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SPIS TREŚCI

HUMANS, AS FACTOR OF COMPETITIVENESS

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Key words: knowledge economy, competitiveness, principal component analysis, regression analyses, path analysis
Słowa kluczowe: gospodarka oparta na wiedzy, konkurencyjność, analiza głównych składowych, analiza regresji, analiza ścieżki

A b s t r a c t. In our research we study the relationship and inherency of human resources and competitiveness in the regions of the Czech Republic, Hungary, Poland and Slovakia. At present, „knowledge based economy", „economy of knowledge" are more and more frequently used concepts which emphasize the importance of human capital in the process of the development of the society and the economy. The „Europe 2020" strategy, accepted in spring 2010, also focuses on „keeping economic power of the community determining 500 million people's life in competition" [European Committee 2010]. One of the priorities in the strategy is intelligent growth, which means the establishment of a society based on knowledge and innovation. However, building up a knowledge based society is only possible with a healthy and educated population. Improvement of human resources is a definite factor of establishing regional development. The created added value can be higher, if the potential of human capital is higher as well. One of the main goals of our research is to organize indicators which define human development into principal components, to create clusters from the regions of the V4 countries according to the principal components, and to uncover the differences between the clusters. Furthermore, we aimed to explore the connection between the level of development and competitiveness – defined by the principal components - of the human resources of a region.

INTRODUCTION

It is a very important issue nowadays what makes a society, an economy or a region capable of coping with the economic competition in the globalised world. In our research we study the relationship and inherency of human resources and competitiveness in the regions of the Czech Republic, Hungary, Poland and Slovakia. At present „knowledge-based economy", „economy of knowledge" is more and more frequently used concepts which emphasize the importance of human capital in the process of the development of society and economy. The „Europe 2020" strategy accepted in spring 2010 also focuses on „keeping economic power of the community determining 500 million people's life in competition" [European Committee 2010]. One of the priorities in the strategy is intelligent growth which means establishment of a society based on knowledge and innovation. However, building up a knowledge-based society is only possible with a healthy and educated population. Improvement of human resources is a definite factor of establishing

regional development. The created added value can be higher, if the potential of human capital is higher as well. Research development, strengthening of active participation in innovation can be realized only on the basis of high level higher education and scientific training. Taking into account the abovementioned, we consider it important to analyze the regional relationship of competitiveness and human development as well as to reveal whether human resources at regional level are really factors of competitiveness and whether their development contributes to the improvement of competitiveness in the region.

One of the main goals of our research is to organize indicators which define human development into principal components, to create clusters from the regions of the V4 countries according to the principal components, and to uncover the differences between the clusters. Furthermore, we aimed to explore the connection between the level of development and competitiveness - defined by the principal components - of the human resources of a region.

THE THEORY OF HUMAN CAPITAL

It is the behaviour of goods that stands in the focus of interest of economic studies, not people's behavior [Boulding 1956]. Although the classical economists in the 18th century realized already the capital character of the human resources, in the way of thinking the spirit of the above quotation survived for a long time in economics. In the 19th century the social-economic system interpreted and treated the material and human conditions being necessary for the economy in a different way. Analysis regarding human capital involved exclusively exploitation. Human resources were treated as if they were available independent from economic reasons, thus the profit produced by them was free, and it was not the investments spent on humans that earned interest. By this they considered as proved the contrary to the same concept as well, i.e. the investments spent on humans do not earn interest [Garai 1998]. The dominating aspect regarding human potential was like this in the 19th century despite the fact that Adam Smith, belying the era, expressed different views. However, in the 21st century, the intensive social-economic development influenced by the emerging globalization in every field of life opened a new period in the development of humanity. The accelerating scientific technological revolution emphasizes the development of knowledge-based human capital and its effective application. The role and significance of human capital comes in the front. In the previous economic theories the term „capital" was usually used for the means of production or the produced goods. Money earning interest or securities resulting in share were also considered as capital. This way capital in the conventional meaning is investment, material goods, money or securities, i.e. accumulated value which brings profit for its owner so while moving it makes value by itself. On the basis of this interpretation, however, knowledge and ability having been accumulated by training and practical experience also mean capital, as this knowledge makes it possible for people to create value for the economy and produce material goods and services. Acquiring knowledge and qualification demands investment of money, energy and time which recovers only in the long run [Péter 2009]. Therefore it is important that the human potential should be taken into account in figures as well. It is essential because human potential is a driving force to the economy, thus it is reasonable to treat it the same way as the social-economic system does with the available material potential, i.e. it takes into consideration how high expenditure results in how much profit. In our century the human factor became one of the most important factors. With the development of technology, knowledge, which created and operated it, towers above the production factors. Increase in

importance of human factor can be especially demonstrated by the fact that one unit of it is able to move bigger and bigger source of power in the production nowadays than before [Chikán 2006]. Development of human resources play an important role therefore in the performance of an economic unit, a settlement, a region or a country, it influences significantly the extent of the produced value, the development of the examined area and its possibilities for growth. It is the human talent, abilities and brain that give the wealth of a nation, as Széchenyi wrote, and was proved by chronological historical analysis of economics. By now, it is economic triviality that the economic potential of a country is firstly determined by the harmony of educational structure of the labour force, structure of workplaces and education and not by the wealth in mineral and energy resources [Széchenyi 1830].

THE ROLE OF HUMAN CAPITAL IN THE ECONOMIC GROWTH

The theories of growth study what the long term course of growth of an economy is like, what sort of economic and non-economic factors influence its growth or how the effecting factors explain the equilibrium and equal growth course of an economy at a positive pace. Three main eras of growth theories can be separated, as regards the driving force of the economic development. The first era is the post-Keynes, the second is the neoclassic and the third one is the so called era of the endogenous growth theory. One of the best known concepts from among the post-Keynes theories is the the Harrod-Domar model, in which production is featured by a two-factored, at first degree homogeneous Leontief-type function, where capital and labour are perfect complements to each other. In this production model, the rate of production growth equals the rate of natural growth, that is, the growth of the population. This theory considers the quantity of the human resource as the only resource of the economic growth, ignoring the quality aspects. The neoclassic growth models differ from the post-Keynes theories, first of all in respect of the fact that in their equations the capital and the labour can continuously and perfectly be substituted by each other. A model like this was worked out by Robert Solow. In his model he used two inputs, capital and labour, a Cobb-Douglas – type production function. Solow discovers a part in the process of issue which is not resulted by the increase in the quantity of capital and labour. This factor is called Solow-remainder or residuum [Solow 1956]. In Solow-model this remainder is nothing else but the so called neutral technological progress, interpreted in relation of time. According to his findings, the intensive-type economic growth is due to the technological progress and the substitutional effect of production factors, and the necessary coefficient of the technological progress is the human capital, formulated by him as well. Parallel to Solow's research, T.W. Swan also published a similar model. Specialist literature often refers to this model as Solow-Swan model. Swan also attributes an important role to human capital [Swan 1956]. Using both results, E.F. Denison examines the factor of the technological development in details based on statistics in his publications. In his research the technological progress is not treated like mere figures, but he also investigates its resources. He demonstrated that economic growth can only be partly explained by the amount of capital and labour taken in the production, besides the human knowledge or the human capital – referred to by Solow as residuum – plays at least as important role in the development. He proved by his calculations that the economic growth in the North-American states was only 50% due to the amount of the involved production factors, the other 50% called as exogenous was the result of the technological

progress [Denison 1962]. According to the endogenous growth theories, human capital is a basically internal – but insuring growing proceeds – production factor the presence of which can promote the development of a given economy to a greater extent whilst its absence can decrease further the chances of an under-developed national economy to close up. The Austrian Schumpeter considered as the founder of the endogenous economic growth published already in the 1920`s about the role of internal factors of development. In his concept the key to the economic growth is the entrepreneur who, by combining the economic factors and performing innovations, establishes the internal conditions of the development [Schumpeter 1911]. In accordance with Schumpeter, P. Romer claims that the marginal product of knowledge is increasing. The explanation of the increasing marginal product is that there is no reason for quitting the accumulation of knowledge at a given level, we try to obtain even more new knowledge by doing more and more research. As a result, he specifies R&D technology as an external factor the effect of which on the production is of decreasing proceeds. As nobody can be excluded from using new achievements, they are positive external resources for every economy. All in all, production in terms of knowledge base is of increasing proceeds. According to Romer, while capital funds increase, the rate of investment and rate of capital recovery also increase, this way closing up is not an inevitable consequence, in fact, the less developed will increase at a slower pace or will not at all increase [Romer 1986]. R.E. Lucas is regarded as another representative of endogenous growth theory. Lucas's theory in which he deduces extension of human capital from the time spent on education by the individuals, and from this he deduces production function and economic growth, that is, the proceeds from the micro level towards macro- economic level, earlier was considered as a pioneer concept. The previous theories used exclusively macro supply functions to model increase [Lucas 1988]. He raises the problem in connection with the neoclassic model that closing up does not happen automatically for the reason that factor prices do not equalize, capital does not flow from the developed country to the developing country. As it reads in Paul Romer's formulation, *From the aspect of the growth it may be an advantage to integrate in a region which is rich in human capital, and not in a region which has a big population* [Romer 1994]. Romer thinks that despite material and capital resources, economic growth can be achieved, using properly qualified, developed human resources. Knowledge based society therefore is not the sole monopoly of the developed states but it can be reached in all countries that joined the process of globalization and invest in education and training. General Director of Rolls-Royce Sir John Rose states with good reason, *Nowadays we can talk about intelligent, more intelligent and highly intelligent countries, rather than developed, developing and under-developed countries* [Friedman 2006]. Although N. Gregory Mankiw, David Romer and David N. Weil think within the neoclassic model, their significant innovation is that they take human capital into consideration beside the physical capital in the production function. They prove by empiric research that convergence can be shown between the countries which do not differ in a significant way regarding investment rate and population growth rate and human capital [Nagy, Káposzta 2010]. The reason why there have been income differences in the developed and the under-developed countries is shown by educational circumstances and population growth indexes, among other things. Their model supports the idea that economic growth can be achieved by developing human capital, therefore improvement of educational and training circumstances is a very important field of economic policy [Mankiw et al. 1990]. Representatives of post-Keynes growth theory acknowledged labour as resource of growth, but they counted with the amount

of work only. Whereas thinkers of the classical trend recognized a part in the economic growth which is not the result of capital or labour but a so called exogenous technological progress which can be considered as development of human capital. According to the representatives of the classical trend, closing up of the poorer countries is automatically carried out as the marginal product of capital is higher than that of the labour, so capital flows into these countries. Representatives of the endogenous growth theory, however, proved that differences between developments will grow in spite of this in the world, and they see the explanation of this in the endogenous human capital [Káposzta et al. 2008].

TERRITORIAL DEFINITION OF THE RESEARCH

The territory of our research is the regions of the Visegrad countries. Regions of the Visegrad cooperating countries (the Czech Republic, Hungary, Poland, Slovakia), lying in the heart of East-Central-Europe show similarities in a lot of respects, but there can be seen significant differences too. The territory studied is not an artificially created group but a cooperation existing for years in economic, cultural, political and commercial fields. The group of countries analysed by us give nearly 13% (12.7%) of the whole population of the Union, nearly 11% (10.7%) of its territory, a bit less than 5% (4.7%) of its produced GDP in 2009. In spite of their relatively modest economic importance, the V4 represent significant share in the territory and population of the Union. Statistics assist to understand what challenges and problems this group of countries has to face during the integration.

DESCRIPTION OF THE DATABASE

Starting database was set up by Rechnitzer's (2008) model. Resource of our data was EuroStat statistic database. When choosing the indicators, our prior aspect was to obtain identical indices from all 35 regions in the years of 2003-2008. From this database we chose 24 indexes from the 35 regions which express the development of human resources. All of the indexes used are specific indicators, the application of which assures that the differences due to the different sizes of territory do not influence the results. There was no need to standardize the indicators beforehand as the multivariant statistical method, the principal component analyses chosen by us standardizes the involved data [Sajtos, Mitev 2007], this way the probability of mistakes due to different units of measurement and measures are avoidable. According to Rechnitzer's model, the factors that mostly influence human resources of the particular regions can be divided into 5 components. The **first** one is the human factor which is characterized by the density of population, the activity-, employment- and unemployment rates, life expectancy, productivity rate indexes as well as the rate of the people with higher qualification and the rate of the people learning lifelong. The **second** area is quality of life. Quality of life is the most subjective one from all the categories as it depends on personal evaluation how to qualify a certain living standard, which can more or less be defined by various income and consumption indexes. In my opinion, attachment to the region can by all means be considered as a sign of evaluation and we caught it through two indicators. They are the net migration rate and the number of people leaving the region per 1,000 inhabitants. Apart from these two indexes, quality of life is reflected by proportion of services and tourism in the region, like number of touristic accommodations per 1,000 inhabitants and proportion

of employees in the services, counted from all employees in percentage. The **third** group of the indexes is to measure the living conditions of the people living on that area. As a rule, living conditions are defined by income and consumption. In our calculations we took GDP per capita, and household income and consumption per capita into consideration. The **fourth** area of indices featuring development of human resource according to Rechnitzer [2008] is the network of communication and transfer of knowledge. Proportion of people with high qualification, rate of all students, employees in the field of research development are the indicators that measure in a suitable way this characteristic of the human resource. The **fifth** is the indexes of innovation environment of settlements, the number of innovations, the size of R&D investments, proportion of employees in the technology and knowledge intensive sector, and the proportion of employees in the field of science and technology. Thus, we got 24 indices in 35 regions, data matrix for 6 years. Calculations were made the same way every year, as the results are comparable only this way. After checking the database, 16 variables were suitable to run the principal component analysis. The principal component analysis annually compressed the variables into four factors so that it explained the largest proportion of variance of the sum of variables. The sum of variance explained every year exceeded 91%, so the four factors kept significant part of variance of variables, i.e. heterogenity, also the four factors represent the information content of the chosen 16 indexes in the right way. During the first four years of the research the own value of the four factors exceeded 1, so this year it seemed suitable to establish four factors. However, in the last two years of the examined period the own value of just three factors exceeded 1, the fourth factor reached 0.989 and 0.961. As the own value was very near to 1, and leaving the factor out would have decreased the demonstrative power of the model significantly, it seemed reasonable to take them into consideration in these two years as well. Communality of the 16 indicators, except two of them, exceeds 0.8 in all years studied. Communality of the life expectancy at birth is lower than 0.8 in the last two years, but it exceeds 0.6. On the basis of all this it can be stated that the four principal components compress the information content of the 16 indexes in the right way. During the principal component analysis we used the rotation process, in the course of which the necessary factor loadings were stated which show the degree of correlation between the original variables and the given factor, and they also demonstrate the extent of the combination of original variables from the mutual factors. These factor loadings, the factor index content can be seen after rotation from the component matrix (Tab. 1).

In all six years of the study four principal components were created with the same indicator content, in the first five years in the same sequence, in 2008, however, the sequence of the first two principal components reversed. It means that the development of human resources in the regions studied are determined by the same factors, but in the last two years of the research the centre of gravity changed, they were transferred to the second principal component. The fact that in all 6 years the same four factors were established, proves that indexes of the factors belong together not only in content but logically as well. In the course of the interpretation of the results of the principle component analysis the hardest task was to name the factors on the basis of their content [Obádovics 2004].

The **first factor** explains approximately 30% of all variances of the starting variables every year. In this factor there are the following indexes:

– proportion of employees in services from all employees (in %),
– income of households (Euro/capita),
– GDP per capita (Euro/capita),
– number of employees in research development (in % of all employees),

Table 1. Rotated component matrix

Indexes	2003			
	component			
	1	2	3	4
Proportion of employees in services from all employees [%]	0.905	-0.080	0.253	0.030
Income of households [Euro/capita]	0.832	0.391	0.128	0.183
GDP per capita [Euro/capita]	0.832	0.427	0.179	0.263
Consumption of households [PPS/capita]	0.797	0.492	0.182	0.134
Human resources employed in science and technology, from the active population [%]	0.745	0.434	0.369	0.200
R&D investment per capita [Euro/capita]	0.740	0.473	0.151	0.265
Number of employees in research development [% of all employees]	0.737	0.308	0.511	0.145
Rate of activity [%]	0.134	0.915	-0.007	0.089
Rate of employees in the technology and knowledge intensive sector [% of the whole population]	0.401	0.787	-0.219	0.257
Life expectation at birth [year]	-0.123	0.771	0.489	-0.037
Rate of employment	0.480	0.759	-0.280	0.224
Number of all students [% of the population]	-0.095	-0.079	0.959	0.048
Students in high education [% of all students]	0.372	-0.008	0.889	0.153
Rate of participants in higher training [% of population aged 20-24 years]	0.402	0.030	0.871	0.221
Rate of higher qualification [% of population order than 15 years]	0.002	0.042	0.048	0.956
Lifelong learning participation of population aged 25-64 years in education and training [%]	0.082	0.099	0.166	0.918

Source: own compilation on the basis of SPSS output tables.

– consumption of households (PPS/capita),
– human resources employed in science and technology, from the active population (in %),
– R&D investment per capita (Euro/capita).

All the seven variables are in close (higher than 0.6) positive trend connection with the value of the factor. Thus, if the value of the indexes increase, the characteristic of the region's human resource, determined by all the indexes together, improves. In our opinion, if a region's income and consumption is high, a significant part of the income produced goes on research and development, furthermore if the proportion of service sector is high, then the economy of the region can be considered developed. So this factor, on the basis of the index content, expresses the economic development of the region's human resources.

The **second factor** explains more than 20% of the whole variance of the original variables every year. In this factor there are the following indexes:
– rate of activity (in %),
– rate of employees in the technology and knowledge intensive sector (in % of the whole population),
– life expectation at birth (year),
– rate of employment.

There is a close positive trend correlational connection (higher than 0.7) between the value of the factor and all the four indicators. That is, if the value of the indexes decrease, certain characteristic of the region's human resource worsens. This characteristic expresses the *Activity* of the region's human resources. In 2008 the importance of activity factor is higher than that of the economic factor. It means that the indexes of the activity factor explain bigger part of all variances of the variables in 2008 than the preceding 5 years, that is, the characteristic of human resources carried by the chosen indexes are determined by the activity of the labour force market to a greater extent.

The **third factor** explains more than 20% of the variances of the original variable every year. In this factor there are the following indices:

– number of all students (in % of the population),
– students in high education (in % of all students),
– rate of participants in higher training (in % of population aged 20-24 years).

Value of the factor increases if the proportion of all students and students in the higher education grows in the region. If the number of the students and students in the higher education is high in the region, this region has a developed educational network and training institutional system. This factor expresses the educational opportunities of the region's human resources.

The **fourth factor** explains more than 10% of the variance of the original variables. There are the following indicators in this factor:

– rate of higher qualification (in % of population order than 15 years),
– lifelong learning participation of population aged 25-64 years in education and training (in %).

Both variables were in close positive trend relationship with the value of the factor during the whole period of the study, that is, if the proportion of the population with high qualification is high and the population older than 25 years takes part in a sort of training in large numbers, then certain characteristic of the region's human resources improves. This factor shows the qualification of the human resources.

As we used the results of the principal component analyses for further calculations, for the variables belonging to the mutual principal component, according to the original principal component analyses, we have run a one-dimensional principal component analysis for each. This is the so called total scale method of using principal components. It is worth using this method, on the basis of our professional experience, it is known that in reality between the characteristics determined by a principal component of the studied phenomenon there is correlation. Between the human resource characteristics determined by our four principal components, there is a close correlation in reality. If we look at just some projections, eg. economic development of a region determines the volume of the resources which can be spent on education and training, educational level of the people living in the region is greatly limited by the human resource training possibilities, the activity of the labour force market as well as the economic development is influenced by the fact how qualified the people living in the region are. This way the established four principal components kept their entire information content and correlational relationship can be shown between them.

The four factors established on the basis of the one-dimension principal component analysis determine one particular feature of the regions' human resources. On the grounds of the dendogram of hierarchical clustering carried out with the consideration of the principal components, it seemed to be a good solution to form four or five clusters. Classification of the regions into four clusters was confirmed by the results of the non-hierarchical K-means cluster analysis and discriminant analysis. On the basis of the discriminant analysis in all periods of

the research, rate of properly categorized cases in all four clusters is 100%. Thus, discriminant analysis supports the competence of the four groups formed in the course of cluster analysis.

Cluster 1 in all six years studied involves one single region, Prague. Every feature of human resource is outstanding. Generally speaking, in this cluster the income produced is extremely high, the significant proportion of which is invested in research and development activity; standard of employment is high but stagnating, training facilities of the inhabitants are excellent, the population is highly qualified. On the basis of its characteristics, we named this cluster **as the most advanced, knowledge producing** cluster.

Central-Hungary, Bratislava and the Mazowieckie Voivodeship belong to **Cluster 2.** Regarding economic development, qualification and training facilities, human resources of this cluster take the second place, regarding its labour market activity, however, it takes only the third place among the clusters. The group of regions involved in the cluster – considering its characteristics – is **named lagging behind, knowledge producing** cluster. This cluster is characterized by high but decreasing income, activity of human resources is low, owns a developed educational network and qualified human resources, but less and less proportion of its income is invested in research and development activity, which can be one of the reasons why it is lagging behind the most advanced, knowledge producing cluster. Three regions of the cluster together with Prague form the focal point of the so-called human boomerangs.

The constant members of **Cluster 3** are the seven regions of the Czech Republic and West-Slovakia. In 2003 Central-Slovakia, East-Slovakia and Central-Transdanubia also belonged to this cluster. Besides, the West-Transdanubian region was part of the cluster in 2006 and 2007. Activity of human resources is the second highest, training facilities are the weakest and qualification of human capital is the lowest, economic state of development is on the third place among the studied clusters. We named the cluster **knowledge adopting, attractive zone,** which is characterized by under-developed educational network, in the regions of the cluster the population is active but of low qualification. The income produced is low but remarkable growth is typical. These regions are situated on the so-called inner boomerang, near the developed Austrian and German areas.

Most regions belong to **Cluster 4.** Constant members of the cluster are the 15 voivodeships of Poland and four regions of Hungary. The training facilities of the cluster's human resources are better, qualification of human resource is higher than that of Cluster 3, but its economic state of development and activity are behind. We named this cluster **knowledge dragging, closing up** cluster, the characteristic feature of which is the very low but dynamically growing produced income. Despite of its developed educational network and educated population, the standard of employment is low. The regions of the cluster are situated on the outer boomerang, far away from the developed Austrian and German regions, so they are compelled to build up an educational and research network of their own, nevertheless, their economy is not so developed to be able to employ the qualified labour force at a suitable extent.

We can see a sort of regular outline on the maps, that is, the so frequent Easter-western division in the area analysis, and we can discover a dual human boomerang as well. On the inner boomerang the regions of Cluster 3 are situated, with the focal points of Prague and Bratislava, on the outer boomerang the regions of Cluster 4, with the centre of Budapest – Warsaw. Our results proved that the regions situated on the inner or outer boomerang cannot be stated as having more developed or under-developed human resources. The pure truth is that the state of development of their human resource is of different composition and structure (Fig. 1).

When working out a development strategy of an area it is necessary to know which field needs intervention, which development expenditure is expected to bring the greatest

Figure 1. Clusters of the Visegrád Countries on the map
Source: own compilation on the basis of SPSS output tables.

possible result. That is why we found it important to examine what the relationship is between the different factors of the human resources and the competitiveness of the region. First we set up binary linear correlation models, on the basis of which we stated that the closest relationship is between the GDP per one employee and the principal component of economic development, stronger than 0.9. It means that growth in economic development of the human resource in the regions goes together with the rise in their competitiveness. Activity, training possibilities and quality factors have weaker but medium-strength positive trend connections with the GDP index per one employee (Tab. 2).

In the correlation analysis it is not necessary to define what we consider as outcome variable and explanatory variable, i.e. there is no need to define the trend of the relationship. However, it is the researcher's duty to determine it in the regression analysis on the basis

Table 2. Binary linear correlation coefficiencies

Principal component	2003	2004	2005	2006	2007	2008
Economic development	0.954	0.958	0.963	0.973	0.974	0.971
Activity	0.454	0.501	0.522	0.579	0.548	0.573
Training possibilities	0.511	0.508	0.598	0.592	0.640	0.663
Qualification	0.668	0.641	0.691	0.702	0.601	0.582

Source: own compilation on the basis of SPSS output tables.

of his/her professional experience. There is a two-directional relationship between the competitiveness and the human development, because it is possible to create a competitive economy with developed human resources whilst a competitive economy can provide resources for development of human resources. Therefore we find it important to stipulate that we examine the direction of the relationship how the human state of development influences the competitiveness of the region. In the calculation of the multivariant linear regression we considered the competitiveness index as outcome variable, and four components of human resource as explanatory variable. Regression calculation was done by backward method, the point of which is that at the beginning of the study there are all explanatory variables in the regression model and the variables are deducted one by one on the basis of the increasing sequence of F values until the best fitting model is found. Value of the F trial function examines the fitting of our regression model on the basis of quotient of variance explained by regression and the quotient of not explained variance. In all years of the study, effect of two explanatory variables can be considered significant on the outcome variable, namely the factor of economic state of development and activity of human resource. In the multivariant regression function, relationship of activity factor and competitiveness is typically steep, which means, if we consider the economic state of development unchanged, the increase of activity on its own decreases the competitiveness of the region. That is, if the employment is increased in the economy so that the economic performance does not change, it goes together with decrease in productivity and the usage of human factor cannot be regarded as effective, which leads to the decrease of competitiveness. The change of the sign of the activity factor's regression coefficient can be caused by two things. One of them is the multicollinearity between the explanatory variables, the other is the direct and indirect effects of explanatory variables on the outcome variable. Independent variables can directly define the value of the outcome variable, or the effect of one explanatory variable can be strengthened or weakened by the effect of another explanatory variable (indirect effect). We demonstrated the direct and indirect effects of the independent variables on the outcome variable by path analysis. The economic state of development directly affects the competitiveness, and affects the GDP per one employee through the labour force market activity as well (Fig. 2).

Correlation coefficient between index of competitiveness and the two explanatory variables (economic state of development factor and activity factor) equals the sum of direct and indirect effects, which should be equal to the value of the correlation coefficient of the economic state of development and competitiveness: $R = \beta_1 + \beta_2 \gamma$

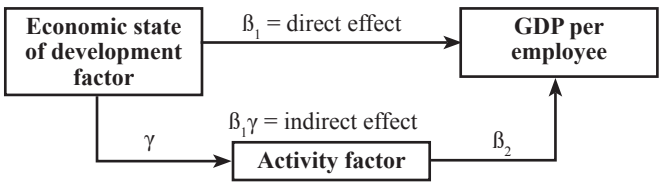

Figure 2. Scheme of path analysis in the V4 regions
Source: own compilation.

Table 3. Direct and indirect effects in the multivariant linear correlation (data of path analysis)

Year	R	Direct effect β_1	Indirect effect β_2	Indirect effect γ
2003	0.954	1.090	-0.221	0.619
2004	0.958	1.057	-0.158	0.624
2005	0.963	1.066	-0.161	0.641
2006	0.973	1.041	-0.105	0.657
2007	0.974	1.058	-0.131	0.642
2008	0.971	1.055	-0.128	0.664

Source: own compilation on the basis of SPSS output tables.

positive trend effect is always stronger. Featuring the relationship of competitiveness, economic state of development and activity in a three-dimensional coordinate system it is prominent that Prague and Bratislava, using development of their human resources, increase their advance in competition to an ever growing extent compared to the other two regions, between the two capital cities and the other regions the gap is getting deeper and deeper. Territory cohesion does not exist, differentiation is even bigger and bigger (Fig. 3).

