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IMPACT OF CULTURE DIMENSIONS ON ROLE MOTIVATION: A MODEL BASED STUDY

VPLYV KULTÚRNYCH DIMENZIÍ NA ÚLOHOVÚ MOTIVÁCIU: MODELOVÁ ŠTÚDIA

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Organizations have become more global, complex and competitive. The objective of the present study is to examine the dominant work culture prevalent in the two organizations X and Y and to study its impact on the motivation level of the employees at the managerial level so that a model can be developed. This research paper seeks to investigate the relationship between the various independent and dependent vriables through Correlation Analysis. Stepwise multiple regression analysis was undertaken to assess the significant predictors of work culture for the total sample. The findings show that Technocratic culture has the strongest partial correlation or the purest relationship with role motivation. Through regression analysis, technocratic culture emerges as a strong predictor of motivation.

Key words: work culture, autocratic culture, bureaucratic culture, technocratic culture, entrepreneurial culture, dominant culture, motivation, OCP-Role motivation model

Culture is defined in this paper as the dynamic set of assumptions, values and artifacts whose meanings are collectively shared in a given social unit at a particular point in time.

Literature Review

It is often suggested that culture operates as a unitary "main effect" on all people.

Author	Year	Findings
Hayes & Abernathy	1980	– failure to embrace the 'non-rational' qualities of organizations was the major reason for the demise of many North American companies
Deal & Kennedy	1982	– culture is the prime factor in shaping organizational procedures
Schein	1984,1985, 1992	– organizational Culture is the principal aspect of organization's functioning and a critical driver of effectiveness
Day	1994	– culture is the prime factor for unifying organizational capabilities into a cohesive whole
Mallak & Kurstedt	1996	– through a strong positive corporate culture, clarity and a clear vision, strong motivation can be transmitted to technology employees
Reinemer	1995	– a high technology employee's involvement in structuring work is also a prime requirement for job satisfaction
Barrier	1997	– barrier found a rigid authoritarian culture might initially translate to positive work output in the short term but leads to long-term work place dissatisfaction. Increased responsibility and decision making power leads to high job satisfaction
Jones	1996	– Jones study of 402 employees from 10 science based firms. The findings revealed that personal empowerment, flexible organization structure and organic structures along with trust are key components that lead to higher motivation
Seglin	1998	– information Technology work place survey of 800 employees determined that empowered workers feel more satisfied in the workplace
Yeung et al.	1999	– within the learning organizations, leaders design the culture and systems and bring employees with continuous challenges to create the prosperous future for organization
Daft	2001	– managers in externally focused cultures tend to perceive a relatively higher proportion of strategic problems than managers in internally focused cultures, and managers in organic process cultures tend to perceive a relatively higher proportion of unstructured problems than managers in Mechanistic cultures
Parker	2003	– The meta-analytic findings indicate that psychological climate, operationalized as individuals' perception of their work environment, does have a significant relationship with individuals' work attitudes, motivation and performance. Structural equation modeling analysis of the meta-analytic correlation matrix indicated that the relationships of psychological climate with employee motivation and performance are fully mediated by employee work attitude
Wright	2004	– through the model of work motivation, the author has identified the aspects of organization work culture as greater goal conflict, procedural constraints, and goal ambiguity which has detrimental effect on work motivation
Egan, Yang, & Bartlett	2004	– learning organizational culture is associated with IT employee job satisfaction and motivation to transfer learning

Author	Year	Findings
Lok & Crawford	2004	– significant positive effects of organizational culture and leadership styles on job satisfaction and organizational commitment in samples of Hong Kong and Australian managers. Statistically significant differences between the two samples were found for measures of innovative and supportive organizational culture, job satisfaction and organizational commitment, with the Australian sample having higher mean score on all the variables
Jarnagin & Slocum	2007	– manifested in the shared fundamental beliefs and assumptions, values, attitudes, and behaviors of the organization's members, culture is theorized to be the prime factor in shaping organization's procedures
Verma	2009	– job attitude is positively significantly correlated with Entrepreneurial organizational culture ($p < 0.01$) for the overall sample of 240 employees of Public and Private sector Indian Banks. It is not significantly correlated with Autocratic Culture, Bureaucratic culture and Technocratic culture. Whether it is private or public sector bank, good infrastructure and reward systems in banks lead to higher job satisfaction
Takada & Westbrook	2009	– a total of eight high technology work places were surveyed. Five of the eight work places yielded statistically significant positive correlation between a positive organization culture and increased job satisfaction
Sinha et al.	2010 (a)	– the results of regression ($R^2 = 0.608$) for two public sector companies showed that there is a definite impact of work culture on the role motivation of employees
Sinha et al.	2010 (b)	– a total of two private sector manufacturing (material) companies were surveyed. The results reflected a positive correlation between strong technocratic culture and employee motivation at middle management level

Objectives of the study

The objective of the present study is to examine its impact on the motivational level of the employees at the managerial level. The study has been conducted:

1. To assess the correlation between the type of work culture and motivational level of employees at middle management level in the organizations *X* and *Y*.
2. To study the impact of Type of Culture as independent variable or predictor in explaining variation in Role Motivation so that a model for the same can be developed.

Research Hypotheses

- Null Hypothesis "H01" – There is no correlation between the type of Organization Culture and Motivational level of the employees working in manufacturing sector.
- Alternate Hypothesis "Ha1" – There is a positive and significant correlation between the type of Organization Culture and Motivational level of the employees working in manufacturing sector.
- Null hypothesis "H02" – There is no impact of Type of Culture as independent variable or predictor in explaining variation in Role Motivation.
- Alternate Hypothesis "Ha2" – There is an impact of Type of Culture as independent variable or predictor in explaining variation in Role Motivation.

Methods

To measure the impact of Work Culture on the employees' motivation at managerial level, a comparative study was done between two private sector companies of the manufacturing sector in India with a sample size of 125 each. These organizations were selected on the basis of Stratified Random Sampling. Descriptive and Inferential Statistics like mean, standard deviation, *T*-test, *F*-test, correlation, One way ANOVA, and regression analysis were used to test the hypotheses.

The data has been analyzed by using Microsoft Excel and Statistical Package for Social Sciences (SPSS). In order to conduct the study, a structured questionnaire has been used. It has been divided in two parts. The first part of the questionnaire developed by Pareek (1997) deals with measuring Organization Culture profile in terms of Autocratic, Bureaucratic, Technocratic, and Entrepreneurial. The *second part* of the questionnaire developed by Pareek (1997) assesses the motivation level of the employees.

Analysis Results

In this study, the results were obtained as a consequence of statistical analysis of the data, which have been interpreted in the light of proposed objectives and hypotheses as depicted in the Organisational Culture Profile (**OCP**) – **Role Motivation Model** developed by the Researchers.

The bivariate correlation I shows that there exists a negative correlation between Autocratic Culture and Role motivation ($r = -0.427$). If the Autocratic Culture is increasing then the level of satisfaction is decreasing i.e. the level of dissatisfaction with their roles is increasing. Similarly there is negative correlation between Bureaucratic culture and Role motivation ($r = -0.397$). On the other hand, Technocratic culture has a positive and significant correlation with role motivation ($r = 0.560$), which implies that if technocratic culture increases then the employees feel strongly motivated.

Similar results can be seen with entrepreneurial culture ($r = 0.274$), which also has a positive correlation with role motivation. Hence the null hypothesis "H01" stands rejected and alternate hypothesis "Ha1" is accepted that there is a correlation between the type of organization culture and motivational level of employees of an organization in Private sector.

Application of stepwise regression analysis for the independent and dependent variables produced four (2) variables as the best predictors of Role Motivation in the two selected companies X and Y. The combination includes Technocratic and Bureaucratic culture. R^2 explains that approximately 35.0% of the variation in Role Motivation is caused by the 2 variables selected in the regression model. When adjusted for the number of variables, it (adjusted R^2) shows that it accounts for 34.5% of the variation in the Role Motivation. Thus, the R^2 value gives an indication about the importance of Technocratic, and Bureaucratic culture in explaining a significant amount of variation in Role Motivation. This rejects the null hypothesis "H02" and the alternate hypothesis "Ha2"is accepted that there is impact of type of Culture as independent variable or predictor in explaining variation in Role Motivation and hence culture contributes significantly towards the motivation level of employees working in the two selected organizations.

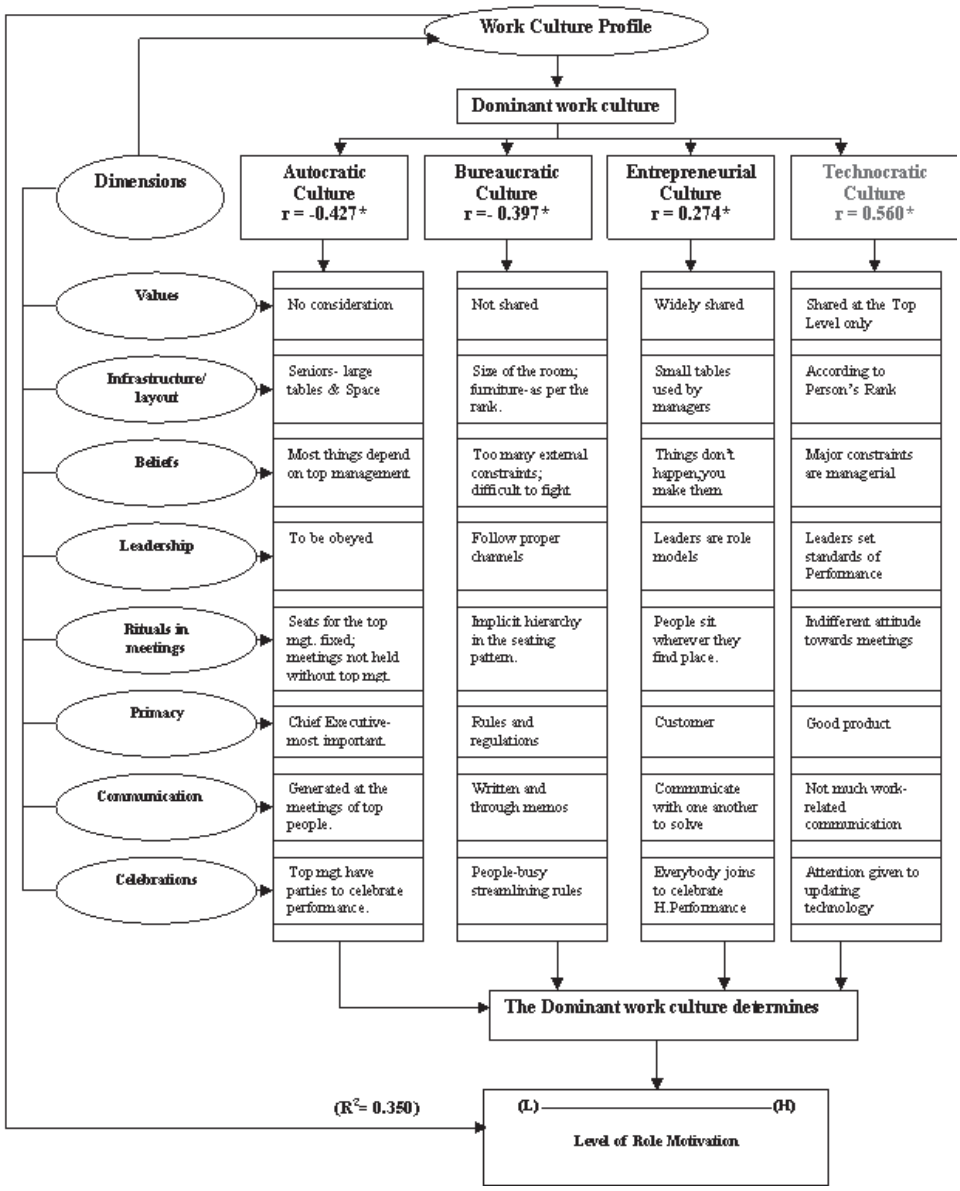

Figure 1 OCP – Role Motivation Model
Obrázok 1 OCP – model úlohovej motivácie
* correlation is significant at the 0.01 level (2-tailed)

To find out the relative importance of variables included in the model, results of the multiple regression analysis have been examined in detail.

The *t*-values and the significance of the t in the tables specify the significance of the individual beta coefficients. As reflected, betas for all the variables are statistically significant at 99% level of confidence. Technocratic culture has the strongest partial correlation or the purest relationship with role motivation (47.9%). It is the best predictor of the role motivation. Hence, Technocratic culture explains 19.36% variation and Bureaucratic culture explains 3.68% variation in motivation level of employees.

Table 1 Associated Statistics for the Determinants of Motivation in companies *X* and *Y*

Variables (1)	Unstandardized coefficients (2)		Standardized coefficients (3)	T	Sig.	Correlations (5)		
	B	Std. error (4)	B (s)			zero-order (6)	partial (7)	part (8)
Constant (9)	-3.772	0.357	–	-10.562	0.000	–	–	–
Technocratic culture (10)	0.598	0.070	0.907	8.519	0.000	0.560	0.479	0.440
Bureaucratic culture (11)	0.242	0.065	0.397	3.728	0.000	-0.397	0.232	0.192

Tabuľka 1 Zodpovedajúce štatistické údaje pre determinanty motivácie v spoločnostiach *X* a *Y*
(1) premenné, (2) neštandardizované koeficienty, (3) štandardizované koeficienty, (4) štandardná odchýlka, (5) korelácie, (6) nulová, (7) parciálna, (8) semi-parciálna, (9) konštanta, (10) technokratická kultúra, (11) byrokratická kultúra

Discussion and conclusions

Although much research is needed, it is clear that most enduring influences are cultural. Man tends to assimilate his cultural moves and to believe in their absolute rightness until deviant elements appear within his own culture or until he confronts members from another culture. Culture comprises the way in which we do things, see things, use things and judge things and this carries from society to society (Kotter and James, 1992). The powerful, pervasive role culture plays in shaping organizational life lends plausibility to speculations that cultural factors may be linked with exceptional levels of organizational performance. A commonly hypothesized link suggests that if an organization's culture is to contribute to enhance performance, it must be both „strong" and possess distinctive „traits": particular values, beliefs, and shared behavior patterns. Some scholars have claimed that positive cultural traits boost performance in proportion to the strength of their manifestation. This view has been called the strong culture hypothesis (Dennison, 1984). The strong culture hypothesis is intuitively appealing. It offers theoreticians a powerful, comprehensive, macro level explanation for organizational performance.

The main objective of the study was to measure the impact of the dominant work culture on role motivational level so that a model can be developed which can give the relationships between different variables. The results show that there exists a positive and significant correlation between Technocratic culture and role motivation ($r = 0.560$), followed by a negative and significant correlation between Autocratic culture and role motivation ($r = -0.427$). Also, application of stepwise regression analysis shows that different type of culture contributes significantly towards the motivation level of the employees at the managerial level, working in private sector manufacturing organizations.

Recommendations

Following recommendations have been made on the basis of the results of the selected companies *X* and *Y*, which belong to the Private sector.

There is a positive correlation between strong technocratic culture and the role motivation as shown in Figure 1 OCP-Role Motivation Model. Hence, organization should focus on strengthening the technocratic culture. It was found that if people grow up in an environment in which their needs are not met, they will be unlikely to function as healthy, well adjusted individuals. There is a negative correlation between autocratic culture and role motivation. Hence organization should obliterate the autocratic culture and strengthen the technocratic culture.

The goal of an organization is not just to survive, but also to prevail, to prosper, to achieve something much broader and bigger than mere survival. In a rapidly changing world, one must change the practices and strategies constantly, without changing the core values and basic purpose. The basic implication of the model is that role motivation can be developed in the organizational context. It is not the strong work culture but the type of dominant work culture that matters. Hence organizations need to map the individual needs and identify the right type of dominant work culture that would lead to higher levels of motivation. It is indeed essential to measure how much the cultural characteristics have dispersed, so that corrective measures can be taken to enable cultural diffusion.

Súhrn

Organizácie sú viac globálne, komplexné a konkurenčné. Cieľom predkladanej štúdie je preskúmať dominantnú pracovnú kultúru prevládajúcu v dvoch organizáciách *X* a *Y*, a preštudovať jej vplyv na stupeň motivácie zamestnancov na manažérskej úrovni tak, aby bolo možné vyvinúť model. Tento príspevok sa snaží preskúmať vzťahy medzi rôznymi nezávislými a závislými premennými prostredníctvom korelačnej analýzy. Viacnásobná hierarchická regresná analýza bola použitá za účelom stanovenia významných predpokladov pracovnej kultúry z celkovej vzorky. Zistenia poukazujú na to, že technokratická kultúra zaznamenáva najsilnejšiu parciálnu koreláciu alebo najčírejší vzťah s úlohovou motiváciou. Prostredníctvom regresnej analýzy vychádza najavo, že technokratická kultúra je silným predpokladom motivácie.

