

## EVALUATION OF THE IMPACT OF AGRICULTURAL ENTERPRISES ON DEVELOPMENT OF AGRICULTURAL LAND MARKET IN SLOVAKIA.

Lubica RUMANOVSKÁ<sup>1</sup>, Marián KOVÁČIK<sup>2</sup>

<sup>1</sup>Slovak University of Agriculture in Nitra, Faculty of European Studies and Regional Development, Department of European policies, Mariánska 10, 949 01 Nitra, Slovak Republic, Phone: + 421 (37) 6415603, E-mail: lubica.rumanovska@uniag.sk

<sup>2</sup>Slovak University of Agriculture in Nitra, Faculty of European Studies and Regional Development, Department of European policies, Mariánska 10, 949 01 Nitra, Slovak Republic, Phone: + 421 (37) 6415610, E-mail: marian.kovacik@uniag.sk

**Corresponding author:** lubica.rumanovska@uniag.sk

### Abstract

*The paper focuses on the situation of the agricultural land market in Slovakia and in selected region of the SR – Nitra region, on the application and development of agricultural land prices in Slovakia and on the factors that influence the decisions of agricultural enterprises on the market with agricultural land. In this paper were used primary data obtained with interview method realized within the research of Department of European policies, Slovak University of Agriculture during the period 2012 – 2013 in all districts of region Nitra. The evaluation of the impact of agricultural subject on agricultural land market in Slovakia was realized by using the method of regression analysis. Based on the results from the research we can state that entrepreneurs still prefer more to rent land than to purchase a land. The main factors influencing the decision-making process of agricultural subjects are ownership fragmentation, the fragmentation of agricultural plots and business's financial situation and profitability of the purchase. Many entrepreneurs pointed to this indicator as one of the most influential in terms of increasing the market price, respectively as a reason for not signing the lease agreement. The agricultural land market in Slovakia is emerging but still not sufficiently transparent. Further development of the market will continue to be marked by the overall economic situation in agriculture, relatively low competitiveness of Slovak farmers in the European market and reduced profitability. Research showed that the most pronounced effect on the price of agricultural land and the amount of rent for agricultural land has the number of enterprises. Growing number of farms will increase the price or amount of rent for agricultural land.*

**Key words:** agricultural enterprises, agricultural land market, land lease, market land price, purchase of land

### INTRODUCTION

The issue of economic theories dealing with efficient land market model is processed by different authors (f.e. Swinnen, Knobs, Vranken) from different points of view [7,8]. In determining the appropriate model of the land market for Slovakia we inclined to the Dale and Baldwin thesis, who state that efficient land market affords:

- Transparency in ownership rights
- Suitable regulation and administration of ownership rights
- Minimum regulations connected to the use of agricultural land,
- Smooth transfer of ownership rights
- Availability of capital and loans for the

purchase of land.

To open land market is to meet those requirements necessary but insufficient in terms of providing an efficient agricultural land market. Market operations are conducted through market participants who buy and sell agricultural land. In order to achieve the desired degree of market efficiency market operations must be supported by the land registry office, ensuring the valuation of land and the provision of suitable loans for the purchase of agricultural land. Proper functioning of these elements is the basis of efficient markets with agricultural land. Mentioned support of market operations should be considered as regulatory pillars that are the basis for land policy. Unless the

government is able to provide and support these pillars, then the land market will represent a dynamic environment, which includes landowners and tenants, ways of using agricultural land and financial instruments [3]. Most effect according Swinnen and Vranken on the markets in the countries of Central and Eastern Europe had probably the join the EU. The combination of security rights and improving the legal framework for transactions, inflow foreign capital (direct market in the country, directly or indirectly through the agri-food industry investment), increasing prices and subsidies have a significant impact on land prices and land transactions in these countries. Properly functioning land markets are vital to the development of rural areas and agricultural growth. Land reforms in recent years have changed the structure of ownership and use of land in these countries [6]. Agricultural land market according Buday and Vilček as the property market is part of the market mechanism, which is subject to general market law with certain features. These are designed especially by natural the conditions [1].

