values are assigned to students whose teaching requires more qualified staff (as in the case of students with intellectual disabilities), better equipment etc.

Algorithm for conversion number of pupils or children and young people qualified in the base school year in terms of extracurricular activities is presented in Equation 6.

Equation 6. The algorithm for calculating the conversion number of pupils or children and young people qualified in the base school year in terms of extracurricular activities.

$$Uz_i = P_{34} \cdot N_{34,i} + P_{35} \cdot N_{35,i} + \cdots + P_{47} \cdot N_{47,i}$$

where:
P_{34}–P_{47} – weights for the numbers of students;
$N_{34,i}$–$N_{47,i}$ – numbers of students assigned to weights in the local government.

Table 2 shows the selected P_i values used to calculate the conversion number of pupils or children and young people qualified in the base school year in the terms of extracurricular activities in 2015 and students assigned to them.

TABLE 2. Selected values of weights used in the algorithm for calculating the conversion number of pupils or children and young people qualified in the base school year in the terms of extracurricular activities in 2015

i value	P_i value	Students assigned to P_i value
35	1.50	students,who live in dormitories
36	0.50	additionally for students of special schools who live in dormitories
40	10.00	students of youth detention centres who are accomodated in the centres
41	1.50	students of social therapy centres who are not accomodated in the centres
43	0.02	students who benefit from school youth hostels according to the actual number of seats and the number of months of use

Source: the author, based on Ordinance of the Minister of Education of 15 December 2014…, op. cit.

The D_i ratio differentiates various local governments due to the professional advancement of teachers working there. It also takes into account the ratio of students living in villages below 5,000 inhabitants in the total number of students. Because it is of little relevance to the topic of the article, this ratio will be discussed no further here.

Analysing the algorithm for the amount of the educational portion of the general subsidy for local governments, it should be noted that it has been created with the notion that "money follows the student". That is, the subsidy is granted to local governments, depending on how many students are in their area. The extensive system of weights used to calculate the number of conversion students differentiates students according to the following factors: in which institution and in what form they take advantage of educational services (statistical number of students – Ur_i), the students' individual needs, their health status or type of service that they chose (supplementing number of students – Uu_i) and according to the additional public services available to have decent conditions for the use of educational services (conversion number of pupils – Uz_i). Ensuring that these questions can be answered is essential to the funding of these services, because it is related to the costs to be incurred in connection with the education of the student (and also has an impact on the price of educational services).

In the current system of financing education by the public sector, the money goes primarily to public institutions, as using the services of private schools is paid. This means parents who choose to have their children educated in private schools pay for educational services twice – the first time in taxes for public schools, which they do not use, and the other for the private school the child does attend. Access to the services of private institutions is severely limited for students from less affluent families. Consequently, the choice between public and private school is severely limited, which is a major flaw of the current system.

THE ESSENCE, ORIGINS, AND EXPECTED EFFECTS OF EDUCATION VOUCHERS

The concept of education vouchers was created in the 1960s by Milton Friedman, of the Chicago School of Economics fame. The goal was to create a kind of compromise between the socialist idea of redistribution of national income by running and financing schools by the public sector and the free market belief that competition is the best way to maximise management effectiveness. The idea of this compromise was to give consumers (parents) back the control over their money, either to keep it by sending their children to public schools, which were funded, or giving them the opportunity to spend money on purchasing the services of private institutions.

According to Friedman, to do this it was necessary to determine the amount of money the public sector can spend on funding education, estimate the cost of education for one student and allow parents to spend that money [Friedman and Friedman 1990]. Every parent would receive from the state a voucher that could be deposited in any school of their choice (either private and public). Friedman did not specify the algorithm to be used to determine the amount of education voucher, which is understandable, given that different countries have different funds and the educational services market in each of them has slightly different characteristics and processes. Consequently, in order to implement this idea, each country (or indeed any local government) should develop its own appropriate algorithm for estimating the amount of the voucher.

There are different types of education vouchers. In theory, there are several criteria [WWW1]:

1) the possible range of use for: limited vouchers (those that can only be used in public schools) and unlimited vouchers (those that can also be used in private schools);
2) the possibility of covering the difference between the value of the voucher and the price of educational services by parents for: supplementing vouchers (parents have the opportunity to pay the difference) and not supplementing vouchers (parents cannot pay the difference);
3) the value of the voucher: cost (cover all expenses for a child's education, regardless of the price of an educational service) and vouchers with a fixed value (the government covers the cost of education up to a certain amount);
4) the costs of transporting students to school: covering the expenses of transportation and those that do not cover this cost;

5) the income criterion for those dependent on income and those who are not;
6) the autonomy of schools with regard to the recruitment policy for: unconditional vouchers (giving students access to school, regardless of whether it is required to pass an entrance exam) and conditional vouchers (the student has to meet all the requirements).

Again, Friedman considered the education voucher as a way – or at least a partial one – to release the potential of the educational services market, which in turn would lead the United States out of crisis of the education system in the 1950s. The expected result would be increased private sector participation in the market and higher quality services. Paradoxically, this idea was criticised by liberal economists (in particular representatives of the Austrian school of economics). Murray Newton Rothbart believed that using vouchers could lead to nationalisation of the means allocated in education. Further, he warned, the consequence of such action could be to increase government control over private schools (which would have to meet certain conditions in order to receive the voucher) and even corrupt business education through political mechanisms [Rothbart 2004]. It is hard to disagree with this opinion. The aversion of liberal economists to the voucher, which does not break out of the public sector funding of education mold, and in the relationship between private schools and governments implements something of a public-private partnership, is understandable. Other proponents of economic liberalism spoke of the voucher as a manifestation of "educational socialism", which would imply, in fact, the nationalisation of private schools [Bielecki 2005]. Over time Friedman himself withdrew his support for the reform, recognising it as good only for a transitional system.

The direct control of the schools (in which the voucher is realised) by the public authorities is not the only solution proposed in the literature. There are also models based on the lack of these control facilities while the school meets the condition of employing teachers licensed by the government [West 1996]. However, the value of the measure as a transitional system should be appreciated. It is difficult to imagine the immediate privatisation of the education market with the simultaneous implementation of full payment for educational services in Poland. Such measures could destabilise the market (before the necessary adjustment processes have taken place) and lead to widespread public dissatisfaction (especially the poorer parts of society) in the short and even medium term. In such a situation, an education voucher would seem a much milder and less controversial temporary solution. It might be one of many appropriately synchronised reforms leading to market liberalisation in Poland and the completion of privatisation started in the 1990s. In the first phase it would be worthwhile to introduce a voucher for an upper secondary school level, because this is the moment when the student takes an initial decision as to which profession in the future he or she would like to pursue (by selecting the profile of classes in secondary, technical or vocational school). In this situation the private sector would have more opportunities to find a niche where it could specialise. Currently, there are such schools as the Non-public Upper Secondary School No 81 of the Warsaw School of Economics in Poland, which specialises in educating its students in economics and foreign languages [WWW 2].

PROPOSITION OF REFORM OF FINANCING EDUCATION IN POLAND

As already mentioned, in Poland the organisation and financing of education is the responsibility of local governments, while the role of the state budget is limited to determining the amount of the educational part of the general subsidy for local governments and paying it on their accounts. Therefore, the decision to implement an alternative method of distributing these funds (which is an education voucher) must be taken by the local government – in the case of upper secondary schools by the county. This means that the algorithm for calculating the amount of the voucher should also be determined by each government individually. At this point it is necessarily to determine what kind of voucher would be most appropriate for Polish local governments. Given the difficult situation of the public finance sector and related requirements for governments to progressively reduce their debt, it seems most appropriate the voucher would be the one with a fixed value that parents could supplement themselves (supplementing voucher). It is also an optimal solution for competitiveness in the market of educational services: On the one hand, schools that specialise in selected branches of science would bear various costs, which will affect the lower price of the service (lack of possibility of defining a uniform price). On the other hand, schools would be able to compete with each other in terms of price. Parents would be responsible for making an optimal choice between the quality of service and its price (which would involve greater or smaller surcharge). In addition, the voucher should be:

– unlimited – results directly from the goal of the reform;
– conditional – improving the quality of educational services in individual schools would be hindered if the school could not verify the knowledge and skills of students through entrance examinations;
– independent of income – relating the possibility of receiving a voucher by a student with the income of his family would generate unnecessary proliferation of red tape, and consequently increase the cost of operating the solution. In addition, experience with implementing a voucher dependent on income in Cleveland, Ohio shows that vouchers in America go mainly to children from African-American families [Zimmer and Bettinger 2010]. Favouring certain social groups in this way may even lead to ostracism from the rest of society, which is undesirable.

The issue of using the voucher to also cover transport costs is somewhat resolved in the Ordinance of the Minister of the Education, where the algorithm determining the amount of the subsidy contains increased weight for students from villages of no more than 5,000 inhabitants (transporting students from these towns may actually generate additional costs). In other cases, each government should decide individually if the voucher should contain additional funding for transport students (taking into account the financial possibilities).

It is also necessary to propose an algorithm for calculating the amount of the voucher per student. Given the assumption that the reform should not generate additional expenditure for local governments, the most appropriate way would seem to be to find just the right way of distributing funds from subsidies (adding any additional measures that are already added by local governments to finance public schools). A useful algorithm may be found in the Ordinance of the Minister of Education, which should be only modified

in several places. It includes a quite detailed weighting system, which takes into account both the cost of transporting the student (as mentioned in the article) and the additional costs associated with his state of health etc. The only problem that has not been solved in this algorithm is to take into account the additional money from the other income of the local government. Equations 7 and 8, prepared by the author, present a possible algorithms for calculating the amount of the education voucher.

Equation 7. The proposed algorithm for calculating the amount of the education voucher.

$$K_j = Wp_j \cdot A_i$$

where:
K_j – amount of the education voucher for the student;
Wp_j – conversion factor for each student, which equals the sum of weightings assigned to the student meeting the conditions laid down in the Ordinance;
A_i – financial standard for the local government.

Equation 8. The proposed algorithm for the financial standard (A) for the government for the purpose of determining the amount of the education voucher.

$$A_i = \frac{SO_i + B_i}{Up_i}$$

where:
SO_i – amount of the educational part of the general subsidy granted to the local government;
B_i – amount of additional subsidies from other income of the local government;
Up_i – conversion number of students in the local government.

Example of calculating the conversion factor for a student and the amount of education voucher he or she should receive

Assumptions:
- a student of private upper secondary school, living in a dormitory;
- the amount of the educational part of general subsidy for the local government: 100,000,000 PLN;
- additional subsidy from the local government: 8,000,000 PLN;
- the conversion number of students in the local government: 20,000.

$$A_i = \frac{100{,}000{,}000 + 8{,}000{,}000}{20{,}000} = 5{,}400 \text{ PLN}$$

$Wp_j = 1 + 0.082 + 1.5 = 2.582$ (as a student of private school – 1; as a student of upper secondary school – 0.082; as a student living in a dormitory – 1.5)

$$K_j = 2.582 \cdot 5{,}400 = 13{,}942{,}80 \text{ PLN}$$

CONCLUSIONS

Poland's system for financing education employs the idea of "the money follows the student". This means that the money for education of each student is allocated in the form of subsidies for local government. Such a system would greatly facilitate the implementation of education vouchers.

Education vouchers as a way of financing education in the long term has been criticised by both interventionists and economic liberals. However, it may be a good temporary solution as the educational services market is privatised. The main advantages of the vouchers is that they facilitate market access for private entities and widen access to the services of private schools for students from less wealthy families. The biggest drawback of this solution is the possibility of increased government control over private schools.

Implementing an education voucher that is unlimited, supplemental, independent of income, and conditional, and which has a fixed value using the weightings in the Ordinance of the Minister of the Education is possible without increasing public debt. In addition, wealthy governments could increase the amount of the voucher, which would not limit the possibility of financing education solely to funds received from the state budget.

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Summary. The goal of the article is to present the proposition of reform in the system of financing educational services by local governments, which could contribute to increasing the market share of private entities. Currently, the majority of educational services in Poland are provided by public institutions, which is contrary to the general trend towards liberalisation of economic policy and the privatisation associated with it. The article proposes an education voucher and presents one way to reform education, which would not generate any organisational problems for local governments and would not have a negative impact on public finances.

Key words: educational services, education voucher, local finance

JEL: H75, I22

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EVALUATION OF THE LEVEL OF SOCIO-ECONOMIC DEVELOPMENT IN THE COUNTIES OF WIELKOPOLSKA PROVINCE IN 2014

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INTRODUCTION

The processes of socio-economic development at the local level are determined primarily by the local governments, their main initiator. "Although local development depends to a large extent on macroeconomic conditions, it is accomplished mainly through stimulation applied by the local authorities; a number of steps are required to produce the desired process and phenomena" [Piasecki 2009, 323]. Therefore, the actions taken by the local government exert a significant influence on the standard of living, quality and capabilities to satisfy the needs of the inhabitants of the area, which was particularly influenced by the policy development put in place, as well as regulations concerning the entities functioning on the territory.

Local development is defined as "the complex of quality transformation of the local territorial structure in terms of the standard of living of its members and the conditions for the functioning of related business entities" [Sobczyk 2010, 127], it concerns changes occurring at the local level (community, county), while regional development is related to the transformations at the regional level. "An important element of the management of the local development is socio-economic and spatial planning. The methods and models are different, but generally this process precedes the assessment of the geographical situation of a territorial entity, economic structure, demographic situation, labour market, technical and social infrastructure, environment, resources and leading areas of development" [Piasecki 2009, 324].

The justification for undertaking research at LAU 1 was that it allows for the diagnosis of the socio-economic situation of a county of Wielkopolska Province in 2014, which in turn enables the development of the whole province to ve estimated, and each of the counties located there as well. The counties, though to a lesser extent than comminuties, influence local development, and even more so regional development.

AIMS AND METHOD

The main aim of the study was to assess the socio-economic development of the counties in Wielkopolska Province in 2014. The quantitative data were derived from the Local Data Bank of the Central Statistical Office [WWW 1], while qualitative data were taken from the subject literature. The specific aims concerned different aspects applied to assessing the level of the socio-economic development. The identification of the development in terms of environment, demographic, infrastructure, society, economic and finanances was carried out. Assessing the level of the socio-economic development required the use of a number of features to describe the counties under consideration.

Taxonomic methods comprise a set of methods for linear ordering of objects. They can be used to assess – among numerous other entities – the counties of Wielkopolska while taking into account a number of factors that influence them. To linearly sort the counties by socio-economic structure, a synthetic measure of the development was applied based on the method called TOPSIS, an acronym for Technique for Order of Preference by Similarity to Ideal Solution. TOPSIS is used to calculate the value of the synthetic measure and allows for the assessment of the socio-economic development of units (counties) described by certain criteria of assessment and metric and ordinal features. The construction of the synthetic feature was presented by prof. Zdzisław Hellwig, while the creators of TOPSIS are Lai Ching-Hwang and Yoon Kwangsu [Hwang and Yoon 1981].

Linear grouping methods are used to assess the objects described by a number of features, allowing for their arrangement them from "best" to "worst" on the basis of the adopted typological criterion. Due to a complex phenomenon, the objects tested can be assessed and ordered using a synthetic feature (synthetic measure of development), created as a function of actual directly measurable, but also ordinal simple features, defining the essential elements and linking the complex phenomenon [Wysocki 2010].

Simple features creating synthetic (aggregate) features, specifying the property directly immeasurable, can be defined as stimulants, destimulants and nominants. Stimulants are simple features, higher values of which are desirable and make it possible to qualify the entity as better from the point of view of the study being conducted. Stimulants are positively correlated with the synthetic feature. In the case of destimulants, lower values are more desirable and high values indicate the entity tested had a low position in the set. Destimulants are negatively correlated with the synthetic feature. Nominants are not significantly correlated with the synthetic feature. This feature takes the form of a stimulant to a certain point, called the nominal value, but subsequently has the character of a destimulant [Wysocki and Lira 2007, Wysocki 2010].

In the process of creating a synthetic measure of development based on TOPSIS involves the following stages [Wysocki 2010].

Stage 1. Creating a hierarchical structure of a multi-criteria problem for assessing the development level of units. This stage involves dividing the study problem into components, which is the main assessment and most important criterion (the level of socio-economic development), and the secondary criteria (aspects of development, natural, social, infrastructural or economic and financial conditions). By using the selected criteria, simple features are chosen to describe the analysed objects of the study [Łuczak and Wysocki 2005, Wysocki 2010]. Using substantive and statistical analysis, the features are selected. The values of simple features determined for each of the objects create a matrix of data:

$$X = \begin{bmatrix} x_{11} & x_{12} \cdots x_{1K} \\ x_{21} & x_{22} \cdots x_{2K} \\ \cdots & \cdots \cdots \cdots \\ x_{N1} & x_{N2} \cdots x_{NK} \end{bmatrix}$$

where

x_{ik} – value of k-th feature (describing the level of socio-economic development) (k = 1, …, K) in i-th statistical unit (county) (i = 1, …, N).

Stage 2. Normalising the features' values. At this stage, the release of features from the titer and standardisation occur as numerical ranges. For this purpose, zero unitarisation, which is linear normalisation, can be applied. Destimulants and nominants are brought into the form of a stimulant, while at the same time their values are made comparable. This stage is as follows:

I. For stimulants:

$$z_{ik} = \frac{x_{ik} - \min_i \{x_{ik}\}}{\max_i \{x_{ik}\} - \min_i \{x_{ik}\}}$$

II. For destimulants:

$$z_{ik} = \frac{\max_i \{x_{ik}\} - x_{ik}}{\max_i \{x_{ik}\} - \min_i \{x_{ik}\}}$$

III. For nominants:

$$z_{ik} = \frac{x_{ik} - \min_i \{x_{ik}\}}{\text{nom}\{x_{ik}\} - \min_i \{x_{ik}\}} \quad x_{ik} \le \text{nom}\{x_{ik}\}$$

$$z_{ik} = \frac{\max_i \{x_{ik}\} - x_{ik}}{\max_i \{x_{ik}\} - \text{nom}\{x_{ik}\}} \quad x_{ik} > \text{nom}\{x_{ik}\}$$

where:

x_{ik} is the value of k-th feature in i-th statistical unit, max $\{x_{ik}\}$, (min $\{x_{ik}\}$, nom $\{x_{ik}\}$) – maximal (minimal, nominal) value of the feature in the collectivity of units (rural counties) in Wielkopolska Province. The value of z_{ik} features transformed based on the above formulas are included in the interval of <0, 1>.

Stage 3. Calculating the feature of synthetic value (synthetic measure of development) using TOPSIS [Hwang and Yoon 1981]. TOPSIS method a standard method, and is associated with the creation of taxonomic measure of development, calculating the distance from the pattern, and on the basis of the construction of a synthetic measure [Binderman et al. 2009]. In Stage 3, the Euclidean distances of each assessed objects (counties) of pattern (z^+) are calculated:

$$z^{+} = \left(\max_{i}(z_{i1}), \max_{i}(z_{i2}), \ldots, \max_{i}(z_{ik})\right) = (z_1^{+}, z_2^{+}, \ldots, z_k^{+})$$

and anti-pattern development (z^{-}):

$$z^{-} = \left(\min_{i}(z_{i1}), \min_{i}(z_{i2}), \ldots, \min_{i}(z_{ik})\right) = (z_1^{-}, z_2^{-}, \ldots, z_k^{-})$$

After determining the pattern and anti-pattern of the development, the euclidean distance of each entity undergoing assessment of pattern (z^{+}) and anti-pattern (z^{-}) is calculated:

$$d_i^{+} = \sqrt{\sum_{k=1}^{k}(z_{ik} - z_k^{+})^2} \ (i = 1, 2, \ldots, N) \quad d_i^{-} = \sqrt{\sum_{k=1}^{k}(z_{ik} - z_k^{-})^2} \ (i = 1, 2, \ldots, N)$$

In the final part of the stage, the value of the synthetic measure of the socio-economic development is calculated on the basis of this formula:

$$S_i = \frac{d_i^{-}}{d_i^{+} + d_i^{-}} \quad (i = 1, 2, \ldots, N).$$

The synthetic measure of the development calculated using TOPSIS can take the values $0 \leq S_i \leq 1$. The higher the value of synthetic feature S_i is, the higher the position i-th object will have in the hierarchy (here higher means more socio-economically developed).

Stage 4. Linear arrangement of objects and their typological classification according to the value of the synthetic feature. Linear arrangement and preparation of the classification from "best" to "worst" of the object can be carried out using statistical methods, including the arbitrary method, which involves the division of the studied objects according to the intervals of value measure S_i [Łuczak and Wysocki 2012]. From four to six class intervals are distinguished, corresponding to different levels of socio-economic development: very high, medium (medium-high, medium-low), low and very low [Wysocki 2010].

The assignment of the counties to the appropriate classes constitute numerical intervals of measure S_i, which are as follows:

- Class I (very high level): Si ∈ <0.80; 1.00>;
- Class II (high): Si ∈ <0.60; 0.80);
- Class III (medium-high): Si ∈ <0.50; 0.60);
- Class IV (medium-low): Si ∈ <0.40; 0.50);
- Class V (low): Si ∈ <0.20; 0.40);
- Class VI (very low): Si ∈ <0.00; 0.20).

PLACE OF THE COUNTY IN THE TERRITORIAL GOVERNMENT

The Territorial Government "is the entity of power and the local economy, implementing a wide range of tasks including current municipal and social services, and taking investment decisions shaping the future living conditions and directions of the local development" [Sierak 2009, 544]. The legal regulations make the territorial units responsible for all matters relating to the development of the area [Kudłacz 2007]. "In terms of administration, the territorial government is the most important. It is understood as a form of lo-

cal community organizations (community, county) or regional community organisations (province)" [Piasecki 2009, 30]. The whole population residing in the units of essential territorial division create, by the law, a self-governing community. The territorial government exercises public power, and is authorised to carry out public duties, which the local government carries out on behalf of itself and on its own responsibility (Constitution of the Republic of Poland of 2 April 1997, Art. 16.1 and 16.2).

On 1 January 1999, Poland introduced a three-tier territorial division of the country into communities, counties and provinces. The county was the second unit of administration and local government in Poland (the Act on the introduction of the three-tier division of the country on 24 July 1998, Art. 1). A county is a local self-government community, and a relevant territory, i.e. a unit of basic territorial division covering the area of a few to several communities, or the entire area of a city with county rights (that is, a community with the status of a city granted with county rights) (Law on the County Government of 5 June 1998, Art. 1 and 2). The laws form the names of counties, seats of their authorities, as well as the communities included in them (Regulation of the Council of Ministers on the creation of counties of 7 August 1998).

SOCIO-ECONOMIC DEVELOPMENT FACTORS

The concept of development is ambiguous, because it refers both to the biological sciences, and the process of evolution. It implies the transition of living organisms to a higher, more complex level. The economic sciences defines development as the "result of positive changes of the quantitative and qualitative growth in the economic, social and natural systems" [Strzelecki 2008, 13]. In Strzelecki's definition of development, the integration of the natural, social and economic must be integrated if full development is to occur. This form of development is called sustainable development, which seeks "to improve the quality of life while maintaining social equality, diversity and the richness of natural resources" [Gerwin 2008, 3]. Local development is considered as "the process occurring on the territory of communes, cities and counties" [Szewczuk et al. 2011, 14].

Socio-economic development tends to grow in terms of a particular country, a regional unit (province) or a local unit (commune, county) and can be expressed as "a complex of targeted changes occurring in different spheres of social reality: economic, political, institutional, cultural, biological, ecological and environmental protection" [Chojnacki and Czyż 2006, 24].

The main determinants of the socio-economic development include the resources at the disposal of a specified territorial area. These resources can include, among other things, the population inhabiting a specific territory, the environment and capital. Other categories influencing the course of creating "an innovative economy capable of permanent development" include: infrastructure (including the Internet), institutions (administration, judiciary), access to capital, trust and relations (between economic entities and public authorities and science), research and development activity, education and qualifications, and the process of transformation of knowledge into business networks" [Wyrwicka and Hadaś 2011, 39].

The foundation of the idea of local development is the perception of the specifics of local issues, including the disparities (for example natural, geographical, cultural,

economic or infrastructural) between different counties and solutions adjusted to the local conditions. The actions recommended to bolster development should show the preferences of the local communities [Łuczak and Wysocki 2005].

CONSTRUCTION OF THE SYNTHETIC MEASURE OF THE DEVELOPMENT USING TOPSIS AND THE IDENTIFICATION OF THE TYPOLOGICAL CLASS OF COUNTIES

To assess the level of socio-economic development of the counties, a synthetic measure of the development based on TOPSIS was developed. Simple diagnostic features were used in the synthetic measure of the secondary assessment criteria. The analysis was conducted for the 31 urban and rural counties located in the Wielkopolska Province.

To describe the level of the socio-economic development of the counties, 28 simple features were initially proposed. A correlation matrix between the selected simple features was used to calculate an inverse matrix correlation, which was used to exclude features strongly correlated with each other. It was important that the elements of the main diagonal of the inverse matrix to the correlation matrix between the selected features be as small as possible. The smaller the values of the elements on the main diagonal, the weaker the correlation is between the selected features. To measure the level of socio-economic development in the counties, the following 18 simple features were chosen:

- live births per 1,000 inhabitants (x_1);
- deaths per 1,000 inhabitants (x_2);
- not-working age population per 100 persons of working age (x_3);
- registered unemployment rate (%) (x_4);
- students per one computer with the Internet access for the use in primary schools and junior high schools (x_5);
- population per one public pharmacy (x_6);
- places of accommodation per 1000 inhabitants (x_7);
- length of communal roads with hard surface per 100 km² of the total area (km) (x_8);
- flats in use per 10,000 inhabitants (x_9);
- percentage of the population using the water supply system in % of total population (x_{10});
- percentage of the population using gas in % of total population (x_{11});
- percentage of the population using sewage treatment in % of total population (x_{12});
- business entities registered in REGON (National Register of Economic Units) per 1,000 inhabitants (x_{13});
- total sold industrial production per 1 inhabitant (PLN) (x_{14});
- persons working in industry and construction in total working population (%) (x_{15});
- gross average monthly wages (PLN) (x_{16});
- participation of own income in total income budgets of counties (PLN) (x_{17});
- participation of investment expenditures of the communities and counties in total expenditures (%) (x_{18}).

The threshold criterion of correlation was 15, but there were not more than 12 elements of the main diagonal of the inverse matrix to the correlation matrix between the selected features (Table 1).

TABLE 1a. Socio-economic development categories of the counties of Wielkopolska in 2014

Counties	Live births per 1 000 inhabitants	Deaths per 1 000 inhabitants	Not-working age population per 100 persons of working age	Unemployment rate (%)	Students per 1 computer with Internet access for use by students	Population per 1 public pharmacy	beds per 1 000 inhabitants	Length of communal roads with hard surface per 100 km² (km)	Flats put into use per 10 000 inhabitants
	x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_9
Chodzieski	9.70	9.80	58.7	13.80	23.90	3 402	13.33	37.96	16.40
Czarnkowsko-trzcianecki	10.50	9.00	58.7	11.80	18.79	4 002	5.23	10.27	21.02
Gnieźnieński	10.90	8.90	58.5	12.30	22.77	2 591	22.48	51.43	33.03
Gostyński	11.30	9.40	57.1	10.50	20.21	3 175	3.65	45.75	23.75
Grodziski	11.70	7.70	56.1	7.50	26.20	2 845	10.27	30.14	30.18
Jarociński	11.20	9.00	58.4	10.60	12.83	3 988	12.22	46.76	22.46
Kaliski	11.20	9.30	58.6	6.80	16.37	6 901	5.06	60.16	26.49
Kępiński	11.00	8.80	57.5	3.40	19.15	3 323	2.27	39.75	28.16
Kolski	9.80	11.00	59.9	14.50	17.23	3 554	2.76	57.70	17.99
Koniński	9.80	8.40	55.5	17.00	18.05	4 161	28.53	75.22	32.31
Kościański	10.90	9.40	56.6	6.70	21.20	2 822	6.69	20.60	26.32
Krotoszyński	11.00	9.10	59.0	8.40	26.55	2 886	4.01	45.62	22.87
Leszczyński	11.80	7.50	57.6	6.30	16.43	4 186	55.20	21.58	50.77
Międzychodzki	10.60	8.10	58.0	8.40	24.32	2 652	57.39	11.26	26.41
Nowotomyski	12.40	8.60	58.7	4.60	18.51	3 241	13.97	16.93	37.85
Obornicki	11.30	8.40	57.1	8.80	25.61	3 952	5.71	20.03	28.39
Ostrowski	10.10	8.60	57.9	7.80	19.07	3 754	4.83	48.24	30.56
Ostrzeszowski	10.20	9.40	58.6	8.90	18.30	3 694	11.97	66.71	35.88
Pilski	9.30	9.20	56.5	10.00	24.48	2 997	7.21	24.90	21.52
Pleszewski	10.80	9.40	58.5	9.60	18.47	3 164	17.43	55.22	30.65
Poznański	12.00	6.90	56.4	3.40	22.14	2 639	10.39	58.12	93.24
Rawicki	10.10	8.90	60.7	9.20	21.82	3 359	2.78	46.95	21.52
Słupecki	10.30	8.30	57.9	14.70	18.92	2 596	30.83	48.40	24.66
Średzki	12.40	8.90	56.2	12.10	15.85	3 362	9.45	36.17	50.32
Śremski	11.50	8.90	56.9	7.00	22.52	3 200	10.01	23.69	48.75
Szamotulski	11.10	8.90	57.2	6.70	18.70	3 459	5.82	29.71	29.86
Turecki	10.40	9.20	58.4	9.00	18.06	3 518	2.13	46.43	22.28
Wągrowiecki	10.40	9.00	57.6	15.50	20.68	4 368	7.29	36.11	39.38
Wolsztyński	11.70	7.40	59.1	4.70	20.35	3 799	33.39	19.65	25.14
Wrzesiński	11.50	8.90	58.1	12.70	18.09	3 659	7.49	47.17	64.85
Złotowski	10.20	8.30	56.0	14.30	17.42	3 889	6.96	12.04	26.00
Wielkopolska Province	10.70	8.90	58.4	7.60	20.37	2 930	12.28	41.23	42.19
Poland	9.70	9.90	58.8	11.40	20.19	3 094	18.03	40.01	37.20
The values of the main diagonal of the matrix R-1	3.23	4.89	1.89	8.09	2.45	2.14	2.97	5.68	2.45

Source: the author's own calculations, based on the Local Data Bank of the Central Statistical (2014) [accessed: 07.10.2016].

