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ECONOMIC ROLE OF AGRICULTURAL COOPERATIVENESS IN POLAND FROM THE PERSPECTIVE OF CHANGES IN THE FOOD CHAIN

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ABSTRACT

A food supply chain integrates three important economic sectors: agriculture, food processing, and distribution sectors. Integration processes are one out of different ways of efficiency's improvement of supply chains; they are also the key challenges of contemporary management in the global economy. Common activities of partners in a supply chain can take different forms, starting from general agreements in supply operations, common forecasting and planning of production to cooperation in the field of design and implementation of new products. The aim of the study is to investigate an economic role of agricultural cooperatives in Poland from a perspective of changes in food supply chains. In order to realize it, data of the *General Agricultural Census 2010*, the Ministry of Agriculture and Rural Development as well as the ranking of the top 500 companies in Poland by "Rzeczpospolita" (2017, 19th edition) were applied. Research results show that a significant number of cooperatives stopped their activities or limited their scale or range after 1989. However, some cooperatives have been developing and as for example dairy cooperatives belong to the top 500 companies in the Polish economy. There is also an increasing trend of establishment of agricultural producer groups, often in a form of cooperatives, that have been observed recently.

Key words: cooperative, food supply chain, agricultural producer group

INTRODUCTION

Food production takes place in all national economies in the framework of a subsystem determined as food economy. Food economy, considered as one of the most important and complicated segments of national economy, consists all material processes connected directly and indirectly with food production and distribution. A way and rules of a food flow from a farmer to a costumer are formed by agribusiness links, which establish a food supply chains. As a result, a supply chain can be defined as a "network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate consumer" [Christopher 1992, p. 18]. As it is stressed in the state-of-the-art, "in a broad sense a supply chain consists of two or more legally separated organizations, being linked by material, information and financial flows. These organizations may be firms producing parts, components and end products, logistic service providers and even the (ultimate) customer himself" [Stadtler 2014, p. 3].

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A supply chain is characterized by significant diversity of participating entities. It involves producers, suppliers, transport companies, wholesalers and retailers, service organizations and costumers [Gołębiewski 2007]. They establish a network of entities producing and providing goods and services for final costumers [Rutkowski 2005]. Uneven economic power of entities engaged in food production and distribution is a specific feature of food supply chains. There is especially a lack of balance between bargaining power of agriculture and non-agricultural sectors. This unbalance is deepened by globalization and concentration process, especially at the level of retail. The progressing globalization brings a wide range of challenges for different entities operating on the market, including food producers. Within the conditions of trade liberalization leading to strengthening the economic rivalry the role of ensuring the food producers' competitiveness is increasing on both international and internal markets [Braja and Sawicka 2017].

In such a situation, transformations of food supply chains have to take place, particularly development of integration is necessary. Establishment of agricultural cooperatives can be an answer for these challenges as it strengthens competitive position and possibilities comparing to concentrated links of food processing and distribution. Over the last years, a growing interest in co-operatives can be observed and the real economic dimensions of co-operatives worldwide are increasing [Virlanuta and Zungun 2015]. Dworniak and Pietrzak [2014] display two economic reasons for establishment and existence of cooperatives in agriculture: limitation of market failure and strengthening of bargaining power of dispersed farmers towards concentrated costumers (countervailing power).

The paper makes at least two contributions. Firstly, a review and evaluation of development of cooperatives from different fields as well as their current situation are characterized. Then, statistical data together with microeconomic data from the current diagnosis of economic situation of enterprises are applied. As a result, we are able to asses a situation of cooperatives not only comparing them with each other but also on the background of top companies operating in Poland.

MATERIAL AND METHODS

The aim of the study is to investigate an economic role of agricultural cooperatives in Poland from a perspective of changes in food supply chains. Particular attention was paid to general presentation of the Polish sector of cooperatives operating in agriculture and running agricultural products' marketing as well as determination of a role of cooperatives in the agri-food chain.

The following sources of information were used in the research:

- scientific literature on food economy and supply chains,
- publications contributing to characterization of agriculture and the cooperative sector in Poland, including results of the *General Agricultural Census* 2010,
- information developed and published by the Ministry of Agriculture and Rural Development,
- ranking of the top 500 companies in Poland by "Rzeczpospolita" (2017 19th edition).

