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Competitiveness of Polish regional Agro-clusters

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Abstract: The present paper concerns the analysis and evaluation of the performance of regional agro-clusters in Poland and also the examination of the significant basic factors which have influence on it. The objective of the paper is both to rank the 16 Polish regions according to their competitive position in the agrocomplex and to present their economic and social position, show differences and regional contrasts. Also, we compare the outcomes with the overall Polish regional competitive index, which was created in accordance with the Huggins Institute approach.

Keywords: Agricultural outsourcing, farm size, diversification, labour shortage, cultural factors

Introduction

Poland represents a country with growing regional agricultural disparities, which are the unavoidable consequence of the process of transformation and economic growth. One of characteristic features of the Polish economy is a strong concentration of gross domestic product contribution in a few voivodships, namely Mazowieckie, Slaskie and Wielkopolskie. These three areas generate one fourth of the total gross domestic products.

The accession to the European Union in 2004 created new opportunities for improving Polish regions and especially rural areas. In the European Union, agriculture is a leading policy area and the largest area of EU expenditure. The aim of the Common Agriculture Policy is *to provide farmers with reasonable standards of living, consumers with quality food of fair prices and to preserve rural heritage.* (EU, 1997) The process of EU integration appeared to offer great advantages from the benefits of the EU policies and its single market. Polish farmers gained both access to the rich market with its higher prices (*Niedzielski, Lapinska,* 1999) and financial support.

Agriculture employs almost one third of the total Polish work force, but contributes less than 4% to the gross domestic product (GDP) (GUS, 2006). Productivity is, on the whole, not high. However, low agricultural incomes are rather a common phenomenon, explained by a slower increase of productivity in this sector and restricted mobility of the labour force between agriculture and the rest of the economy, which was observed also in other European countries. (*Zarebski,* 2002)

The structure of Polish agribusiness is regarded to be relatively backward and distorted. Both down-stream and up-stream sectors of agribusiness are insufficiently developed. The greatest production of the entire agribusiness sector still originates in agriculture. (*Wilkin,* 2004) Many challenges face agro-food producers in Poland, as they seek to remain competitive in local, national and international markets. Although the phenomenon of industrial districts is common in Poland, only recently did the regional cluster approach became recognized as a valuable tool to foster economic development. Rising interest led to exploration of where to establish potential clusters in Poland. (*Wojnicka, Brodzicki, Szultka,* (2003) Limitedly, the cluster concept was mentioned within the confines of Regional Innovation Strategies. Highlighted was also that the cluster policy is one of the best instruments to promote and foster regional economic development. Regional clusters are regarded as an efficient way to achieve job creation and wealth in regions. (*Porter* 1998b, *Boekholt and Thuriaux* 1999, *Landabaso* 2000) A cooperative mechanism can facilitate the sharing of sustainable development and competitiveness of the agro-food sector. Clusters of producers in the same sub-sectors can also generate interest and public support for the defense of traditional products, which may be protected under geographic indications or international protocols that seek to protect traditional knowledge. (*Zarebski,* 2002) Fostering strong agro-clusters is also important both for the national government and regional authorities, in order to be competitive in the enlarged European Union and the world market.

This article objective is to present the strongest and the most competitive agro-clusters in Poland. The paper is structured into principal sections, followed by a set of conclusions:

- a review of the phenomenon of clusters and competitiveness and their impact on regional economic development;

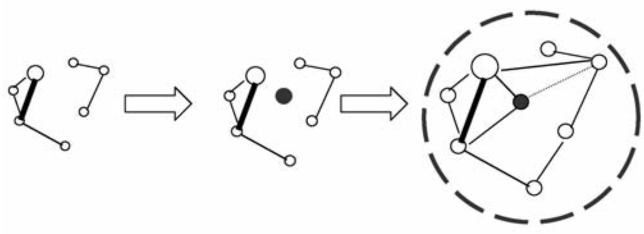
- a research framework – study methodology used in the paper;
- final results, namely the rating and performance of Polish regional agro-clusters.