TABLE 1b. Socio-economic development categories of the counties of Wielkopolska in 2014

Counties	Percentage of the population using the			Business entities registered in REGON per 1 000 inhabitants	Total sold industrial production per 1 inhabitant (PLN)	Persons working in industry and construction in total working population (%)	Gross average monthly wages (PLN)	Participation of own income in total income budgets of the counties (%)	Participation of investment expenditures of the communities and counties in total expenditures (%)
	water supply system	gas installation	sewage treatment plant						
	(% of total population)								
	x_{10}	x_{11}	x_{12}	x_{13}	x_{14}	x_{15}	x_{16}	x_{17}	x_{18}
Chodzieski	99.10	60.10	76.50	90	28 120	46.87	3303	35.42	14.30
Czarnkowsko-trzcianecki	94.40	16.20	57.20	81	27 796	38.84	3410	26.39	12.40
Gnieźnieński	97.20	49.30	73.90	106	18 854	29.51	3253	30.95	10.50
Gostyński	97.90	62.10	63.50	90	42 554	35.86	3283	39.43	15.00
Grodziski	94.90	60.40	54.00	95	42 414	35.58	2977	31.47	11.80
Jarociński	97.30	40.40	82.30	85	29 749	38.14	2804	26.97	14.90
Kaliski	94.60	8.60	29.60	76	25 320	16.13	3007	43.27	18.80
Kępiński	97.00	24.10	58.40	102	51 062	57.41	2544	38.35	17.60
Kolski	93.00	3.20	47.20	77	21 899	28.65	3624	27.87	12.50
Koniński	96.80	3.00	35.60	73	10 293	24.93	3328	37.26	16.30
Kościański	98.10	51.90	72.40	99	17 091	26.52	3257	38.77	16.60
Krotoszyński	97.30	48.20	60.40	83	30 902	35.83	2850	29.38	17.40
Leszczyński	94.50	20.50	49.00	102	48 103	36.01	3678	35.74	22.20
Międzychodzki	91.50	30.20	70.90	95	9 936	30.74	3173	35.95	16.50
Nowotomyski	92.60	55.40	53.20	108	38 821	47.10	3466	39.02	15.90
Obornicki	93.40	50.80	72.30	105	44 592	46.35	3596	29.03	13.60
Ostrowski	97.70	44.10	54.40	99	32 055	39.70	3212	34.33	18.10
Ostrzeszowski	96.70	26.50	50.30	99	28 389	33.66	3194	35.96	11.40
Pilski	94.90	56.20	84.20	93	46 896	33.28	3636	32.14	11.30
Pleszewski	95.20	8.30	52.70	90	20 412	24.49	3191	42.36	13.50
Poznański	95.60	71.40	67.20	153	57 461	41.13	3520	61.33	20.20
Rawicki	96.60	52.10	67.10	84	17 173	26.95	2921	35.70	11.80
Słupecki	95.80	1.10	55.60	86	14 714	22.56	3094	27.98	12.20
Średzki	96.30	50.50	65.90	99	25 800	39.27	3467	35.64	14.80
Śremski	97.80	58.20	79.00	105	18 730	33.83	3108	38.96	13.10
Szamotulski	96.90	23.00	71.90	95	73 938	43.07	3818	36.82	18.30
Turecki	98.40	5.10	49.20	71	30 699	39.69	3025	34.97	12.30
Wągrowiecki	96.50	30.60	63.20	87	15 309	29.81	3136	25.96	13.80
Wolsztyński	91.40	56.30	60.10	113	30 649	31.40	3014	27.23	21.10
Wrzesiński	98.10	21.60	61.70	108	42 572	42.42	3265	35.06	10.50
Złotowski	89.00	11.30	65.00	72	10 599	21.19	3019	20.52	13.90
Wielkopolska Province	96.20	47.40	69.40	116	38 035	32.35	3598	36.17	14.50
Poland	91.60	52.20	71.50	107	29 602	26.95	4004	31.30	18.00
The values of the main diagonal of the matrix R-1	4.92	4.52	7.13	11.08	6.02	3.26	4.71	4.32	2.43

Source: the author's own calculations, based on the Local Data Bank of the Central Statistical (2014) [accessed: 07.10.2016].

Simple features usually have different titers and ranges of variability, which prevents them from being directly compared. They must therefore be brought to a state where they can be compared with one another by normalising the values. To do that here, zero unitarisation was used. Based on that, the features' values were brought into the range of <0, 1>, while the features themselves were divided into stimulants and destimulants of socio-economic development.

Selected five diagnostic features recognised for the destimulants:

– deaths per 1,000 inhabitants (x_2);
– not-working age population per 100 persons of working age (x_3);
– registered unemployment rate (%) (x_4);
– students per one computer with Internet access for use by students in primary schools and junior high schools (x_5);
– population per one public pharmacy (x_6).

TABLE 2. Linear arrangement of counties in Wielkopolska by level of socio-economic development in 2014

Counties	Distance from:		Value of synthetic development indicator (S_i)	Typological class	The level of socio-economic development
	anti-pattern development (d_i^-)	pattern development (d_i^+)			
Poznański	3.490	1.350	0.721	I	high
Leszczyński	2.758	1.958	0.585	II	medium-high
Szamotulski	2.672	2.124	0.557		
Średzki	2.558	2.125	0.546		
Nowotomyski	2.519	2.194	0.534		
Kępiński	2.511	2.350	0.517		
Śremski	2.443	2.318	0.513		
Gostyński	2.388	2.294	0.510		
Wolsztyński	2.415	2.379	0.504		
Wrzesiński	2.313	2.312	0.500		
Ostrowski	2.250	2.316	0.493	III	medium-low
Kościański	2.374	2.457	0.491		
Grodziski	2.360	2.513	0.484		
Jarociński	2.319	2.482	0.483		
Obornicki	2.298	2.462	0.483		
Gnieźnieński	2.226	2.520	0.469		
Pilski	2.318	2.700	0.462		
Międzychodzki	2.242	2.643	0.459		
Chodzieski	2.225	2.666	0.455		
Ostrzeszowski	2.041	2.543	0.445		
Krotoszyński	2.109	2.685	0.440		
Koniński	2.222	2.849	0.438		
Pleszewski	1.962	2.621	0.428		
Turecki	1.974	2.814	0.412		
Słupecki	1.947	2.851	0.406		
Rawicki	1.920	2.902	0.398	IV	low
Kaliski	1.939	2.970	0.395		
Wągrowiecki	1.758	2.801	0.386		
Czarnkowsko-trzcianecki	1.690	2.929	0.370		
Złotowski	1.735	3.240	0.349		
Kolski	1.718	3.225	0.344		

Source: the author's own work, based on Table 1.

The 13 diagnostic features that occurred were the stimulants' level of the socio-economic development in the counties of the Wielkopolska Province in 2014.

After the division of diagnostic features for stimulants and destimulants and the normalization of their values, values of pattern and anti-pattern development were determined, and then Euclidean distances were calculated for all of the counties from the pattern and anti-pattern development. On this basis, the values of the synthetic measure of the development were calculated (Table 2). They are ordered linearly according to decreasing values, and four classes of typological analysed objects with the following levels of the development: high, medium-high, medium-low and low, were distinguished.

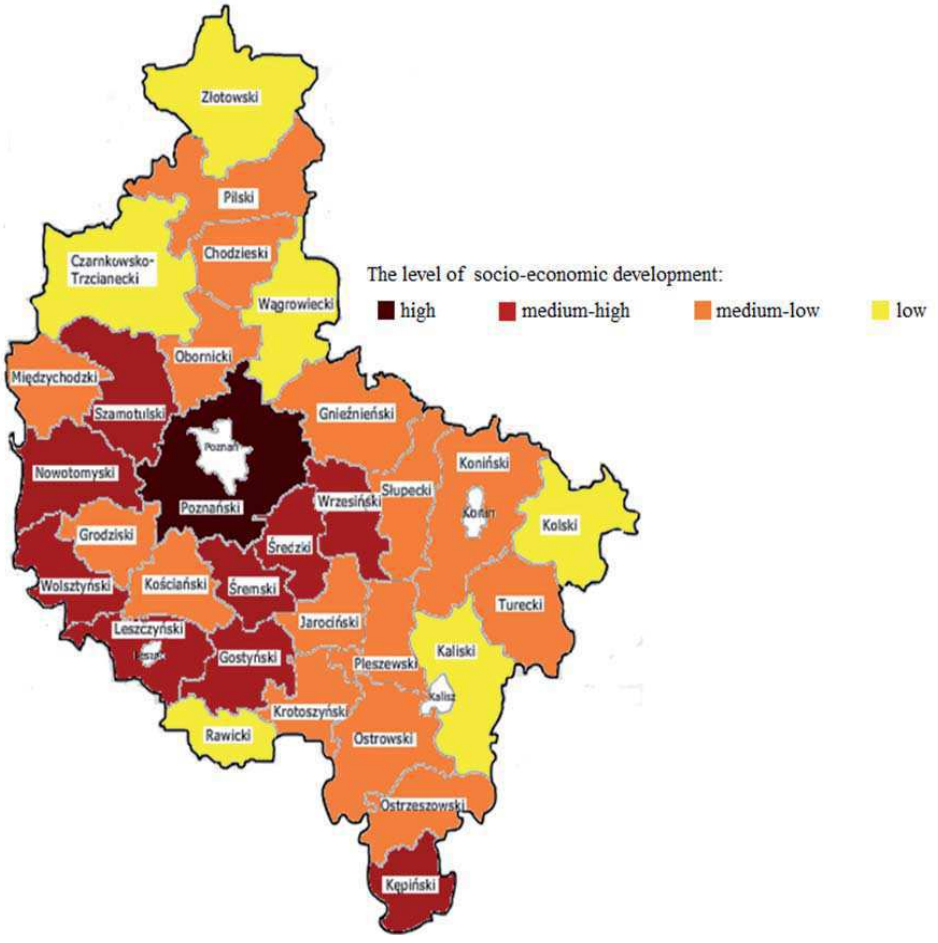

FIG. 1. Delimitation of spatial types of the level of socio-economic development in counties of Wielkopolska Province in 2014

Source: Own elaboration.

DESCRIPTION OF TYPOLOGICAL CLASSES

A synthetic measure of development was used to distinguish four typological classes with different levels of socio-economic development. For all diagnostic features in each class, the median was calculated (Table 3), which allowed each of the four separate classes to be compared with the average values of the features of Wielkopolska.

TABLE 3. The median values of individual diagnostic features characterising the counties of Wielkopolska Province in terms of the level of socio-economic development in 2014

Symbol	Specification	Class				Wielkopolska Province
		I	II	III	IV	
x_1	live births per 1 000 inhabitants	12.00	11.50	10.60	10.30	10.55
x_2	deaths per 1 000 inhabitants	6.90	8.90	9.00	9.00	9.00
x_3	not-working age population per 100 persons of working age	56.40	57.50	58.00	58.65	58.00
x_4	registered unemployment rate (%)	3.40	6.70	9.00	13.05	9.10
x_5	students per 1 computer with the Internet access for use by students in primary schools and junior high schools	22.14	18.70	21.20	18.11	19.88
x_6	population per 1 public pharmacy	2 639	3 362	3 164	3 945.50	3 382
x_7	beds per 1 000 inhabitants	10.39	9.45	11.97	5.15	8.37
x_8	length of communal roads with hard surface per 100 km² of the total area (km)	58.12	29.71	46.43	41.53	46.43
x_9	flats in use per 10 000 inhabitants	93.24	37.85	26.41	23.76	26.41
x_{10}	percentage of the population using the water supply system in % of total population	95.60	96.90	96.80	94.50	96.55
x_{11}	percentage of the population using gas of total population (%)	71.40	50.50	44.10	13.75	42.25
x_{12}	percentage of the population using sewage treatment of total population (%)	67.20	61.70	60.40	60.20	60.40
x_{13}	business entities registered in REGON per 1 000 inhabitants	153	102	93	79	90
x_{14}	total sold industry production per 1 inhabitant (PLN)	57 4610	42 5540	28 3890	19 5365	27 958
x_{15}	persons working in industry and construction in total working population (%)	41.13	39.27	33.66	27.80	33.47
x_{16}	gross average monthly wages (PLN)	3 520	3 283	3 194	3 077.5	3 194
x_{17}	participation of own income in total income budgets of the counties (%)	61.33	36.82	34.33	27.13	34.33
x_{18}	participation of investment expenditures of the communities and counties in total expenditures (%)	20.20	15.90	13.60	13.15	13.60

Source: the author's own work, based on Table 1.

Class I comprised Poznań County, with a high level of the socio-economic development, located in the central part of the province, near the city of Poznań. In 2014, Poznań County had a good demographic and social situation, the highest population density (189 people per km²), which was significantly higher than the average in Wielkopolska. The County was distinguished by the lowest unemployment rate (3.4%) in the province, and one of the lowest in Poland. In addition, the social and technical infrastructure was very well developed, particularly in terms of the high percentage of the population (more than 71%) using gas, while, the province average was just 42%. In 2014, there were 93 flats per 10,000 inhabitants completed, evidence of a well-developed housing economy. Poznań county also boasted a very large number of business entities, which, together with low levels of unemployment and a well-developed industry and construction sector, made the area of Poznań county attractive for enterprise, investors and developers.

Class II included nine counties characterised by medium-high socio-economic development, located near the urban agglomeration of Poznań. The nine include: Leszno, Szamotuły, Środa Wielkopolska, Nowy Tomyśl, Śrem, Gostyń, Wolsztyn and Września, which is located in the southern part of Wielkopolska (Kępno County). These counties had an unemployment rate 2.4 percentage points lower than the province average of 6.7%. The counties of the second class had great potential for future development of numerous areas, including the housing economy, the technical infrastructure [in 2014, gas was used by more than half of the inhabitants (50.5%)], the social infrastructure, the economy, and especially industrial and construction activity.

With a medium-low degree of socio-economic development, Class III comprised 15 counties scattered across Wielkopolska Province. They included Ostrów Wielkopolski, Kościan, Grodzisk, Jarocin, Oborniki, Gniezno, Piła, Międzychód, Chodzież, Ostrzeszów, Krotoszyn, Konin, Pleszew, Turek and Słupca Counties, all of which have a well-developed sphere of recreation, leisure and tourism, thanks to the numerous attractive landscape areas, lakes, forests, and guest beds (almost 13 accomodation places per 1,000 inhabitants, with an average lower than in the province by approx. 3.6 accommodation places). These counties' demographic, social, economic and infrastructure values were close to the average for Wielkopolska.

Class IV was made up of Rawicz, Kalisz, Wągrowiec, Czarnków-Trzcianka, Złotów and Koło Counties. These are the furthest from the city of Poznań and Poznań County and showed the lowest level of socio-economic development, including a high unemployment rate (13.05%), significantly exceeding the province average (by 3.95 percentage points). Relative to the rest of the province, these counties were characterized by poor infrastructural development (13.75% of the population used), and social and economic development. A large percentage of the inhabitants worked in agriculture.

CONCLUSIONS

The main aim of the study was to assess the level of socio-economic development of counties of the Wielkopolska Province in 2014. To this end, a synthetic development measure was constructed based on TOPSIS, which distinguished four typological classes of the counties with different levels of the socio-economic development. The studies show that

the most well-developed developed county was Poznań, where a number of business entities operate in a well-functioning social sphere, which accounts for the low unemployment rate. The city of Poznań radiates a high level of development throughout Poznań County, as it stands at the centre of economy, trade, science, academic and cultural life. Koło County was the worst developed in the province. Located in the east, its lack of development may be attributed to the peripheral location and distance from large urban agglomeration of Poznań.

Spacial delimitation of the socio-economic types of counties of Wielkopolska in 2014 showed that the counties comprising the first and second class were located around the city of Poznań (except for Kępno County), while the counties with a low level of development were located on the outskirts of the province. Moreover, the majority of the counties was characterised by a medium level of socio-economic development. Supporting development processes at the local level is important, as doing so will lead to growing competitiveness throughout the province. As Poland's other provinces develop, and together lift the country's economic competitiveness, it will be more competitive with the countries of Western Europe. Development activities carried out by the local authorities also increase the quality of life of the inhabitants and enable them to more effectively meet their needs. Supporting development at the local level is the responsibility of local governments; it takes place through the appropriate allocation of financial resources.

In the counties with a low level of socio-economic development, it is important to allocate financial resources primarily to support entrepreneurship, education and human capital (development of new qualifications of inhabitants, facilitating the possibility of retraining to broaden knowledge and skills), the protection of health, and to support the services sector, especially in counties where most residents are employed in the agricultural sector.

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Summary. The concept of socio-economic development refers to the qualitative and quantitative measure of progress. The main objective of the study was to assess the level of socio-economic development of thirty-one counties of Wielkopolska province in 2014. A synthetic indicator based on TOPSIS (Technique for Order of Preference by Similarity to Ideal Solution), a multi-criteria decision analysis method, was used in the analysis. The statistical data were taken from the Local Data Bank of the Central Statistical Office. The counties were classified into four groups depending on their level of development. The study revealed that the most developed county of Wielkopolska province was Poznań county, while Koło county was the least developed. The socio-economic development in most counties of Wielkopolska province was at a medium level in 2014.

Key words: Wielkopolska province, socio-economic development, local development, TOPSIS, synthetic development indicator

JEL: I15, O18, R12

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THE INFLUENCE OF MILK PACKAGING ON PURCHASE DECISIONS OF UNIVERSITY STUDENTS IN OSTROŁĘKA COUNTY

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INTRODUCTION

The Polish milk market is growing rapidly. According to the Organisation for Economic Cooperation and Development (OECD) and the Food and Agriculture Organization of the United Nations (FAO), milk production in 2022 is expected to increase by 19.8% relative to 2012. During that period, average annual production will grow by more than 2%. In absolute terms, milk supply will increase by 134.4 million tonnes, from 755.3 million in 2012 to 905.2 million in 2022 [WWW 2]. In 2000, 56.3% of total milk production was sold to the dairy industry, and this percentage increased to 65.7% in 2004. Raw milk is the main ingredient of many dairy products, including cream, processed milk, butter, cottage cheese, yogurt, processed cheese, kefir and powdered milk [Otoliński and Szarek 2006].

Milk produced in agricultural farms and supplied to dairy processing plants is one of the most popular food commodities traded in the world. The growth rate of the Polish dairy market is determined by global trends, including poverty indicators and consumer behaviour. It is also influenced by market competition, large-scale dairy farming and the growing significance of supermarkets in the milk supply chain. The profitability of milk production is also affected by buyers' expectations concerning product quality, promotions and the timeliness of deliveries [Czyżewski and Guth 2016].

According to the Radom Branch Office of the Agricultural Advisory Centre in Brwinów:

- The growth of the dairy industry is driven mainly by the forces of supply and demand. According to Ginalska, the author of the report, the global demand for milk and dairy products is likely to increase in response to population growth and higher levels of income;
- Milk production in agricultural farms continues to increase, but Polish producers have not gained a competitive advantage on foreign markets. The highest profitability index is noted in large-scale farms characterised by intensive land use and high-input farming systems. Effective organisation and large-scale production contribute to the development of the dairy industry;
- Poland's transition to a market economy has influenced the development of the milk market. Economic changes have shifted the buyers' focus to the quality of purchased milk, and new standards concerning product quality and the organisation of the production process were imposed on dairy farmers;
- The Polish milk market is also characterised by regional variation. The highest growth rate is noted in the regions of Podlasie, Mazowsze and, partly, Warmia and Mazury, whereas milk production continues to decrease in the regions of Podkarpacie and Małopolska.

The report developed by the Radom Branch Office of the Agricultural Advisory Center in Brwinów contains the following guidelines and recommendations [Ginalska 2014]:

- Poland should implement a cohesive development strategy for the milk market. Those efforts should include the introduction of safety and production control regulations to minimise the risk of market fluctuations;
- Milk production is a highly labour- and capital-intensive process relative to other types of agricultural activities. Raw milk prices and the subsidies paid to milk farmers should be set at an attractive level to encourage production;
- The existing system of milk subsidies does not encourage farmers to become involved in this highly labour-intensive segment of agriculture. Payments are made per hectare rather than per units of output, which supports the interests of land owners and not producers;
- An educational programme should be introduced for milk producers (farmers). The transfer of knowledge relating to innovative technologies and business solutions would undoubtedly contribute to progress in the milk industry.

In an attempt to increase their competitive advantage on the market, dairy companies increasingly often conduct marketing surveys to explore their customers' opinions and buying preferences [Dziadkowiec 2014].

According to a market survey carried out by the National Association of Dairy Co-operatives, entitled "An analysis of consumer behaviours on the milk and dairy market", promotion and advertising are strongly related with a brand's position in the marketplace. The top seven dairy producers are companies that invest heavily in marketing. They are: SM Mlekpol, Zott Polska, Bakoma, Mlekovita, OSM Piątnica and OSM Łowicz. Those brands occupy a strong position on the Polish dairy market [WWW 1].

Buying behaviour on the dairy market is determined by the consumers' purchasing power and specific preferences. There are various types of consumers on the market ana-

lysed [Adamczyk et al. 2002]. Consumer behaviour refers to the actions and processes used by consumers to satisfy their needs through the purchase of goods and services that match their individual preferences. Human needs fall into three general categories: physiological, psychological and social [Lemanowicz and Szwacka-Mokrzycka 2011].

Market segmentation contributes to the development of products tailored to the specific needs and expectations of consumers, thus increasing a given brand's share of the market. In a study entitled "Dairy consumers", Górska-Warsewicz has identified the following groups of dairy consumers whose specific preferences influence their buying decisions:

– average and traditional consumers – these consumers do not actively search for new products, they have conservative preferences and expectations, and they tend to focus on the best value for money. These consumers buy mostly traditional products, including rennet cheese, cottage cheese, yogurt, cottage and processed cheese with traditional flavors, milk in plastic bags, UHT milk, kefir and buttermilk [Górska-Warsewicz 2006];
– consumers who are loyal to products and brands – these consumers often belong to higher-income groups, and they focus on product quality. They opt for tested products that deliver high quality, and they are not willing to search for alternatives. These consumers generally narrow their choices to two or three brands [Górska-Warsewicz 2006];
– modern consumers who search for innovative products – these consumers search for products with a new or modified flavour, they pay attention to the nutritional value of foods, functional additives and type of packaging. They are not loyal to a single brand, and they select products that best meet their needs. They are more likely to focus on convenience than price [Garbowski et al. 2010].

Research into consumer preferences on the dairy market provides producers with vital information. Consumer preferences are analysed to ensure that the products offered best meet the customers' needs and expectations. Customer satisfaction plays a very important role in business because it contributes to sales and profit stability. A company that successfully builds customer loyalty will be able to develop products that are tailored to the buyers' specific preferences [Bórawski and Grzybowska-Brzezińska 2015].

This paper analyses the influence of milk packaging on the buying decisions of university students in Ostrołęka county. There are various definitions of product packaging in the literature. Most of them state that packaging consists of materials that are used for enclosing and protecting products with the aim of delivering them to the consumer in an unaltered state. Modern packaging is also designed to increase a product's attractiveness, make a positive impression on consumers and encourage them to buy the product [Ciechomski 2008].

Product packaging is an important part of a company's marketing strategy, which targets consumers' specific needs and preferences. Buyers focus on product attributes that constitute core benefits. The core product is focused on the dominant benefit that a customer expects from a good or service, and it can be both tangible and intangible. For the core product to be transformed into the actual product, it has to feature attributes that are expected by the buyer, such as functional and attractive packaging or appealing design. The actual product is often referred to as the "packaging" of the core product. Additional

attributes contribute to product quality, and together with the core product, they make up the actual product.

Product packaging plays a very important role in commerce. It is responsible for a product's visual appeal, it facilitates product use and dosage, and it keeps the product fresh. Most food products cannot exist without packaging. The product and its packaging are inextricably linked [Klonowska-Matynia 2010].

RESEARCH OBJECTIVE, MATERIALS AND METHODS

The aim of this study was to evaluate the influence of milk packaging on the buying decisions of university students in Ostrołęka county. The main research objective was achieved by pursuing the following specific objectives:

- to evaluate the influence of milk packaging on the purchase decisions of university students in Ostrołęka county;
- to determine the influence of packaging on consumers' perceptions regarding milk quality;
- to determine how often university students in Ostrołęka county purchase milk in different types of packaging;
- to evaluate the significance of esthetic attributes of milk packaging on the buying decisions of the surveyed consumer group.

The main research objective was pursued by answering the following questions:

- Does milk packaging significantly influence the buying decisions of university students in Ostrołęka county?
- Does packaging influence the respondents' perceptions of milk quality?
- What type of milk packaging is most frequently selected by the surveyed consumers?
- Are there any differences in the perceived significance of esthetic attributes of milk packaging that influence the buying decisions of the surveyed population?

The following research hypotheses were formulated to justify the selection of the research problem:

- milk packaging is a significant determinant of the buying decisions of university students in Ostrołęka county;
- plastic bottles with a screw top cap are the most popular type of milk packaging in the surveyed population.

The formulated research hypotheses were tested in a customer survey with the use of a questionnaire. The factors that influenced the respondents' choices were evaluated on a scale of 1 to 5 points, where 5 was the highest mark. The results of the survey were analysed with the use of graphic and descriptive methods.

The surveyed group consisted of 98 university students who purchased milk in Ostrołęka. The respondents were second-year and third-year students majoring in business management at the Higher School of Economics and Social Studies in Ostrołęka. The respondents were selected by purposive sampling from the population of second-year and third-year students willing to participate in the study. The survey was carried out between 5 and 19 March 2016.

RESULTS AND DISCUSSION

In a centrally-planned economy, packaging was regarded merely as a means to protect the product from damage or contamination. The transition to a market economy emphasized the significance of competition [Nowogródzka et al. 2014]. According to the cited survey of the National Association of Dairy Cooperatives, dairy producers with the strongest brands have the highest share of the market.

The marketing mix is a business tool for attaining competitive advantage in a market. In addition to its four principal components, namely product, price, promotion and distribution, packaging also plays a primary role in the marketing mix. Therefore, packaging is an important marketing tool which increases the effectiveness of marketing communication.

The results of marketing surveys indicate that consumers are increasingly likely to base their purchase decisions on packaging as an indicator of product quality [Dejnaka 2011]. According to Jerzyk, packaging is a modern tool in integrated marketing strategies. From among various marketing materials at the point of sale, packaging is a key determinant of consumers' buying decisions [Jerzyk 2014]. The role of packaging has increased significantly and irreversibly in recent years. Packaging protects the product, facilitates its transport, conveys product and brand information, acts as a promotional and advertising tool, and encourages consumers to make a purchase [Krzepicka 2011].

This study evaluated the influence of milk packaging on the buying decisions of university students in Ostrołęka county. For 49 respondents, packaging did not significantly influence their choice of milk brand, while the remaining 48 subjects expressed the opposite view (Fig. 1).

The respondents were also asked whether they regarded packaging as an indicator of product quality. For 59 subjects, packaging was not in any way linked with the quality of the milk, while 39 respondents claimed that packaging attested to product quality

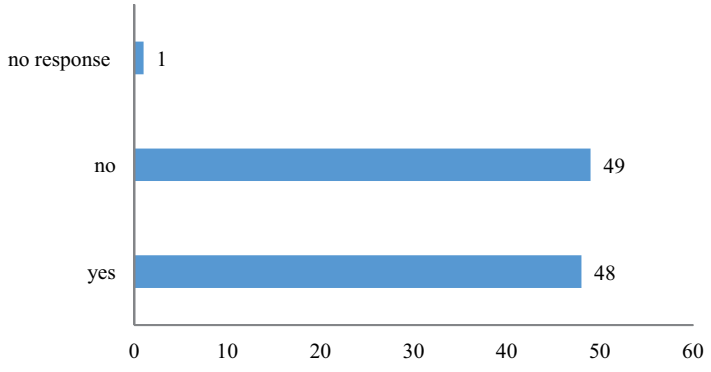

FIG. 1. The respondents' answers to the question "Does milk packaging significantly influence your buying decision?"

Source: the authors, based on the results of the study.

(Fig. 2). The results indicate that more than two-thirds of the surveyed population did not judge milk quality based on its packaging.

In the following question, the respondents were asked to specify how often they purchased milk in the following types of packaging: carton with a plastic clip (ReCap), carton with a screw-top cap, non-resealable carton (one of the corners has to be cut to pour the milk), Pure-Pak (without a cap), Tetra Rex (with a cap), Tetra Top (rounded corners, large screw-top cap), and a plastic bottle with a screw-top cap (Fig. 3). The most popular types of packaging were a plastic bottle with a screw-top cap (48 respondents) and a carton with a screw-top cap (46 respondents). The least popular types of packaging were a ReCap carton with a plastic clip (7 respondents), Tetra Top with rounded corners and a large screw-top cap (7 respondents), Tetra Rex with a cap (4 respondents) and a non-resealable carton where one of the corners has to be cut to pour the milk (2 respondents). None of the respondents had ever purchased milk in Pure-Pak packaging without a cap.

