

## SOCIAL FUNCTION OF AGRICULTURE SECTOR IN THE SLOVAK REPUBLIC

Maroš VALACH

Slovak University of Agricultural, Faculty of European Studies and Regional Development, Tr. A. Hlinku 2, 949 76 Nitra, Slovakia, Phone: +421 37 641 5654, E-mail: maros.valach@uniag.sk

*Corresponding author:* maros.valach@uniag.sk

### *Abstract*

*The article pointed out the relevance of the agricultural sector and its social function in the regions of Slovakia. Agriculture currently does not belong to high attractive, high productive and profitable sectors. Its importance for the country and the economy is indisputable. Agriculture performs several vital roles, e.g. food security of the population. From the perspective of environmental protection its functions of landscaping, soil and water protection is important. Equal, these two functions is the social function. Social function together with the production function is critical for the elimination of regional disparities. The article explores the relevance of the agricultural sector and its social function in terms of employment in regions of Slovakia.*

**Key words:** social function of agriculture, agricultural employment, agricultural production

### INTRODUCTION

Agriculture is the precondition of human society's existence and development. Nowadays, agriculture performs not only the traditional production function, but also many noneconomic functions, such as ecological and social function [16].

According to [17] "in today's world, the function of agriculture is more extensive because human needs have changed from the basic material to the aesthetic, including leisure, tourism, and other entertainment". Especially under such global threats to human development as environmental crises, energy crises, and food safety crises, people have begun to pay close attention to ecological protection of agriculture.

The transition from centrally planned economy to free market economy in Central European countries and following entry into the EU led to significant reduction of agricultural production and thereby to reduction of food self-sufficiency [3]. One of the symptoms of mentioned processes is an effort to link agriculture to rural development, so that both sectors will not contradict to each other, but complement each other [21]. The result of structural changes has been a dramatic decrease in the share of agriculture sector in GDP in transforming countries [6].

[11] stated that for the achievement of the connection between agriculture and rural development is the necessary pressure for the diversification of agricultural incomes for the benefit of alternative activities (cultivation of alternative crops) or non-agricultural activities (agritourism, direct sales support and processing of agricultural products, etc.).

Multifunctional concept of agriculture laid emphasis for its economic but also social and environmental aspects [14].

Depending on the quality of natural conditions for agricultural activities in the various regions should take into account the strengthening or weakening of individual aspects of multifunctionality. This means that e.g. productive functions of agriculture have to be preserved and promoted in areas with high fertile soil which will to be used for food production, on the other hand, the partial mountain conditions or marginal areas where soil quality is lower, is necessary to strengthen the environmental or social aspects of multifunctionality. Promotion of sustainable functions of agriculture in different regions in the context of their natural but also socio-economic assumptions is a challenge where agricultural policy plays a crucial role [22].

Studying agricultural multifunctionality can not only provide theoretical support for

construction of an agricultural system, but also offer a new way in practice to solve the problem of a weak and inefficient agricultural industry [4]. Current study on agricultural multifunctionality mainly includes both qualitative research and quantitative research. Quantitative multifunctionality research is focused on the assessment of agricultural functions. It can be classified into two main categories: the first focuses on agricultural functions, e.g. ecological functions, agricultural externality, biological diversity, social functions and agricultural landscape [5], and the other is oriented on evaluation of integrated agricultural function [15].

The conception of multifunctional agriculture including the process of rural development can provide a solution for a large group of farmers. This process includes: "broadening", "deepening" or "re-grounding". "Broadening" can be characterized as development of new non-agricultural activities, which enlarge income sources of agriculture enterprises. [11]. The most common examples of such activities are agri-tourism and nature and landscape management [20].

Another type of "broadening" is social farming (also known as "Green Care"/"Care Farming") that involves:

- health services;
- education and therapy;
- rehabilitation and other social activities[13].

In literature we can find many definitions of social farming. It is not easy to be defined, because it includes a wide range of diverse practices. However, according to [12] two common aspects are always involved: it is practised on farms and it is aimed at disabled people.

According to [19] "social farming improves the welfare and social inclusion of the disabled people through the production of agricultural products and the promoting of solidarity and mutual assistance".

## MATERIALS AND METHODS

We have used the following scientific methods:

**-Cluster analysis** - was used for the purpose of classifying regions of Slovak Republic

based on the share of agriculture in GDP; the employment in agriculture and the research and development indicator (R&D).