The direct effect of the economic state of development on competitiveness is very strong (β_1), this effect is weakened by the indirect effect, that is, the medium-strength positive trend relationship (γ) between the economic state of development and the activity through the effect of activity principal component (β_2) decreases the competitiveness (Tab. 3). The most important influencing factor of regional competitiveness is the economic development of human resource, which on the one hand directly increases, and through increasing activity it decreases the competitiveness of the region so that the direct

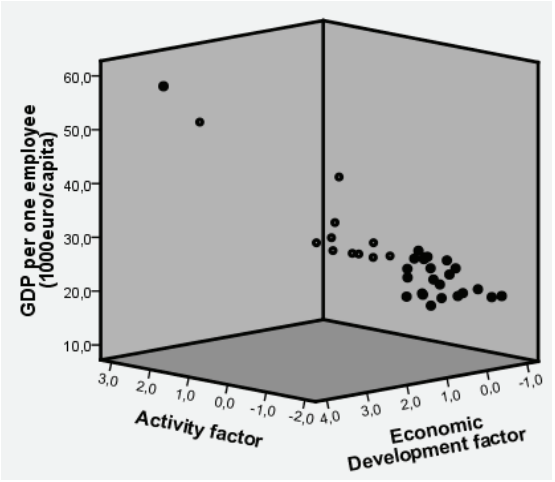

Figure 3. Relationship between competitiveness, economic development and activity
Source: an own compilation on the basis of http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database 2003-2008

CONCLUSIONS

As a result of our research we stated that the most important role in competitiveness on the examined territories can be attributed to the economic development of the human resources. Parallel to this it is also stated that training possibilities and qualification of human resource are not of significant effect on the competitiveness of the region. Economic development of human resource takes double part in forming competitiveness. On the one hand, it directly increases the competitiveness of the region, on the other hand, through the increase of activity of the region, decreases the competitiveness of the region by weakening the direct effect. This result proves the theory that increase in employment and activity strengthen the competitiveness of a region only if it goes together with increase in economic performance, i.e. productivity of living labour increases in the region.

On the basis of regression analysis of the relationship between human development and GDP per one employee we came to the conclusion that the means of increasing competitiveness in the studied regions is the increase of the living standard and consumption (economic development principal component), and not the development of knowledge economy. Therefore the targets of Europe 2020 for creating intelligent growth cannot be treated uniformly on the whole territory of the Union as its regions are not of the same degree of development. In the regions of V4 the most important driving force is economic development of human resource, the increase of which could be followed by increase of labour force market activity, development of educational network and higher qualification of human resource. According to our results, qualification, training possibilities are not relevant from the point of view of competitiveness. In the recently joined countries development of low income and consumption level should be focused on; until they reach the sufficient level there is no point in investing resources in the development of education, as they do not raise competitiveness. As Vörösmarty wrote, „Brain is unable to work while body suffers, stomach rumbles of hunger, mind is fettered by worries."

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LUDZIE JAKO CZYNNIK KONKURENCYJNOŚCI

Streszczenie

W dzisiejszych czasach ważną kwestią jest ustalenie co sprawia, że społeczeństwo, gospodarka lub region potrafi poradzić sobie z konkurencją w zglobalizowanym świecie. Badaniami zostały objęte aspekty relacji i inherentności zasobów ludzkich oraz konkurencyjność w Republice Czeskiej, Polsce, na Słowacji i na Węgrzech. Obecnie pojęcia „gospodarka oparta na wiedzy" i „gospodarka wiedzy" są coraz częściej używane i podkreślają znaczenie kapitału ludzkiego w procesie rozwoju społeczeństwa i gospodarki. Jednym z priorytetów ustalonych w strategii „Europa 2020" jest inteligentny rozwój, który oznacza budowanie społeczeństwa opartego na wiedzy i innowacjach. Doskonalenie zasobów ludzkich jest określane jako czynnik stymulowania rozwoju regionalnego. Tworzenie wyższej wartości dodanej jest możliwe przez poprawę potencjału kapitału ludzkiego. Rozwój badań, zwiększenie aktywnego udziału w tworzeniu innowacji może być realizowane wyłącznie na podstawie wysokiego poziomu szkolnictwa wyższego i kształcenia naukowego. Na podstawie powyższych informacji autorzy uważają, że należy przeanalizować zależność pomiędzy regionalną karencyjnością a poziomem kapitału ludzkiego, a także zweryfikować czy zasoby ludzkie na poziomie regionalnym mogą być czynnikami konkurencyjności w regionie.

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THE SYNTHESIS OF SYSTEM-ANALYSES IN THE DEVELOPMENT OF RURAL AREAS

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Key words: system theory, regional and rural development, synthesis of system analyses, spider web theory

Słowa kluczowe: teoria systemów, rozwój obszarów wiejskich, rozwój lokalny, synteza analiz systemowych, teoria pajęczyny

A b s t r a c t. We often face the question how a development strategy can be maintained. What sustainability means and is there a general approach which is able to describe these condition systems in any region or community of a country. Each area has different physical and mental characteristics and one certain development concept may be applied in one country but the same concept causes damages to the other (and it can be true even for the different regions and communities of one country). Our paper outlines general guidelines that are suitable for describing complex problems. The development of rural areas can be defined as an interdisciplinary field of science synthetizing more scientific fields and built from different approaches due to its complexity. These approaches often have system theory roots and their overall review is required very much.

INTRODUCTION

A lot of studies and research discuss the topic of sustainability and try to find the best alternatives of permanent sustainable development, therefore such a paper can be started from several approaches. By recognizing the limits of endless growth [Meadows 1972], the ideas of harmonic development and improvement have become into the limelight. The efforts that aim solely the economic growth seem to be a failure and are replaced by new approaches which underline the importance of the role of environment and society. Statement of Korten [1996] according to which the economy is for the society and not the society is for the economy seems to be confirmed. The human society is closely fit into the natural environment and if the environmental boundary conditions are damaged, the human society is endangered, too. Therefore the possible outcomes of interventions, their positive and negative impacts should also be considered in the implementation of developments. A development project will not bring any resounding success for a region or a local community if the intervention was not cautious enough. The output of actions and reactions can be realized in many forms, so it would be impossible to model all the combinations, therefore a general approach is required which can serve as a basis for each intervention.

There is no perfect pattern for introducing investment ideas, and individual measures cannot be concretized because it would easily result distortions in the communities coping with different problems. Our paper starts from the system approach and accepts the principles of general systems theory. The general systems theory of Ludwigvon Bertalanffy is introduced as a coherent axiom system. It is the backbone of the dissertation and the starting point of a new approach that is entitled general spider web theory. The essence of the theory is that it regards the local community as a specific „spider web" arrangement. The interventions made in this arrangement are like in case of the spider web: when one point is touched all the points are trembling.

METHODS

The method of analysis systems can be grouped and the systems can be typed in many ways, so that each analysis method in the repository can be an infinite number. In our paper we introduce a generally accepted way of grouping systems. Our goal is to give example for the already existing systems theoretical approaches in the regional sciences. Not all systems theoretical approach will be taken inventory, but rather to the systematic presentation of the different type of system approaches.

Based on our former researches we introduce five approaches of system analysis. First we define two general approaches for the study of systems, namely the cross-sectional and the development approaches. Then we investigate the holistic, functionalist and reductionist approaches – that can be used for the analysis/evaluation of subsystems of systems – from the aspects of rural development. At the end we define the general spider web theory, which is suitable for the synthetization of these five methods of system analysis [Walonick 1993].

RESULTS

CROSS-SECTIONAL SYSTEM ANALYSIS APPROACH

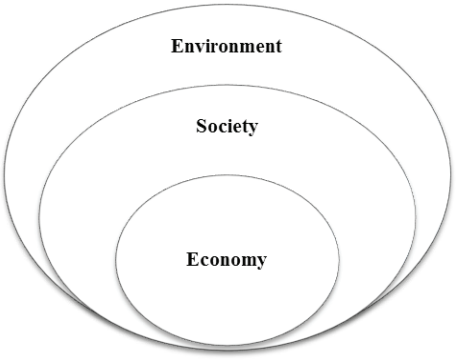

Figure 1. The dimension of Sustainable Development
Source: [Scott Cato 2009].

First system analysis approach as we want to show the cross-sectional approach. The cross-sectional view examines the relationship between two or more systems. The sustainability model can be conceptualized as a cross-sectional approach, which tries to understand this through the operation of each system and the relationships among them, the possible formation of equilibrium.

The cross-sectional system analysis approach helps us to understand the different outputs of relations and interactions between individual systems and underlines the importance of harmony between individual systems and the limits of growth regarding economic, social and environmental systems.

DEVELOPMENT SYSTEM ANALYSIS APPROACH

While the cross-sectional approach views the interactions between systems the development approach intended to examine the changes within the system. Enyedi [2004] divides environment in his system-approach as follows. Physical environment (natural environment) is one of the sub-system of the environmental major system. Further sub-systems of that are the natural environment and the transformed environment. The social-economic environment is another sub-system of the environmental major system, and there are further three sub-systems of the social-economic environment: the artificial, the economical and the mental environment. It is ecology what deals with the integration, relation and interaction of live organisms and environmental systems. The one the best-known system-based approach may be the tetraeder model. It demonstrates the balance and the cooperation of the natural-social-economical and infrastructural spheres of a settlement. These four spheres are demonstrated with a tetraeder:

– ABCΔ – natural sphere,
– ABDΔ – social sphere,
– BCDΔ – economic sphere,
– ACDΔ – infrastructural sphere.

Less developed and more developed branches and regions are present along the sides of the tetraeder. Along the edges, where the spheres meet, interactions come into existence. In this way the tetraeder illustrates a living, harmonized settlement in a unity. If each spheres of a settlement are balanced, the construction of the tetraeder is stable. If any of the spheres gets damaged, the development of the settlement slows down, the tetraeder becomes distorted, and consequently the other spheres' function will decrease [Tóth 1981].

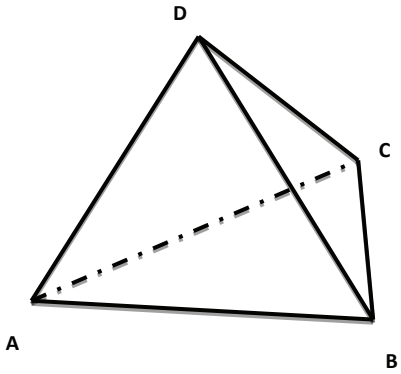

Figure 2. The tetraeder model of settlements
Source: [Tóth 1981].

The development system analysis approach emphasizes that an area can be defined as a system, too. The inappropriate interventions may cause distortions in the systems and the ideal tetraeder-like theoretical system will be upset.

FUNCTIONALIST SYSTEM ANALYSIS APPROACH

Functionalism roots deep in sociology. The functionalism examines the society as a whole and examines the function of each element within the operation and relations between the elements. It describes the parts of society as a living organism and these parts are functioning as a part of a body [Urry 2000]. Parsons [1975] proposes that functionalism is not a separate school to be seen as a science but rather a certain stage of development. We agree with this view in part because of the functionalist approach, although many criticized [Giddens 1984], yet the existing system is now seen as attitudinal approach.

The functionalist approach can be perceived as a regional sociological approach. The functionalist approaches in rural development can be found in the researches of Nemes [2005]. He built up an integrated rural development model based on the principals of functionalism.

The functionalist system analysis approach tries to define the functions within the system. The definition of functions within the system is inevitable for drafting the development. In order to ensure the most efficient utilization of development sources, the functions of subsystems and their possibilities within the system should definitely be understood.

HOLISTIC SYSTEM ANALYSIS APPROACH

In chemistry and biology, mechanical models are being substituted by holistic – dynamic models. James Lovelock and his Gaia Theory is a significant representative of the holistic – dynamic approach. The World is a uniform, self-regulatory system, and a community of mutually related systems on the level of planets [Komor 2005]. This change of paradigm is present in the social sciences as well. Bassie [2003] explained the essence of this approach as follows. The holistic approach is based on the General System Theory and on cybernetic. It contains the holistic interactivity, flexibility, dynamics and multidisciplinary developments. This strategy gives a significant role to the enhancements of co-operations, by the help of which the holistic and sustainable development can be reached. The goal is, by mobilizing the society, to create a plan and a vision on every level able to reach the integration, the unity and the economical increase in a community. To understand the whole concept we have to open this model. The holistic integrated model consists of eight integrated steps which can be used in several subjects. According to the General System Theory this model can be adapted in numerous activities like: situation analysis and diagnosis, planning and policies, technological development and diffusion, micro and macro-economic development. The holistic system analysis approach focuses on the complexity of an area and helps to learn the system as a whole. The theory tries to consider all those elements that can be involved in the development and aims to describe these system elements in their complexity.

REDUCTIONIST SYSTEM ANALYSIS APPROACH

Based on the works of Polkinghorne [1991] the biggest different between reductionist and holistic approach is while the reductionist approach argues that complex systems do not matter, but the sum of its parts, the holistic approach says the whole is more than the sum of the parts. The reductionist approach in the sociology breaks the social phenomena its parts and after that it tries to analyze together. The quantitative reductionism describes the reality from the reduced complexity and diversity of the qualitative differences [Ratner 2008].

One of the most elaborated reductionist approaches in the development of the rural areas is the Dimensions of Rural Development model from Heilig [2001]. The reductionist system analysis approach takes apart the system to its elements and aims to draft development concepts from the totality of the components. The reductionist analysis of system elements helps us to find the smallest element of the system that is worth examining and the qualities of this smallest element leads us to learn the features of the other elements within the system.

SYNTHETIZATION OF THE FIVE SYSTEM ANALYSIS APPROACHES

All the five system analysis methods that were introduced are suitable from their own aspects to highlight the problems of an area and to provide basis for drafting the future developments. The detailed examination of individual models, however, showed clearly that they have weaknesses and they try to describe the problem not in its complexity but according to a randomly chosen logical system. As the synthetization of the five system analysis approaches the general spider web theory can be used. The spider web theory forms a theoretical spider web of five pillars around the local community. These five pillars give the spider web of a local community. These pillars are as follows: tourism/external relations, social activity, local economy, infrastructure and environment. Each pillar is an open system that is able to interact with its environment, affect others and can be affected. The theory underlines that if we want to carry out improvements in the local community, we cannot concentrate on one pillar only because it would result holes (distortions) in the web. The harmony is very sensitive within the community's spider web and this harmony may disappear from the system due to a careless intervention. In other words, the spider web of a community is as sensitive as a real spider web. If we touch a sub-system within this system, it will affect the other sub-systems and thus change the transformation process of the whole system. Three elements connect the systems to each other: the theoretical, practical and adjusted cohesion. The sum of them gives the transformation ability of the whole spider web while its structure is responsible for the order (entropy) of the spider web. If there is a hole on the web, or the elements do not work properly, the transformation ability of the whole system declines.

Each pillar has its own political, economic, social, environmental and technological dimension, out of which the sustainability of the pillars can be determined [Goda et al. 2008].

CONCLUSIONS

On the basis of the above, such a situation analysis and strategy development attitude is required which is able to synthetize the individual system analysis methods appropriately. The general spider web theory can be regarded the synthetization of the five types of system analysis approach. These main characteristics are as follows:

1. Each pillar is considered an open system that is able to make contact with its environment, affect it and be affected (functionalist system analysis). These pillars are linked to each other like a spider web.
2. The spider web is regarded a new open system, the subsystems of which are the pillars (holistic system analysis).
3. If we intend to carry out a development in a local community, we should not deal only with one pillar and develop only one because a hole can be created in the web (development system analysis). The harmony within the system is very sensitive and this harmony may disappear from the system due to a careless intervention.
4. Each pillar has its own political, economic, social, environmental and technological dimension, out of which the sustainability of pillars can be determined (cross-sectional and reductionist system analysis).

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SYNTEZA ANALIZ SYSTEMOWYCH W ROZWOJU OBSZARÓW WIEJSKICH

Streszczenie

Często zadajemy pytanie, jak strategia rozwoju może być utrzymana. Co oznacza zrównoważony rozwój oraz czy jest ogólne podejście, które umożliwia opisanie zbioru warunków w każdym regionie lub społeczności danego kraju. Artykuł przedstawia ogólne wytyczne przydatne do opisywania złożonych problemów. Rozwój obszarów wiejskich może być zdefiniowany jako interdyscyplinarna dziedzina nauki łącząca więcej dziedzin nauki i zbudowana z różnych podejść w związku z jej złożonością. Te podejścia często mają korzenie w teorii systemów, a ich ogólny przegląd jest wymagany.

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THE ROLE OF AGRICULTURE AND URBAN-RURAL CONNECTIONS IN LAGGING RURAL AREAS OF HUNGARY

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A b s t r a c t. The long-term strategic objectives of the EU Rural Development Policy in the next (2014-2020) programming period are as follows: the competitiveness of agriculture, the sustainable management of natural resources and the balanced territorial development. In this strategy agriculture remains the key element as solution for lagging rural areas. Summing up our research the social functions of traditional agriculture based on local resources, the strengthening of viable farms, the increasing importance of diversification and the labor-intensive products with high added-value have to be emphasized in the new rural policy. Besides agriculture the improvement of urban-rural connections are essential for lagging rural areas as well, especially in terms of employment, availability of services and allocation of local rural products to urban markets.

INTRODUCTION

In the next programming period, economic and employment growth is the long term objective of the European Union and Hungary as well. In the meantime, detailed strategic frameworks are also being designed for the development of the rural areas parallel with the debates on the budget of CAP and rural policy. Within our study we tried to focus on the role of agriculture, the importance of the urban-rural relations and the practical problems of the rural areas.

From the scenarios about the future of the CAP [EC 2011a], the most probable is the integration scenario, in which in addition to targeted and „greener" direct payments, a more complex rural development would serve the sustainable development of the agriculture and the rural areas.

According to the proposal in the draft regulation related to the EFARD, rural development policy retains the long-term strategic objectives of contributing to the competitiveness of agriculture, the sustainable management of natural resources and climate action and the balanced territorial development of rural areas in line with the Europe 2020 strategy – Smart, Sustainable and Inclusive growth [EC 2010]. Based on the economic, social, environmental and spatial challenges of rural areas, these broad objectives of rural development support for 2014-2020 are given more detailed expression through the following six EU-wide priorities [EC 2011b]:

1. Fostering knowledge transfer and innovation in agriculture, forestry and rural areas.
   Enhancing competitiveness of all types of agriculture and enhancing farm viability.

2. Promoting food chain organization and risk management in agriculture.
3. Restoring, preserving and enhancing ecosystems dependent on agriculture.
4. Promoting resource efficiency and supporting the shift towards a low-carbon and climate-resilient economy in the agriculture, food and forestry sectors,
5. Promoting social inclusion, poverty reduction and economic development in rural areas.

These priorities should be the basis of programming, including the definition of target indicators in relation to each of them. The regulation includes rules on the preparation, approval and revision of programmes that largely follow current rules, and opens up the possibility for sub-programmes (e.g. young farmers, small farmers, mountain areas, short supply chains) that benefit from higher aid intensities. The list of individual measures has been streamlined and individual measures have been reviewed, with a number of adjustments introduced to address issues of scope, implementation and uptake raised in the current period. With most measures potentially serving more than one objective or priority, it is no longer deemed appropriate to group them into axes; programming on the basis of priorities should ensure balanced programmes [EC 2011b].

While the CAP is being updated, the Government of Hungary passed the comprehensive and long-term strategy of the rural development, namely the National Rural Strategy (NRS) which is going to be in effect until 2020. It defines tasks to be carried out in four major fields: agribusiness, rural development, food industry and environment protection.

In addition to the major objectives (namely to improve the capacities of rural areas to attract and keep the population), the Strategy sets five strategic objectives [NRS 2012]:

1. The preservation of natural values and resources.
2. Various and viable agricultural production.
3. Food and nutrition safety.
4. Providing the basis for rural economy, increasing the rural employment.
5. Strengthening of the rural communities, the improvement of the rural standard of living.

The horizontal aspects that need to be taken into account during the elaboration are: sustainability, spatial and social cohesion and the recovery of urban-rural relations. Regarding the latter one, based on the researches and professional literature, especially the employment and service-providing relations between the large centres and their agglomerations are of great importance for the disadvantaged rural areas.

Hinterlands, agglomerations are created around such settlements that have central functions, where the urban and rural relations and the spatial movement of the population create a network of settlements. The central functions and services are often provided in the centre (mainly a city), having more significant role than just comprising high number of population in the city [Beluszky 1970]. There are various opinions what functions should be considered central and the list of such functions might vary from time to time. Some say that production-based relations – therefore the commuting of the workforce – should not be considered as a factor in the formation of an agglomeration, but in most studies it is. All the points of views are included in the simplest definition, which says that those settlements belong to the same agglomeration which have proven relationship with the central settlement based on facts. Despite of this, there is no unified definition for the hinterland or agglomeration [Bodor-Pénzes 2012].

According to Hogart [2005], in today's Europe and in Hungary as well the core issue of investigations on hinterlands is the relation between urban and rural areas. The major conclusion of the author is that the relations become more complex and interdependent.

Nemes Nagy [2005] says that three forms of such dependence can be distinguished (out of which we focus on two in our study):

– dependence due to the location,
– dependence due to economic potentials,
– dependence due to power.

Good example for the first one is the creation of the system of settlements. Two basic elements of such system are the cities and the villages. One of the differences between the two is that the cities have so-called central roles, which cover services (e.g. banks, schools, public administration institutions etc) provided not only to the population of the cities but to those living in the surrounding areas. Due to this, the cities build up agglomerations around themselves. The future of the settlements in the agglomerations is greatly determined by the development of the centre.

The dependence due to the economic potentials can also be seen clearly in the relations between the urban and rural areas. There is a special share of work between the cities and the villages, but their economic potentials are different: cities have better institutional, human resource and accessibility etc. factors. It enables not only the increase in the productivity, increasing the strength of the local economy, but it fundamentally determines the living of the rural population nerby as well as the safety of service supply.

Dependence due to the power was created by the centralization in the socialist era.

MATERIAL AND METHOD

The Faculty of Economics and Social sciences of the Szent István University signed an "adoptation" and cooperation agreement with four villages in Nógrád county in June 2010 after several months of preparation. The abovementioned villages are: Bokor, Kutasó, Cserhátszentiván and Nógrádsipek.

According to the agreement, the villages become the research targets of the researchers and students of the Faculty and the Institute of Regional Economics and Rural Development of the Faculty provides help with rural development project proposals.

In the framework of the cooperation we carried out a survey in summer of 2012, questioning the local population about their economic and social conditions, the situation of the local communities and their development ideas.

In the primary survey, we placed special focus on the investigation of the role and potentials of agriculture as well, so in our study we concentrate on those results.

In the opinion poll, with random samples, 62 households of the four settlements (10% of all the households), covering 149 people (15% of the total population) were questioned. The primary data was analyzed with SPSS program, and in this study we applied the descriptive statistics method to display the results.

RESEARCH RESULTS

The settlements in question are located in the center of Nógrád county, which is a disadvantaged area of the country (Fig. 1). Nógrádsipek has somehow a central position among all the four villages due to its extra tasks in public administration. Although it is close to the other villages on the map, it takes about 45 minutes to get to any of the villages mentioned above on the road. Anyway, the poor accessibility and the peripherical location is characteristic to all the settlements. Nógrádsipek and Bokor are isolated from other

settlements, since they have only one road in and out of the village. They are not linked to other settlements. Leaving Kutasó in one direction, we can only get to Bokor. Except for Nógrádsipek, which has stagnating population number since 2000 (673 permanent inhabitants), the settlements have ageing population and negative migration figures. The population of Cserhátszentiván is 143, of Bokor 108 and of Kutasó 111 (in 2011, Source: Central Statistical Office of Hungary – CSO).

Regarding the infrastructure, Nógrádsipek has the most favourable location and it has its own school as well as the public utilities are provided. In the smaller settlements, however, both the infrastructure and the basic services lag behind. The population can use the most important services only in the larger settlements nearby. Due to their poor accessibility, these larger settlements cannot become centres of such areas. It might be the explanation for the fact that households need to face the challenges due to the lack of local jobs and the peripherical location as well (Fig. 2).

Since there are not enough job opportunities, the active population commutes and works mainly in the larger cities nearby (Pásztó, Szécsény, Hatvan, Budapest – Fig. 3.) primarily outside the agricultural sector (Fig. 4).

Figure 1. Location of the analyzed settlements
Source: own edition, 2012.

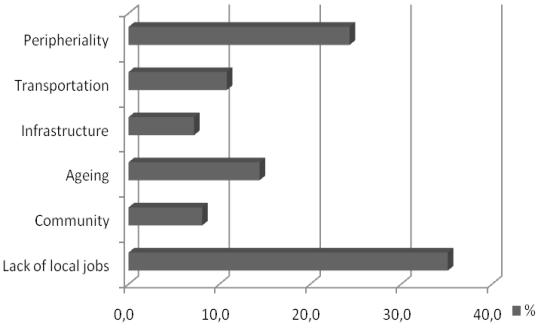

Figure 2. The fields of major problems indicated by the households (% of the asked households)
Source: own data collection and edition, 2012.

The full-time farmers work locally and mainly in their own businesses. The rate of registered unemployment is 10-11%, but the real unemployment is much higher than that figure. The number of businesses is very low and there are even fewer operating enterprises in the area. Out of the 54 families questioned, none runs business. Out of the 8 operating enterprises 6 deal with agriculture.

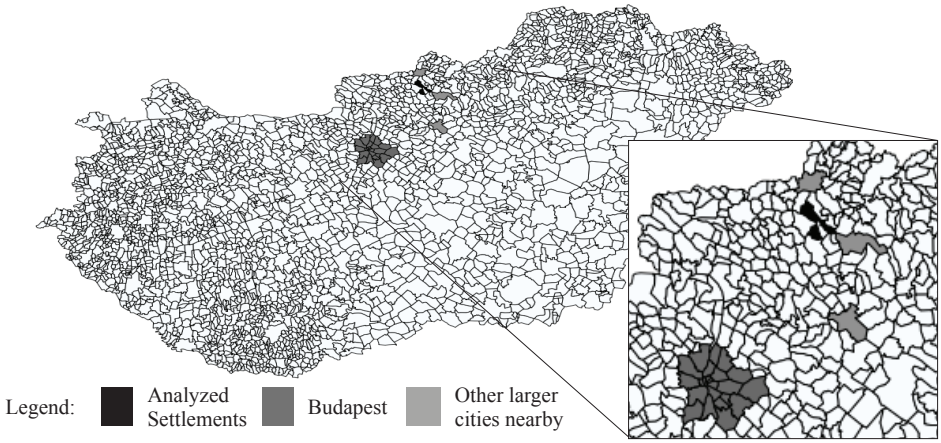

Figure 3. Location of larger cities as "workplaces" for local residents of the analyzed settlements
Source: own edition, 2012.

Agriculture, which was an important sector earlier, has miscellaneous roles at the moment. On one hand, due to the natural endowments, the number of full time farmers is not really high (except for Bokor, where there are more people dealing with sheep or running a cheese factory). On the other hand, the number of household which have market gardens is very high. Berry production and livestock breeding are common, mainly raising poultry and rabbits (Fig. 5).