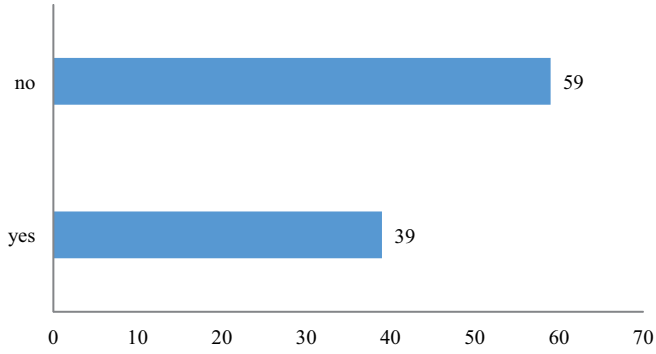

FIG. 2. The respondents' answers to the question "Is milk packaging indicative of product quality?"

Source: the authors, based on the results of the study.

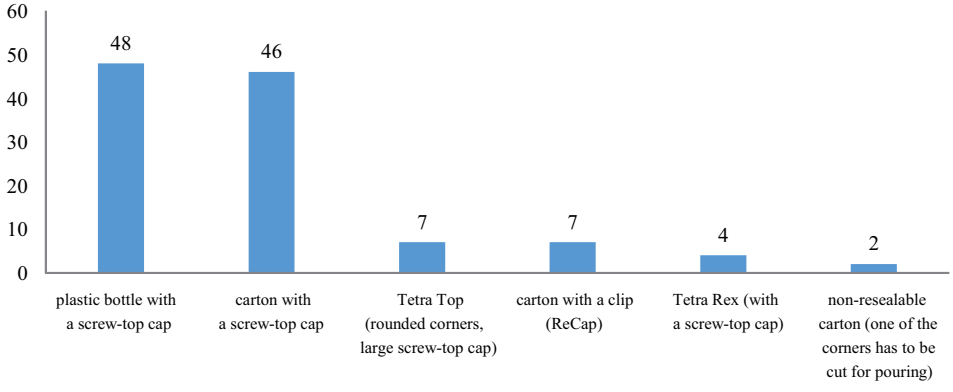

FIG. 3. The most popular types of milk packaging among the respondents

Source: the authors, based on the results of the study.

The surveyed subjects had specific preferences relating to the ease of product storage and use. The respondents were more likely to choose convenient packaging with screw-top caps. In future studies, the main focus should be on the type of packaging only to avoid false positive results where the respondents indicate a given type of packaging based on a habitually purchased brand of milk.

The respondents were also asked to evaluate the importance of different aesthetic attributes of milk packaging in their buying decisions. The most significant determinants of their buying behavior were attractive packaging (2.98 points on average) and shape of the packaging (2.92). The color of the packaging (2.85), brand, printed message and font (2.83) were regarded as less important – Figure 4. However, all of the evaluated attributes received similar average scores (deviation of 0.15), so they should be regarded as equally significant.

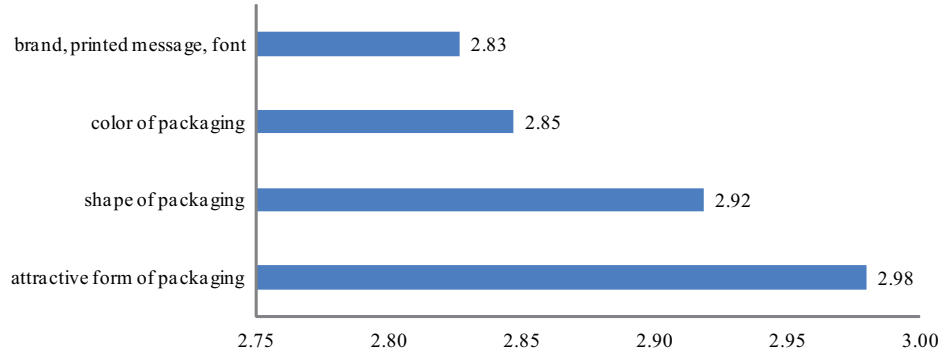

FIG. 4. The significance of aesthetic attributes of milk packaging in the respondents' buying decisions (points) on a scale of 1 to 5 points, where 5 denotes the highest significance

Source: the authors, based on the results of the study.

CONCLUSIONS

A frequently purchased food product, milk is an essential and the most nutritious component of the human diet, and an abundant source of calcium. Milk and dairy products significantly contribute to health and minimize the risk of lifestyle diseases in all age groups. The observed demographic changes and growing awareness about healthy nutrition suggest that the demand for milk and dairy products will increase, thus stimulatating the growth of the milk market.

The following conclusions can be formulated based on the results of this study:

– Milk packaging does not significantly influence consumers' buying decisions. In this study, packaging was not an important criterion in the choice of a milk brand for more than half of the surveyed respondents.
– Packaging can influence consumers' perceptions of product quality, which creates new challenges for milk and dairy producers. However, packaging is not the main determinant of perceived quality, and in this study, only one in three respondents declared that packaging could be indicative of product quality.

– The most popular types of milk packaging in this study were a bottle with a screw-top cap and a carton with a screw-top cap. This indicates that the respondents valued convenient solutions that facilitate product use and storage. The students were more likely to buy milk in convenient screw-top packaging.
– An evaluation of the aesthetic attributes of packaging that influence consumers' buying behavior indicates that the following attributes were equally important for the surveyed subjects: attractive form of packaging, shape of packaging, color of packaging, brand, printed message and font.

The survey bears out the hypothesis: packaging is an important determinant of students' buying decisions. It also has an impact on the perception of milk quality in respondent's opinions.

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Summary. The aim of this study was to evaluate the influence of milk packaging on the buying decisions of university students in Ostrołęka county. The group surveyed consisted of 98 university students who purchased milk in Ostrołęka. The respondents were second-year and third-year students majoring in business management at the Higher School of Economics and Social Studies in Ostrołęka. The respondents were selected by purposive sampling from the population of second-year and third-year students willing to participate in the study. Most respondents were of the opinion that milk packaging was neither a significant determinant of their buying decisions nor a major indicator of product quality.

Key words: packaging, consumers, milk market

JEL: D11, Q13

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PERFORMANCE MEASUREMENT AND HIGH TEAM PERFORMANCE BUILDING USING THE PRISM TEAM PERFORMANCE DIAGNOSTIC

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INTRODUCTION

Progress in the field of communication technology has opened possibilities for organisations to quickly obtain information and implement innovative solutions to support management decision-making. Tools are being created that will revolutionise traditional management methods. One of them is the PRISM Team Performance Diagnostic created by PRISM Brain Mapping Technologies Limited[1]. The PRISM is a web-based tool for diagnosing and reporting the performance of work teams [WWW 1]. It is the result of many years of work put in by the team of Dr. John Colin Wallace, Charles Norman Robert de Garston, Ajit Patel and Barry Ralph Scales.

Measuring team performance using the web application PRISM has not been described in a scientific publication. That it is a new tool that supports trained and certified practitioners in the country is of crucial importance. Using it to conduct scientific research in the area of performance management, we are among the first users of this method in Poland. From previous observations we show that, in Poland, many organisations do not yet understand the significance of team performance, although this is not just a problem at Polish companies.

Research conducted in 2015 by L. Loew showed that almost all organisations (88%) have a performance management strategy, yet 71% rate their performance management as ineffective [Loew 2015].

[1] The company PRISM Brain Mapping Technologies Limited was established on 13 November 2009 in Tunbridge Wells in the UK. The company's Managing Director is Dr. John Colin Wallace. The remaining Directors: Charles Norman Robert de Garston, Ajit Patel and Barry Ralph Scales. The company operates in the field of business support, and among other things creates and sells management tools.

A high-performance team brings a lot more to the organisation than the average team, even if the average consists of extremely creative people [Chong 2007]. Each member understands that they must rely on each other, because the people doing the work are mutually dependent [Peterson 2007]. A high-performance team of employees is similar to a sports team where the whole team achieves excellent results only when its members are focused in order to perfectly understand, respect, support each other and cooperate.

No team achieves good results overnight. It is a long process and the leader and all team members are responsible altogether. One of the tools to support the process of building a high-performance team is the PRISM Team Performance Diagnostic.

The article presents a case study diagnosing team performance on the example of Polish companies using the PRISM tool. It includes a description of the tool and the results of the diagnosis by an enterprise in the computer industry, as well as guidance on the possibility of long-term operation with the tool to improve business performance and build a high performance team.

PURPOSE AND METHOD

The aim of this article is to present the use of the PRISM Team Performance Diagnostic method for diagnosing the performance of an organisation's team of employees on the example of an IT industry company.

The ability to use this tool in teams of employees can help managers make management decisions to increase team performance, and above all will understand the importance of teamwork in achieving better results in the company [Tannenbaum and Cerasoli 2013]. The article presents the different stages of diagnosing team performance at an IT company along with the results and identifies possible solutions to the problem of low performance and management decision-making. Drawbacks and benefits of this method are presented.

Katzenbach and Smith define "A high Performance Team" as: "A small number of people with complementary skills who are committed to a common purpose, performance goals and approach for which they hold themselves mutually accountable, and who are deeply committed to one another's personal growth and success" [Katzenbach and Smith 1993].

To assess team performance, managers should first consult a certified PRISM practitioner operating in the country[2]. A team manager is required to provide the practitioner PRISM e-mail addresses of all members of the team, manager (leader) and observers-external stakeholders. They do not require personal data. The certified PRISM practitioner sends each person an e-mail with an individual link which redirects them to the PRISM server, where they can fill in a questionnaire.

The questions in the questionnaire relate to seventeen areas evaluated by team members, leader and external stakeholders. Six areas concern achievements of the team, another six the relations prevailing within the team and closer relationship with others in their environment, e.g. customers, suppliers, co-operators. Other areas that are explored by the PRISM Team

[2] A list of the PRISM practitioners can be found on [WWW 2].

Performance Diagnostic is teamwork, commitment to teamwork, team effectiveness, team spirit and morale.

Areas on the achievements of the team include:

1. Objectives and strategies – in this area the degree of understanding and involvement of team members in achieving team goals is analysed, on the basis of the strategy adopted in the enterprise.
2. Team consistency – the extent to which all team members experience a sense of unity and share their commitment to the role team plays is diagnosed.
3. Liability – this area refers to the degree to which the employees understand the roles assigned and performed in the team and how they evaluate the degree of fulfillment of their obligations.
4. Decision-making – assessment of the team's decision-making in response to complex problems.
5. Focus on results – team members' motivation is analysed.
6. Stimulate changes – assessment of the degree to which team members cope with change and assessment of the reaction to change (positive/negative and active/passive).

The areas on the relationship include:

1. Trust: The degree to which the members trust one another, openness and support [Davis et al. 2000].
2. Positive approach: The degree to which members of the team are optimistic about the future and are enthusiastic about the work.
3. Communication: The extent to which all team members keep one another up to date on team matters.
4. Team spirit: The degree of camaraderie and willingness to support each other existing between all team members.
5. Valuing diversity: The extent to which team members appreciate and make use of their colleagues' ideas, skills, knowledge, experience and strengths.
6. Receiving feedback: The degree to which members perceive a conflict and constructive exchange of opinions as useful for individual and team performance.

In addition, PRISM Team Performance Diagnostic analyses teamwork, commitment to teamwork, perception of the team, team effectiveness, spirit, morale, and organisational culture.

The analysis of teamwork is intended to assess the degree of ownership by members of the skills necessary to create a high-performance team. Commitment to team work analyses the degree of team members' engagement in working together to achieve the high level results.

Team effectiveness measures how effectively a group of employees uses its material and intellectual resources in order to achieve the expected results. Some groups achieve their objectives, but are not effective considering the costs involved, while others can also provide good results, but incurr significantly lower costs. There are also those that acheive goals, but leave members feeling undervalued and not sufficiently supported in their work environment. PRISM Team Performance Diagnostic examines the atmosphere in the team, including the degree to which members of the group feel valued by the organisation and co-workers.

When studying team performance, one cannot forget about the morale of the team. This is an extremely important factor, which says a lot about team members' level of concentration on their assigned tasks and the ability to do a quality job fulfilling them. Having high team morale should be a key objective of any organisation. Morale is the combination of enthusiasm and perseverance with which team members approach their tasks. This definition is closely linked to team cohesion and spirit, and also suggests there is a desire to be persistent in the face of difficulties and troubles.

The PRISM Team Performance Diagnostic questionnaire explores the present organisational culture in which the group of employees exists and performs. Often the organisational culture is defined as a permanent feature. Note, however, that any "winning" organisational culture has its own unique "behavioural DNA" that is created by the value brought to the organisation/team by its members [Lee 2013].

Analysis of organisational culture includes: the desire to succeed, the culture of "one team", identifying with the organisation, passion and energy, action, externally focused orientation, responding to change and inspiring leadership. The last factor, which is analysed by the PRISM Team Performance Diagnostic, is the perception of the team.

On the high-performance teams, not only members perceive the results achieved by the team in a similar manner, but they also assess the degree of support provided to them by the organisation and co-workers alike [Frey and Osterloh 2002]. Less effective teams tend to have a greater diversity of opinions among the individual team members.

A key component of the PRISM Team Performance Diagnostic Performance Team is a diagramme describing the overall results of the audit. The diagramme consists of 12 key areas related to the performance of the team and its relationship with the environment. A team performance diagnosis conducted in a Polish IT company is presented in the next section.

RESULTS

The IT company is a small company operating on the Polish market. Its main mission is to support and help develop the business by implementing the latest technology in the field of information technology and telecommunications (ICT). In August 2016, the performance of the sales team consisting of a leader and seven employees was assessed. The group's areas of performance are presented in Table 1.

The presented results are part of the Report PRISM Team Performance Diagnostic, which was received by the team leader. The report was generated when the last of the participants completed a questionnaire. The diagnosis for evaluation adopted a scale from 0 to 100. The final assessment of each specific area is the arithmetic mean of all the assessments made. Areas of team performance are presented in Table 1 and include an assessment of the Katzenbach and Smith twelve key areas of performance and five additional areas, which include: teamwork, commitment to teamwork, team effectiveness, team spirit and team morale [Katzenbach and Smith 1993].

The twelve key areas were then transferred to a radar diagramme that takes into account the perceptions of both the leader and the team. If external stakeholders were involved in the assessments, there would be a third graph showing the perception of stakeholders.

TABLE 1. Areas assessed of the IT company's sales team

Performance factors			Team leader rating	Team rating	Average rating	Performance level
Key areas of team performance	achievement	goals and strategies	29	47	38	poor
		team cohesion	21	49	35	poor
		accountability	50	66	58	below average
		decision making	36	54	45	poor
		drive for results	21	43	32	poor
		driving change	79	64	71	average
	relations	trust	79	61	70	average
		positive outlook	43	53	48	below average
		communication	43	49	46	below average
		team spirit	57	54	56	below average
		valuing diversity	71	60	66	average
		handling feedback	50	73	61	below average
Other areas of performance		teamwork skills	46	64	55	below average
		commitment to teamwork	57	61	59	below average
		team effectiveness	52	60	56	below average
		team climate	55	66	61	below average
		team morale	50	54	52	below average

Source: the authors, based on the Report PRISM Team Performance Diagnostic of an IT company.

The Figure 1 data are presented in the PRISM report diagnostic as a Circle of Team Performance. It was created by Team Dynamics Limited and is used to determine the performance of the team[3]. The wheel is the result of the research of 162 teams. The study focuses on the Katzenbach and Smith twelve key performance factors [Katzenbach and Smith 1993].

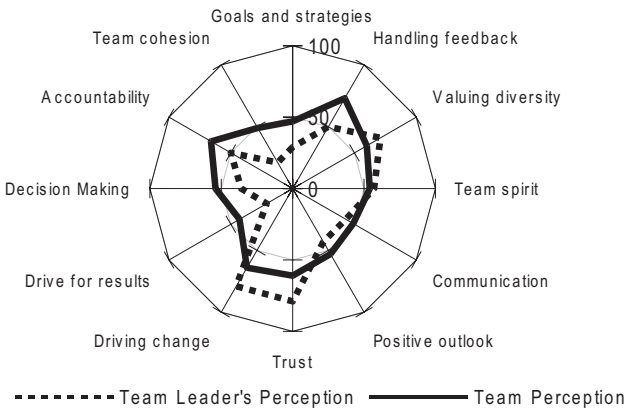

FIG. 1. Diagram of the key areas of performance of the sales team in IT company

Source: the authors, based on the Report PRISM Team Performance Diagnostic of IT company.

[3] The company is a shareholder of PRISM Brain Mapping Technologies Limited and performs research, offers trainings for business and PRISM tools.

Team Dynamics International's studies have revealed that the "high performing" teams achieved scores greater than 75% for all 12 factors, whereas normal or average ones achieved scores of only between 65 and 75% for all 12 factors. Underperforming teams tended to score less than 65% for most of the 12 factors [WWW 1]. Figure 2 presents the Circle of Team Performance of the IT company.

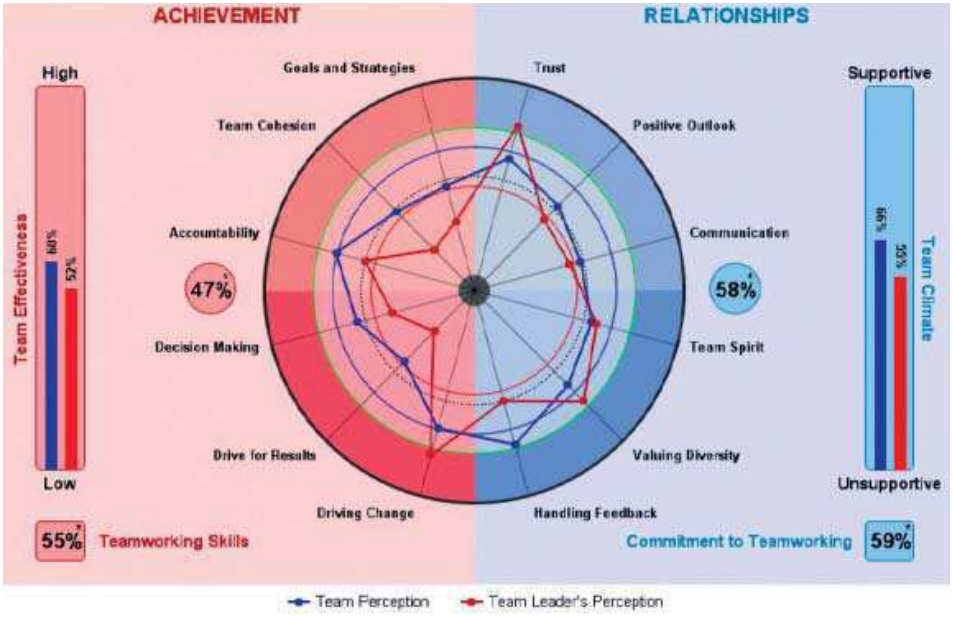

FIG. 2. The IT company's Circle of Team Performance

Source: Report PRISM Team Performance Diagnostic of an IT company.

The Circle of Team Performance is divided in half, with the left side, in pink, covering six areas related to achievements, and the right side another six areas related to the relationship. The report is clear and simple to interpret.

The conducted diagnosis of team performance resulted in emerging areas in which the company achieves the highest and lowest performance. Assessment of areas related to the team's results is sorted in descending order (Fig. 3).

The data presented show that the company achieved its highest ratings in: driving changes (71), accountability (58) and decision making (45), and the lowest ratings in: drive for results (32), team cohesion (35) and goals and strategies (38).

Figure 4 shows the results pertaining to relations prevailing in the team and its relationship with the surrounding environment, sorted in descending order.

The company gained the highest results for trust (70), valuing diversity (66) and handling feedback (61) and the lowest for communication (46), positive outlook (48) and team spirit (56) [Li et al. 2007, Webber 2008].

Each group of employees in an organisation operates within a specific, unique culture. Research conducted by PRISM showed that less than 10% of the teams achieved success

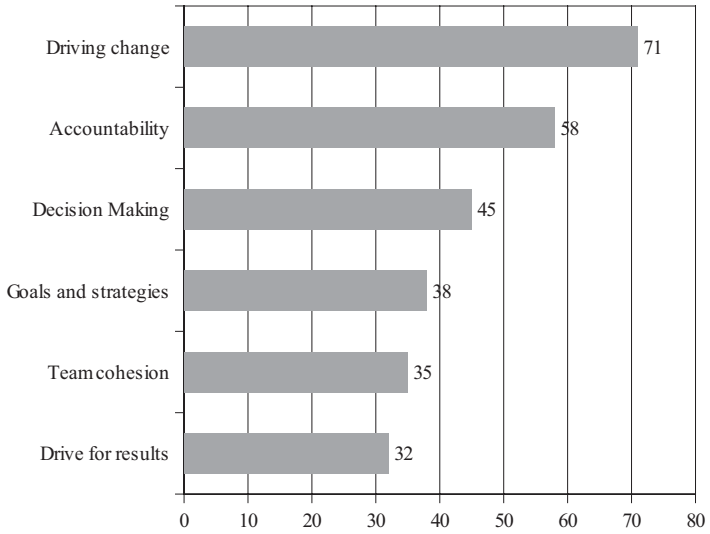

FIG. 3. Evaluation of IT company team performance areas related to achievements

Source: the authors, based on the Report PRISM Team Performance Diagnostic of IT company.

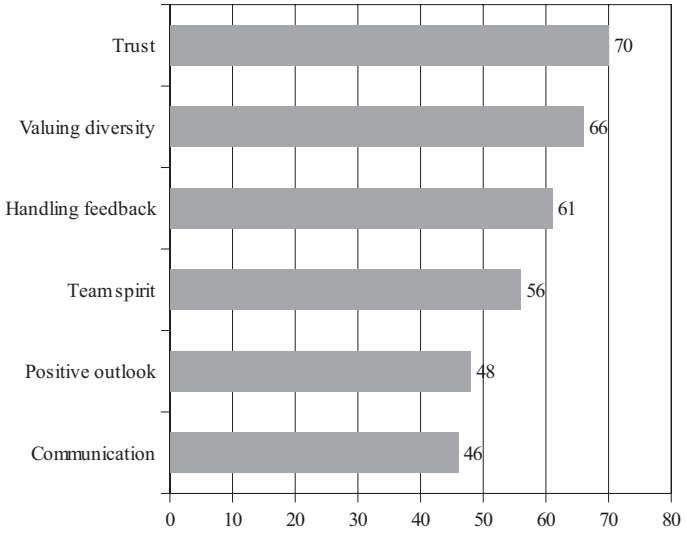

FIG. 4. Evaluation of IT company team performance in areas related to relationships

Source: the authors, based on the Report PRISM Team Performance Diagnostic of an IT company.

in creating a winning culture. This culture helped to achieve high scores above average. At the same time, in the same study, 70% of the leaders felt that a strong results-oriented culture is the greatest source of competitive advantage [WWW 1]. Organisational culture is the "personality" of the organisation. It is unique in each company, as in every company there are different people working with specific and unique preferences, behaviours and

values. Culture focused on high performance in an organisation inspires its members to act and makes employees feel safe [Stevens and Campion 1994]. This in turn motivates employees to turn out better and more efficient work [Encyclopedia of Creativity 2013].

The PRISM diagnosis of organisational culture evaluated eight factors: the desire for success, the culture of "one team", identifying with the organisation, passion and energy, action orientation, externally focused orientation and reaction to changes. The results are shown in Table 2.

TABLE 2. Evaluation of the IT company's organisational culture

Performance factors	Team leader rating	Team rating	Average rating	Performance level
A desire to succeed	43	74	59	below average
A one-team culture	57	77	67	average
Personal ownership	43	83	63	below average
Passion and energy	29	54	43	poor
Action-orientated	57	80	69	average
Externally focused	86	80	83	high
Embracing change	71	74	73	average
Inspirational leadership	57	89	73	average

Source: Report PRISM Team Performance Diagnostic of an IT company.

The team achieved a high level of performance only in the externally focused orientation, which means that its culture focuses its efforts to a greater extent on meeting customer needs and overcoming competition rather than on internal issues and company policies. The team members' passion and energy came in very low. High-performance teams of employees spread enthusiasm in all actions [Peterson 2007, Beebe et al. 2011]. Unfortunately, the team lacked that ability. In addition, employees did not identify with the organisation and did not want success.

Another element of the measure is team morale, which focuses on the set of tasks given to the team and the ability to exercise the highest standards. Figure 5 presents the results.

The overall result of the assessment of team morale in the company was 52%, a below average grade. Team morale consists of many factors, but in particular is a combination of enthusiasm and perseverance. The team diagnosed a fairly high level of perseverance (71%), but a low level of enthusiasm (28%). On high-performance teams, the same level of enthusiasm and perseverance affect the team's morale.

Another very important element in the PRISM Team Performance Diagnostic is the team's self-perception (Fig. 6).

All members on high-performance teams perceive their team similarly. In Figure 6, axis "Achievements" and "Relationships" presents two sets of results included in the white fields. They show the highest and lowest marks given by one of the respondents in relation to the areas "Relations" and "Achievements" of the team. The smaller the difference between the results, the greater the compliance in the perception of the team outcomes. Conversely, the greater the divergence of results, the lower the compliance of the perception of the results by the team. In the diagramme above there is a large square, which means poor team performance.

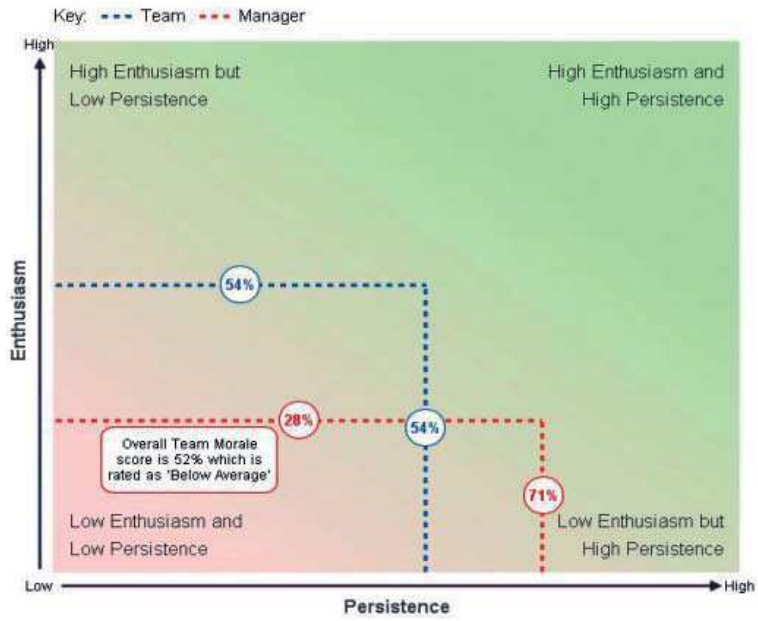

FIG. 5. Team morale in the IT company

Source: Report PRISM Team Performance Diagnostic of an IT company.

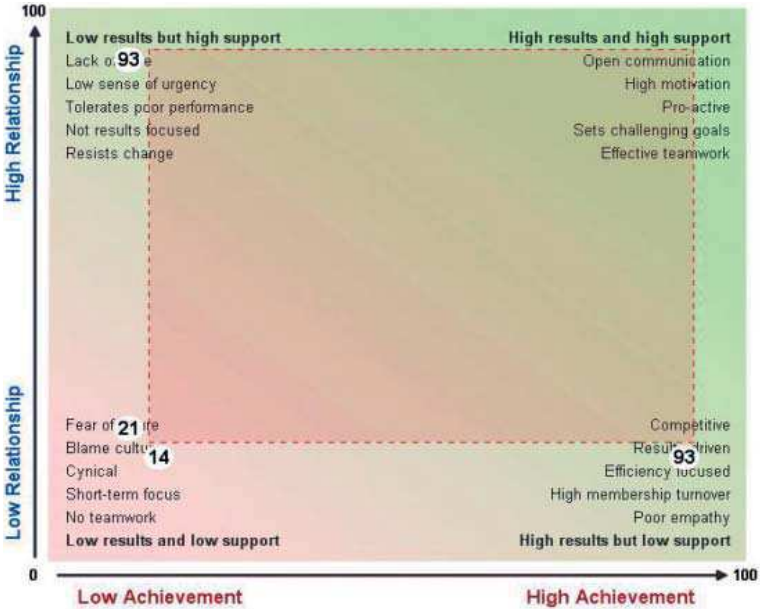

FIG. 6. Self-perception of the IT company team

Source: Report PRISM Team Performance Diagnostic of an IT company.

The descriptions proposed by PRISM of the individual factors facilitate the analysis of the report. They are given in alphabetical order [Report PRISM Team Performance of IT Company]:

- Accountability – The extent to which individual team members are clear about and accept their own roles and responsibilities.
- Action orientated – The organisation's culture is about being self-motivated, creating and maintaining a sense of urgency and knowing where the real value of any activity is.
- Commitment to teamworking – The extent to which the team members are committed to working together collaboratively to deliver high performance.
- Communication – The extent to which all members keep each other fully informed about team issues.
- Decision making – The extent to which the team uses effective problem solving processes when dealing with complex issues.
- Drive for results – The extent to which team members are motivated by and achieve demanding targets.
- Driving change – The extent to which team members embrace change and respond to it pro-actively in a positive manner.
- Embracing change – The organisation's culture is about challenging the status quo, welcoming change and looking for new and better ways of doing things.
- Externally focused – The organisation's culture is about focusing energies on delighting the customer and beating competitors rather than internal issues and politics.
- Goals and strategies – The extent to which all the team members fully understand and are committed to the team's goals and strategies.
- Handling feedback – The extent to which team members regard constructive conflict and opinion sharing as beneficial to their individual and team performance.
- Inspirational leadership – The organisation's culture is about providing inspirational leadership that makes others feel motivated, inspired and empowered to perform at their very best.
- One team culture – The organisation's culture is about creating cohesion and trust by helping all individuals to achieve their full potential and by making the most of everyone's talents.
- Passion and energy – The organisation's culture is about bringing infectious enthusiasm to all work activities and delivering exceptional performance in the areas that really matter.
- Personal ownership – The organisation's culture is about encouraging everyone to take personal responsibility for and ownership of overall business performance.
- Positive outlook – The extent to which team members are forward looking and take a strong, positive, optimistic view of their work.
- Team climate – The extent to which team members feel supported by the organisation and by other team members.
- Team cohesion – The extent to which all the team members experience a sense of unity and shared committed to the team's role.
- Team effectiveness – The extent to which the team makes effective use of its material and human resources to attain its current level of achievement.