Kľúčové slová: pracovná kultúra, autokratická kultúra, byrokratická kultúra, technokratická kultúra, podnikateľská kultúra, dominantná kultúra, motivácia, OCP – model úlohovej motivácie

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GRAVITY MODEL OF EU'S BILATERAL TRADE WITH DIFFERENT PRODUCTS

GRAVITAČNÝ MODEL BILATERÁLNEHO OBCHODU EÚ S RÔZNYMI TOVARMI

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The basic gravity model of the bilateral trade supposes that the rich and geographically closely situated countries trade more. We have used the enlarged gravity models to explore the effect of other factors on the EU's bilateral trade. The aim of the article is to analyse the bilateral trade of the EU member states with third countries, and identify the factors which affect the trade with different products during the term 2004 – 2008. The impact of the common border, language, colonial history, and variety of trade agreements on the trade with commodities 02 – dairy products, birds' eggs, honey and 04 – meat and edible meat offal is studied in the article.

Key words: gravity model, bilateral trade, commodity 02, commodity 04

The European Union is one of the leading exporters and importers of the manufactured goods and services. Its biggest trading partners are the United States, China and Russia. The 17.9% of imports flow from China and 13.3% from the USA. The most of EU's products are exported to the USA (18.7%), Switzerland (8.1%) and China (7.5%). The agricultural products represent 8% of imports and 7% of total exports from the EU.

The amounts of flows and products of bilateral trade with third countries are influenced by different factors. Besides the historical, cultural and language proximity, the various forms of preferential agreements also have important role.

Material and methods

In order to analyse the bilateral trade with third countries and to identify the factors which influence the trade we use the basic gravity model (Gani, 2010; Head, 2003):

$$\ln(X_{ij}) = \beta_0 + \beta_1 \ln(GDP_i) + \beta_2 \ln(GDP_j) + \beta_3 \ln(POP_i) + \beta_4 \ln(POP_j) + \beta_5 \ln(DIST_{ij}) + \varepsilon \quad (1)$$

The basic gravity model is modified by introducing the dummy variables – $CONT_{ij}$, $LANG_{ij}$, COL_{ij}, EPA_{ij}:

$$\ln(X_{ij}) = \beta_0 + \beta_1 \ln(GDP_i) + \beta_2 \ln(GDP_j) + \beta_3 \ln(POP_i) + \beta_4 \ln(POP_j) + \beta_5 \ln(DIST_{ij}) + \beta_6 CONT_{ij} + \varepsilon \quad (2)$$

$$\ln(X_{ij}) = \beta_0 + \beta_1 \ln(GDP_i) + \beta_2 \ln(GDP_j) + \beta_3 \ln(POP_i) + \beta_4 \ln(POP_j) + \beta_5 \ln(DIST_{ij}) + \beta_6 CONT_{ij} + \beta_7 LANG_{ij} + \varepsilon \quad (3)$$

$$\ln(X_{ij}) = \beta_0 + \beta_1 \ln(GDP_i) + \beta_2 \ln(GDP_j) + \beta_3 \ln(POP_i) + \beta_4 \ln(POP_j) + \beta_5 \ln(DIST_{ij}) + \beta_6 CONT_{ij} + \beta_7 LANG_{ij} + \beta_8 COL_{ij} + \varepsilon \quad (4)$$

$$\ln(X_{ij}) = \beta_0 + \beta_1 \ln(GDP_i) + \beta_2 \ln(GDP_j) + \beta_3 \ln(POP_i) + \beta_4 \ln(POP_j) + \beta_5 \ln(DIST_{ij}) + \beta_6 CONT_{ij} + \beta_7 LANG_{ij} + \beta_8 COL_{ij} + \beta_9 EPA_{ij} + \varepsilon \quad (5)$$

where:
i – EU member state
j – partner country
X_{ij} – trade flows between countries i and j (EX_{ij} – export from country i to country j, IM_{ij} – import from country j to i)
GDP_i, GDP_j – gross domestic product of country i and country j
POP_i, POP_j – population of countries i and j
$DIST_{ij}$ – distance between countries i and j
$CONT_{ij}$ – common border between countries i and j
$LANG_{ij}$ – common language of countries i and j
COL_{ij} – common colonial history of countries i and j
EPA_{ij} – preferential trade agreement with EU
ε – error term
$\beta_1 - \beta_9$ – coefficients
β_0 – constant

The gravity model is based on the assumption that the economically rich and geographically close countries trade more together than with third countries. The augmented gravity model shows the influence of the dummy variables: common border, language, colonial history, and preferential access to the EU market.

Common colonial history and common border should facilitate commercial relations and increase bilateral flow of products between countries. The variables get the value of 1, if the mentioned relationship exists between partner countries, and 0 if not. If official or national language is the same in both partner countries, or the same language is used by at least 20% of population in the country i and j, then the variable – common language has the value 1, otherwise 0.

The preferential access to the EU market makes the trade to flow more easily and in bigger amounts. The variable EPA presents the different levels of openness of mutual trade relations (free trade agreement, custom union, European partnership agreement) and has value 1, if the partner countries have signed the particular trade agreement. If countries are not in the particular trade relationship, the value of variable is zero.

Annex 1 Trade partners of EU member states

Afghanistan	Botswana	Croatia	Guinea	Libya	Niger	San Marino	Trinidad and Tobago
Albania	Br. Virgin Islands	Cuba	Guinea-Bissau	Madagascar	Nigeria	Sao Tome and Principe	Turkmenistan
Algeria	Brazil	Dem. Rep. of the Congo	Guyana	Malawi	Norway*	Saudi Arabia	Turks and Caicos Islands
Andorra	Brunei Darussalam	Dem. People's Rep. of Korea	Haiti	Malaysia	Occ. Palestinian. Terr.	Senegal	Tuvalu
Angola	Burkina Faso	Djibouti	Honduras	Maldives	Oman	Serbia	Uganda
Anguilla	Burundi	Dominica	Iceland	Mali	Pakistan	Seychelles	Ukraine
Antigua and Barbuda	Cambodia	Dominican Republic	India	Marshall Islands	Palau	Sierra Leone	United Arab Emirates
Argentina	Cameroon	Ecuador	Indonesia	Mauritania	Panama	Singapore	United Rep. of Tanzania
Armenia	Canada	Egypt. Arab Rep.	Iran. Islamic Rep.	Mauritius	Papua New Guinea	Solomon Islands	Uruguay
Aruba	Cape Verde	El Salvador	Iraq	Mexico	Paraguay	Somalia	USA**
Australia	Cayman Islands	Equatorial Guinea	Israel	Mongolia	Peru	South Africa	Uzbekistan
Azerbaijan	Central African Republic	Eritrea	Jamaica	Montenegro	Philippines	Sri Lanka	Vanuatu
Bahamas	Chad	Ethiopia	Japan	Montserrat	Tunisia	Sudan	Venezuela. RB
Bahrain	Chile	Fiji	Jordan	Morocco	Turkey	Suriname	Vietnam
Bangladesh	China	French Polynesia	Kazakhstan	Mozambique	Qatar	Swaziland	Zambia
Barbados	China. Hong Kong SAR	FS Micronesia	Kenya	Myanmar	Rep. of Korea	Switzerland	Zimbabwe
Belarus	China. Macao SAR	Gabon	Kiribati	Namibia	Rep. of Moldova	Syrian Arab Rep.	Yemen. Republic
Belize	Colombia	Gambia	Kuwait	Nauru	Russian Federation	Tajikistan	
Benin	Comoros	Georgia	Kyrgyz Republic	Nepal	Rwanda	TFYR of Macedonia	
Bermuda	Congo. Rep.	Ghana	Lao PDR	Netherlands Antilles	St Kitts and Newis	Thailand	
Bhutan	Cook Islands	Greenland	Lebanon	New Caledonia	St Lucia	Timor-Leste	
Bolivia	Costa Rica	Grenada	Lesotho	New Zealand	St Vincent and the Grenadines	Togo	
Bosnia and Herzegovina	Cote d'Ivoire	Guatemala	Liberia	Nicaragua	Samoa	Tonga	

*including: Svalbard and Jan Mayen; **including: Puerto Rico, US Virgin Islands
* vrátane Svalbardu a ostrova Jan Mayen; ** vrátane Portorika a Amerických panenských ostrovov

Príloha 1 Obchodní partneri členských štátov EÚ

Results and discussion

The article describes the bilateral trade of EU member states with third countries during the term 2004 – 2008. We focused on the trade with 178 third countries with products of category 02 – meat and edible meat offal and 04 – dairy produce; birds eggs; natural honey according to HS2002 classification. The third countries were selected according to the availability of data in the database UN Comtrade (Annex 1).

Export and import gravity models of EU member states' bilateral trade with third countries

According to the trade intensity indices, the trade flows between EU member states and third countries do not depend exclusively on the GDP of trading partners. The influence of other variables on the bilateral trade flows of EU member states with third countries is identified by the basic and enlarged gravity models (Table 1, 2).

The gravity models 1 – 6 (table 1) show the positive influence of GDP of partner countries on the EU member states' export. If GDP of EU member state increases by 1%, the export increases by at least 1.852%. The effect of GDP of partner country (GDP_j) is lower (1.009 – 1.030%), but also positive.

The impact of population of partner countries is different. The export is negatively related to the number of EU population and positively related to the partner country's population. If the population of EU member state is higher by 1%, the export decreases by 0.276 % (model 3) to 0.338% (model 2). This phenomenon can be explained by absorption effect or by effect of economy of scale (Kien, 2009).

As it was expected, the geographically closer countries trade more, and higher distance between states (calculated by distance between capital cities) decreases the EU export by 1.222% (model 5) – 1.308% (model 3, 4). The variable is statistically significant in all models, which means that there is less than 1% probability that its real value is 0.

The countries with common border, colonial history and language could trade more because of lower transaction costs

Table 1 Gravity models of EU member states' export to third countries

ln *EX* 3rd countries (1)	Model 1	Model 2	Model 3	Model 4	Model 4
ln GDP*i* (2)	1.910***	1.911***	1.854***	1.854***	1.852***
ln GDP*j* (3)	1.026***	1.026***	1.030***	1.029***	1.009***
ln POP*i* (4)	-0.337***	-0.338***	-0.276***	-0.280***	-0.278***
ln POP*j* (5)	0.324***	0.324***	0.328***	0.328***	0.344***
ln DIST (6)	-1.300***	-1.294***	-1.308***	-1.308***	-1.222***
CONT (7)	–	0.194	-0.005	-0.021	0.075
LANG (8)	–	–	0.931***	0.885***	0.880***
COL (9)	–	–	–	0.139	0.133
EPA (10)	–	–	–	–	0.438***
Constant (11)	-47.500***	-47.556***	-47.163***	-47.092***	-47.635***

*** 1% statistical significance, ** 5% statistical significance, * 10% statistical significance (probability that the real effect is zero)
*** 1% štatistická významnosť, ** 5% štatistická významnosť, * 10% štatistická významnosť
Sources: Undata, UN Comtrade, CEPII, own calculations Zdroje: Undata, UN Comtrade, CEPII, vlastné výpočty

Tabuľka 1 Gravitačné modely exportu členských krajín EÚ do tretích krajín
(1) export z EÚ do tretích krajín, (2) ln HDP krajiny *i*, (3) ln HDP krajiny j, (4) ln populácia krajiny *i*, (5) ln populácia krajiny *j*, (6) ln vzdialenosť, (7) spoločná hranica, (8) spoločný jazyk, (9) spoločná koloniálna história, (10) preferenčné obchodné dohody s EÚ, (11) konštanta

Table 2 Gravity models of EU member states' import from third countries

ln *EX* 3rd countries (1)	Model 1	Model 2	Model 3	Model 4	Model 4
ln GDP*i* (2)	1.311***	1.320***	1.250***	1.249***	1.243***
ln GDP*j* (3)	1.292***	1.287***	1.292***	1.290***	1.239***
ln POP*i* (4)	0.601***	0.590***	0.667***	0.649***	0.654***
ln POP*j* (5)	0.400***	0.404***	0.408***	0.408***	0.448***
ln DIST (6)	-0.698***	-0.639***	-0.657***	-0.657***	-0.441***
CONT (7)	–	1.754***	1.510***	1.430***	1.669***
LANG (8)	–	–	1.143***	0.915***	0.904***
COL (9)	–	–	–	0.687***	0.673***
EPA (10)	–	–	–	–	1.097***
Constant (11)	-60.618***	-61.129***	-60.646***	-60.295***	-61.655***

*** 1% statistical significance, ** 5% statistical significance, * 10% statistical significance (probability that the real effect is zero)
*** 1% štatistická významnosť, ** 5% štatistická významnosť, * 10% štatistická významnosť
Sources: Undata, UN Comtrade, CEPII, own calculations Zdroje: Undata, UN Comtrade, CEPII, vlastné výpočty

Tabuľka 2 Gravitačné modely importu členských krajín EÚ z tretích krajín
(1) export z EÚ do tretích krajín, (2) ln HDP krajiny *i*, (3) ln HDP krajiny j, (4) ln populácia krajiny *i*, (5) ln populácia krajiny *j*, (6) ln vzdialenosť, (7) spoločná hranica, (8) spoločný jazyk, (9) spoločná koloniálna história, (10) preferenčné obchodné dohody s EÚ, (11) konštanta

(Andersen and van Wincoop, 2003). According to our study, the export of EU member states (country *i*) is positively related to the common language. If the trading partners use the same language, then the EU member states' export is 141.15% ($e^{0.880} - 1 = 1.4115$) – 153.61% higher. The colonial history and common border do not generally play statistically important role. The EU preferential agreements are positively related to the export to third countries.

The basic and enlarged import gravity models (table 2) demonstrate the similar influence of GDP, as in the export gravity models. The population of both trading partners is positively related to import and is statistically significant. The population of partner country affect less the import that the EU population, but its effect is bigger in comparison to the export. The influence of distance between capital cities of trading partners is negative and lower than in case of export. If the distance is longer by 1%, then the import to EU member states cuts down by 0.441 – 0.698% according to used model.

The common border, language, colonial history and preferential trade agreement are positively related to trade and statistically significant. The trade flow between neighbour countries is higher at least by 317.95%. The common language increases the trade by at least 146.99% and the EU trade agreements by 199.56%.

Gravity models of bilateral trade with products of category 02 and 04

If we study export and import flows of different products, we will find out that the effect of variables is different on the trade with different products (Table 3).

The models show that economically rich countries trade more. The GDP of trading partners is positively related to the trade (sum of export and import), export and import, and is statistically significant in all models. The GDP of exporting country has the higher impact on the trade flow than the partner's GDP (country *i* / country *j* according to model). The increase of GDP*i* by 1% increases the export of products 02 by 1.031% and the import by 0.304%. The GDP*i* has similar effect on the import. The impact of GDPj is only 0.602 – 0.953% on export/import.

The Influence of population is changing in different models. In general the amount of third country's population is negatively related to the trade (export or import). The population of EU member states is positively related to the trade with 02 products, export of products 02 and import of 04.It is statistically insignificant in the rest of models.

The distance is changing according to trade flow which is studied. It is positively related to import and negatively related to export of products of category 02 and 04. In spite of the fact that the negative impact of the distance on the transaction costs was confirmed (Eaton and Kortum, 2001; Hanson, 2004; Porojan, 2001), it does not explain the variability of trade perfectly. If the neighbour countries have ethnic, political or religious problems, or have similar natural resources, the distance could have inverse effect (Vemuri and Sidqi, 2009). This can explain the positive effect of distance on the import of 02 and 04 products.

The neighbour countries have 3 633.18% higher import and 14 844.05% higher export of product 02. The common border increases the import of 04 products by 38 890.42% and export by 808.40%. The major impact of common language is seen in the model of trade with products 04. The dummy variable – colonial history is statistically insignificant in case of import of 04.