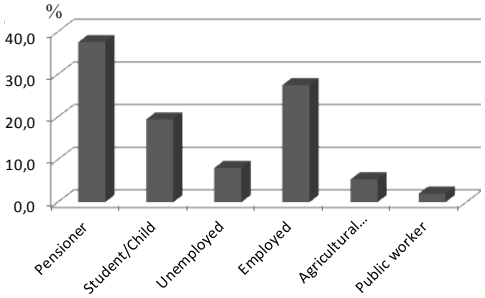

Figure 4. The employment status of the members of households
(% of all members in the asked households)
Source: own data collection and edition, 2012.

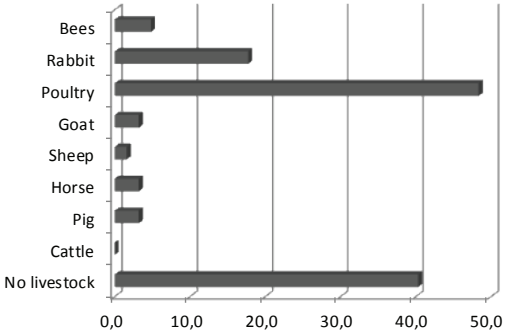

Figure 5. The distribution of livestock by households (% of the asked households)
Source: own data collection and edition, 2012.

Vegetable and crop production is carried out in small scale (excluding the few agricultural businesses), however, nearly 50% of the households responded do not keep animals at all (see Fig. 5) and do not cultivate lands (Fig. 6).

We need to mention that agriculture provides jobs for two people in the families on average, the households produce primarily for self-sufficiency. Only seven households out of 62 trade with their products – mainly at their homes. There are only three

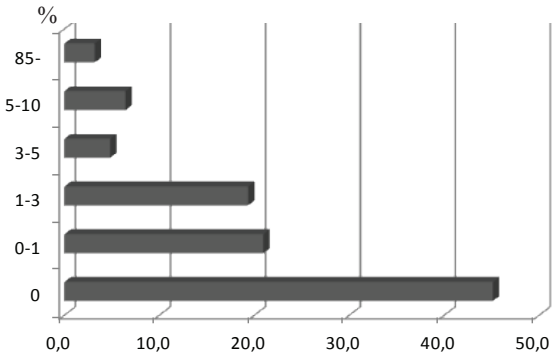

Figure 6. The size of land cultivated by households (hectare by % of the asked households)
Source: own data collection and edition, 2012.

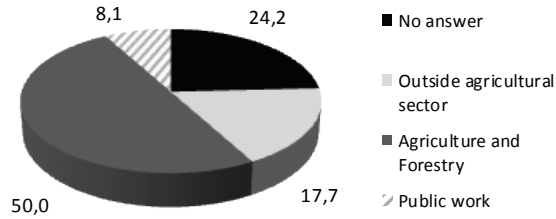

Figure 7. Possible solutions for creating jobs (% of the asked households)
Source: own data collection and edition, 2012.

household which rent arable land and only eight families get land-based direct payment.

However, we found it very important that we experienced regarding the solutions for the problems, primarily for job creation (not to forget that two-third of the households identified the lack of jobs as the most important local problem). According to 50% of the households questioned, the solution for increasing the employment would be agricultural and forestry developments as well as the revival and use of agricultural traditions.

35.5% of the households would start agricultural production if there were suitable funds available, another 37.1% might do the same and rest (mainly pensioners) said no for this possibility.

CONCLUSIONS, RECOMMENDATIONS

Based on the analyses and official documents on agricultural and rural development as well as on our research results, the following statements can be made:

In addition to the emphasis on the improvement of competitiveness and efficiency of farms, we consider it really important to improve diversification especially in the disadvantaged rural regions, to encourage the production which needs high live-labour and creates high added value as well as to provide markets for such products. Last but not least, the horizontal and vertical cooperation between the producers and the food chain players should also be promoted and encouraged.

We believe that we should keep and strengthen the social role of rural development and agriculture as a safety net for the rural population. We believe that – as an alternative income source – the strengthening of local and safe food production of high quality can be also a potential in addition to the self-sufficient production.

In accordance with the multifunctional environment policy [Nagy-Káposzta 2003], the protection of environmental elements, the efficient management of natural resources, providing the ecosystem services and environmental externalities are expected to receive high funds in the next programming period. We call for taking the advantages of the abovementioned including the strengthening of extensive farming.

At the same time, apart from the agricultural potentials (mentioning the fact the agriculture is losing significance), we think that it is extremely important to expand and

develop the local economy, the availability of basic services and infrastructure, to create a successful local community which is able to carry out local development with the help of rural development policy.

Due to the lack of local employment possibilities, we believe that it is inevitable to develop the relationship between the peripherical small settlements and the surrounding centres, to improve the accessibility and the public transport because they all contribute to the expansion of job potentials and the introduction of local agricultural products on the market.

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ROLA ROLNICTWA I POWIĄZAŃ MIEJSKO-WIEJSKICH W ROZWOJU OBSZARÓW WIEJSKICH WĘGIER

Streszczenie

Długoterminowe cele strategiczne polityki rozwoju obszarów wiejskich Unii Europejskiej w kolejnym okresie programowania (2014-2020) są następujące: konkurencyjność rolnictwa, zrównoważone zarządzanie zasobami naturalnymi oraz zrównoważony rozwój terytorialny. Zgodnie z tą strategią, rolnictwo pozostaje kluczowym elementem rozwoju opóźnionych gospodarczo obszarów wiejskich. Z przeprowadzonych badań wynika, że w procesie kształtowania nowej polityki wiejskiej należy podkreślać społeczne funkcje tradycyjnego rolnictwa oraz wspierać rozwój rentownych gospodarstw, dywersyfikację działalności oraz wytwarzanie pracochłonnych produktów o wysokiej wartości dodanej. Oprócz rolnictwa, niezbędnym elementem stymulowania rozwoju opóźnionych gospodarczo obszarów wiejskich jest rozwój powiązań miejsko-wiejskich, szczególnie w zakresie zatrudnienia, dostępności usług oraz produktów wiejskich na lokalnych rynkach miast.

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RURAL TOURISM AND AGRO-TOURISM IN SLOVAKIA

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Key words: rural tourism, agro-tourism, countryside, rural development, SWOT analysis, village
Słowa kluczowe: turystyka wiejska, agroturystyka, rozwój obszarów wiejskich, analiza SWOT, wieś

A b s t r a c t. The main objective of this work is to briefly present the natural beauties and cultural attractions in Slovakia, its favourable conditions and development possibilities for the agro-tourism sector. Furthermore, there are described the tasks and activities of organizations responsible for agro-tourism and rural tourism (EUROGITES in Europe, SARTA in Slovakia). The whole tourism industry, including rural tourism and agro-tourism, is growing rapidly worldwide. Slovakia, regarding its geographic location in the centre of Europe, has extremely favourable conditions for rural tourism, especially for agro-tourism. Beside the natural richness, such as mountains, caves, water areas, mineral waters, springs with healing effects, rich fauna and flora, also historical buildings, held in relatively good state, and many live traditional crafts can attract the modern tourists. Regarding all this, Slovakia is able to satisfy the needs of the most demanding our or foreign tourists.

INTRODUCTION

The rural development and multifunctional agriculture were the subject of analyses of many authors [Fáziková 2009, Kopeva 2011]. These studies pointed focused on sustainability on rural areas.

Rural services in Slovak Republic provide many type of accommodation in small facilities (family houses, cottages, small farms and larger pensions), they differ in quality of facilities and services provided [Jarábková 2008].

The development of rural tourism and agro-tourism brings the new and perspective option for rural areas. The exact number of agrarian enterprises doing business in Slovakia by individuals is not known, whereas the absence of a central register of individual farmers [Mura, Kozelová 2012]. Rural development is determined by various natural, social and economic conditions. The main challenge of multifunctional development of rural areas is the agri-tourism [Żmija, Kuczek 2004].

The origin of agro-tourism in Europe dates back to the nineteenth century when the only form of accommodation in rural areas was offered mainly by farm holders. In the second half of the twentieth century, with a more widespread availability of private transport and

generally greater amounts of leisure time, tourism grew to be one of the biggest and most significant global industries [Húska 2003]. Agro-tourism is successful because it shows the lifestyle of the people in the past, when they had strong contact with the nature and the environment, as they were working on the fields, harvesting crops and caring for animals. It represents a style of vacation in which the accommodation is offered on farms. It started with the aim to improve the farmers' life especially in mountainous regions and in areas with a developing economy. Opportunities of introducing agro-tourism have been successful in keeping the residents of such regions at home, therefore preventing depopulation of the countryside and on the other hand the architectural heritage is preserved through the renovation of buildings, the regional cultural heritage is promoted and furthermore the income of farmers is improved [Otepka, Habán 2007].

MATERIAL AND METHODS

According to available data, published in literature, emphasis was put to evaluation of tourist possibilities in Slovakia using method of decomposition. Chosen components of decomposition as a parts or activities of tourism were as follows: components connected with natural environment, components connected to surroundings originated in human activities, components bounded to organizational expectations and activities.

There was used an adapted method of SWOT analysis according to criteria suitable for rural tourism and agro-tourism [Habán, Otepka 2004]. It is possible to evaluate Strengths, Weaknesses, Opportunities and Threats (e.g. SWOT analysis) on the basis of monitoring and decomposition of initial components in the area of interest.

RESULTS AND DISCUSSION

TOURIST ATTRACTIVENESS OF SLOVAKIA ENTERED IN THE UNESCO LIST OF WORLD HERITAGE

The list of world cultural heritage of UNESCO (the United Nations Educational Scientific and Cultural Organization) nowadays contains seven the best known Slovak localities: Historic Town of Banská Štiavnica and the Technical Monuments in its Vicinity (date of inscription: 1993); Levoča, Spišský Hrad and the Associated Cultural Monuments (date of inscription: 1993, extension: 2009); Vlkolínec (date of inscription: 1993); Caves of Aggtelek Karst and Slovak Karst (date of inscription: 1995, extension: 2000); Bardejov Town Conservation Reserve (date of inscription: 2000); Primeval Beech Forests of the Carpathians and the Ancient Beech Forests of Germany (date of inscription: 2007, extension: 2011); Wooden Churches of the Slovak part of the Carpathian Mountain Area (date of inscription: 2008), which are the most valuable Slovakian tourism attractiveness (UNESCO, 2012). Typical souvenirs from Slovakia are dolls dressed in folk instrument – fujara (folk instrument on the UNESCO List), folk costumes – kroj, decorated folk hatchet – valaška, wooden pitcher – črpák, carved wooden figures, ceramic objects, crystal glass and above all products made from corn hucks and wire, notably human figures (URL 1, 2012).

There are nine national parks in Slovakia: Tatra National Park (TANAP, 74,111 ha, 1948), Low Tatra NP (NAPANT, 110,162 ha, 1978), Slovak Paradise NP (19,763 ha, 1988), Pieninsky NP (PIENAP, 22,444 ha, 1967), Small Fatra NP (23,262 ha), Poloniny

NP (29,805 ha, 1997), Muranska Plateau NP (21,698 ha, 1997), Great Fatra NP (40,371 ha, 2002), Slovak Karst NP (34,611 ha, 2002), where tourists can enjoy different activities while they are in virgin nature. In Slovakia, there are more than 4,100 caves known up to the present time. Caves, some of them of world importance, constitute very attractive phenomena of the Slovak landscape. The first natural locality entered in the UNESCO List of World Heritage the underground cave systems of the Slovak and Aggtelek karst. Now 12 caves are opened to the public visitors. Four of them: Ochtinska aragonite cave, Domica cave, Jasovska cave and Gombasek cave were entered to the World Natural Heritage of UNESCO in 1995.

OTHERS TOURIST ATTRACTIVENESS OF THE SLOVAK RURAL AREAS

In the consequence of the varied ecological conditions, Slovakia is extremely rich in plant and animal species. About 2,400 original vascular species, and even more species of lichens, mushrooms, and mosses occur here and it is more than compared to, say Poland, area of which is six-fold larger. Many plants and animals are protected under legal provisions.

Vacancies in nature provide for satisfying demands of visitors in world – known spas, hunting areas, fishing places, needs for tourism, alpinism and some other sports. Natural beauties and landscape of Slovakia as a complex unit predispose this country, especially regions of High and Low Tatras, together with some other regions, to become known in the world. Highlands in Slovakia represent about 2 million ha, including 800 thousand ha [Babinsky 2003], almost one third, of agricultural land.

Slovakia is rich in thermal springs, which are very attractive for tourists. Exploitation of this wealth is useful for both: production of early grown vegetables in hot water heated greenhouses and for using warm water for thermal swimming pools. The thermal springs are located mainly in southern Slovakia regions.

CULTURAL ROUTES IN SLOVAKIA

There are already some thematic routes joining the ideas of European cultural routes in Slovakia: CIO – Human Route, The Amber Trail, The King Matthew Kingdom, The Gothic Route, and Imperial – Royal Route "Magna Via", Iron Route, Czech Route and Russian Route. There are at least five Wine routes projected in Slovakia: Small Carpathian Vine Route, Nitra – Royal Vine Route, Hont Vine Route, Tokaj Vine Route and Vine Route of Zahorie. These projects are knotting on "European Vine Magistral". Each of them has different items from viticulture and viniculture, which are oriented to renew of a typical traditions in these regions for the benefit to the agro-tourism [Habán, Otepka 2004].

Slovak cycling routes, used mainly by active tourist, are 5,400 km long at the present time. The routes are signed by standard system of sights. Grape growing areas of Small Carpathian belong also to the attractive regions of Slovakia, as well as "Tokaj" region and some other grape growing areas in southern and central Slovakia. "Wine routes" are gradually being introduced, enriching thus agro-tourism in the selected regions. This is one of the efficient ways to connect the interest of tourists in regional history, culture and folklore with the opportunity to taste local gastronomic specialties and typical wines.

Slovakia can become an important place for economics, cultural and scientific contacts of East and West in coming years. Slovak rural areas have to prepare for this important

task deliberately, using the assistance of all respective sectors of state administration. In 1992 "Program of agro-tourism development" for support of agro-tourism was founded. The goal is to build up a network of pensions, restaurants, shops and snacks, supplied by agricultural enterprises with their own final products. The official statistics about tourism as a whole industry is not measured separately for rural tourism and agro-tourism. Our visitors usually are coming from: national guests (80%) and international ones (20%), mainly from Czech Republic, Germany, Poland, Hungary, Austria, Russia, USA, Ukraine, Italy, Holland, Great Britain, France, others [Habán 2011].

RURAL TOURISM AND AGRO-TOURISM IN SLOVAKIA

Agro-tourism and recreation have matched and even exceeded tourism growth generally. It represents a style of vacation in which the accommodation is offered on farms Húska [2003]. Holiday on a farm can be very interesting especially for children, where they can feed and stroke the animals and monitor their behaviour. Children visiting the farms often have never seen a live swine, sheep, cow or a goat. It is a nice experience for them, when they can try to drive a tractor or a combine (controlled by an adult). Kids can climb on, in and over hay, or play hide-and-seek game in the barn area. Other children activities are for example, making potato stamps, leaf prints, bird refuges, hair wreaths from flowers, playing vegetable or animal bingo with cards, corn mazes and many other games.

Agro-tourism attractions and activities can take many forms:

– direct sales, what includes selling the farm's products, agriculture-related, handmade gifts, souvenirs, educational experience such as school tours, agricultural heritage exhibits, wine and food tasting, cooking and making preserves [Otepka et al. 2005];
– outdoor activities, for example cattle drive activities, horse riding, fishing, patch tours, sleigh or wagon rides, picnicking, wildlife viewing, hunting, sitting by the camp-fire, animal feeding, visiting or working in the milking house, cropping forest fruits, mushrooms and medical herbs, farming in the field, in vineyard, in orchard;
– entertainment – concerts or special events, harvest festivals, fairs, promotional events;
– handicrafts – tannery, lace-making, pottery, tile making, blacksmith, tinkery, basketry, wood carving, wooden single production and joinery.

Slovakia has a relatively underdeveloped tourism industry, especially when we compare it with its neighbouring countries and competitors: Hungary, the Czech Republic, Austria and Poland. Total number of farms involved in rural tourism in Slovakia is approximately 62 (from that 42 in agro-tourism), while this proportion in Hungary is almost 6800 and in the Czech Republic approximately 355-400. The Ministry of Economy for the Slovak Republic has elaborated the development plan "Tourism Development Strategy of the Slovak Republic until 2013", what seeks to address these problems. The country has both very large agricultural enterprises and numerous small ones, which are family owned. The number of the tourist farms has been increasing particularly, when the non-governmental associations were established to promote rural and agri-tourism.

The European Federation of Farm and Village Tourism (EUROGITES) represents professional and trade organizations responsible for rural tourism from 24 countries of Europe. The product goes from the rural bed-and-breakfast, self-catering in farms or private homes, up to small rural hotels and guesthouses. EUROGITES has been contributing to special satellite studies and statistics about this sector since 2004 within the WTO. This

federation takes part in the European Congress on Rural Tourism, which next year will take place in Hungary. It organizes also in Spain next year a symposium on new trends and challenges for rural tourism with intention to bring together public authorities related with rural development and tourism and interested individual professionals to discuss these trends and challenges. The EUROGITES Catalogue, what presents the offers for rural tourism is issued yearly. In this catalogue are included the most representative agro-tourism farms in the European rural tourism network. EUROGITES announces every year a week, under the name of the European Action Eco Agro Tourism Week. In this week various events and programmes are organized in the member countries and the objective of this event is to make the rural tourism more visible and to fully establish it among other forms of tourism [URL 2, 2012].

The Slovak Association for Rural Tourism and Agro-tourism (SARTA), which exists from 1993, has recently about 300 members from all over the Slovakia. The members are private persons, agricultural enterprises, farmers, and legal organizations. Main activities are consult and advisory services, presentation of members, catalogues, etc. SARTA has already prepared a "quality grading accommodation services", which can be used in agro-tourism pensions. It is a guarantee for maintaining high quality pensions and all offered services included. Agro-tourism in Slovakia is based according to official Regulation of the Ministry of Economy No. 277/2008, on the, where are a minimal standards for quality of accommodation services marked from minimum one (*) up to maximum five stars (*****) [URL 3, 2012].

SWOT ANALYSIS FOR RURAL TOURISM AND AGRO-TOURISM IN THE SLOVAKIA

SWOT analysis with the aim to determine the opportunities for rural tourism and agro-tourism and other related conditions to be created is designed as follows:

1. STRONG POINTS	2. WEAK POINTS
– geographical location – attractive environment – favourable infrastructure – easily access by means of the nearby international roads – relative closeness to Vienna and Budapest – places of interest, both cultural and natural – agricultural and sheep breeding tradition – premises suitable for rural tourism and agro--tourism – hardworking, friendly, hospitable people – wide range of sport facilities	– low awareness of the opportunities for rural tourism and agro-tourism – insufficient infrastructure for the purposes of tourism (accommodation facilities) – shortage of finances and low accessibility of external resources necessary for building - renovation for rural tourism and agro-tourism purposes – insufficient promotion of the protected landscape – low level of co-operation of inhabitants – non-functioning public transport, except during working days – indebtedness of companies dealing with agriculture

3. Opportunities	4. Threats
– large and unique agricultural settlements well suited for rural tourism and agro-tourism – large number of farmers with private property – possibility of getting subsidies from funds – possibility of staff training – chance to get information and experience from Austrian and Hungarian farms and mutual cooperation – exploitation of expertise and experience from abroad – possibility of utilization of the natural environment – development of activities for the well-off clientele (e.g. horse riding, golf, etc.)	– lack of interest on the side of governmental institutions – low support of local authorities – competition (other tourist places) – impact of unemployment in some of the regions, lower standard of living.

Source: own research.

CONCLUSIONS

Rural tourism and agro-tourism is a style of vacation in which hospitality is offered on rural and farms. This may include the opportunity to assist with farming tasks during the visit. Rural tourism and agro-tourism is often practiced in wine growing regions. It has often been proposed as a means to prop up a local agricultural economy when local producers are no longer economically competitive otherwise, therefore this business will be very important part of farm income in our country as well as in many other agriculture productive countries.

Slovakia has a relatively underdeveloped tourism industry, especially when we compare it with its neighbouring countries and competitors: Hungary, the Czech Republic. Total number of farms involved in rural tourism in Slovakia is approximately 62 (from that 42 in agro-tourism), with comparison to the Czech Republic (approximately 355-400).

Rural tourism and agro-tourism stimulates the economic growth, increases the viability of underdeveloped regions and improves the living standards of local population. It seems to be an appropriate tool to revitalize the declining rural areas and to ensure their sustainable future by job creation, farm support, landscape and nature conservation or the maintenance of rural arts and crafts as tourist attractions.

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TURYSTYKA WIEJSKA I AGROTURYSTYKA NA SŁOWACJI

Streszczenie

Głównym celem opracowania jest przedstawienie przyrodniczych i kulturalnych zasobów Słowacji w kontekście możliwości rozwoju sektora agroturystycznego. Ponadto, opisano zadania i działania podejmowane przez instytucje odpowiedzialne za agroturystykę i turystykę wiejską (EUROGITES w Europie, SARTA na Słowacji). Branża turystyczna, w tym turystyka wiejska i agroturystyka, rozwija się dynamicznie na całym świecie. Słowacja ze względu na położenie geograficzne w centrum Europy ma bardzo korzystne warunki do rozwoju turystyki wiejskiej i agroturystyki. Oprócz naturalnych bogactw, takich jak góry, jaskinie, akweny wodne, wody mineralne, źródła lecznicze i termalne, bogata fauna i flora, turystyka może rozwijać się dzięki zabytkowym budowlom, które są zachowane w relatywnie dobrym stanie. Atutem jest też wytwarzanie wielu tradycyjnych produktów i kultywowanie rzemiosł.

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SOCIAL RESPONSIBILITY OF FOOD COMPANIES IN SLOVAKIA – A SELECTED TOOL OF SUSTAINABILITY

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Key words: social responsibility, sustainability, Cronbach Alfa Coefficient, green marketing, environmental marketing

Słowa kluczowe: społeczna odpowiedzialność, zrównoważony rozwój, współczynnik Alfa Cronbacha, green marketing, marketing środowiskowy

A b s t r a c t. Many environmental strategies relying on a mere improvement of resource productivity and eco-efficiency of processes and products are fully to address the environmental impacts induced by increasing consumption. In addition to these strategies, the concept of sustainable consumption calls for changing the levels and patterns of consumption, which require complimentary approaches. Consumer's don´t realize the consequences of their own consumer behavior to the environment. The aim of the paper is analyze the selected tools of the sustainable environmental marketing that extends the traditional marketing approach of social responsibility. Globalization and sustainable development contributes to discussions about business in society and their roles. It is clear that the business community can have a positive impact on the achievement of the objectives of both concepts.

INTRODUCTION

The main aim of this article is to define the Social Sustainability in the process of marketing strategy of selected companies, which agreed to be a member of our marketing research. Sustainability marketing is one of the new rules in marketing tools and therefore we would like to introduce this rules in the practice of selected companies. In the partial aims we focus on a negative and positive impacts of environment, characteristics of reducing costs on safety environment and providing the environmental information about products and services of selected companies.

GLOBALIZATION AS SOCIAL AND SUSTAINABLE DEVELOPING

BUSINESS SOCIAL RESPONSIBILITY

The term "corporate social responsibility" means the voluntary efforts of companies that fall outside the normal regulatory compliance. It is an achievement of social and environmental objectives in the daily activities of the company. For companies and entrepreneurs of social responsibility, which affected international trade and marketing, business management,

consumer behavior and economic globalization, countries can be considered by concept of sustainable development [Ubrežiová et al. 2012]. The concept of social responsibility has particular importance in relation to the process of globalization as follows:

– disproportion between the ever-increasing pace of liberalization and the time required for the elaboration of international rules to regulate the interaction of the market;
– imbalance of social and economic systems between developed and developing countries, where lack of oversight of these areas;
– imbalance in the development of international institutions which supervise the economic changes and institutions overseeing social and environmental problems [Remišová 2011].

Business for Social Responsibility and Forum for the Future identify several barriers to the effective use of labels, on-pack claims and other means to inform consumers about the environmental credentials of products and services:

– confusion among consumers about the differences between fair trade, ethical, organic and other types of products;
– unrealistic expectations of consumers, who are not usually willing to spend time understanding these issues and are rarely prepared to pay more for sustainable products;
– the complexity of supply chains and the costs of effective monitoring and reporting;
– suspicion of „green wash"(environmental claims that could be considered false, unsubstantiated and/or unethical) [World Business... 2008].

SUSTAINABLE MARKETING AND CONSUMPTION

It is an extension of green or environmental marketing, emphasis on sustainable growth. Border management concept is focusing on the creation, production and delivery of sustainable solutions with high added value, while continuing to satisfy customers and stakeholders. The concept in itself connects sustainable environmental, social and economic progress. Small businesses as well as multinational corporations will have to accept and take responsibility for addressing issues of sustainable development for their own business ventures in local, regional, national and international scale [Peatie 1998]. The sustainable consumption and production aim to improve overall environmental performance throughout a product´s life-cycle, promote and stimulate demand for better products and production Technologies, and help consumers make better choices through effective labeling [European Commission 2010]. Sustainable production and consumption involves business, government, communities and households contributing to environmental quality through the efficient production and use of natural resources, the minimization of wastes, and the optimization of products and services. The use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations. The products available in today´s supermarkets carry a wide range of labels, on-pack claims and elements of design that are meant to inform and reassure consumers on health, safety, environmental or social concerns. Some products are certified by an internationally recognized and respected body, such a local, national or regional authority. Examples of third-party labels include:

– organic,
– healthy,
– sourced from sustainable sources,

– dolphin friendly (there are various dolphin safe labels used for canned tuna to means that the fish has been caught without harming or killing dolphins; however, because there are various labels used, there are also various restrictions imposed on the capture of tuna in order for it to deserve the related dolphin safe label, some labels imposing stricter requirements than others),
– ethically sourced,
– eco-friendly,
– sustainable cleaning [World Business... 2008].

ENVIRONMENTAL MARKETING

It is based on the idea of environmental protection and maintenance of non-renewable resources. It is part of a new marketing approach, which is not only to modify and improve current marketing thinking and practice, but it is looking for a different challenge and provides a sustainable perspective. This refers to the process of implementation of products in the market based on their environmental benefits. This product or service may be environmentally friendly in itself, but only some of their property (the production process, packaging...). An assumption of green marketing is that potential consumers perceived environmental attributes of the product for the benefit of, and to lay the foundation for their buying decision. Environmental marketing is not only specific communications include, for example editing product, manufacturing process changes and modification. It consists of all activities forming and facilitating the exchange intended to satisfy human needs so that they meet the minimum adverse impact on the natural environment [Borgul'a 2011]. Green marketing is defined as a holistic management process responsible to identify, engaged, fills and satisfies the requirements of stakeholders and also adversely affect the natural environment and humans. Characteristic is the focus on environmental issues, with an emphasis on reducing environmental damage [Charter 1992]**.** Green marketing focuses on the green marketing efforts companies use, including corporate social responsibility plans and sustainability efforts. Many consumers are environmentally conscious, seeking eco-friendly products and services from organizations that are socially responsible. These articles look at all of the implications of green marketing, from product modification and processing to packaging and green advertising. Green marketing is the marketing of products that are presumed to be environmentally safe. Thus green marketing incorporates a broad range of activities, including product modification, changes to the production process, packaging changes, as well as modifying advertising. Yet defining green marketing is not a simple task where several meanings intersect and contradict each other; an example of this will be the existence of varying social, environmental and retail definitions attached to this term [Green Trade... 2008].

