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REGIONAL ASPECT OF AGRIBUSINESS SMEs DEVELOPMENT IN SERBIA – opportunity to reduce unemployment *

Abstract

Changes of the political and economic concept initiated during the 1980s and still ongoing have significantly altered the strategy of agribusiness development. The direction has switched from the development of the agro-industrial complex that is focused on socialization of agriculture and creation of large corporate business systems towards a completely opposite concept, which implies privatization and development of small and medium enterprises. Current state of small and medium size agricultural entrepreneurship in Serbia is far below its potential and below satisfactory. Underused economic potential of agriculture is a great opportunity for the development of both SMEs and the agribusiness. The ranking of districts based on the prominence level of examined parameters will enable a formation of related groups and a determination of similarities or differences in the observed regions. In this study, we used cluster analysis to determine how the districts in Serbia are grouped according to development level of small and medium agribusiness enterprises in order to obtain insight into the current state of regional development of this sector, as well as into the possibility for developing the least developed regions in Serbia. Cluster analysis yielded five homogeneous groups, whereby each cluster has its own special characteristics in terms of prominence of certain observed indicators.

Key words: SMEs, districts of Serbia, ranking, cluster analysis

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РЕГИОНАЛНИ АСПЕКТ РАЗВОЈА МСП АГРОБИЗНИСА У СРБИЈИ − шанса за смањење незапослености

Апстракт

Промене политичког и економског концепта које су започете осамдесетих година прошлог века и трају до данашњег дана битно су промениле стратегију развоја агробизниса. Са концепта развоја агроиндустријског комплекса усмереног ка подруштвљавању пољопривреде и стварању корпоративних великих пословних система, прешло се на сасвим супротни концепт, односно приватизацију и развој малих и средњих предузећа. Ниво развијености малог и средњег предузетништва у пољопривреди Републике Србије је далеко испод могућег и задовољавајућег. Велику шансу за мала и средња предузећа, а самим тим и за развој агробизниса, представља недовољно искоришћени економски потенцијал који поседује пољопривреда. Рангирање округа према степену испољености испитиваних показатеља омогућиће формирање сродних група, те дефинисање сличности или разлике посматраних региона. Кластер анализа је метод који ће утврдити како се групишу окрузи у Републици Србији према нивоу развијености малих и средњих предузећа из области агробизниса и тако добити увид у тренутно стање регионалне развијености овог сектора, те могућности развоја најнеразвијенијих подручја у Србији. Анализом груписања издвојено је пет хомогених група округа, при чему сваки кластер има специфичности у погледу израженості појединих од посматраних индикатора.

Кључне речи: МСП, окрузи Србије, рангирање, кластер анализа

INTRODUCTION

Economic progress on the one hand and the development of the Republic of Serbia on the other hand require the development of a competitive economy based on knowledge, new technologies, and innovation. If we were to identify the three most important economic development activities, then next to privatization and foreign direct investment would certainly be joined by SMEs (Ceranic and Maletic, 2005). In order for this goal to be achieved, important contribution in economic and social development is expected from the entrepreneurship, particularly in transition countries such as Serbia. At the same time, special significance is assigned to the SME sector, and its readiness to quickly conquer the EU market, to adopt the necessary standards, and to reduce the difference in the level of development.

Most transition countries have already accepted the fact that SMEs are an essential part of economic reforms (Czech Republic, Hungary, Poland, Slovakia, and Slovenia). Serbia, as a country in transition, is characterized by the reform process, unfinished privatization, high unemployment, and many other problems that are also reflected in the development of small and medium enterprises.

Agribusiness is a particularly interesting area for the development of small and medium enterprises for numerous reasons. If it is assumed that agribusiness is a sector in which production and processing of agricultural and food products takes place and in which many inputs required for agriculture are generated, then it is clear why the interest in the development of agribusiness SMEs is so obvious (Ceranic et al., 2005).

