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The impact of innovative projects on the competitiveness of agricultural subjects in Slovak Republic

Introduction

With no doubt, innovations present one of the most important motive forces of business and economic development in all advanced market – oriented countries. Moreover, they are very important essential assumptions in private and public sector not only because of competitiveness growth, they are also a basis of sustainable society. Level of innovative efficiency of enterprises and individual regions or countries is widely different. Mentioned differences are main reason of existence and constant persistence of regional disparities in the world, including The European Union.

Importance and need of innovations, mostly on the level of small and medium enterprises, is more than evident. Innovations are basis of gaining and sustaining their competitiveness. However, they have more significant meaning at the level of agricultural subjects, which produce adequate amount of high quality food not only for region population, they also ensure sustainable regional development or landscaping.

The main aim of the paper is to evaluate level of innovative efficiency of Slovak Republic focused on evaluation of innovations in small and medium enterprises of slovak regions in comparison with EU-27 countries. Individual part of the paper also evaluate supporting the innovative project in agricultural subjects in Slovak Republic, mostly those in west region of Slovakia.

1. Literature review

1.1. Definition of Innovations

One of the most known slovak definitions of “innovations” is published in “Innovation and Companies” [12] where it is defined as an implementation of new or significantly improved product (good or service), process, new marketing method or new organisational method in business practice, work surroundings of all organisations or in external relationships.

Innovation and its definition is also a subject of interest of Ministry of economy of the Slovak republic, which defines innovation in its “Draft law on innovations” in more global context – as a new or improved product or service brought out to the market based on results of research and development or business activities, implementation of new, significantly better manufacturing process or distribution method including important technical or software changes, implementation of new ways of organising in agricultural business practice, workplace organisation or external relationships.

The most acceptable definition of “innovation” is defined in “Oslo manual” [6] elaborated in 1997 by OECD. This publication says that “Technological product and process innovations (TPP innovations) include new products based on new technologies or important technical improvement of existing products or processes. TPP innovation is implemented when the product is brought to the market (product innovation) or new manufacturing process is implemented (process innovation)”. OECD also divides innovations into four basic categories:

- product innovation,
- organisational innovation,
- marketing innovation, and
- process innovation.

This categorizing is accepted in OECD countries, as so as in EU- 27 and forms a basis for mentioned evaluation of innovative business and regional efficiency.

1.2. Importance of Innovations in Agriculture

Modernization and implementation of new technological innovations needs to be understood as a very important component of supporting dynamic development of agriculture in Slovak republic, which will be competitive not only on the domestic market, but also on the European one. In the frame of regional integration, competitiveness of agriculture is influenced by factors connected with innovations, financial sources, productivity, vertical coordination and other support and market regulations. They can be supplemented by marketing, informational and integral techniques [4].

Traditional understanding of innovations as a science based on technological process can be also applied in rural areas (Stucksmith a Dragan, 2008).

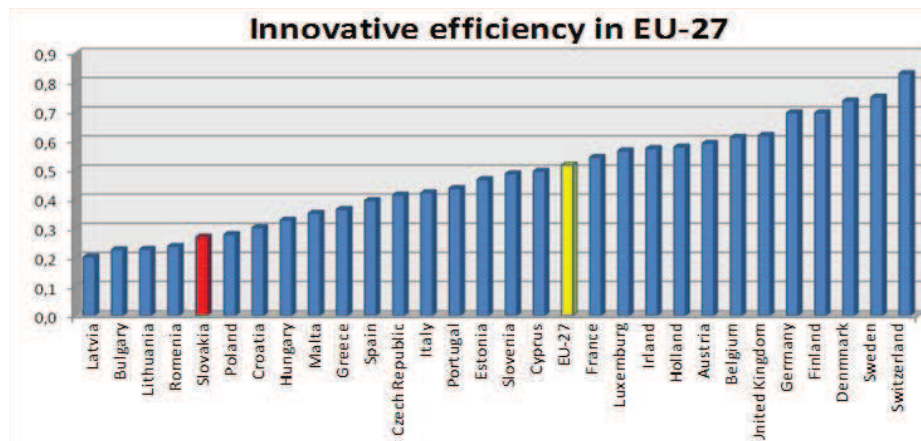
It is necessary to understand rural development as a very important factor of deconstruction, diversification and innovation in rural areas, whereby it helps to stabilize the employment and life in rural areas. At the level of EU we can identify the growing relationship between natural sources and innovations in connection with strategic importance of sustainable technologies based on the use of local rural sources (e.g. wind, water and biomass).