On the market with factors of production has the land specific feature, that is the supply is inelastic and if the Slovak Republic the total acreage of agricultural land over the years 1990 - 2014 decreased with 21% at the current acreage 1 927 450 ha [5], while the largest decrease was recorded by permanent pasture and grassland and gardens.

Markets with agricultural land are significantly influenced by agricultural subjects as well as investors and with the market prices of agricultural land.

The aim of the paper is to focus on the situation of the agricultural land market in Slovakia and in selected region of the SR - Nitra, on the application and development of agricultural land prices in Slovakia and on the factors that influence the decisions of agricultural enterprises on the market with agricultural land. The research was realized in the selected region of the Slovak Republic in the Nitra region, which is characterized by a high share of agricultural land with higher soil

fertility in comparison with other regions of Slovakia.

## MATERIALS AND METHODS

The research was realized as a part result of the VEGA project n. 1/0876/11. In this paper were used primary data obtained with interview method realized within the research of Department of European policies, Slovak University of Agriculture during the period 2012 - 2013. Data included land market price, size of purchased and rented land and factors influencing decision making process of agricultural subjects. Questionnaire survey was realized in all districts of region Nitra. The evaluation of the impact of agricultural subject on agricultural land market in Slovakia was realized by using the statistical method - Method of regression analysis.

The researched question: Has the number of agricultural subjects in region Nitra influence on amount of the market land price?

To confirm the researched question were used following hypotheses:

Hypotheses 0: The number of agricultural subjects in region influences the amount of agricultural land price.

Hypotheses 1: The number of agricultural subjects in region does not influences the amount of agricultural land price

For the research question applies this formula:

$$D = \beta_0 + \beta_1 x_1 + e$$

$D$  = agricultural land price,

$\beta_0$  = constant,

$\beta_1$  = number of agricultural companies

in the district,

$E$  = standard deviation.

We have verified the hypothesis by using regression analysis.

In paper were used also qualitative methods used for the fulfillment of the research were mathematic-statistical data analysis, the method of scientific abstraction and analytic-synthetic method.

## RESULTS AND DISCUSSIONS

Situation in Slovakia in the state and use of agricultural land is not sufficiently

transparent, despite the application of the measures by the Slovak Government on settlement of ownership and user relations. This lack of transparency in the ownership structure and the structure of use of agricultural land owned by individuals and entities is given by the absence of functional statistical surveys and functional information networks. In Slovakia is very difficult to determine the situation of the agricultural land in terms of the number of changes in ownership rights (number of sale contracts and swaps contracts, where the subject is agricultural land) by agricultural land other than that which is administered by the Slovak Land Fund. Based on surveys, we can confirm that despite this situation sale and purchase of agricultural land takes place, while the majority of purchasing land area is less than 1 ha and the largest purchasing type of agricultural land is arable land. Demand for agricultural land differs according the regions in Slovakia, but is generally low. Although agricultural entities would be interested to buy land they are hindered by a number of factors. Based on the findings from the realized interview method in selected agricultural subjects, we can conclude that the interest to buy and sell land represents about 40% among the agricultural enterprises in Slovakia. One of the biggest problems in the marketing of land has been identified complexity of legal processes in the marketing of land by over 35% of subjects. This problem is based mainly in trade contracts with more co-owners of one plot, because, due to the fragmentation of land in Slovakia one plot (1 ha) is owned by more owners. Significant obstacles in Slovakia are also the high market price of agricultural land in areas with high soil fertility and also the prerequisites for the realization of investment plans, which as an obstacle indicated 26% responders. Reasons for the limited development of agricultural land market are in particular:

- Lack of financial capital and low availability of loans with reasonable interest rate,
- Low rent, typically 1% of the land
- Fragmented ownership

- Extensive administration related with the sale of land
- Uncertainty in Agribusiness

Generally, we can describe the agricultural land market in Slovakia as an emerging but still not sufficiently transparent. Further development of the market will continue to be marked by the overall economic situation in agriculture, relatively low competitiveness of Slovak farmers in the European market and reduced profitability.