In Serbia, agribusiness SMEs originate in part from rural farms that underwent restructuring and took a new direction in the processing of agricultural and food products, and in part from the entrepreneurial initiatives of individuals or groups with a shared goal (Popovic, Maletic & Paunovic, 2008; Ceranic, Maletic & Paunovic, 2005).

A major potential for the economic development of Serbia, among other things, is in strengthening and improving agriculture in the private sector. Small and medium enterprises represent the main source of employment and the driving force of most developed countries in the world, and should therefore have the same importance and role in the development of our agriculture (Ceranic et al., 2005; Popovic and Maletic, 2008). However, it should be noted that our results and experience regarding SMEs are rather limited.

The economic potential of Serbian agriculture has imposed the need to analyze the situation concerning SMEs, and this should be the cornerstone of future development of agriculture (Popovic, Maletic, Ceranic, Paunovic & Jankovic-Soja, 2011). The aim of this research is to evaluate the development level of SMEs by districts and subsequently rank districts by indicators, each of which measures the development level in a special way, but also has a complementary character. In other words, we want to define homogeneous districts in Serbia, based on the development of SMEs in the agribusiness sector. The results of this study can be used to determine the optimal production orientation of certain regions, but they can also be used to develop programs for agricultural regionalization.

This requires the use of suitable multivariate methods, primarily the cluster method, in order to study the problem of the multi-dimensional development concept even better. In the future, this would quickly improve conditions and remove obstacles to a further increase in the number of SMEs, as this is undoubtedly the employment prospect of the Serbian population, but also a way out of the economic crisis.

DATA SOURCE AND METHODS

In order to achieve the set goal it was necessary to form a database. The data in this paper are from the Statistical Institute and were obtained from the balance sheets of economic entities in Serbia (45 municipalities in Vojvodina and 116 in Central Serbia) from 2010. Vojvodina municipalities are grouped into seven districts, and those from Central Serbia into 17 districts and the City of Belgrade.

We used the following parameters to assess the development level and to rank the districts of Serbia: number of SMEs (x1), fixed assets (x2), working capital (x3), operating income (x4), operating profit (x5), operating loss (x6), and number of employees (x7) in 2010.

We derived the ranking of districts for all analyzed variables based on the median value and, at the same time, defined these variables for each district based on data by municipality.

In order to define the overall degree of agreement of all the defined sequenced classification, we calculated Kendall's coefficient of concordance (Hadzivukovic, 1991):

$$W = \frac{12S}{k^2(n^3 - n) - kT'}, \tag{1}$$

where k is the number of variables, n the sample volume, S the sum of squared deviations, and T the correction factor for the number of common characteristics by ranks.

For the concordance testing of calculated ranks, we performed the χ^2 test, with n-1 degrees of freedom (Hadzivukovic, 1991):

$$\chi^2 = k(n-1)W. \tag{2}$$

We grouped districts into clusters using Euclidean distance, based on the following formula (Maletic, 2000):

$$d_{ij} = \sqrt{\sum_{k=1}^{p} (X_{ik} - X_{jk})^2} \tag{3}$$

The resulting hierarchical structure of the district is shown graphically in the dendrogram (Figure 1) and the map (Figure 2), which clearly show classes of districts that make up a certain homogeneous whole.

All statistical analyses and graphical representations of the results were performed using the software STATISTICA v.10.0 for Windows (Stat Soft).

RESULTS AND DISCUSSION

Previous studies indicate the presence of significant dispersion of observed variables in the municipalities and districts of Serbia (Popovic and Maletic, 2007). Therefore, symmetry and normality of tested distribution was disrupted and the median was calculated as a relevant indicator of the mean value. Median values for all tested features are shown in Table 1, while their ranking is shown in Table 2.