METHODOLOGY AND METHODS

To obtain evidence on corporate social responsibility and environmental policy in Slovakia, we have worked with secondary sources. Compilation of the questionnaire was preceded by study of the field of affordable, especially foreign literature, but not least was supplemented by the information obtained from Internet sources, and research papers devoted to this topic. Formed the core of the primary sources of research carried out by means of a questionnaire.

We questioned companies in the food industry in Slovakia. Questionnaire consists of two parts and in this paper we focused on the part corporate social responsibility of the food companies from the environmental viewpoint in Slovakia.

Structure of enterprises by number of employees: 30 food companies, in small, middle and big size. The questionnaire has been most willing to answer small businesses with less than 15 employees (33.33%). They were followed by large enterprises with more than 51 employees (30, 00%), and activity which has significantly impinges on the environment and communities in which they operate, under-represented businesses with less than 50 employees (23.33%) and the smallest proportion were companies with less than 30 workers (13.33%). Using the Chi-square Goodness of Fit test in determining H_0 hypothesis, this argues that the sample is representative of the significance alpha 0.05. We conclude that H_0 don`t reject it and thus our selected file is the significance level alpha 0, 05 representatives and therefore the results obtained by our questionnaire have statistical significance.

Structure of enterprises by county action: Most companies that participated in the survey, operates in Bratislava region (20%), followed by companies from Trenčín (13.33%) and Prešov (13.33%). Equal representation in the form of 10% of businesses has Nitra, Žilina and Banská Bystrica. The smallest firms are represented in the Košice region (6.67%) and companies that have branches of their businesses in several regions of Slovakia. Chi-square test approved representative sample.

The structure of enterprises based on the length of time on the market: more than 80% of companies that responded to the questionnaire have been operating for over 10 years. These are companies have reached a stable market position and built positive relationships with their customers and suppliers. Their long-term business success is largely associated with customer loyalty. Only 17% of companies involved market less than 10 years of age, only 3% of the companies that are involved in the survey on the market "newcomers" and should not be done more than one year of operation.

Partnership with foreign companies: 67% of surveyed companies have foreign suppliers. The same percentage of business customers has also abroad, while the rest of the companies (33%) have only business partners in this country. Based on the Chi-square test independence we investigated whether the partnership with suppliers from abroad directly dependent on the size of the company. We established hypothesis claimed that there is no difference between the size of the company and whether their business partners to look beyond the borders of Slovakia. Accordingly, it can be argued that foreign suppliers are as large companies as well as small businesses that participated in the survey. Similar results were also found for your customers, because the answers to these two questions are no different.

The time period of data collection – a review and theoretical data collection were collected in the period from February 2012 to October 2012.

The questionnaire consists of two main parts, the first part consists of the identification of issues and the second part is divided into three groups of questions aimed at different areas. The results obtained from the questionnaires were properly prepared and evaluated with the help of software MS Word, MS Excel and SAS. Thanks to them, the results were transformed in text and graphic form due to clarify the findings.

Chi-square test of good compliance was used to determine whether the sample is representative. The dependence between the quality characteristics, we used the Chi-square test square contingency. For the better understanding of previous test of independency, we used Correspondence analysis. The idea of correspondence analysis (Correspondence

Analysis – CA) is to display the PivotTable in most two-dimensional space with little loss of information.The questionnaire was a lot of scaling issues, because we have to evaluate the reliability analysis of the scales used. To calculate the internal consistency, we used Cronbach alpha coefficient [Prokeinová 2010].

RESULT AND OWN MARKETING RESEARCH

SOCIAL RESPONSIBILITY TOWARDS ENVIRONMENT

Environmentally friendly business strategy leads to less use of natural resources, prevention of pollution (air, water, soil) and overall conservation. In addition, environmentally clean technologies and practices generally ultimately reduce the cost of production, or prevent a situation where the company did not have to pay a penalty for pollution and compensation for environmental damage. If a company wants to create a "label" organic companies should proceed to reduce negative impacts on the environment, including for example, waste minimization, recycling, energy conservation, or accession to the prevention of pollution. More than 83% of companies (Fig. 1) are trying to reduce the impact of its activities on the environment. 16.67% reduction of business conducted in part while none of the companies prefer negative approach to this issue.

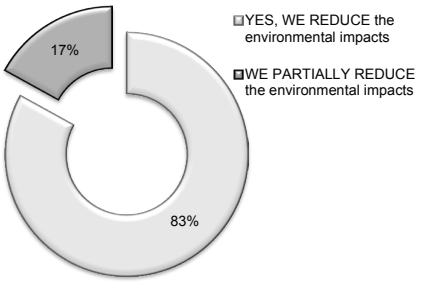

Figure 1. Reduction of Negative Impacts on the Environment
Source: own elaboration.

Upon closer investigation, we concluded that even in this case there is no direct correlation (Fig. 2 and 3) between the size of companies and their approach to reducing the negative impacts on the environment.

As we can see in figure 2 food companies in Bratislava, Trnava and Trenčín district are trying to reduce impact on the environment. These district belong to the western part of Slovakia and this part is represented higher level of education, of income, of overall quality of life. It is very important findings that food companies have feeling for their impact on the environment and the want reduce it.

Next figure represents dependence between time of existence company and business reducing cost on the environment impact. This dependence very narrowly relate on previous dependency. The food companies reflect reality and they tried reduce cost due to reducing impact on their and our environment. We found out that companies older than 10 year have this environmental feeling. They perform 80%, huge part of companies in Slovakia. Companies with the short term (less than 5 years) of existension have the same feeling. Unfortunately, new companies don't know about this issue. It is caused that are new on the market and they have other problem during the starting business.

We concluded that even in this case there is no direct correlation between the size of companies and their approach to reducing the negative impacts on the environment (Fig. 2 and 3).

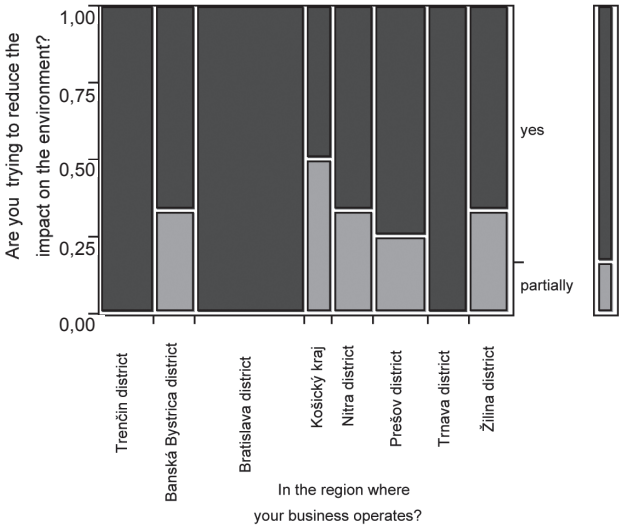

Figure 2. Pivot chart presenting region of company and answer about impact on environment
Source: own elaboration.

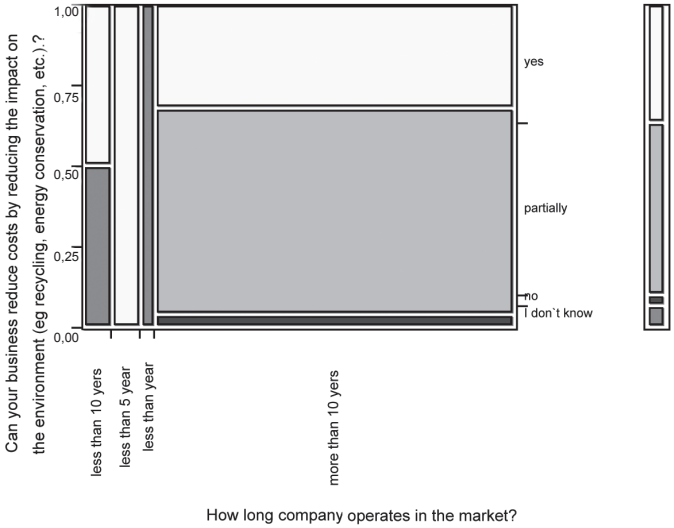

Figure 3. Pivot chart presenting time of existence company and answer about reducing cost on the environment
Source: own elaboration.

A positive finding is that even small businesses often do not have as extensive opportunities to embrace a greener approach to the environment can be sufficiently involved in this field. On figure 4, the most common forms of reducing negative impacts on the environment include recycling of waste (23.75%), waste minimization (22.5%) and energy savings (20%). The possibilities used by prevention against pollution in 16.25% and protection of the natural environment in 13.75%. To a lesser extent used methods for reducing the negative impacts on the environment are also the organic cultivation of medicinal plants (1.25%), as well as organic soil improvers and increasing the level of environmental awareness among employees.

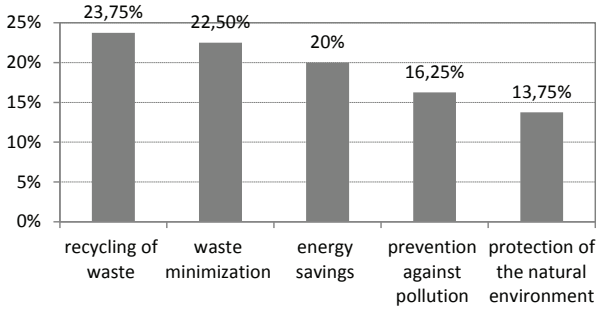

Figure 4. Forms of negative reduce impacts on the environment
Source: own elaboration.

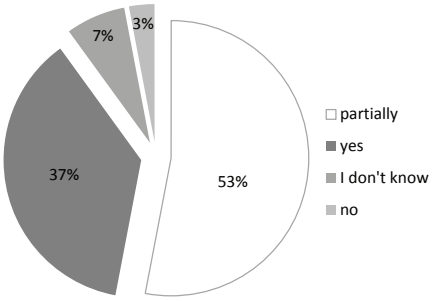

Figure 5. The ability to reduce costs by reducing of negative environmental impact
Source: own elaboration.

The introductions of technologies that reduce the negative environmental impacts associated with the primary costs are often quite high. However, venture into the "green" technology invests its expenses in future periods may be significantly lower and higher initial cost, the company eventually returned. Unfortunately (Fig. 5), this view has only 37% of companies that have proved they can cut costs by reducing the negative impacts on the environment. 53% of companies in this way can reduce your costs only partially and the remaining 10% of companies either do not know the answer to this question (7%), or disagree with this statement (3%).

About how the company approaches to environmental issues can regularly inform the company and provide it with the opportunity to inspect the firm commitment in this area. On figure 6 we illustrate, that 60% of companies provide clear and accurate environmental information about products, services and activities for customers, suppliers and the local community. 27% of companies stated that this information provides only partially and the rest of the companies (13%) failing to inform customers and the community for their environmental business.

Based on the Cronbach alpha coefficient was found some inner peace consistency range of issues from the area of environmental responsibility. The standardized coefficient alpha value is 0.6, which is less than 0.7; and therefore we can conclude that the measurements are burdened with a certain error. The above result indicates a low level of reliability of the scale. It could be caused by the fact that some respondents unwilling to answer questions, but due to the fact that they filled in the questionnaire, an answer suggested.

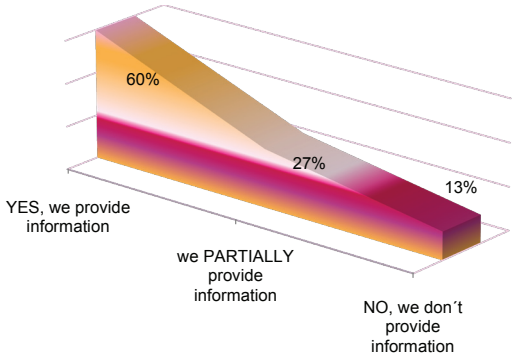

Figure 6. Providing of environmental information about products and services
Source: own elaboration.

We found out the following result analysis questions pursuit of shopping in the area of responsibility. The aim was to determine whether managers really responded truthfully in enterprises. We located that 30% of companies are really trying to buy the place of their work and also has suppliers from abroad. In spite of equally large group 36.67% of companies that are trying to buy the site of action and also have foreign suppliers. The aim of sustainable responsibility is to make the most of resources and raw materials in the nearest distance from the business.

Valuable contribution by the company is undoubtedly mainly donations and financial assistance to organizations that decide to provide from their surroundings. A positive finding is that 60% of companies provide regular financial support for projects and local community activity ends. Companies most frequently studied provide support and assistance to children's homes, kindergartens and primary schools involved in the project Good angel promote sports and cultural events in the region and develop many other activities in support of the subjects from their surroundings. Almost ¼ of companies dedicated to similar activity only partially, and the most dedicated kind donations to raffles for balls and other cultural events. 3% of companies cannot answer this question and 14% in any of the options support the local community pays. Information on the implications of company activities on the social and environmental surroundings should also be interested. Based on these data to know other players from around form an opinion on how the company approaches the observed areas.

Almost half of the companies (46%), however, do not provide information of this nature. Half of the companies this kind of information does not, 23% of the companies providing them only partially, 10% did not know to answer the question and only 17% of companies believe that the environment should be aware of the impact of their activities on the environment and therefore this information is regularly provided.

With Cronbach alpha coefficient we found sufficient internal consistency scale (alpha = 0.7) between the policy issues focusing on business to the community.

Figure 7 shows independency between regions of company and inform about activity effect on the environment. As we can see, question was very sensitive and answers were as well different. Definitely in Trnava region answered positive. There is chocolate factory Figaro with the long tradition and long existence and many smaller food companies with the same feeling. Other companies with the rest of Slovakia mainly don`t inform about the effects on the environment, it is comfortable. Is it sustainable, is it responsible or is it important? Likely is not important but for the responsible policy of each company is necessary to provide these informations.

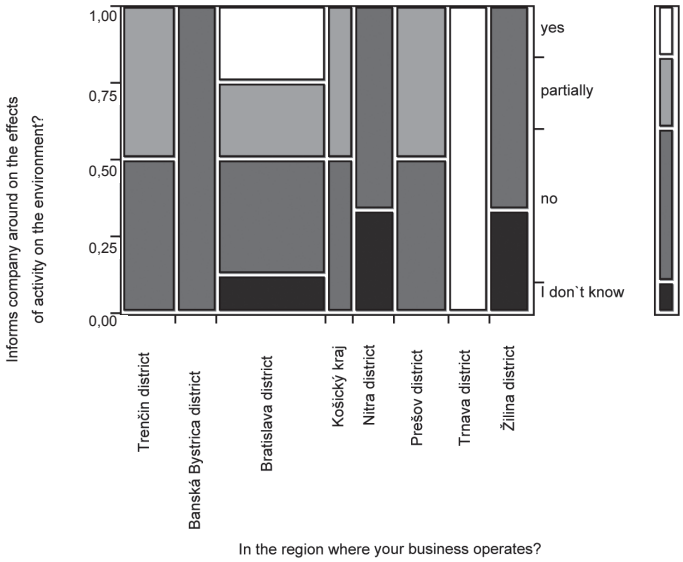

Figure 7. Pivot chart region of company and answer about informing about effects on the environment
Source: own elaboration.

CONCLUSIONS

This article is a part of the realized project VEGA no 1/0951/12: Sustainable development of subjects in the food chain in the Slovak Republic. The article and the project´s subject is to explore the key factors unequal status of the agrarian market of the food chain, resulting in a drop in sales of foods of domestic origin and greater consumer emphasis on quality, safety and food composition. Sustainable marketing is the adoption of sustainable business practices that create better businesses, better relationships and a better world. Greener marketing reflects the emergence of significant changes to traditional consumption patterns.

There has been a growth in consumers and businesses, using ethical and environmental criteria within at least some of their buying decisions. Companies that recognize this and offer an ethical or greener choice may provide opportunities for differentiation through organizational factors, rather than pure marketing factors, as consumers, employees and investors seek to direct their efforts into positive areas. Food consumption influences the health of the population, reproduction workforce and the employment potential of the country in the short and or the long term, and re-creates a space for developing a primary focus of agricultural and food industries [Kubicová 2008]. As well as the main aim we set, we could explain that more than 83% of companies are trying to reduce the impact of its activities on the environment. We concluded that even in this case there is no direct correlation between the size of companies and their approach to reducing the negative impacts on the environment. We found out that companies older than 10 year have this environmental feeling. The most common forms of reducing negative impacts on the environment include recycling of waste (23.75%). 60% of companies provide clear and accurate environmental information about products, services and activities for customers, suppliers and the local community.

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SPOŁECZNA ODPOWIEDZIALNOŚĆ FIRM SPOŻYWCZYCH W SŁOWACJI – NARZĘDZIE ZRÓWNOWAŻONEGO ROZWOJU

Streszczenie

Wiele strategii środowiskowych skupionych wokół poprawy wydajności zasobów i ekologicznej efektywności procesów i produktów, oddziałuje na środowisko także przez wzrost konsumpcji. Koncepcja zrównoważonej konsumpcji, zakładająca zmianę poziomu i struktury spożycia, wymaga nowego, uzupełnionego podejścia. Konsumenci nie zdają sobie sprawy z konsekwencji własnego oddziaływania na środowisko. Celem artykułu jest ocena wybranych narzędzi zrównoważonego marketingu, który poszerza tradycyjne podejście do marketingu o odpowiedzialność społeczną. Koncepcje globalizacji i zrównoważonego rozwoju przyczyniają się do dyskusji na temat roli biznesu w społeczeństwie, który może się przyczynić do realizacji celów obydwu koncepcji.

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SOCIAL MARKETING CONCEPT: BENEFITS OF USING PUBLIC RELATIONS IN THE PRACTICE OF FOOD ENTERPRISES IN SLOVAKIA

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Key words: Social Marketing Concept, Corporate Social Responsibility (CSR), Public Relations (PR), Food Enterprises, Events, Publicity, Education, Benefits
Słowa kluczowe: koncepcja marketingu społecznego, społeczna odpowiedzialność biznesu, public relations, przedsiębiorstwa sektora żywnościowego

A b s t r a c t. Paper defines applying of social marketing concept in the practice of food enterprises in Slovakia and connected benefits. Under review were activities of Public Relations (PR) and its most used tools in condition of the Slovak Republic - event marketing, publicity and education. The reputation of company leads customers to the company when deciding about purchase. Public relations create the base for an economic growth of the company and its prosperity, as well as the ability to survive in the fierce competition, which are considered as the economic benefits resulting from the application of PR activities, in the practice of food enterprises. The survey showed that using of chosen PR tools - events, publicity and education, offer significant benefits to food enterprises. Social benefits resulting from implementation of PR in their practice could be taken as building and protecting reputation and awareness in the public eyes.

INTRODUCTION

Social marketing concept is gaining an increasing importance, acceptance and application in the business practice. Various authors define this concept in different ways. In short, it could be described as a business base with a broader than just profit-oriented focus. Corporate social responsibility (CSR), as its integral part, is primarily mainly about social and environmental considerations integrated into business activities. CSR is also about understanding the company, its activities as an integral part of the whole society and the life of the company as a whole [Horská et al. 2010]. The company is not just a means of making money, or just a provider of work for its employees. This concept points at the fact that companies should not be interested only on its own profitability and economic efficiency, but their interest and responsibility must necessarily extend to the impacts on the surrounding society and the environment [Kleinová, Ürgeová 2011]. Economic efficiency, social involvement in the community and environmental responsibility are reflected in triple bottom line (Fig. 1) [Catherwood et al. 2005].

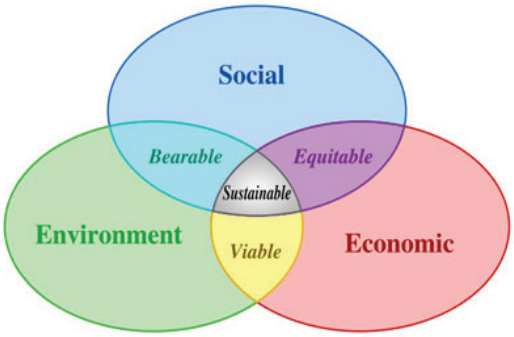

Figure 1: Tripple Bottom Line
Source: Catherwood et al. 2005.

CSR could be divided into several areas from market-oriented through social to environmental one. This areas should influence the way of managing the company and company's ability of positive responding to the surrounding society. Every company on the market should develop its activities not only effective, but ethically particularly in relation to its own customers, suppliers, owners, competitors, and any potential subject in a market area [Kubicová, Kádeková 2011]. Other external field which is necessary to aim at, covers the environment and involvement in community support through collaboration with non-profit organizations, government and local government as well as the public. The behavior of the company, its community relations and attitudes to environmental protection are an expression of corporate social responsibility [Lušňáková et al. 2010]. CSR is aimed at two dimensions: internal (towards internal stakeholders, employees etc.) and external (customers, partners, suppliers, competitors, local communities and others). Interest of each company should be to build a strong position on the market, be more than just a strong company, and therefore to hire motivated, loyal and capable staff. In addition, it is necessary to build good relations with trade unions. This is the internal dimension of CSR [Zamazalová 2009].

The external dimension of CSR includes mainly an area of public relations. Relations with public and with entities outside the company are necessity for the success of every business. Increasing competition is forcing the companies to search for the new ways to improve the quality of their products, reduce costs and gain new customers in order to create a long-term and proper relationship within the supply chain and customers certainly as well as to promote the overall competitiveness of the company on the market [Shukla, Nuntsu 2005]. Ethics in this context focuses on the ethical, efficient and environmentally friendly treatment of customers, partners as well as competitors in every possible situation. Although the application of these principles can be in the initial phase very expensive, in the medium and long term significantly helps to build confidence, overall image and reputation of the company. Ultimately, this helps to reduce costs and gain new customers. At the same time adds the value to corporate identity of company and a positive effect on its economic performance [Marček 2003].

MATERIAL AND METHODS

Under review of social marketing concept survey in the practice of food enterprises in Slovakia were activities of marketing communication, mainly Public Relations (PR) and its chosen tools - event marketing, publicity and education. In order to find the solution of the given problem there have been analyzed information of using external CSR by Public Relations. These data was important in terms of the initial analysis of the market situation. The actual research applying social marketing concept in the practice of food enterprises

was implemented in 123 food enterprises. Anonymous questionnaire survey by authors of this paper took place from July 2010 to January 2012 in area of the Slovak Republic. The questionnaire contained open dichotomous (choice of two variants of the answers), trichotomizing (three variants of the answers), but also polytomic questions (multiple response options), as well as some open questions.

Among 219 companies listed in the official Business Register [2012], the questionnaire was sent to 170 ones in electronic form. The problem was the low return on these questionnaires, some companies did not complete the questionnaire because of unwillingness to provide information about the company, other did not reflect on our request at all. In one questionnaire absent completeness of the data and the questionnaire could be included in the final review process. Electronically received questionnaires were collected in total number of 67 questionnaires. However, this number was insufficient. In person we have asked another 56 companies to provide complete information to the questionnaire. The survey ultimately included 123 food enterprises from Slovakia.

When processing the statistic data, we have used several methods of statistical evaluation, as the frequency and contingency tables, the absolute and relative frequencies, Likert scale, Cramer's V Coefficient. The representativeness of the sample number of food enterprises has been tested by χ^2 test of good agreement Table 1 shows the results of this test. Based on a comparison of the calculated values and test criteria we do not reject the null hypothesis, sample number of food enterprises is representative on the significance level alpha 0.01.

Table 1. χ^2 Test of Good Agreement – Representativeness of Sample Number of Food Enterprises

Number of Food Enterprises	219*
Result of the Test	
Calculated Value	16.06906
Table Value	16.81189

* number of food enterprises in Slovakia in 2011 according to VUEPP
Source: VUEPP, Authors calculations, output XLSTAT.

When applying nonparametric Kruskal-Wallis *H* test, the following hypothesis were formulated:

H_0: there is no difference in the mean values within the group, ie. are identical,
H_1: the difference in the mean values of the groups is statistically (highly) significant.

Tested criterion H was calculated according to formula (1):

$$H = \frac{12}{N(N+1)} \cdot \frac{\sum_{j=1}^{n} R_j^2}{n_j} - 3(N+1) \tag{1}$$

Where:
R_j^2 – the sum of the samples order (or groups),
n_j – the frequency of each sample,
N – the sum of of all samples.

In the case of identical data in the sample, needs to be done next correction (2):

$$H^* = \frac{H}{1 - \frac{\sum_{j=1}^{g} T_j}{N^3 - N}}, \quad T_j = t_j^3 - t_j \tag{2}$$

Where:
H^* – the value calculated test criterion H,
g – the number of groups with frequency more than 1,
t_j – abundance in these groups.
When there is a large scale within the group, approximation is performed on the Chi-square (χ^2) distribution (3):

$$\chi^2(\alpha, k-1) \tag{3}$$

If the critical value is lower than tested criterion (H, H^*), we reject the null hypothesis H0 and confirm there are (highly) significant differences between at least one pair of mean values within groups (or, if the value of p-value <0.05, respectively 0.01).

Table 2. Top Companies Using PR Activities in Slovakia

TOP Companies Using PR Activities in Slovakia
NESTLÉ SLOVENSKO
UNILEVER SLOVENSKO
DANONE SLOVENSKO
COCA-COLA SLOVAKIA
WRIGLEY
SLOVAKIA CHIPS
DR. OETKER
HEINEKEN SLOVENSKO
KOFOLA
HUBERT J.E.
HYZA
MCCAIN
PENAM
TOPVAR
BECHEROVKA
PEPSI-COLA SR
HAMÉ SLOVAKIA
TEEKANE

Source: authors research based on data from TOP 10 PR agencies in Slovakia [Neopublic Porter... 2012].

RESULTS AND DISCUSSION

Our research was aimed at food enterprises in Slovakia. TOP 10 most important PR agencies in Slovakia reported as their best clients in 2011 following companies: Nestlé Slovensko, Unilever Slovensko, Danone Slovensko, Coca-Cola Slovakia, Wrigley, Slovakia Chips, Dr. Oetker, Heineken Slovensko, Kofola, Hubert J.E., Hyza, McCain, Penam, Topvar, Becherovka, Pepsi-Cola SR, Hamé Slovakia, Teekane (Tab. 2).

These companies cover from 30 to 40% of PR agencies turnover, the rest is covered by client companies from the other areas, particularly from the areas of trade, services, automotive and banking.

The aim was to point at using the most common tools of PR [Horská, Ürgeová 2009] as a part of social marketing concept in the practice of food enterprises in condition of Slovakia: events, publicity and education. To to fulfill mentioned goal was established following hypothesis: *Using of chosen PR tools- events, publicity and education, bring to food companies a significant social and economic benefits*.

BENEFITS OF USING EVENTS

Using events in the food enterprises in Slovakia is very popular. The most of all take part mainly Days of open doors, Christmas party, Anniversary party and Discussion with Professionals.

The benefits of using events were assessed by Likert scale, where 80% of companies organize events, 20% of the companies do not organize events at all.

The result of the Kruskal-Wallis test (Tab. 3) found out the statistically significant differences between the benefits from using the chosen events. Since the calculated theoreti-

cal significance level is less than the significance level alpha 0.05, we reject the null hypothesis of no difference between the benefits in using the chosen events. The risk of rejection of the true null hypothesis is less than 0.01%.