The monographic method was applied. Statistical data was presented using tables and graphs.

Typology of agricultural cooperatives in Poland

According to the Cooperative Law "a cooperative shall be a voluntary association of an unlimited number of persons, of variable membership and variable share fund, which conducts joint economic activity in the interests of its members. A cooperative may conduct social, educational and cultural activities for the benefit of its members and their community" [Act of 16 September 1982 Cooperative Law]. It operates as an enterprise – its members are its stakeholders and has a democratic management system. Helmberger and Hoos [1962] indicate that a cooperative consists of entities conducting their own enterprises. It uses production factors, produces goods and services as well as sell them. Differences lie in organizational structures and management.

Taking into account functions as well as activities conducted by cooperatives, we can distinguish four types of cooperatives operating in Poland after 1990:
- supply and sale cooperatives – supply their members with means of production and sell their products; the most popular examples include: "Peasants' Self-Help" (Polish *Samopomoc Chłopska*) communal cooperatives as well as horticultural and apiarian cooperatives;
- processing cooperatives – process agricultural raw materials and sell final products using own shops or a distribution system already existing on the market; diary cooperatives are typical examples of such activities,
- service cooperatives – supply their members with different kind of services, for example mechanical (farmers' cooperative association), banking, insurance or social; cooperative banks can be popular examples,
- agricultural production cooperatives – engaged in plant as well as animal production; they also sell self-processed products (for example fodder, fruit or vegetable products) and have their own retail network, tourist infrastructure, etc.

Cooperatives played an important role for production and services in agriculture in Poland till 1989. Their proportion, at the level about 60%, was comparable with cooperative rate in countries of EU-15 nowadays [Boguta et al. 2014]. However, economic transformation decreased their role.

Political decisions on liquidation of central and regional associations of cooperatives contributed considerably to cutting traditional institutional relations in the cooperative sector. Then, difficulties with adjustments to new conditions of functioning on the free market as well competitiveness of foreign companies contributed to decrease of cooperatives' role in the economy. Nowadays, there are about 2.6 thousand of cooperatives functioning in Polish agriculture and its environment (Table 1).

Table 1. Basic statistical data on Polish agricultural cooperatives

Specification	Number of active cooperatives			Number of members (thousand)	Number of employees (thousand)	Turnover (billion PLN)
	1989	2000	2013	2013	2013	2013
Supply and sale cooperatives	1 912	1 648	1 192	160	65	8
Diary cooperatives	323	238	142	138	24	24
Horticultural and apiarian cooperatives	140	128	64	6	1.2	0.6
Agricultural production cooperatives	2 089	1 024	698	23	26	9
Farmers' cooperative association	2 006	1 063	526	19	5	–
Total	6 344	4 101	2 622	346	121.2	–

Source: Own elaboration based on Boguta [2014].

A role of agricultural cooperatives in a food supply chain

Dairy cooperatives

Dairy cooperatives play the most significant role in services for agriculture in Poland. There are about 138 thousand of milk producers and this sector successfully adjusted to conditions of the market economy. One of the most modern base for dairy processing and potential for competing on the European as well as world market are results of modernization processes after 1990. It is indicated that those of them which managed to implement modern management systems after transformation, are now able to succeed on the market [Krysiak 2006]. Only few dairy plants were merged by foreign capital whereas weaker ones joint with stronger. In 2013, dairy cooperatives had about 75% share in the market of milk purchase and processing, and employed about 24 thousand persons. Their turnover was at the level of 24 billion PLN [Boguta et al. 2014].

There are about 140 dairy cooperative plants in Poland. A group of leaders of a significant operation scale and economic potential comparable with the biggest domestic and foreign companies formed out as a result of consolidation and concentration processes. In 2016, there were 5 dairy cooperatives in the group of the top 500 companies in Poland. Their main characteristics are presented in the Table 2.