Table 1. Median values of observed indicators of SMEs (000 RSD)

Districts	Number of enterprises	Fixed assets	Working capital	Operating income	Operating profit	Operating loss	Average number of employees
City of Belgrade	11	858313	363990	583364	46062	13821	124
North Banat	11	584677	548716.5	793022.5	16849	50606.5	226
North Bačka	12	5089503	3815345	5559540	285153	295421	923
West Bačka	14.5	4067232	2911949	4653361.5	198893.5	197181.5	703.5
Central Banat	12	2043115	1959635	2452843	61052	233709	521
South Banat	12	1856246.5	2444507.5	1591034	75447.5	83403	407
South Bačka	12	1715388.5	1332781.5	2288643.5	94124	65078	288
Srem	12	2689355	1478183	2210246	63499	48026	283
Kolubara	8.5	86559	277844.5	356467.5	2629	4734	74.5
Podunavlje	6	257415	354212	310111	46561	11054	119
Rasina	8.5	138976	311946.5	436686	38581	4296.5	74.5
Mačva	6	62731	93030	171541	2050.5	3451.5	38.5
Braničevo	6	48571	47430	68197	513.5	6722.5	35
Šumadija	6	98827	25882	49524	646	7869	35
Pomoravlje	6	247723	114349.5	70026	3212	16914	45.5
Bor	5.5	81174	17156.5	20839	170.5	4786.5	30.5
Zaječar	8.5	255094.5	106533	100025.5	237	15881	65
Zlatibor	6	149793	72091	87956	2313.5	6308	42
Moravica	8.5	626229	737450.5	961876.5	17276	10893.5	155
Raška	6	75153	144706	63015	4156	7905	22
Nišava	6	16310	39900	82627.5	1253	1642.5	28
Toplica	6	49787	96075	108902	10925	3659	59
Pirot	5.5	165629	49831	4721.5	28.5	5585	25.5
Jablanica	6	111780	23107	19663	364	2522.5	11
Pčinja	6	895	5105	2534	0	936	5

Source: Calculated by authors based on final balance sheet data for SMEs obtained from SORS

At the same time, comparison of ranks of all tested indicators is expressed by Kendall's coefficient of concordance, and its value is W=0.4765. Thus, it can be said that there is a medium and positive correlation among the ranks of the seven tested indicators. The obtained result indicates that it is inconsistent with the null hypothesis of the independence of features, i.e. $\chi^2 = 80.052^{**} > \chi^2_{0.01;\nu=24} = 42.98$.

In other words, the observed features are dependent, which will necessarily affect the future course of research and grouping of districts into clusters.

Table 2. Rank of median values of observed indicators of SMEs

Districts	Number of enterprises	Fixed assets	Working capital	Operating income	Operating profit	Operating loss	Average number of employees
City Of Belgrade	18.5	19	17	17	18	10	17
North Banat	18.5	17	18	18	15	6	19
North Bačka	22	25	25	25	25	1	25
West Bačka	25	24	24	24	24	3	24
Central Banat	22	22	22	23	20	2	23
South Banat	22	21	23	20	22	4	22
South Bačka	22	20	20	22	23	5	21
Srem	22	23	21	21	21	7	20
Kolubara	15.5	8	14	15	11	19	15
Podunavlje	8	16	16	14	19	11	16
Rasina	15.5	11	15	16	17	20	14
Mačva	8	5	9	13	9	22	9
Braničevo	8	3	6	7	6	15	8
Šumadija	8	9	4	5	7	14	7
Pomoravlje	8	14	12	8	12	8	11
Bor	1.5	7	2	4	3	18	6
Zaječar	15.5	15	11	14	4	9	13
Zlatibor	8	12	8	10	10	16	10
Moravica	15.5	18	19	19	16	12	18
Raška	8	6	13	6	13	13	3
Nišava	8	2	5	9	8	24	5
Toplica	8	4	10	12	14	21	12
Pirot	1.5	13	7	2	2	17	4
Jablanica	8	10	3	3	5	23	2
Pčinja	8	1	1	1	1	25	1

Note: Rank 1 indicates minimum value

Once we standardized the median values of tested variables relating to SMEs, we conducted a hierarchical classification as shown in the dendrogram (Figure 1). Grouping of the districts of Serbia was conducted using the method of full connectivity (complete linkage), while the measure of Euclidean distance defined mutual district distances.