Cluster analysis is concerned with how objects (statistical units) should be grouped so that the greatest possible similarity is within groups and what is the greatest difference between the groups. The method is based on a combination of several variables [9]. In this paper cluster analysis was realized through Neuro XL Clusterizer program.

**-Location analysis** - through the localization coefficient, we analysed the importance of employment in agriculture of different regions of Slovakia. To calculate the localization coefficient the following relationship was used:

$$LQ = \frac{\frac{e_i}{E_i}}{\frac{e_t}{E_t}}$$

or alternatively in the form [7]:

$$LQ = \frac{\frac{e_i}{E_t}}{\frac{e_t}{E_i}}$$

where:

$e_i$  - regional employment in chosen sector;

$e_t$  - total regional employment;

$E_i$  - employment in chosen sector in the country;

$E_t$  - total employment in the country.

This formula implies that if the localization coefficient reaches a value greater than 1, production of the selected sector in the considered region is exported to other regions. Otherwise, if the localization coefficient reaches a value less than 1, other regions' production of the sector is imported in the considered region [8].

The data used for processing the paper were obtained from the following sources:

-Statistical Office of the Slovak Republic - data is processed at the NUTS III level,

-book publications by domestic and foreign authors,

-internet resources focused on the employment analysis in agriculture,

-government regional policy documents bonded to agriculture.

## RESULTS AND DISCUSSIONS

Agriculture until 1990 was consolidated and ensured the employment for about 350,000 employees, which is 17% of all the employees in material production. In the creation of gross domestic product, agriculture accounted for 10.7%. Since 1990, the sector has changed a lot.

Slowdown of dynamics in economic growth was reflected in employment trends. Disposal of jobs due to transformation and restructuring processes has not been compensated by creating new jobs in other parts of the economy [2]. High unemployment rate and low creation of new jobs are characteristic for the whole economy. In spite of this agriculture and forestry are still offering many job opportunities in some regions [10].

The analyses of agricultural employment between 1989 and 2012 shows a breakthrough in the decreasing number of employees in the year 2004. Until this year the agricultural employment was constantly decreasing. In this period the reduction of employees stopped and the loss of employees due to their shift to the unemployed did not rise, because the loss was mostly natural (retirement). This decrease in employment has led to labour productivity growth. According to experts from agricultural enterprises [18] the situation until 2003 was mainly caused by:

- lack of support for employment increase in the agricultural sector. Projects supporting agricultural enterprises were focused primarily on purchasing new equipment to enhance productivity and reduce the need for manual labour, diversification of activities in agriculture was not supported along with the growth of jobs. Agricultural enterprises were supported by the Rural Development Programme and according to the agreed rules, they were not eligible for any funding from ESF – the European Social Fund;
- purchasing of products from abroad by newly created chain stores rather than from domestic production leading consequently to employment decrease in the food industry;

-extensive development of forestry enterprises;

-mismanagement of agriculture transformations, namely, restructuring of cooperative property did not create conditions for the development of intensive agricultural production.

Decrease in the number of employees is graphically presented in Figure 1. According to the Eurostat data, Slovak Republic belongs currently to the European countries with the largest decline in agricultural employment.

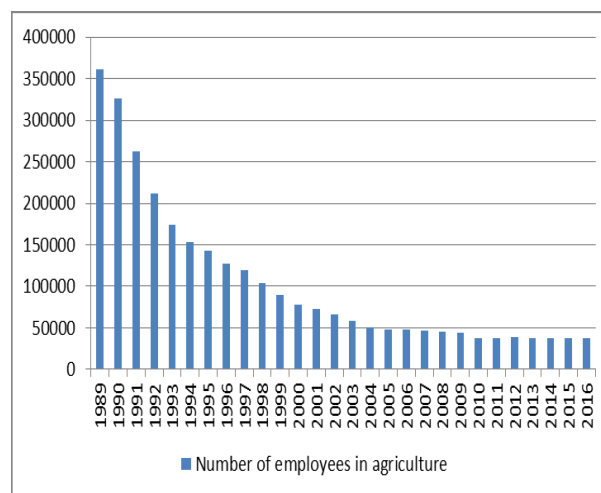


Fig.1 Development of agricultural employment since 1989,

Source: Statistical Office of the Slovak Republic, 2017

### Economic performance of the agricultural sector in Slovak regions

Gradual recovery of the economy after 1989 led to an overall decrease in the importance of agriculture sector. Contribution of agriculture to GDP was 5.9% in 1993 and it fell to 2.7% in 2016. Financial results of agricultural production for the year 2016 presents figure 2. 7 of the 8 regions of Slovakia reached on average a positive economic result. Its highest level had Bratislava region (192 EUR/ha), then goes Nitra region (86 EUR/ha) and Trnava region (63 EUR/ha). Only one region of Slovakia was in loss, and that was Žilina region (-10 EUR/ha). Economic results increased annually in all Slovak regions with exception of Košice region where we can observe an annual fall of 206 EUR/ha.