2. Research results

2.1. Current level and development of Summary Innovation Index (SII) of EU-27 and Slovak Republic

When taking the evaluation of last done researches and calculations published at the start of 2011 into account, we can say that summarised innovation efficiency of EU-27 reaches SII value equal 0,516 (with interval range 0,0–1,0). In medium-term aspect, EU-27 reaches stabile average innovative efficiency.

When comparing Slovak republic with EU-27, innovative efficiency of Slovak republic is lower than European average – its last SII value reached 0,269, which represents only a little higher value than the average of European Union's member states. In medium – term slovak development, we can see only minimal year-on-year changes. By contrast, Czech Republic observes significant positive growing trend of innovative efficiency.

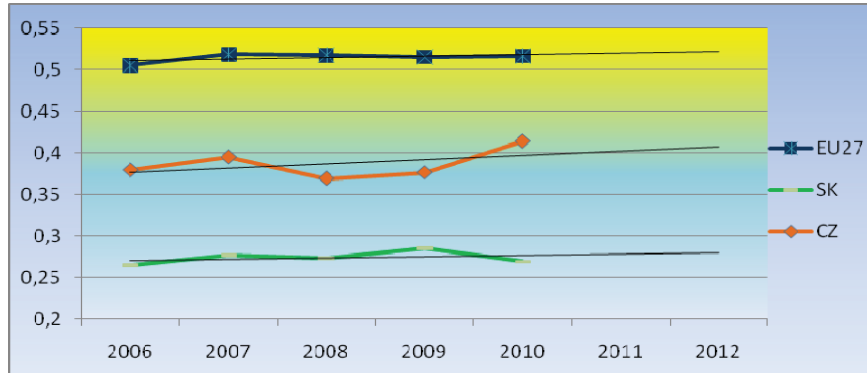


Graph 1. Innovative efficiency in EU-27

Source: European Commission, own treatment, 2011.

If we add a linear trend with prediction to known values of innovative efficiency, using the foregone results, we can make a simple concept of estimated future state. Using a graphic output below, we can assume positive trend not

only in Czech Republic or EU-27 in general, we can see a growing innovative potential also in the Slovak Republic. At the other hand, level of development in Slovakia is markedly deficient and we can not cope with other EU-27 member states.

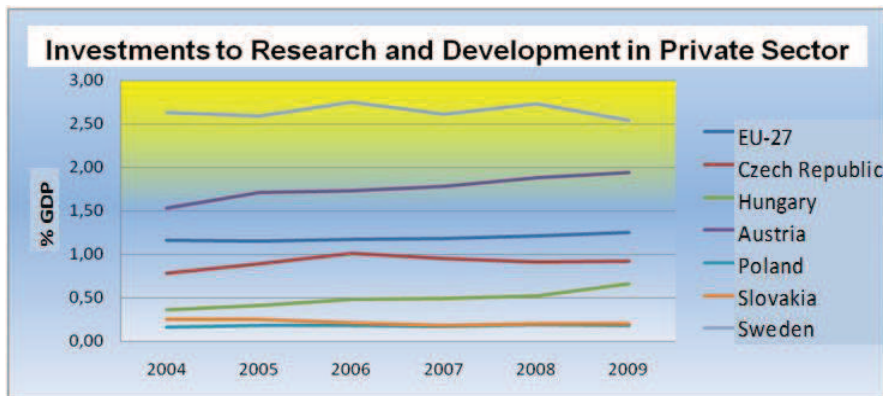


Graph 2. Medium-term trend and predictions of innovative efficiency in Slovak republic, Czech republic and EU-27

Source: JRC, 2011, own research.

2.2. Investments to Research and Development in Private Sector

One of the most basic ranking parameters used in the process of evaluation the innovation efficiency of enterprises are investments to research and development. Their values reflect potential ability of private sector to invest to higher competitiveness and efficiency through individual enterprises.