Dendrogram of Serbian districts identifies five clusters (groups), where the first and the third cluster comprise three districts, the fourth cluster comprises four districts, the fifth cluster comprises two districts, whereas the second cluster is the most numerous one, as it consists of 13 districts of Serbia (Figure 1) .

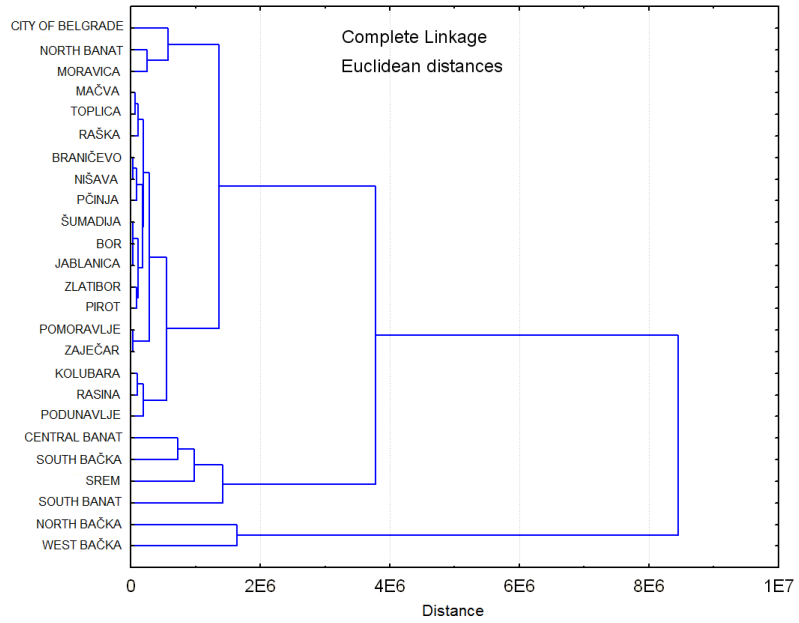

Figure 1. Dendrogram of Serbian districts

The first cluster includes the City of Belgrade, Morava, and North Banat districts. These districts are rated above average for all the tested features, i.e. they include ranks from ordinal numbers 17 to 19. Accordingly, they have a significant number of SMEs with a relatively large number of employees, averaging between 120 and 230 employees. Strength of SMEs is an indicator that directly determines the level of development of all the other input indicators and, thus, the overall development. Therefore, the other tested features have a value significantly above average.

The second cluster of districts is the most numerous (13 districts) and it includes: Mačva, Toplica, Raška, Braničevo, Nišava, Pčinj, Šumadija, Bor, Jablanica, Zlatibor, Pirot, Pomoravlje, and Zaječar. These are the districts of Central Serbia, where the level of economic development and agriculture is lower than in Vojvodina. Furthermore, the cluster is determined by significantly lower prevalence and development of small and medium entrepreneurship. The average number of SMEs in all districts is about six, with the average number of employees below 50. These parameters directly determine the modest level of other analyzed indicators. Out of all districts in this group, the best results are recorded in the Pomoravlje and Zaječar districts, consisting of municipalities with a slightly more developed participation of SMEs, which are allocated on the dendrogram.

The third cluster consists of Kolubara, Rasina, and Podunavlje districts. Unlike the first one, this group of districts is slightly below average for almost all of the tested features. The ranks are somewhere between the

ordinal numbers of 8 and 17. These districts have a smaller number of SMEs with an average of 6 to 9 and the average number of employees from 70 to 120. Accordingly, the other tested features of SMEs have a similar tendency, i.e. their median positions are below average values. One exception is the indicator of operating loss, but it is less pronounced. Kolubara and Rasina are districts that occupy the high 19th and 20th positions on the ranking scale.