The impact of preferential trade agreements was studied by Frankel et al. (1996). Based on our analysis, the bilateral trade with different products is related to different preferential agreements. The gravity models show the positive influence of preferential trade agreements, except the trade (sum of export and import) and export of products 02. This can be explained by nonreciprocal advantages of agreements for third countries

Conclusion

The basic and enlarged gravity models show that trades with meat and edible offal, and dairy products, birds' eggs, honey and other edible animal products are influenced by different factors and by different impact of the same factors. The effect of exporter's and importer's GDP, distance between capital cities

Table 3 Gravity models of EU bilateral trade with third countries with commodities 02 and 04

	Commodity 02 (1)			Commodity 04 (2)		
	trade 02 (3)	export 02	import 02	trade 04 (4)	export 04	import 04
lnGDP*i* (5)	1.064***	1.031***	0.304***	1.725***	1.751***	0.298***
lnGDP*j* (6)	0.980***	0.643***	0.602***	1.047***	0.953***	0.553***
lnPOP*i* (7)	0.218***	0.155***	0.043	-0.011	-0.067	0.096***
lnPOP*j* (8)	-0.268***	-0.210***	-0.129***	-0.096***	-0.103***	-0.077***
lnDIST (9)	-0.532***	-1.386***	0.924***	-1.239***	-1.441***	0.235***
CONT (10)	5.726***	5.007***	3.620***	2.824***	2.207***	5.966***
LANG (11)	1.621***	1.537***	0.213*	2.152***	1.920***	0.918***
COL (12)	2.168***	2.176***	0.801***	1.579***	1.811***	-0.087
EPA (13)	-0.254**	-0.826***	1.081***	0.767***	0.511***	1.000***
Constant (14)	-41.911***	-26.347***	-27.560***	-52.166***	-48.149***	-22.021***

*** 1% statistical significance, ** 5% statistical significance, * 10% statistical significance (probability that the real effect is zero)
*** 1% štatistická významnosť, ** 5% štatistická významnosť, * 10% štatistická významnosť
Sources: Undata, UN Comtrade, CEPII, own calculations Zdroje: Undata, UN Comtrade, CEPII, vlastné výpočty

Tabuľka 3 Gravitačné modely bilaterálneho obchodu členských krajín EÚ s tretími krajinami s tovarmi kategórie 02 a 04
(1) tovar kategórie 02, (2) tovar kategórie 04, (3) obchod s tovarmi kategórie 02, (4) obchod s tovarmi kategórie 04, (5) ln HDP krajiny *i*, (6) ln HDP krajiny *j*, (7) ln populácia krajiny *i*, (8) ln populácia krajiny *j*, (9) ln vzdialenosť, (10) spoločná hranica, (11) spoločný jazyk, (12) spoločná koloniálna história, (13) preferenčné obchodné dohody s EÚ, (14) konštanta

and population of trading countries varies according to models used, trade flow and selected product.

The expectation that the common border and colonial history facilitate the commercial relations and increase the flow of products is not confirmed in the gravity models of total import from third countries. The population does not support the increase of bilateral trade between partners in all models (trade with 04, export of 04, import 02). The impact of other dummy variables changes according to the products traded.

Súhrn

Základný gravitačný model vychádza z predpokladu, že bohaté a geograficky blízke štáty obchodujú navzájom viac. Použili sme rozšírené gravitačné modely na objasnenie vplyvu ostatných faktorov na bilaterálny obchod EÚ. Cieľom článku je analyzovať bilaterálny obchod členských štátov EÚ s tretími krajinami a určiť faktory vplyvu na obchod s rozdielnymi tovarmi v období 2004 – 2008. Článok poukazuje na dopad spoločnej hranice, jazyka, meny, koloniálnej histórie a preferenčných obchodných dohôd na obchodné toky s tovarmi kategórie 02 – mäso a jedlé mäsové droby a 04 – mlieko a mliečne výrobky, vtáčie vajcia, prírodný med, jedlé výroby živočíšneho pôvodu inde nešpecifikované ani nezahrnuté.

Kľúčové slová: gravitačný model, bilaterálny obchod, tovar kategórie 02, tovar kategórie 04

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ANALYSIS OF THE SLOVAK WINE EXPORTS BY GRAVITY MODEL

ANALÝZA SLOVENSKÉHO EXPORTU VÍNA VYUŽITÍM GRAVITAČNÉHO MODELU

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The focus of the paper is to determine the tendency of development of Slovak wine international trade. The objective of the article is to identify barriers and positive stimulants of wine exports using the gravity model. On the one hand, the basic determinants of gravity model as GDP per capita, number of inhabitants in the import countries and the distance between Slovakia and its business partners are considered as the potential determinants for the Slovak wine export. On the other hand, there are other factors used that come from papers with similar topics and those are production of the domestic country, membership in international and trade organizations, common characteristics of the domestic country and its business partners. Based on the results of this research, variability of dependent variable can be better explained by model with cross-cutting nature than by the panel model. Significant variables behave according to the general presumptions. Membership in the EU, the OECD and the WTO were determined by the model as the factors without significant influence on Slovak wine export. Common characteristics, however, appeared to have positive impact on mutual foreign trade. Furthermore, it was found out that the Slovak wine is seen as an inferior good by the consumers.

Key words: foreign trade, determinants of export, wine, gravity model

Slovak wine sector is in a specific position. It is characterized by the long-term shortage of own wine production in the market what has since 2000 created the option for flow of the foreign wines which represent 50 % of the market in recent years. Slovak consumers predominantly prefer the table wines; however, the domestic production is mostly oriented on the quality wines. This situation supports the export of the quality wines as there is no demand on the domestic market.

The intensity the country is linked to the international trade, determines the rate of economic openness. The open economies can consequently use the advantage of participating in the international economic space.

To place the production in the best possible way is a crucial point for the producers and it contains also the decision about placing the good in domestic or foreign market. Decision about using the foreign market must be accompanied with collecting of information about this space. Who the potential consumer is, what his preferences are and if the consuming capacity of this space is able to accept new volume of goods are the aspects which have to be known before entering the new market. If the decision is taken on the national level it would be very useful to know, what are the main factors stimulating the international trade.

These questions can be answered by using the gravity model of international trade. The model can be used not just to simulate bilateral relationships but also to find a solution: analysis of tourism competitiveness Archibald – LaCorbiniere (2008), the Internationalization of Inventive Activity, Picci (2008) simulating of transport (Kortschak, 2004).

The majority of gravity models of international trade are dealing with simulating of trade from the national perspective but not as many studies focus on international trade of particular good. Those models which contain wine as an object of the analysis come from the authors, who address foreign wine trade of countries with massive production for instance Carlucci et al. (2008) studied new opportunities for Italian exports of table and quality wines, Konig and Schulze (2006) analyzed federal export of German wines, Fleming, Mueller and Thiemann (2009) studied impact of the ICT technology on wine trade.

Materials and methods

Characteristics of the gravity model of foreign trade

Gravity model assesses the trading allocation of goods transmitted to the destination country. We take as a base model (1) developed by the authors Carlucci et al. (2008), who modeled the foreign trade of the Italian table and quality wines:

$$\ln ExpQw_{jt} = \alpha_0 + \alpha \ln QwProd_{it} + \beta \ln PcGDP_{jt} + \gamma \ln Pop_{jt} + (1)$$
$$+ \delta \ln Dist_j + \lambda_k Group_k + \varepsilon_{jt}$$

where:

- $ExpQw_{jt}$ – the value of home (Italian) export of wine to the co-untry j in year t in eur (instant prizes)
- α_0 *a* κ – constants
- $QwProd_t$ – production of home quallity wines, year *t*, in hl
- $PcGDP_{jt}$ – GDP per inhabitant in the country of import (*j*), year *t*, in USD (instant prizes)
- Pop_{jt} – the population of the country '*j*' year *t*, in mil. of inhabitants
- $Dist_j$ – distance of the countries (capital cities) (*j*) from exporting country *i*, in km
- $Group_k$ – dummy variable which takes value 1 if state *j* belongs to group κ

Cross-sectional analysis

According to König and Schulze (2008) study, we will analyze foreign trade with the wine using the cross-sectional and longitudinal data.

The cross-sectional analysis estimates several competing models and assess their suitability. Cross-sectional data are

obtained for 19 countries, which imported Slovak wines in 2009. The relationship among the Slovak wine exports as the dependent variable and independent variables is characterized by equation (2):

$$\ln ExpW_j = \gamma_0 + \beta_1 \ln GDP_j + \beta_2 \ln Pop_j + \beta_3 \ln Dist_j + \quad (2)$$
$$+ \beta_4 \ln EU_j + \beta_5 \ln OECD_j + \beta_6 \ln WTO_j + \beta_7 MENA_j + \beta_8 HRAN_j +$$
$$+ \beta_9 \ln JAZ_j + \beta_{10} \acute{U}Hist_j + \beta_{11} \ln RFAC_j + \beta_{12} \ln SIM_j + u_j$$

where:

$ExpW_j$ – the value of Slovak export of wine to the country *j*
γ_0 – constant
GDP_j – GDP per inhabitant of the country *j*
Pop_j – the population of the country *j*
$Dist_j$ – distance of the countries (capital cities) from exporting country *j*
EU_i, *OECDi, WTOi* – dummy variables that take value 1 if the country *j* belongs to these organizations
$MENA_j$ – dummy variable expressing the common currency of the country *i* and *j*
JAZ_j – common language / common base language country *i* and *j*
$HRAN_j$ – dummy variable which takes value 1 if state *j* has a state border with the country *i*
$\acute{U}Hist_j$ – dummy variable which takes value 1 if state *j* has territorial history of the country of export *i*
$RFAC_j$ – an absolute difference of logarithms of relative factor „endowments"
SIM_j – similarity index of economic size – the index of similarity of the economy
β – the sensitivity change of the dependent variable (export of SR) to changes in independent variables
u_j – latent variable

In cross-sectional model we do not count with the variable wine production of exporting country „$Prod_i$" because average annual value of this variable is constant within one year. This means that we can exclude the effect of a change of this value to changes in the dependent variable – wine exports to the countries '*j*'.

Panel analysis

To examine the bilateral trade of SR with the wine we use pooled regression model. Pooled regression is the estimation method, at which the time cross-sectional component of panel data is not differed. Model is pooled with the several restrictions. The premise is that the coefficients $\alpha, \beta, \gamma, \delta, \zeta, \eta$ are identical for all *j* and *t*. Time period for which we are examining the dependent variable is the period 2004 – 2010. Model (3), whereby we estimate the allocation of Slovak export of wines abroad, can be define as

$$\ln ExpW_{jt} = \alpha_0 + \alpha \ln QwProd_{it} + \beta \ln PcGDP_{jt} + \gamma \ln Popj_t + \quad (3)$$
$$+ \delta \ln Dist_j + \zeta \ln RFAC_{jt} + \eta \ln SIM_{jt} + \lambda_1 EU_{jt} + \lambda_2 OECD_{jt} +$$
$$+ \lambda_3 WTO_{jt} + \lambda_4 MENA_{jt} + \lambda_5 \acute{U}His_{tj} + \lambda_6 HRAN_j + \lambda_7 JAZ_j + \varepsilon_{jt}$$

where:

$ExpW_{jt}$ – the value of Slovak export of wine to the country *j*
α_0 – constant
$PcGDP_{jt}$ – GDP per inhabitant of the country *j*, year *t*, in USD (instant prizes)
Pop_{jt} – the population of the country *j*, year *t*, in mil. inhabitants
$Dist_j$ – distance of the countries (capital cities) from exporting country j
$RFAC$ – an absolute difference of logarithms of relative factor „endowments"
SIM – similarity index of economic size – the index of similarity of the economy
EU, OECD, WTO – dummy variables that take value 1 if the country *j* belongs to these organizations
$MENA$ – dummy variable expressing the common currency of the country *i* and *j*
$\acute{U}Hist$ – dummy variable which takes value 1 if state *j* has territorial history of the country of export *i*
$HRAN$ – dummy variable which takes value 1 if state *j* has a state border with the country *i*
JAZ – common language / common base language country *i* and *j*
$\alpha - \eta, \lambda_1 - \lambda_7$ – the sensitivity change of the dependent variable to changes in independent variables

The gravity model is a logarithmic model. Dependent variable, export of Slovak wines, however, includes a zero value of the variable. These are the cases where country i (SR) with the destination country j was not involved in trade. Logarithm of zero is not mathematically defined. According to Silva and Tenreyro (2005) currently are being used several methods for solving this problem. Most of the works abstract from zero values of the dependent variable and in the model leave only non-zero value. Some authors estimate the model using observations with the value of $T_{ij} + 1$ (T_{ij} – value of the dependent variable in time), or they use the Tobit estimator.

In our work we use methods of data abstraction from zero dependent variable – Method 1 and also $T_{ij} + 1$ values of the dependent variable – Method 2.

Data about the number of inhabitants of the examined countries were received from the databases of the OECD; we recalculated the distance from the countries based on the air distance of their capital cities. The source of data about gross domestic product of countries is the database of UN. Slovak wine production in the reporting period is recorded by Eurostat database. The data about exports of the Slovak wine to the reporting countries was drawn from a database INTRASTAT SR.

We determine the appropriateness of the model based on value adjusted regression coefficients. The model is suitable to describe the relationship between the dependent variable and independent variables, when adjusted regression coefficient is high enough and the majority of variables included in the model is statistically significant (*P*-value).

Results and discussion

Specification of variables

For the variable GDP per inhabitant, we expect a positive coefficient value, because:

1. Assuming that richer countries tend to trade more than poorer countries,
2. Income per capita is the good proxy variable for the expression of infrastructure standards and countries have greater propensity to trade because of a good infrastructure (Fleming, Mueller and Thiemann, 2009).

We assume that the population of the country affects the trading positively. Thus, with growth of the population, we expect growth of exports in selected countries. According to the Walsh (2006) the parameter of variable population can have a positive and a negative sign. Population size, the parameter

of variable population can have a negative impact on foreign trade, when trading nations rely more on internal trade. Absolute difference in relative factor endowments (4) between trading partners at time t is defined by Batalgi (2003):

$$LRFACijt = \left| \ln\left(\frac{GDP_{it}}{capita_{it}}\right) - \ln\left(\frac{GDP_{jt}}{capita_{jt}}\right) \right| \quad (4)$$

where:

$capita_{it}$ – population in the exporting country in the $capita_{jt}$ population in the country of import. Under the new trade theories, one would expect a negative sign for this variable. Adherents of the classical Heckscher-Ohlin-Samuelson theory, on the other hand, expect a positive sign – the larger the difference among the countries in relative factor endowments, the greater the likelihood of mutual trade is. At the macroeconomic level, this is significant at the level of individual economy; we expect lower impact on the variable.

Baltagi (2003) introduced in the study of gravity model variable similarity index size of the economy between trading partners (5):

$$\ln(SIMijt) = LSIMijt = \quad (5)$$
$$= \ln\left[1 - \left(\frac{GDP_{it}}{GDP_{it} + GDP_{jt}}\right)^2 - \left(\frac{GDP_{jt}}{GDP_{it} + GDP_{jt}}\right)^2\right]$$

We expect that the countries with similar economic size trade between themselves more and this relationship is stronger at the macroeconomic level than in specific industries such as wine.

GDP per *capita* is considered a proxy variable output-capacity of the exporting country. The overall *GDP* is particularly suitable for studies which use summary data about export. In the case of specific agro-food products such as table or quality wines, the capacity of output of the country could be overestimated (Carlucci et al., 2008). Therefore, we think also about the physical production of specific goods as an appropriate proxy variable for expression of the home country output capacity (SR). We expect a positive sign variable (c.p.). The higher production of wine, the greater should be the level of its exports.

At the same time the variable *GDP* per capita is included to the model for an explanation of the income effect in the importing countries. We expect a positive parameter of the variable GDP per capita – the higher the individual income, the higher the demand for wine.

The distance between the exporting country and business partners is a proxy variable for the transport costs. Distance between the countries is measured by air distance between the capital cities of the countries. We assume that countries which are more advanced trade more. This happens due to a greater tendency to innovations and better level of infrastructure (Carrilho and Li, 2002).

Dummy variables OECD, EU, WTO are implemented into the model to assess the impact of policies of these groups on bilateral trade of examined countries and variable *MENA* helps to identify the membership impact of trading partners of Slovakia in a monetary union of EU on export of Slovak wines.

Artificial variable JAZ reaches the value 1 if states have a common language base. We assume that the similarity in language increases bilateral trade of countries. For countries with similar linguistic basis we find Slovakia, Czech Republic, Russia and Poland.

ÚHIS represents variable that refers to the common history of territorial countries. Common territorial history of countries should help to stimulate positive foreign trade of countries. Within this group we included Czech Republic, which formed one country with Slovak Republic between 1918 – 1939 and 1945 – 1992, and also Austria and Hungary, which in the period of 1867 – 1918 formed with SR one territorial unit – Austria – Hungary. It is probable that the close relations from the past affect the present goods exchange between countries.