Table 2. Economic results of the biggest dairy cooperatives in Poland in 2016

Specification	Cooperative				
	Grupa Mlekovita, Wysokie Mazowieckie	Spółdzielnia Mleczarska Mlekpol, Grajewo	Okręgowa Spółdzielnia Mleczarska, Łowicz	Okręgowa Spółdzielnia Mleczarska, Piątnica	Okręgowa Spółdzielnia Mleczarska, Sierpc
Sales revenue (thousand PLN)	4 114 232	3 199 473	1 401 515	1 014 118	474 378
Change in sales revenue 2016/2015 (%)	5.96	5.54	4.00	11.41	21.27
Proportion of export in sale (%)	30.00	15.00	22.10	1.00	8.70
Net profit (thousand PLN)	68 133	23 009	334	7 339	14 410
Investments (thousand PLN)	165 361	71 104	7 317	55 770	8 522
Average employment	2 823	2 328	1 263	777	431
Gross wages (thousand PLN)	nd	126 729	55 871	55 214	28 193
Return on sales	–	1.02	0.02	0.81	3.78
ROE	–	2.50	0.15	2.15	7.15
ROA	–	1.53	0.08	1.48	5.08
Position in 2016	83	107	224	288	496
Position in 2015	88	113	228	298	–

Investment input – purchase of intangible and legal assets as well as elements of tangible fixed assets; employment – average number of employees; wages – gross wages of employees resulting from of employment relationship, contracts for specific work, mandate contracts, and agency contracts; ROE – return on equity; ROA – return on assets.

Source: Ranking of the top 500 companies in Poland by "Rzeczpospolita" (2017 19th edition).

Agricultural production cooperatives

Agricultural production cooperatives are important elements of cooperative activities in Poland. According to present law regulations they can conduct common farms and run activities supporting individual farms of their members. They can also conduct other economic activities. In 2013, about 700 of agricultural production cooperatives operated, involving about 23 thousand of members. Their turnover was estimated at the level of about 9 billion PLN [Boguta et al, 2014]. Their share in use of agricultural land can be a measure of their production role in agriculture and food supply chain (Fig. 1).

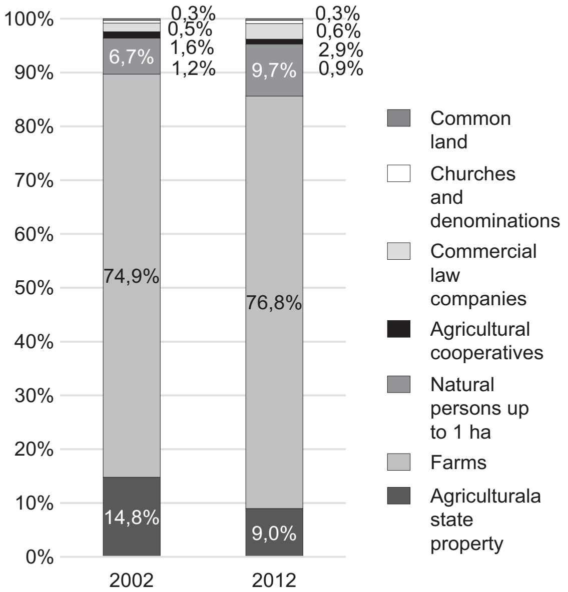

Fig. 1. Changes in the structure of agricultural land use in Poland in the period 2002–2012

Source: Own elaboration based on Głębocki [2014].

A significant reduction took place in the analysed period regarding land used by agricultural cooperatives. It decreased from 1.2% in 2002 to 0.9% in 2012. In 1990, their area was 636.6 thousand ha, in 2002 – 223.8 thousand ha and only 154.9 thousand ha in 2012. Moreover, the share of cooperative agriculture varies regionally – it is more important in such voivodships as: Wielkopolskie, Opolskie, Dolnośląskie and Zachodniopomorskie (generally western part of the country) whereas it is least developed in such voivodships as: Łódzkie, Pomorskie and Lubuskie – there were only 6,014 ha of agricultural land managed by cooperatives in these three regions [Głębocki 2014]. These differences can occur because of different reasons, as various areas, structures and directions of agricultural production in particular regions. For example, in the cases of Pomorskie and Lubuskie, it can result from a general low share of agricultural land there as these regions are rich in forests. For further regional investigations, some relative measures of development of cooperatives can be applied as absolute numbers do not take into account reference area or population differentiated across Polish regions. An example of relative measures – cooperative development coefficients – were proposed for example by Kata [2016].