- Team morale – The extent to which team members enjoy being in the team and are willing to do what it takes to ensure that it succeeds in its tasks despite tough challenges.
- Team spirit – The level of camaraderie and willingness to provide mutual support that exists between all team members.
- Teamworking skills – The extent to which the team members possess the skills necessary to build a high performance team.
- The desire to achieve success – The organisation's culture is based on the relentless pursuit of business and personal excellence, always pushing itself to do better and being resilient despite opposition or setbacks.
- Trust – The extent to which team members demonstrate a high level of trust, openness and reliance on each other.
- Valuing diversity – The extent to which team members value and make use of each other's ideas, skills, background experiences, behavioural strengths and knowledge.

DISCUSSION

The results show that the IT company's sales team turned in mostly below average results in the key areas; and each of these areas requires careful analysis and discussion. To properly use this tool, Team Dynamics Limited recommends the following steps:

1. Study the report carefully.
2. The leader should convene a meeting with the entire team and there present the results of the report with special emphasis on the results the team members achieved in the 17 key areas.
3. Initiate a discussion in order to identify the team's strengths, which should be strengthened, and its weaknesses, which require work and development.
4. Determine the most urgent areas to work on, with one or two areas in particular to start with.
5. Discuss specific actions with the team, assign measures to team members, supply workers with the necessary tools and eliminate obstacles [Salas et al. 2008, Salas et al. 2009].
6. The common agreement on how to monitor progress regarding the objectives and action to be taken; determine the time frame and set a date for the next Team Performance Diagnostic [WWW 1, WWW 3].

High-performance teams very rarely occur naturally. The construction of such a team requires effort, time, patience, learning about each other, and many hours of joint discussion. However, research shows that the work put into creating such a group is beneficial for the entire organisation.

In 2014, the Brandon Hall Group Research Team conducted a study "Performance Management Study", which analysed 223 multinational companies [Loew 2015]. One of the most important conclusions to emerge from the research was that high-performance teams achieve better business results.

Implementation of the PRISM Team Performance Diagnostic method in an enterprise can be a way to achieve strategic performance growth, or a part of Performance Manage-

ment [Dyer et al. 2013]. As L. Loew has shown, a high-performance team contributes to the involvement of employees, revenue growth and a business retention level of from 1 to 20% [Leow 2015]. The tool itself is simple: filling out the questionnaire takes up to 45 minutes. If an organisation opts to go further than just diagnose the performance of a team and work on increasing performance, the organisation can expect more benefits. The downside of this method will be the need to involve the whole team in the implementation of a common goal, which will be the joint effort to increase performance. Because there are different personality types (e.g. Introverts) and various behavioural preferences, this may sometimes prove difficult, tedious and time-consuming. Nevertheless, a joint effort made by team members yields the best results, which may not always be immediate.

The process of building a high-performance team requires a leader and team members, and a special effort to change traditional thinking about teamwork and management [Chong 2007, Nemiro et al. 2008, Bass and Bass 2009, Dyer 2013]. Research by Brandon Hall Group Research Team has shown that teams managed in the traditional way never achieve high efficiency, thus the business results they turn out in the long run will not grow [Katzenbach 1993, Dyer 2013].

Companies reaching poor economic results often reduce employment, while the potential of the company lies precisely in the employees. The PRISM Team Performance Diagnostic indicates areas that need to be repaired. All should be discussed in detail by the team.

The case study on the IT company shows that the sales team performed poorly because [Sims and Salas 2007, Bedwell et al. 2012]:

– the values of the individual team members are not consistent;
– team morale and enthusiasm are low;
– being part of a team does not please employees;
– team members are not willing to devote extra effort to achieve mutual success;
– team members are not willing to give each other mutual assistance and support;
– the team gives up quickly when encountering failures and difficulties;
– the team is not optimistic about the future;
– team members barely identify with the organization;
– there are problems with communication on the team – members do not communicate with each other and do not share relevant information;
– the team is unable to work as a team;
– the expectations between team members and the leader are different.

If the team leader seeks to increase team performance and achieve higher business results, they should take the further steps recommended by Dr. Colin Wallace, and after about three months re-examine the performance using the PRISM Team Performance Diagnostic [De Waal 2004].

The presented example and tool present areas for further study we would like to undertake in order to answer the following questions that trouble us:

– Does the sex of the leader and team members have an impact on the performance of the team? In the case study presented, the woman was the leader while team members were all men [Post 2015].
– What are the behavioural factors of team members; and can the leader increase or decrease the team's efficiency?

- What distinguishes high-performance teams in different countries and cultures? [De Waal 2006].
- Are multicultural teams more productive?
- Should high performance standards be the same in all countries? [De Waal et al. 2004].
- Can virtual work increase team performance?
- Why don't many companies use the Team Performance Diagnostic Tool?
- How can enterprises not using Team Performance Diagnostic tools test the performance of teams?
- Can the public sector be a high-performance sector? [Arnaboldi et al. 2015].
- Is the size of the company important in building high performance?
- Are family companies exhibit higher performance than other companies?
- Do the leaders of high-performance teams have characteristic behavioural features? Is it possible to create a map of preferred behaviours of the leader of a high-performance team, which could provide a benchmark to recruit the leaders with those desired features using PRISM tools? [De Waal 2003].
- How can the team's level of stress and frustration affect its performance?

These and many other questions can be answered using the PRISM tool. Team Performance Diagnostic is one of many tools that are designed to increase business performance. Diagnosis created with the PRISM Team Performance Diagnostic is a ready signpost for the team. It identifies specific areas the team can work on all together.

CONCLUSIONS

In the scientific literature related to the issues of management, team performance is assessed relatively rarely. This article has therefore presented a means to measuring team performance using the PRISM Team Performance Diagnostic and indicated a possible application on the example of a small Polish IT company. The tool's advantages and disadvantages indicate the ease of use, fast access to data and objective assessment, which is the average of the ratings given by the leader, team members and external stakeholders.

The PRISM Team Performance Diagnostic tool quickly and efficiently analyses the performance of the team and indicates its strong and weak areas. The tool gives specific guidance, thanks to which the leader and the team can achieve high efficiency, and thus increase business results. The example presented shows a team with a very low capacity, lacking confidence, morale, team spirit, and good communication. The team understands the needs of the market and customers, but it is not sufficient to achieve strong business results, because within the team there is no unity, respect or understanding. Employees adhere to different values, and their expectations are different from the expectations of a leader. Perhaps the team leader has insufficient knowledge about their employees, who are focused more on sales results than a good, pleasant atmosphere, which motivates people to work and encourages the search for solutions. Unfortunately, too few companies in Poland have understood the essence of building a high-performance team. Many companies find it crucial to implement a high-ranking goal, for the implementation of which the companies are constantly looking for the right people.

The work of a high-performance team can be easily compared to the work of hospital staff during surgery, crisis management team, and a team of soldiers performing military operations in the battlefield. There is no place for a lack of specific goals, poor communication, and lack of mutual trust. Note that PRISM Team Performance is a diagnostic tool and does not transform a weak team into a military operations center. The level of communication, coordination, skills, and confidence must be raised by means of appropriate training, team training, simulation and stimulating activities.

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Summary. The aim of this article is to present the use of PRISM Team Performance Diagnostic to diagnose the team performance of the employees of an IT company. The article presents the different stages of team performance diagnosis with results and identifies possible solutions to the problem of poor performance of the team and the precise actions which should be taken by the leader. The teams managed with traditional methods never obtain high performance. The implementation of enterprise performance management tools using the PRISM Team Performance Diagnostic allows an organisation to build a high--performance team and achieve better business results. In companies using this tool, the

involvement of employees, the company's revenues, customer satisfaction and the level of customer retention can be increased from 1 up to 20%.

Key words: team performance, PRISM Team Performance Diagnostic, high performance, performance management, team development

JEL: M12, J24, L25

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A COMPARATIVE ANALYSIS OF TARGETING MEASURES AND THE ABSORPTION OF FUNDS UNDER THE RURAL DEVELOPMENT PLAN 2004–2006 AND THE RURAL DEVELOPMENT PROGRAMME 2007–2013

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Independent researcher

INTRODUCTION

Along with its accession to the European Union on 1 May 2004, Poland was obliged to synchronise activities it undertook in various areas of socio-economic life with the general framework of policies pursued by the Community. Rural Development Plan 2004–2006 (which I will refer to in this paper as the Plan) and the Rural Development Programme 2007–2013 (which I will refer to as the Programme) were among the first of this type of strategic documents in Poland to indicate the directions and objectives for the rural development policy in these periods. They corresponded to the goals of the Common Agricultural Policy (CAP) and represented the instruments for its implementation. However, Community intervention in some areas of the economy and the development of Poland, including in agriculture and rural development, had already begun before Poland's inclusion in the group of Member States.

The Special Accession Programme for Agriculture and Rural Development (SAPARD), a pre-accession programme, applied to areas related to agriculture and rural development. The SAPARD Operational Programme prepared by the Ministry of Agriculture and Rural Development was the first operational document. It sought to strengthen and accelerate development processes in rural areas, using a legal framework established at the EU level and funds from the EU budget. It was intended to be binding for the years 2000–2006, but officially it launched only in July 2002 [Grosse 2005] The total budget of the programme was 1,084 million EUR, which included funds from the EU budget – 708.2 million EUR, 235.8 million EUR from the national budget, and 140 million EUR transferred from the budget of the Rural Development Plan 2004–2006. Experience gained in implementing SAPARD was used as a guideline for programming and preparing subsequent strategic documents. The programme was well-received, with

measurable results observed at the local and regional level, development of the agri-food sector, and support given to undertakings in adapting EU requirements. The need to support small farms and young farmers was highlighted along with strong regional differences [Grosse 2005].

The Rural Development Plan (RDP) contains the principles for achieving its socio-economic objectives, and promotes sustainable rural development throughout Poland. It was binding between the years 2004–2006, namely from 1 May 2004, the day of Poland's accession to the European Union, until December 2006. In reality, however, pursuant to the EU's n+2 rule, the Plan came out of force only in 2008. The RDP 2004–2006 (2008) is an equivalent of plans or programmes implemented in other EU countries during the period 2000–2006 (2008). This is why the financial framework for Poland, and the other nine countries that joined the EU on 1 May 2004, was automatically shortened to the period remaining until the end of 2006.

RDP 2004–2006 was prepared in accordance with and based on legislation passed by the legislative bodies of the European Union. The legal basis for the creation of the Plan was EU Council Regulation 1257/99 on support for rural development from the European Guidance and Guarantee Fund for Agriculture (EAGGF) and Commission Regulation (EC) 445/2002 laying down detailed rules for the application of Regulation 1257/1999. The European Commission enabled implementation of the RDP for the years 2004–2006 by issuing on 6 September 2004 a decision approving the document. The Polish legal basis that enabled the Plan's activities to be launched included the Act on support for rural development funds from the EAGGF and 19 implementing regulations.

The Rural Development Programme for the years 2007–2013 was the second document of its kind in Poland. It had a significant influence on rural and agricultural policy, the directions that policy was to take and interventions and the objectives posed and nature of future operations. The programme was a reflection of the second pillar of the CAP implemented during this period by the European Union and it was adjusted in terms of instruments proposed by the CAP for the conditions and needs prevailing in Poland. Five legal acts at the EU level particularly influenced the shape of the RDP 2007–2013 and the manner of its implementation. Council Regulation (EC) 1698/2005 of 20 September 2005 had a direct impact on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). Officially, the Polish RDP 2007–2013 was approved by the European Commission on 24 July 2007, which meant that only from that day could the country act to implement the proposed instruments and begin legislative procedure of the implementing regulations regarding the particular instruments.

A significant difference in the number of instruments included in the RDP 2007–2013 (23) and RDP 2004–2006 (9) resulted from a change to how the EU's rural development policy was carried out: Before 2007, it had been based on the Plan and the Operational Programme 2004–2006, and from that year the two documents were combined in order to unify and merge them into one. Also, the source of funding during the financial perspective 2007–2013 changed to the European Agricultural Fund for Rural Development.

If resources are to be used effectively, they must be directed to areas with the characteristics that particularly justify them to obtain specific support. The means by which this is done is determining the optimum definition of the areas, which was included in

the design of the rural development plan and programme (RDP) [Rakowska 2013]. EU Member States are obliged by Regulation (EC) 1698/200 to define the geographical area and rural area covered by each with RDP 2007–2013 in the Member States [Rakowska 2015]. The Polish RDP 2007–2013 included a definition of rural areas that had already been used for some RDP 2004–2006 measures. The Ministry of Agriculture and Rural Development indicated that "rural areas covered by RDP are rural places located within administrative boundaries: (1) rural municipalities; (2) urban – rural municipalities, with the exception of towns with population exceeding 20,000 residents; (3) urban municipalities, except for towns with a population exceeding 5,000 residents". Individual territorial restrictions were additionally introduced for selected instruments.

From 1 May 2004 to 31 December 2014 the beneficiaries of the RDP Plan and subsequent RDP Programme received nearly 72 billion PLN. They constituted a great opportunity to develop the Polish countryside, agriculture and the improvement of the citizent's living conditions. The gross value added of agricultural production was more than two times higher in 2013 than in 2005 and the value of investments in fixed assets in agriculture was two times higher for the same two years. There was also an 11% increase in the number of people employed in agriculture. Findings from the analysis of the employment status show that the number of self-employed people was growing while the number of members of the cooperatives was declining.

The RDP 2004–2006 and RDP 2007–2013 were strategies used in executing a policy of intervention that had an impact on the agri-food sector, as well as on other aspects of life in rural areas. Interventionism should respond to market imperfections expressed through imperfect competition, the presence of public goods, the incompleteness of markets and unequal access to information. That Polish entities in the agri-food sector were much less competitive than their better-equipped and wealthier EU counterparts was one of the most important arguments for a pronounced intervention in agricultural policy in Poland. Engaging public resources in private activity is justified for purposes that can be achieved only with their help. Therefore, for example, support for multi-functional rural development should help widen prosperity while simultaneously preventing areas of poverty in rural areas from growing.

The dynamically changing image of the Polish countryside, increased competitiveness of domestic companies from the agri-food sector on domestic and foreign markets and clear modernisation and restructuring of agriculture summarised with the significant value of public funding, including funds from the budget of the European Union, are now an important object of studies and analyses. The funds from the budget of the RDP 2004–2006 and RDP 2007– 2013 undoubtedly contributed to the strengthening and acceleration of development processes in rural areas. The issue of targeting and absorption of these funds is important because Common Agricultural Policy and the issue of agriculture are among the most important problems and areas for EU intervention.

The study examines the measures under the Rural Development Plan 2004–2006 (the Plan) and the Rural Development Programme 2007–2013 (the Programme), and the differences between the two. The article also presents how the funds from the budgets of the Plan and the Programme were absorbed by region. In addition, it looks at the diversity of the measures taken by each voivodship.

RESEARCH METHOD

The study was prepared on the basis of quantitative analysis (statistical) of data from the Ministry of Agriculture and Rural Development and data published by the Central Statistical Office. The subject of the study is the funds from the budget of the Plan and Programme allocated for the implementation of the instruments established in these two strategic documents. The analysis has been applied to the data on the amount of the funds allocated for the implementation of such actions, and already paid to beneficiaries in the period from 1 May 2004 to 31 December 2014. The research covered the entirety of Poland and was based on the territorial division of NTS-2 – voivodships.

In the first stage of the study, the structure of expenditure on instruments in both periods was analysed. In the next step, Pearson's correlation coefficient (R) was used to determine the level of linear relationship between the two variables. It was also used to analyse the spatial absorption of funds paid out under the RDP 2004–2006 and RDP 2007–2013.

A COMPARATIVE ANALYSIS OF ACTIVITIES IMPLEMENTED UNDER RDP 2004–2006 AND RDP 2007–2013

Targeting of activities measured not only by the material scope and character, but above all, the amount of funds allocated for the implementation of individual instruments differ not only between the Plan and the Rural Development Programme. The need for flexible adjustment – using the means available and possible changes – of the amount of support occurred at the level of any of those documents. Therefore, the resources were reallocated between individual budgets designated for individual instruments.

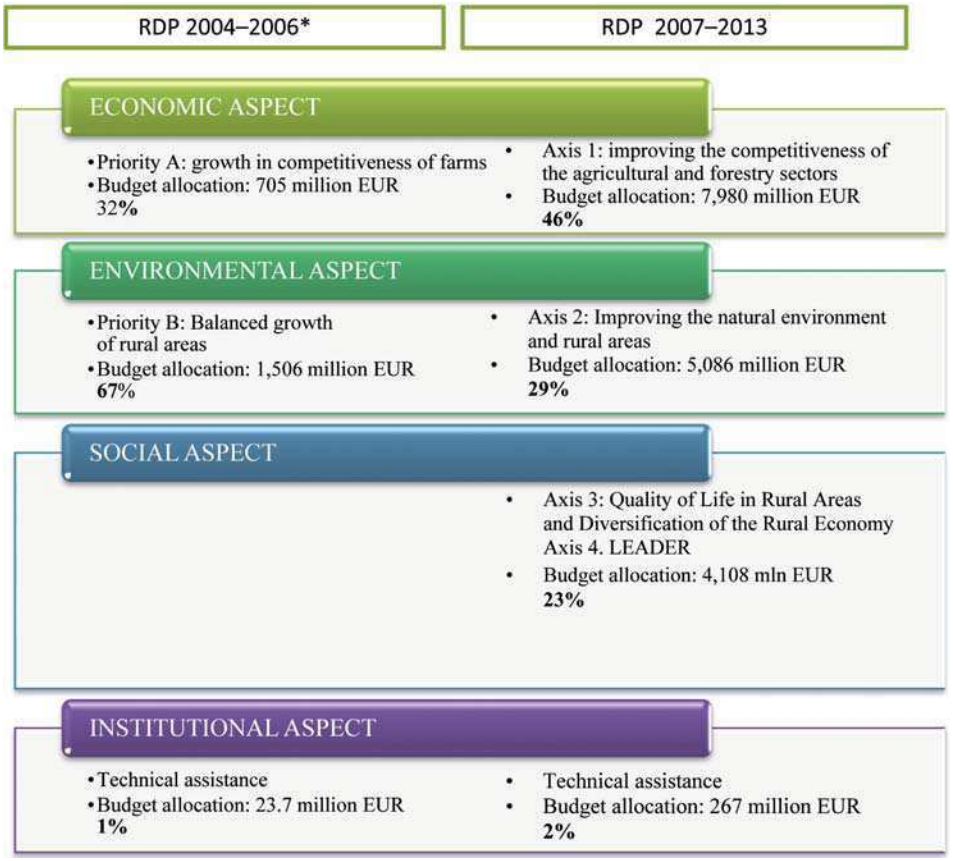
Targeting measures in itself refers to the choosing and designing of measures so that they achieve their specific aims. In conducting a comparative analysis of targeted measures realised within the framework of the two programme documents: the Rural Development Plan 2004–2006 and the Rural Development Programme 2007–2013, one cannot ignore their essence reflected by integration with rural development policy pursued by the European Community and national documents, including The National Rural Development Plan 2007–2013, to name one.

Three main areas on which the measures were focused in the implementation of rural policy can be distinguished. Therefore, analysis of the targeted instruments should begin from their categorization, taking into account development in the economic, environmental and social spheres. The institutional factor regulating the entire process of implementing and creating infrastructure required for this must also be considered. Determining the relationship and interaction between the first three systems were necessary to build a model programme that would ensure the sustainable development of rural areas [Káposzta 2012].

To determine the amount of funds allocated to the individual instruments and their selection in the formulation of the 2004–2006 Plan, only the country that created the document had formal power, provided it did not exceed the established budget. In fact, the Commission could only submit their comments and proposals for changes that would

affect its final form. The situation was entirely different during the creation of the Rural Development Programme 2007–2013, for which, pursuant to the recommendations of the Council, 45% of the EAFRD funds were used. In planning its budget for the separate Axes, Poland, like other Member States, had to take into account the minimum thresholds for EU funds. Specifically, a minimum of 10% of EAFRD funds had to be allocated to Axes 1 and 3, 25% for Axis 2, and 5% for Axis 4.

Figure 1 shows the amount the Plan focused on the environmental sphere. More than half of the budget was allocated to environmental protection, preserving natural assets, increasing forestation and adapting farms to the new requirements set out by the EU. The Programme, on the other hand, focused more on economic factors. Almost half of the budget was earmarked for implementing the goals of sustainable development in the



* The RDP budget 2004–2006 for which the percent shares were calculated was reduced by measures 8 and 9, which did not directly serve the implementation of rural development policy.

FIG. 1. Targeted measures realised in the framework of RDP 2004–2006 and RDP 2007–2013 in the context of the analysis of aspects of balanced development

Source: the author, on the basis of Ministry of Agriculture and Rural Development data.

economic sphere. Increasing the competitiveness of agricultural production, changing the agrarian structure and building a knowledge-based economy were important policy objectives in the years 2007–2013. That is not to say, however, that the Programme neglected the environmental aspect: environmental instruments reached upwards of 29% of the funds provided for the programme, and was threefold higher than under the 2004–2006 programming framework.

The essential difference between the Plan and Programme is the obvious lack in the first document of instruments directly impacting the social system. The reform of the CAP made it possible to widen the influence of the RDP with measures influencing rural areas by improving quality of life for inhabitants, building out the social infrastructure and supporting non-agricultural activities. The last of those factors clearly pertained to the economic sphere, though placing the measures for realising this goal can be explained by the fact that the division into axes was intended to clearly illustrate which areas directly affect a given group of instruments and that the economic aspect related mainly to and focused on entrepreneurship in the agriculture and forestry sector.

An element of the RDP 2007–2013 that was missing from the previous perspective was LEADER, which replaced the LEADER+ programme carried out under the Sectoral Operational Programme – Restructuring and modernization of the food sector and rural development 2004–2006. The budget included only 5% of the funds allocated to finance the RDP. But in terms of substance, which is based on a new approach to the creation and management of projects by local communities, which were able to comprehensively assess the needs that exist in a given area, the development of the social aspect was supported significantly. Though it contained instruments of a different nature than the other axes, the addition of LEADER created a complementary whole and allowed for sustainable rural development in every respect.

Detailed analysis of how the measures were directed is based on a comparison of the budgets realised under the Plan and the Programme. The instruments which could be selected for implementation in the first financial framework accounted for 65% of the pool of measures proposed by the Community authorities for the years 2007 to 2013. It was decided that more than one instrument implemented by the Member States for the period from 2000 (2003) to 2006 would be incorporated.

The Plan and the Programme had seven instruments in common. Public outlays on these common instruments from 2004 to the end of 2015 are to exceed 10 billion EUR. One of the seven, "semi-subsistence farms", was included in the budget plan of the Programme exclusively as a result of the need to repay the liabilities incurred to beneficiaries in the previous programming period. Its budget made up 35% of the funds allocated for its implementation in the period 2004–2015.

Funds allocated for the needs of the group of measures contained in both documents accounted for 60.25% of the RDP 2004–2006 budget. For RDP 2007–2013, which had a much larger number of measures to be implemented, the rate was 45.74%. The binding commitments estimated from RDP 2004–2006 implemented from the budget of the RDP 2007–2013 and decreasing it accounted for approximately 138% of the budget allocated for their implementation during the implementation period, and 37% of the total spending limits for these instruments in the second financial framework. As much as 83% of the amount allocated to "structural pensions" from the budget for this measure in

TABLE 1. Funds allocated for measures in the framework of RDP 2004–2006 and RDP 2007–2013 (million EUR)

Instrument	Allocation in RDP 2004–2006	Allocation in RDP 2007–2013	Estimated obligation from RDP 2006 financed from RDP 2013 budget
Structural pension	534.74	2 389.60	1 993.14
Support for semi-subsistence farms	340.56	182.50	182.50
Groups of agricultural producers	6.37	182.50	14.64
Support for farms on less favoured areas	944.70	2 418.75	–
Support for the agri-environment and improving animal welfare	208.33	2 302.60	694.94
Greening of agricultural areas	99.99	234.50	99.64
Technical assistance	29.82	266.00	–
Total	2 164.52	7 976.46	2 984.88

Source: the author, on the basis of WWW 1; Rural Development Programme 2007–2013, Ministry of Agriculture and Rural Development, Warsaw, March 2015 and Ministry of Agriculture and Rural Development data: Aggregate monthly report on the implementation of the RDP 2007– 2013 , as of 31 December 2014.

the RDP 2007–2013 actually went towards covering obligations originating in the RDP 2004–2006.

Table 1 presents the budget for each of the instruments in both framework periods. The most funds were allocated to "support agricultural activity in areas with unfavourable cultivation conditions" and "structural pensions".

Under the 2004–2006 Plan, "semi-subsistence farms" and "support for agri-environment and animal welfare" followed the top two instruments. In the case of the RDP 2007, 2013 "promoting animal welfare" and "technical assistance" were the third and fourth most funded instruments.

A COMPARATIVE ANALYSIS OF THE ABSORPTION OF FUNDS ALLOCATED FOR RDP 2004–2006 AND RDP 2007–2013

The comparative analysis of the absorption of funds allocated for the Plan and the Programme is intended to provide a picture of how they differ in spatial terms, and to define the correlation between the amounts of funds described. Due to a lack of available data on the division by voivodship – specifically, "professional training for individuals employed in farming and forestry", and 'information and promotional measures' – these categories were not included in the calculations. However, nor would they have had a significant impact on the results of the research if they had been: they constituted, after all, a mere 0.1% of the RDP 2007–2013 payments and 0.25% of the Axis 1 payments. It is also crucial that all of the data on payments made from the 2007–2013 Programme concern the period only up to 31 December 2014, which was not the final amount beneficiaries were to receive through 31 December 2015.

Analysis of the Plan and Programme should begin by looking at the value of funding paid out in Poland's voivodships to beneficiaries in the framework of all of the measures combined. A comparison of Figures 2 and 3 shows that the situation was practically

identical. The difference was mainly the amount of funds paid out in the two RDPs, which was fourfold higher in the Programme. During both periods, the most money went to Mazowieckie – 2.2 million PLN from the first framework and 8.9 from the second. Meanwhile, Wielkopolskie brought in 1.7 million and 7.1 million; Łódzkie 1.1 and 4.3 million; Kujawsko-Pomorskie 1.1 million and 4.1 million; Podlaskie 1.3 million and 4.7 million; Lubelskie 1.1 and 5.8 million. The least amount of money went to Lubuskie, at 0.3 and 1.8 million; Opolskie 0.3 million and 1.5 million; and Śląskie at a bit less than 0.3 and 1.8 million.

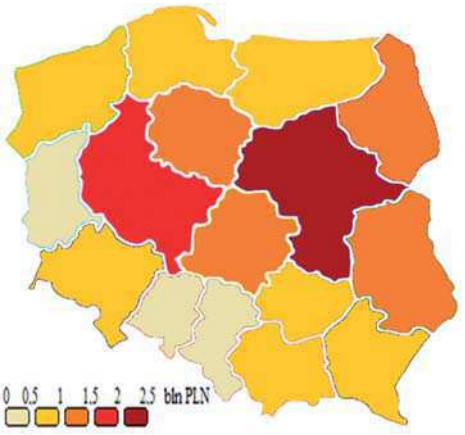


FIG. 2. Amount paid under the 2004–2006 RDP by voivodship as of 31 December 2014

Source: the author's own elaboration on the basis of Ministry of Agriculture and Rural Development data.

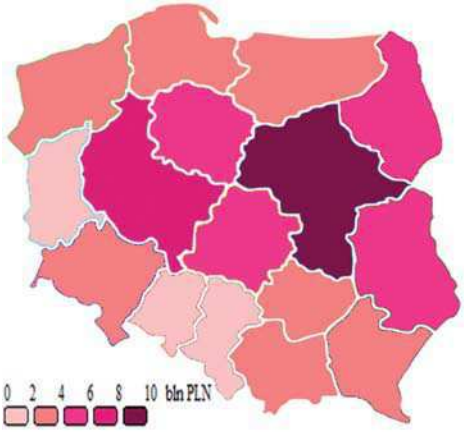


FIG. 3. Amount paid under the 2007–2013 RDP by voivodship as of 31 December 2014

Source: the author's own elaboration on the basis of Ministry of Agriculture and Rural Development data: Aggregate monthly report on the implementation of RDP 2007–2013, as of 31 December 2014.

It is worth noting that Pearson's correlation coefficient (R) between the amount of payments realized in various provinces during the implementation and binding period of the Plan and the Programme was 0.98. Thus there was a very strong linear dependence between the amount of funds paid from the Programme budget in the voivodship funds and the amount of funds paid in this province from the Plan budget. This strong correlation may suggest that part of the Programme budget was earmarked for repayment of expenditures relating to the commitments under the Plan. The amount of these obligations relative to the payments paid out to the voivodships ranged from 16% in Lubuskie to 32% in Świętokrzyskie.