The phenomenon of clusters and competitiveness

A considerable number of researchers and practitioners have discussed the phenomenon of the cluster and its impact on competitiveness, growth and regional economy. Broadly speaking, the competitiveness can be understood as: "*a way of discussing the relative performance of economies in a benchmarking sense. It can help identify areas of the economy that are lagging behind but not the reason for those lag.*" (*Dunning,* 1998) The representatives of the World Economic Forum (*WEF,* 2004) emphasize that: "*competitiveness concerns adapting state economic institutions and economic structures to produce a growth visible in the international scale. The national economy is competitive in the international scale if its institutions and policy support rapid and stable economic growth*". In the enlarged European Union and in the framework of globalised markets, regional competitiveness is of utmost importance for the regional economy. In enhancing competitiveness and growth, clusters play an inevitable and prominent role. They represent a new way of thinking about national, state and local economies. (*Porter,* 2000). Cluster theory was originally outlined by the work of Michael Porter. As he pointed out: "*clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field that are present in a nation or a region*". (*Porter,* 1990) Clusters highlight opportunities for coordination and mutual improvement in areas of common concern. They are also understood as *"self-reinforcing networks of not just firms, but a range of other organizations – including research institutes, universities, financial bodies and public sector agencies – which is characterized by high levels of both competition and collaboration."* (*Raines,* 2001) According to *Rosenfeld* (2002) "*clusters help regions better understand how their economies function as systems and which policy levers are likely to have the greatest impact*". They are differentiated by their specialization in a particular stage of their field's value chain, by their focus on specific geographic areas, or by targeting selected customer needs or market segments (*Ketels,* 2003). They provide a constructive forum for dialogue among all related participants; they create a system of network of cooperation which results in a synergy effect. The concept of cluster is far from being homogeneous and a number of schools of thought and empirical phenomena have adopted the concept, but there are some key points which are highlight in most of definitions, namely: the geographical concentration, co-location, interlinked economic activities, simultaneous competition and cooperation. (*Porter,* 1990, 1998, 2000, *Rosenfeld* 1997, *Raines,* 2001)

Regional Agro-clusters

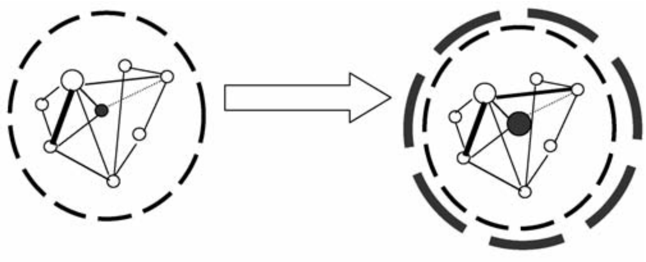
Regional clustering is both a dynamic and a systematic process, where a cluster goes through different phases of development. It requires the successful integration of a series of different factors, such as cultural, social or institutional ones. Most of the theoretical literature suggests that clusters are significant at every stage of economic development, but that in weaker environments, clusters will tend to be weaker and narrower as well. (*Ketels,* 2003) That is why it is widely acknowledged that clusters at different stages need different kinds of policy to guarantee their successful development. However, undoubtedly they are all important because they create economic benefits and they can determine the standard of living in particular region. It is worth emphasizing that regional cluster can succeed by identifying what specific role they can play based on improving their current position. (*Ketels,* 2003) Nowadays, we can perceive growing significance of clusters initiatives in rural areas and the agribusiness sector. Agribusiness is one of the most important components of the national economy. It is understood as a *system of integration of farmers with suppliers, food processing industry and distribution, which make possible to control effectively all mutually interdependent links from farmer to consumer. (Davis, Goldberg, 1957)*



The agro-cluster initiative aiming to raise an agro-cluster
Source: Kępka, 2007 r.

The cluster concept is very flexible, so it is difficult to define a one universal cluster model and apply it. However, clusters do not emerge automatically. Broadly speaking clusters initiatives in agribusiness may by created in two ways, namely by the potential participants of cluster or by directive from above. Public policies may have been the catalyst, but the most important factors which generate real growth are market demand and entrepreneurial spirit. (*Rosenfeld,* 2002) Clusters are useful device using to design development strategies for less developed regions. Cluster initiatives lead to set up cooperation among distracted business working in the same or related trade which makes them stronger and more powerful. Co-operation in regional networks, both vertically and horizontally, helps enterprises to face new challenges; it is also beneficial for the region on the whole in terms of economic development and employment. (*Rosenfeld,* 2002)

It is widely acknowledged that the term "cluster policy" covers a wide diversity of policies, ranging from sectoral networking initiatives to complex programmes. (*Nauwelaers,* 2001)



The agro-cluster initiative designed for developing an existing agro-cluster
Source: Kępka, 2007 r.