Horticultural and apiarian cooperatives

Transformation of the economic system in Poland after 1989 caused also significant changes in horticultural and apiarian cooperatives. They traditionally associated farmers, apiarists, fruit and vegetable producers so representatives of widely understood special branches of agricultural production. However, marginalization of horticultural and apiarian cooperatives took place after 1990. Decrease in their number was observed – from 144 in 1989 to 64 in 2013. Their share in purchase of fruit and vegetable estimated for over 60% decrease to only 2% during the second decade of 21st century [Boguta et al. 2014]. Nevertheless, it should be stressed that there exist cooperatives able to competing on the domestic as well as international markets, for example Apiarian Cooperative in Lublin – a leader of mead production in Poland and an important exporter for European markets and the USA, Horticultural Cooperative in Grójec – a leader in apple export, and others specialized for example in mushroom production [Brodziński 2014].

Supply and sale cooperatives

Cooperatives play a significant role and hold a considerable share in agricultural product distribution from farms to final consumers [Deller et al. 2009]. In Poland, about 1.1 thousand of supply and sale cooperatives operated in 2013. They run about 9 thousand shops, 400 wholesale entities, 500 processing plants (including bakeries, feed mixing plants, meat processing plants, mineral water producing plants), 1,800 warehouses, 4 health resorts and 6 training centres. It is estimated that a number of members in such kinds of cooperatives decreased from about 1 million in 1989 to about 160 thousand in 2013 whereas a number of employees from 468 thousand to about 65 thousand. Their turnovers were estimated at the level about 8 billion PLN in 2013 [Boguta et al. 2014]. Cooperative retail networks and purchasing groups have quite good position on the market, as for example cooperative retail network "Tęcza" (Wielkopolskie Voivodships) or a purchasing cooperative "Agrocoop" in Olsztyn. Apart from typical retail activities, supply and sale cooperatives develop also food production (bakeries, production of sweets or cold meats) directed mainly for local markets.

Farmers' cooperative association

In the past, farmers' cooperative association concentrated their activities mainly on mechanical services for farms but now they look for new possible fields of operation. As a result of the economic transformation they changed considerably the range and scale of operation. Many of them sale farm inputs, run petrol stations, garages as well as provide public utility services as well as local transport. Their engagement in services for agriculture is not significant. In 2013, only 500 of such cooperatives operated on the market, whereas in 1989 there were 2,000 of such entities [Boguta et al. 2014].

Agricultural producer groups as a new form of cooperation in the food supply chain

Common operations, which allow to compete on the market, are the basic idea of establishment of agricultural producer groups. Farmers benefit from better organization and adjustments of production to costumers' requirements in case of quality, volume and assortment. They follow environmental rules during all production phases, storage and distribution of agricultural products. It allows to gain a better position on the market as well as higher and more stable income. The Act of 15 September 2000 on agricultural producer groups and their associations and on changing other acts is a legal base for organization of agricultural producer groups in Poland. It determines also requirements which have to be filled in order to get support. On the one hand, it was necessary to adapt to the regulation of the Common Agricultural Policy and to compete with better organized and equipped producers from EU countries, on the other hand, there were possibilities of using public resources for investment goals, and resources addressed to producer organizations [Chlebicka 2015].

The term of "agricultural producer group" does not mean a legal form of operation (they can exist for example as cooperatives, companies, associations) – it only indicates a character and functions filled by this kind of organization on the market. Agricultural producer groups join market producers of particular goods or a group of products (for instance potatoes, cereals). They aim at concentration and standardization of supply, its adjustment to market requirements, especially regarding quality and quantity, as well as positive influence on market organization. Their goal is to sell goods produced on members' farms. They have to provide agricultural products, which are unprocessed or only preliminarily processed. However, agricultural producer groups differ from commercial activities. A group is a private company owned by individual agricultural producers who manage its operations after accession to it. An agreement of producers convinced about common marketing as a way for improvement their market positon is a necessary condition for establishment of a new group. In the period 2001–2015, 1,308 agricultural producer groups were established in Poland (Fig. 2).