The correlation coefficient calculated for the amount of payments made from the Plan budget as well as payments made from the Programme budget minus liabilities incurred during the Plan's implementation period was nearly identical to the previous case, or even slightly higher. However, after rounding to the nearest hundredth, it also came to 0.98. This clearly confirms the very strong correlation of the amount of funds allocated for operating the Plan and the Programme in individual provinces.

A considerable disparity can be observed in the size of the provinces, so the next stage of the analysis will compare the amount of funds with the surface area of the rural areas in the separate administrative units. The rural area in Mazowieckie is almost four times greater than that of Silesia, which justifies the use of this index. The results of the comparison are presented in Table 2.

TABLE 2. Funds paid per square kilometre of rural area by voivodship under RDP 2004–2006 and RDP 2007–2013, as of 31 December 2014

RDP 2004–2006			RDP 2007–2013		
No	voivodship	PLN per km^2 of rural area	No	voivodship	PLN per km^2 of rural area
1	Mazowieckie	66 797	1	Mazowieckie	266 621
2	Kujawsko-Pomorskie	66 425	2	Łódzkie	251 023
3	Podlaskie	64 278	3	Wielkopolskie	249 406
4	Łódzkie	63 301	4	Świętokrzyskie	248 502
5	Wielkopolskie	62 210	5	Podlaskie	244 958
6	Świętokrzyskie	50 932	6	Lubelskie	241 382
7	Lubelskie	47 158	7	Kujawsko-Pomorskie	236 917
8	Pomorskie	38 203	8	Małopolskie	215 089
9	Małopolskie	37 733	9	Śląskie	212 150
10	Warmińsko-Mazurskie	37 438	10	Podkarpackie	173 855
11	Dolnośląskie	31 338	11	Dolnośląskie	173 077
12	Opolskie	31 250	12	Opolskie	169 545
13	Podkarpackie	30 240	13	Pomorskie	168 132
14	Śląskie	29 224	14	Warmińsko-Mazurskie	152 907
15	Zachodniopomorskie	26 864	15	Zachodniopomorskie	141 658
16	Lubuskie	23 580	16	Lubuskie	138 357

Source: the author, on the basis of Ministry of Agriculture and Rural Development data: Summary report on the implementation of the RDP 2004–2006, state according to calculations as of 25 March 2009 and a summary report on the implementation of the RDP 2007–2013, as of 31 December 2014; Central Statistical Office, Local Data Bank, National Geodetic area (GUGiK data) 2007, electronic document retrieved from http://stat.gov.pl/bdl/app/dane_podgrup.display?p_id=534937&p_token=0.9872572682015641[accessed: 28.02.2015].

The first difference is that the disparities between the most and the least financed voivodships fell. Under the RDP 2004–2006, Mazowieckie received sixfold more money than Opole. After calculating for funds received per square kilometre of rural area, the ratio between the largest value (Mazowieckie) and the smallest (Lubuskie) was approximately two. The situation changed little under RDP 2007–2013, which paid Mazowieckie nine times more than Silesia, and, after converting for payments received per square kilometre, Mazowieckie benefited from a threefold higher index than Lubuskie.

The correlation coefficient (R), which for the data defining the amount of payments received per area of village in each province in both frameworks, also fell – to 0.87. The coefficient value continues to express a strong correlation, though it is weaker than for the amount of the payment for each province in general.

ABSORPTION OF FUNDS IN THE CONTEXT OF THE TARGETED MEASURES

The measures were divided, according to their orientation, into four groups: economic, environmental, social and institutional. This part of the analysis compares the spatial absorption of funds allocated to the 2004–2006 Plan and the 2007–2013 Programme in the context of targeting these four aspects. Table 3 shows the percentage individual provinces spent on the four groups. A group of provinces including Mazowieckie, Lubelskie, Łódzkie and Wielkopolskie absorbed a high share of funds from the budgets of the instruments of the four aspects. Provinces whose share of the financial resources paid to beneficiaries of the budgets of individual sets of instruments was the lowest included Opolskie, Śląskie and Lubuskie.

TABLE 3. The share of funding paid in the voivodships from the budget instruments for the economic, environmental and social aspects under RDP 2004–2006 (2008) and RDP 2007–2013 (2014)

Voivodship	Economic aspect			Environmental aspect			Social aspect	
	RDP 2004–2006	RDP 2007–2013		RDP 2004–2006	RDP 2007–2013		RDP 2007–2013	
	Priority A (M PLN)	Axis 1 (M PLN)	Share of liabilities* (%)	Priority B (M PLN)	Axis 2 (M PLN)	Share of liabilities* (M PLN)	Axis 3 (M PLN)	Axis 4. Leader (M PLN)
Dolnośląskie	4	5	39	3	5	22	6	7
Kujawsko-Pomorskie	6	8	36	10	6	12	5	5
Lubelskie	13	11	39	6	8	19	9	8
Lubuskie	1	2	22	3	5	21	3	3
Łódzkie	11	9	48	7	5	10	6	6
Małopolskie	6	4	45	3	3	10	7	9
Mazowieckie	17	17	38	17	14	9	11	11
Opolskie	2	3	37	1	2	24	3	3
Podkarpackie	5	4	49	3	4	17	7	8
Podlaskie	7	7	39	10	10	7	5	4
Pomorskie	3	4	30	6	6	18	5	5
Śląskie	2	3	33	1	2	18	5	5
Świętokrzyskie	8	5	52	2	3	16	5	6
Warmińsko-Mazurskie	3	4	31	8	9	14	6	5
Wielkopolskie	8	12	29	15	11	16	13	11
Zachodniopomorskie	2	3	30	5	8	26	4	4
Total	3 424	27 471	38	7 345	19 912	15	11 102	2 299

* The share of obligations pertains to amounts paid out from Axis 1/Axis 2 budgets under RDP 2007–2013 financial obligations resulting from the implementation of instruments from group Priority A/Priority B RDP 2004–2006.

Source: the author, on the basis of Ministry of Agriculture and Rural Development data.

The difference in funds allocated to economic measures between the two programme periods was nearly elevenfold, and beneficiaries located in Mazowieckie received nearly 17 times more funds than recipients from Lublin voivodship.

A significant part of the expenditure from the budget of Axis 1 RDP 2007–2013 was incurred as a result of the need to regulate liabilities incurred in the implementation of the previous RDP. The average for all of Poland's voivodships was 38%, while for the individual provinces the value ranged from 29% for Wielkopolskie to 48% in Lubuskie, 49% in Podkarpackie and 52% in Świętokrzyskie.

The correlation between the amount of funds paid for economic measures during the two periods was analysed. In the case of the analysis depending on the amount of funds spent on priority and RDP 2004–2006 and the Axis 1 of the RDP 2007–2013 the correlation coefficient is 0.92, so there was a strong relationship between these values, though it was weaker than the expenses of the Plan and the Programme in general. Given these numbers, it was necessary to examine the correlation between the amount of funds paid from the budget of the RDP 2007–2013 after deducting the liabilities from the 2004––2006 programming period. The correlation coefficient R in this case is 0.85. The weaker correlation between spending on priority and RDP 2004–2006 and Axis 1 of the RDP 2007–2013 reduced by the obligations of the RDP 2004-2006 was the result of, among others factors, this correction. The obligations alone in 98% of cases of voivodship outlays were closely connected with total expenditures from the Priority A budget (there is a very strong linear relationship).

The second group in the classification of targeted measures consisted of instruments allocated to environmental issues. This part of the analysis compares the absorption of financial resources spent on the implementation of priority B in the RDP 2004–2006, and Axis 2 of the RDP 2007–2013.

The correlation coefficient (R), expressing the degree of correlation between the amount of funds paid for environmental measures under the RDP 2004–2006 and RDP 2007–2013 was 0.91 – a strong relationship, though it was weaker than spending on all of the instruments combined. After adjusting for the reduced regional expenditure on Axis 2 liabilities from measures implemented within the framework of RDP 2004–2006 priority B, the correlation coefficient increased to 0.94.

A noteworthy phenomenon is the poor correlation (it barely hit 0.44) between the amount of commitments undertaken in the framework of the Plan and repaid from the subsequent Programme budget as well as the amounts paid in the provinces of the budget of the first programme document. In Zachodniopomorskie, at 344 million PLN, these liabilities were almost 100 million PLN higher than the amount paid to the RDP 2004 to 2006 budget.

Budget spending on individual instruments impacting the environment covered by the Plan's budget varied across the voivodships. Measures whose obligations transferred over to the next period included the "agri-environmental programmes" and "afforestation of agricultural land" and varied by region. The total share of expenditure on priority B ranged from 9% in Kujawsko-Pomorskie to 40% in Zachodniopomorskie, while the average for the country was 15%. The wide range leads to a low correlation of expenditure on activities of an environmental nature of the budget of the RDP 2004–2006 and the amount of liabilities covered by the RDP 2007–2013 budget.

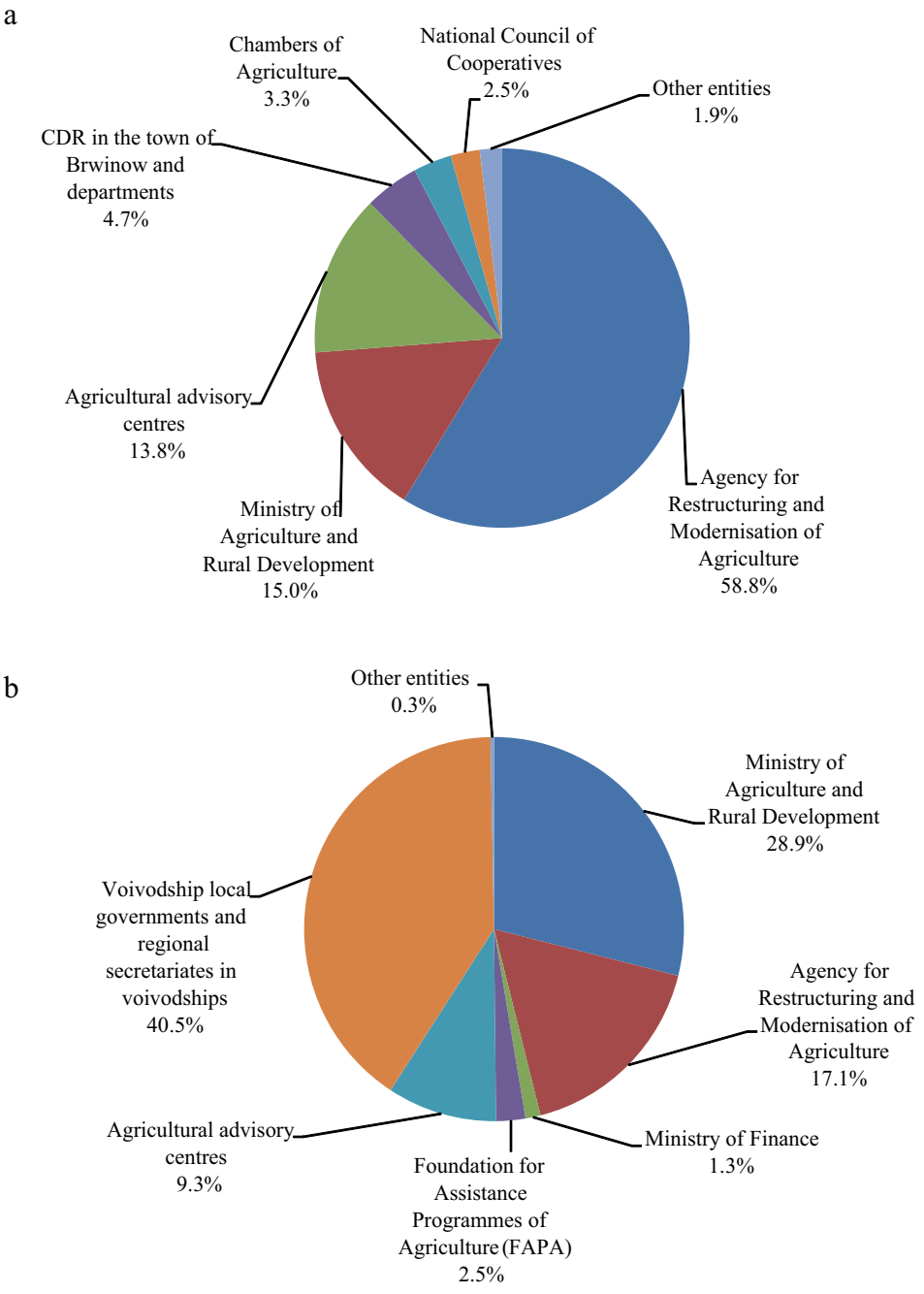


FIG. 4. Absorption of funds from the "technical assistance" budget of the Plan and Programme by institutions as the beneficiaries: a – in 2004–2006; b – in 2007–2013

Source: the author's own elaboration on the basis of Ministry of Agriculture and Rural Development data.

The next area of research is the social aspect in the measures implemented under RDP 2007–2013, which is not here compared to RDP 2004–2006, because the earlier plan did not contain instruments of a strictly social character. Nonetheless, two instruments can be distinguished in RDP 2007–2013. If our analysis is to be comprehensive, it is essential to determine the relationship between the amount of spending in the provinces to implement Axis 3 and Axis 4 of the LEADER, because the latter was intended to facilitate and increase the effectiveness of Axis 3. A positive correlation coefficient (R) between these values (0.92) indicates the existence of a strong correlation, and allows the following conclusion to be drawn: the greater resources spent on Axis 3 instruments in a given voivodship, the more was spent on implementing LEADER measures.

The final aspect of the analysis is the institutional sphere. Spatial Allocation of the "technical support" funds is much more difficult. This is because the beneficiaries were institutions, most of which have only a single seat (e.g. The Ministry of Agriculture and Rural Development), and the assignment of funds in accordance with the location of that seat would lead to the formation of significant and unreasonable disparities. Hence a different approach to the analysis of the institutional aspect was needed. Classification by institution was the approach chosen. It is based on the identification of the beneficiary (or the group of beneficiaries) of the amount coming from the technical assistance budget.

At nearly 64 million PLN, the Agency for Restructuring and Modernisation of Agriculture received the most "technical assistance" funds under the 2004–2006 Plan. This accounted for almost 59% of the total expenditure on measures financed by this instrument. As Figure 4 shows, in receiving over 16 million PLN, the Ministry of Agriculture and Rural Development was the second largest beneficiary of the funds. Agricultural Advisory Centres and the Chambers of Agriculture took in a total of nearly 19 million PLN, though that money was distributed to units in only 10 voivodships.

The situation changed considerably under the Programme. As of 31 December 2014, the most money had been paid to voivodship local governments and regional secretariats, which received a combined 324 million PLN. The Ministry of Agriculture and Rural Development received 231 million PLN, while its share of outlays for "technical assistance" increased 14 percentage points over the Plan. The Agency for the Restructuring and Modernisation of Agriculture was paid 137 million PLN, a twofold increase over the 2004–2006 period, but in the structure of the spending accounted for much less, at just over 17%.

REGIONAL APPROACH TO DIVIDING RDP 2007–2013 FUNDS

A new approach was used to allocate funds under the Programme. It was the result of changes made to the implementing institutions that had handled the 2004–2006 Plan, the Agency for Restructuring and Modernisation of Agriculture. On the other hand, the managing authority (Ministry of Agriculture and Rural Development), payment authority (ARMA) and the certifying authority (Ministry of Finance) did not undergo any changes. Figure 5 presents the institutions that oversaw the RDP 2007–2013 and the activities for which they were responsible.

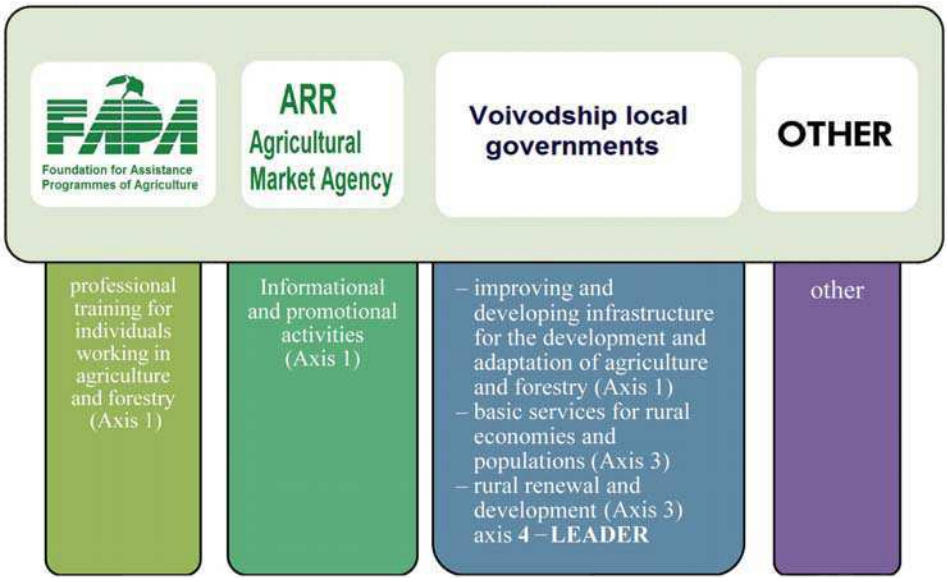


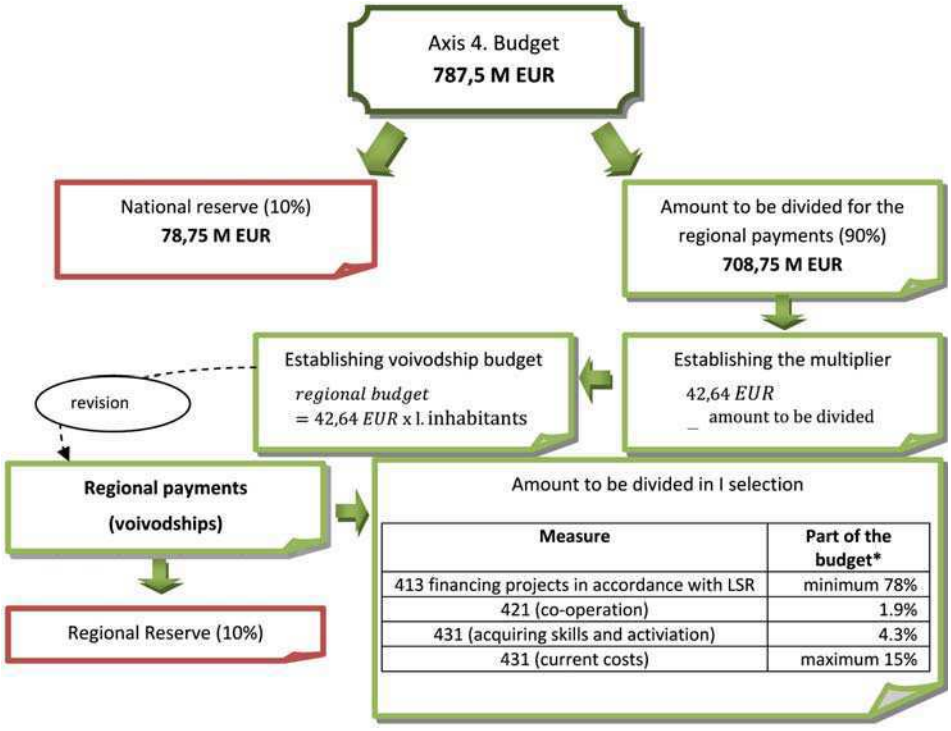
FIG. 5. Institutions implementing RDP 2007–2013

Source: the author's own elaboration.

Because six measures were implemented by local voivodship governments, the extent of funds allocated to these instruments in particular voivodships was broken down by voivodship. The division also included "structural pensions" for the final selection of applications in 2010.

The limit of funds for Axis 4 instruments was established by voivodship using the algorithm presented in Figure 6. The amount divided between voivodships in the framework of regional outlay boundaries accounted for just less than 11% of the entire Programme budget. LEADER accounted for 38% of the total, while the remaining instruments employed by the voivodship local governments amounted to 56 and 6% of the budget went to "structural pensions". At 11 and 10% respectively, the most funds went to the voivodships Wielkopolskie and Małopolskie while the smallest portion – 3% of the 1,848 million total EUR available to the voivodships – went to Opolskie.

A significant correlation was not revealed between the limits defined for the voivodships and the amount of funds allocated to activities under the 2004–2006 Plan ($R \sim 0.62$), nor the amount of funds absorbed by the voivodships from the budgets of the remaining instruments of the 2007–2013 Programme ($R \sim 0.73$). This may mean that a new approach to limiting outlays at the voivodship level using objective indicators for assessing the situation in a given region and the actual needs for funds in specific areas will be beneficial. The division of funds ensures that the amount allocated to particular goals are adjusted to the needs and that revenue streams will be directed to the regions which actually need them, and are not simply taken up by those beneficiaries that are able to quickly absorb significant amounts of European funds.



* The percent division applies also to the structure of LGD outlays of the beneficiary.

FIG. 6. Algorithm used to determine the Axis 4 budget for the voivodships

Source: elaborated on the basis of A. Futymski, Financing Axis 4 Leader, FAPA, electronic document retrieved from http://www.fapa.com.pl/leaderplus/docs/200_Finansowanie_Osi_4.pdf [accessed: 07.04.2015].

SPATIAL DIFFERENCES BETWEEN THE PLAN AND THE PROGRAMME

The final part of the research will examine the issue of targeting measures and the absorption of funds allocated for their realisation under the Plan and Programme. Beneficiaries in the particular voivodships received financing for all of the measures implemented during the period covering both RDPs; and, as has been observed elsewhere in this article, there existed a nearly unchanged group of voivodships characterised by high as well as low degree of absorption of funds from the different segments of measures. Therefore it is possible to put together individual structures of subsidies for administrative units and the select main components that the units focused on.

Absorbing 67% of funds, the environmental aspect was the Plan's dominant aspect, while the economic aspect, accounting for 46% of funding, had more allocated than all the other aspects in the Programme. However, this does not mean that the optimal state for each of the administrative units would be to reflect the ratio of the amounts spent on each group of measures defined for the entire Plan and Programme. These documents

considered the specific targeting and needs of the regions, which is why, it is assumed, the targeted measures should be differentiated on a regional level. Figure 7 presents the situation for the individual voivodships as it has unfolded since 31 December 2014.

The outlays for financing from the 2004–2006 Plan budget was in almost all of the voivodships identical and in agreement with the dominant environmental aspect indicated for the entire plan. Only the voivodship Świętokrzyskie differed, with 61% of funds going to economic issues, while in two other voivodships – Małopolskie and Lubelskie – the environmental and economic allocations were even.

The situation was similar for the 2007–2013 Programme insofar as the dominant aspect was the economic, both for the programme as a whole and individual beneficiaries. The environmental aspect led only in Lubuskie (50% of funds), Zachodniopomorskie (56%), Pomorskie (43%) and Warmińsko-Mazurskie (48%). The social aspect did not lead in any of the voivodships.

When considering the amount of funds gained from the Plan and Programme budgets by beneficiaries from the individual voivodships, there was a greater number of regions in which funding for economic measures was dominant. The environmental aspect was targeted in the Lubuskie, Zachodniopomorskie, Warmińsko-Mazurskie and Podlaskie voivodships. Significant outlays made on social aspects are also noteworthy, with four voivodships in the south of the country spending more than 25%: Śląskie (35%), Małopolskie and Podkarpackie (31%) as well as Opolskie (just above 25%). While they were not among the leading beneficiaries of Axis 3 and Axis 4 funds, the position they took with regard to the social aspect is worth examining.

Each of the three aspects in which all of the measures were implemented involved spatial characteristics as well as economic, environmental and social elements. On the basis of several factors reflecting to some degree the situation upon which the implementation of the instruments was to impact, an attempt has been made to assess their connection with the actual directions of the absorption of the funds over the entire period.

The basic unit for assessing the absorption of the funds from the groups of instruments applied to the environment is least favoured areas (LFA). Additional features researched for the correlation of the amount of funds paid by voivodship was the area of farms and the number of farms by groups of areas.

The research showed that there is a positive correlation between the share of LFAs in areas of agricultural usage and the amount of funds paid for environmental measures in a given voivodship ($R = 0.5$). This means that the larger the share of LFA territory in agricultural usage land, the higher the funds beneficiaries received from environmental aspect budget in the voivodship.

The study did not reveal a strong correlation between the surface area of farms, as well as, according to area groups and the average area of farms in the province, and the amount of funds paid for environmental measures. There was a fairly strong positive correlation ($R = 0.72$) between the percentage of farms 10–15 ha in size to the number of farms in the province, and the amount of funds allocated for environmental instruments in the RDP 2004–2006 and RDP 2007–2013 budgets. Furthermore, there was a fairly strong negative correlation ($R = –0.64$) between the percentage of farms with an area of 10 ha and the value of the funds paid for environmental measures. The larger the share of farms not exceeding 10 ha, the less funding a voivodship's beneficiaries received.

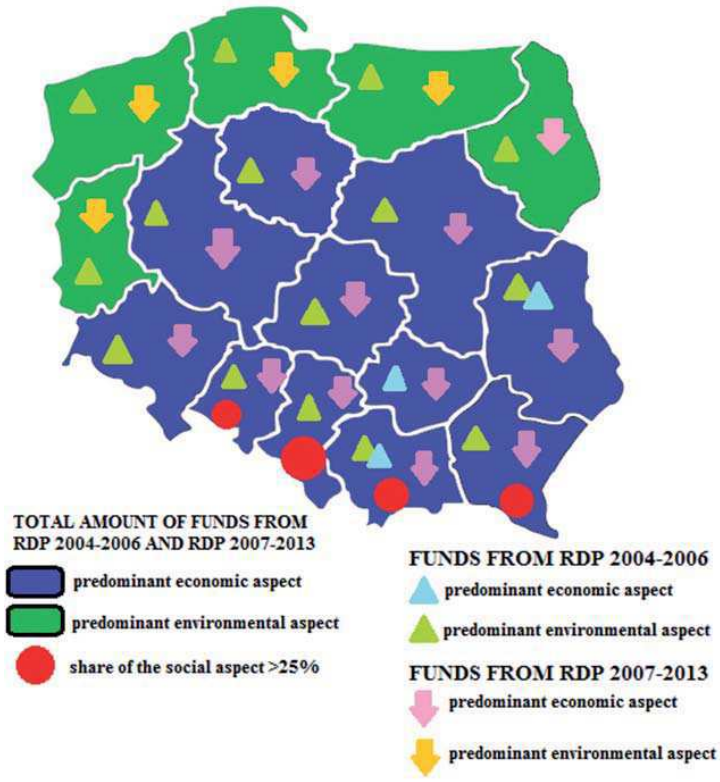


FIG. 7. Absorption of funds from a selected group of instruments implemented in the 2004–2006 Plan and the 2007–2013 Programme in the voivodships, as of 31 December 2014

Source: the author's own elaboration on the basis of Ministry of Agriculture and Rural Development data.

The number of farms by land area groups and their surface area also served as an explanatory variable in the study of the distribution of funds from the budget of economic instruments. Significant relationships were characterised by those relating to the percentage in the structure of farms by land area groups of the amount paid for economic measures. For organic farms up to 1 ha the correlation was negative and weak ($R = –0.36$), while for the share of farms of 10–15 ha it was positive but weak ($R = 0.38$). In addition, the value of funds paid in a given voivodship from the group of economic measures showed a moderate correlation with the average disposable income from a private farm for 1 person ($R = 0.6$).

CONCLUSIONS

The Rural Development Plan 2004–2006 and the Rural Development Programme 2007–2013 provided farmers and other inhabitants of villages a number of instruments along with significant funds to put them to work. They constituted an opportunity for

Polish villages to expedite and strengthen development processes, and they also supported harmonious development and enabled territorial coherence not only for rural areas, but throughout Poland. The ten years during which the Plan and Programme were binding was for Poland a time of dynamic transformation in the development of economic competitiveness, guaranteeing balanced growth of rural areas, environmental protection, improved quality of life for the inhabitants of villages and the implementation of innovation – not only in regard to new technologies in agriculture, but also planning and managing projects, which were intended to change the image of rural areas. This was the result of Axis 4 of the RDP 2007–2013, which assumed a bottom-up approach to design, at the local community level, through local action groups.

If growth in rural areas is to be balanced, financial instruments functioning on all levels – the economic, the environmental and the social – are needed. All of the strategic documents at the design stage of the instruments laid out their budget, which was eventually changed due to the reallocation of funds. The amount of money allocated to groups of instruments of certain aspects of the entire RDP I and II budgets guided the orientation of their activities in both financial frameworks. The RDP 2004–2006 budget reduced two activities not directly tied to implementing the goals laid down in the document. "Fulfilling the direct payments" and "projects within the framework of regulation 1268/1999" accounted for a total of 23.5% of the funds allocated for the implementation of the plan, and totalled 3.6 billion EUR. More than half of these funds were allocated to Priority B instruments – "balanced rural development", while the remainder was paid to beneficiaries of the priority A measures "growth in farm competitiveness". It can therefore be concluded that the plan placed both its focus and funds on the environmental aspect of balanced growth.

The situation changed during the implantation of RDP 2007–2013. Aside from a substantially higher general budget of 17.4 billion EUR, activities of a social character were now instituted. Axis 1 instruments for "improving the competitiveness of the agricultural and forestry sector" to address balanced growth were to account for 46% of the RDP 2007–2013 budget. Axis 2 "improving the natural environment and the countryside" accounted for 29% of the budget while Axis 3, "quality of life in rural areas and diversification of the rural economy", together with Axis 4, "implementation of LEADER", were to support the social aspect and receive 23% of the budget. So, the basic difference in orientation of RDP 2007–2013 and RDP 2004–2006 was the dominant economic aspect and the entrance of a social aspect in the latter programme.