Every regional network has to promote itself in order to attract new members, to create confidence and a positive attitude towards the industry in the region and, more importantly, to build a common identity. Cluster policies generally concentrate their support in networks rather than individual firms and emphasize the importance of enhancing innovation and learning within the cluster. (*Lagendijk,* 1999)

Research framework

The purpose of this paper is to rank the Polish regional agro-clusters according to their competitiveness on the NUTS II level. The current paper will both study the Polish regions agro-cluster policies and present how cluster policies have been developed in selected regions. The analysis which we will carry out will be significant in drawing attention to the existing and potential sources of competitive strength in Polish agro-clusters. Data of essential measures were gathered from Eurostat and Central Statistical Office of Poland (GUS).

In many different analyses in order to statistically define clusters a number of attempts have been undertaken utilizing variously methodologies. In this paper regional agro-clusters were identified based on location quotients, a useful device which is defined as:

A calculated ratio between the local economy and the economy of same reference unit that. This ratio is calculated for all industries to determine whether or not the local economy has a greater share of that industry than expected. If and industry has a greater share than expected of a given industry, then that "extra" industry employment is assumed to be basic because those jobs are above what a local economy should have to serve local needs. (University of Florida State)

Location quotients enable us to make a comparison of currently selected sectors in an economic structure. In this case, the national gross value added share of the region in an agriculture relative to the region's overall national gross value added was examined. The gross value added gives an indication of the value of the economic activity generated within area.

The 16 Polish regions were studied according to above-mentioned assumption, which allowed us to see which of Polish regions were overrepresented and which underrepresented in terms of the share of agriculture in their structure. Next, we compared the outcomes with our previous research concerning the regional competitiveness in which, in order to provide an overall picture of the regional level of competitiveness, we followed the Huggins Institute approach (*Huggins,* 2003). We took into account the impact of three different categories, namely: inputs, outputs and outcomes. The relationship between inputs, outputs and outcomes was complex. The key input factors were: business density, knowledge based business and economic participation, although, there were many indicators underneath these subsets. Next, these variables were conceptualized as contributing to the output – productivity, measured GDP per capita. The impact of these measures - the outcomes – the earnings and unemployment were given. The 16 Polish regions were ranked according to their scores on each index. Then, we assessed the importance of business density, knowledge based business, economic participation, productivity, earnings and unemployment on the basis of the scenarios created by Huggins Institute. Finally, it was possible to achieve the robust results of competitiveness of Polish 16 voivodships.