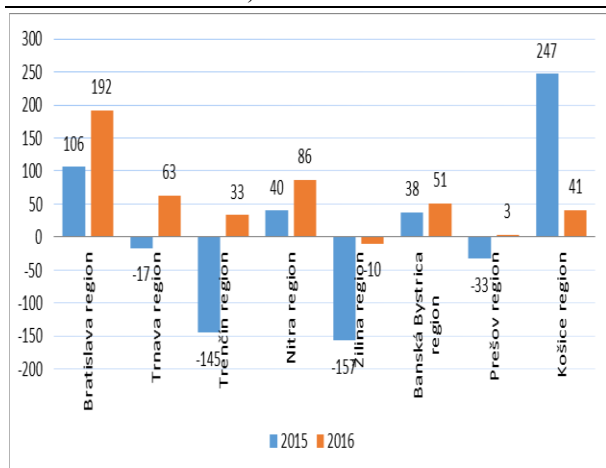


Fig. 2. Economic results in 2015 and 2016 of agricultural land, EUR/ha,  
 Source: Research Institute of Agriculture and Food Economics

When comparing years 2015 and 2016 the level of production increased annually in almost all regions (Fig. 3). Production above average of Slovakia reached Western Slovakia, the maximum volume was Bratislava region (2,167 EUR/ha agricultural land), where production on 1 ha was more than twice higher than in regions with prevailing less favourable natural conditions (Žilina, Prešov and Košice region).

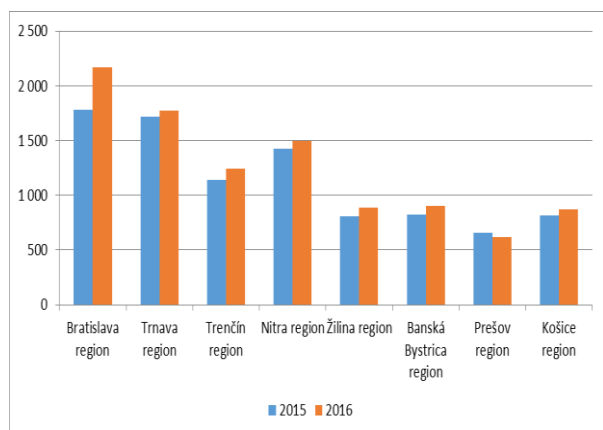


Fig. 3. Agricultural production in 2015 and 2016 of agricultural land, EUR/ha,  
 Source: Research Institute of Agriculture and Food Economics

Labour productivity per one employee decreased annually only in Prešov region. In all other region we can observe an increase. Bratislava region in the period under review reached 21.74% increase in labour productivity (Fig. 4).

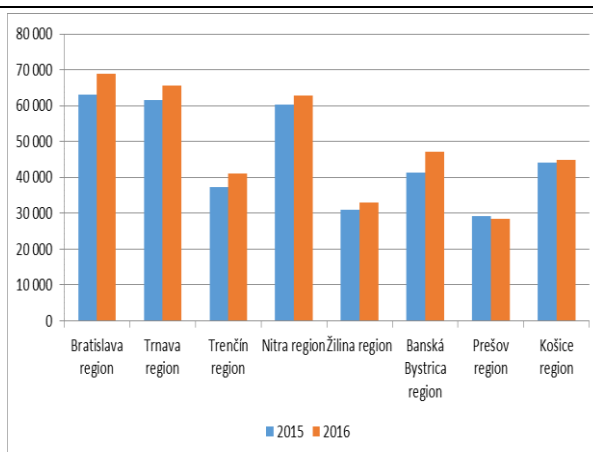


Fig. 4. Labour productivity of production per employee in 2015 and 2016, EUR  
 Source: Research Institute of Agriculture and Food Economics

In the following section we present the distribution of Slovak Republic regions at NUTS III level according to the results of cluster analysis. Input data for cluster analysis were data for the year 2016. Used indicators are mentioned in the methodology.