When it comes to how the funds were distributed across Poland's voivodships under the rural development plan and the programme, the amounts were similar. Under both, the most money went to six voivodships: Mazowieckie, Wielkopolskie, Kujawsko-Pomorskie, Łódzkie, Podkarpackie and Lubelskie. The voivodships to take in the least amount of money were Śląskie, Opolskie and Lubuskie. The Pearson correlation coefficient calculated to determine the degree of interdependence between the amount of funds received by the beneficiaries from chosen voivodships from the RDP 2007–2013 budget from the amount received from the RDP 2004–2006 budget was 0.98, unequivocally confirming the strong relationship.

The RDP 2007–2013 budget covered obligations from the 2004–2006 RDP under contracts signed with the beneficiaries for activities including "Structural pensions", the

implementation period for which exceeded the payments period from the RDP 2004––2006 (2008) budget. These commitments varied by province – from 16 to 32% of the funds paid out. Budget Axis 1 of the RDP 2007–2013, the economy, absorbed between 29 and 52% of the pensions, while Axis 2, the environment, absorbed between 7 and 26%.

Provinces characterised by the highest and lowest absorption of funds from the different groups of instruments – that is, the economic, environmental and social – actually did not differ from those defined for funds from the budget of the entire RDP 2004–2006 and RDP 2007–2013. In addition, there was a correlation between the amount of money paid out in the provinces from the Axis 3 and Axis 4 budgets, which can be described as positively accurate, since the Axis 4 LEADER instruments were intended to support the implementation and execution of Axis 3.4.

Despite the existence of fixed groups of regions – including the leaders and those that do not stand out for receiving a high degree of absorption funds, the orientation of the funds in the individual administrative units can still be determined. Given the amount paid out in the two programming periods, most voivodships opted to focus their financial resources on the economic axis. In five provinces in the north of Poland – Lubuskie, Zachodniopomorskie, Warmińsko-Mazurskie and Podlaskie, the largest share of expenditures went to environmental issues. The social aspect did not command the largest share of investment in any of the voivodships, but in the Opolskie, Śląskie, Podkarpackie and Małopolskie voivodships, all in the south of the country, public expenditure on social issues in both the RDP 2004–2006 and RDP 2007–2013 exceeded 25%. This does not mean, however, that they were the most active areas in obtaining these funds. The Axis 4 budget was divided between the provinces on the basis of a fixed algorithm correlated to population size, among other factors, and two measures of Axis 3 were determined by regulation limits for individual voivodships.

Rural development policy in Poland has to a great degree depended on the RDP 2004––2006 and RDP 2007–2013. The policy was reflected in the goals and priorities of each framework. By proposing a range of instruments, the EU afforded Member States considerable discretion in which they chose, and required a minimum share of the axis of the planned budget for the entire document be allocated in particular ways only in the second programming period. Volatility in designing the funds between the financial perspectives, their heavy use and diversity at the regional level characterise the activities and measures implemented, and have led rural development policy in Poland to be assessed in a positive light. They attest to the efforts being made to adapt the amount of the funds allocated for various aspects of sustainable development and territorial areas to the country's needs.

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Summary. The development of rural areas is currently one of the more important priorities in the Common Agricultural Policy. In Poland, precisely drawn up rural development policy coupled with complex instruments have been implemented since Poland joined the EU on 1 May 2004. The aim of this article is to present the widely defined activities and measures implemented in the framework of the Rural Development Plan 2004–2006 and the Rural Development Programme 2007–2013. It also compares how they were shaped during the two financial frameworks. The article also presents the spatial absorption of the

funds intended for their realisation and the beneficiaries by voivodship. Finally, the article defines the interdependencies between the amount of funds paid by voivodship in both of the programming periods.

Key words: RDP 2004–2006, RDP 2007–2013, rural development, balanced development, European funds in Poland

JEL: Q18, R28, R51, R58

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THE ECONOMIC DIMENSION OF THE EU COOPERATION WITH THE MAGHREB COUNTRIES

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INTRODUCTION

Since the inception of the European Communities, all Member States have been interested in political, economic and social stability in the Maghreb countries. Nevertheless, some Mediterranean countries still disagree on the approach that should be taken to the region.

France was recognised as the spokescountry for the Maghreb, and subequently would not accept any project in which it wasn't the sole author. It planned to provide a forum for multilateral cooperation, taking into account the existing bilateral ties. In turn, the Spanish vision of the development of relations was a priority for launching the regional forum with the possibility of inclusion of non-European countries, e.g. The United States due to security issues. Despite its strategic location, Italy did not show more activity in the area [Borkowski 2005, 151–152].

A breakthrough in the development of relations was the Mediterranean Strategy proposed for the European Council during the meeting in Corfu from 24 to 25 June 1994. The main purpose of the cooperation was to "transform the region into an area of peace, security, stability and economic prosperity" [Zięba 2003, 79–81]. A key element in the development of relations with the Mediterranean was the European Commission document "Strengthening the EU's Mediterranean policy; establishment of a Euro-Mediterranean Partnership" on 19 October 1994. It shows the basic problems of the region, such as political instability, migration and a high birth rate. It was necessary to gradually create the Euro-Mediterranean economic area.

Among the objectives identified: enhanced political dialogue, regulations in the field of weapons of mass destruction and the peaceful settlement of international disputes. It was assumed the establishment of a free trade zone for industrial goods as well as preferences for agricultural goods. The region received loans from the European Investment Bank and 5.5 billion ECU from the general budget of the EC for the years 1995–1999

[Borkowski 2005, 152–154]. Finally, at the European Council in Essen in December 1994 approved a project to convene a conference of EU and Mediterranean's countries during the Spanish Presidency in the second half of 1995 in Barcelona.

AIMS AND METHOD

The main aim of the article is to analyse the economic dimension of cooperation between the European Union and the Maghreb countries. The Euro-Mediterranean Partnership was created in 1995 and initiated cooperation between the two regions [Bernatowicz 2005, 20]. A key task is to identify priorities, and their evolution, depending on the form of cooperation (Euro-Mediterranean Partnership, the Union for the Mediterranean, the European Neighbourhood Policy). I compare the status of progress in cooperation between the Maghreb countries (Algeria, Libya, Morocco, Mauritania and Tunisia).

The specific objectives are:
– to compare the level of advancement of cooperation between the Maghreb countries and the European Union;
– to analyse the documents of bilateral cooperation (e.g. NIP).

I used the historical method (chronological analysis of source documents and scientific studies) and comparative method (list of forms of cooperation depending on the country, in order to show the similarities and differences).

SIGNIFICANCE OF THE STUDY

The Barcelona Declaration was intended to create a free trade zone. However, it was hard to liberalise the economy and allow foreign investment due to the authoritarian nature of the conservative monarchies or republics.

In the Maghreb countries there is a differentiation due to the distribution of natural resources in the region, specifically oil reserves. The economies can be divided into groups:
– diversified economy, oil – Algeria;
– the economy, oil – Tunisia;
– diversified economy – Morocco;
– primary export economies (non-industrialised economies, exporting basic goods) – Mauretania.

In the economic sphere Maghreb is clearly oriented towards Europe. From 1 January 1993 there was a reduction of customs duties and quantitative restrictions on agricultural products, expanded quotas and a symmetrically opened market. Previously, the region had been stimulated primarily by asymmetric export preferences, ie free access to EU industrial goods in the Mediterranean and the protectionist customs system in the countries of the southern coast [Bernatowicz 2005, 21].

The Euro-Mediterranean Partnership has laid down long-term objectives. It was necessary to accelerate the pace of socio-economic development, improve living conditions, increase employment and reduce the development gap. In addition to the basic desire to create a free trade area, coordinated action and economic cooperation in many areas were

also important. Tariffs were to be gradually eliminated and non-tariff measures in trade in industrial products put in place, liberalisation of trade in agricultural products and services, including the right to establish businesses. It was necessary to modernize economic structures and develop the private sector [Borkowski 2005, 313–314].

In terms of the creation of a free-trade area, the Barcelona Declaration sets out four priority areas, i.e.:

– adopt appropriate legislation in respect of the rules of origin certification, protection of intellectual and industrial property and competition;
– conduct and develop policy based on the principles of the market economy and economic integration;
– adapt and modernise economic and social structures (support for the private sector);
– promote mechanisms to support the transfer of technology.

It was announced that the role women played in development was to be promoted, as would be cooperation in the energy sector, water resource management, environmental protection, regional cooperation, support for small and medium-sized enterprises and the modernisation and restructuring of agriculture [WWW 1].

To achieve the objectives enshrined in the Barcelona Declaration and other documents, appropriate measures had to be taken. The most important instrument was the Euro-Mediterranean Free Trade Area (Euro-Meditterranean Free Trade – EMFTA), which was implemented in two stages: a new generation of Association Agreements (in the first phase of the lifting of restrictions on trade, and in the second the creation of the FTA by the end of 2010), as well as cooperation pf NS and SS (regional free trade zone as a complement accompanying the Arab Mediterranean Free trade Agreement) [Michałowska-Gorywoda 2007, 349]. The first new association agreement was signed by Tunisia. The Association Agreement was hailed as exemplary in the literature.

The schematic layout is shaped in such a way that they are the first records of political cooperation, human rights and democracy, and part of the economic, as well as elements related to the socio-cultural cooperation [WWW 4]. The systems are stipulations about the abolition of customs duties on industrial products within 12 years of the Agreement's entry into force, the limited liberalisation of trade in agricultural and fishery regulation rules of origin (rules of origin), intellectual property and institutional adaptation.

The main disadvantages of the Agreement include a lack of interest concerning the status of overseas production and the price of crude oil and natural gas as well as the foreign debt of countries in the region. Another downside is that agricultural products are excluded from the free-trade zone and the too short period the countries are given to transform themselves (12 years). Still present is the fear of hub-and-spoke centralisation (the European Union as a center, and the Maghreb as periphery). There is a need for much greater co-operation within the region.

The Tunisian agreement consists of eight parts, with a total of 96 articles [Borkowski 2005, 234–235, 237, 332].

The established bodies include The Association Council (at the ministerial level with the participation of a representative of the Council of the European Union, the European Commission and the Government of Tunisia), the Association Committee (with representatives in the rank of high diplomats from the Council of EU, European Commission and the representative of the Foreign Ministry of Tunisia). The working groups composed of experts round out the list.

In accordance with Article 1, the primary goal is to provide an appropriate framework for political dialogue, to create conditions for the gradual liberalisation of trade in goods, services and capital and to promote the integration of the Maghreb countries economically, socially, culturally and financially. These goals constitute the basis for action based on respect for human rights and democracy.

In terms of economic issues, the agreement covers duty-free imports into the EU from Tunisia and the right to establish a company on the other side of the system. The economic cooperation will enable the final goal to be achieved: durable and sustainable economic and social growth of Tunisia. Co-operation is to be carried out by a regular economic dialogue, training, exchange of information, assistance in technical matters and the provision of advice. It emphasised the need for the development of trade with the Maghreb region, development of the economic infrastructure and increased investment in scientific research. It also devoted attention to matters of culture and society.

The broad spectrum of collaboration, without any indication of specific actions, also hinders rapid integration. Ratification has taken so long because each national parliament must ratify the agreement individually. Among the Maghreb countries, negotiations were taken up rather quickly with Morocco and Tunisia. The most problems occurred with Libya. On its inclusion within the framework of the Barcelona Process, a meeting was held between al-Gaddafi and the President of the European Commission Romano Prodi, on 27 February of 2004 in Syryta.

Due to its financial and economic position, the attention was also paid to the Common Strategy 2000. The strategy emphasised the need to increase the attractiveness of the region for investors, promote sub-regional cooperation within the Arab Maghreb Union, increase the volume of trade between the countries, and implement Association Agreements.

During the summit of the League of Arab States in Tunis in 2004, the need for progress on political and economic reforms in the field of women's rights and education was emphasised. The EU's response to the demands of the Arab countries for economic cooperation announced measures called Stable Economic Growth and Reform. Improvement was sought in modernisation and deeper economic integration through trade liberalisation, the convergence of legislation, and the strengthening of investment. The effect was to create five million new jobs. According to the World Bank, liberalising the services sector should be a priority the sector makes up such a high share of GDP (about 60%).

With the agreement, policy-makers also sought to increase the amount of foreign investment by simplifying the rights of entrepreneurs. A new feature was a departure from negotiations stellate (the model in force since 1995) and the introduction of negotiations on the line N-S and S-S with the principle of voluntary participation. Regional MFN clauses were also introduced. It was important to harmonise technical legislation to reduce the costs associated with dual testing and certification. Harmonization of legislation started at the conference of Ministers Economy in Palermo in 2003.

To further develop the economies of the region, it was crucial that the macroeconomic environment, understood as efficiently conducted monetary policy and fiscal be healthy.

It was also important to eliminate obstacles to investment growth and create jobs through structural reforms. It was announced that the Maghreb's energy markets would be integrated with those of the EU.

A leading financial instrument is the Mediterranean Assistance Program in Economic Development MEDA [Zając 2010]. The beneficiaries were NGOs, local authorities and state agencies. The programme established the European Economic and Social Committee, which is meeting of socio-economic councils every six months. Furthermore, in 2007, the ENP introduced the European Neighbourhood and Partnership Instrument, focusing on cross-border and regional cooperation [WWW 2].

The MEDA program was established in June 1995. It came into force as a result of the adoption of Regulation 1488 by the Council of the EU, and laid down financial and technical assistance measures to reform economic and social structures in the framework of Euro-Mediterranean Partnership from 23 of July 1996. The aim of the MEDA programme was to strengthen political stability and democracy in the observance of peace and security, support the creation of the FTA and establish cultural and social relations.

During a conference in Marseille, it was decided that it would be continued, and MEDA II would be established (27 December 2000 pursuant to Regulation 2698). Similar programmes had been put in place in Central and Eastern Europe, including PHARE or TACIS.

This includes both bilateral and multilateral cooperation in the region. Distributing money takes into account factors including the size of the countries' population, per capita income, economic absorption capacity, the pace of structural reforms, and progress in negotiating the Euro-Mediterranean association agreements. Pursuant to Article 5, the following criteria can be formulated which take into account the allocation of financial resources: the priorities of the beneficiary's ability to absorb capital and progress towards structural reforms. Since the goal is long-term economic growth, social development and cooperation between countries (Art. 2), the Council of the European Union adopts a qualified majority of three-year programmes at the national and regional level. However, actions initiated by the European Commission limit funding to 80% of the project. The rest you have to be paid from its own sources.

During the period 1995–1999, MEDA referred to four areas: structural reforms (15%), economic changes (30%), financing projects within socio-economic balance (41%), financing of regional projects (14%).

During the meeting of ministers in Valencia in April 2002, a special unit was created within the EIB to modernise resources, especially from the private sector. The idea of creating a Euro-Mediterranean Bank was supported. It aims to deepen economic cooperation and work towards the free movement of services. It sought, among other priorities, to: build a market for agricultural products from the countries of North Africa, improve the operation of MEDA, deepen cooperation in transport, tourism and telecommunications [Zając 2014]. In Naples in December 2003, the creation of a "Euro-Mediterranean Charter for Entrepreneurs" was accepted, and was to develop small- and medium-sized enterprises. On the other hand, in the framework of the EIB in March 2002, a programme for FEMIP was created.

The above Facility for Euro-Mediterranean Investment and Partnership provides support for the private sector while also creating environmentally friendly companies. It is intended to create an infrastructure project and investment in human capital. It provides support in the form of technical assistance, private capital and loans. To December 2008, it transferred 8.5 billion. The VII Conference on Research, Development and Innovation,

Key to Sustainable Development, held 14–16 March 2010 in Tunis, formulated the main challenges. It laid down the following: raising the importance of research and development and innovation, creating a new action plan aimed at the creation of innovative companies in the region. The conference was chaired by Muhammed Youini, Tunisian Minister. Development and International Cooperation and Vice-President of the EIB in charge of FEMIP, Philippe de Fontaine-Vive [WWW 3, WWW 5].

The European Investment Bank extended the Maghreb countries low-interest loans. The leader in receiving aid was Tunisia. Comparing the amount of support per capita (1995–2002), Tunisia received 113 million EUR, Morocco took in 42.5 million EUR and Algeria 36 million EUR. Tunisia spent mainly on structural reforms and private sector development while Algeria and Morocco preferred to invest in the construction of rural infrastructure and the development of transport.

Analysis of the Maghreb countries should compare economic indicators such as the Index of Economic Freedom Heritage Foundation[1] and The Index of Economic Freedom Fraser Institute[2].

The data show (Table 1, Fig. 1) that the best situation is in the Kingdom of Morocco, a country with EU advanced partner status. Note the change in the level of the Index of Economic Freedom (Fraser Institute) – Table 2.

TABLE 1. Summary level of IEF (Heritage Foundation) in the Maghreb countries in 2016

Country	Value (points)	World ranking
Algeria	50.1	154
Libya	no data	no data
Morocco	61.3	85
Mauritania	54.8	128
Tunisia	57.6	114

Source: the author, based on dates of Heritage Foundation.

Libya failed to recognise the Index and Mauritania's high rates clearly stand out. In terms of bilateral relations, each of the states prepares national strategic documents (Country Strategy Paper – CSP) for the European Commission, the National Indicative Programme (NIP), a Country Report (CR) and an Action Plan (AP) – Table 3.

In the current term, Tunisia's Action Plan is valid for the years 2013–2017. After the events of the Arab Spring, financial assistance increased from 240 to 445 million EUR. Three priority sectors have been established:

– socio-economic reform;
– building the foundations of democracy;
– sustainable regional and local development.

[1] Created by The Heritage Foundation and The Wall Street Journal in 1995, The Index of Economic Freedom is an annual index and ranking to measure the degree of economic freedom in the world's nations [WWW 7].

[2] The State of the World Liberty Index ranked countries according to the degree of economic and personal freedoms their citizens enjoy [WWW 7].

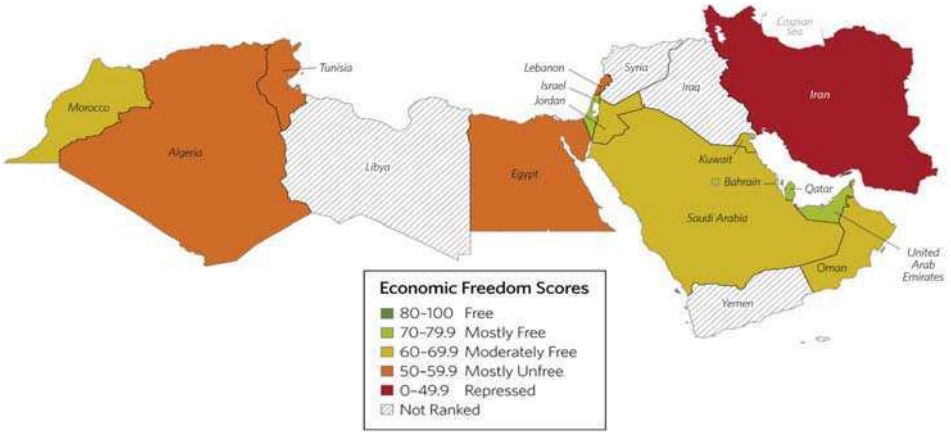

FIG. 1. Level of economic freedom in Maghreb countries

Source: [WWW 6].

TABLE 2. Level of freedom (0–10 point scale) in selected year

Country	1970	1990	2012
Algieria	N/A	3.90	5.09
Morocco	5.20	5.30	6.45
Mauritania	N/A	6.30	6.32
Tunisia	4.90	5.50	6.68

Source: Fraser Institute [WWW 8].

TABLE 3. List of documents accepted by the Maghreb countries

Country	CSP	NIP (2007–2010)	NIP (2011–2013)	CR	AP
Algieria	+	+	+	–	–
Libya	since 2011	–	+	–	–
Morocco	+	+	+	+	+
Tunisia	+	+	+	+	+

Source: the author.

In 2014, Tunisia received 169 million EUR from the European Neighbourhood Institute, in order to facilitate macroeconomic stability and policy transformation. In addition, Tunisia was the first beneficiary of the Umbrella programme (perspective 2014–2020).

The Kingdom of Morocco has received much greater support. In the years 2014–2017 it is expected to take in 728–890 million EUR. It has also set out three priority sectors:

– sustainable access to services;
– the development of democracy, rule of law and mobility;
– employment and sustainable development.

Algeria in the framework of bilateral cooperation for the years 2014–2017 has also set three priority sectors:
– reform of the judiciary;
– labour market reforms;
– economic diversification.

Between 2007 and 2013 Algeria received 366.1 million EUR from the ENPI.

Mauritania is a member of the Union for the Mediterranean. The National Indicative Programme was signed in Nairobi in 2014. The main areas of cooperation are:
– sustainable agriculture and food security;
– rule of law;
– health.

In contrast to the above countries, Libya has not signed the Euro-Mediterranean Agreement, though it does have observer status and in 2014–2015 benefited from EU assistance to democratic development and social integration. Euro-Mediterranean Association Agreements reflect advanced cooperation (Table 4).

TABLE 4. List of Euro-Mediterranean Agreements

Country	Date of signature	Entrance date into force
Algieria	22.04.2002	01.09.2005
Morocco	26.02.1996	01.03.2000
Tunisia	17.07.1995	01.03.1998

Source: the author.

The above data shows that the most advanced formula of cooperation is evident in the "narrow Maghreb" states (Algeria, Morocco and Tunisia). Currently, the unstable situation in Libya hinders any form of cooperation and the EU Delegation has been moved temporarily to Tunis. The rest of the offices operate stably.

The previous publications discussed issues related to the Euro-Mediterranean Partnership and the European Neighbourhood Policy. Topics about the Maghreb countries were discussed in the book by Bruno Callies de Salies "Maghreb: history, politics, society" [2012].

Monographs about European integration (Barcz) and international relations (Zięba) have also come out. Publications of foreign authors affiliated with the CIDOB (Barcelona Centre for International Affairs) and FRIDE (European think tank for Global Action) contribute value research.

CONCLUSIONS

Maghreb greatly benefits from cooperation with the European Union. Nevertheless, it remains in the group of countries with a medium level of development. According to HDI, as of December 2015 the Maghreb countries are at the following locations: Algeria-83 (0.736); Libya – 94 (0.724); Morocco – 126 (0.628); Mauritania – 156 (0.506); Tunisia-96 (0.721). Bilateral cooperation is defined in documents such as the Country Strategy Paper, National Indicative Programme, Country Report and Action Plan.

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Summary. The present article discusses the collaboration between the Maghreb countries (the region is defined in broad terms, including the member states of the Union Arab Maghreb – Algieria, Libya, Morocco, Mauritania and Tunisia) and the European Union in terms of economic development. Of essential importance is the year 1995, when the countries signed the Barcelona Declaration. One of its priorities was "(...) the creation of a free trade area, the aim of which is the gradual elimination of customs barriers (tariff and non-tariff) in relation to the trade of manufactured products. Partners also provide for progressive liberalization of trade in agricultural products and services (...)". The Union for the Mediterranean and the European Neighbourhood Policy evolved gradually. The article examines bilateral documents (in particular in terms of financial assistance) and economic indicators such as the Index of Economic Freedom.

Key words: Barcelona Declaration, Euro-Mediterranean Agreement, Euro-Mediterranean partnership, Maghreb

JEL: F50, F53, F55

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CREATING CONSUMER VALUES IN THE PROCESS OF DEVELOPING PRODUCT INNOVATION

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INTRODUCTION

Innovation is becoming an imperative for the development of enterprises and the networks created by them. Innovation processes themselves have undergone significant transformation and at present are of complex systemic nature. Current models of innovation development involve cooperation between many entities and treat the inclusion of the consumer as an essential condition if a market-oriented innovative solution is to succeed. The modern approach to innovation allows one to create a system of products that provide consumers with the expected value achieved through diverse benefits delivered at different levels of the product and in the form of a properly chosen offer. The co-creation of values by the consumer in the process of developing innovation not only increases the chance of developing a product or service tailored to existing needs, but, above all, is the basis for creating new, yet unrealized needs. This way of thinking and operating increases the chances of improving the competitive situation and long-term development.

The aim of this article is to present the ways of creating consumer values in the development of product innovation. It places particular emphasis on consumer needs and ways of including consumers in the process. The concept of value is presented, along with its attributes and ways in which it is created in the context of product structure. It will be important to present the contemporary role of the consumer in the creation of innovative products and services. To illustrate the theory presented in the literature of the subject, a case study of development of product innovation was used in which the creation of consumer values was carried out with the active participation of consumers.

THE CREATION OF CONSUMER VALUES IN PRODUCT STRUCTURE

In the subject literature, a great deal of attention has been devoted to defining the concept of customer values. The value delivered to the customer is the difference between the total value of the product for the customer and the costs they must bear in connection with

its acquisition [Łapczyński 2010, 67]. Customer value can be defined as the excess of the benefits that are subjectively perceived by the customer over the subjectively perceived costs associated with the purchase and use of the product [Szymura-Tyc 2012, 50]. The benefits the customer reaps are related to the needs he or she intends to satisfy by purchasing and using the product. Individual consumers are mostly looking for benefits associated with satisfying their existential, social, and psychological needs. Institutional buyers, on the other hand, seek benefits which will enable them, and the members of the organisation, to survive and develop the organisation as a whole. In the case of costs, a distinction may be drawn between monetary and non-monetary costs. Monetary costs include: price, cost related to searching for the offer, procurement of the product and finding the way of acting. Non-monetary costs include: costs related to relationships with others, psychological costs, time spent and physical energy expended [Łapczyński 2010, 69].

Customer value included in the product is manifested in four levels. Basic value included in the core of the product is associated with the acquisition of basic benefits for a specified price. Additional value present on the second level is created by additional benefits related to packaging, design and complementary services which the product is equipped with. The costs in this area include the terms of payment, operating costs and other costs related to purchasing the product. The extended value is services that proceed and follow the sale, including: design, consulting, delivery, service, and financial services. On the fourth level of the relationship value there is a benefit related to the quality of relationships made by the consumer with enterprise and intermediaries in distribution channels [Żabiński 2012, 35].

It should be noted that together with the growing importance of the value category the following phenomena have become more important:

– increase in consumer activity in the process of value creation;
– increased interest in the creation of system products as a set of customer values.

Including the consumer in the process of co-creating values has become an important challenge for modern enterprises. Especially challenging are, first and foremost, recognition of constantly changing and diverse consumer needs, the creation of an appropriate set of values responsive to their needs and expectations, reaching customers with information about the enterprise's offer and the provision of the expected values at the right place and at a specific time. Moreover, changes in methods of collecting, processing, and, in particular, providing information have become the basis for searching for new solutions in coordinating and controlling value creation processes for the consumer.

The co-creation of values envisages consumers adopting actions that affect the final composition of values that they themselves or other clients receive from the enterprise [Doligalski 2010, 277]. Consumers co-creating values themselves is to undertake actions to obtain values tailored to individual needs and expectations. Mass customisation is an isolated activity of one client, which is targeted at one product; it is not a common activity undertaken by many customers seeking to modify certain types of products [Doligalski 2010, 277]. According to the definition, the customers themselves participate in the exchange of values with the company, resulting in a personalised composition of values. Creation of a value targeting other consumers means that a single consumer participates in the creation of values for other consumers. Typically, a large group of consumers co-creates value for an equally large group of recipients.

As already indicated, customer values are also affected by the structure of the product. In the case of traditional products, the consumer acquires single and specific values, whereas in the case of system products they simultaneously obtain a number of equal values without having to compose them on their own [Żabiński 2012, 23].

In the subject literature, a shift from the classical model of creating customer values by the company to their co-creation with consumers through their participation in the development of a product or service is being more frequently observed. This product co-creation takes place on many levels and should lead to the fast and possibly overall acceptance of this product in the process of purchasing and using it. In view of the above, it should be noted that the interaction is formed in response to the desire to meet the companies' and consumers' prospects.

In the case of the consumer, this concerns meeting the needs and expectations as accurately as possible and providing satisfaction. The company, on the other hand, can proceed to build a sustainable competitive advantage on the market. Also of importance is that, thanks to the cooperation, the company gains knowledge which allows it to optimise the structure of the product and the offer for the customer. The enterprise provides the customer with the expected benefits and thus optimizes the cost of operations. This way, value is created for the customer value and the company alike.

THE CONSUMER IN THE PROCESS OF DEVELOPING PRODUCT INNOVATION

Drucker noted that innovation must always be close to the market, focus on the market, and, in fact, be inspired by it [Drucker 1992, 42]. The traditional approach to innovation based on long-term and precise research, building teams in which each member has very specific tasks, and creating excessive monitoring and control structures is no longer effective. As indicated in the literature, the traditional approach to creation of innovation takes too much time and brings negative market outcomes. Therefore, enterprises use new models of value creation for customers, engaging them more and more in the processes of product innovation development. The research conducted by Allen Hamilton shows that the need to "listen to the customer" is one of the key success factors in innovation [Chesbrough 2003, 31]. The satisfied but still demanding consumer is an important link in the creation of product innovation in a company. Proper identification of needs and new ideas is becoming crucial in the context of the approach to the process of innovation.

The first attempt to involve the consumer in the process of innovation was presented in the context of the creation of the "prosumer" – consumers who have partially become producers to satisfy their own needs [Toffler 1997, 409]. The next concept was that of the leading user. Von Hippel believed that in every society there are people who are able to anticipate market needs – prominent individuals that form solutions before the needs for them are created [Oleksiuk 2012, 45].