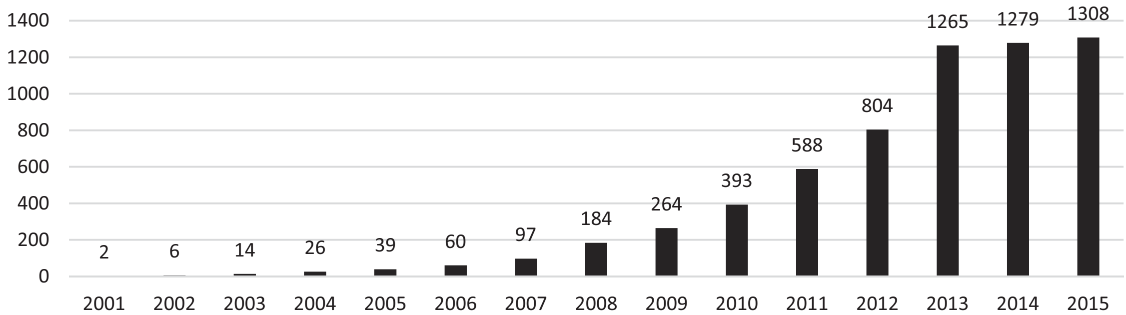

Fig. 2. Number of new registered agricultural producer groups in the period 2001–2015

Source: Own elaboration based on data of the Ministry of Agriculture and Rural Development.

As agriculture is a sector diversified regionally regarding its different characteristics [Drejerska 2015], a current number of agricultural producer groups is also diversified regionally. The highest number of them operates in Wielkopolskie, Dolnośląskie and Kujawsko-Pomorskie (Fig. 3).

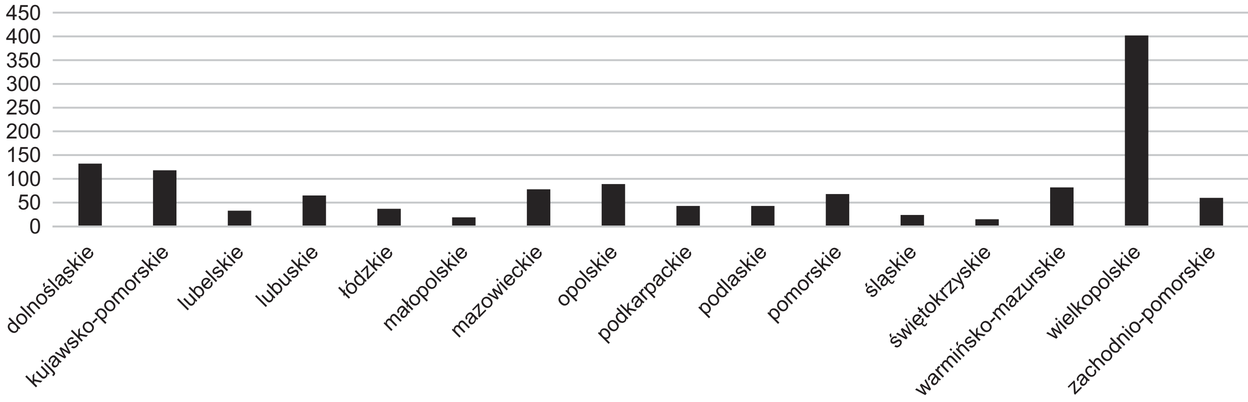

Fig. 3. Number of agricultural producer groups in Polish voivodships

Source: Own elaboration based on data of the Ministry of Agriculture and Rural Development.

According to legal regulations on agricultural producer groups and their associations, agricultural producer groups operate as legal entities. A limited liable company is the most popular form chosen by agricultural producer groups. Cooperatives represent 32% of entities established in the period 2000–2015 (Fig. 4).