Benefits of using the chosen events in questionnaire were expressed through a Likert scale (1 – very important, 5 – unimportant). Figure 1 proofs the most companies (62.83%) agreed that „Building a good reputation" is a very important benefit from using the events. To the most important benefits of applying events in the companies were marked also „Protecting the reputation of the company," reported by 48.67% of the enterprises and the same number of enterprises reported a very significant benefit of applying the events „Thanks to events, company is known by the public". Food enterprises had indifferent attitude to the other benefits such as „Increasing number of customers", "Increasing of profit" and "Increasing sales of products".

Table 3. Results of Kruskal-Wallis test – Benefits of Using Events

Kruskal-Wallis test:	
K (Observed value)	77.906
K (Critical value)	11.070
DF	5
p-value (two-tailed)	< 0.0001
Alpha	0.05

Source: athors calculations, output XLSTAT.

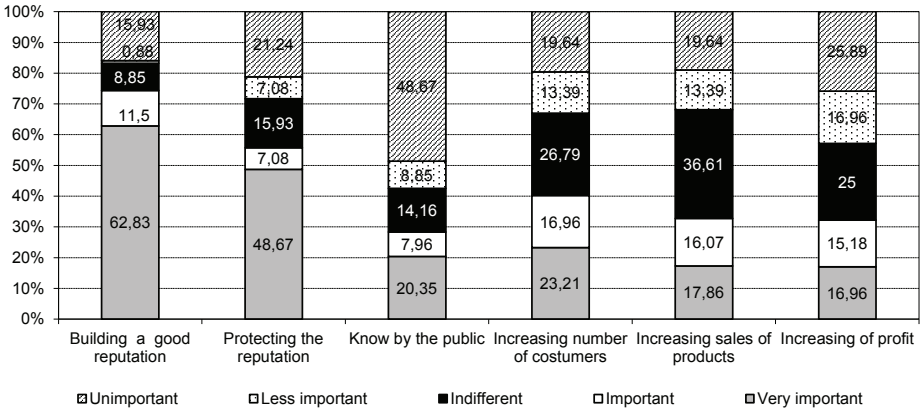

Figure 1. Benefits of Using Events
Source: authors calculations.

BENEFITS OF USING PUBLICITY

The benefits of using publicity of the company in the newspaper, TV, radio and in other media was assessed by Likert scale. Total 94% of companies use publicity for 6 of all unused). Using the Kruskal-Wallis test was found that there were statistically significant differences in the perception of selected benefit utilization publicity. Table 4 shows the results of Kruskal-Wallis test. Calculated p value is less than the specified level of significance alpha 0.05, which means that the null hypothesis of absence of differences in the perception of the benefits of using the selected publicity and the risk of rejection of the null hypothesis true is less than 0.01.

Graph 2 illustrates the percentages of benefits of using publicity, which is expressed by Likert scale (1 – very important, 5 – unimportant). Total 64.75% of food enterprises consider „Building a good reputation" as a very important contribution of using of public-

Table 4: Results of Kruskal-Wallis test – Benefits of Using Publicity

Kruskal-Wallis test:	
K (Observed value)	77.906
K (Critical value)	11.070
DF	5
p-value (Two-tailed)	< 0.0001
Alpha	0.05

Source: authors calculations, output XLSTAT

ity. As the second most important benefit of using of publicity has been labelled the fact that „Company is knows by the general public“. This was marked by 55.74% of the enterprises. Protecting the company‘s reputation by using of publicity is very important for about half of the companies (50.41%). Indifferent attitude was noticed at three benefits: “Increasing number of customers, “Increase sales of products“ and “Increasing profit“. That is why the most important aim of using of publicity is to build and protect reputation of the company in the public.

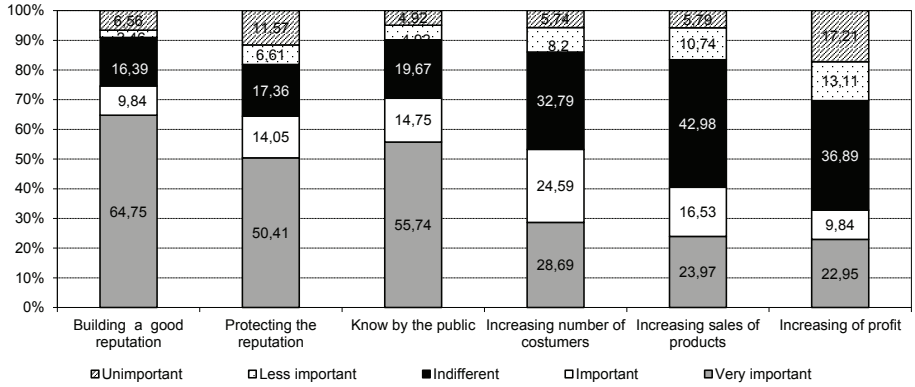

Figure 2. Benefits of Using Publicity
Source: Authors calculations

BENEFITS OF USING EDUCATION IN THE COMPANY

Total 87% of food enterprises use in their practice education of internal and external public, 13% of all food enterprises do not use any education at all. When analyzing the benefits of using education, Likert scale was used to reach the results also in this case. Results of Kruskal-Wallis test confirmed statistically significant differences in the perception of the benefits from using education in the practice. The calculated p-value of Kruskal-Wallis test was lower than the specified significance level alpha 0.05, we reject the null hypothesis of the absence of differences in the perception of selected benefit utilization publicity (Tab. 5).

Table 5. Results of Kruskal-Wallis test – Benefits of Using Education

Kruskal-Wallis test:	
K (Observed value)	77.906
K (Critical value)	11.070
DF	5
p-value (two-tailed)	< 0.0001
Alpha	0.05

Source: authors calculations, output XLSTAT.

The percentages of benefits of using the employees and public education were analyzed through a Likert scale (1 – very important, 5 – unimportant). As shown on graph 3, up to 63.64% of companies considered as a very important contri-

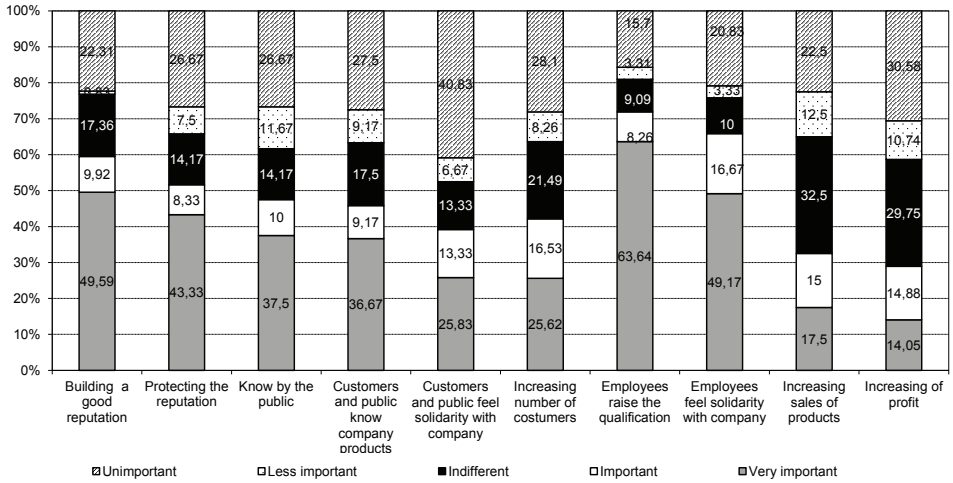

Figure 3. Benefits of Using Education
Source: authors calculations.

bution of using the education of their own employees in order to raise their qualification. The second and third most important benefit from using the education in the companies were "Building the good reputation of the company" and the fact that "Employees feel solidarity with their company". Another significant benefit from using the education includes "Protecting the company's reputation", "Building awareness of the company in the eyes of the public, so company is known by public" and the benefit that "Customers and the general public know more about the company's products".

CONCLUSIONS

The survey showed that using of chosen PR tools – events, publicity and education, offers significant benefits to food enterprises in Slovakia. 80% of surveyed food enterprises organize events. Social benefits resulting from implementation of PR in their practice could be taken as building and protecting reputation and awareness in the public eyes. Total 94% of food enterprises in Slovakia use publicity of the company in the newspaper, TV, radio and in other media as the strongest and most believable way to create strong and trustworthy reputation of the company on the market. Making profit, increase number of customers or sales is not that important from this point of view. Publicity offers more than information about the company, it can also rescue and save the company in the crisis situation, this is just question of how to communicate with employees and public, the publicity is the right tool to deal with this situation in the possible way. Education of employees as well as public, use up to 87% of food enterprises in Slovakia. It is rather high number, anyway we do believe this number should be 100%, as each company should educate at least its own employees. As the most important contribution of education in the food enterprises in Slovakia is considered raising the employees qualification. By providing education to employees and public, these feel stronger bond with the company which leads to build-

ing of good reputation. The company can not buy a good reputation for any money. PR is known as the only non-profit marketing communication tool. Anyway this can be argued because their using bring the company also economic benefits in the form of a growing demand for products, services, because satisfied customers who trust the company with a good reputation will definitely return. The food enterprises in Slovakia using PR tools the most are following companies: Nestlé Slovensko, Unilever Slovensko, Danone Slovensko, Coca-Cola Slovakia, Wrigley, Slovakia Chips, Dr.Oetker, Heineken Slovensko, Kofola, Hubert J.E., Hyza, McCain, Penam, Topvar, Becherovka, Pepsi-Cola SR, Hamé Slovakia, Teekane. We dare say that without active using of PR tools, especially in medium and large companies would not be able to successfully survive in an atmosphere of increasingly stronger competition on the market.

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Zdenka Kádeková, Ľudmila Nagyová

KONCEPCJA MARKETINGU SPOŁECZNEGO – KORZYŚCI WYKORZYSTANIA *PUBLIC RELATIONS* W PRZEDSIĘBIORSTWACH BRANŻY SPOŻYWCZEJ NA SŁOWACJI

Streszczenie

W opracowaniu zaprezentowano możliwości wykorzystania koncepcji marketingu społecznego w przedsiębiorstwach branży spożywczej na Słowacji. Opinia przedsiębiorstwa na rynku jest tworzona przez sposoby przyciąga do niego klientów i działania sprzyjające decyzji o zakupie. Działania *public relations* (PR) tworzą podstawę rozwoju ekonomicznego przedsiębiorstwa i zwiększają jego możliwości konkurowania na rynku. Wyniki badań wskazują, że zastosowanie narzędzi PR (*eventy, publicity* i działania edukacyjne) generuje znaczne korzyści dla przedsiębiorstw branży spożywczej. Społecznymi efektami działań PR w praktyce są przede wszystkim budowa reputacji firmy oraz kreowanie świadomości konsumenta i szerszych społeczności.

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MANAGEMENT OF SMALL ENTERPRISES IN UKRAINE

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Key words: enterprise, market, small business, competitive environment, target programs of support, state regulation

Słowa kluczowe; przedsiębiorstwo, rynek, małe firmy, otoczenie konkurencyjne, programy wsparcia, regulacje państwowe

A b s t r a c t. Characteristics of small business are highlighted in the article. The current status and trends of the development of small business in Ukraine are analyzed. Some aspects of governmental support of business in Poland are observed. The ways of improving the development of domestic small business are suggested in the article, taking into account international experience.

INTRODUCTION

The present situation of global changes in the economy of Ukraine, transformation of its economic ties increases an importance of the issue of rational management of small and medium size enterprises (SME) as an standing point for sustainable development of country in general, through providing competitiveness and receipts of GDP, social security of society, forming and support of middle class, as well as exposure of key factors that have an impact on its formation and development. SME is, first of all, a basis for forming of middle class and smoothing of social inequality. The index of stratification of society in Ukraine, according to estimations of experts, averages between 16/1 and 40/1, that is characteristic of the countries of third world [Тымкив 2011].

In total over 2,7 million persons are employed in small enterprises of Ukraine, and it takes 9% of the country's employable population. At the same time 11% out of general production volume of goods (works, services) are produced by small enterprises, which proves more effective operation of small business in comparison with large-scale one [*On the development*…2012]. However, an in-depth economic crisis inflicted large losses of small business. According to the data of State Tax Service of Ukraine, in 2011 the amount of businessmen has decreased by 70 thousand persons (for the first time since independence was proclaimed). 246 thousand businessmen liquidated their registration, and only 177 thousand applied for registration. By the world rating of Doing Business Ukraine holds 152 position [*Редакция*…2012].

The potential of small business sector is not fully used, which indicates the need to resolve this issue and confirms the relevance and timeliness of research.

Nowadays considerable attention of scientists-economists is paid to the development of integrated formations and large commodity producers. Undoubtedly large-scale enterprises will be able to solve a number of their problems rapidly: to fill profitable part of state budget, to stabilize economic situation in general etc. However, the role of SME is not less important, comparatively with the large organizational structures of country.

According to the current practices, the developed countries provide steady economic development and functioning of small enterprise sector mechanisms, having them as top priority task. In Ukraine there are a number of shortcomings and problems in terms of initiation of small enterprises, their regulations and management.

There are the following domestic and foreign researchers who paid attention to the ways of improvement of management of enterprises generally and to its state support particularly: S. Mocherniy, L. Didkivskiy, L. Golovko, L. Donec, N. Romanenko, L. Romanova, P. Kuzmishin, S.M. Chistov and others. Problems of SME are highlighted by: V. Bilik, O. Blagodarniy, Z. Varnaliya, L. Vorotina, V. Vorotina, L. Dmytrichenko, V. Karsekina, O. Kvasovskiy, Y. Klochka, O. Kuzhel, L. Martinyuk, V. Miski, O. Neveleva, O. Podzereya, O. Popova, V. Sizonenko, I. Slobodyanyuk, O. Titarenko, T. Chernyak and others.

A research aim is a study of features of small enterprises functioning in Ukraine and development of recommendations concerning the improvement of their state in the context of providing the competitiveness of domestic economy.

RESULTS

Exploring the development of small business and taking into account its multidimensional nature, namely, economic, legal, political, historical, psychological components, an entrepreneurship can be qualified both as a managing method and as a way of economic behavior, special type of activity, business and organizational creativity.

A small entrepreneurship is an independent, systematic, initiative economic activity of small enterprises and businessmen (physical persons), that is conducted at an own risk with the aim of income gain [Варналій 2004]. Practically it means any activity of the economic entity, aimed at realization of its own economic interest. It doesn't have to be especially risky and innovative based on principles of complete economic responsibility. To the opinion of Prof. Z. Varnalii, a difference between concepts "small enterprise" and "small business" consists exactly in this quality factor. Unfortunately, these concepts are delimited neither in economic literature, nor in practice [Варналій 2001]. The universally recognized fact is that the small enterprise is a mandatory market element, important factor of development and effective functioning of economy. According to the experts, *two whales which support economy are, on the one hand, large structures that provide its stability and controllability, giving the way for large-scale innovation, on the other side – small business that creates a competitive environment and provides flexibility, individualization of production* [Куликов 1994]. The special impact of small business to solve social problems is visible in market oriented countries.

Analysis of the economic characteristics of small business is determined by two factors: it exists objectively and develops as a kind of integrity, sector of economy (of national, regional and local levels); it is a special type of business. The economy structure enables the coexistence of different sized enterprises, including small ones, which form the appropriate group. This set of production cells, small-scale ones, describes the concept of «small-scale production. Small business is a social form of small industrial units in a

market economy. Its main economic features are: isolation (i.e. housekeeping at your own risk), specializing in any kind of activity, sale of industrial goods (services) through the market distribution [Шабранська 2006].

The features of small business entities functioning can be observed through their administrative functions, principles, aims and tasks. In most cases the owner of the economic unit – small enterprise – is also its economist, generator of ideas, and leader, realizing an interest and initiative of the owner. Accordingly, most decisions that are made during its activities are based on authoritative opinion of proprietor – leader. While large enterprises are faced challenges of cost minimization, improvement of indexes of capitalization, increasing of shares price, small enterprise is developed to realize ambitions of proprietor, that can consist in the aims to be independent, realize the innovative and organizational skills, to be useful to society, to improve the welfare etc.

It should be noted that there are the same administrative processes in activity of both small and large enterprises. But the process of small enterprises' management has its specific features related to the small scale of activity that stipulates imperfection and simplifies the organizational structure, absence of clear division of labor. The specific of communications in small enterprises is the advantage of verbal communication, when the process of information transfer through the simplified hierarchy of relations passes more quickly and smoothly, in comparison to large ones. In other words, there is an integration of rights, duties and responsibility of proprietor with the functions of management. In most cases it is caused by the desire of owner to minimize a risk level. A leader mostly independently executes most functions, but abandonment from delegation of plenary powers (or their part) causes the deficit of time for administrative activity and negatively affects enterprise performance. Therefore time limits and money issues should be foreseen in terms of worker training, that will be in charge of some certain functions.

In a small enterprise an alternative to plan can be "entrepreneurial flair". Intuition based decisions may meet well industrial and commercial interests of the company, but the probability of the correct decision using inefficient procedures is much lower than rationally based, systematic action. Therefore, improvisation and intuition should be considered in addition to planning, but not as its full alternative [Морина 2011].

Analyzing public policy, the use of its instruments in the sector of small enterprise can be distinguished in two large models, described in table 1. Small business entities and models, which are full-fledged economic entities that differ from big business only by size. They can use all the regulatory requirements, as well as big business, because they often involve only production programs. These subjects have almost no influence on the development of a competitive market; there is limited horizontal competition with a potential propensity for monopoly. Their development is a natural extension of the evolution of "parent" companies, big business, which reduces the need for low-skilled labor, betting on efficiency, productivity and introduction of new technologies.

Small business of **model I** are valuable economic subjects that differ from the subjects of large business only by size. All the regulated requirements can be applied here, as well as for large business, as they are often connected by the same productive programs. Such subjects almost do not influence the development of market competition; limit horizontal competition takes place in a sector with a potential gravitation to the monopoly.

Small business of **model II** are highly dynamic, with short lifetime and high rates of entrance and getting into the market. As a result of limited own resources, they are naturally concentrated in the traditional spheres of rapid flow of capital (trade, services)

Table 1. Models of small enterprise

Model I	Model II
Description	
Small business entities that are the satellites of large and middle business	Small business entities, independent on large and middle business
Ties and dependence on other business units	
It is determined by development of large and middle business status	Directly does not depend on development of medium sized and large business
Qualifying requirements to labor force	
Pulls out rigorism to qualification, competence and professional preparation	Does not require high qualified labor force
Limitation of increase	
It is the component of the „distributed" productive system - depends on the parameters concerted with large business	It is the element of independent network - depends on development of enterprise potential of nation
Basic public parameters	
A reaction on public needs at the market of labor force is absent	Rapid rates of labor force surpluses absorption
Rates of updating	
Low rates of updating (a low level of bankruptcy and leaving the market)	High rates of updating (a high level of bankruptcy and leaving the market)
Sustainability:	
Relatively high sustainability level	Low sustainability level, high risks
Requirements of external support	
Are the components of state support of industries/sectors	Possibility of development by slight needs or absence of government programs of support and budget funds
The basic requirements of partners	
Continuity and planning	New ideas, dynamism
Requirements to the equipment	
Often require highly specialized equipment, critical requirements for the area of transport infrastructure	Average demand for all-purpose equipment, averaged requirements for space and transport infrastructure
Presence of market niches for new subjects	
Low, depends on the need of „paternal" companies	High, it is determined by new ideas
Key indicators of development	
Part in GDP, volumes of realization	working position capacity
„Bonuses" indicators of development	
A working position capacity	Part in GDP
Share of value added	
Wide range of	Wide range of
Barriers of entrance to the market	
Relatively high	Mainly low
Policy instruments	
First of all it is the instrument of economic policy	First of all it is the instrument of social policy

Source: [*Зелена книга*…2011]

and does not mainly use highly skilled labor force. The high rates of updating stipulate their requirement in simple and clear regulatory and tax requirements. As a result of high dynamism, large quantity and mainly low barriers of entrance to the market, they operate in a highly competitive environment, that within the conditions of ownership rights protection stimulates them looking for new market niches and products.

Those differences of models I and II determine the different set of public results and, of course, require the different instruments of state support. Public policy of model I expects the rapid increase of GDP and further redistribution of national wealth through budgetary mechanisms, thus it must envisage support of large business subjects and introduction of identical regulatory and tax rules, and also separate programs of support of a limited number of small business entities. The public policy by model II expects high employment rate in society and economic independence, thus it must be concentrated on indemnification of risks of high rates of changes in small business environment by simplification of regulatory and tax rules for small business entities.

During an economic crisis and post-crisis recovery model II is crucial for the social climate in society. Under the conditions of sustainable socioeconomic development model I takes the 1st place. It should be emphasized that model II priority does not preclude the development of subjects of model I, but the priority of model I almost completely eliminates the possibility of business models II development [*Зелена книга*…2011].

Ukraine ranks last positions according to the European rankings (Euro stat data) by contribution of small business in country's GDP (about 11-13%), but it should be noted that Ukraine and the EU still remain a significant difference in the classification of small and, which is more important, the medium-sized entrepreneurship, which doesn't allow methodologically to compare the objective contribution of SME in the country's GDP. In case of preparing consolidated statements about SME of Ukraine, identifying classification limits for medium businesses similarly to classification adopted in the EU, we can predict that the performance of SME contribution in Ukrainian economy will reach 50-60% [*Зелена книга*…2011].

According to the statistics in 2009 6.5 million persons (including employees) were employed in small business in Ukraine, in 2010 this number dropped to 4.9 million (Tab. 2).

Table 2. Indexes of small enterprise development in 2008-2010 years

Indexes	Years			2010 year to 2008 year [%]
	2008	2009	2010	
Number of small business entities per 10 thousand persons of population [units]	609	661	464	76.19
Number of the workers. thousand persons	6 308.0	6 450.9	4 960.2	78.63
Volume of products sold [million UAH] including:	701 634.6	657 643.6	714 811.7	101.8
Small enterprises:				
- amount of the workers. thousand persons	2 319.0	2 227.4	2 145.7	92.53
- volume of products sold [million UAH]	496 683.0	461 691.1	484 393.5	97.53
Physical persons-businessmen:				
- amount of the workers. thousand persons	3 989.0	4 223.5	2 814.5	70.56
- volume of products sold [million UAH]	204 951.6	195 952.5	230 418.2	112.4

Source: systematization based on [State Statistics…].

From one side there is a tendency, which testifies that after the quantitative measuring development of small and mid size businesses status in Ukraine, on the whole, responses the best European indexes, and from other hand, testifies to the anxious tendency of rolling up of sector in terms of employment rate. It can be explained by influence of economic crisis, however more for certain, that it is consequences of negative business-climate in Ukraine with its annual worsening.

Generalization of destabilizing factors enables to isolate the main factors that hinder the development of small business:

– lack of clearly articulated, through regulations, public policy in support of small business,
– increased administrative barriers (registration, licensing, certification, control and licensing practices, management of lease relations, etc.),
– the lack of real and effective mechanisms of financial support,
– excessive tax burden and burdensome reporting system,
– uncertainty entrepreneurs in the stability of business conditions,
– excessive intrusion of government to the activities of entities.

One of the main problems that hinders the development of small business in Ukraine, is that it is considered in the framework of government policy solely to economic considerations. The consequences and logical extension of this problem are flawed state regulation, numerous administrative barriers and high level corruption mechanisms.

In general, government policy in the field of small business is inconsistent, fragmented, contains internal inconsistencies and contradictions that are ineffective.

The basic principles of state regulation of small business in the leading countries of the world are providing incentives for independent economic activity of citizens. It should be separately noted that although public emphasis on the economic activity of citizens, the main goal is not so much the economic performance of small business, but its ability to bind excess labor and dynamically respond to external changes. So it is not only the economic aspects of small business and its social significance. That is what should be considered a priority to guide government policy in the economic crisis and rising unemployment.

Studying the experience of the EU on the formation of mechanism of small business functioning should focus on specific aspects of state support of entrepreneurship in Poland. Its economic conditions are close to the conditions of Ukraine, besides during the past 20 years its successful reforms placed it at a fairly high level.

International recognition of Polish position and achievements encourages learning from this country in support of SME as well as from its regional aid system of incentives and government grants.

In 1995-1997 the Polish government accepted program of development of small enterprise, as a result, basic organizational structures were created [*Raport o stanie*…2007]:

– in 1995 the „Polish fund for support and development of small enterprise", that provided co-operation of 240 agencies and institutes of support of small enterprise, was initiated. A fund cooperates with a government and parliament, giving reliable analytical information about small enterprises and prospect of their development;
– in 1997 – the „National fund of credit guarantees", that guaranteed credit allotting to the small enterprises, later on the network of regional funds was created for support and development of agrarian and depressed districts;
– „Agency of development of technique and technologies" began its activity in 1997, assisting to the development of innovative technologies and their application in SME.

Later on Polish government worked out and introduced some other effective programs. The economic program "Directions of public policy for a small enterprise by 2002" envisaged continuation of previous policy, and also development of following directions: consultations and practical skills to the businessmen, organization of consulting centers, each of them was specialized in certain industry; a facilitation of access of small enterprises to the external financial resources; export support; increasing of domestic products quality.

Another government initiative was adopted in July 2002, which included a package of anti-crisis actions to protect the free market and increasing employment. As a part of this package, preferential tax rates for newly established enterprises and enterprises that provide jobs were applied; bankruptcy procedure was simplified, credit guarantee system and the system of funds lending to small businesses were changed. The program "Capital for Entrepreneurs" (2002-2006) was aimed primarily at facilitating conditions and activation of external financing for business needs. In 2002 Poland ratified the European Charter for small businesses. In 2004, the country joined the EU, which put small businesses at very favourable conditions for the outlet expansion, as well as for the implementation of international business interests [*Raport o stanie*…2007].

The following facts testify the dynamic development of SME in Poland. In the list of REGON (National register of enterprises) there were 1 million of legal persons-enterprises in 2003, 3 million in 2004, and 6 million in 2008. In 2004 the share of small enterprises in national GDP was about 50.0%, in 2008 it took 57.5%. More than 10.78 million people work in the sector of small enterprises (66.9% out of total number of working population), including 31.9% of those who work for micro enterprises (up to 9 workers), 15.1% – for small enterprises (10-49 workers), 19.9% – for medium-sized enterprises (50-249 workers) [*Raport o stanie*…2007].

In addition, upgrading of human capital and development of academic centers testifies about active economic and innovative growth of Poland [*Official promotional* … 2012]. Some measures of informative and consulting and extension character also draw attention:

– creation of constantly updatable base of laws and bylaw acts that are valid in the EU, concerning the sector of SMEs;
– forming of centralized base of standards for electronic documentation according to the international standards to be used by Polish businessmen, adjusting comfortable electronic communication;
– creation the national service system for SMEs;
– introduction of the education and consulting program "Enterprise for ambitious";
– providing sponsorship for creation of student enterprise – "incubators" and propaganda of their activity;
– additional financial resources for the certification of quality control system (ISO 9001-2000) aimed at improvement of quality of commodities and services, made by small enterprises;
– introduction the regional programs of SME development with participation of international experts and examples of European experience.