Position of Polish regional Agro-clusters

In the analysis of performance of regional agro-clusters in Poland, the highest scores obtained following regions: Podlaskie, Warmiñsko–Mazurskie and Wielkopolskie. The middle-ranked regions with the score above 1.0 were Lubelskie, Kujawsko–Pomorskie, Swietokrzyskie, Lodzkie and Opolskie. However, the lowest positions were taken by the regions Slaskie, Pomorskie and Dolnośląskie. In our previous research concerning overall regional competitiveness, the most competitive Polish region was undoubtedly the Mazowieckie voivodship. It took the first position regardless of the scenarios taken into account. In the top of the ranking, we could also find Śląskie, Małopolskie and Dolnośląskievoivodships. None of these mentioned regions are found in the lead of agro-clusters rating. This can mean that Polish regions with predominance of agriculture are less competitive and characterized by poor economic performance. This may confirm the analysis of the investment outlays in agriculture. The highest level of investment in the agricultural sector was in Wielkopolskie voivodship, but even in this region the investment outlays in agriculture were more than 10 times less than its investment outlays in industry or in services. In both created rankings, only one region, the Wielkopolskie voivodship, took a relatively high position, namely the third position in the agro-clusters analysis and fifth place in the overall competitiveness index. This is the reason why we focused on this particular region, but we also took into account the Podlaskie voivodship, which obtained the highest score in the agro-cluster examination. A well developed agriculture is one of the greatest assets of Wielkopolska. Arable land takes 57,7% of total area of region. The average size of farm is 9,91 ha, whereas for the whole country is 6,59 ha. The region is leader of food production what is an outcome of the traditionally well-developed agriculture and excellent management. The agriculture of the region evolves towards an increasing the size of intensive plants cultivation areas. (*The Local Government of Wielkopolska,* 2006) A network of specialized centers operating in the voivodship introduced new plant species and develop seed grain. The institutions like research centers and agricultural consultancies play an inevitable role in popularization of farming knowledge and latest achievements. A flagship institution of this kind is the state-of –the art center in Sielinek, where agricultural and farm animal exhibitions are held. The events accompany the “Polagra”Internacional Agricultural Trade Fair, which constitutes a unique forum for the promotion of Polish agriculture. The region which took the first place in the agro-clusters examination was Podlaskie but this voivodship achieved only the 14 place in the overall regional competitive analyses. This can means that this region is not well developed and faces particular challenges in improving its economic performance. (*Boeckhout,* 2004) One of the branches of the economy which have the major importance in Podlaskie voivodship is food processing. The structure of rural areas makes good conditions for further development of the production of milk and beef. Potatoes are mainly cultivated in the area of the province of Podlasie, as well as cereals (rye, oats, wheat, corn) and sugar beets. (*GUS,* 2006) In the last few years, the owners of rural farms have seen more and more success –in their agrotouristic activities. The most dynamic development is observed in the production of food. The plants operating within this sector specialize in the processing of milk, meat, poultry, as well as cereal and beer making. Large and modern dairies located in Podlasie are famous for their excellent products in all of Poland. The rural character of region and well developed net of food processing producers made that entities from this agricultural sector initiated the quasi – cluster cooperation. The aim of the initiative entitled “Podlaski Cluster of Healthy Food” is the acceleration of development of the food industry in Podlasie. In 2006, two brands of dairy association “Mlekpol” from Grajewo, namely “£aciate” i „Milko” found in the ranking of 300 the most valuable Polish brands. (Rzeczpospolita, 2006) £aciate, which is the most famous brand of milk in Poland and is on the market since 11 years, has taken the 50 position with the value of brand 180,2 mln zl and Milko with its 4 years existence come in 198 place with the value 29,1 mln zl. In comparison with the last year, the value of this brand rose above 40%. This is a visible improvement, but in order to increase the overall growth and competitiveness Podlasie should put emphasize on developing the clusters initiatives. The dynamic clusters are critical for a successful microeconomic business environment. (*Solvell O., Lindqvist G., Ketels Ch.*, 2003)

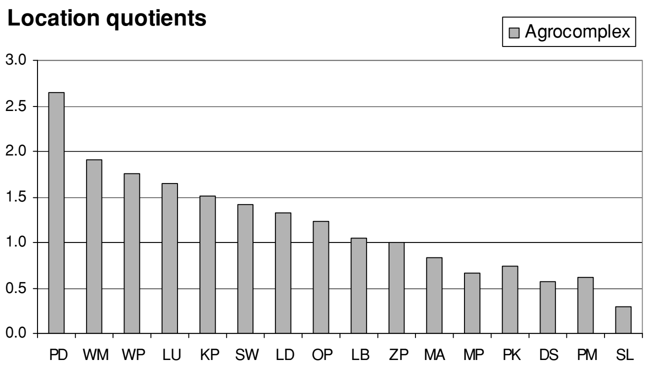


Figure 1.: The location quotients concerning the agrocomplex in Polish regions (Source: *GUS,* 2005)

Table 1.: Total Value Added (TVA) in the agrocomplex in Polish regions, 2005, in million zlotys.