The fourth cluster includes four districts of Vojvodina: Central Banat, South Banat, South Bačka, and Srem. These are districts with highly developed municipalities, which have an excellent representation of SMEs involved in agricultural production and, consequently, a significant number of employees. These districts are ranked high for all the tested features (between 20th and 23rd out of 25). In addition, this group of districts records small operating losses and consequently ranks low (from 2 to 7) on the scale for this indicator.

The fifth cluster consists of two Bačka districts: North Bačka and West Bačka. These districts are composed of the municipality with the most frequent and most developed small and medium entrepreneurship. This group ranks high (24 and 25) on the total scale for all tested indicators and also has the lowest operating losses (first and third place).

The results of hierarchical classifications are presented on the district map of Serbia, i.e. clusters of districts are colour-highlighted (Figure 2).

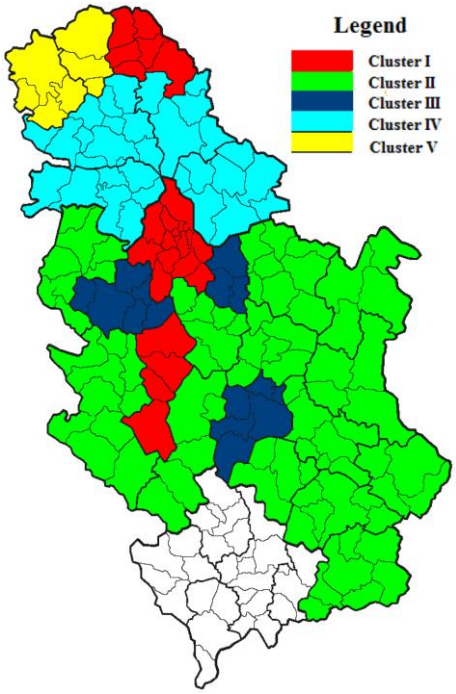

Figure 2. Distribution of Serbian districts by clusters

CONCLUSION

The prerequisite for a more stable and harmonious development of Serbia is to overcome the problems of underdeveloped areas. Small and medium enterprises represent the main source of employment and the driving force of most developed countries in the world and should, therefore, have the same importance and role in the development of Serbian agriculture.

In this paper, homogeneous groups of districts were defined using cluster analysis from the standpoint of development of agribusiness small and medium enterprises. The results of this analysis were not unexpected; furthermore, they only confirmed the fact of a very uneven development of SMEs in Serbia.

First, there is a significant difference in the development of SMEs in the districts in Vojvodina compared to the districts from the rest of Serbia, but the situation is more unfavourable moving towards the south (Popovic et al., 2008).

The majority of small and medium enterprises in this sector of business are in the region of the Autonomous Province of Vojvodina. The fact is that this region has very favourable conditions for agricultural production. An important characteristic of this region is that its entrepreneurship has a long tradition, so local governments have the experience to encourage private investment. This area is bordered by four countries: Bosnia and Herzegovina, Croatia, Hungary, and Romania, and is located at the crossroads of major highways. Water transport is highly developed – namely, three great rivers, the Danube, the Sava, and the Tisa are navigable, and there is also the system of the Danube-Tisa-Danube Canal.

Favourable transport infrastructure facilitates marketing of agricultural products; furthermore, it is an area with an already developed market for the products. The presence of financial institutions provides greater access to the necessary investment capital. Increased activity of advisory services is particularly noticeable, as well as quality access to relevant information. All of the above resulted in the fact that this region should be set aside as an area with the most advanced small and medium entrepreneurship in agriculture.