An active work to support small businesses is conducted at the regional level. The main forms of these activities are: tax holidays, which include reducing the tax burden, direct financial support through grants, structural funds, individual negotiations, paid expenses - regional investment aid, which is calculated according to the tangible or intangible investment costs or the project cost: assistance under the cost of land, construction, equipment, tangible assets on technology transfer through the acquisition of patent rights, licenses, know-how or non-patent technical knowledge, assistance in creation of new jobs; permis-

sion to carry out activities in special economic zones for regional support, the program offered to employers of labor offices [Виноградський 2008].

This integrated approach to support SMEs in Poland contributes to the creation of favorable environment for private initiative of citizens, becoming one of the important factors for sustainable economic growth of the country, creating new jobs, economic restructuring and strengthening its regional segments.

It should be noted that in relation to the EU-15, Poland has low level of GDP, but the level of state support of small business in the country is high, indicating a reasonable period of policy formation and development of the latter.

International experience in sustainable development of small business is a strong argument in implementation and the need for a mechanism to support small business in Ukraine, which will improve the social and economic status of not only specific sector, but also the country's in general.

Creating favorable conditions for the development of small enterprises is possible due to the implementation of the national strategy by creating organizational and financial institutions, as well as introduction a number of administrative and legal measures at the national and at regional and local levels (Fig. 1).

As a part of small business innovative progress, it is necessary to improve the system of preferential crediting through the creation of regional fund of support (Fig. 2).

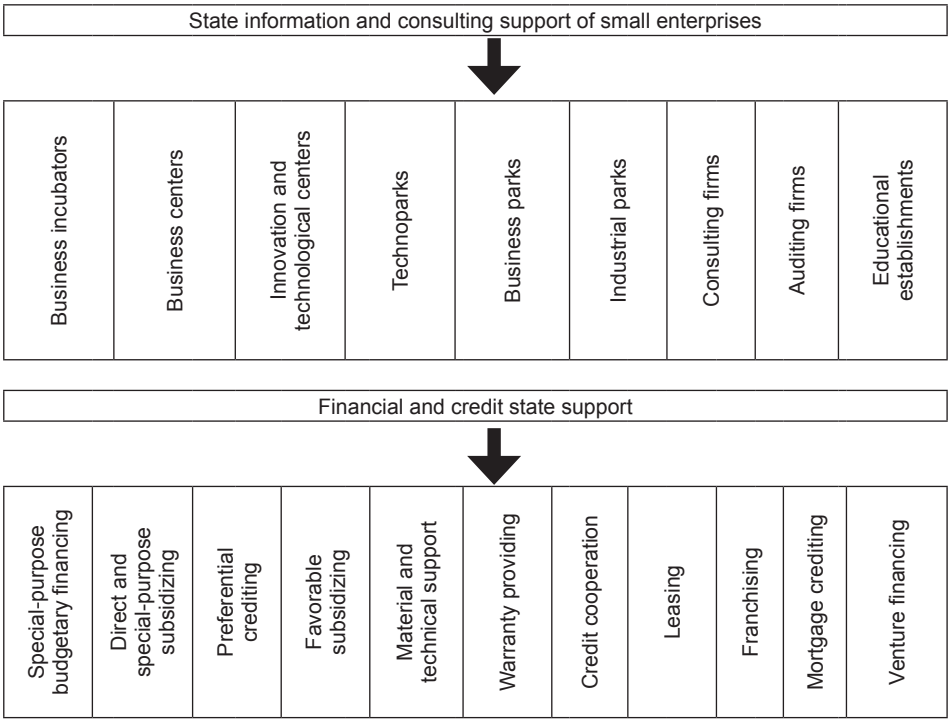

Figure 1. Forms of government support of small business development in Ukraine
Source: systematized based on [Колісник 2007].

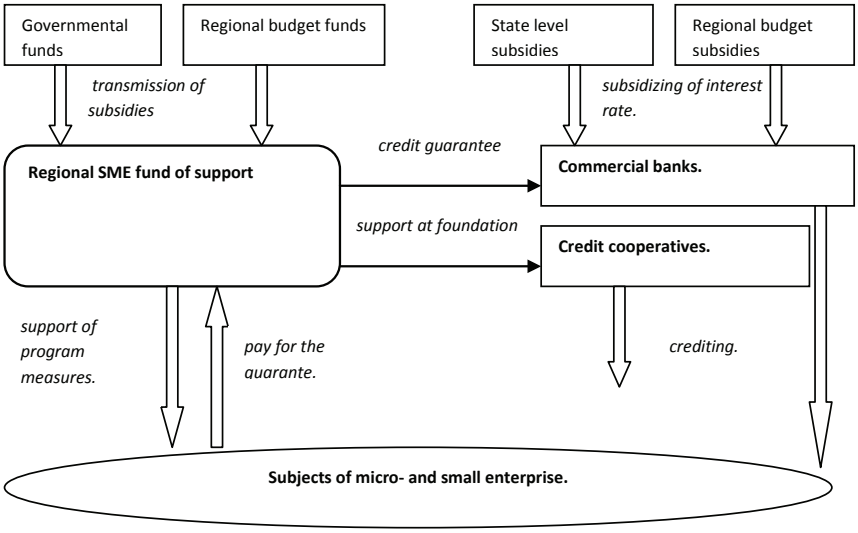

Figure 2. Improvement of crediting system of small business entities
Source: own study.

CONCLUSIONS

Entrepreneurship should be included in all areas of public policy in order to create an effective system of conditions, incentives and motivations of social and economic potential. In this regard, the improvement priorities of small business, particularly at regional and local levels should be:

– in a social aspect: strengthening social and economic positions of middle class of society, assistance of life standard increasing and access to the social welfare through the support of enterprise initiatives among of the population; providing reproduction of small business and increase a number of people employed is in this sector of economy;
– in an economic aspect: creation favorable conditions for the development of business environment, increase of total output of goods, works and services due to the development of innovative business, optimization of resource potential use, industries, increase of assortment and quality of goods produced, first of all foodstuffs;
– in an organizational aspect: improvement of system of measures concerning assistance and control over the small business by creation the research and information system for their activity support, improvement of legal base for their regulation.

As a part of small business innovative progress, it is necessary to improve the system of preferential crediting through the creation of regional fund of support (Fig. 2).

The development of national entrepreneurship is especially important during the search for new economic models and strategies that will lead to enhanced stability and creating sources of the national economic system development.

To fulfill this task, firstly, it is reasonably to make efforts and pay attention to the domestic consumer and investment demand that provides maximum use the potential of demand stimulation, to take measures towards internal market development aimed at most complete and rapid stimulation of internal demand directly to the domestic producer.

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ZARZĄDZANIE MAŁYMI PRZEDSIĘBIORSTWAMI NA UKRAINIE

Streszczenie

Artykuł przedstawia charakterystykę małych przedsiębiorstw oraz analizę ich rozwoju na Ukrainie. Biorąc pod uwagę doświadczenia międzynarodowe, w tym także polskie, przedstawiono sugerowane sposoby poprawy funkcjonowania i wsparcia rozwoju małych przedsiębiorstw na Ukrainie.

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AN INTERNATIONAL COMPARISON OF THE EFFECT OF GOVERNMENT SUPPORT ON AGRICULTURAL PRODUCTIVITY

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Key words: government support, labor productivity, agricultural policy.
Słowa kluczowe: wsparcie rządowe, wydajność pracy, polityka rolna

A b s t r a c t. This paper provides an econometric evaluation the effect of government support to agriculture on a measure of the agricultural labor productivity in 16 countries with different level of support. The econometric model we construct specifically utilizes two values calculated by the Organization for Economic Cooperation and Development (OECD): Producer Support Estimates as a percentage of gross farm receipts and the Consumer Nominal Protection Coefficient. These two variables represent transfers from taxpayers and consumers to agricultural producers through government programs and transfers from consumers to government or vice versa, respectively. By using regression model, we draw conclusions for groups of countries on the basis of their relevant levels of government support.

INTRODUCTION

The main objectives, which are usually laid in the implementation of the government support to agriculture are: to increase the productivity of production factors used in agriculture, mainly the labor force; to increase farm income; to stabilize agricultural markets; to guarantee agricultural products provisions; to guarantee reasonable prices to the consumers Agricultural products, and mainly food products of course, must be available in appropriate quantity and quality for the whole. These are the goals of the Common Agricultural Policy of the European Union were clearly defined in the article 39 of the Treaty of Rome, signed on March 25, 1957 [Burny 2010].

Every year the world release huge amounts of money to finance agriculture from the budget. Thus, the total cost of the planned budget of the European Union CAP for the period 2007-2013 accounts approximately 42% [Gorton 2009].

But the question how the implemented government support to agriculture achieves its goal, i.e. provides increase the productivity of production factors used in agriculture, mainly the labor force, increase farm income and so on. We can answer on this question by using econometric methods.

The articles published over the last years in related disciplines have attempted to determine the factors that identify the productivity of the agricultural sector. Such studies have analyzed the factors that define labor productivity in the agricultural sector and

empirically calculated the impact of each determinant on the shaping of productivity and added value by using statistical data [Polyzos, Arabatzis 2005] or have investigated the relation between labor productivity and food prices [Future Agriculture 2012] or have estimate total factor productivity using a conventional DEA model [The World Bank, 2009]. However, far fewer research articles in academia have empirically investigated any presupposed relationship between agricultural labor productivity and agricultural policy.

We attempt to investigate in this paper how the government support to agriculture effect on the agricultural labor productivity by using econometric model.

The model in this paper uses data from the OECD and the World Bank to evaluate the effects of the OECD measure of government support to agriculture, known as a producer support estimate (PSE), and the Consumer Nominal Protection Coefficient (CNPC), a complementary measure of the effects on consumers of government policies. These effects are measured for 16 nations.

DATA

Because of our interest in the effect of agricultural policies on the agricultural labor productivity, we take the ratio "agriculture value added per worker" as a dependent variable in the model. This ratio is reported by The World Bank. Value added in agriculture measures the output of the agricultural sector less the value of intermediate inputs. Agriculture comprises value added from forestry, hunting, and fishing as well as cultivation of crops and livestock production. Data are in constant 2000 USD. The agriculture value added per worker data is available through 2010.

The effect of government support on agricultural productivity is measured for 16 countries such as Ukraine, Russia, Australia, USA, New Zealand, Norway, Japan, Switzerland, Canada, Turkey, Brazil, China, Chile, Korea, Mexico, and South Africa.

The model uses two independent variables: Producer Support Estimate (PSE) as a percentage of gross agricultural receipts and the Consumer Nominal Protection Coefficient (CNPC) as reported by the Organization for Economic Co-operation and Development (OECD).

The model uses 16 observations for each variable in each country from 1995 to 2010.

The measure of agricultural support in each country in our model is the PSE as a percentage of gross agricultural receipts, values that OECD reports for each nation. OECD describes PSE as the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policies that support agriculture, regardless of their nature, objectives or impacts on farm production or income [OECD 2011]. We include this measure to represent transfers from taxpayers to agricultural producers. We use the value as a percentage of agricultural receipts to control for the size of each nation's individual economy.

Figure 1 depicts the values of the PSE data as reported by OECD, in this case, the average values over 1995-1997, the beginning of the period, and the average value at the end of the period, 2008-2010.

Figure 1 indicates that Norway, Japan, Switzerland, Korea provide relatively much higher levels of support compare with the other countries. This comparison holds at both the beginning and end of the period. The countries such as Ukraine, Russia, Turkey, Brazil, China, and Mexico have a higher value at the end of the period than at the beginning. Other countries had the opposite tendency.

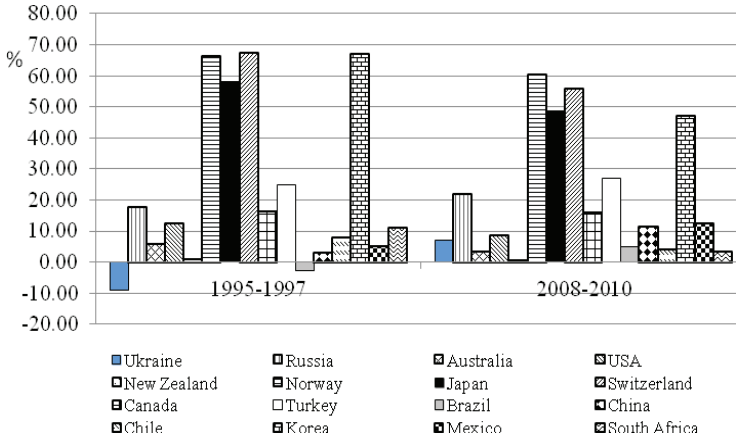

Figure 1. Producer Support Estimates as a Percentage of Gross Farm Receipts, Averages 1995-1997 and 2008-2010
Source: [OECD, PSE/CSE Database 2012].

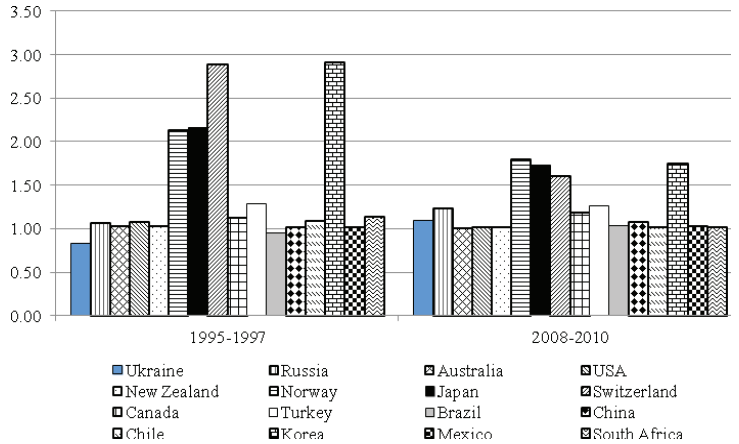

Figure 2. Consumer Nominal Protection Coefficients, Averages 1995-1997 and 2008-2010
Source: [OECD, PSE/CSE Database 2012].

The another independent variable included in our model is also a measure of agricultural support reported by OECD – Consumer Nominal Protection Coefficient (CNPC). OECD describes CNPC as the ratio between the average price paid by consumers (at farm gate) and the border price (measured at farm gate) [OECD 2011, p.135]. The CNPC shows the effects on consumers of a nation's protectionist agricultural policies. The CNPC is effectively the average rate of the implicit import tax applied in the domestic market [Miller, Coble 2008]. A value of 1.00 reflects that the domestic price equals the "border price", or the price consumers pay at the farm gate in the absence of trade restrictions. A value of less 1.00 indicates that there are transfers from taxpayers to consumer. A value of larger 1.00 indicates that there are transfers to producers from consumers.

Figure 2 depicts the values of CNPC data as reported by OECD. Analysis of CNPC measures indicated the same relationships as for the PSE. The countries such as Norway, Japan, Switzerland and Korea have the highest value of this indicator. Almost all countries (except Ukraine, Russia, Brazil, China, and Mexico) have a lower value at the end of the period than at the beginning. It should be noted, the countries with the highest values of CNPC in the 1995-1997 period decrease significant the values of CNPC in the 2008-2010 period compare with other countries.

Thus, as we can see from the figures, surveyed countries characterized by large difference of level government support. Therefore, the selected countries were divided into similar groups by level of support. For the selection of countries with middle level of support were calculated bottom 35th percentile and the upper 75th percentile for PSE. Consequently, countries with average level of support for PSE more 75th percentile (35.25) were classified as the group of countries with a high level of support. It is countries as Norway, Japan, Switzerland and Korea. Countries that had by 1995-2010 average level of support for the PSE less value 35th percentile (8.02) were classified as the group of countries with low levels of support. Such countries are Ukraine, Australia, New Zealand, Brazil, China, Chile, and South Africa. All other countries were classified as the middle level of support, including Russia, USA, Canada, Turkey, and Mexico.

MODEL

We estimate a regression models for each group countries (high support, low support, middle support countries) with the variables as defined above. The equation for each country in the models is initially:

$$PA_{it} = B_0 + B_1 PSE_{it} + B_2 PC_{it} + e_{it}$$

where, for each country i (i = 1, 2, . . . , 16) in each year t (t = 1995, 1987, . . . , 2010), PA is the ratio of the agriculture value added per worker, PSE is the PSE as a percentage of agricultural receipts, and PC is the CNPC.

We use the Statistica software package to execute regression model. Tables 1-3 present the results of this model.

RESULTS

All three models showed statistical significance checked by an F-test. It means that the models are adequate, i.e., the model that best fits the population from which the data were sampled.

Constructed models for countries with a high levels of support and low levels of support can be used for decision-making and forecasting, as the

Table 1. Results of regression model for high support countries

Indicator	B	Std. err.	t(61)	p-level
Intercept	25.3565	9.0037	2.8162	0.0065
PSE	0.6753	0.2385	2.8316	0.0063
PC	-19.1961	4.0217	-4.7732	0.0000

Source: own study.

Table 2. Results of regression model for middle support countries

Indicator	B	Std.err.	t(61)	p-level
Intercept	76.6167	29.0243	2.6398	0.0100
PSE	0.4578	0.5934	0.7714	0.4428
PC	-58.0196	32.8180	-1.7679	0.0810

Source: own study.

Table 3. Results of regression model for low support countries

Indicator	B	Std.err.	t(61)	p-level
Intercept	1165.2021	446.4159	2.610	0.0103
PSE	20.6580	6.3393	3.259	0.0015
PC	-1158.4932	459.1986	-2.523	0.0131

Source: own study.

models based on the F-Fisher criterion generally adequate and all the regression coefficients are significant (Student's t-test).

The model constructed for countries with middle level of support is suitable for some decisions, but not for the forecasts, as the model is based on the F-Fisher criterion generally adequate but some of the coefficients are not significant (Student's t-test).

The coefficient of determination for countries with a high level of support is 30.0%, indicating that almost 30% deviation from the average value of the agricultural labor productivity caused by indicators that measure the government support to agriculture.

The coefficient of determination for middle and low support countries were respectively 7.7 and 9.8%, indicating the limited impact of government support to labor productivity in these countries.

PSE as a percentage of agricultural receipts is a significant and positive variable at the 0.05 level for high and low support countries. This variable indicates that as a country's PSE estimate becomes larger relative to agricultural receipts, labor productivity becomes higher.

The coefficient on the variable for PSEs for the low support countries has more size as the coefficient for the variable for PSEs for high support countries. It means for low support countries transfers from taxpayers to agricultural producer through government programs have a lager effect on the agricultural labor productivity relative to high support countries.

PSE as a percentage of agricultural receipts for middle support countries is not significant at the 0.05 level, indicating the share transfers from taxpayers to agricultural producers in their gross receipts does not significant affect our measure of labor productivity.

The other variable measuring support to agriculture, the CNPC, is also significant for high and low support countries. Its coefficient value is negative, indicating that protectionist measures make less agricultural labor productivity. The coefficient on the variable for CNPC for the low support countries has considerably more size as the coefficient for the variable for CNPC for high support countries. It means the value of agricultural labor productivity changes considerably lager for low support countries relative to the high support countries when CNPC is varied.

CNPC for middle support countries is not significant at the 0.05 level, indicating that protectionist measures do not significant affect agricultural labor productivity.

CONCLUSIONS

In this paper, we try to evaluate econometrically the effect of government support to agriculture on a measure of the agricultural labor productivity in 16 countries. The econometric model we construct specifically utilizes two values calculated by the OECD: Producer Support Estimates as a percentage of gross farm receipts and the Consumer Nominal Protection Coefficient. These two variables represent transfers from taxpayers and consumers to agricultural producers through government programs and transfers from consumers to government through protectionist measures, respectively.

For middle and low support countries with relatively low levels of government support and few protectionist measures over the period we examine, our results indicate government involvement in agriculture has little effect on the agricultural labor productivity in these countries.

For the high support countries such as Norway, Japan, Switzerland and Korea in our model, we find PSEs as a percentage of gross farm receipts and CNPCs both significantly affect our measure of the agricultural labor productivity. Moreover, the increase of transfers from taxpayers to agricultural producers has a positive effect on productivity, and protectionist measures have negative effect.

The results obtained allow to conclude that a substantial government support significantly affects the agricultural labour productivity. The results should be considered in the development of agricultural policy, as well as in determining the scope and program of government support. It should also be noted that preference should be given not protectionist measures, but support measures in the development of agricultural policy in order to achieve a positive effect on labour productivity.

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Olena Oliynyk

WSPARCIE PAŃSTWOWE A PRODUKTYWNOŚĆ PRACY W ROLNICTWIE

Streszczenie

Artykuł przedstawia ekonometryczną ocenę wpływu wsparcia państwowego dla rolnictwa ze szczególnym uwzględnieniem wskaźnika produktywności pracy w rolnictwie w 16 krajach o różnym poziomie wsparcia. Model ekonometryczny wykorzystuje dwie wartości obliczone przez Organizację Współpracy Gospodarczej i Rozwoju (OECD): *Producer Support Estimates j*ako procent przychodów brutto gospodarstw rolnych i *Consumer Nominal Protection Coefficient.* Te dwie zmienne stanowią transfery od podatników i konsumentów do producentów rolnych w ramach programów państwowych i transferów od konsumentów do państwa lub odwrotnie. Za pomocą modelu regresji zostały przedstawione wnioski dla grup krajów wydzielonych, w zależności od poziomu rządowego wsparcia w tych krajach.

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SUSTAINABLE FARMING AND NEW PERSPECTIVES FOR THE FARMER AS ENERGY-MANAGER FOR POWER-SUPPLY FROM BIOGAS-REACTOR COUPLED WITH CHP

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Key words: sustainable farming, biogas, climate protection
Słowa kluczowe: rolnictwo zrównoważone, biogaz, ochrona klimatu

A b s t r a c t. The paper shows how plant with biogas reactor can be a part of sustainability issues in agribusiness. Based on the case study from Germany it clarifies the main suppositions, benefits and outcomes for the farmer and producer.

INTRODUCTION

With the recognition of the temporal limitations of fossil fuels (carbon approx. 200 years; oil approx. 50 years; natural gas used approx. 60 years) a process of conscious dealing with energy has started in the 1970, away from the waste and to the sustainable management and use of renewable energy sources [de.wikipedia.org/wiki/nachhaltigkeit].

The umbrella term for all this gentle resources efforts in all areas of human activity, the cultural, social, economic and environmental activities, is sustainability. *Sustainability is the capacity to endure through renewal, maintenance, and sustenance, or nourishment, in contrast to durability, the capacity to endure through unchanging resistance to change. For humans in social systems or ecosystems, sustainability is the long-term maintenance of responsibility, which has environmental, economic, and social dimensions, and encompasses the concept of stewardship the responsible management of resource use* [en. wikipedia.org/wiki/sustainability].

The term "sustainable" in the sense of "state of global equilibrium" arises in 1972 for the first time in the report „The limits to growth" to the "Club of Rome" in a prominent place [Grober 2002]. According to Meadows [1972]: *We are searching for a model output that represents a world system that is: 1. sustainable without sudden and uncontrollable collapse.* The international debate on sustainable development was influenced then in 1983, and in this year established "World Commission on environment and development" of the United Nations. They should develop long-term perspectives for an environmentally friendly development policy.

In the 1987 created final document of "Our common future", known as the Brundtland – Commission report (Gro Harlem Brundtland was Chairman of the Commission) the concept of sustainable development has been defined as follows: *To make sustainable development means that the current generation meets their needs without compromising*

the ability of future generation, to satisfy their own needs (Episode "the global challenge", Chapter 3 of "Sustainable Development", article 27). And Jared Diamond [2005], author of the book "Collapse: How Societies Choose to Fail or Succeed" describes on the basis of examples how destructive the non-sustainable treatment of the environment affects a society.

In Germany "The board of inquiry" defined the concept of sustainability as follows: *The concept of sustainability describes the use of a renewable system in such a way that this system in its essential characteristics remains intact and can regenerate his stock in a natural way* [Deutscher Bundestag 2002].

A SUSTAINABLE SYSTEM IN SENSE OF PERMACULTURE

To live a life that meets the above requirements for sustainability can be done in multiple ways and forms, from controlling living conditions (e.g. ecovillages, eco-municipalities and sustainable cities) to reappraising work practices (e.g. using permaculture see later), green building, sustainable agriculture) or developing and using new technologies that reduce the consumption of resources such as renewable technologies.

To be described later, is especially the production of renewable energy with renewable raw materials (e.g. corn) and By-products of agriculture (e.g. manure, liquid manure) as a new branch in agribusiness chain (Fig. 1.), designed in the sense of permaculture (permanent agriculture) as a self-maintained agricultural system, as first described by the Australians

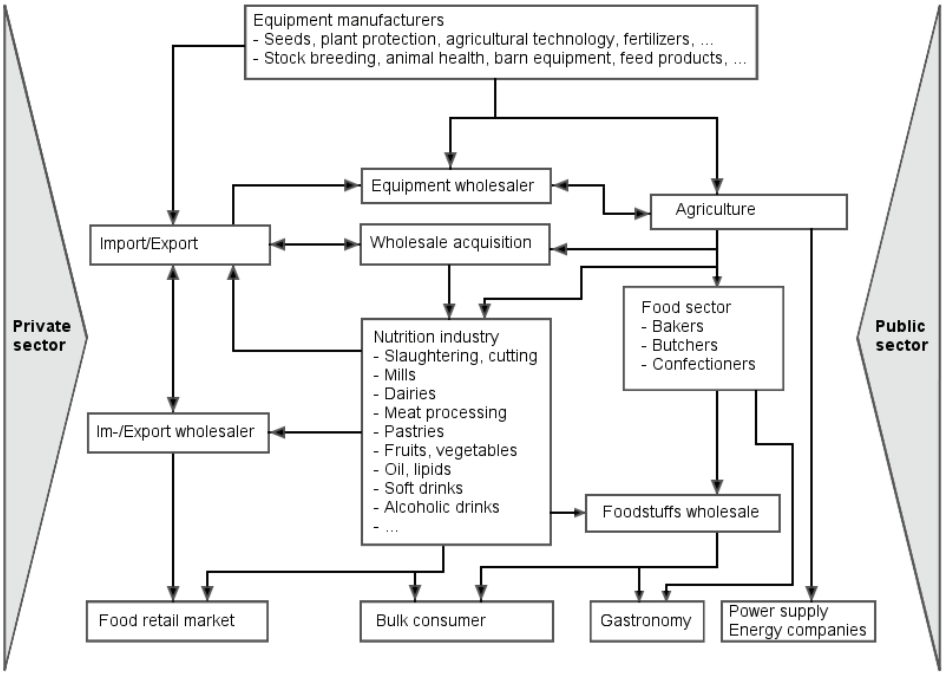

Figure 1. Agribusiness Chain with included energy production
Source: [Strecker 1996].

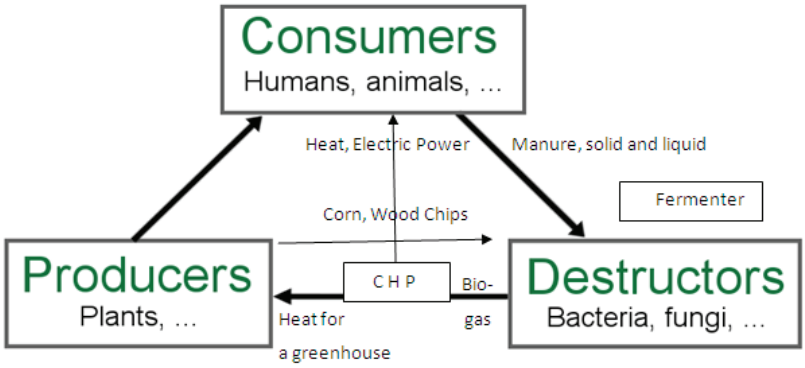

Figure 2. Cycle of raw – materials
Source: [de.wikipedia.org/wiki/Bild:Stoffkreislauf.jpg].