The demand approach to innovation – User-Driven Innovation (UDI) is at present an important method of implementing innovation focused on creating ideas and solutions on the basis of knowledge and consumer needs. UDI is based on the use of consumer knowledge in the development of product innovations. Special focus is placed on discovery of

the real needs and systematic study of the consumer [Wise and Hogenhaven 2008, 21]. The combination of consumers' in-depth knowledge with the resources and capabilities of companies in the area of creating innovative products may significantly facilitate the creation of value for the consumer. Operating while using the concept of UDI requires the company to better understand, identify the stated and hidden needs, and decide on the scope of the consumer's participation in the development process of product innovations (direct or indirect involvement). Therefore, UDI uses two theoretical approaches:

– "Voice of the customer", which is most commonly used with product innovations and based on identifying hidden needs as well as determining qualitative and features desired by the users of an existing product offer. It is also based on specialised methods that encourage consumers to express their thoughts, which constitute the basis for creating new solutions.
– The "lead user" means searching for, identification and development of new solutions whose co-creators are consumers; or more frequently it constitutes the commercialisation of ready ideas and solutions proposed by clients (Table 1).

TABLE 1. The UDI concept of innovation development

Specification	Voice of customer	Lead user
Aim of the innovation process	identification of consumer needs	identification of solutions
Location of innovation process	an enterprise supported by external partners	outside of enterprise
Research method/means of implementation	Focusing on the product: – observation – brainstorming – reiterative testing – implementation	Cooperation with consumers: – creating platform for product development – development of tools and initiating processes that involve consumers in innovation development

Source: [Wise 2006].

Whichever approach is followed, the consumer plays a very important role in the innovation-creation process. Numerous studies on new product development show that mistakes are usually made at the beginning of the process; that is, at the idea- and concept-creation stage, and that the consumer is often included only at the last stage of testing and implementing product innovations. The concept of User-Driven Innovation call for consumers to be included at every stage of the product innovation development process, starting from the creation of the idea and concluding with their assessment of the product launch. This approach not only increases the chances that the product will be accepted by consumers and hence succeed on the market, but above all allow the expected customer values to be created.

The consumer's importance to the product innovation development process is fundamental and visible in three main areas (Table 2): the initiation of new product development, test sequences of the new product development process, and final verification/approval of the product brought to market [Sojkin 2012, 44].

Including the consumer input at the stage of searching for ideas and concept creation focuses primarily on discovering unrealised needs. Promoting "the voice of the customer" (VOC) provides the following benefits [Griffin and Hauser 1993, p. 4]:

TABLE 2. Methods of including the consumer in the development of product innovation

Stages of development of product innovation	Testing methods of the customer
Development of concept: – searching for ideas – selection and evaluation of ideas	ethnographic research methods individual in-depth interviews (usually at a location convenient for consumers) group interviews brainstorming
Product development: – developing product assumption – developing prototype – developing product	identify consumer expectations of the product's essential characteristics analysis of functional expectations testing the prototype (performance and functionality) testing the product on the market
Product launching: – marketization of new product	analysis of consumer behaviour concerning reaction to the new product, promotion, and sales events

Source: the author, based on Cooper and Edgett [2008].

– allows companies to understand consumer requirements;
– introduces transparent communication into the project team;
– is a starting point for design decisions and facilitates the introduction of changes.

The concept of the voice of the customer in particular refers to the essence of the needs, their structure and prioritization [Griffin and Hauser 1993, 5].

When using VOC, methods of ethnographic research and in-depth individual interviews conducted in a consumer-friendly environment take on special significance. In the case of ethnographic research, these methods consist in long-term observation of consumers, which provides detailed knowledge about their behaviour, the problems they express and their hidden needs. In-depth individual interviews as well as ethnographic research are conducted in consumer-friendly places (workplace, house etc.). Using a carefully prepared script of interviews, the researcher looks for unsolved problems, unmet needs and expectations of new products [Cooper 2008, 3]. According to Cooper, including innovation leaders and enthusiasts at the concept-creation stage significantly increases the chances of obtaining essential knowledge necessary to conduct an initial assessment and verification of developed ideas [Cooper 2008, 4].

At the stage of product development, consumer expectations are transformed into functional requirements, design and technical parameters. As a result of the actions described, the concept of product architecture is created and mapped in a product prototype. The prototype should be consumer-tested at the moment the creation is described, and continue until a product is fully developed [Cooper 2008, 14]. Any significant changes introduced by the consumer should be subjected to further evaluation. Properly matched consumer prototype testers should be involved in this process. They may come from the group of innovation leaders, the enthusiast community or potential customers (especially in the case of single copies of finished products).

The stage of product development is important in the context of creating customer value. The active participation of the client in creating a product's structure and then testing the developed functionality affect the sense of self-agency and the potential of the benefits occurring. At the same time, participating not only in the creation and testing of the

prototype, but also in establishing marketing tools such as price, method and form of sales and promotions can significantly optimise the cost of purchasing and using the product.

A similar situation with the participation of the consumer applies to the launching of an innovative product onto the market. The implementation of planned marketing activities in order to introduce the product into distribution channels, communication with the target market and the price point should constantly be checked against the expectations of potential buyers. In the context of the results, the moment of implementation is of particular importance, since it verifies the earlier assumptions and often exposes the resulting weaknesses. The level of sales realized in the implementation phase is a reflection of customer acceptance of the benefits.

It seems logical that, at the stage of the finished product, it is more difficult to introduce changes when customer expectations have not been met. Hence, the need to involve the consumer in the full development process of product innovation becomes justified. Creation of value is carried out through continuous cooperation with consumers since their participation in this process co-creates the expected value. It increases the chance that the costs related to the acquisition and use of an innovative product will be lower while benefits obtained in the same process will gain in value.

AN INTEGRATED SECURITY SYSTEM – A CASE STUDY

The aim of the examples presented below is to present opportunities to create customer values at various stages of the creation of product innovation by including partners and customers in the process.

An Integrated Security System is a combination of services and tangible goods that carries specific values that allow the consumption of services such as transmission, storage and processing of data related to the current place or location of a specific person. The system was created to ensure valid and highly accurate data for position location and thus ensure the safety of people who may need such protection because of:

- health (the chronically ill with frequent periods of memory loss);
- being in a hostile and volatile environment (people staying in the mountains, water regions, forests etc.);
- traveling alone or moving in different and unexplored directions.

The main initiator and promoter of the network was an enterprise with many years of experience in providing products and location-based services. The strength of the promoter was its excellent knowledge about the market of purchasers of products and location-based services, both businesses and individual customers. The promoter's partners in the project have become:

- a manufacturer of dedicated localisation devices (locators);
- a provider of GSM services;
- selected commercial affiliates;
- representatives of organisations providing security to people (people staying in the mountains and water regions;
- representatives of organisations involved in helping chronically ill people (temporary loss of memory or consciousness);
- representatives of end users (enthusiasts of location-based solutions).

The main theme of cooperation between the above stakeholders was the use of the synergistic effect of human resources and their competence in the scope of knowledge and experience in the areas described. Access to the latest technology allowing the development of a product that would satisfy the needs of existing and new buyers was also crucial.

The development of the above-described solution was divided into three basic phases: concept development, product development, and launching the finished product onto the market. The way the activities were implemented in different phases illustrates the possibility to create customer values by using the concept of inclusion of the consumer at various stages of the process.

CONCEPT DEVELOPMENT PHASE

The concept and idea for product innovation were created within the company of the promoter, while the key source were former employees of development and marketing departments. The employees were inspired by the promoter's partners, including intermediaries in distribution channels who willingly participated in the research groups.

The following issues were discussed during the group interviews:

– the possibility of using available technology;
– the purchasing behaviour of individual clients;
– the potential directions of telecommunications, location-based, and IT service development.

Representatives of the emergency and law enforcement services were another important group among the partners. Cooperation at the development phase of a new product concept with the above group focused on observing the work of rescue workers (mostly mountain rescue workers) on duty in natural conditions. First, it was important to identify the problems faced by rescuers carrying out their duties. Of particular importance was observing a rescue operation (establishing contact and determining the position of the injured person).

Equally important for the idea of the innovative solution were meetings with the representatives of consumers – GPS solution enthusiasts who formed an active group popularizing the technology in society. The meetings were casual conversations moderated by one of the representatives of the study group.

As a part of the secondary research, data on the following were analysed: disappearances (elderly people, children, people who emigrate for economic reasons), accidents in mountainous areas; statistics on the incidence of dementia and metabolic diseases causing temporary or permanent memory loss; reports on the quality of life in Poland and Europe, including the structure of society and anticipated trends.

The primary research shows that there is a greater tendency for society to move or change the place of residence and activities, which increases the number of accidents, disappearances, and life-threatening situations. Furthermore, the secondary data allowed for three important factors in the industry influencing the style and character of Polish society to be identified:

– the constantly growing amount of economic emigration, resulting from increased travel outside the country;

– the ageing population means there is a growing number of older and single people;
– the increasing number of people with dementia and metabolic diseases which result in the temporary loss of memory or unconsciousness.

The information obtained was a starting point for the development of the system product concept using IT, localization and telecommunications solutions in order to determine and control the current position of a person who may be in a situation of potential danger. The concept describing these assumptions takes into account the following measures:
– development of an online platform that would collect and process location data;
– matching appropriate localization devices to the expectations of the system (promoting accuracy and detail measurement);
– selection of appropriate telecommunications services that meet the requirements of the system (the reception and amount of charges for voice calls and text).

Essential for the completion of the first phase of the development of product innovation were:
– assessing available technologies and their use;
– selecting of potential partners for the later stages of the project;
– conducting a preliminary financial analysis of the project;
– conducting a market analysis including of the existing competition and the possibility of new rivals emerging;
– selecting potential market segments.

PHASES OF INNOVATIVE PRODUCT DEVELOPMENT

Numerous laboratory and market tests were done during the developmental stage of the security system. Each new change in the structure of the product was subjected to market tests with the participation of a target group. The development process was constantly supported by information obtained from the testers.

In the first stage, the system's basic functionality was developed. This included selecting and configuring a locator (launching an SOS feature and voice calls in case of emergency), an online platform on which registered users could see the position of the person in possession of the locator and the trace the device left during one full day.

The following groups of potential users were chosen for the first tests: people hiking primarily in the mountains, people at risk of losing consciousness caused by metabolic diseases, and elderly people living alone or at risk of memory loss. The constituent groups included representatives of the emergency services, mainly mountain rescuers and representatives of the community (enthusiasts) of localisation technology.

During the tests, the degree of integration, as well as the continuity and clarity of the transmitted signal, accuracy of mapping, efficiency of the locator and battery life were verified. At the same time, together with trading partners, forms and methods of delivering devices for customers were analysed.

As a result of the activities completed, during the development process the structure of a new system product was developed using modern GSM and GPS technology and telecommunications services. The architecture of the developed product system is as follows: the basic value the customer purchasing a locator acquires is the ability to transmit

a signal showing the current position (the user's location), and alert the competent services or people about the danger by using the appropriate message. Therefore, the core of the product becomes useful thanks to an online platform, a locator, including telecommunications and location services as a part of the system.

The actual product, which is what determines the perception of solutions, consists first and foremost of the design and size of the locator, its effectiveness and usability of the online platform, and the price of the locator and telecommunications services.

The extended product was provided with: the possibility to rent a locator and availability of points offering this type of service, the opportunity to purchase the locator in instalments, telephone support, a 24-hour helpline, training in how to use the system for all user groups. The extended product also includes additional functionalities related to storage and archiving location data for a longer time than provided for in the basic usability, and the ability to build special security zones. If these are breached, an alarm text is sent to a device (a phone or a computer). It is also possible to create groups and communications within groups of system users.

In the light of the definition of customer value, in the case of the emergency location product, it was important to link the available functionality with the price of the device and the fee to be charged for data transfer. Given the scale of the new product and difficulty potential buyers would have in estimating the benefits of using the system, the development of suitable forms of purchase or device rental are important, as are the differentiation in prices that would be required due to the scope and functionality offered, the advisory services in the scope of properly operating the device. However, it should also be noted that the information accumulated during the development phase about the preferences and expectations of customers towards the new product concerned also: the promotional methods, how and where the product was sold, and even what it was called.

LAUNCHING PRODUCT ON THE MARKET

The product was launched on selected target markets after an offer was prepared for each at the level of the expanded product functionalities corresponding to the consumer expectations from the given market. During the launch, the opinions of representatives of the target groups were examined using group interviews. The information obtained during the launch phase indicated the market potential that existed for the product as well as emerging issues. Distribution channel efficiency presented problems. The most anticipated form of purchasing a locator by the consumers was rental, especially among people temporarily using the service. The creation of rental networks proved costly in practice.

Another example in which value has been co-created with the consumer in the process of innovation development is the Electrolux – Ergorapido vacuum cleaner. When the company was developing ideas for a new product, consumer ethnography, brainstorming with users and interviews with experts were all enlisted. During the ethnographic research, carried out by both professionals and employees, the following was established:

– consumers preferred to clean apartments more often but for a shorter time and looked for appropriate measures and equipment (fast but good) to do so;
– they were willing to pay more for a product that had a more sophisticated design and form.

In addition, the research conducted among users through brainstorming showed that substitutes available on the market garnered little interest because of their (perceived) inferior design, they were too loud or were useless (hardly replaceable filter). A significant customer contribution during the development of the idea for the product was drawing attention to the need for easier filter replacement as well as the introduction of a telescopic handle.

The product conceptualization stage was concluded with the establishment of guidelines on the product's shape and colour, its functionality and the business model to be used. The mission of the above stage and the task of the researchers was to develop a uniform language of communication in a company in the area of interpreting consumers' needs and expectations. The prototype developed in the next stage of product development was subjected to numerous tests. The obtained results were used to design the finished product. During the implementation process, particular attention was paid to benefits developed together with the consumer, thus endowing the vacuum cleaner with significant value. Guided by the above project, Electrolux implemented a client-inclusion approach to innovation as a key factor for achieving success.

Another example of creating customer value in the process of developing innovation is the that of the company Swarovski. The company decided to create a community of designers and innovative consumers from different parts of the world. The members of this community were invited to submit their own projects and evaluate others that were presented. Voters could evaluate the ideas presented and suggest changes. The participants were provided with Internet-based tools to design jewellery: using 108 different stones, among other components, they worked on new designs for Swarovski watches. Thanks to the participants being so highly productive, 2,000 different projects of watches were created, and the top-rated projects were presented at international exhibitions and produced. This example confirms that the actions taken by the consumers co-creating an innovative product had a significant impact on the creation of values.

CONCLUSIONS

As indicated at the beginning of the article, the co-creation of values requires consumers to take actions affecting the final composition of the product a company is to bring out. The study presented in this paper has demonstrated how this concept works in practice. As can be seen at every stage of development of an innovative product, the participation of consumers and other market participants brings tangible benefits in the form of concrete solutions typical for the given stage.

In the case of the integrated security system described, inclusion of the consumer from the beginning of the process has enabled the development of necessary functionalities, which filled the product's architecture. At the end of the development phase, the structure of the innovative product, which met the needs of the consumers belonging to different segments of the market, was presented. In addition, based on the information collected, an action plan based on product marketisation was developed. The exact structure of the price offer and the methods and location of product distribution were created. Knowledge

of the client developed during the entire development process allowed the structure of client side costs to be determined, thus better enabling their reduction or elimination.

Building customer value while developing product innovations is becoming a necessity and a challenge for today's businesses. A failure to include consumers or including their comments only at the implementation stage can significantly reduce the development potential of many products and services.

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Summary. The article examines the building of consumer values in the process of developing product innovations at various stages. Values are created in cooperation with the consumer in the process described. Customers may be included in two ways: first, it can be an interpretation of thoughts and a way of action being an expression of hidden needs that is the voice of the consumer, or, second, it can be through the concept of the lead user – which consists in consumers sharing their own suggestions and ideas during the development process. In both cases, including consumers in the innovation development process at its every stage increases the degree of acceptance of the finished product and the chance to satisfy the buyer, which in turn creates value for both the customer and the company.

Key words: customer values, innovation development process, system products

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REGIONAL CONVERGENCE IN POLAND AND UKRAINE AFTER 2004 – A COMPARATIVE ANALYSIS

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INTRODUCTION

Economic convergence is the process of equalising incomes between countries. Although research on convergence pertains mainly to countries, there are numerous works in the literature that look at the regional level; there the term regional convergence is sometimes used. In economics, research on convergence processes typically indicates there is a divergent nature of changes in a regional cross-section, including changes in the sectors of industry, which leads to an increase in inter-regional disparities [Wong 2006, Cyrek 2009, 2014, Cierniak-Szostak 2012, Jabłoński 2012, Jabłoński et al. 2012, Wosiek 2012, Kosmalski 2016]. The phenomenon of regional convergence has been addressed widely in Poland as a subject of research on European integration, particularly in the works of Jakubowski [2001], Growiec [2005], Geodecki [2006], Markowska-Przybyła [2011], Murzyn [2014]. Less attention in the literature has been devoted to the processes of convergence of regions which are in Europe but remain outside the European Union. This article is an attempt to fill this gap, in particular with regard to the processes of regional convergence in Ukraine.

The following hypothesis has been formulated: the processes of regional convergence in Poland and Ukraine occur in entirely different economic conditions, and therefore differ significantly. The aim of the study is to compare the process of regional convergence in Poland and Ukraine, with a particular emphasis on their direction and dynamics, particularly between 2004 and 2013. The following arguments justify the choice of that particular time horizon:

– The National Statistical Office of Ukraine (NSOU) provides data on Gross Domestic Product (GDP) of the country by region according to a uniform methodology formulated in 2008 for the period from 2004 to 2014 [WWW 2]. However, the data for 2014 are not complete – in particular, the data for two regions (the Autonomous Republic

of Crimea and the city of Sevastopol) are missing, and for another two regions there are reservations about revising announced GDP. There is thus reason to exclude the year 2014 from the analysis until the NSOU provides its final approval and verifies the data.

– In Poland, GDP figures by region are announced with a two-year delay. As of the final writing of this article, there were only preliminary estimates of GDP at current prices for 2014, and, due to the nature of preliminary estimations those are subject to a tendency to approximate the average. Therefore, taking into account the series of data for 2014 would result in strengthening the effect of convergence (or weakening of divergence) and lead to a distortion of the results of the comparative analysis conducted for this article. This constitutes a second reason to exclude the year 2014 from the time horizon.
– The data on per capita GDP in constant prices are announced by Poland's Central Statistical Office (CSOP) in time periods covering the adopted analysis period, i.e. 2004–2013 and are consistent in methodological terms in this time horizon, i.e. based on the principles of Polish national accounts and recommendations of the European System of Accounts (ESA 2010) [WWW 1].
– 2004 was chosen as the first year of the analysis because Poland joined the European Union (EU) in that year, and it should not be without significance for the analysis of convergence processes due to the policy of the European Union aimed at alleviating disparities in regions that are a part of it This factor supports making 2004 the base year for this research.

DEFINING CONVERGENCE AND SELECTED ASPECTS OF ITS MEASUREMENT

In the literature, convergence is divided into nominal convergence and real convergence [Kossowski 2009]. Nominal convergence is the approximation of economies in terms of certain macroeconomic indicators, among which the indicators included in the Maastricht criteria are enumerated, i.e.: the inflation rate measured by the harmonised index of consumer prices, interest rates, the exchange rate, the ratio of public debt to GDP and the ratio of budget deficit to GDP [Kossowski 2009]. Real convergence pertains to real economic processes that lead to the approximation of economies [Malaga 2004].

Depending on the selected examination method used, four types of real convergence can be distinguished: beta, sigma, gamma [Geodecki 2006, Wolszczak-Derlacz 2007, Kusideł 2013] and stochastic [Kusideł 2013]. Beta convergence occurs when regions with a lower initial income level manifest a higher growth rate. In principle, in the long term this phenomenon should equalise regional development. With beta convergence, poorer countries grow faster based on their access to and use of technologies from richer countries. But the lack of capital preventing the acquisition of technology used by wealthier countries reduces the ability of the developing country to catch up, hence limiting beta convergence.

Convergence understood in this may be unconditional or conditional. Unconditional convergence is also called absolute or complete [Wójcik 2008] and is based on the as-

sumption that there is one state of balance to which all economies aspire, and thus, in the empirical sense, it occurs when the initial conditions and individual characteristics of economies are unimportant for it to occur [Baumol and De Long 1988]. On the other hand, we deal with conditional convergence when it relates to entities (e.g. countries or regions) with similar structural characteristics (e.g. the average level of education, income structure). In the assumption of conditional convergence, entities within the group strive for the same state of equilibrium, but the target state is different for different groups [Barro and Sala-i-Martin 1991, Mankiw et al. 1992]. Such a group is sometimes called a "club". Clubs come into existence when, next to the similarity of structural features, the entities are similar in terms of GDP per capita [Piętak 2014].

To emphasise the specifics of convergence between the countries that make up the club, a separate term – club convergence – is used in the literature [Durlauf and Johnson 1996, Galor 1996, Quah 1995]. It has the nature of conditional convergence – that is, striving of economies with similar structural features for a common point of equilibrium. But the initial state conditions the target equilibrium point which the economies with similar structural features aim at [Durlauf and Johnson 1995, Baumont et al. 2002]. A consequence of conditional convergence would be the approximation of entities within groups with the increasing divergence between groups, because "target" states of individual groups are different.

The empirical verification of the occurrence of beta-convergence boils down to the determination of the regression function of the GDP per capita growth in particular regions in the examined period in relation to the value of the product in these regions in the base year. The linear form of this regression can be written as follows [Próchniak and Rapacki 2007, Kusideł 2013]:

$$\frac{1}{T}\ln\left(\frac{y_{it_0+T}}{y_{it_0}}\right) = a + b\ln\left(y_{it_0}\right) + u_{it_0,t_0+T}$$

where:

y_{it_0+T} – value of the characteristic (GDP per capita) in region i in period t_0;

T – number of periods (years);

$$a_i = x_i + \left(1 - e^{-\beta}\right)\ln(y_i^*)$$

x_{it} – value of additional characteristics of economy i in period t.

$$b = -\frac{\left(1-e^{\beta T}\right)}{T}, \text{ and thus } \beta = \frac{-\ln(1+bT)}{T} \text{ the rate of convergence to equilibrium}$$

y_i^* – in equilibrium;

u_{it_0,t_0+T} – random causes.

Beta-convergence may, but does not have to, lead to sigma-convergence, i.e. the reduction of the diversity of entities (countries or regions) in terms of income This characteristic of estimators of beta-convergence models (indicating convergence in the absence of the reduction of the dispersion of the objects surveyed) has come in for criticism [Friedman 1992, Quah 1996a, b]. Furthermore, in practice it imposes the diagnosis of sigma-

-convergence in the analysis of convergence. In the context of economic convergence it is typically measured by means of changes in the standard deviation of the logarithm of GDP per capita [Barro and Sala-i-Martin 1991, Sala-i-Martin 2003]. Sigma-convergence understood and measured in this way is based on the assumption that the longer the considered time horizon, the more uniform the distribution of income among the entities (countries or regions) will be.

A special type of convergence is the gamma-convergence described by E. de Giorgi [1975]. It enters the picture when the position of objects (countries or regions) changes over time in their rankings in terms of the value of the variable under consideration, and, in the context of economic research, when economies change their position in the rankings of wealth. A measure which allows one to identify the occurrence of gamma-convergence is Kendall's coefficient of concordance [Fiedor and Kociszewski 2010].

THE ECONOMIC GROWTH IN POLAND AND UKRAINE IN THE YEARS 1990–2014 AS A CONTEXT FOR REGIONAL CONVERGENCE PROCESSES

Considering regional convergence, we should recognise that, just like every process, it has its own dynamics, and the dynamics of a process (especially one having a continuous nature) in the period under consideration is determined by the course of this process and its determinants in the period preceding the time horizon being analysed. Therefore, in this part of the study, showing the context of nationwide regional convergence in Poland and Ukraine, the scope of the analysis was extended back to the 1990s.

In the 1990s in Poland, as in Ukraine, there was a thorough socio-economic transformation. A natural consequence of the changes was the start of far-reaching reforms in the economies of both countries, accompanied by transformation recessions. While in Poland the recession was the shortest in the post-socialist countries, and the process of transformation began in 1989, and was on a path of fast growth in 1991, when Ukraine began its transformation. The recession that ensued was, at nearly ten years in length, one of the longest (Fig. 1).

The average annual growth of Poland's real gross domestic product (GDP) in the years 1990–1999 was 3.9%, or nearly 39% in total. In the same period, the economy of Ukraine was "shrinking" by 5.9% per year, as a result of which its total GDP in 1999 accounted for only 41% of its 1990 value. This resulted from the shuttering of entire industrial districts in numerous cities. While a similar situation did occur in Poland, a large share of Polish enterprises were privatised, and quickly began to compete in domestic and international markets [Firszt 2008]. Ukraine's GDP began to grow only in 2000, but by the end of 2014 still had not reached the level of GDP from before the transition period. In the entire 1990–2014 time horizon, the cumulative GDP growth in Ukraine amounted only to 86.2%, which means de facto "contraction" of the economy by 13.6%. At the same time, Poland's economic growth was sustained across the period, contributing to the expansion of GDP by more than 2.5 times, giving the country's economy a cumulative growth rate of 255.1%.

The pace of economic growth in Poland was significantly higher than the average for the countries of Central Europe and the Baltic countries, and also higher than the average

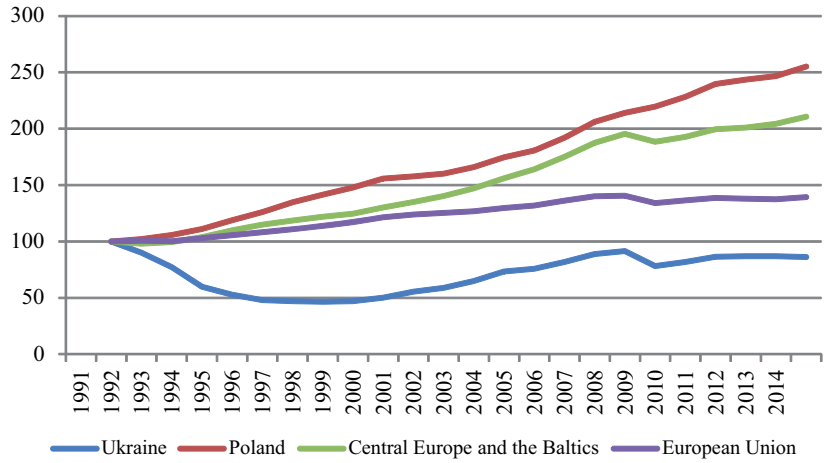

FIG. 1. The cumulative growth rate of gross domestic product in USD (in constant prices) in the years 1990–2014 in relation to 1990

Source: the authors, on the basis of: World DataBank, World Development Indicators [WWW 3].

for the countries of the European Union (Fig. 1). This means that the Polish economy underwent economic convergence, while Ukraine's was "bypassed" [Próchniak and Rapacki 2007][1]. As a result, the development gap in relation to neighbouring countries and in relation to more developed economies of the European Union increased markedly.

Ukraine's GDP per capita indicator in 1990 was 10,490.73 USD (in constant prices of 2011) and accounted for 103.5% of Poland's GDP per capita. In 1998 Ukraine's GDP per capita reached its minimum and amounted only 4,462.79 USD, i.e. 33.6% of Poland's GDP per capita (Fig. 2). Until 2014, in relative terms, the difference between Poland and Ukraine hardly improved at all, while in absolute values the gap between Poland and Ukraine increased substantially – in Poland GDP per capita amounted at the end of 2014 to 23,965.61 USD and was 3 times higher than in Ukraine's 8,267.06 USD. This shows both the size of the step backwards the Ukrainian economy took in the 25 years since 1990, and how much Poland developed.

The two economies' structural transformation, and in particular the nature and pace of the changes, were also significant for the described processes of economic growth in Poland and Ukraine. In Poland the share of individual sectors in the creation of GDP did not change as much as in Ukraine. In the country on the Vistula, the biggest change occurred

[1] In the results of the research conducted and published by M. Próchniak and R. Rapacki on convergence of post-socialist countries, the cited researchers found that "in the early years of the transformation the deep slump of production meant that despite the subsequent entry on the path of accelerated growth, the economic development gap between the post-socialist countries and the European Union European Union in 2005 was higher than before the political changes. Only Poland managed to reduce the span of the level of development (GDP per capita according to purchasing power parity) in relation to the EU-15 countries [Próchniak and Rapacki 2007].

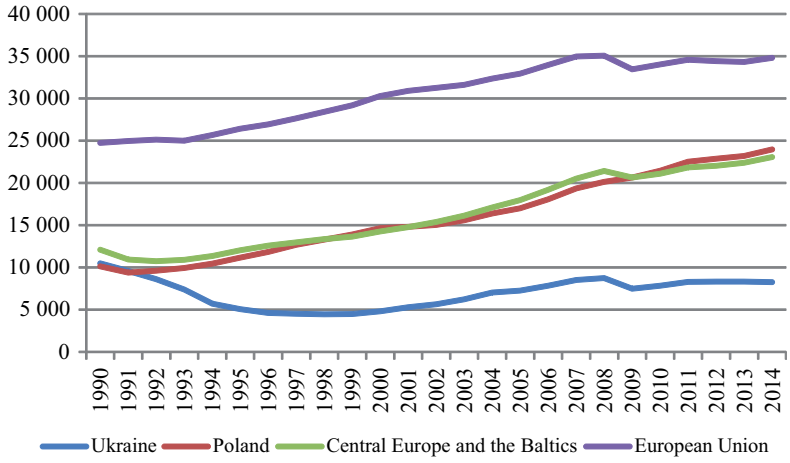

FIG. 2. Gross domestic product per capita in USD (in constant prices of 2005) in the years 1990–2014

Source: the authors, on the basis of World DataBank, World Development Indicators [WWW 3].

in 1991, when the share of industry in GDP declined markedly, giving way to the service sector. In contrast, in the period after 1991, the share of agriculture in GDP declined from 6.3 to 3.9% in 2014, the share of industry decreased in the same period from 37.9% to 32.6%, and the importance of services for domestic product increased from 55.8 to 64.0%. In the corresponding period (i.e. after 1991) in Ukraine, the share of agriculture in GDP declined from 20.4 to 11.8%, industry from 50.6 to 25.4% while the services sector rose more than twofold, from 28.7 to 62.8% (Fig. 3).