By evaluation of the agricultural land market has a significant role the market price of agricultural land. Agricultural land price in Slovakia depends on different purposes:

- Sale and purchase
- Determination of land rent
- For tax purposes

In Slovak republic are valid several legal regulations for agricultural price, for this cases we are using the term administrative price. These legal regulations defer depending on the agricultural land use purposes. For determination of arable land value is used the code Nr. 582/2004 Coll., for land consolidations is valid regulation Nr.38/2005 Coll. for land exemptions purposes is used the code Nr.220/2004 Coll. about the protection and use of agricultural land. For determination of land price for expert's account is used the regulation 492/2004 Coll. As mentioned the administrative prices of agricultural land are used for given purposes and the administrative price does not reflect the market price in Slovakia in all regions with exemptions. Essential elements of the market price of agricultural land are supply and demand, quality of land (according valuated soil ecological unit), land use (arable land, permanent grassland, etc.), access and shape of the land largely affect the price as well as the lease relation. The agricultural land market price is in most productive areas of Slovakia slightly about the level of administrative land prices. Market prices of land plots in Slovakia, which are reaching lower soil fertility, are reaching in some cases, only one third of the value of administrative prices of agricultural land. Price of permanent grassland is significantly lower than the price

of arable land. In Slovakia, the land market is very unbalanced, characterized by wide supply of land large number of residents who do not intend to manage the land, land fragmentation, slow progress of land consolidation. The current agricultural land market is realized by low number of the sales and purchases of land and is limited mostly to urban areas.

As researched by Lazíková in regions Nitra and Banská Bystrica market prices are in average lower than administrative prices. In contrast, in region Trnava and Trenčín are land prices higher compared to the administrative land price. An interesting finding, however, was that with the decrease of land quality, was higher the difference between the market price and the administrative land price designated under the Ministry of Agriculture regulation no. 38/2005 Coll. For example, in the Nitra region was according the regulation 38/2005 Coll. the administrative price of land 3319 Eur.ha<sup>-1</sup>, but the market price was by almost 50% lower compared the administrative price. The highest market price was for land which administrative price was only 2 000 – 2 300 Eur.ha<sup>-1</sup>. A market price for such a land in Nitra region was 4 to 5 times higher compared to the administrative land price. A similar situation was also observed in other regions of Slovakia [4]. Based on these findings we can state that through in Slovakia are several regulation determining the administrative land price, none of these regulations is able to be fully applied by market subjects on the market with agricultural land. Based on the fact that official databases containing the agricultural land market price do not exist in Slovakia, the agricultural subject are not able to be informed about market prices and to determine the most effective market price. So the agricultural subjects do not take in account the administrative prices and nowadays they tend to pay the market price based on different factors. Identified factors influencing the current market price of land are: area, shape and position of the land, production capability based on quality of soil, climatic conditions, land location within regions in

Slovakia, land location within the districts of region, demand and supply in the given location of the land, access to land, infrastructure, business interests of the seller and the buyer, speculative effects, the possibility of using machine technology, special conditions (regional, national). Currently, the market price of agricultural land is primarily affected by the location of the land in relation to the conurbation processing industry, recreation areas, and also by the speculation effects. In a lower extent the market price of land is affected by land quality and climatic conditions. Expectations about the high increase of land market price after membership of Slovak republic in EU did not fulfil. The land market price increased slightly during the years of membership in EU. This opinion supports also Buday, Grausová and Čičová. According they research the development of the size and the number of purchased plots in the years 2007-2012 monitored in districts of SR showed trend fluctuations. Maximum purchased land area was identified in 2010. Also in 2012 was purchased a large area but was not in higher size to exceed the scope of 2010 Development of the amount of the average market price in the years 2007-2012 fluctuated and overall it can be judged as declining. Maximum average market price per ha was recorded in 2008. In the following years came to a decline in the price of agricultural land, while the largest decrease was a decline in 2012. From comparison between the years 2007-2012 comes out that an average market price of agricultural land was 1 190 EUR.ha<sup>-1</sup> and the average market price of arable land was 1 430 EUR.ha<sup>-1</sup>. Highest average market price was by vineyards reaching 2 230 EUR.ha<sup>-1</sup>. The lowest market price was identified by permanent grassland 700 EUR.ha<sup>-1</sup> and orchards achieved an average value of 1000 EUR.ha<sup>-1</sup>. [2].