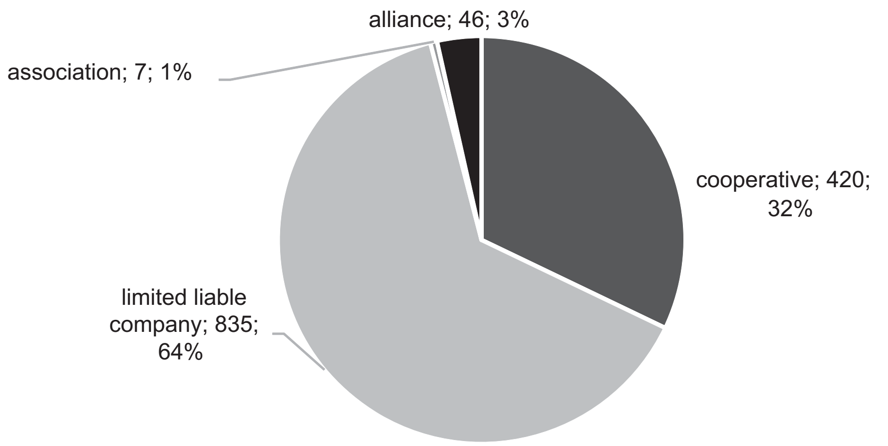

Fig. 4. Structure of agricultural producer groups according to their legal form

Source: Own elaboration based on data of the Ministry of Agriculture and Rural Development.

These basic numbers describing the process of establishment of agricultural producer groups prove that it is a popular trend in Poland. Moreover, cooperation in the form of cooperatives can be an important part of food supply chain.

CONCLUSIONS

The processes of the socio-economic transformation in Poland after 1989 considerably influenced agricultural cooperativeness. Many cooperatives finished their activities or limited a scale or range of their operation. However, some cooperatives have been developing and as for example dairy cooperatives belong to the top 500 companies in the Polish economy. On the local level, cooperatives are still important providers of services for agriculture as well as food products for costumers.

Data on development of agricultural producer groups proves that Polish farmers realized that they had to cooperate in order to be able to compete on the international and global markets – an increasing trend of establishment of agricultural producer groups can be observed. According to legal regulations they can operate in different forms but it should be stressed that a cooperative is the second one among the most popular legal forms. This is a clear evidence that cooperativeness is an useful way of cooperation in agriculture in evolving conditions of a food value chain.

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ZNACZENIE EKONOMICZNE SPÓŁDZIELCZOŚCI ROLNICZEJ W POLSCE W KONTEKŚCIE ZMIAN W ŁAŃCUCHU ŻYWNOŚCIOWYM

STRESZCZENIE

Łańcuch dostaw żywności łączy trzy ważne sektory gospodarki: rolnictwo, przetwórstwo spożywcze oraz sektory dystrybucji. Jedną z form poprawy efektywności łańcuchów dostaw są procesy integracji. Integracja łańcuchów dostaw jest obecnie jednym z kluczowych wyzwań współczesnego zarządzania w warunkach globalnej gospodarki. Wspólne działania partnerów w łańcuchu dostaw przyjmują najróżniejsze postacie: poczynając od umów ramowych w zakresie zaopatrzenia, wspólnego prognozowania i planowania produkcji, kończąc na współpracy w dziedzinie projektowania i wdrażania nowych produktów. Celem artykułu jest ocena roli ekonomicznej spółdzielni rolniczych w Polsce w kontekście zmian w łańcuchach dostaw żywności. Wykorzystano dane *Narodowego Spisu Powszechnego 2010*, informacje z Ministerstwa Rolnictwa i Rozwoju Wsi oraz dane z 19. edycji Listy 500 – rankingu największych firm działających w Polsce w 2017 roku, opracowywanego corocznie przez „Rzeczpospolitą". Wyniki badań wskazują, że znaczna liczba spółdzielni ograniczyła lub zaprzestała działalności po roku 1989. Jednakże niektóre spółdzielnie, np. mleczarskie, są prężnie rozwijającymi się przedsiębiorstwami, o czym świadczy to, że pojawiają się na Liście 500 „Rzeczpospolitej".

Słowa kluczowe: spółdzielnia, łańcuch żywnościowy, grupa producentów rolnych