In both countries the direction of structural changes was similar; however, in Ukraine a much larger restructuring of the entire productive system took place and, as the previ-

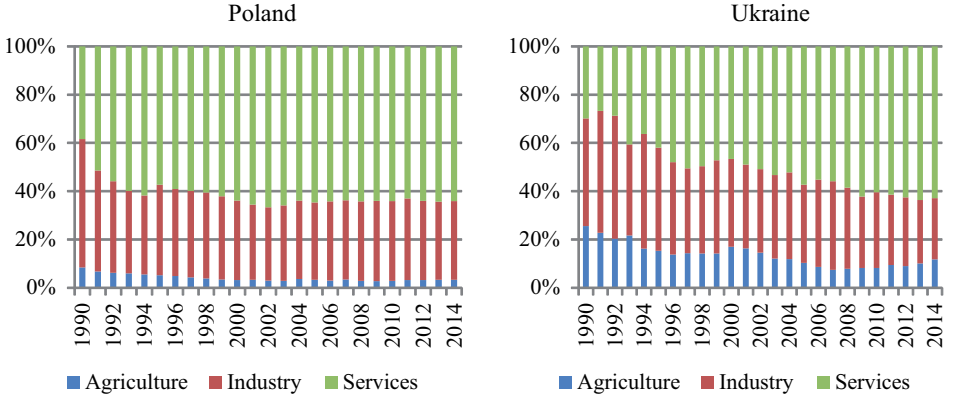

FIG. 3. The structure of GDP of Ukraine and Poland by economic sector in the years 1990–2014

Source: the authors, on the basis of World DataBank, World Development Indicators [WWW 3]; the years 1990–1994 for Poland on the basis of Zajdel [2011].

ously cited data on GDP growth show, these changes have taken their toll on Ukraine. Comparison of the structure of employment in the two countries further bears this argument out (Fig. 4).

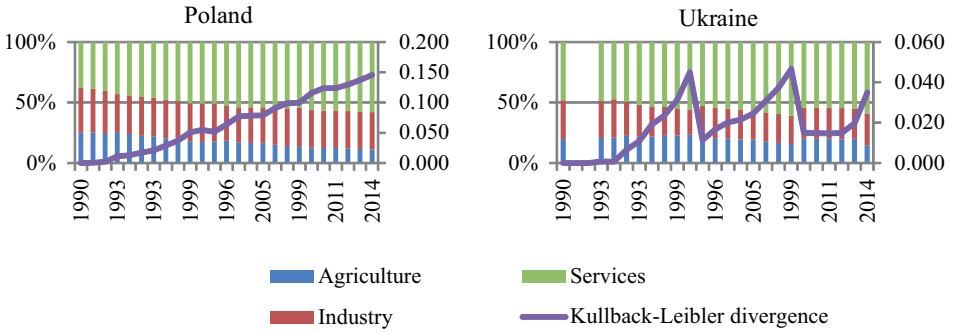

FIG. 4. The structure of employment and the degree of changes in this structure (expressed by the Kullback-Leibler divergence) in Ukraine and Poland by economic sectors in the years 1990–2014

Source: the authors, on the basis of World DataBank, World Development Indicators [WWW 3]; the year 1990 for Ukraine on the basis of Lehmann and Pinatti [2007].

In Poland, in relative terms, employment in services increased (from 37.8 to 58%), while industry (from 37 to 30.8%) and agriculture (from 25 to 11.2%) saw their role diminished in job creation. In Ukraine, the share of the service sector in job creation increased from 48.2 to 59.1% (i.e. only by 10.9 percentage points, while in Poland it increased by 15.1 percentage points). The industrial sector dropped from 32.0 to 26.1% (or 4.4 percentage points, decidedly more than the 0.7 percentage points industry lost in Poland's employment structure). Elsewhere, the agricultural sector fell from 19.8 to 14.8% (i.e. only by 5.9 percentage points, while in Poland the share of agriculture in the creation of jobs decreased by 14.4 percentage points).

Paradoxically, although the changes in the structure of employment took place both in Ukraine and Poland, those in Ukraine were slightly smaller and more "chaotic" – that is, they were subject to greater fluctuations, as indicated by the indicator of the level of relative entropy called the Kullback-Leibler divergence[2] [1951]. In Poland, this divergence grew steadily, while in Ukraine it clearly fluctuated. The structural changes that occurred in both economies are typical of developing countries – the importance of the service sector increased, while the significance of the industry and the agriculture sectors fell. However, comparison of the changes in the structure of GDP creation with the changes in the employment structure shows that in Poland the decline in employment in agriculture was significantly compensated by a relative increase in labour productivity in this sector.

[2] The relative entropy called the Kullback-Leibler divergence (D_{KL}) belongs to the Csiszár class measure of discrepancy between two structures S_t^n and S_τ^n, changing over time. The structure S_τ^n from the period τ is a basic structure. $D_{KL}\left(S_t^n, S_\tau^n\right) = \sum_{i=1}^{n} \omega_{it} \log_2 \frac{\omega_{it}}{\omega_{i\tau}}$, where ω_{it} is the i-th element of the structure, S_t^n n – the number of the elements of the structure. The indicator ranges from 0 to infinity, where 0 means the total convergence of these structures [Wędrowska and Wojciechowska 2015].

This phenomenon did not take place at all in Ukraine. However, in Ukraine the relative productivity in the service sector increased significantly compared to Poland, though in absolute terms it dropped. As a result, Ukraine's economy failed to match the GDP it had been producing 25 previously, before its transition began. The process of growth is not evenly distributed in space, and regions have their own specificity (with different exposure of individual economic sectors in their economic meso-systems). It may therefore be asked whether in Poland and Ukraine, whose economies are characterised by totally different dynamics and growth characteristics, the processes of regional convergence occur and whether or not their nature and pace are similar.

ECONOMIC GROWTH IN POLAND AND UKRAINE IN REGIONAL CROSS-SECTION

The above-described economic growth in Poland and Ukraine is not evenly distributed in the regional cross-section. In 2004–2013, the Polish economy recorded continued growth, totalling 40.8%. It was much larger than in Ukraine, which also increased its GDP in those years, but was more ravaged by the global economic crisis in 2009, driving the increase down to 13.8%.

Four provinces drove Poland's economy: Mazowieckie, Śląskie, Łódzkie and Dolnośląskie, where the individual growth was faster than that of the national economy. Their growth rates came in at 152.5, 145.9, 144.4 and 143.8%, respectively. In Ukraine, more than half of the country's oblasts (14) outperformed the national economy. The leaders were the oblasts of Ternopil (143.1%), Cherkasy (135.3%), the city of Kiev (132.4%), Zhytomyr (131.7%), Vinnytsia (131.4%), Kirovohrad (130.1%) and Kiev (128.7%). In Poland, three out of the four of the aforementioned provinces were the provinces which are the most important for Polish economy. In turn, in Ukraine the fastest growth characterised only 2 oblasts from among those driving national GDP growth.

Figures 5 and 6 depict the importance of individual regions for the national economy evaluated through the prism of their participation in the creation of GDP in Poland and Ukraine, which differ considerably.

In Poland, the share of individual provinces in the creation of GDP in 2004 ranged from 2.3% (Podlaskie) to 20.3% (Mazowieckie), while in 2013 it ranged from 2.1% in Opolskie to 22.1% in Mazowieckie, home to the capital Warsaw. On the other hand, in Ukraine in 2004 the lowest gross regional product (the city of Sevastopol) accounted for 0.6% of the national GDP, and the highest was 17.8% (the city of Kiev), while in 2013 the regions of Ukraine produced from 0.6% (again Sevastopol) to 20.5% (Kiev) of GDP. The range of the distribution of the share of individual regions in GDP creation in both countries is therefore very large and growing – in Poland it changed from 17.9 percentage points in 2004 to 20.0 percentage points in 2013, while in Ukraine it increased from 17.1 percentage points to 19.8 percentage points. This means that the diversity of importance of individual regions for the economy in Poland and Ukraine was not only considerable, but increased. In both countries the differences in the structure of GDP by region increased, while the cumulative degree of structural changes in 2004–2013 should have been, in fact, considered negligible, as confirmed by the Kullback-Leibler divergence (Fig. 7).

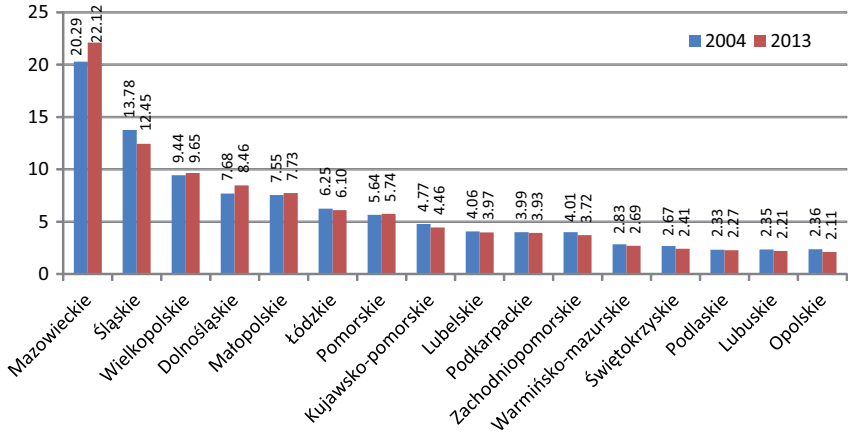

FIG. 5. The share of individual provinces in the creation of Poland's GDP in 2004 and 2013 (%)

Source: the authors, on the basis of CSOP data [WWW 1].

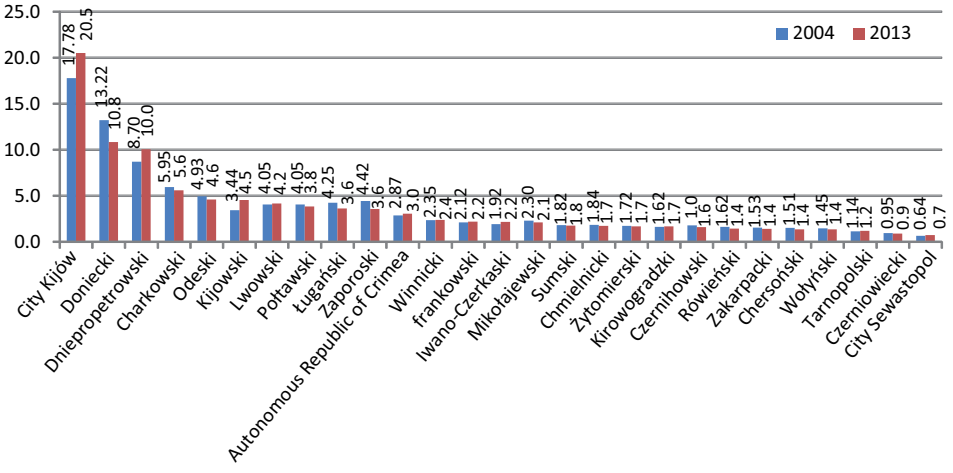

FIG. 6. The share of individual oblasts in the creation of Ukraine's GDP in 2004 and 2013 (%)

Source: the authors, on the basis of NSOU data [WWW 2].

The calculated Kullback-Leibler divergence of structural changes of GDP by region in the analysed period was 0.00364 for Poland and 0.00230 for Ukraine. It is worth noting, however, that in Poland this divergence decreased only in 2008, while in Ukraine it fell in the years 2006, 2010, and 2013, which suggests that this indicator is less prone to growth for this economy than in Poland.

The role of the "capital" regions in both countries increased in particular, so these regions are the most important districts in the production systems of their economies. Given the difference in the number of regions in Poland and Ukraine, it can be concluded that

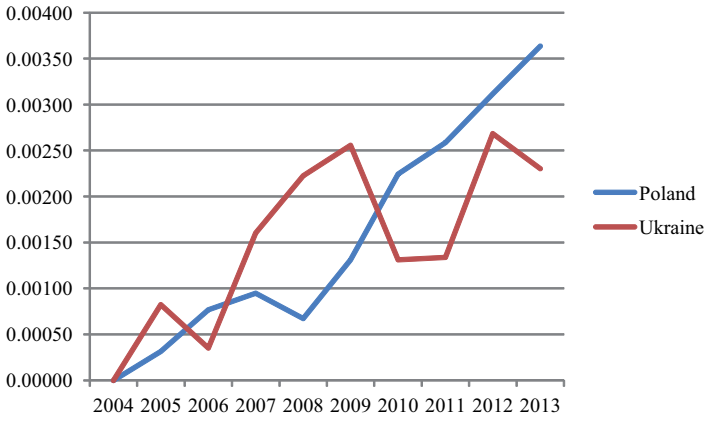

FIG. 7. The Kullback-Leibler divergence expressing the degree of structural changes of GDP by region in Poland and Ukraine in 2004–2013

Source: the authors, on the basis of CSOP data [WWW 1] and NSOU [WWW 2].

the capital city of Kiev is, however, a more important economic centre for Ukraine than Mazowieckie is for Poland. This is evidenced, for instance, by the fact that the ratio of the share of Mazowieckie in Polish GDP in relation to the share of the province with the least importance for Polish GDP in 2013 amounted to 10.5 (and in 2004 it was 8.7), while the ratio of the share of the city in Kiev in Ukrainian GDP in relation to the share of the region with the least importance for Ukraine's GDP amounted to 28.2 (compared to 27.7 in 2004). It is worth noting that a fourth of all Polish regions – that is, the four provinces of Mazowieckie, Śląskie, Wielkopolskie and Dolnośląskie – which are the largest contributors to Polish GDP, produced in 2004 in total more than half of domestic production, i.e. 51.18% and, in 2013, 1.5 percentage points more, or 52.68%. Similarly, a fourth of Ukrainian oblasts of key importance for the economy (the city of Kiev, Donetsk, Dnipropetrovsk, Kharkiv, Odessa, Kiev, and Lviv oblasts) produced in 2004 58.1% of the country's GDP, and in 2013 2.2 percentage points more, or 60.3%. According to these data, regions which are important for the economy in both countries for the most part gained in importance, while others lost, but in Ukraine this phenomenon is much more pronounced.

In both countries the coefficient of variation of GDP in the regions increased – in Poland in 2013 the variation coefficient of the mentioned characteristics amounted to 83.3% compared to 77.9% in 2004. In Ukraine, meanwhile, the figure amounted to 112.8% in 2013, compared to 105.0% in 2004. This leads to the conclusion that the differentiation of the GDP value in individual Polish regions in 2004–2013 was sizable, but still much lower than in Ukraine.

Though it has come in for criticism, GDP per capita is commonly used to measure economic development on both a macro and meso-scale [Talberth et al. 2007, Stiglitz et al. 2012, Szarfenberg 2012, UNDP 2012, Kubiczek 2014]. The coefficient of variation of GDP per capita in the period was lower in Poland, but grew more (from 21.4 to 25.3%), demonstrating that more systematic growth occurred there than in Ukraine (from 58.1 to 61.2%) – Figure 8. In Poland the growth was 3.9% while Ukraine saw 3.1% growth.

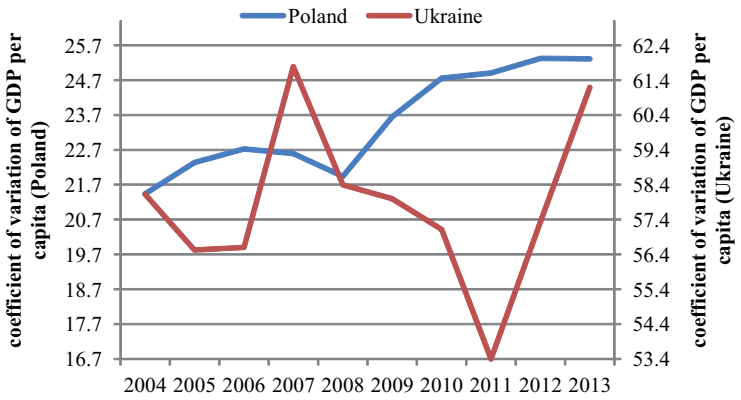

FIG. 8. The analysis of sigma-convergence based on the coefficient of variation of GDP per capita in Poland and Ukraine in the years 2004–2013

Source: the authors, on the basis of CSOP data [WWW 1] and NSOU [WWW 2].

It can therefore be stated that regions in Ukraine were and are more diverse in terms of GDP per capita than in Poland, but in Poland in the years 2004–2013 there was a greater increase in regional disparities. The analysis of the variation coefficient suggests that it is not sigma-convergence that is at work here, but its opposite, sigma-divergence, which characterised both countries, though it was more pronounced in Poland. It is worth noting, however, that in 2007–2011 the variation coefficient in Ukraine fell strongly, which again indicates the occurrence of sigma-convergence during this period.

REGIONAL CONVEREGENCE IN POLAND AND IN UKRAINE IN THE YEARS 2004–2013

In order to verify if, throughout the analysed time horizon – that is 2004–2013 – divergence occurred in Poland, and sigma-convergence in Ukraine, the standard deviation of the logarithm of GDP per capita of regions (in constant prices) was calculated for both countries at the beginning and end of the period. It amounted to 0.1928 in 2004 and 0.2196 in 2013 in Poland and, respectively, 0.3799 and 0.3671 in Ukraine. This means that while in Poland the condition for sigma-convergence was not fulfilled (this condition is a drop of the estimated standard deviation) [Sala-i-Martin 1996, Quah 1996c, Markowska-Przybyła 2010], the calculation results for Ukraine fulfilled this condition.

Next, the regression equation of the standard deviation of the natural logarithm of GDP per capita over time was estimated for Poland and Ukraine[3] (Figs 9 and 10). The determination coefficients and the significance of parameters of the obtained equations were specified through the prism of Student's t-statistics (Figs 9 and 10). For Poland, the

[3] $sd(\ln PKBpc(t)) = \alpha_0 + \alpha_1 t + \xi$, where $sd(\ln PKBpc(t))$ – the standard deviation of the natural logarithm of GDP per capita in the year t. The negative parameter α_1 means the occurrence of sigma-convergence [Markowska-Przybyła 2010].

slope of the estimated regression function was 0.0042. That means it was positive with a very high determination coefficient (0.9524) denoting a very strong correlation of the standard deviation of the logarithm of GDP of Polish regions over time. For Ukraine, however, the estimated regression function had a negative slope value of –0.0029 and a determination coefficient of 0.2907, which was lower than Poland's. The results confirmed the significance of the estimated parameters of the equation, which, in turn, indicated the occurrence of sigma-convergence in Ukraine and clear regional divergence of this type in Poland during the period. Thus, disparities in regional development increased in Poland, and decreased in Ukraine.

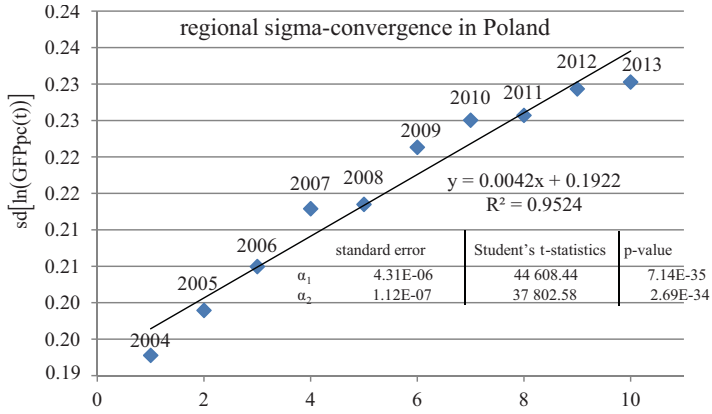

FIG. 9. Regional sigma-convergence in Poland in the years 2004–2013

Source: the authors, on the basis of CSOP data [WWW 1].

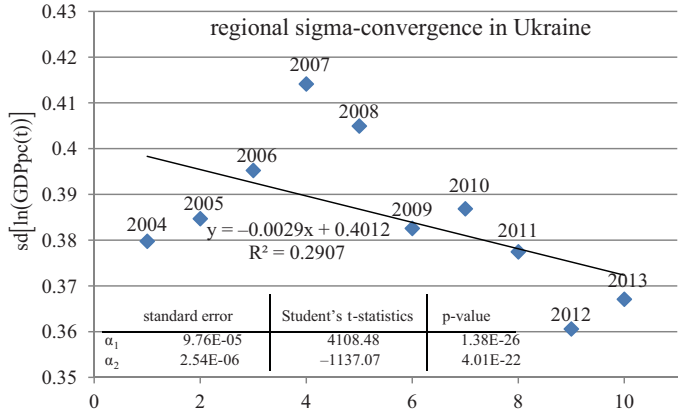

FIG. 10. Regional sigma-convergence in Ukraine in the years 2004–2013

Source: the authors, on the basis of NSOU data [WWW 2].

The occurrence of sigma-convergence implies the presence of beta-convergence, the latter being a prerequisite for the occurrence of the former. It can therefore be firmly concluded that in Ukraine, where the appearance of sigma-convergence was proved, beta--convergence is also present. On the other hand, it was theoretically possible that beta-convergence also took place in Poland, as the absence of sigma-convergence does not condition the lack of absolute convergence. To determine whether beta-convergence occurred there in 2004–2013 we estimated the regression equation of the natural logarithm of GDP per capita divided by the number of years in the time horizon (vertical axis) and the initial logarithm of GDP per capita (horizontal axis). Hence we examined the relationship between the average rate of growth of individual regions and their initial income (Fig. 11).

In the estimated equation, the coefficients are statistically significant, including the slope parameter of 0.0188 (Student's t-statistics had a value of –29.03, thus the p-value was only $6.57 \cdot 10^{-14}$). Its positive value confirms the final recognition of the lack of absolute convergence and of the occurrence of divergence between regions in Poland in 2004–2013. The calculated value of the slope in the designated regression function provided the basis for the calculation of the rate of the diagnosed process of convergence to equilibrium. The dynamics of this process in Poland amounted to –0.01736. The negative value of this indicator confirms the divergence of Polish provinces from equilibrium.

Similar calculations were also made for Ukraine, in particular to determine and compare the direction and dynamics of changes in regional disparities in both countries

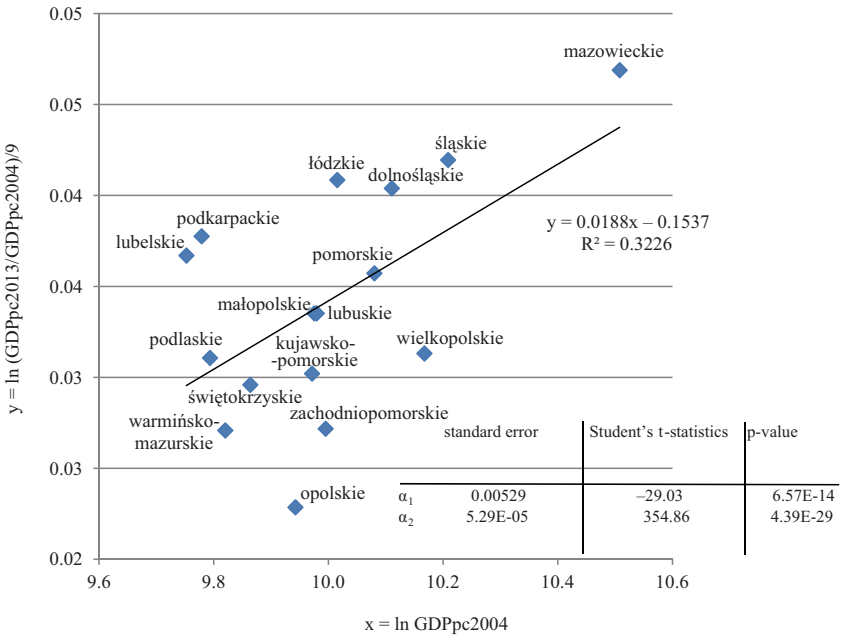

FIG. 11. The classical analysis of regional convergence in Poland on the basis of beta-convergence of GDP per capita (in constant prices of 2004) in the years 2004–2013

Source: the authors, on the basis of CSOP data [WWW 1].

(Fig. 12). The estimation of the regression equation of the logarithm of the average GDP growth per capita of Ukraine's regions and their initial income confirms the occurrence of beta-convergence in the country. At –0.0083, the slope of the equation is in fact negative, and is statistically significant (Student's t-statistic amounted to 30.51, and the p-value was $2.65 \cdot 10^{-21}$). The pace of convergence to equilibrium is very small: a mere 0.00858.

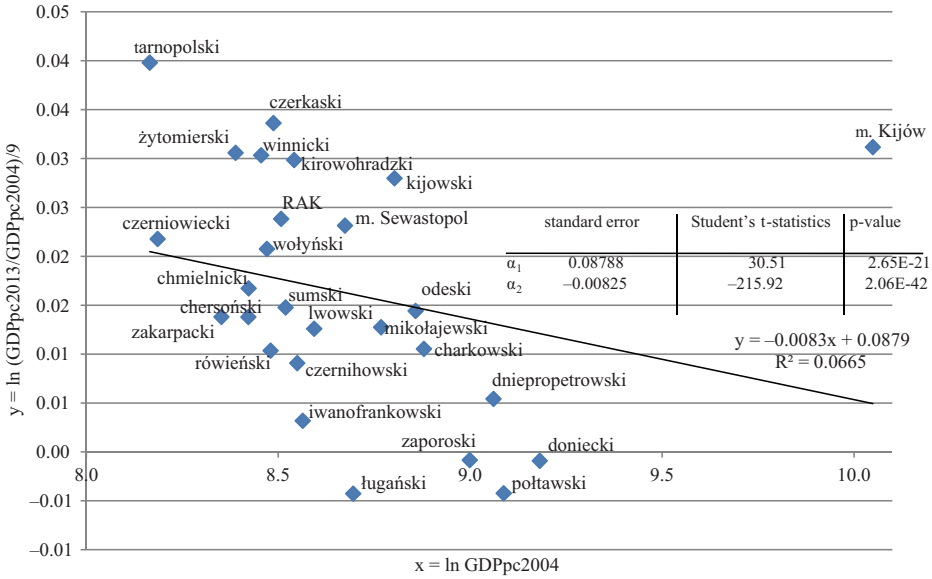

FIG. 12. The classical analysis of regional convergence in Ukraine on the basis of beta-convergence of GDP per capita (in constant prices of 2004) in the years 2004–2013

Source: the authors, on the basis of NSOU data [WWW 2].

When it is compared with the result obtained for Polish regions, it becomes clear that the convergence processes in Poland and Ukraine are moving in different directions, and moreover the growth pace of divergence of Polish regions is greater than the pace of convergence to equilibrium of Ukraine's regions.

CONCLUSIONS

The processes of regional convergence/divergence taking place in Poland and Ukraine in 2004–2013 were directed in quite different conditions of economic growth in the years leading up to 2004. After a brief post transformation recession, the Polish economy quickly embarked upon a growth path and was subjected to slow but systematic structural changes, which in effect led to profound changes in the country's manufacturing arm. In Ukraine, on the other hand, the post transformation recession was long and lasted nearly a decade, while the country's economy was affected by dynamic structural changes which

de facto did not lead to such profound changes in the manufacturing system as those which occurred in Poland. Poland (its entire economy) was covered by the process of economic convergence, while this process "bypassed" Ukraine's economy.

After 2004, Poland's economy was the much faster-growing of the two, though regional economic growth was not evenly distributed in either country while the diversity of importance of individual regions for the economy in Poland and Ukraine was not only significant, but even increased.

The analyses we have conducted show that regions which are important for the economy both in Poland and Ukraine for the most part gain in importance, while others lose. In Ukraine, this phenomenon is much more pronounced. In both countries the role of the "capital" regions, which are the most important districts in the production systems of their economies, increased. The capital city of Kiev is a more important economic centre for Ukraine than Mazowieckie is for Poland.

In the course of this analysis, it was observed that the diversity of GDP values in individual Polish regions in 2004–2013 was large, but still much lower than in Ukraine. On the other hand, regions in Ukraine have been and are more diverse in terms of GDP per capita than in Poland, though in the years 2004–2013 that country did observe an increase in regional disparities, while in Ukraine such differences decreased. In Poland sigma- and beta-convergence occurred during the period. In Ukraine, on the other hand, sigma-convergence occurred and absolute convergence conditioned it. The convergence process in Poland and Ukraine is moving in a different direction, and the pace at which Polish regions are diverging is growing faster than Ukraine's regions are converging to equilibrium.

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Summary. The aim of the paper is to compare the process of regional convergence in Poland and Ukraine, with special regard to its direction and dynamics. Regional convergence is widely discussed in the literature, and has gained in importance in the context of European integration, especially in the past decade. Less attention is devoted to the process of convergence of regions of European states which are not associated with the European Union. The authors attempt to fill this gap, in particular to the extent to which they devote attention to the processes of regional convergence in Ukraine. In the study the authors put forward the hypotheses that the processes of regional convergence in Poland and in Ukraine occur in entirely different economic conditions, and therefore their direction and dynamics differ significantly. The target period of the analysis covered the years 2004–2013, while

the scope of this research was extended into the 1990s and described in the section of the article which presents the specifics of economic growth and changes in the three-sector structures, providing the context for regional convergence in comparable countries.

Key words: regional convergence, GDP, region, economic growth, Poland, Ukraine

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