A large group of districts comprises the areas of Eastern, Western, and Southern Serbia. These are areas with a wide variety of local relief, prevalently underdeveloped infrastructure, a poorly organized advisory service, and unfavourable age structure of population. The southern parts of Serbia are the least developed parts in the country, with a lot of derelict land, poorly organized agricultural production, unorganized market, and poor age and education structure of the population, resulting in a very low level of SME development in the field of agriculture.

Different measures are required to support and encourage the development of small and medium enterprises in order to achieve the desired results as soon as possible. Significant progress needs to be made

in the following areas: legal status of small and medium enterprises and legislative solutions regarding this economic sector, more favourable and even easier requirements for starting a business (start-up), better on-line access, taxation, raising the level of knowledge and skills, promotion of statistical monitoring and research of SMEs, and institution building for non-financial support and for the development of non-financial services.

Considering everything mentioned above, it is necessary to emphasize some facts that are very important for an entrepreneur when starting a business, such as:

- Small businesses emerge but also collapse in large numbers due to a lack of competitiveness in the market. The goal of business is not only to produce but also to place the goods, and only continuous quality improvement in line with market demands can achieve this goal. This implies that the production entities have to accept the fact that the development of knowledge is the foundation of successful and modern business and an imperative for the increase of productivity and reduction of production costs.
- The strategic objective of SMEs is to constantly increase business productivity, because it directly determines the quality of products and, in turn, productivity growth. Ultimately, this leads to the expansion of the market and increase in employment, which is extremely important for Serbia.
- SMEs do not a priori imply small investment, but a proportionally smaller investment in relation to the capacity and number of employees. Profit is not their main goal. Profit is only the consequence of a well-designed and well-managed business. The interest of customers and consumers, as well as the benefit of the community, always takes priority.

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РЕГИОНАЛНИ АСПЕКТ РАЗВОЈА МСП АГРОБИЗНИСА У СРБИЈИ − шанса за смањење незапослености

Резиме

Подстицање и креирање радних места у руралним заједницама је кључ за осигурање дугорочне будућности руралних области. Треба обезбедити модел економског развоја који ће људима на селу и руралним пределима отворити више радних места, повећати приход и створити квалитетнији живот. То је могуће преко предузетништва и стварања малих предузећа. Развој малих предузећа је покретач руралног развоја чиме се стварају услови и ресурси сеоској популацији да између осталог развију своју креативност и своје могућности.

Претпоставка стабилнијег и усклађенијег развоја Србије је превазилажење проблема недовољно развијених подручја. Мала и средња предузећа која представљају главни извор запошљавања и покретачку снагу најразвијених земаља у свету такав значај и улогу треба да имају и у развоју српске пољопривреде. Оправдано је очекивати да мала и средња предузећа потенцијално могу значајно да допринесу опоравку и развоју аграра, али је потребно обезбедити предуслове да би се овај потенцијал остварио.

Применом кластер анализе у овом раду су дефинисане хомогене групе округа са становишта развијености малог и средњег предузетништва у агробизнису. Резултати ове анализе нису неочекивани и само су потврдили чињеницу о изузетно неравномерном развоју МСП на подручју Републике Србије.

Уочава се велика разлика у развијености МСП у округзима са подручја Војводине у односу на округе из осталог дела Србије, с тим што је стање све неповољније што се иде јужније.

Највећа концентрација малих и средњих предузећа је на подручју АП Војводине. То се може објаснити чињеницом да она располаже са изузетно повољним условима за бављење пољопривредном производњом.

Различитим мерама треба подржати и подстицати развој малих и средњих предузећа како би се што пре дошло до жељених резултата. Значајан напредак треба остварти у следећим областима: правног положаја малих и средњих

предузећа и законских решења везаних за овај сектор привређивања, повољнијег и бржег отпочињања посла (start-ap), унапређења on-line приступа, пореског система, подизања нивоа знања и способности, унапређења статистичког праћења и истраживања МСП, изградње институција за нефинансијску подршку и развој нефинансијских услуга.