Cross-sectional gravity model

Empirical study includes 19 countries that imported Slovak wines in 2009. Model A (6) is considered to be a basic gravity model where the independent variables are GDP per capita, the size of population of importing countries, the distance of economic centers of the country *j* and *i* etc.:

$$\ln ExpW_j = \gamma_0 + \beta_1 \ln GDP_j + \beta_2 \ln Pop_j + \beta_3 \ln Dist_j \quad (6)$$

In the case of model A only 13.6 % of variability of dependent variable is explained by the model and only GDP per capita is the variable statistically significant at the 10 % level. All parameters of the variables have the expected sign. In order to improve the explanatory ability of the model we use additional variables. Model B (7) was estimated based on the relationship (2) and it can be stated as:

$$\ln ExpW_j = \underset{(0.72)}{9.85} - \underset{(0.45)}{1.14} \ln GDP_j + \underset{(0.32)}{0.45} \ln Pop_j + \quad (7)$$
$$+ \underset{(0.1)}{0.1} \ln Dist_j + \underset{(0.59)}{1.89} \ln EU_j + \underset{(0.93)}{0.29} \ln OECD_j + \underset{(0.24)}{7.86} \ln WTO_j -$$
$$- \underset{(0.45)}{2.36} MENA_j + \underset{(0.76)}{1.29} HRAN_j + \underset{(0.06)}{7.44} \ln JAZ_j - \underset{(0.75)}{1.92} \acute{U}Hist_j -$$
$$- \underset{(0.45)}{4.22} \ln RFAC_j - \underset{(0.70)}{2.48} \ln SIM_j$$

In brackets is reported *P*-value of the estimated parameters. Adjusted coefficient of determination (R^2 = 0.54) shows the average degree of adjustment of the regression equation. Neither of the parameters is statistically significant at the significance level α = 0.05 and that is why we decided to remove several input variables from the model. That is how model C (8) was created and it represents following relationship:

$$\ln ExpW_j = \underset{(0.00)}{21.11} - \underset{(0.00)}{2.08} \ln GDP_j + \underset{(0.06)}{0.52} \ln Pop_j + \quad (8)$$
$$+ \underset{(0.01)}{9.62} \ln WTO_j + \underset{(0.00)}{7.69} \ln JAZ_j - \underset{(0.00)}{4.18} \ln RFAC_j$$

The parameter distance – „Dist“ considered as a basis of the gravity model was removed from the basic equation because of its statistical insignificance. Based on the estimated parameters we could evaluate the results. Regression equation with the adjusted coefficient of determination with value 0.705 represents good explanatory ability of the model. All variables (except *Pop.*) have statistical influence at the level 0.05 and at the level 0.1 even the variable "*Pop*" is statistically significant. The estimated coefficients express elasticity directly; therefore, we estimated that if the *GDP* per *capita* rises with 1 %, the export of Slovak wine drop by 2.08 %. In this case we could

conclude that Slovak wine is considered to be inferior good abroad because as the income of inhabitants increases, the demand for Slovak wine decreases. This result is surprising, however, it seems to be real. Based on the model it can be said that if the population increases by 1 %, the demand for Slovak wine increases by 0.52 %. Common language basis of trading countries increased Slovak exports. Membership in the WTO in 2009 also had a positive impact on Slovak wine export, what means that if potential member become a real member of the WTO, the export of Slovak wine will increase by 9.6 %.

As it was expected based on the modern economy theories the sign of this variable is negative. In fact, economies of scale are derived from the international wine trade and differentiation of the products is a common practice.

Signs of significant parameters for all variables except *GDP* per capita have the expected value.

Panel gravity model

The panel model analysis is started with 42 countries, which were importing Slovak wines within the years 2004 – 2010. The data was drawn from INTRASTAT SR database. Time period includes 7 years and because of information unavailability no longer period is possible. Data acquired before the year 2004 would be significant for determination of the impact on Slovak wines export according to Slovak republic's entrance into the EU.

Firstly we found out the explanatory ability of the basic gravity model with the variables as *GDP* per *capita*, population size in the importing state, distance between economic centers in the country and others in time t.

Results of pooled regression – Method 1

Similar to the cross-sectional models, the panel model consisting of a set of basic variables (*GDP* per *capita*, population, distance) is not sufficient to describe the variability of the dependent variable. By the model we described 21.50% of the variability of the dependent variable. After extension of the model for other independent variables and elimination of insignificant variables the explanatory ability of the model increased to 43.07%. Best model (model D) has the form (9):

$$\ln ExpQw_{jt} = \underset{(0.00)}{11.57} - \underset{(0.02)}{0.50}\ln PcGDP_{jt} + \underset{(0.00)}{0.58}\ln Pop_{jt} - \underset{(0.09)}{0.39}\ln Dist_i + \underset{(0.07)}{1.38}\ln SIM_{it} - \underset{(0.00)}{3.15}\, CUR_{it} + \underset{(0.00)}{1.90}\, FRONT_i + \underset{(0.00)}{2.22}\, LANG_i \quad (9)$$

We can say that the existence of countries with similar size as the Slovak economy meant for the Slovak export of wines positive fact and the intensity of trade was amplified. Common characteristics of Slovakia's trading partners – the common national borders, common language features – reinforced the bilateral trade with wine. The impact of introducing the common currency (euro) entering the monetary union in 2009 is interesting. We can say, if new trade partner (who is the member of monetary union) came to the Slovak wine export market, the export of Slovak wine would be decreased by 3.15 %. Slovak membership in international organizations and communities does not significantly influence the export of domestic wines. In model we estimated that 1% increase in *GDP* per *capita* decreased the export of Slovak wines by 0.5 %. Slovak wine, according to the results of importing countries is perceived more as an inferior estate.

Results of the pooled regression – Method 2

With the basic model we explained 14.18 % variability. The parameter *GDP* was not significantly different from zero. After the introduction of other independent variables into the model the explanatory ability increased to 28.7 %. In the next step we excluded the most insignificant variables and the best model (model E) can be characteristized by the following equation:

$$\ln ExpWj_t = \underset{(0.01)}{29.07} - \underset{(0.00)}{6.30}\ln QwProd_t + \underset{(0.01)}{1.22}\ln PcGDP_{jt} + \underset{(0.00)}{0.71}\ln Pop_{jt} - \underset{(0.00)}{0.85}\ln Dist_i - \underset{(0.07)}{1.79}\ln SIM_{it} - \underset{(0.36)}{0.91}\, OECD_{it} - \underset{(0.12)}{1.6}\, WTO_{it} - \underset{(0.00)}{2.72}\, MENA_{it} + \underset{(0.33)}{1.50}\, \acute{U}Hist_i + \underset{(0.01)}{3.60}\, HRAN_i + \underset{(0.10)}{1.90} JAZ_i \quad (10)$$

With the model we explained 29.16 % of the changes in the dependent variable. Every variable in basic model is significant. We excluded variables *RFAC* and EU from the model. Memberships in EU, OECD and in WTO do not significantly affect export of Slovak wines. On the significance level 0.1 we can say, that similar economic size between business partners did not positively influence the export volume. We estimated clear relationship between the size of a domestic production and the volume of the country export. Increase in production of Slovak wine about 1 % could lead to the decrease in wine export volume by about 6.3 %. Similar result justified Carlucci et al. (2008). According to his opinion, international market could not absorb another wine and an increase of domestic production could cause a rapid price drop and consequently export reduction. *GDP, Pop, Dist* are variables, where a parameter has an expected sign. One per cent of population increase in the importing country caused export increase by 0.71 %. The population growth is higher than export growth. As state population is wider concept than wine consumers, naturally, rise of the population does not mean an appropriately high increase in wine demand. Common currency in the countries does not affect the export positively as also the method 1 showed. Common borders between business partners and also common language influence the increase of Slovak wine export on the significance level 0.1.

Conclusions

The article deals with a determination of development tendency in foreign trade with Slovak wine within the years 2004 – 2010. The goal of the article is to identify barriers and positive incentives of the wine export with a help of the gravity model.

Model with cross – sectional data describes relationship between wine export in Slovak republic and explanatory variables the best. However, we found out that distance between business partners in 2009 was not an influencing factor of wine export in Slovak republic. We estimated that an increase of *GDP* of the Slovak wine's importing countries causes a demand decrease of Slovak wine. That means the Slovak wines were inferior goods for foreign consumers in 2009. For Slovak vintners could be this fact warning. It can be appropriate to evaluate if Slovak vintners should further offer wine, which will consumers in target countries substitute with another product, if they want to consume higher quality wine. On the other hand we must say, that this result is very general, because Slovak wine export in our model represents Slovak wine export of the quality various wine types – table wines and quality wines as well.

Also the panel data gave the same image about Slovak wine. In time scale Slovak wines were regarded as inferior goods as well. We also found out that common characteristics of the business partners incite an increase of the product trading exchange. In the first place common language elements of the countries had a positive influence on the export volume from Slovakia to these countries. But also common borders between business partners are a significant factor. An influence of common territorial history between the countries was not confirmed.

In 2009, the fact that among the Slovak business partners were also WTO members had a positive influence on wine export. However this fact cannot be confirmed in longer time period. The panel models did not prove an influence of this value. Memberships in the international organizations OECD and EU also were not the fact which would clearly affect wine export. From all information we can conclude that policies of these international organizations do not fundamentally affect Slovak foreign trade with wine. The impact establishments of the common currency entering the monetary union in 2009 are interesting. Slovakia's entry into monetary union (based on the model) means reduction of wine exports from Slovakia to countries with a common currency, the euro. For example, if trade of new member countries of the monetary union is increasing and absorption of the wine market is limited, it could lead to a decline in the Slovak wine export.

Súhrn

Článok sa zaoberá určením tendencií vývoja exportu slovenského vína v období 2004 – 2010. Cieľom článku je identifikovať bariéry a pozitívne stimulanty exportu vína pomocou gravitačného modelu. Za potenciálne determinanty slovenského exportu vína považujeme na jednej strane základné determinanty gravitačných modelov zahraničného obchodu – HDP na obyvateľa a počet obyvateľov krajín importu, vzdialenosť Slovenska od obchodných partnerov a ďalej faktory, ktoré sú používané v prácach rovnakého zamerania – produkcia domácej krajiny, členstvo v medzinárodných a obchodných organizáciách, spoločné charakteristiky domácej krajiny a obchodných partnerov. Na základe dosiahnutých výsledkov je zrejmé, že gravitačný model prierezového charakteru lepšie popisuje variabilitu závisle premennej (exportu) ako panelový model. Signifikantné premenné sa správajú podľa všeobecne platných predpokladov. Členstvo v EÚ, OECD, WTO boli modelom posúdené ako faktory, ktoré signifikantne neovplyvňujú vývoz slovenského vína. Spoločné charakteristiky obchodujúcich krajín napomáhajú stimulovať vzájomný zahraničný obchod. Ďalším výsledkom je, že slovenské víno je vo všeobecnosti u spotrebiteľov posudzované ako inferior tovar.

Kľúčové slová: zahraničný obchod, determinanty exportu, víno, gravitačný model

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THE ROLE OF RURAL WOMEN IN AGRICULTURE AND RURAL DEVELOPMENT IN EUROPE AND CENTRAL ASIA

POSTAVENIE VIDIECKYCH ŽIEN V POĽNOHOSPODÁRSKOM SEKTORE A V ROZVOJI VIDIEKA V EURÓPE A V STREDNEJ ÁZII

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The gender related issues are very complex. The paper deals with the role of rural women in agriculture and rural development in Europe. Sustainable agriculture, rural development and food security cannot be achieved without the full and equal participation of both women and men in rural areas. Europe and Central Asia are the only regions in the world where agriculture is not the main employer of the rural women as well as the men. The disappearance of the centrally planned economy, continuing social and economic transition, European Union enlargement, Common Agricultural Policy and aligned reforms, globalization, and impact of climate change, have affected rural populations and in particular rural women. The policies and programs to improve women´s access to land and assets remain still important.

Key words: rural development, sustainable agriculture, rural women, gender income gaps, access to resources

A number of publications address gender issues within the framework and context of impact of climate change and sustainable rural development, including energy resources and gender equity in agriculture in the light of economic globalization. Women and men play different but crucial roles in agriculture and rural development, and both contribute towards agriculture and food production. In Eastern Europe, state programs of agrarian reform, resettlement and mass privatization of state farms, collectives and cooperative farms during the 1990´s largely led to male household heads gaining access to land resources. According to ILO (2008) and World Bank (2007) women's agricultural labor in Central and Southeast Europe is characterized by low rural productivity, labor legislation that is not enforced, 19.2 % of women work in agriculture and women are often excluded from agricultural productivity-enhancing programs (e.g. trainings).

Material and methods

Objective of this paper is to analyze the rural women situation in the times of the financial and economic crisis, as well as to take into consideration the adverse effects of the climate change and its impact on the agriculture. Upon the analyzed results, the possible solutions are proposed for the situation of rural women in the countryside of the Europe and Central Asia.

The data are obtained from the questionnaires prepared for the FAO ECA Working Party of Women and Families in Rural Development held in Rome 2009 and the ECA Session held in Innsbruck 2008. Other research was made in connection of the Joint UNDP, FAO, ILO, UNHCR Conference organized in Almaty, 2009, dealing with impact of the financial and global economic crisis on agriculture including the rural women situation.

The other downloaded data are from the sources of the FAO Division on the Gender Equity and Rural Development and World Bank ´s World Development Report 2007.

The presentations of the author from the international events have been taken into consideration as well.

Results and discussion

As it is shown in the Table 1, Europe and Central Asia are the only regions in the world where agriculture is not the main employer. Non-agricultural activities, particularly wage employment, are the main source of employment for both men and women. The high percentage of non-active women in Europe and Central Asia highlights the fact that women are engaged in productive, reproductive/care and community activities. They work longer hours than men overall, even if the share that is considered "productive" employment is lower.

Gender disparities in agriculture sector are not limited to agricultural employment, but also including agricultural land. The gender gap is the average difference between men's and women's hourly earnings within the economy as a whole. Across Europe women earn on average around 17% less than men and in some countries the gender pay gap is widening. The pay gap si linked to numerous legal, social and economic factors which go far beyond the single issue of equal pay for equal work.

As it is shown in Figure 1, women's access to land is far below men's in displayed regions.

The figures 1 show that there are fewer women holders of agricultural land than men in the displayed nine European countries – the Czech Republic, Denmark, France, Germany, Italy, Romania, Slovakia, Spain and the United Kingdom.

In Europe, women are in the role of individual holders of agricultural land from 10 % in Germany to 32% in Italy. In Slovakia there are 19% woman holders of agricultural land. The situation in Europe is somewhat better than the figures in Africa, Asia and Latin America, but given the difference in economic growth, the disparities are still surprisingly high.

Table 1 Rural Employment by Gender and Employment Status in 2007 (percentage of adult population)

Employment Status (1)	Sub-Sahara Africa (2)		South Asia (3)		East Asia and the Pacific (4)		Middle East and North Africa (5)		Europe and Central Asia (6)		Latin America and the Caribbean (7)	
	female (8)	male (9)	female (8)	male (9)	female (8)	male (9)	female (8)	male (9)	female (8)	male (9)	female (8)	male (9)
Agriculture (10)	54.9	60.6	24.1	54.9	44.1	56.2	39.6	34.0	12.3	18.6	25.1	59.3
Self-employed (11)	53.5	56.6	12.7	33.1	38.4	46.8	38.6	24.6	6.9	8.5	22.8	38.4
Wage earner (12)	1.4	4.0	11.4	21.8	5.7	9.4	1.0	9.4	5.4	10.1	2.3	20.9
Non-agriculture (13)	9.6	15.5	5.6	27.2	19.7	28.9	6.7	39.7	19.7	38.7	23.2	26.4
Self-employed (11)	6.8	6.9	2.9	11.8	11.3	11.5	2.8	8.8	1.6	7.4	11.7	9.2
Wage earner (12)	2.8	8.6	2.7	15.4	8.4	17.4	3.9	30.9	18.1	31.3	11.5	17.2
Non-active or not reported (14)	32.7	21.7	64.3	14.6	35.5	14.4	53.3	26.0	46.9	27.5	51.2	13.4
Total (15)	97.2	97.8	94.0	96.7	99.3	99.5	99.6	99.7	78.9	84.8	99.5	99.1
Residual (16)	2.8	2.2	6.0	3.3	0.7	0.5	0.4	0.3	21.1	15.2	10.5	0.9

Source: World Bank, 2007, World Development Report. Last two lines added by authors
Zdroj: World Bank, Správa o rozvoji sveta, posledné dva riadky pridané autormi

Tabuľka 1 Vidiecka zamestnanosť v členení podľa pohlavia a zamestnanenckého statusu (percento z dospelej populácie)
(1) zamestnanecký status, (2) subsaharská Afrika, (3) Južná Ázia, (4) Východná Ázia a Oceánia, (5) Stredný Východ a Severná Afrika, (6) Európa a Stredná Ázia, (7) Latinská Amerika a Karibik, (8) ženy, (9) muži, (10) poľnohospodárstvo, (11) samozamestnávatelia, (12) pracovník, (13) nepoľnohospodárske činnosti, (14) neaktívny alebo bez údajov, (15) spolu, (16) zostatok

Table 2 The Gender Gap in Europe

Country (1)	Gender pay gap (percentage) (2)	Country (1)	Gender pay gap (percentage) (2)	Country (1)	Gender pay gap (percentage) (2)	Country (1)	Gender pay gap (percentage) (2)
Belgium (3)	9.1	Greece (10)	20.7	Luxemburg (17)	10.0	Romania (24)	12.7
Bulgaria (4)	12.7	Spain (11)	17.6	Hungary (18)	16.3	Slovenia (25)	8.3
the Czech Republic (5)	23.6	France (12)	15.6	Malta (19)	5.2	Slovakia (26)	23.6
Denmark (6)	17.7	Italy (13)	4.4	Netherland (20)	23.3	Finland (27)	20.
Germany (7)	23.0	Cyprus (14)	23.1	Austria (21)	25.5	Sweden (28)	17.9
Estonia (8)	30.3	Latvia (15)	15.4	Poland (22)	7.5	the United Kingdom (29)	21.1
Ireland (9)	17.1	Lithuania (16)	20.0	Portugal (23)	8.3		