#### **Evaluation of agricultural land market and its development in region Nitra**

The paper focuses also on the evaluation of agricultural land market and its development in region Nitra. Region Nitra belongs to the regions with most suitable conditions for

agricultural production, with the highest land quality, where large number of agricultural subject is realizing agricultural production compared the rest of regions in Slovakia. Region Nitra consists of 6 districts (Nitra, Levice, Komárno, Šaľa, Topoľčany and Zlaté Moravce). The utilized agricultural land represents in district Nitra 68 451 ha, Levice 112 198 ha, Komárno 86 481,4 ha, Nové Zámky 107 788,9 ha, Šaľa 29 545,4 ha, Topoľčany 37 577,9 ha and Zlaté Moravce 25 945,5 ha. As shown in figure 1 the structure of utilized agricultural land is in all districts similar, exceptions are in districts Šaľa, Topoľčany and Zlaté Moravce, where the area of utilized agricultural land is 10% lower comparing to other districts of region Nitra. In terms of the ownership relations we can state significantly higher share of rented land (by agricultural subject is the share 89%) than owned land. Agricultural subject own and rent mainly arable land and in lower extent also meadows and pastures. From the obtained research results we can state that entrepreneurs still prefer more to rent land than to buy a land.

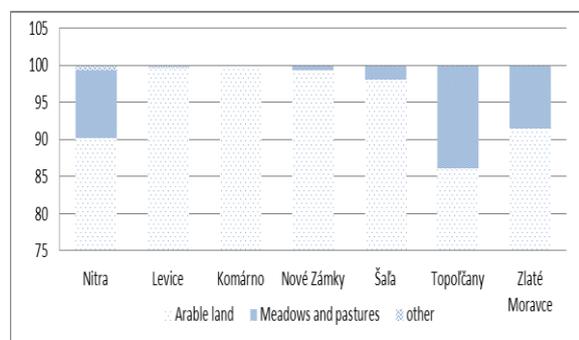


Fig.1. Structure of land holdings in districts of region Nitra according to the questionnaire survey expressed in%,2013

In districts Zlaté Moravce and Nové Zámky dominates the tendency of entrepreneurs to rent a land rather than to buy a land. Less than 20% of the surveyed entrepreneurs would refuse the offer to buy a land based on reasons, as the economic situation in the country and in Europe and opportunities to access credit. The main factors influencing the decision-making process of agricultural subjects are business's financial situation and

profitability of the purchase, resp. rent in the long term. Furthermore, entrepreneurs take into account the stability of the enterprise on market, and in particular their ability to produce or sell or export outside the region. Some entrepreneurs by decision making do consider as most important land quality and the value of the land and the land ownership. The fragmentation of land ownership often leads to failure of lease contract. The figure 2 shows the comparison of the preferences of agricultural subjects within decision making process about the purchase or rent the land based on the results of the questionnaire survey.

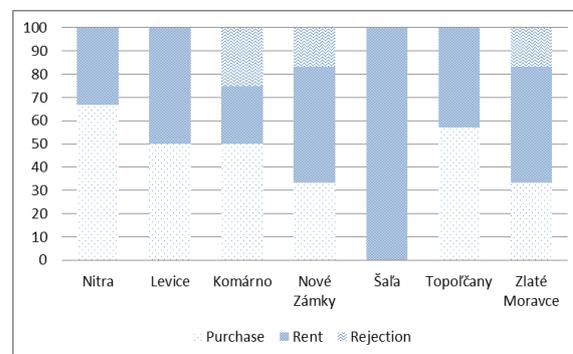


Fig.2. Comparison of preferences decision process between buying and renting farmland based on the results of the questionnaire survey in %, 2013

Entrepreneurs who would be willing to purchase the land have added that they do not consider the real purchase of land yet, but if it will be necessary they will be open to purchase the land even they would have to use loans, because according their opinion the own land is in the long run more efficient and more secure. Many agricultural entrepreneurs who would like to purchase the land prefer to rent the land. This fact is caused by the lack of own financing sources to purchase the land and today they are not willing to debit themselves with the credit.