The bases of our analyses were values of the R&D indicator from [1]. This composite indicator reflects two indicators - gross domestic expenditure on research and development and the number of R&D employees. According to [1] for the values of R&D indicator applies following:

- value < 0.2 - low level of knowledge creation,
- value from 0.2 to 0.8 - medium level of knowledge creation,
- value > 0.8 - high level of knowledge creation.

Table 1. Division of Slovak regions into clusters

	The employment in agriculture in %	The share of agriculture in GDP in %	R&D
Nitra region	4.56	6.53	0.11239
Trnava region	4.36	5.75	0.09202
Banská Bystrica region	3.93	3.76	0.10658
Trenčín region	2.46	2.71	0.20786
Žilina region	2.53	1.47	0.13476
Košice region	2.13	2.24	0.23475
Prešov region	3.53	2.28	0.06701
Bratislava region	0.58	1.02	1

Source: authors own calculations on the data from Statistical Office of the Slovak Republic.

Table 1, Figure 5 and 6 present the results of cluster analysis. The first cluster consists of Nitra, Trnava and Banská Bystrica, which are characterized by high values of the used indicators, except R&D indicator. The highest share of agriculture in GDP (6.53%), as well as the highest employment in agriculture (4.56%) was attained in the Nitra region. But in terms of the R&D indicator Nitra region belongs to regions with low level of knowledge creation.

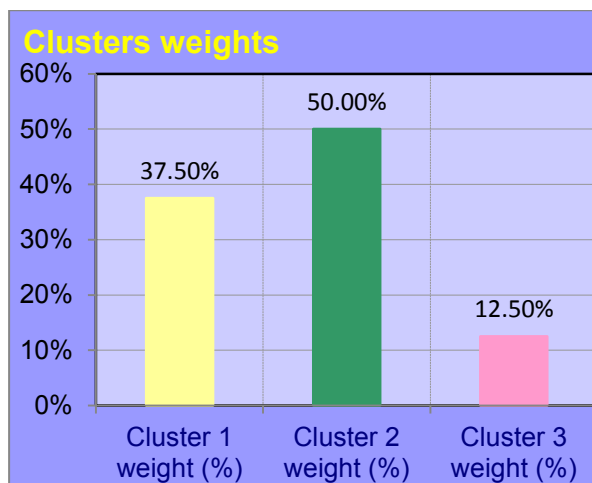


Fig. 5. The results of cluster analysis, Source: processed by authors, program NeuroXL Clusterizer output

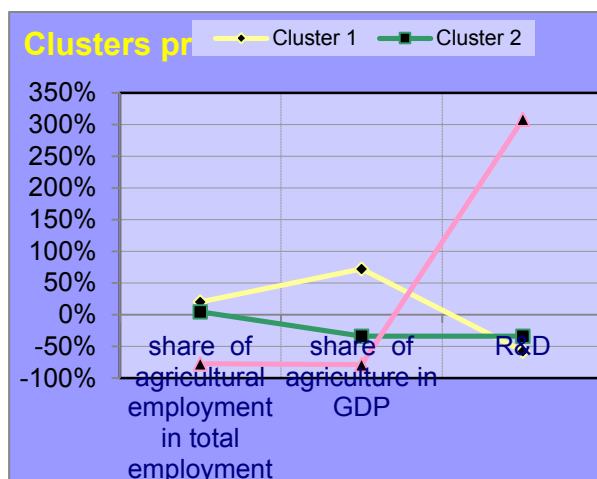


Fig. 6. The results of cluster analysis, Source: processed by authors, program NeuroXL Clusterizer output

The second cluster includes Trenčín, Žilina, Košice and Prešov region. Within this group of regions the hugely highest share of employment in agriculture (3.53%) is in the Prešov region. Based on the R&D indicator,

Trenčín and Košice regions had medium level of knowledge creation. The third cluster consists of Bratislava region which achieved the lowest share of agriculture in GDP (1.02%) among all the regions of Slovakia.

Based on the location analysis results presented in Figure 7, we can state that in Nitra region agriculture is the most important exporting sector. The agricultural sector is also the exporting sector in Trnava, Banská Bystrica and Prešov.