Source: FAO, Gender Equity and Rural Development Division, 2008
Zdroj: FAO, Gender Equity and Rural Development Division, 2008

Tabuľka 2 Príjmové rozdiely z hľadiska pohlavia v Európe
(1) štát, (2) príjmový rozdiel z hľadiska pohlavia (percento), (3) Belgicko, (4) Bulharsko, (5) Česká republika, (6) Dánsko, (7) Nemecko, (8) Estónsko, (9) Írsko, (10) Grécko, (11) Španielsko, (12) Francúzsko, (13) Taliansko, (14) Cyprus, (15) Lotyšsko, (16) Litva, (17) Luxembursko, (18) Maďarsko, (19) Malta, (20) Holandsko, (21) Rakúsko, (22) Poľsko, (23) Portugalsko, (24) Rumunsko, (25) Slovinsko, (26) Slovensko, (27) Fínsko, (28) Švédsko, (29) Spojené kráľovstvo

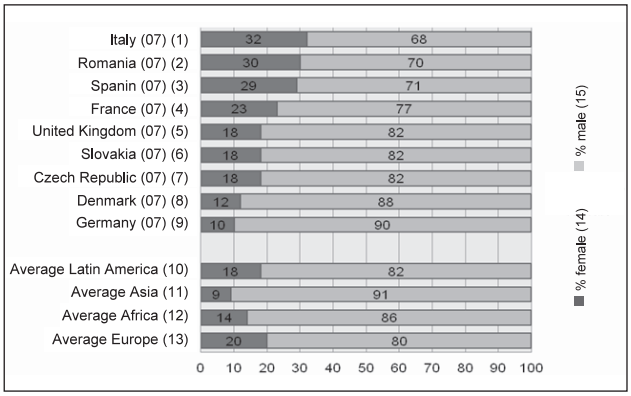

Figure 1 Individual Holders of Agricultural Land by Gender
Source: FAO, Gender Equity and Rural Development Division, 2008

Obrázok 1 Individuálni vlastníci pôdy v členení podľa pohlavnej štruktúry
Zdroj: FAO, Gender Equity and Rural Development Division, 2008
(1) Taliansko, (2) Rumunsko, (3) Španielsko, (4) Francúzsko, (5) Veľká Británia, (6) Slovensko, (7) Česká republika, (8) Dánsko, (9) Nemecko, (10) priemer za Latinskú Ameriku, (11) priemer za Áziu, (12) priemer za Afriku, (13) priemer za Európu, (14) ženy, (15) muži

Since the 1990s transition and market reforms, a significant improvement in the standard of living and quality of life in rural populations in Central and Eastern Europe and Central Asia countries have been recorded. Nevertheless, rural women and men continue to face numerous difficulties and constraints to economic development such as the need for improved infrastructure and better access to inputs and to markets for farm products and rural services as well as the challenge of upgrading social services in rural areas. The disappearance of the centrally planned economy, continuing social and economic transition, European enlargement, Common Agricultural Policy – aligned reforms, globalization, and impact of climate change have affected rural populations and in particular women. Since men and women continue to face different responsibilities and needs when it comes to ensuring food security and participating in income/earning activities, addressing gender issues in rural development remains an issue of outstanding importance.

The emerging trends of rural development and rural areas contain:

- Rural-urban migration.
- Ageing of rural population.
- Increase of rural population.
- Increased pressure on natural resources.
- Disaster related and complex emergencies.
- Disease.
- Information Technology.
- Climate change and bio-energy.

In the heterogeneous and diverse Central and Eastern Europe and Central Asia subregions:

- The Working Party on Women and Family in Rural Development (WPW).
- The Gender, Equity and Rural Employment Division (ESW).

fill a gap with regard to the investigation of potential consequences of current developments in rural areas for rural people especially women. In this context:

- networking is a tool for raising awarenes of the situation of rural women and for addressing the major constrains and challenges they face,
- experience and lessons learned, reported and discussed during the WPW Expert Meetings have provided an interesting and comprehensive account of the successful outcome of implemented project but also underlined various types and intensity of constraint and difficulties rural people and particularly women still have to struggle with. The WPW also provides a forum for such experiences sharing and training multiple levels of stakeholders in rural development.

The Gender, Equity and Rural Employment Division (ESW) effort is to promote the economic and social well-being of the rural poor, sustainable development and population issues; the Division assists FAO and its member governments in addressing gender, equity and rural employment issues.

The Impact of the Current Crisis on the Rural Women' Situation

In forthcoming period it seems to be unavoidable to deal with the current crisis and its serious impacts on women, however the gender dimensions of the recession can not be measured yet. One of the problems of rural areas is the rural migration. The main points of migration in Central and Eastern Europe are following:

- **Scale directions and impacts of migrations.**

In some countries the scale of out migrations decreased the national rural labor force/migration remains a household – level decision. The gendered nature of out migration from rural communities varies. Outflow of working age women and men is common to all countries facing rural out migration. The value of remittance in number of countries exceeds the size of foreign direct investments inflows and is equal to an important part of the GDP.

- **Policy approaches to counteract migrations, alleviates their impacts and assists migrants.**

National, regional and local programs reduce the scale of migrations through improved work opportunities and access to jobs for women and men at home. The LEADER program was given as an example of a bottom up approach to rural development community empowerment and mainstreaming gender, working through Local Action Groups. A number of EU Member states have built designated rural development agencies to program and disburse EU support to rural areas.

- **Specific aspects and impacts of migrations on farm populations and rural areas.**

Migration of working age men and women aggravates the situation of farms and is the main reason for increased number of subsistence farms, often managed by women and with little potential for investment of diversification. Rural development programs that assist women to find new jobs acquire marketable vocational skills and diversify opportunities for earning incomes, serve at the same time to empower women to improve their status.

- **Specific gender aspects of migration phenomena recorded at source and addressed in migration populations and recommendations for policy makers.**

The number of countries implements strong regional policies and rural development programs to prevent depopulation of rural areas as a result of out migration, investment in infrastructure but also in human capital contributes to slowing down out migration, as well as micro finance programs supporting local businesses. Policies and programs to improve women´s access to land and assets remain important, for example shared ownership titles for women co-managing the farm, which are particularly important where male out migration increases de facto female household headship.

The Adverse Trends for Rural Women

Some of the significant adversities rural women in Europe face are:

- Attitudes – have seen a return to more traditional attitudes towards gender roles at some levels of society (also in association with transition).
- Employment:
  - high unemployment of women due to gender discrimination,
  - significant gender related pay gap, women earn half of men's salary,
  - lack of economic and social recognition of women's work and the double burden of earning an income and caretaking at home and looking after the household farm.
- Population:
  - limited for women entrepreneurs and farmers,
  - limited access for women to social networks.
- Bargain power – low level of women's bargaining power and negligible role in decision-making and political representation.

Conclusions

In the submitted paper, the recent situation of rural women in Europe and in Central Asia is summarized and the recommendations for responses to the current crisis in three areas are submitted:

Governments, donors should prioritize the most vulnerable groups, particularly small-scale farmers, and women, especially given their significant role in food security and agricultural production.

Gender equality and women's empowerment are essential to achieve equitable and effective development and to foster a vibrant economy. Women in agriculture must be given additional support to overcome existing inequalities in access to land, technology (including know-how), inputs, credit and output markets.

There is a great need for a systematic gender analysis of the laws and policies related to land reform. For robust gender analysis to support sound and gender – aware macro economic policies in agriculture, additional data about women in agricultural production are essential.

Súhrn

Problematiky spojené s postavením a zastúpením pohlaví sú veľmi komplexné. Článok sa zaoberá postavením vidieckych žien v poľnohospodárskom sektore a ich pozíciou v rozvoji vidieka v Európe a Strednej Ázie. Témy ako udržateľné poľnohospodárstvo, rozvoj vidieka a potravinová bezpečnosť nemôžu byť dosiahnuté a naplnené bez zastúpenia oboch pohlaví žien aj mužov vo vidieckych oblastiach. Rozdiely v pohlaviach nie sú obmedzené len zamestanosťou v poľnohospodárskom sektore, ale siahajú do širších súvislostí a zahŕňajú aj rozdiely vyplývajúce z prístupu k vlastníctvu pôdy. V prípade európskych krajín je menej vlastníkov pôdy ženského ako mužského pohlavia. Európa a Stredná Ázia patria medzi jediné regióny, v ktorých poľnohospodárstvo nepredstavuje prioritného zamestnávateľa v ekonomike. Zmena zriadenia ekonomiky z centrálne plánovanej na trhovú ekonomiku, trvalé sociálne a ekonomické zmeny, Spoločná poľnohospodárska politika a jej reformy, globalizácia a vplyv klimatických zmien, ako aj svetová finančná a globálna ekonomická kríza, toto všetko sú faktory, ktoré ovplyvňujú vidiecku populáciu a osobitne ženskú populáciu. Politiky a programy na zlepšenie prístupu žien k pôde a k majetku zohrávajú stále veľmi dôležitú úlohu pri ich plnohodnotnej realizácii v ekonomických aktivitách súvisiacich s rozvojom vidieka.

Kľúčové slová: rozvoj vidieka, udržateľné poľnohospodárstvo, vidiecke ženy, rozdiely v príjmoch žien voči mužom, prístup k zdrojom

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SUPPORT FROM THE EU FUNDS FOR RURAL DEVELOPMENT IN POLAND IN THE YEARS 2007 – 2013

PODPORA ROZVOJA VIDIEKA Z FONDOV EÚ V POĽSKU V ROKOCH 2007 – 2013

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In the European Union assistance for rural development in 2007 – 2013 has been provided in the framework of the European Agricultural Fund for Rural Development. The scope and form of support for rural areas in Poland during this period were stated by the Rural Development Programme. Its main objectives include in the first place upgrading the competitiveness of agricultural holdings through their restructuring, improvement of the condition of the environment and landscape, but also betterment of living standards of rural dwellers and promoting the diversification of economic activities. Apart from funding originating from the European Union, financial support for rural development in Poland requires involving domestic funds, or in some cases also private means. Evaluating the rural Development Programme for 2007 – 2013 at the current stage of its realization it should be said that a considerable interest in selected measures may be observed among rural dwellers, visible as the number of submitted applications and a growing number of signed contracts. As at the date of the analysis already over 16.3 bn zlotys has been paid and utilization of EAFRD funding reached 23.61%. Utilization of funding will be increasing with subsequent interim payments or realization and settlement of investments qualified for assistance but also in connection with new calls for applications for the EU funding. On the other hand, analyzing the structure of realized payments within the limit of EAFRD funds one should state that as at the day of the analysis the major part of funds from EAFRD was paid to the measure supporting farming in mountain areas and other less favoured areas, subsequently modernization of agricultural holdings, early retirement benefits and also to the agri-environmental programme. Proportionally the least share of funding was paid within the measures: “Implementation of Local Development Strategies” and “Information and Promotion Activities”.

Key words: Common Agricultural Policy, EU funds, rural development

In compliance with the implemented reform of the EU rural policy, since 2007, assistance for rural areas development has been financed by the European Agricultural Fund for Rural Development (EAFRD), while the EU principles of support for rural areas were stated in the Council Regulation (WE) 1698/2005. In conformity with the EU regulation, rural development policy for the years 2007 – 2013 focuses on three priority axes. The first one concerns upgrading agricultural and forestry sectors competitiveness (so called economic axis), the second one refers to an improvement of the condition of the natural environment and rural areas (so called environmental axis), whereas the third one focuses on improvement of the quality of living conditions in rural areas and supports diversification of rural economy (so called social axis). The priorities mentioned above have been additionally supplemented by the fourth axis – Leader, aiming at inclusion of local communities in the process of both planning and management of rural development. Activities realized in the framework of Leader axis aim at de-centralized bottom-up implementation of constructed strategies concerning development of local rural areas but should also contribute to building social capital. This axis is horizontal and multi-sector one in character and all measures contained in the other three thematic axes may be implemented in its framework

Pursuant to the Council regulation (WE) 1 698/2005 each European Union member state was committed to develop a national strategic plan of rural development for the years 2007 – 2013. In Poland, the national strategic plan constructed on the basis of social, economic and environmental analysis shows the priorities and tendencies of rural development with reference to the EU priorities, which are the basis for elaborating the Rural Development Programme for 2007 – 2013. The programme specifies the scope and form of support for rural areas in Poland according to general provisions of the EU policy on rural development support. Therefore, the instruments of this programme were grouped in axes, the implementation of which should contribute to:

- upgarding of competitiveness of agriculture and forestry through supporting restructuring, development and innovation (Axis 1),
- improvement of the natural environment and rural areas through supporting land management (Axis 2),
- improvement of life quality in rural areas and providing assistance for diversification of economic activities (Axis 3),
- activation of rural dwellers by building social potential in the country (Axis 4).

The article aims to present the European Union assistance targeting rural areas in 2007 – 2013 with particular regard to Poland. The sources of the European Union funding for rural areas were analyzed in the paper considering the European Agricultural Fund for Rural Development (EAFRD) broken down by the individual European Union countries, as well as by individual priority axes of the EU rural development policy. In general, the number of measures realized by individual member states in the framework of national rural development plans divided into priority axes was compared. Moreover, a basic information about the Rural Development Programme, which has been realized in Poland in 2007 – 2013 focusing on identified objectives and priority axes, was presented. The state of this programme realization was illustrated synthetically and final conclusions were presented.

Rural development programmes in the European Union

The European Agricultural Fund for Rural Development is an instrument of the EU Common Agricultural Policy focusing on providing assistance for the member state regions with a typically agricultural structure. EAFRD provides financial support for the projects aiming at sustainable development of agricultural and forestry sectors, improvement of agri-food economy competitiveness but also increase in employment and upgrading entrepreneurship in the European Union member states. The fund should also contribute to improvement of the natural environment condition, extending infrastructure, development of tourism, and also to enhancement of the quality of life in rural areas. The breakdown of EAFRD funds for rural development allocated to individual European Union states is presented in Figure 1.

The highest amount of funding for the years 2007 – 2013 was allocated to rural development in Poland – 13.23 bn euro, which makes up over 14.5% of the whole EAFRD budget for 2007 – 2013 and in Italy – 8.29 bn euro. The other countries which obtained the highest amounts of money are Germany – 8.13 bn euro and Romania – 8.02 bn euro. The lowest share of funds were allocated to Malta – 0.08 bn euro, Luxembourg – 0.09 bn euro and Cyprus – 0.16 bn euro.

The greatest amounts of funding, i.e. 44% of the total EAFRD budget for 2007 – 2013 were allocated to realization of measures included in the axis 2 (environmental) and subsequently to the measures constituting axis 1 (economic) – 34% of funds. Measures implemented in the framework of axis 3 (social) received 13% of EAFRD funds, whereas 6% was allocated to Leader axis. About 3% of EAFRD means was reserved for the mechanism supporting proper implementation and management of individual programme of rural development in the member states (technical assistance).

Moreover, the European Union regulations committed each member state to develop a National Strategic Plan and national programme of rural development. A group of measures aiding rural development in the EU was determined in the regulation 1698/2006 and comprises a total of 43 codes. As much as 17 were identified in the framework of economic axis, 13 for the environmental axis, 8 in the framework of social axis and 5 for Leader axis. Management of the implemented programmes of rural development is also supported by the technical assistance means. The number of measures implemented by the individual EU countries in the framework of their rural development programmes is presented in Table 1.