According the realized survey on farms in the Nitra region is the market price (as shown in figure 3) paid by agricultural enterprises to purchase the agricultural land more than three times lower compared to the official (administrative) price set by law no. 582/2004 Z.z. of local taxes and fees for municipal waste and minor construction waste, which is

used to determine the value of arable land for the purpose of payment of property taxes. The highest difference between these prices is in the district Levice, where market price compared to the official price is 4.5 times lower. The smallest difference between the market price and the official in the district Topoľčany where market price compared to the official price is 2.03 times lower.

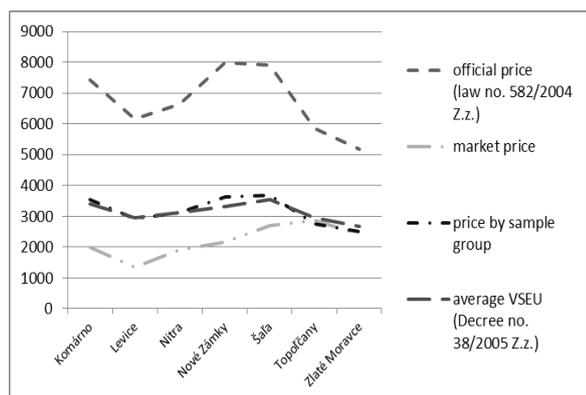


Fig.3. Comparison of official (administrative) price of agricultural land with VSEU price (valuated soil ecological unit) and market price of agricultural land in EUR. Source: www.agrofarmy.sk; Questionnaire,2013

From the comparison shown in figure 3 between land market price and VSEU price (valuated soil ecological unit ) can be seen that in district Topoľčany and Zlaté Moravce are agricultural subject purchasing the land for market price which is compared with the quality of the soil below.

To verify the accuracy of the price under valuated soil ecological unit in the sample we determined price valuated soil ecological unit for the district according to the point value assigned to each district by the Research Institute of Agriculture and Food.

As can be seen, both curves are almost identical and the value of the land sample corresponds to the value of land in its current quality.

The research observed also the impact of number of enterprises on the price of land.

For the identification of correlation between the number of enterprises in districts of Nitra region and the market land price were used hypotheses.

When verifying hypotheses (table 1), we found out that the most pronounced effect on

the price of agricultural land and the amount of rent for agricultural land has the number of enterprises, where in both cases data significance level of 0.05 the coefficient of determination reached 0.89.

It shows us that a growing number of farms will increase the price or amount of rent for agricultural land.

Table 1.Effect of the number of enterprises in different districts on the price of land

Model 2: OLS, using observations 2008-2011 (T = 4)  
Dependent variable: NSK\_cena

	Coefficien	Std. Error	t-ratio	p-value
const	451,727	384,627	1,1745	0,36112
NSK_Podn	31,5093	7,60554	4,1429	0,05362 *
Meandependent var	2044,071		S.D. dependent var	73,51863
Sumsquaredresid	1692,240		S.E. of regression	29,08814
R-squared	0,895637		AdjustedR-squared	0,843456
F(1, 2)	17,16391		P-value(F)	0,053619
Log-likelihood	-17,77078		Akaikecriterion	39,54156
Schwarz criterion	38,31415		Hannan-Quinn	36,84810
rho	-0,709684		Durbin-Watson	3,311986

### Factors influencing the decision making of enterprises on agricultural land market

The aim of the paper is also to evaluate the influence of selected factors influencing the market with agricultural land.