Region	Code	Tot. TVA	TVA Agricul	TVA Agribus	TVA agrocom	% agricul	% agribus	% agrocom
1	**2**	**3**	**4**	**5**	**6=4+5**	**7**	**8**	**9=7+8**
Dolnoslaskie	DS	67790	1743	2319	4062	2.6	3.4	6.0
Kujawsko-pomorskie	KP	40942	2765	3678	6443	6.8	9.0	15.7
Lubelskie	LU	33821	2488	3309	5797	7.4	9.8	17.1
Lubuskie	LB	20664	958	1274	2232	4.6	6.2	10.8
Lodzkie	LD	53840	3181	4231	7412	5.9	7.9	13.8
Malopolskie	MP	63213	1857	2470	4327	2.9	3.9	6.8
Mazowieckie	MA	185211	6802	9047	15849	3.7	4.9	8.6
Opolskie	OP	19740	1089	1449	2538	5.5	7.3	12.9
Podkarpackie	PK	32879	1077	1433	2510	3.3	4.4	7.6
Podlaskie	PD	20184	2384	3171	5555	11.8	15.7	27.5
Pomorskie	PM	48988	1356	1804	3160	2.8	3.7	6.5
Slaskie	SL	114924	1475	1962	3437	1.3	1.7	3.0
Swietokrzyskie	SW	21844	1384	1841	3225	6.3	8.4	14.8
Warminsko-mazurskie	WM	24804	2115	2813	4928	8.5	11.3	19.9
Wielkopolskie	WP	81772	6371	8474	14845	7.8	10.4	18.2
Zachodniopomorskie	ZP	35712	1601	2130	3731	4.5	6.0	10.4
total		866328	38646	51404	90050	4.5	5.9	10.4

Source: GUS (2005)

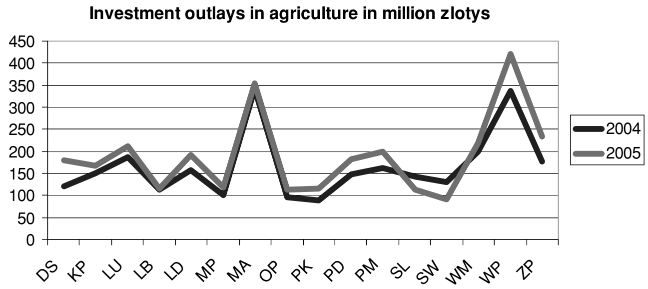


Figure 2.: The investment outlays in agriculture in Polish regions in million zlotys, 2004,2005.
(Source: *GUS,* 2006)

Table 2.: The competitive index of Polish regions (voivodships)

Rank	Index	Region
1	203,53	Mazowieckie
2	140,2345	Slaskie
3	128,9457	Malopolskie
4	124,4999	Dolnoslaskie
5	110,2475	Wielkopolskie
6	103,525	Pomorskie
7	88,64148	Lodzkie
8	85,96411	Lubuskie
9	83,27333	Podlaskie
10	81,14631	Lubelskie
11	80,40586	Kujawsko-pomorskie
12	78,05903	Zachodnio-pomorskie
13	74,35078	Podkarpackie
14	71,91269	Opolskie
15	64,76154	Warminsko-mazurskie
16	62,74923	Swietokrzyskie

Source: *Bronisz, Heijman* (2006)

Conclusion

It is widely understood that differences between regions require differentiated policy approach and that such differences derive from variations in economic development processes.

Clusters initiatives become an important way to structure economic policy and strengthen ties between all components of agro-clusters, but the main problem often faced is a lack of systematic evidence and structural approach to the factors that make the cluster initiative successful. In Poland, there is a strong need to adopt cluster policies to specific regional circumstances. The first step in designing a cluster policy should be a process of cluster identification and analyses of strength and weaknesses. Polish regions need to activate their agro-clusters, create an institutional structure which enables focusing on mobilizing the potential of its business environment. Undoubtedly, they need an overall microeconomic agro- clusters strategy which influences their conditions and improves their competitive positions.

One of the most important challenges facing Poland is to modernize and restructure the agricultural sector without destroying rural communities.

Unfortunately, the efforts and initiatives in establishing new links between the farmers, community and other components of the agriculture sector, such as the processing plants, companies supplying farm inputs and marketing agricultural products, are still very inefficient. Farmers fail to understand that in order to adjust to European Union conditions, they will have to develop new patterns of cooperation with the Polish food and agriculture. (Wilkin, 2004) Clusters highlight opportunities for coordination and mutual improvement in areas of common concern. They differ widely in their profile, their setting, their objectives and organization, but they all lead to improve growth and people’s living conditions. However, there is still much to learn about translating the concept of clusters into practice and their implication for the competitiveness and growth.

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