Presented data show that most numerous packages of activities are implemented by Italy (41), Spain (40) and Germany (39). The least numbers of measures (11) were launched in Ireland, on Malta (21) and in Romania (22). None of the European Union countries has been implementing all available measures in the framework of axis 1. The highest number of activities in the framework of this axis has been initiated in Spain, Portugal and in Italy (14 measures in each country), whereas the least number in Ireland (only 4 measures), in Finland and Sweden (6 measures in each). In the framework of the second, so called environmental axis only Italy has been implementing the full package, i.e. 13 measures, whereas Portugal, Spain and Germany each are realizing 12. The lowest number of measures within axis 2 has been implemented on Malta – 2 measures and in Ireland, Slovenia and Sweden – 3 measures in each. In the framework of axis 3 (so called social axis) as many as eight EU member states have been implementing all measures available in the general

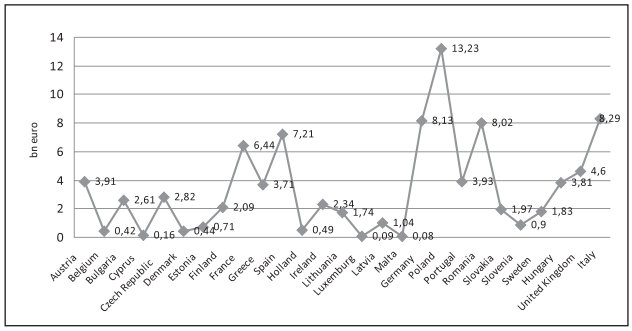

Figure 1 Funds from the European Agricultural Fund for Rural Development allocated to individual European Union countries in 2007 – 2013 in bn euro
Source: Author's own elaboration based on data supplied by the Ministry of Agriculture and Rural Developemnt

Obrázok 1 Prostriedky z Európskeho poľnohospodárskeho fondu pre rozvoj vidieka alokované v jednotlivých členských štátoch Európskej únie v rokoch 2007 – 2013 v mld eur
Zdroj: vlastné spracovanie autora na základe údajov poskytnutých Ministerstvom poľnohospodárstva a rozvoja vidieka

package. On the other hand, Ireland is not implementing any measure within this package[1/] while Estonia and Portugal only two measures each. As many as 18 countries have launched all accessible measures in the framework of the last Leader axis, on the other hand the least number was initiated in Ireland, Lithuania, Poland, Portugal and Slovakia – only 3 measures each. Moreover, all countries except Luxemburg initiated technical assistance programme, which engages public means in proper implementation and management of launched rural development programmes. It should be also noticed that the selection of measures in the framework of individual priority axes is greatly diversified. In Sweden, great emphasis was put on the measures within economic and social axes, while the measures within the environmental axis were practically disregarded, whereas they are particularly important e.g. in Portugal. It is also worth mentioning that some countries, like e.g. Italy, Spain and Germany, developed programmes of rural development on regional level, which has its implications for the number of measures shown in Table 1, whereas other countries, including Poland have been implementing a single programme in the scale of the whole country.

Supporting rural development in Poland in the framework of Rural Development Programme for 2007 – 2013

The scope and form of assistance for rural areas in Poland in 2007 – 2013 have been stated by the Rural Development Programme (RDP for 2007 – 2013). The main objectives comprise in the first place upgrading competitiveness of agricultural holdings through their restructuring, improvement of the environment and landscape condition but also refining the living standards of rural communities and promoting diversification of economic activities. RDP for 2007 – 2013 has been realized in the whole area of Poland and all measures are financed from the European Agricultural Fund for Rural Development and domestic public funds.

Apart from the funding received from the European Union, financial support of rural development in Poland requires also involvement of domestic public funds or, in case of some measures, also private means. The amount of funding

[1/] In case of countries which do not allocate the required minimum funds to measures within the third axis, the measures are supported by axis IV – Leader

Table 1 Number of measures implemented by individual European Union countries in the framework of their rural development programmes

Country (1)	Axis (2) 1	Axis (2) 2	Axis (2) 3	Axis (2) 4	Technical assistance (3)	Total Implemented measures (4)
	max 17	max 13	max 8	max 5		
Austria	9	10	8	5	1	33
Belgium	8	6	7	5	1	27
Bulgaria	8	5	5	5	1	24
Cyprus	11	9	5	5	1	31
Czech Republic	10	9	7	5	1	32
Denmark	11	7	6	4	1	29
Estonia	11	7	2	4	1	25
Finland	6	6	8	5	1	26
France	13	10	7	5	1	36
Greece	12	10	7	4	1	34
Spain	14	12	8	5	1	40
Holland	8	4	7	5	1	25
Ireland	4	3	0	3	1	11
Lithuania	10	9	4	3	1	27
Luxemburg	7	4	7	5	0	23
Latvia	11	6	4	4	1	26
Malta	10	2	3	5	1	21
Germany	13	12	8	5	1	39
Poland	11	6	6	3	1	27
Portugal	14	12	2	3	1	32
Romania	9	4	3	5	1	22
Slovakia	8	9	6	3	1	27
Slovenia	11	3	4	5	1	24
Sweden	6	3	8	5	1	23
United Kingdom	10	8	8	5	1	32
Hungary	11	10	8	5	1	35
Italy	14	13	8	5	1	41

Source: Author's own elaboration based on Przegląd unijnych programów rozwoju obszarów wiejskich na lata 2007 – 2013, Ministerstwo Rolnictwa i Rozwoju Wsi, Warszawa 2010 (Review of the EU rural development programmes for 2007 – 2013, Ministry of Agriculture and Rural Development)
Zdroj: vlastné spracovanie autora na základe Prehľadu programov rozvoja vidieka EÚ pre roky 2007 – 2013, Ministerstvo poľnohospodárstva a rozvoja vidieka

Tabuľka 1 Počet opatrení implementovaných jednotlivými členskými štátmi Európskej únie v rámci ich programov rozvoja vidieka
(1) členský štát, (2) prioritná os, (3) technická pomoc, (4) celkový počet implementovaných opatrení

Table 2 Breakdown of the RDP for 2007 – 2013 budget by individual axes for 2007 – 2013 [euro] as of 31-08-2010

Axis no. (1)	Axis name (2)	Means from EAFRD (3)	Domestic expenditure in euro (4)	Predicted maximum amounts of private contribution in euro (5)	Total cost in euro (6)
I	Upgrading of competitiveness of agricultural and forestry sector (7)	5 630 649 500.00	1 855 549 722.00	5 636 959 311.00	13 123 158 533.00
2	Improvement of the natural environment and rural areas (8)	4 302 801 216.00	1 074 311 415.00	0.00	5 377 112 631.00
2I	Quality of life in rural areas (9)	2 635 527 440.00	864 533 702.00	1 369 163 600.00	4 869 224 742.00
IV	Leader	630 000 000.00	157 500 000.00	403 115 385.00	1 190 615 385.00
	Technical assistance (10)	199 950 000.00	66 650 000.00	0.00	266 600 000.00
Total (11)	TOTAL	13 398 928 156.00	4 018 544 839.00	7 409 238 296.00	24 826 711 291.00

Source: Author's own elaboration based on the data supplied by the Ministry of Agriculture and Rural Development
Zdroj: vlastné spracovanie autora založené na údajoch poskytnutých z Ministerstva poľnohospodárstva a rozvoja vidieka

Tabuľka 2 Prehľad rozpočtu Programu rozvoja vidieka pre roky 2007 – 2013 podľa jednotlivých prioritných osí k 31. 8. 2010 v eurách
(1) číslo osi, (2) názov osi, (3) prostriedky z EAFRD, (4) domáce výdavky, (5) predpokladné maximálne množstvo príspevku z privátneho sektora, (6) celkové náklady, (7) zvýšenie konkurencieschopnosti poľnohospodárstva a lesného hospodárstva, (8) zlepšenie životného prostredia a vidieckej krajiny, (9) kvalita života vo vidieckych oblastiach, (10) technická pomoc, (11) spolu

allocated to individual axes in the framework of Rural Development Programme for 2007 – 2013 in euro and broken down by public expenditure (EU and domestic) and predicted private expenditure is presented in Table 2.

The major part of funding in the RDP for 2007 – 2013 framework, total of almost 7.5 bn euro (the EU and domestic means) was allocated to axis I "Upgrading of agricultural and forestry sectors competitiveness", so called economic axis, in the framework of which over 13 bn euro, including private means, can be spent. Activities planned within this axis aim at providing assistance in restructuring agricultural holdings and strengthening real capital. The measures are meant to support individual subjects in bearing necessary costs accompanying adjustment of agricultural holdings to increasing Community requirements and growing competitive pressure of agricultural producers from other Community countries and third countries. The assistance is important because of low specialization level of agricultural holdings, their underfinancing in the sphere of agricultural production infrastructure and great dispersion of farmlands, which causes lower effectiveness of production. Instruments in the framework of this axis target also improvement of competitiveness of food industry and agricultural sector supporting enterprises in the area of upgrading quality of production, rural infrastructure and forming agricultural producer groups. The measures grouped in this axis are also meant to contribute to raising the level of education and qualifications of rural dwellers by means of professional training, informative and educational endeavours and technical assistance. It should be also noticed that the support provided so far in the first place relied on preparation of farmers for the integration into the European Union and enabling them to use the Community assistance. Technical assistance should presently focus on challenges facing farmers concerning modern farming methods and farm management, implementing cross-compliance principles, application of standards of production, public health, animal welfare, food quality and the use of good agricultural and forestry practice. Increasing competitiveness of agriculture requires land consolidation, technical modernization of farms, development of production services but also constructing efficient production and trade chains. In the framework of this axis as much as 83% of all expenses were planned for the measures aiming at modernization of agricultural holdings, increasing added value of basic agricultural and forestry production and early retirement benefits.

Almost 5.4 bn euro of public funds were planned for the measures in the framework of axis 2. Total of all planned financial expenses is lower in this axis because no private expenditure has been predicted. Measures aim at supporting farming in mountainous and other less favoured areas, afforestation of ploughlands and other lands, agri-environmental programme and endeavours supporting reconstruction of forestry production potential destroyed by natural disasters. Poland stands out against the other European Union countries due to good condition of the natural environment and biodiversity, therefore supporting instruments and encouragement for farmers are supposed to favour and improve the conditions of habitats and sanctuaries of various species.

Measures aiming at diversification of agricultural activities towards undertaking or developing non-agricultural or agriculture-related activities by farmers, improving economic competitiveness, development of entrepreneurship and labour market, extending some elements of technical infrastructure and fulfilling social and cultural needs of rural dwellers are implemented in the framework of axis three. Improvement of the quality of life in rural areas is therefore the objective which assumes not only economic and social development of agricultural holdings (strengthening their economic potential, restructuring and modernization but also creating favourable living conditions understood as high quality of the environment and landscape, as well as social and technical infrastructure. The first group of measures in the framework of discussed axis is associated with diversification of economic activity. Due to the unemployment level in Poland these instruments provide a good chance for rural dwellers because they contribute to jobs securing and incomes owing to pursuing off-farm activities. Tendencies observed currently indicate that agriculture will increasingly absorb smaller labour resources. Urban centres, where rural dwellers can find jobs or education will play a crucial role in rural development. In these centres they will also fulfil their health and cultural needs. In this context it seems very important to support development of these functions of small towns and communities which will fulfil these needs. This applies in the first place to the localities participating in the restructuring process in rural areas. Budget for axis 3 was established on the level of over 3.5 bn euro, of which the largest expenditure, over 1 bn euro from public funds (Community and domestic funds) and over 1 bn euro of private expenditure, was planned for the measure which will help starting and development of micro enterprises in rural areas.

Leader axis makes possible realization and implementation of primarily social axis objectives. The basic objective of the discussed axis is activation of rural dwellers, which requires including local social partners' initiatives in planning and their implementation. The objective will be accomplished through building human potential in rural areas, increase in potential acquisition of financial means and their utilization but also owing to better management of local resources. Leader involves preparing a local rural development strategy (LRDS) by local rural community but also realization of projects resulting from this strategy. Representatives of local communities form so called local activity group (LAG), which according to the adopted strategy and criteria selects the projects for realization. It should be emphasized that such initiative assumes increasing the coherence of locally made decisions and quality of management but also strengthening social capital and contributes to implementation of innovative solutions in a given region. Formulating local strategies of activity should aid better utilization of possessed human and natural resources, but also help to adjust the directions of activities to the needs of subjects which operate in a given area. In the framework of discussed RDP for 2007 – 2013 priority axes, the least share of funds, only 800 million euro, was planned just for this axis, whereas within the axis itself the highest funding was allocated to the measure involving implementation of local development strategies.

A total amount of funding from public funds (from EAFRD and domestic means) in the framework of RDP 2007 – 2013 is almost 17.5 bn euro and together with planned co-financing in the framework of some measures financed by private subjects in the framework of this programme may reach almost 25 bn euro.[2/]

[2/] In 2007 – 2013 the actual sum allocated for expenses is about 14.4 bn euro because almost 3 bn euro must be spent on the commitments made in the previous period of the programme in the framework of Rural Development Plan for 2004 – 2006

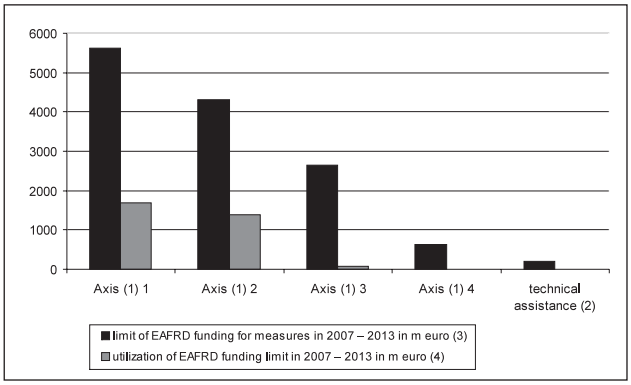

Figure 2 Utilization of funds from EAFRD within respective RDP 2007 – 2013 axes, as of 31. 8. 2010
Source: Author's own elaboration based on data supplied by the ministry of Agriculture and rural Development

Obrázok 2 Využitie prostriedkov z EAFRD v rámci jednotlivých prioritných osí Programu rozvoja vidieka 2007 – 2013 k 31. 8. 2010
Zdroj: vlastné spracovanie autora na základe údajov poskytnutých z Ministerstva poľnohospodárstva a rozvoja vidieka
(1) prioritná os, (2) technická pomoc, (3) limit finančných prostriedkov z EAFRD pre dané odvetvie pre roky 2007 – 2013 v mil. eur, (4) využitie prostriedkov z EAFRD v mil. eur

Status of Rural Development Programme for 2007 – 2013 implementation in Poland

Rural Development Programme for 2007 – 2013 was adopted during a meeting of the Committee on Rural Development of the European Commission in July 2007, whereas in September of the same year it was given the go-ahead by the decision of the European Communities.[3/] Absorption of the funds originating from EAFRD in the framework of individual RDP 2007 – 2013 axes as of 31. 8. 2010 is shown in Figure 2.

As at the day of the analysis and in absolute terms, almost 1.7 bn euro has been paid from EAFRD in the framework of axis 1 – upgrading of competitiveness of agricultural and forestry sectors. The amount constitutes almost 30% of the EAFRD budget utilization. Concerning the measures attached to this axis the most of funds, from EAFRD i.e. almost 2.6 bn zlotys was spent on "Early retirement benefits", which is a measure targeting a large group of potential beneficiaries involving regular payments on the basis of decision granting the benefits. In this context it should be noticed that the other measure within axis 1 which registered the highest value of allocated funding, 2.0 bn zlotys was "Modernization of agricultural holdings", which, unlike retirement benefits, requires realization of some definite project and co-financing from private funds.

The next axis within which the highest amount of money was spent from EAFRD was axis 2. As at the day of the analysis, almost 1.4 bn euro was spent constituting 32.28% of utilization of these means. However, such considerable utilization of the budgetary limit is connected with specificity of some assistance measures realized within this axis, in case of which payment is made only when beneficiaries fulfil some definite criteria and an appropriate decision is taken or a contract is signed (they do not require co-financing from private funds). These actions include, among others, a measure supporting farming in mountainous and other less favoured areas within which the highest payment from EAFRD, i.e. 3.2 bn zlotys, was made. The number of applications submitted within this axis, as well as the number of signed contracts or decisions issued were also the highest.

On the other hand little financial means from EAFRD, only 3.17% have been utilized so far within the third axis, i.e. the one whose objective was improvement of quality of life in rural areas. Among the measures implemented within this axis the highest amount of funding from EAFRD, almost 150 m zlotys was spent on projects involving diversification of agricultural activities towards non-agricultural activities or agriculture-related activities undertaken or developed by farmers, farmer households or farmer couples. A new and important measure within the discussed axis is "Creation and development of micro enterprises" as it provides conditions for diversification of economic activities and improvement of employment opportunities, therefore contributing to sustainable socio-economic development of rural areas. However, its primary objective is increase of economic competitiveness of rural areas, provision of conditions for entrepreneurship development and improvement of job availability. In result it should contribute to increased employment opportunities in rural areas and therefore to a decrease in unemployment. Despite the ambitious objectives assigned to this measure and in spite of a significant potential impact on rural development resulting from this measure implementation, applications are verified far too slowly. As at the date of the analysis, only 2034 contracts for project financing were signed from among over 15 thousand submitted applications, whereas only 520 project accounts for a total amount of 51 m zlotys were settled (almost 37 m zlotys came from EAFRD).

The least amount of funding in the framework of discussed programme, only 1.17% of funds from EAFRD and 1.69% for technical assistance has been so far utilized within axis 4 – Leader. From among the applications submitted within Leader axis the largest funds, over 57 m zlotys were spent within the measure concerning operation of local activity groups. Almost 30 m zlotys were granted by EAFRD.