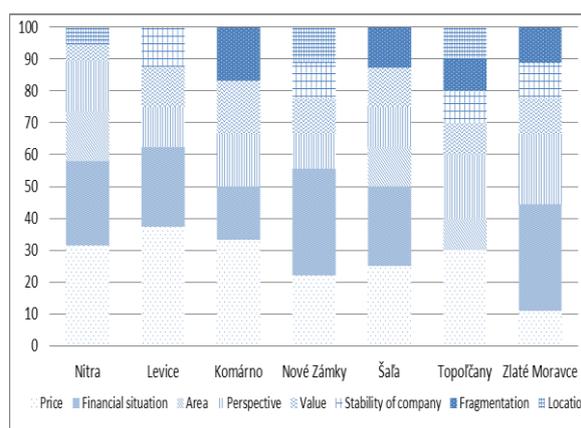


Fig.4. Factors influencing the decision making of enterprises for the purchase/lease of agricultural land based on the results of the questionnaire survey in %,2013

Based on the questionnaire results we can identify the importance of selected factors on agricultural land market in region Nitra.

Although all the districts are located within a one region with similar conditions, it can be seen a degree of differences by observed indicators (Fig.4.).

Among the indicators, which influence the decision making of agricultural enterprises is political situation where we assumed that the government can have an impact on the land market through the laws and regulations that determine the price of land for tax purposes or fix a minimum rent. Also the land market can be influenced by the possibility of additional support payments under the CAP. The second indicator, through which we examined the effect on the land market, was problem connected to fragmented ownership. Many entrepreneurs pointed to this indicator as one of the most influential in terms of increasing the market price, respectively as a reason for not signing the lease agreement because of the disagreement between two or more owners. The third researched factor was the impact of fuel prices, which have a significant impact especially in the harvest period or in the case that the agricultural land is situated at a distance of more than 30 km from the registered agricultural holdings office. The fourth factor is the regulation of land market, EU financial support and environmental constraints. Under the regulation of land market we include the legal burdens for foreign investors who are interested to purchase the agricultural land in Slovakia. EU financial support influences the inputs of agricultural enterprises, through EU funds under CAP and national support mechanisms for agriculture. Environmental constraints are associated with production methods used on the land. The fifth factor is the influence of foreign enterprises in particular through the competitiveness of domestic products. The sixth factor that affects the land market is extraction from land fund for construction purposes. This factor is particularly effective in the case of sale of agricultural land for the construction of buildings. Total inputs are increasing due the charge for set-aside of agricultural land, which was according to the law no. 376/2008 Z.z. 6-15 EUR.m<sup>2</sup>. Seventh factor was the level of built infrastructure in

the territory, whether the entrepreneur is willing to buy the land due to its preferences, such can be built road or other components of the technical infrastructure. Eighth factor was the interest rate in the case of obtaining credit in the bank, which normally fluctuates depending on the bank and the loan amount on average 3-6%. Last researched factor affecting the land market is a measure of the tax burden according to Annex 1 to the Act. 582/2004 Coll. as amended by Act no. 465/2008 Z.z.

Based on importance of researched factors by entrepreneurs in the survey, we can conclude (As Shown in Figure 5), that in Nitra region is mostly the land market influences by ownership fragmentation and unsolved land ownership rights as well as the influence of foreign businesses that rent land or impact the regional commodity markets by imports from the country of origin.

The second most influential factor is the degree of infrastructure. Moderate degree of influence on the land market has political situation, fuel prices and regulation of the land market, financial support mechanisms (EU and state support) and environmental constraints. The lowest impact on the purchasing of land has the extraction from land fund.

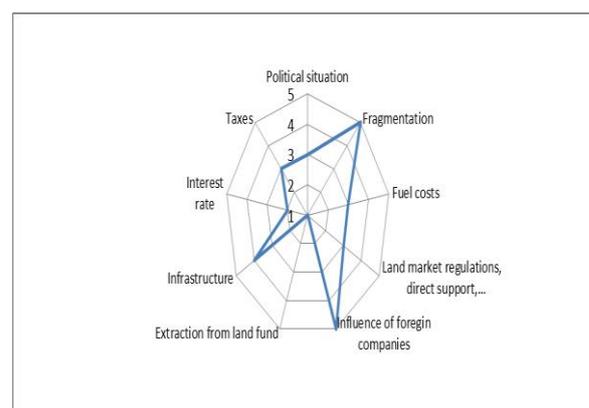


Fig.5. Influence of selected factors on the land market in the district of Nitra on the basis of the results of the questionnaire survey in the interval from 1(lowest) to 5 (highest value)

Based on the above it can be concluded that the subsidies in the form of direct payments, not according to entrepreneurs in the Nitra district a major impact on the land market.