Bill Mollison and David Holmgren during the 1970`s as: *A philosophy of working with, rather than against nature; of protracted and thoughtful observation rather than premature and thoughtless labor; and of looking at plants and animals in all their functions, rather than treating any area as a single project system* [*Healthy Environments and You* 2011]. As it applies with the design principles of Mollison [1978]:

– energy recycling (reusing energy and materials within the system),
– natural resources (using the natural resources of a system),
– and the advanced of Holmgren [2002]: "Use and value renewable resources" (Cautious but productive use of renewable resources as solar, wind, water, biomass. At the same time reduced input of non-renewable resources…). The cycle of raw-materials is shown in figure 2.

THE SYSTEM OF AGRIBUSINESS IN GERMANY

The system of agribusiness in Germany consists of more than 500.000 companies with over 3 millions of employees (this are 9% of all employees in Germany), the total turnover is about 330 billions Euro, this is 13% of the GDP in Germany (2006) [de.wikipedia.org/wiki/Agribusiness]. Table 1. shows the distribution of employees in the different branches of agribusiness in Germany.

As described above the agribusiness sector currently contributes a significant amount to the economy in Germany. However, our agricultural sector as a result of high industrialization with appropriate land use and thus accompanying reduction of agricultural production units is increasingly less competitive. This in particular in the context of increasing globalization and the relocation of the production of agricultural products in area countries (France) or emerging countries (Slovakia, Ukraine) with a low density of industry. So it is for the farmer to find new sales branches.

Table 1. Distribution of Employees in the Area of Agribusiness in Germany

Area	Section of area	No. of employees approx.
Agriculture	Agricultural machinery industry	26 000
	Agricultural machinery trade	45 000
	Plant breeding	10 000
	Animal breeding (animal genetics)	8 000
	Feed	15 000
	Agricultural consulting	15 000
	State agricultural administration	15 000
	Fertilizers, pesticides, animal health	No data
Wholesale trade (purchase business)	Wholesale of agricultural raw materials	52 000
Agriculture	Agriculture, horticulture, viticulture, livestock...	560 000
Manufacturing industries	Food industry	520 000
	Food craft	480 000
Food trade	Food retail	670 000
	Food wholesale	220 000
Bulk Consumers	Foodservice catering	710 000
	Canteens and catering	95 000

Source: [de.wikipedia.org/wiki/Agribusiness].

NEW PERSPECTIVES FOR THE FARMER IN SUSTAINABLE AGRICULTURE

Below some facts which show the environmental benefits of such a system of food production and downstream power generation from biomass:

- regenerative source of energy (renewable, locally available raw materials) as well as saving fossil fuels,
- use previously unused plants and parts of plants (catch, plant remains); CO_2 – emission is almost neutral,
- saving of artificial fertilizers using agronomic fermentation rest. Better plant availability of nutrients. Improved fertilizer quality of the fermentation rest, compared to liquid manure,
- biogas can be used for the production of electricity, heat and as purified methane as fuel for converted vehicles,
- contrary to other renewable energies such as wind and sun, biogas is a weather-independent, storable energy source,
- purified biogas can fed as bio-methane in the gas network and used as a gas substitute,
- increase in value creation/income alternative for the agricultural area.

RESEARCH RESULTS: THE NEW BRANCH OF ENERGY-MANAGEMENT IN AGRIBUSINESS – A CASE STUDY APPROACH

The development of this new branch of agribusiness is to be described below on the example of the development in Germany. A farm with grain production, especially corn and wheat, animal husbandry (cattle, pigs) and a biogas-plant is shown in figure 3.

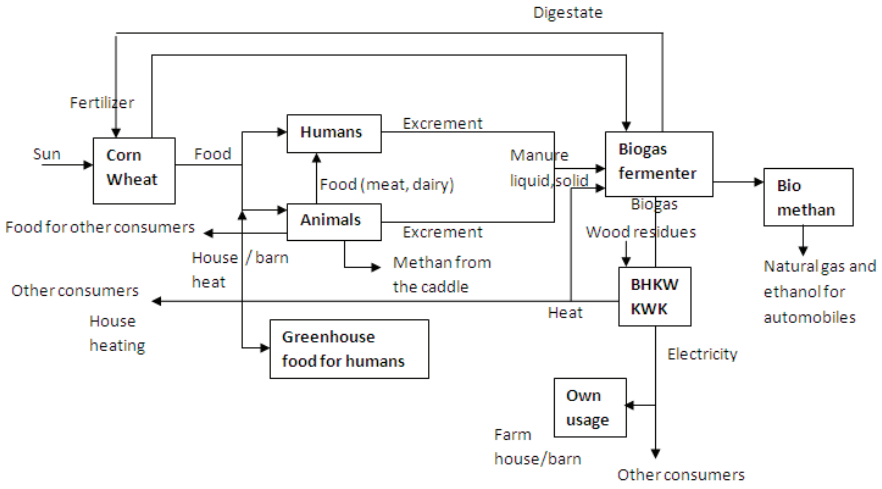

Figure 3. Permaculture Design of a Farm with Grain Production, Animal Husbandry and Energy – Production
Source: own study.

POWER-HEAT-COUPLING WITH BIOGAS

Biogas whose main components methane (CH_4) (share around 60%) and carbone dioxide (CO_2) (share around 40%), is formed during the decomposition of organic matter by special methane bacteria. As feedstock for the production of biogas all materials which can be fermented, such as manure, organic waste, but also renewable raw materials, such as cereals, corn, sunflowers etc. The fermentation process takes place in a biogas-reactor (fermenter) in the exclusion of air and with heat supply (anaerobic digestion). The temperatures must be at least in the range between 30° and 37°C (mesophilic mode). For faster dwell times , as well as in terms of sanitation , the thermophilic operation with temperatures above 50°C is also an option. To avoid high heat losses is the bioreactor insulated. The fermenter volume par example for the plant of one farm is in the size of about 200 m³. The energy content of biogas produced per year for such a plant is approximately 330 MWh. After leaving the biogas reactor, the gas is washed (sulphur extracted) and storaged in a gas storage. From there the downstream power plant (CHP) is supplied with gas, which produces at the same time power and heat. This is part of the governmental plan of decentralized, combined power and heat supply. A part of the generated heat (approx. 20-40%) must be attributed to the heating of the reactor and the pretreatment of food additives in the process. The remaining available heat can be used for the heating of the farm buildings (house, stable, and greenhouse) or the drying of cereals or for operation par example of

aquacultures. The remaining rest of heat can be fed into a local heating network. Especially economical efficient and energy – efficient the plant works, if the excess heat can be used all year round or sold. The process electricity requirement for the operation of pumps and a stirrer in the fermenter is in the range of 5-10% of the produced electricity. The remaining electric energy can be used on the farm or fed also into the regional electric network. The digestate from biogas plants are largely used as agricultural fertilizer. They are far less aggressive chemical compared to the plants as liquid manure; nitrogen availability is higher and less intensive smell.

THE DEVELOPMENT OF BIOGAS-PLANTS IN GERMANY

The cultivation of renewable raw materials to biogas in Germany risen from 400,000 ha in 2007 to 530,000 ha in 2009 [*Fachagentur achwachsende...* 2009]**.** The number of installations, as well as the installed electrical capacity has also risen strongly in recent years. A comparatively high rise can make valid since 2004 first amendment of the renewable energies act (EEG). The number of plants was in 2004 before the amendment still 2010, there were plants in Germany 2005 already 2,690. In 2007 this number has continued to 3,711. The electric power increased from 247 MW in 2004 about 665 MW in 2005 up to 1,270 MW in 2007. As the performance of newly installed equipment is increasing, overall performance increases faster than the number of attachments [F*achverband Biogas* 2007]. In 2009 there were 4,671 biogas plants in operation, producing a total of about 11% of electricity from renewable energy in Germany. At the end of 2011 there where 7,100 biogas plants with an installed capacity of approximately 2,800 MW in operation, according to the power of two large nuclear power plants [*Biogasanlagen ersetzen*…2012].

DEVELOPMENT OUTSIDE OF GERMANY

Due to the large amount of agricultural waste and manure, the Netherlands, Switzerland and Sweden have the most experience with biogas. CHP are used less frequently in those countries. The biogas to biomethane is treated here. In the Netherlands and in the Switzerland it is fed into the natural gas grid. In Sweden, it is used for motor vehicles.

A SHORT OVERVIEW OF THE ECONOMY

For a plant with bio-gas reactor and CHP in the order of 40 kW, as described above, investment costs amounting to arise from 260000.00 Euro (6000.00 Euro/kW) [www.focus.de/finanzen/boerse/biogas-die-ernte-einfahren_aid_435993.html]. With an annual operating time of approximately 8000 hours emerges a energy yield of 320 MWh power. This is composed of 53% electrical (170 MWh) and 47% of heat (150 MWh) energy [*Nahwärmekonzepte* 2007]. After deduction of 20% for required process heat and 5% of the electrical energy for the CHO and the stirrer in the fermenter remains:

– electrical energy = 160 MWh,
– heat energy = 120 MWh.

For heat 0.15 Euros for domestic consumption as well as for the sale can be considered [*Nahwärmekonzepte* 2007]. For the power applies a contract closed for the duration of 20 years with the Government of the Federal Republic of Germany, which guarantees a remuneration of 0.2867Euro/kWh [www.focus.de/finanzen/boerse/biogas-die-ernte-einfahren_aid_435993.html].

So revenues amounting annually to arise for:

– power: 46,000.00 Euro,
– heat: 18,000.00 Euro,

And so far the Total annual Revenue is 64,000.00 Euro.

Costs as ongoing operating costs for personnel, maintenance and repairs are in the range of 0.012 Euro/kwh for CHP and 2,3% of invest for the fermenter [*Nahwärmekonzepte* 2007].

Costs for depreciation for the time of 20 years (there is a good reserve because the fermenter will surely run more than 50 years) are so far 13,000.00 Euro per year.

So we have annual costs for :

– CHP = 1,920.00 Euro,
– biogas reactor/fermenter = 5,980,00 Euro,
– depreciation = 13,000.00 Euro,
– imputed interest = 13,000.00 Euro,

And so far the annual total costs are 33,900.00 Euro. It remains an annual surplus of 30,100.00 Euro.

It is a really interesting result for the farmer income at the interest rate of 11.6%. The investment pays for itself in about 9 years. In addition, the farmer can take funding programs of the EU and Germany with low-interest loans and non-refundable grants.

CONCLUSIONS

With combined biogas plants, as described above, can be made a significant contribution to stop global warming. You can save 85-90% of greenhouse gas compared to fossil fuels with biogas and combined heat and power energy. Such a system, as it can be operated from a farm, results in a saving of 2,300 tons/year of CO_2. A sustainability of our resources secures the future for coming generations. For the farmer, it offers a new and interesting way to generate income. The biogas – technology could expand its contribution to climate protection.

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Horst Mehl, Elena Horska

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Streszczenie

Artykuł przedstawia, w jaki sposób biogazownia może być częścią problematyki zrównoważonego rozwoju w agrobiznesie. Na przykładzie Niemiec zostały wyjaśnione główne korzyści oraz skutki dla rolnika i producenta.

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THE ROMANIAN AGROFOOD INDUSTRY'S CHALLENGE AND PERFORMANCE[1]

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Key words: agriculture, food industry, economic performance, vertical integration, quality of life
Słowa kluczowe: rolnictwo, przemysł spożywczy, wydajność ekonomiczna, integracja pionowa, jakość życia

A b s t r a c t. Europe 2020 relies on smart growth. Romanian food industry is competitive in terms of possible integration of domestic agricultural production and increase of employment. There was no territorial correlation between agricultural production and the absorption capacity of the food industry, and any reference to the final consumer. The animal production is being used in totally other counties than those who really have the highest number of animals.

INTRODUCTION

Romanian food industry is competitive in terms of possible vertical integration of domestic agricultural production and employment. Economists and engineers, public policy makers say that Romanian food industry may be a key issue for Romanian economic future. In order to provide success to food industry, Romania should integrate the national agricultural production with food processing [Ignat 2012a]. Why? Because Romanian agricultural potential is consistent. In addition to it, there is available labour force, both in rural and urban centres.

Before 1990, food companies had territorial positioning criteria, according to their dependence on agricultural centres and the degree of processing of the finished products [Voicu, Radulescu 2003]:

– first level processing enterprises that were located in rural areas, very closed to agricultural centres;
– companies of second and the third processing level, which were placed near the urban centres with high consumption.

This first criterion was used in all regions, for almost all products: bakery products, milk and dairy products, meat and meat products, vegetable oil, sugar. In the same time, it is important to consider also the local demand for food products and to build companies, which are able to cover the consumption needs of the locals. These situations are most relevant for centralized economy, but not suitable for present market economy.

[1] This work was cofinanced from the European Social Fund through Sectorial Operational Programme Human Resources Development 2007-2013, project number POSDRU89/1.5/S/59184 „Performance and excellence in postdoctoral research in Romanian economics science domain".

As expected, the food industry evolves. Food production and consumption can only be understood in rational terms of efficiency and economies of scale, nutritional values, pricing policies, product quality, accessibility and availability, but should be seen as an emotional, ethical and aesthetic problem as well [Bunte, Dagevos 2009, p. 20]. The current results of research in the food industry demonstrate the need to look perfect as an unbreakable connection between agriculture and final consumer. In fact, the motto of European public policy is "from farm to fork". There are authors who consider important elements such as consumer demand, quality standards and food safety, competition and local concentration, communication and information technologies, human skills and entrepreneurial activities of the local population in order to locate a processing centre [Hartmann et al. 2010].

The food industry is a complex system. Food quantity and quality depend on agriculture. However, multinational companies are controlling this system, and squaring it despite having less than 3% of total food sales [Bunte, Dagevos 2009, 18].

The forms of relationships between farmers, food industry and retailers can be explained and arranged by various criteria. Thus, we may consider market relations, horizontal links (between the players in the same market or industry), vertical (between suppliers and customers in a product chain) and among industries (between players in different markets or industries are different). But, in order to make connections we must consider the transaction costs [Chaddad, Rodriguez-Alcalá 2010, p. 45].

On the other hand, links can become sustainable if the benefit of collaborative relationship is intended [Fischer, Reynolds 2010, p. 30-44). Vertical integration can provide routes "from farm to fork" for all market actors. In terms of sophistication, agriculture is before other companies in industries that barely understood the benefits of collaborative learning groups network [Jack 2009, p. 100].

THE RESEARCH METHODOLOGY

The paper is a part of the larger study "*Agro-food industrial centre – A modern conceptual model for a new identity of Romanian rurality in knowledge based society"*. The research motivation is given by the interest for the higher added value for Romanian industry, in special, and Romanian economy, in general, that may create the relation between the food industry and animal production.

The research question was: is a territorial positioning criterion for the food industry activity developed in each Romanian region? What is the territorial connection between the region's agricultural output and the local food industry's type?

The research objective is to discover the criterion for the capitalization of agricultural production centres in order to further identify a conceptual model to succeed the vertical integration of agricultural production, for rising performance of the sector.

The tested hypothesis is if there are Romanian regions, where agriculture focuses on these results, but fail with the food industry vertical integration, respective in using the results. The study started by analysing livestock for pigs, poultry, and cattle. Each county's animal production and use of animal production were analysed and a hierarchy by size was made. For each product we made two groups: one of the first five regions with the highest number of animals and a second one with the highest number of used animals into production/food processing activity. For each group results were compared with national averages.

The findings have revealed that, generally the top five regions in the hierarchy of the largest producers manage high national results, but there is no territorial connection between them and those that use the highest number of animal production, exception in some cases, proximity and neighbourliness between counties.

THE GAP BETWEEN PERFORMANCE AND CHALLENGES IN ROMANIAN AGROFOOD INDUSTRY

In the transition to market economy after 1990, the Romanian food industry has faced many limitations. Some specific restrictions were added to those of the national economy: the natural confrontation of supply and demand was emphasized by the sometimes un-loyal competition of the imported products [Ignat 2011].

Along with this, food industry was hit by another problem: the results of research and innovation worldwide have turned it into a dependent by the chemical industry, especially by the additives.

Table 1. The Romanian food industry evolution

Indicator	Year		
	2009	2010	2011
Net avarage income [lei]	1,361	1,391	1,467*
Net avarageincome in food industry [lei]	948	993**	1,055*
Number of employees in food industry [no.]	144,000	143,600**	148,000*
Labour productivity index (2005=100)	133.1	135.3*	127.2*
Industry production index (2005=100)	134.6	125.5	124.3***

* December 2011; ** December 2010; *** June 2011

Source: own concept after Câştigul salarial mediul net în luna ianuarie 2012, www.insse.ro, România în cifre 2011, Anuarul statistic al României 2010.

We need to consider that Romanian agriculture, even as an European agriculture, has yet strong difficulties with propagated effects on Romanian food industry. The main challenges of the Romanian agro-food system are:

1. Lack of a clear, easy to follow policy, with annual plans and specific purpose for the farmer. The idea is to have well applied policy, with long-term correlations and very sound. The Romanian National Rural Development Programme 2007-2013 is a well organised instrument, but its problem concerns its implementation, its incapacity to be annually adjusted, considering exogenous factors. Each of the main fields of interest of Romania's public policy like agriculture, rural development, European affairs, inspection, European Fisheries Fund, ministry's budget for year 2011, shows the specific approach. Efforts are large and the articulation with EU requirements is not easy. The challenge is to find these efforts' convergence.
2. Unbalanced access (in time and space) to pre-accession and now to the structural funds which is caused by social and economic differences, and the excessive bureaucracy in accessing EU funds. The accessed amounts for rural development are not adjusted to the regional needs, but have a national call of proposals. Therefore, most developed

regions are those, which had better accession of EU funds, and the gap between the development levels of regions was deepened [Raportul Anual ... 2009, p. 66]. In the same Report we may see the important investments in the food processing made in rural areas, without any economic criterion for the factories' positioning decision.

3. Existence of a vicious circle in which the Romanian farmer is cached, which does not allow him neither to perform nor to become competitive. The challenge is to find niches where public policy should intervene.
4. Above mentioned limits that determine part of the challenges that Romanian food industry confronts to, we may add the following:

– absence of great value of standardised agricultural products;
– lack of stabile annual production;
– huge number of possible partners for inputs delivery from rural areas, given the high number of agricultural producers.

Thus, food industry has no outstanding performance. According to the Romanian Statistical Yearbook 2010, food industry represents 11% of industrial activity. The importance of this industry might be expressed by 1 employee per 135 Romanians, and this takes place while 148 000 employees feed all people in Romania. 10% of total employment generates 11% of industrial activities and added value in Romanian industry. An average net salary is much lower than in the overall industry, twice lower than in the beverage industry and arguably three times smaller than in the tobacco industry. Besides the labour productivity index is among the lowest in Romanian industry and is still decreasing. Correlated to these, industrial production index is among the largest, but with annual fluctuations. Food import (CIF – cost, insurance, and frieght) in October 2011 reached 256.2 million euro, twice as much as the food export (FOB – free on board) in October 2011, only 123.5 million euro.

The quality and quantity of inputs in the agro-food system are very important nowadays. Therefore, we consider an analysis of the connection between food and agriculture production, from the perspective of territorial positioning criterion to be appropriate. Food industry and animal husbandry have strategic importance for Romania. As traditional activity of our country, livestock aims at creating direct links, immediate performance in the food industry, and to achieve sustainable economic growth.

Because the higher added value is provided by the livestock – food processors connection, we analysed this relation first, before analysing the connection between crops - food processors. We conducted a review of the sector, highlighting the main producing regions in the food industry and a detailed analysis of milk production and milk processing industry.

Pork is particularly important for Romania, from several points of view [Ignat 2012b]:

– it represents a traditional activity, households in rural areas are traditionally raising a pig in order to slaughter it during Christmas holidays for their own members;
– it is a traditional activity for firms growth's perspectives, and Romania managed in this way to stabilize employment in rural areas; the population is employed in the animal farm activity has a continuity, while the crop activities require a temporary labour involvement;
– it has a major importance in meat chains, as pork represents the main ingredient for meat products;
– the average consumption/capita is high, given the tradition in this field; Romania in 2009 had an average annual net consumption/capita of 32.5 kg, and a net average daily consumption/capita of 71.1 g [INS 2010].

Table 2. Number of pigs and results and use of animal production (tons) at 29th of February 2012

Number of pigs	Total	Results and use of animal production – pigs	Total production
Total – 41 de centres	727,136	Total – 41 de centres	65,544
Timiş	212,515	Timiş	17,814
Brăila	57,188	Brăila	4,449
Constanţa	37,383	Suceava	3,341
Bihor	36,690	Bihor	2,753
Ialomiţa	35,438	Prahova	2,539
Average production/county	17,312	Average production/county	1598,63
Total of first five	379,214	Total of first five	30,896
% of total	52.1	% of total	47.13

Source: Data analysis from [*Technical and Operational Report* … 2012].

Table 3. Number of poultry and poultry meat production (tons) at 29th of February 2012

Number of poultry	Total	Poultry meat production [tons]	Total production
Total – 41 de centres	69,543,812	Total – 41 de centres	34,558,442
Vaslui	3,569,900	Prahova	3,792,767
Prahova	3,341,092	Buzău	3,637,955
Bacău	3,301,653	Călăraşi	3,601,794
Călăraşi	3,220,926	Bacău	2,707,821
Alba	2,857,649	Dâmboviţa	1,984,000
Average production/county	1,696,190	Average production/county	842,888
Total of first five	16,291,220	Total of first five	15,724,337
% of total	23.42	% of total	45.5

Source: Data analysis from [*Technical and Operational Report* …2012].

Efforts of authorities have been directed to obtain high performance of this sector, by increasing exports and creating high value of the pig carcass.

Pig farms are present in all regions of Romania. Total production obtained at February 29, 2012 was 727,136 effectives, with an average/region of 17,312. The five regions that gather the highest number of pigs are: Timis, Braila, Constanta, Bihor and Ialomita, and they provide 52.1% of the total number produced in Romania (Tab. 2).

On the other hand, the highest pork production, in tonnes, belongs to counties of Timis, Braila, Suceava, Bihor and Prahova. Also, these five counties are concentrated territorially, but gather about 47.13% of total production. These are not the same counties with those gathering the higher number of pigs. Therefore, any of the groups of the five counties have territorial concentration, and they have no processing facilities, nor consumption centres in their proximity, in order to provide vertical integration of their animal production.

Poultry meat and poultry production have somewhat the same situation.

In Romania, on February 29th, 2012 there were 2,171,733 cattle herds, and 24.58% of total were recorded in five counties: Suceava, Botosani, Maramures, Iasi, Neamt. Meanwhile, the five counties in which obtain and exploit beef are: Arges, Suceava, Bacau, Botosani, Cluj. About 46% of total output produced and valued belonging to the following

Table 4. Number of cattle and results and use of animal production (tons) at 29th of February 2012

Number of cattle	Total	Results and use of animal production (tons)	Total production
Total – 41 de centres	2,171,733	Total – 41 de centres	30,240
Suceava	169,193	Suceava	4,616
Botoşani	108,727	Argeş	3,289
Maramureş	86,648	Bacău	2,376
Iaşi	85,288	Botoşani	1,956
Neamț	84,034	Neamț	1,678
Average production/county	52,969	Average production/county	737,56
Total of first five	533,890	Total of first five	13,915
% of total	24.58	% of total	46.01

Source: Data analysis from [*Technical and Operational Report* …2012].

Table 5. Milk production and processed milk' production capacity at 31st of January 2012

County	Total Average number	Thous. hl	Total of first five	% of total	Average production/ county	Production capacity	
Total	1,229,555	3,070	759	24.72	73.09	county	capacity tons/24 h
Suceava	80,500	225				Ilfov	1,200.3
Botoşani	60,171	91				Mureş	319.7
Maramureş	54,568	182				Bistrița Năsăud	310
Mureş	46,677	145				Giurgiu	300
Argeş	45,763	116				Suceava	257.4

Source: Data analysis from *[Technical and Operational Report* …2012].

five counties: Suceava, Arges, Bacau, Botosani, Neamt. Suceava county is the only one county that manages to obtain a three times higher number of than the county average and production six times higher and has possibilities of vertical integration of production.

The cattle tradition of this county is, however, known. We considered the territorial connection criterion of establishing business in cow milk production and milk production in this county.

With a total of 1 229 555 cattle heads, Romania obtained at the end of the January, 2012 about 3.07 million hectolitres of milk, with an average of 73,090 hl milk/region.

Classifying the 41 cattle breeding centres in Romania, we obtained the following top five regions: Suceava, Botosani, Maramures, Mures, and Arges. The first two counties have tradition in cattle, and in the consumption of milk and milk products. Local cuisine uses sour cream, butter, yogurt, cheese etc. The existence of dairy farms and dairy products factories is justified in this case. The regions of Ilfov, Mures, Bistrita Nasaud, Giurgiu and Suceava have the largest production capacity in milk processing industry at national level. The two categories of five leading regions, the leading dairy processors and the leading milk producers are the identical. Thus, we identify two categories of settlement the processing industry:

– location in proximity to centres of consumption, as proximity to Bucharest Ilfov and Giurgiu regions;
– location in proximity to production centres.

This classification may lead to a conceptualization of a possible allocation model of animal production closed to food processing centres, on the grounds of proximity and low transportation expenditures, and aiming at efficiency and economic performance of the agro-food sector, which can induce growth patterns of quality of life in rural areas.

CONCLUSIONS

The challenges of Romanian food industry are neither few nor small. They come from a historical perspective and still propagate. The agro-food sector itself couldn't reach the expected results. Putting pressures on the sector without support it is unjustified.

European funds were targeted towards production capacity and product quality and had no factories' poisoning criterion. There was no territorial correlation between agricultural production and the absorption capacity of the food industry, and any reference to the final consumer, except the situation of milk production in Ilfov county.

In general, the group of the top five regions that obtained the largest agricultural production is different than the group of the top of first five regions which obtained the higher value of processed food; even both groups manage to obtain high national results. There were any positioning criteria used for the investments in food industry which haven't taken into consideration an agricultural production, except Suceava county.

Therefore, the tested hypothesis was: if there are regions where agriculture focuses on its outputs' integration to food processing, or they fail with the food industry vertical integration. This hypothesis was demonstrated. The animal production is being used in totally other regions than those who really have the highest number of animals.

In order to become more competitive, farmers, when establishing the main domain of their farms, should take into consideration the possibilities production integration and the value of the transaction costs.

The study was facing some limits represented by the number of agricultural products and absence of information on export-import activity for regional level. Research can be extended by the analysis of the other categories of products, especially vegetalble products, and enhancement of information on export-import activity in each region. The analysis should consider public policy in order to articulate the food industry to the real needs of Romanian agriculture and to obtain competitive results in food industry.

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Raluca Ignat

RUMUŃSKI PRZEMYSŁ SPOŻYWCZY: WYZWANIA I EFEKTYWNOŚĆ

Streszczenie

Europa 2020 opiera się na inteligentnym wzroście. Rumuński przemysł spożywczy jest konkurencyjny pod względem krajowej produkcji rolnej i zwiększenia zatrudnienia. Nie potwierdzono jednak tezy o związku pomiędzy lokalizacją produkcji rolnej a lokalizacją przemysłu spożywczego czy też rynku zbytu. Produkcja rolna w Rumunii jest przetwarzana w zupełnie innych regionach kraju niż te, które charakteryzują się największą liczba zwierząt.