Conclusions

Measures realized in the RDP 2007 – 2013 were grouped into axes, whose implementation is supposed to aid enhancing competitiveness of agriculture and forestry through supporting restructuring, development, innovation, improvement of the natural environment condition and rural areas owing to supported land management, improvement of quality of life in rural areas but also due to support for diversification of economic activities and activation of rural dwellers through building social potential in the country. In Poland, within axis 1 great emphasis was put on the measures connected with modernization of agricultural holdings and infrastructure connected with agriculture, agricultural products processing, marketing but also on food quality assurance systems. Great importance has been attached also to measures aiming at adjustment of farmers' age structure and farm area structure and those connected with human capital development. Due to well preserved natural resources, within axis 2 strong emphasis was put on environmental measures (e.g. agri-environmental programme, assistance for Natura 2000 areas). The assistance targets both the areas with high natural amenities and the areas threatened with severe environmental pressure from agriculture. Another important measure implemented in Poland within this axis is assistance for less favoured areas (LFA). Objectives of axis 3 should be realized complementary to the

3/ Ever since the moment of RDP for 2007 – 2013 adoption by the European Commission the programme has undergone various modifications. The latest change was accepted by the European Commission in March 2010.

activities of other funds. Measures available within the discussed axis supplement the priorities determined within two previous axes and they should positively affect the inhabitants of rural areas in a synergic way. The last axis in the frame of discussed programme is Leader axis, whose realization over a longer period of time is supposed to help realize the aims of Renewed Lisbon Strategy and Goteborg Strategy (among others increasing number of jobs and economic diversity in rural areas). Realization of measures attached to this axis should lead to strengthening social capital in rural areas but also to improved organization and management on the local level. Moreover, implementation of local strategies should contribute to ensuring sustainable development of rural areas.

Evaluating Rural Development Plan for 2007 – 2013 at the current stage of its realization, one should say that a considerable interest in selected measures may be observed, which translates into a big number of submitted applications and growing number of contracts signed. As at the day of the analysis already over 16.3 bn zlotys has been paid, whereas EAFRD fund utilization reached 23.61%. Utilization of funding will be growing with subsequent cyclical payments (as in case of early retirement benefits) or realization and settlement of supported investments, but also in connection with new calls for applications for the EU funding. So far, the highest amount of funding, over 4 bn zlotys, has been paid within the measure supporting farming in rural areas and other less favoured areas and for early retirement benefits – over 3.4 bn zlotys. Within these measures the payment of financial means is made when the beneficiary fulfils some determined criteria and appositive decision has been made by the institution implementing a given measure. Therefore beneficiaries do not have to submit any complicated documents, realize any definite project or co-finance the investment from their own funds. Considering the investment measures, the highest utilization of financial means, 2.78 bn zlotys was registered within the measure concerning modernization of agricultural holdings.

On the other hand, while analysing the structure of payments realized within the limits of funding from EAFRD, one should state that as of the days of the analysis the major part of funding from EAFRD was used for the measure supporting farming in mountain areas and other less favoured areas – 42.40%, subsequently modernization of agricultural holdings – 35.77%, early retirement benefits – 34.38% and also agri-environmental programme – 26.89%. Proportionally the lowest funding was spent within the measure "Implementing Local Development Strategies" – 0.01% and on the measure "Information and promotion activities" – 0.03%.

Final assessment of the effect of individual measures implementation on the condition of Polish agriculture and rural areas will be possible only at a later date when realization of all projects and payments will be completed. Undoubtedly, these activities will contribute to modernization of rural areas both as places for living and work, they will allow for better employment opportunities for rural dwellers both in the agricultural sector and outside it, but they will also influence improvement of the natural environment and landscape condition. It should be also emphasized that although the discussed programme is an important instrument of assistance for rural areas, it does not finish the list of measures which assist Polish rural areas. Attention should be paid also to the instruments implemented in the framework of coherence policy.

Súhrn

V EÚ je pomoc pre rozvoj vidieka v rokoch 2007 – 2013 zabezpečovaná v rámci Európskeho poľnohospodárskeho fondu pre rozvoj vidieka. Rozsah a forma podpory vo vidieckych oblastiach Poľska v tomto období boli stanovené Programom rozvoja vidieka. Jeho hlavné ciele zahŕňajú v prvom rade zvýšenie konkurencieschopnosti poľnohospodárskych podnikov prostredníctvom ich reštrukturalizácie, zlepšenie stavu životného prostredia a krajiny, ale tiež zlepšenie životných podmienok vidieckych obyvateľov a podporu diverzifikácie ekonomických činností. Okrem fondov z Európskej únie sú pre finančnú podporu rozvoja vidieka v Poľsku dôležité aj domáce fondy a v niektorých prípadoch tiež súkromné prostriedky. Pri vyhodnocovaní Programu rozvoja vidieka pre roky 2007 – 2013 v aktuálnom stave jeho realizácie je potrebné povedať, že môžeme vidieť značný záujem o vybrané opatrenia medzi obyvateľmi vidieka, pozorovateľný počtom podaných žiadostí a rastúcim počtom podpísaných zmlúv. Ku dňu spracovania analýzy bolo vyplatených 16,3 mld. PLN a využitie EAFRD dosiahlo 23,61 %. Využitie fondov sa bude zvyšovať s postupnými splátkami alebo realizáciou a vyúčtovaním investícií oprávnených pre pomoc a tiež v súvislsoti s novými výzvami na podávanie žiadostí v rámci fondov EÚ. Na druhej strane, pri analýze štruktúry realizovaných platieb v rámci EAFRD je možné skonštatovať, že väčšina prostriedkov z EAFRD bola vyplatená na opatrenia podporujúce poľnohospodárstvo v horských oblastiach a iných znevýhodnených oblastiach, modernizáciu poľnohospodárskych podnikov, skorý odchod farmárov do dôchodku a agroenvironmentálne programy. Najmenej prostriedkov bolo vyplatených v rámci opatrení „Implementácia miestnej stratégie rozvoja" a „Vzdelávacie a propagačné aktivity."

Kľúčové slová: spoločná poľnohospodárska politika, fondy EÚ, rozvoj vidieka

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SÚČASNÉ PROBLÉMY EKOLOGICKÉHO POĽNOHOSPODÁRSTVA NA SLOVENSKU

ACTUAL PROBLEMS OF ORGANIC FARMING IN SLOVAKIA

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Slovakia has experienced positive trends in organic farming development in recent years (the area of organic land and number of ecofarms have increased). In spite of this trend there are many problems hindering further development of organic farming in Slovakia. These problems start to appear in production, continue with state support and processing operators, end up in retail markets. Negative or neutral attitude to bio products is a big problem. People named high price level, questionable quality and small range of products among big negatives of ecoproducts. Purchasing power of population limits sale of bio products and decreases return of money to producers. We analyzed the correlation of income to bio products consumption. According to Pearson (0.807), Kendall tau (0.762), Spearman (0.914) correlation coefficients we can say that there is a strong statistical correlation. This correlation refers to countries with higher income and with higher bio products consumption. There are also other problem areas such as lower state financial support, low initiative "from below" (ecofarmers associations) and high level of control. Missing infrastructure of bio products processors is a big barrier in development of Slovak organic farming. In this indicator, Slovakia (with 5 processors) ranks among the least developed EU countries. Poor knowledge of production and sale and small portfolio of products also belong among factors inhibiting development of organic farming in Slovakia. However, the fundamental problem is higher level of production costs compared to conventional farming. Thus, there is lower possibility of competitiveness with higher price in the market. Our research confirmed that costs are 42% (wheat) and 34% (corn) higher in organic farming compared to conventional farming.

Key words: organic farming, problems, costs, correlation, consumption, subsidies

Ekologické poľnohospodárstvo predstavuje alternatívnu formu hospodárenia na pôde k intenzívnemu systému. Ide o zachovanie prirodzenej úrodnosti pôdy bez použitia agresívnych anorganických hnojív, herbicídov, pesticídov a o snahu samoregulácie pestovania. Nie je však možné nahradiť celú konvenčnú výrobu ekologickou. Základom ekologického poľnohospodárstva je návrat k prírode a z neho vyplývajúci zdravší život, ktorý zahŕňa aj konzumáciu zdravších produktov bez chémie. Ide zároveň aj o ochranu prostredia, v ktorom žijeme. Jednou zo základných priorít Spoločnej poľnohospodárskej politiky ja aj podpora ekologického poľnohospodárstva v členských krajinách EÚ. Existuje však mnoho prekážok, ktoré bránia plnému rozvoju ekologického poľnohospodárstva na Slovensku. Medzi ne patrí najmä vysoká cena ekoproduktov vyplývajúca z vysokých výrobných nákladov, negatívny alebo neutrálny postoj zákazníkov k bioproduktom, a z neho vyplývajúci nízky dopyt, nižšia úroveň podpory štátu a chýbajúca infraštruktúra spracovateľov bioprodukcie na Slovensku.

Materiál a metódy

Cieľom článku je identifikovať základné problémy ekologického poľnohospodárstva, ktoré brzdia jeho rozvoj na Slovensku. Parciálnym cieľom je rozprúdiť názorovú diskusiu na jednotlivé problémy, pretože informácií o ekologickom poľnohospodárstve je veľmi málo. To má priniesť nové poznatky, vedomosti a nové názory do danej problematiky. Vo výskume bola využitá metóda komparácie pri porovnávaní úrovní štátnych podpôr do ekologického systému hospodárenia. Na výpočet miery tesnosti závislosti medzi spotrebou bioproduktov a priemerným ročným príjmom v krajinách Európskej únie boli využité korelačné koeficienty. Pearsonov korelačný koeficient, ktorého výsledky boli overené aj pomocou Kendallovho tau a Spearmanovho korelačného koeficientu. Na výpočet bola použitá trial verzia softvéru SPSS 17.0. Pri komparácii nákladov a produkcie ekologického a konvenčného systému hospodárenia boli vybrané dve plodiny (pšenica a kukurica). Na výberovom súbore piatich ekologických producentov (kritériami bola ochota spolupráce, prevádzkovanie ekologickej rastlinnej výroby aspoň päť rokov, umiestnenie RV v KVO) sme porovnali produkciu ($t.ha^{-1}$), náklady ($€.t^{-1}$ a $€.ha^{-1}$). Údaje boli porovnávané s priemernými hodnotami KVO konvenčnej RV získané z VÚEPP. Ďalej boli využité metódy analýzy a syntézy pri zozbieraní a hodnotení jednotlivých problémových oblastí ekologického poľnohospodárstva. Na získanie informácií bola použitá aj metóda riadeného rozhovoru s ekofarmármi, ktorý tak poskytli svoj pohľad na danú problematiku. Boli použité aj informácie a podklady z VÚEPP, ÚKSUPu, Eurostatu a dostupnej literatúry.

Výsledky a diskusia

Problémy rozvoja ekologického poľnohospodárstva na Slovensku

Aj napriek tomu, že v poslednom období nastal rozmach a značne sa zvýšil podiel ekologicky obhospodarovanej pôdy, existujú príčiny nie práve najlepšieho postavenia ekologického poľnohospodárstva na Slovensku. Keďže má ekologická výroba na Slovensku dobré predpoklady, je potrebné poukázať na príčiny a možné zlepšenia. Príčiny, ktoré tu budú popísané, spôsobili, že trhový podiel biopotravín na Slovensku nedosahuje ani jedno percento. Tieto problémy vychádzajú z riadenia poľnohospodárskych podnikov, organizácie trhu, politiky štátu,

riadenia štátnych orgánov a zo strany verejnosti. Za najdôležitejšie faktory rozvoja ekologického poľnohospodárstva a zároveň jeho problémy v SR považujeme nasledovné skutočnosti.

1. Postoj zákazníkov k biopotravinám

Na Slovensku stále prevláda negatívny alebo neutrálny postoj zákazníkov k produktom ekologického poľnohospodárstva. Ľudia nedostatočne dôverujú bioproduktom a radšej siahnu po alternatíve z konvenčného poľnohospodárstva. To je jeden z dôvodov, že na Slovensku je nízky odbyt a prevláda exportná orientácia bioproducentov. Takmer celá produkcia smeruje do zahraničia. Export je nasmerovaný najmä do Talianska, Rakúska, Nemecka, Anglicka, Holandska a Švajčiarska. Naopak, najviac bioproduktov dovážame z Českej republiky. Ľudia za najväčšie negatíva bioproduktov považujú (Drímajová, 2004):

- vysokú cenu v porovnaní s konvenčnými potravinami,
- obmedzený sortiment,
- možnú zvýšenú kontamináciu mikróbmi a možný obsah prírodných toxických látok (alkaloidy, mykotoxíny),
- otáznu technologickú kvalitu,
- menšiu dostupnosť.

Naopak za ich najväčšie prednosti, prečo by ich kupovali, považujú spotrebitelia nasledovné motívy:

- produkty sú zdravšie,
- lepšia chuť a kvalita,
- biopotraviny sú trendové, predstavujú nový trend vo výžive,
- ochrana životného prostredia,
- podpora ekologického poľnohospodárstva.

Aj napriek týmto zákazníkom vnímaným prednostiam prevláda u ľudí konzervatívnosť a uprednostňovanie potravín vyrobených z produktov konvenčného systému. Biopotraviny vyhľadávajú najmä spotrebitelia s vyšším vzdelaním, ženy a rodiny s malými deťmi (Verbeke, 2005).

2. Kúpyschopnosť obyvateľstva

To je jeden z najväžnejších problémov pri rozvoji ekologického poľnohospodárstva na Slovensku. Nízke príjmy zapríčiňujú nezáujem a nedostatočný dopyt po produktoch z ekologického systému hospodárenia. To má následne dopad na štruktúru a množstvo produkcie biovýrobcov. Tí vyrábajú iba toľko, koľko je trh schopný absorbovať. Ľudia sa rozhodujú pri nákupe prevažne na základe ceny a kvality. Cena bioproduktov je však častokrát niekoľkonásobne vyššia ako pri výrobkoch z konvenčného poľnohospodárstva. Aj keď je kvalita a nutričná hodnota bioproduktov vysoká, ľudia ju takto nevnímajú a často je pre nich otáznou. Preto sa biovýrobcovia orientujú na zahraničný trh, kde je povedomie o bioproduktoch a kúpyschopnosť na neporovnateľne vyššej úrovni.

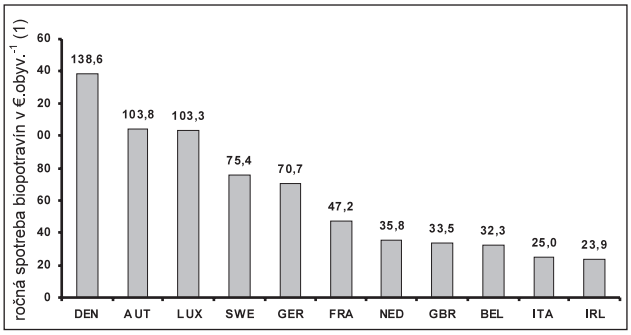
Tabuľka 1 Korelačné koeficienty závislosti spotreby biopotravín od príjmu

	Pearsonov	Kendallovo tau	Spermanov
Korelačný koeficient (1)	0,807	0,762	0,914

Zdroj: vlastné výpočty Source: own results

Table 1 Correlation coefficients of bio products consumption and income
(1) correlation coefficient

Uskutočnili sme preto analýzu, či existuje závislosť spotreby biopotravín v jednotlivých krajinách EÚ od priemernej výšky príjmu. Výsledky korelačných koeficientov sú uvedené v tabuľke 1. Výška Pearsonovho korelačného koeficientu 0,807 dokazuje silnú štatistickú závislosť spotreby biopotravín od príjmu v danej krajine. Táto závislosť je priamoúmerná. V ukazovateli spotreby biopotravín sú v popredí krajiny, kde sa zarába viac. Spotrebitelia v týchto krajinách majú väčšiu ochotu a schopnosť kupovať síce kvalitné a zdravé, ale spravidla drahšie potraviny. Je tomu tak aj na Slovensku, kde vysoká cenová hladina bioproduktov nie je pokrytá dostatočným príjmom a vytvára minimálny dopyt, ktorý je jednou z hlavných príčin neexistencie spracovateľského sektora. Výsledky sme potvrdili aj výpočtom neparametrickej korelácie prostredníctvom Kendallovho tau a Spearmanovho korelačného koeficientu. Kendallovo tau dosiahlo hodnotu 0,762 a Spearmanov korelačný koeficient dokonca 0,914. Oba výsledky v plnom rozsahu potvrdili predchádzajúce závery. Na obrázku 1 sú zobrazené krajiny EÚ s najväčšou spotrebou biopotravín na jedného obyvateľa za rok 2009.



Obrázok 1 Ročná spotreba biopotravín vo vybraných krajinách EÚ v roku 2009
Zdroj: Eurostat, FIBL, organicworld.net (2009)

Figure 1 Consumption of bio products in selected countries of EU in 2009
Source: Eurostat, FIBL, organicworld.net (2009)
(1) consumption of bio products in €.inhab.