The most common activity on the territory of the Nitra region is agriculture. Agriculturally, the region belongs to the most used ones in Slovak Republic. It has very good natural and climatic conditions for growing almost all crops. Therefore, the development of this region is closely related to the production but also social function of agriculture on its territory. The need to increase the competitiveness of agricultural enterprises requires the implementation of innovations.

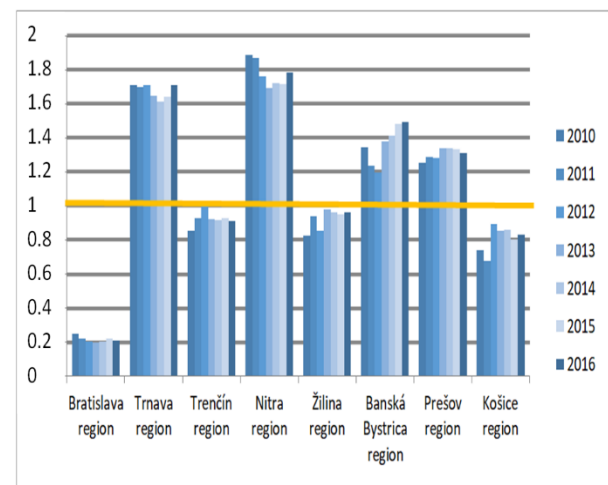


Fig. 7. Localization coefficient of the agriculture sector in 2010–2016, Source: authors own calculations on the data from Statistical Office of the Slovak Republic

Agriculture, being tied to the land, creates conditions for the development of all the regions of Slovakia, allowing developing also the least developed regions. Therefore, the first task is to support the use of land in the ways useful for the area in terms of both production and ecology.

## CONCLUSIONS

While in the previous period, the priority was to ensure economic growth and focus was on continual production increase without taking into account the possibility of production capabilities of the country or a particular region, currently economic activities are limited by the requirements of sustainable development.

Despite the low share of agriculture in creating economic value and employment, agriculture has an important role in the economic structure of the country as it generates the multiplier effect for other sectors. Per one employee in agriculture there are 1.3 employees in the supply industry, services, manufacturing and trade, and this increases agriculture's participation in GDP. Diversification of production structure of agricultural enterprises valorises the unique potential of rural settlements and contributes to the development of social function of agriculture by creation of new job opportunities for local residents.

Social and economic functions of agriculture are critical from the point of view of mitigation regional disparities. In the past, these functions should have ensured equal conditions for all; the same standard of living, today these functions are modified and oriented rather to reduce the economic and social disparities between regions and between urban and rural areas which are still characterized by unequal productivity and unequal economic developments. Modified alternative forms of agricultural production can ensure strengthening of the effect of production functions, profit-making and more efficient production processes.

To increase competitiveness, sustainability, economic and innovation performance it is required:

- to place greater emphasis on promoting the interests of Slovak farmers in decision-making and governing EU bodies,
- to activate its potential for use of local resources. The rural area has a lot of problems which agricultural enterprises could help to solve through diversification activities. In the old EU Member States help farmers to solve the lack of services for growing population of post-productive population in rural areas,

problems with marginalized population groups (women with children, the physically and mentally disabled people) through so called. "Green care" farms.

- to focus on support of direct sales of agricultural products. Due to this the agricultural producers can get a larger share of the added value from the final product and achieve higher trade margin.

- to support cooperation and partnerships between self-government and agricultural enterprises which can effectively solve waste management problems, through the use of local renewable natural resources able to supply energy to other subjects in a municipality.

Rural development policy should respect greater diversity of rural environment in Slovakia and peculiarities of individual regions. This requires detailed knowledge of the problems in individual regions. In some EU Member States (Italy, Germany, and France) rural development policy is delegated to the regional level. Regional authorities are better at recognizing local development problems, they are able to specifically identify problems of their territory. It is for consideration whether in Slovak conditions the decentralized model of rural development policy tools implementation would be more effective or not.

As another option of development and strengthening of social function and economic performance in the agricultural sector in Slovakia we propose the creation of conditions for emergence of the so-called "green care farms" based on "care farming", which have long tradition in several European countries (UK, Netherlands, Italy, Belgium etc.).

"Green care farming" represents the concept which use farms, agricultural works, animals and plants to improve quality of life and human health. It is the use of labour in agriculture for therapeutic purposes and provisions of social respectively health area. This innovative approach is combining multifunctional agriculture, and social services / health care at the local level. It contributes to the increase of employment, diversification and economic performance of

farms, as well as to promotion of overall sustainable development.

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