Important impact on the agricultural land market was the membership of the countries of Central and Eastern Europe into the European Union. Among the most significant impacts can be included the change in the legal framework, the inflow of foreign capital and the EU agricultural financial support mechanisms. Accession to the European Union included the possibility of obtaining support mechanisms for farmers, which were intended to increase their competitiveness. It was supposed that the agricultural land markets will develop during the membership in EU. But under the restricts connected the ownership rights of agricultural land by foreigners could only foreigners with a residence permit in Slovakia who rent and farm the land for at least three years after Slovakia's EU accession buy and own land in Slovakia (Foreign Exchange Act No. 312/2004 Col., Art. 19a). During the 10 years transition period were not in Slovak republic solved problems with land fragmentation and unsolved ownership rights to agricultural land. Based on this problem in Slovakia, as well as in neighboring countries, are still not properly functioning markets for agricultural land, and therefore they need to be supported and regulated.

## CONCLUSIONS

Generally, we can describe the agricultural land market in Slovakia as an emerging but still not sufficiently transparent. Further development of the market will continue to be marked by the overall economic situation in agriculture, relatively low competitiveness of Slovak farmers in the European market and reduced profitability. Agricultural land market was limited only to agricultural subject based in Slovakia for the years 2004-2014, to avoid purchasing the land by holdings from other EU countries. Based on the findings on agricultural land market we do not suppose for future a significant increase in purchasing of agricultural land by foreign entities. It is possible to conclude that purchasing of land was realizing mainly between entrepreneurs and private persons based in SR. Based on the

evaluation of the impact of selected factors in the Nitra region, we can conclude that the most important impact on the land market has ownership fragmentation and the fragmentation of agricultural plots. The second most influential factor is the activity of foreign entrepreneurs and their impact both on the land market through the purchase and lease of land and their activity in the market with agricultural products. Lower impact on the land market and land market regulation was observed by EU financial support on agricultural production and the political situation. In some districts was observed significant impact of land tax and the interest rate in banks on land market. We found out that the most pronounced effect on the price of agricultural land and the amount of rent for agricultural land has the number of enterprises. Growing number of farms will increase the price or amount of rent for agricultural land. Based on the fact that most of the land is rented, it is necessary to modify the terms of the land market by creating a support tool for purchasing the agricultural land.

## ACKNOWLEDGMENTS

This article was based on the research realized via project VEGA (Agency of The Ministry of Education, Science, Research and Sport of the Slovak Republic) under the contract n. 1/0876/11: The influence of CAP support mechanism on the agricultural land market in Slovakia.

## REFERENCES

- [1]Budaj, Š., Vilček, J., 2013, Classification and evaluation of agricultural land in Slovakia. Mendel university press, Brno, 130 p.
- [2]Budaj, Š., Grausová, G., Čičová, T., 2014, Evaluation of the Agricultural land market development in twelve districts of Slovakia in period 2007-2012. Economics of Agriculture, 2014, 1:51-65
- [3]Dale, P., Baldwin, R., 2000, Emerging land markets in Central and Eastern Europe. Structural Change in the farming Sectors of Central Eastern Europe. Warsaw: World Bank, 2000, 81-115

[4]Lazíková Jarmila, 2010, Administrative and market prices of the agricultural land and their comparison.

In Variable value of agricultural land: 2010, s. 19-24.

[5]Research Institute of Agriculture and Food economics. Annual report on Agriculture and food industry in Slovak republic, 2013

[6]Swinnen, J.,Vranken, L., 2005, The development of rural land markets in transition countries. Leuven, Belgium. 2005. ECSSD Report, The World Bank, Washington, DC, 40p.

[7]Swinnen, J, Knops, L., 2013, Land, Labour and Capital Markets in European Agriculture: Diversity under a Common Policy, CEPS, 373p.

[8]Vranken, L. Swinnen,J., 2006, Land rental markets in transition: Theory and evidence from Hungary.,World development Journal, 2006, 34 (3):481-500