3. Nízka úroveň dotačnej politiky

Väčšina farmárov produkujúcich výrobky ekologického hospodárstva je závislá od pomoci poskytovanej zo strany štátu a EÚ. Ide o kompenzáciu za používanie šetrných technologických postupov, ktoré sú ekonomicky náročnejšie. Ak je táto kompenzácia nízka, musí sa tento dopad odraziť v cenách, a tak sa len ťažko stáva konkurenciou oproti konvenčnému poľnohospodárstvu. Podpora zo strany štátu a EÚ by nemala byť zúžená iba na poskytovanie dotačných prostriedkov, ale mala by v sebe zahŕňať aj informovanie spotrebiteľov, osvetu verejnosti v oblasti vplyvu ekologických technologických postupov na životné prostredie a posilnenie výskumu ekologického poľnohospodárstva a výrobných metód.

Pre porovnanie uvádzame dotácie na hektár ekologickej poľnohospodárskej pôdy v SR a vo vybraných krajinách EÚ. Toto porovnanie zachytáva tabuľka 2. Ide o platby na hektár plochy po konverzii.

Tabuľka 2 Podpora ekologickej výroby vo vybraných krajinách v €.ha^{-1}

	SVK	CZE	LAT	EST	AUT	GER
Orná pôda (1)	130	165	108	119	327	170
Zelenina, liečivé, koreninové a aromatické rastliny (2)	450	601	357	350	508	300
Ovocné sady, vinohrady (3)	570	905	419		800	720
Trvalé trávne porasty (4)	82	76	138	88	250	170

Zdroj: UKSUP, PRV 2007 – 2013, eagri.cz, organicworld.net
Source: ÚKSUP, PRV 2007 – 2013, eagri.cz, organicworld.net

Table 2 Subsidies for organic farming in selected countries in €.ha^{-1}
(1) arable land, (2) vegetables, aromatic plants, (3) gardens and vineyards, (4) permanent grassland

Z tabuľky 2 vyplýva, že na všetky druhy ekologickej poľnohospodárskej pôdy (okrem TTP) dostávajú slovenskí ekofarmári menšiu podporu ako je tomu v Českej republike. Na hektár ornej pôdy dostávajú českí farmári až o 27% viac finančnej podpory, ako je tomu na Slovensku. Markantnejší je rozdiel pri zelenine, ovocných sadoch a vinohradoch, kde je štátna podpora v Čechách vyššia až o 33% (zelenina), resp. 59% (ovocné sady, vinohrady). Ak sa nezlepší podporná politika na Slovensku, zrejme nepoklesnú ani ceny bioproduktov a zostanú na nedosiahnuteľnej úrovni pre bežných spotrebiteľov, ktorí tak budú vytvárať iba slabý dopyt po produktoch ekologického poľnohospodárstva. Čo sa týka ostatných krajín, tak môžeme vidieť, že podpora na Slovensku je veľmi podobná tomu, ako to je v Estónsku a naopak neporovnateľne nižšia ako v Rakúsku a Nemecku.

4. Slabá iniciatíva zdola

Nemožno všetky problémy ekologického poľnohospodárstva „zvaľovať" na štát. Iniciatívu v mnohých krajinách EÚ, kde je ekologický systém hospodárenia veľmi dobre rozvinutý, prebrali v prvopočiatkoch rozvoja environmentálni aktivisti a združenia. Tí boli hybnou silou rozvoja a zabezpečovali podmienky na zvýšenie povedomia o ekologickej produkcii a jej prednostiach a vytvárali tlak na štátne inštitúcie zabezpečujúce podporu ekofarmárov. Kým sa na Slovensku ekologické poľnohospodárstvo budovalo zhora (zo strany štátu), v krajinách s väčším podielom ekologickej poľnohospodárskej výroby sa štát iba pripojil k ekoaktivistom a budoval sa systém zdola. Celé organizácie, medzi ktorými boli aj ekofarmári, presadzovali myšlienku hospodárenia s pocitom zodpovednosti k zachovaniu čistoty prostredia a najmä pôdy, pretože tá je jednou zo základných zložiek životného prostredia a nenahraditeľným prírodným zdrojom pre nové generácie. K týmto iniciatívam sa potom štát pridal racionálnou a rozvojovou politikou v oblasti tvorenia legislatívy a dotačnej politiky. Tento prístup zdola na Slovensku výrazne chýba, aj keď existujú určité zárodky činorodých ekologických organizácií.

5. Vysoký stupeň kontroly a administratívy

Kontrola je nevyhnutnou súčasťou ekologického poľnohospodárstva. Je potrebné, aby boli dodržiavané všetky princípy a zásady ekologickej poľnohospodárskej výroby a spracovania bioproduktov. Avšak vysoká miera kontroly a prílišná administratíva vedú k odrádzaniu poľnohospodárov k zahájeniu ekologického systému hospodárenia. Hlavným orgánom v SR vykonávajúcim kontrolnú funkciu v ekologickom poľnohospodárstve je Ústredný kontrolný a skúšobný ústav poľnohospodársky (ÚKSUP). Jeho hlavná úloha spočíva v nasledovných činnostiach:

- vedie register ekologického poľnohospodárstva,
- vydáva oprávnenie inšpekčnej organizácii na výkon inšpekcie a certifikácie v ekologickom poľnohospodárstve,
- vykonáva dozor nad inšpekčnou a certifikačnou činnosťou,
- rozhoduje o registrácii do ekologického poľnohospodárstva a vydáva osvedčenia,
- zastupuje SR na zasadaniach pre oblasť ekologického poľnohospodárstva v orgánoch EÚ,
- ukladá sankcie za porušovanie ustanovení platných pre ekologické poľnohospodárstvo,
- zostavuje zoznamy prípravkov na ochranu rastlín, hnojív a pôdnych pomocných látok povolených do ekologickej poľnohospodárskej výroby.

Kontrolou a certifikáciou v ekologickom poľnohospodárstve sa zaoberá aj inšpekčná organizácia Naturalis SK, s. r. o, ktorá je oprávnená výkonom kontroly a certifikácie u prevádzkovateľov zaradených do ekologickej poľnohospodárskej výroby. Túto činnosť vykonáva na základe oprávnenia, ktoré vydal ÚKSUP v súlade s platnou legislatívou o ekologickom poľnohospodárstve a pridelil jej kód certifikačnej organizácie SK-02-BIO. Je jedinou inšpekčnou a certifikačnou organizáciou na Slovensku. Vydáva 8 typov certifikátov:

- certifikát bioproduktu,
- certifikát produktu v konverzii na ekologické poľnohospodárstvo,
- certifikát biopotraviny,
- certifikát potraviny v konverzii na ekologické poľnohospodárstvo,
- certifikát biokrmiva,
- certifikát krmiva vhodného do ekologického poľnohospodárstva,
- certifikát bioosiva,
- certifikát osiva v konverzii na ekologické poľnohospodárstvo.

6. Chýbajúca infraštruktúra spracovania bioproduktov na potraviny

Keďže absentuje spolupráca so spracovateľmi na Slovensku, prevláda exportná orientácia biovýrobcov. Väčšina bioproduktov ide na vývoz a až tam sa z nich spracovaním stávajú biopotraviny, čo má za následok stratu pridanej hodnoty na Slovensku. Na Slovensku ešte nie je dostatočne vybudovaná infraštruktúra farmár – spracovateľ – trh – zákazník za podpory štátnych organizácií. Ďalší rozvoj ekologického poľnohospodárstva nemôže byť budovaný iba smerom na zahraničné trhy, pretože export do zahraničia býva často nestabilný. Je preto nevyhnutné vybudovať vnútorný trh, ktorý bude disponovať parametrami akceptovanými výrobcom, spracovateľom aj spotrebiteľom. Ak bude tento trojuholník fungovať a farmári budú efektívne využívať zdroje z rozumne stanovenej dotačnej politiky štátu, tak potom môže na Slovensku dôjsť k skutočnému rozmachu ekologického poľnohospodárstva a dosiahnutiu komerčných úspechov v širšom spektre. Porovnanie počtu spracovateľov v jednotlivých členských krajinách EÚ je uvedené v tabuľke 3. Z nej vyplýva, že Slovensko patrí medzi krajiny s najnižším počtom spracovateľov bioprodukcie.

Tabuľka 3 Počet spracovateľov ekologických produktov v krajinách EÚ

Krajina (1)	GBR	GER	AUT	FRA	ITA	ESP	NED
Počet spracovateľov (2)	542	540*	420*	391	383	223	151
Krajina (1)	DEN	SWE	GRE	CZE	BEL	FIN	HUN
Počet spracovateľov (2)	131	128	96	63	57	53	30
Krajina (1)	IRL	POR	POL	SLO	LAT	SVK	LUX
Počet spracovateľov (2)	22	20*	17	8	6	5	4*
Krajina (1)	ROM	LTU	EST	BUL	CYP	MLT	EÚ
Počet spracovateľov (2)	3	2	2	–	–	–	3162

Zdroj: Eurostat Source: Eurostat
* odhadované údaje * estimated data

Table 3 Number of certified registered operators processing products from organic farming
(1) country, (2) number of operators processing products from organic farming

7. Nedostatočné znalosti pri výrobe a predaji bioproduktov

Iba malé množstvo farmárov má dobré znalosti, resp. aj skúsenosti z produkcie v ekologickom systéme hospodárenia. Aj keď je nutné podotknúť, že v tejto oblasti sa farmári neustále zlepšu-

Tabuľka 4 Komparácia produkcie a nákladov výroby v ekologickom (EP) a konvenčnom systéme (KP) hospodárenia

	Pšenica ozimná (1)			Kukurica na zrno (2)		
	KP (3)	EP (4)	rozdiel (5) (KP – EP)	KP (3)	EP (4)	rozdiel (5) (KP – EP)
Produkcia v $t.ha^{-1}$ (6)	4,85	4,18	0,67	6,76	6,45	0,31
Náklady v $€.t^{-1}$ (7)	148,7	210,9	-62,2	117,5	157,2	-39,6
Náklady v $€.ha^{-1}$ (8)	721,2	881,6	-160,4	794,4	1 013,6	-219,2

Zdroj: vlastný výskum a VUEPP Source: own research and VUEPP

Table 4 The comparison of production and costs in organic and conventional farming
(1) wheat, (2) corn, (3) conventional farming, (4) organic farming, (5) difference, (6) volume of production in $t.ha^{-1}$, (7) costs in $€.t^{-1}$, (8) costs in $€.ha^{-1}$

jú a snažia sa aplikovať nové moderné šetrné technologické postupy vhodné pre ekologické poľnohospodárstvo, tak problém v oblasti znalostí je aj na strane zákazníkov. Tu je preto potrebné spojenie síl štátu, ekofarmárov a ekologických združení pre vylepšenie spôsobu osvety a informovanosti o bioproduktoch. Niektoré kampane síce už prebehli, ale nepriniesli radikálny úspech. Je potrebné zamerať sa najmä na výhody a pozitíva ekologického systému poľnohospodárstva s dodatkom finančnej podpory pre začínajúcich ekofarmárov. Len tak ich možno pritiahnuť a rozšíriť tak rady ekovýrobcov. Pre zákazníkov je potrebné upriamiť pozornosť na zdravé potraviny a priaznivý dopad konzumácie ekopotravín pre ľudské zdravie. Preto je potrebné dbať aj na marketing bioproduktov, ktorý má mnohé špecifiká. Najväčšie sú najmä v produktovej politike, kde sa ponúka rozličný produkt, ale s vyššími úžitkovými hodnotami a v cenovej politike, ktorá musí zohľadňovať príjmy zákazníkov, ale aj vysoké výrobné náklady bioproducentov. Dôležitou súčasťou však hneď na začiatku musí byť správne urobená segmentácia zákazníkov a určenie si cieľových skupín a následné zameranie prvkov marketingového mixu presne na mieru a zvolenie vhodnej marketingovej komunikácie, pretože najmä z hľadiska ceny nie je bioprodukt určený pre všetkých zákazníkov. Je nevyhnutnosťou, aby producenti biopotravín uplatňovali spoločný marketing. Na zváženie sa dáva vybudovanie novej modernej organizácie, ktorá by zastrešovala všetky marketingové aktivity spojené s predajom biopotravín.

8. Úzky sortiment bioproduktov

Sortiment biopotravín na slovenskom trhu je do značnej miery obmedzený, čo môže byť ďalším problémom pri rozvoji ekologického poľnohospodárstva. Zákazník tak má možnosť vyberať si iba z určitých produktových radov, v ktorých však je len minimálna konkurencia a aj keby si chcel vybrať z viacerých alternatív, na výber veľa nemá a musí si kúpiť príslušný výrobok. Keďže je technologický proces pri výrobe bioproduktov výrazne náročnejší ako v konvenčnom systéme, tak na pulty v obchodoch prichádzajú prevažne výrobky menej náročné na spracovanie a finalizáciu. Ide najmä o múky, vločky, cereálie, prípadne zeleninu a ovocie. Už v menšej miere sú zastúpené mäsové výrobky, ovocné šťavy, či mlieko a mliečne výrobky.

9. Vysoké náklady na výrobu

Ekologickí farmári produkujú svoje bioprodukty s vyššími nákladmi ako v konvenčnom systéme. Je to dôsledok vyššej závislosti od prírodných podmienok a zaangažovania väčšieho množstva pracovných síl do výrobného procesu. V dôsledku nepoužívania chemických prostriedkov vo výrobe často sa znižuje objem produkcie, takže jednotkové náklady rastú. Ďalším dôvodom vysokých nákladov je sezónna spracovanosť, keďže sa produkcia neskladuje chemicky a musí sa pravidelne kontrolovať. To sú všetko príčiny vysokých nákladov v ekologickom systéme hospodárenia, ktoré sa následne musia premietnuť aj do cien na trhu bioproduktov.

Pre lepšiu ilustráciu uvádzame výsledky nášho výskumu realizovaného v poľnohospodárskych podnikoch z kukuričnej výrobnej oblasti. V tabuľke 4 sú uvádzané náklady ako aj produkcia ekofarmárov, ktorá je komparovaná s výsledkami konvenčného poľnohospodárstva (priemer KVO). Jednotkové náklady na výrobu pšenice pestovanej ekologickým systémom sú až o 42% vyššie v porovnaní s konvenčnou výrobou. Pri pestovaní kukurice sú náklady vyššie o 34 %.

Súhrn

Slovensko zaznamenalo v rozvoji ekologického poľnohospodárstva v poslednom období pozitívny trend zvyšovania výmery ekologickej poľnohospodárskej pôdy a počtu ekofariem. Aj napriek tomu existuje mnoho problémov, ktoré bránia ešte väčšiemu rozmachu ekologického poľnohospodárstva na Slovensku. Sú to problémy, ktoré vychádzajú od ekoproducentov vo výrobe, pokračujú podporou štátu a spracovateľským priemyslom a končia u zákazníkov na trhu. Problémom je pomerne negatívny resp. neutrálny postoj zákazníkov k bioproduktom. Ľudia za najväčšie negatíva bioproduktov považujú vysokú cenu, otáznu kvalitu a úzky sortiment. Kúpyschopnosť obyvateľstva tiež do značnej miery limituje predaj bioproduktov a tým aj vrátenie peňazí do výroby. Skúmali sme závislosť spotreby biopotravín od výšky príjmu v jednotlivých krajinách EÚ. Na základe Pearsonovho (0,807), Kendallovho tau (0,762) a Spearmanovho (0,914) korelačného koeficientu poukazujeme na štatisticky silnú závislosť, ktorá poukazuje na to, že v krajinách, kde je úroveň príjmov vyššia, je aj spotreba biopotravín na jedného obyvateľa vyššia. Medzi ďalšie problémové oblasti považujeme nižšiu úroveň dotačnej podpory, slabú iniciatívu zdola, vysoký stupeň kontroly. Veľkým problémom je aj chýbajúca infraštruktúra spracovania biproduktov, kde sa Slovensko s piatimi spracovateľmi dostalo na jedno z posledných miest EÚ. Nedostatočné vedomosti v oblasti výroby a predaja bioproduktov, úzky sortiment sú tiež faktormi, ktoré spomaľujú vývoj ekologického poľnohospodárstva na Slovensku. Základným problémom je však vyššia nákladová náročnosť výroby bioproduktov oproti konvenčnému poľnohospodárstvu a s vyššou cenou tak predstavuje nižšiu konkurencieschopnosť. Výskum na pšenici a kukurici pestovanej v KVO potvrdil, že jednotkové náklady sú až o 42% (pšenica) resp. 34% (kukurica) vyššie v ekologickom systéme v porovnaní s konvenčným pestovaním.

Kľúčové slová: ekologické poľnohospodárstvo, problémy, náklady, korelácia, spotreba, podpora

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