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PUBLIC-PRIVATE PARTNERSHIP AS A FACTOR TO ENSURING SUSTAINABILITY OF AGRIBUSINESS IN UKRAINE

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Key words: public-private partnership, agricultural sustainability, agribusiness, financial supply, investments, wholesale market
Słowa kluczowe: partnerstwo publiczno-prywatne, zrównoważone rolnictwo, agrobiznes, zasoby finansowe, inwestycje, rynek hurtowy

A b s t r a c t. Agriculture and agribusiness of Ukraine are not sustainable due to the lack of own financial sources and chronic state underfunding. On the other hand there are no incentives for private business, both domestic and foreign, to invest in Ukrainian agriculture. One of efficient ways to attract investments is introduction public-private partnership as a way of cooperation between state, represented by public sector and private companies which may benefit for both parties and for the sustainable development of respective area. The article highlights essence of PPP as a type of partnership widely implemented in other branches of economy, but rarely applied in agribusiness of Ukraine, as opposite to foreign, mainly, less developed countries. It is also focused on the operation of wholesale agricultural market as a concrete example of PPP in Ukraine and discusses legal restrictions as an important constraint of its development.

INTRODUCTION

Ukrainian agricultural producers just as farmers in most of other countries are faced with many challenges of traditional business and specific problems, which are typical for agriculture and agribusiness. The lack of modern techniques and technologies that directly affect the performance level, poor advisory services and extension, limited or no access to financial and wholesale markets remain among the core reasons for their underdevelopment. One of the crucial challenges that face Ukrainian agribusiness is the lack of financial resources. Needless to say that sustainable development is hardly possible in such conditions. Increased investment is needed not only in primary agricultural production and downstream services, but also in innovation, research, infrastructure, natural resources and complementary services such as education and health.

Figure 1 shows vicious circle that operates where absent, poor or costly infrastructure limits on-farm productivity, agroprocessing and market access. This in turn acts as disincentive to private investor to achieve productivity. Productivity and growth prospects are thus insufficient to justify public investments in more affordable and relevant infrastructure services [Warner et al. 2009].

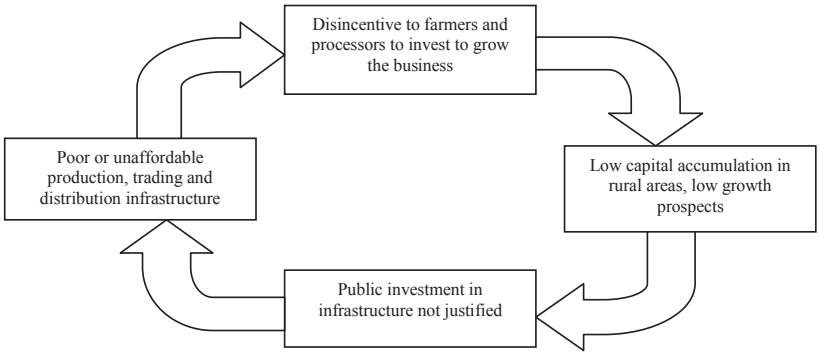

Figure 1. Poor infrastructure and low agricultural development: a vicious circle
Source: [Warner et al. 2009].

Due to budget limitations the government is unable to provide renovation, modernization and extension of infrastructure. The attraction of additional investment can be satisfied by introducing public-private partnerships (PPP) that provide some incentives for private capital (tax and credit preferences, access to attractive and closed areas of management, the sole right to provide certain services for a defined territory, etc.). The international practice [Ferroni, Castle 2011, De Man 2009, Warner et al. 2009, *Rural Development*…2005] demonstrates how implementation of PPP provides significant benefits both for the state, private sector and local communities.

RESULTS

The low level of funding for research in agriculture of Ukraine from government sources, as well as its lack of private investment explains that having a strong agricultural potential, Ukraine joined the ranks of countries that import food products.

Most investment in Ukrainian agriculture is made by the private sector within the country, including farmers themselves. But international investment, both from private sources and through official development assistance, may also play an important role. Today's intense competition for financial resources drives them to be directed to those countries where there are the most favorable conditions for business.

Agri-food business in Ukraine is one of the few sectors of the economy that survived global economic crisis of 2008-2009. Agricultural output has practically not diminished as compared to pre-crisis level and was even surpassed in 2011, with moderate growth in livestock sector and relatively good harvest of main crops. Nowadays state regulation is still one of the major factors of the development of agrarian business in Ukraine. While quoting of cereal export restricted adjustment of domestic prices up to the level of world prices, maintaining of principal preferential regimes of taxation for agrarians in new Tax Code will surely support attractiveness of agribusiness in nearest future.

So far, investment attractiveness of the sector is ensured on account of external factors, those being global growth of food prices, tense balances and prospects of future increase of global demand [*Doing Agribusiness*…2011]. Besides, according to the World Bank [*Foreign Direct...*2012] the overall level of investment capacity of private investors in the world continues to grow.

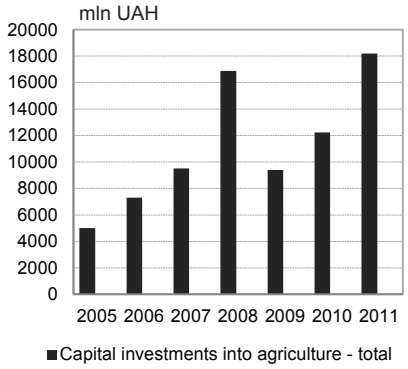

Figure 1a. Investment into agriculture, forestry and hunting
Source: grouped by author based on [*State Statistics, in agriculture* 2012, *National Bank*…].

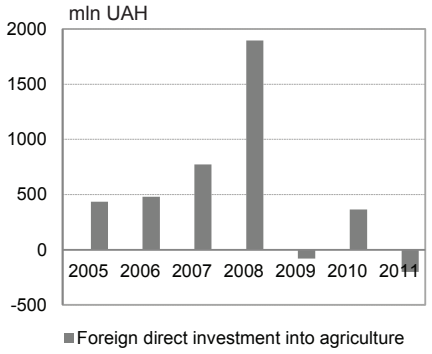

Figure 1b. FDI into agriculture
Source: see fig. 1a

Thus, for the period from 1992 to 2011 the domestic agriculture managed to attract USD 2.82 billion of FDI, including USD 2.02 billion invested in food processing and manufacturing industry and only USD 0.8 billion – in agricultural production [In agriculture...2012].

In spite of sharp decline in the total volume of capital investments into agriculture and related industries in 2009, in 2011 their level reached UAH 18 billion (Fig. 1a). In accordance with Ukrainian Agrarian Confederation (UAC) data [In agriculture...2012], FDI into Ukrainian agriculture in 2005 amounted USD 86 million, in 2008 – USD 246 million[1], in 2009 – investment outflows totaled USD 10 million, and in 2011 – FDI outflows reached USD 25 million (Fig. 1b).

But anyway, Ukraine remains an attractive area for domestic and foreign investors. This is due to stable demand, a reasonable level of profitability in key sectors and relatively cheap labor force [*Farmers sow* … 2012].

Despite the fact that agriculture demonstrates strong multiplier effects on other economic sectors, falling food prices in recent decades, lack of supportive policies and infrastructure in many countries, farm subsidies and protection in some OECD countries have all affected the capacity and efficiency of investment in agriculture and discouraged production in developing countries [*Progress towards*… 2011].

Public spending on scientific research in agriculture is more than 1% of the share of GDP accounted for by agriculture in most countries of the OECD, and reaches 4% in the U.S. However, these expenditures in OECD countries grow slowly (0.2% per year in the U.S. and 0.5% in Japan in the 2000`s,) or even decrease [*Sustainable Agricultural*… 2012].

As for Ukraine, in 2012 the cost of programs to support agriculture and rural development in total public spending with respect to GDP is lowest for the last 6 years [Kuznetsov, Nivievskyi 2012]. Each year, in budget they allocate funds for the implementation of scientific and technological developments and research in different areas and programs. Specifically, in 2012 it was allocated UAH 13.7 million. However, during the abovementioned period these costs did not exceed 3.5% (in 2010) of the total expenditures of the Ministry of Agrarian Policy and Food of Ukraine, and in 2009 amounted only 1.5% [*On State Budget*… 2005-2012].

[1] Significant growth was caused by decline of the national currency exchange rate against the U.S. dollar by nearly one and a half.

Thus, the present state of agriculture in Ukraine is not very favorable neither for attracting investors nor to rely too much on governmental support due to different reasons and constraints. At the same time increasing price volatility, successive food price spikes and their consequences on food security have to increased interest in agriculture, which presents the sector with growing opportunities. These opportunities, if exploited well, can bring about a gradual but steady growth in profit. Besides, there are effective ways in which public and private sectors can work together, combining the advantages of profit and sustainable development of agricultural sector and rural areas. One of these ways can be public-private partnership.

Public-private partnership is a popular type of cooperation in many sectors around the world. Partnerships between public agencies and private individuals or organizations in different forms existed for centuries. There are many examples of higher education, as well as areas such as defense, pharmaceuticals, roads, the Olympics, etc. Recently, there is growing awareness of the value of PPP in agriculture, and especially for projects that benefit farmers in developing countries. Nevertheless, to date there are very few examples of PPP in agriculture. And they all pretty much have the experimental nature and form a new field of practice and knowledge to the participants [Ferroni, Castle 2011].

Application PPP in the agricultural sector of foreign countries is meant primarily for the implementation of research activities and innovations, which are necessary to ensure food security and sustainable development of agriculture which is hardly possible to initiate or finance by farmers themselves. In 2011 leaders of Group of Twenty (G20) promised to undertake all measures aimed at steady increase of production and productivity in agriculture, as discussed in paragraph 43 of Cannes Declaration. Therefore, it was agreed to continue increasing investment in agriculture, particularly in the poorest countries to encourage joint efforts of public and private capital [*Cannes Summit*… 2011].

Clearly, private companies are often more efficient and better run in agribusiness than bureaucratic public authorities. The synergy effect stipulated mainly by the unique character of this business is happening on the cross-roads of opportunities, resources and interests of each player on the agromarket. Taking into account its important synergistic role in the agricultural sector of Ukraine, PPP may be used in following areas: wholesale agricultural commodities markets, elevators and warehouses construction, machine and tractor station, agricultural research and innovation, education, seed production, fertilizer production, export promotion, public procurement, amelioration projects, irrigation infrastructure projects, biofuel and biotechnology [Kolchanov 2009].

In agribusiness the form of the PPP mainly depends on the features of specific goals to be reached by the PPP. Its models vary from complex PPP arrangements (concession contract) to simple management contracts. The concession is the most pertinent PPP construction for agriculture infrastructure projects. Another way to PPP in agriculture sector is a joint activity agreement. Nowadays in Ukraine the development of partnerships between private business and government is at its initial stage, there are some examples of successful projects, but all of them refer to the transportation infrastructure, medicine, real estate management, etc.

One of rare examples which were found in Ukraine concerns development of infrastructure object. Wholesale agricultural market "Nezhdanna" is located in village Velyki Kopani (Kherson region) [*Nezhdana*… 2012]. Being the largest market in Southern Ukraine it attracts farmers and entrepreneurs from Odessa, Mykolayiv, Kharkiv, Crimea and even Vinnytsya and Lviv, having commodity turnover of 2000 tons per day as of July 2012 [Герой 2012]. Its current capacity takes 700-1000 tracks per day (Tab. 1). The Velyki Kopani market

Table 1. Market components of Ltd "Multisectoral Production Company "Nezhdanna", Ukraine

Component	Description
Production traded	Fruits and vegetables, meat, milk and fish products, fertilizers, seeds, etc.
Infrastructure	Physical
Ownership	Ltd, private
Employees	1000 permanent and 500 temporary workers
Land area and ownerships	8 hectares, land rented from state – 49-year lease
Capacity	500-3000 tons per day, 700-1000 tracks per day
Operation	All year round
User market fees	USD 0,32 per day, USD 1,15 to USD 18 per track depending on track type
Financing	USD 150000 equity (est),
Subsidies	None, tax relief proposed in Law of Ukraine "On Wholesale Agricultural Markets"

Source: grouped by author based on [Warner et al. 2009; Nezhdana… 2012; Negoi 2012, On Wholesale…2009; Kravchenko, Rozwadowski 2007].

Table 2. Build-Operate-Own (concession for a wholesale market: model components)

Component	Characteristics
Strategic purpose	Provide outlets for farmers to market their products. Improve price transmission and quality information from export and urban markets, increasing domestic competitiveness
Infrastructure coordination	Parallel public (or private) investment in utilities infrastructure likely to be essential (access roads, electricity and water supply, waste management, etc.)
Resourcing types	State land grants Capital subsidies for infrastructure construction (mainly from central governments, donors or municipalities) Private or FDI equity
Cost recovery	Trader user fees: Volume of commodities traded by vehicle or weight; fees for stands or trading space; fees for storage and other facilities Indirect sources: development of land for sale or sub-leasing, advertising revenues
Contractual agreement	BOO concession (ownership of built assets only, or land + built assets) Facilities construction and maintenance contracts competitively bid by owner-operator
Risk	Demand risk (volume of traded commodities, subscriptions, etc.) Foreign exchange risk if FDI of funding.

Source: [Warner et al. 2009].

is located in an area of high growth potential, well-known by regional producers and accessible for international traders from Russia, Belarus and the Baltic States [Warner et al. 2009].

The following components are the examples of optional characteristics for the wholesale market operation, taking into account its specific functions, goals and PPP model (Tab. 2).

This is an example of how partnership of state authorities, business and local community may carry significant opportunities for each party. An effect of Velyki Kopani market has been the improvement in client-oriented production by domestic producers in response to exposure to foreign competition. Besides, wholesale markets and trading centers bring

the forces of comparative pricing to bear on agricultural inputs and sales, enhancing the prospect of farmers securing fairer deals than might be achieved by purchasing or selling through single traders. More accurate pricing information of the wider trends on the cost of agricultural inputs provides farmers with greater confidence to make investments and improve productivity [Warner et al. 2009, Kravchenko, Rozwadowski 2007].

It is vitally important to have a clear legal framework for regulation of PPP in the agricultural sector. So far we do not have the complex legislation that would regulate this type of activity. The Law of Ukraine "On Public-Private Partnership" [2010], which defines the organizational and legal framework of public and private partners and the basic principles of the partnership contract has been passed recently. However, unfortunately there is nothing concerning the possibility of PPP in agriculture in it.

CONCLUSIONS

Agricultural research and rural development should be the driving forces of sustainable development of agribusiness and the focus must be on concrete actions at the national level. Working in partnerships is instrumental in making the best out of investments in agriculture. Successful development should be showcased, promoted, and good examples must be multiplied.

At the national level boosting agricultural production stimulates overall economic growth and development, particularly in those countries which have a high economic dependence on agriculture. Thus. agricultural and rural sustainable development acts as an engine for sustainable economic development making an effective contribution to national economic growth. This is vitally important for Ukraine as for one of highly agriculture oriented states with high export potential.

In the context of emerging and competing priorities, as well as growing needs of the government to satisfy a wide range of different purposes, public-private partnership creates tools and favorable conditions for generation additional opportunities in every sector of the national economy, ensuring proper institutional and legal supply, and agriculture must not be an exception.

Food security and sustainable agricultural development require constant and continuous improvement of instruments and tools available to agricultural entrepreneurs. This includes not only the development of new technologies, but their adaptation to local needs and conditions, their efficient application by qualified and knowledgeable farmers. Neither the private business nor the public sector can achieve these goals alone. Therefore, to our opinion, taking into account the financial and economic situation in Ukraine, one of the possible scenarios aimed at improving the situation in agricultural sector is implementation of public-private partnership.

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PARTNERSTWO PUBLICZNO-PRYWATNE JAKO CZYNNIK ZAPEWNIAJĄCY ZRÓWNOWAŻONY ROZWÓJ AGROBIZNESU NA UKRAINIE

Streszczenie

Rolnictwo i agrobiznes na Ukrainie nie są zrównoważone ze względu na ograniczone możliwości finansowania z własnych źródeł i braku dofinansowania ze strony państwa. Nie ma też zachęt dla przedsiębiorstw prywatnych, zarówno krajowych, jak i zagranicznych, do inwestowania w ukraińskie rolnictwo. Jednym z efektywnych sposobów przyciągnięcia inwestycji jest wprowadzenie partnerstwa publiczno-prywatnego jako sposobu na współpracę między państwem reprezentowanym przez sektor publiczny oraz firmami prywatnymi. Obie strony dzięki takiemu rozwiązaniu mogą osiągnąć korzyści, jak również mogą przyczynić się do zrównoważonego rozwoju danego obszaru. Partnerstwa publiczno-prywatne jest powszechnie wdrażane na Ukrainie w innych gałęziach gospodarki, jednak rzadko stosowane w agrobiznesie. W artykule zaprezentowano również funkcjonowanie hurtowego rolnego rynku jako konkretnego przykładu partnerstwa publiczno-prywatnego na Ukrainie. Dodatkowo omówiono ograniczenia prawne jako ważny aspekt hamowania rozwoju tej formy współpracy.

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ANIMAL WELFARE IN THE CONTEXT OF SUSTAINABLE RURAL DEVELOPMENT ON THE EXAMPLE OF DAIRY FARMING

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Key words: animal welfare, sustainable rural development, dairy farming
Słowa kluczowe: dobrostan zwierząt, zrównoważony rozwój obszarów wiejskich, chów bydła mlecznego

A b s t r a c t. The paper presents Polish farmer's opinions about animal welfare and possible benefits and costs of producing under the private brand of high animal welfare standard. Data used in the study were collected using questionnaire interviews in 150 farms in the Mazowieckie and Podlaskie Provinces. It was found, that 41% of farmers expressed their desire to join the brand of some standard with high animal welfare requirements if such a possibility was made in Poland. The majority of them already took steps to raise the level of animal welfare on their farms. High animal welfare requirement gives an opportunity to increase a profitability of milk production. Those requirements imply not only restrictions for farmers and farm development, but also benefit in some significant advantages.

INTRODUCTION

Rural development is a complex issue. It covers differentiated problems related to social infrastructure, education, off-farm activities and production. The direction of rural development depends on various factors, for example flows of capital, people, goods and information [Kizos et al. 2010]. Sustainable rural development is one of the main objectives of the agricultural policy of the European Union, as well as the maintenance or improvement of biodiversity [Anon 2000 after Ortega et al. 2004]. Nowadays, it seems to be a significant problem, that it becomes more and more hard for farmers to get satisfactory income from their small farms. It causes with people migration from rural areas to cities and intensification of farm production. Intensive farming does not support maintaining a high quality of environmental on rural areas, which is one of the determiners of sustainable rural development [Park et al. 2009]. It also leads to biodiversity degrading. One of the solutions, which could help to hold people on their small farms is giving them an opportunity to improve profitability by producing original, certified and good quality products. As it occurs nowadays, consumers more often search for the certified, safe products coming from "healthy" farming. In case of animal production they want an animal to be treated in a humanitarian way, securing its good welfare and assuring best product quality.

Producing under a certain approved and known standard with the certificate is increasingly popular in Western Europe. Farmers could voluntarily produce under the brand of some animal welfare or organic standard with high animal welfare requirements [Malak-Rawlikowska et al. 2010]. Welfare is defined in relation to animals' ability to control their environment [Broom 1986] or a state in which animals can live in harmony with their environment [Hurnik 1995 after Pisula 1999] or adapt to it [Broom 1996]. Provisions related to animal welfare are perceived rather as farm development constrains, because of imposing an additional restrictions and obligations for farmers. However, there are also advantages from this requirements like higher prices for products and benefits in production characteristics and efficiency. Therefore, an overall impact on farms income is not always clear. Producing with higher animal welfare standards can help to maintain a high quality of environmental on rural areas. On small farms it can be also connected with rearing protected rare farm animals and plants and the same, help to maintain biodiversity, which is necessary in the framework of sustainable rural development [Ortega et al. 2004]. However, farmers would be interested in such production only if it was profitable for them.

The issue of animal welfare is not sufficiently explored in the available literature. The impact of selected animal welfare problems on animal's heath and farmer's income has been explored. However, it is not known, how many, if any, Polish farmers could benefited from the possibility of producing under the brand of some animal welfare or organic standard with high animal welfare requirements. For this reason, it is reasonable to undertake the research in this field. The paper aims to examine Polish farmer's opinions about animal welfare, their willingness to join private brand of high animal welfare standard and possible benefits and costs of such activity. Finally, it will answer the question "Does animal welfare can support sustainable rural development?".

MATERIALS AND RESULTS

Data used in the study was collected using questionnaire interviews in 150 farms in the Mazowieckie and Podlaskie Provinces[1]. Structure of the sample is shown in table 1.

Among the examined farmers, 40.7% expressed their desire to join the brand of a standard with high animal welfare requirements if such a possibility was made in Poland. Free times more farmers in Podlaskie Province were interested in such activity, then in Mazowieckie Province (respectively 60.0% and 21.3%). Farmers believed, that animal welfare is important for consumers and they want animals to be treated in humanitarian way.

Table 1. Structure of the sample by the number of cows and land area

Number of cows	Land area		
	<25 ha	25-50 ha	>50 ha
	%		
10-19	27.3	17.3	0.0
20-49	8.0	30.7	4.7
>49	0.0	6.0	6.0

Source: own studies

Table 2. Farmers interested in joining the brand of standard with high animal welfare

Provinces	%
General	40.7
Mazowieckie Province	21.3
Podlaskie Province	60.0

Source: own studies

1 Data was collected in 2012 and covers the period from 01.01.2011 to 31.12.2011

The average examined farm, from the group interested in joining animal welfare standard, had over 29 ha of land and hold 26 cows in 2011. The average production of milk was about 152 500 kg. Therefore, rather small than large farmers were interested in such activity. If farmers with small farms joined such standard and had profits from it, they would stay at rural areas and, therefore, support sustainable rural development. It is important for them to know, whether there are financial benefits from higher animal welfare. Farmers have to invest in order to keep animals in higher welfare. They would do it only if they believed it gave them some profits.

It was found, that the majority (72.0%) of examined farmers already took steps to raise the level of animal welfare on their farms. They modernized their cowsheds (46.0%), build a new one (17.7%) or an open run (5.6%). Some of that actions were connected with the adaptation to cross-compliance requirements. However, the motivation of the majority of them was to increase animal welfare. In farmer's opinion higher animal welfare leads to veterinary cost decreasing and milk yield increasing. They believed, that it was worth to invest in animal welfare, though it was very costly. Another 47.3% of them were planning to undertake action in order to increase animal welfare.

Among examined group of farmers, 61% provided their animals with access to pasture. Costs of treatment were lower at farms benefiting from the pasture than at farms not benefiting from the pasture. At the same time, the average milk yield was higher at farms benefiting from the pasture than at farms not benefiting from the pasture. Similar relation was found in case of gross margin. Detailed information is listed in table 2. It is in accordance with the earlier studies – it was found, that farms using pasture obtained higher net farm income, than if they had not benefited from the pasture [Gajos 2011]. This result is related to improved health status of animals and lower costs of feeding. Keeping dairy cows year-round inside the building raises many implications for animal welfare, including: predisposition to various diseases and behavioral changes, limitation of movement, increased stress levels [Sossidou et al. 2004]. Lack of pasture and limitation of movement affects the incidence of lameness [Lewandowski 2008]. It confirms, that farmers, who do not use pasture could get some financial benefits from raising the level of animal welfare by providing cows with access to pasture. However, many farmers did not do it. The reasons for not using pasture are shown in table 3.

The majority of farmers (54.5%) did not use pasture, because they believed that it is too time consuming. In 22% of examined farms, pastures were too far away from the farm. Almost 30% of examined farmers believed, that it is just not necessary. Those farmers did not have knowledge about the positive consequences of using pasture. Pasture is not absolutely necessary for milk production, however there are many advantages from using it.

Another important factor related to animal welfare is culling rate. The average culling rate in examined group of farms was 17.4%. Among them, 19.3% were characterized by culling rate higher than 25.0%. It was found in previous study, that culling rate increased by

Table 3. Reasons for not using a pasture
(there was a possibility to mark more than 1 answer)

Provinces	Reason		
	too far away from the farm	not necessary	takes too much time
	%		
General	22.1	28.6	54.5
Mazowieckie Province	19.2	26.9	65.4
Podlaskie Province	23.5	29.4	45.1

Source: own studies

1% would cause a decrease in net farm income [Gajos, Małażewska 2012]. According to that study, in case of average farm interested in joining the brand of a standard with high animal welfare requirements, culling rate decreased by 1% would cause an increase in net farm income by 732 PLN. Culling rate could be decreased by providing animals with better conditions, e.g. access to pasture, ability to regular movement, loose housing, high quality of feed, friendly stuff. Cows living in better conditions are healthier, therefore produce more milk [Kołacz 2006] and are less lucky to get sick or injury. Many of farms characterized by high culling rate do not provide animals with access to pasture or other form of regular movement. Therefore, there is a possibility for them to decrease that rate.

Summarizing, providing animals with better conditions can positively effect the profitability of milk production. Small farmers can get significant financial benefits from raising the level of animal welfare in their farms. Furthermore, by producing under the brand of high animal welfare standard they could get higher price for their products. This may encourage them to stay at rural areas and prevent people migration to urban areas. The high level of animal welfare in such farms achieved e.g. through the use of pasture can help to maintain a high quality of environmental on rural areas and contribute to their sustainable development.

CONCLUSIONS

Presented research confirmed, that Polish farmers are interested in producing under the brand of high animal welfare standard. Many of them already took steps to increase welfare of their animals. They did it, because they believe it will improve the profitability of milk production. It has been presented, that animal welfare requirements imply not only restrictions for farmers, but also benefit in some significant advantages. Producing under the brand of private animal welfare standard is an opportunity for small farmers to get satisfactory income from their activity. It counl stop people migration from villages to cities and contribute to sustainable rural development. Producing with higher animal welfare standards can help to maintain a high quality environment on rural areas, which is one of the determiners of sustainable rural development.

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DOBROSTAN ZWIERZĄT A ZRÓWNOWAŻONY ROZWÓJ OBSZARÓW WIEJSKICH NA PRZYKŁADZIE CHOWU BYDŁA MLECZNEGO

Streszczenie

W pracy przedstawiono opinie rolników na temat dobrostanu zwierząt oraz możliwe korzyści i koszty z prowadzenia produkcji pod marką prywatnego standardu zakładającego wysoki poziom dobrostanu zwierząt. Dane wykorzystane w pracy zostały zebrane z wykorzystaniem kwestionariusza wywiadu w 150 gospodarstwach rolnych w województwie mazowieckim i podlaskim. Stwierdzono, że 41% rolników byłoby zainteresowanych przystąpieniem do prywatnego standardu zakładającego wysoki poziom dobrostanu zwierząt jeżeli taka inicjatywa istniałaby w Polsce. Większość z nich już podjęła kroki mające na celu podniesienie poziomu dobrostanu w ich gospodarstwach. Wymogi związane z zapewnieniem zwierzętom wysokiego poziomu dobrostanu dają możliwość do zwiększenia opłacalności produkcji mleka. Wymogi te oznaczają nie tylko ograniczenia dla rolników i rozwoju gospodarstwa, lecz także pozwalają na osiągnięcie znaczących korzyści.

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