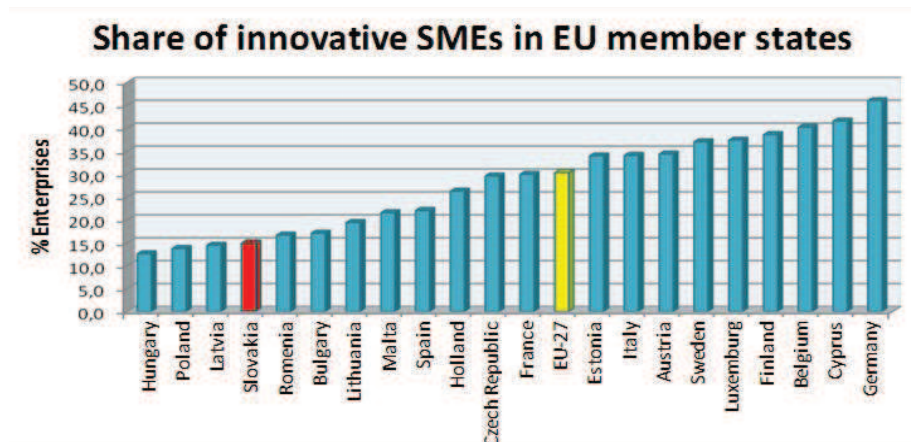


Graph 3. Investments to Research and Development in private sector

Source: Eurostat, 2011.

In Slovak Republic, investments to research and development of enterprises fluctuate for a long time at about 0,2% of GDP (average of the European Union

is 1,25%). Country with the highest innovation index, which is Sweden, invests to R&D more than 2,5% of GDP. High persisting growth of investments to innovations can be observed in the economy of our neighbour – Austria, where the value approaches to 2% of gross domestic product. Then, if we compare these values of R&D investment to the slovak one, it is necessary to state that Slovak republic is considered to be indirectly perceived as critically lagging and without any sign of positive trend.



Graph 4. Share of innovative SMEs in EU member states

Source: Eurostat, 2011.

When talking about basis of employment and formation of added value, it is, with no doubt, case of small and medium enterprises. Furthermore, they have a significant impact on creation of public resources by tax system of European Union countries. Their following direction of development of national economy and its orientation is determined by innovative efficiency and potential.

Within European Union, there are really alarming differences in types of their economies. We can easily identify countries oriented to activities with low added value and, on the other hand, the countries oriented to knowledge based economy. These disparities between individual EU member states are more than striking.

After quantification of number of innovative enterprises in Slovakia, our situation is same as in other cases – share of innovative enterprises is significantly below the EU-27 average and, in comparison with the most innovative member state with 15%, reaches only third.

2.3. Evaluation and Comparism of Innovative Projects in Agriculture Subjects is Slovak Republic and Selected Regions

For Slovak republic, membership in the EU meant an implementation of changes in business environment, mainly focused on internal market, which includes also changes for agricultural subjects.

For the last 10 years, countries of EU-12 (new member states – enlargement processes 2004 and 2007) have recognized notable economic growth and they have decreased the gap between GDP per capita compared to EU-15 countries. The increase of the primary sector share on GDP per capita was in EU-12 countries 9,3% compared to EU-15 countries, where it was only 4,7%. Nevertheless, to evaluate using of EU financial sources it is necessary to take in account still existing differences in agricultural sector between EU-12 and EU-15 countries, mainly in area of structure and dynamic of agricultural sector. To secure future sustainable growth, this growth should be based on innovations and technological changes. In the competitive environment of EU, mainly in agricultural sector, it is necessary to innovate the agricultural subjects, not only to create the flow of new products and ideas, but also to increase their value on interval market.

EU focuses on multifunctional agriculture and rural development by implementation of measures included in EU Common agricultural policy. Therefore, EU supports sustainable agriculture focused on the land use which plays the key role in the competitiveness of rural economy and rural landscape. Influence of innovative projects on the competitiveness of agricultural subjects can be considered to be a very important factor. For EU, the increase of agricultural competitiveness is very important and this goal is also included in the plans of Slovak republic through the Programme for rural development for the years 2007–2013. This Programme can provide a financial support for agricultural subjects in Slovak republic (PRD SR). Programming period 2007–2013 continues on focusing on main priority – rural development which can be reached by modernization of primary sector. This document involves the priorities of National strategic program of SR. Main proportions of agricultural subjects in Slovakia are: active using of possibility to gain the EU financial sources from the EAFRD Fund on innovative projects inside the priority 1 – Support of modernization, innovations and efficiency of agro food and forest sector. Therefore, for Slovak enterprises it is important to focus on modernization of machinery and buildings, use of natural sources for energy production, but also to increase the education and the flow of information between rural inhabitants, mainly farmers.

As you can seen in table below, in convergence regions of Slovakia (whole area of Slovakia except Bratislava region) and other regions in the frame of measure 1.1 – Farm modernization, there were 645 contracted farms, in total amount of 263,72 mio. EUR (32% from planed number of supported farms for the years 2007–2013 (until 26.03.2009). Under the measure 1.2 – Adding the value to agricultural enterprises and products for forestry, there were 103 con-

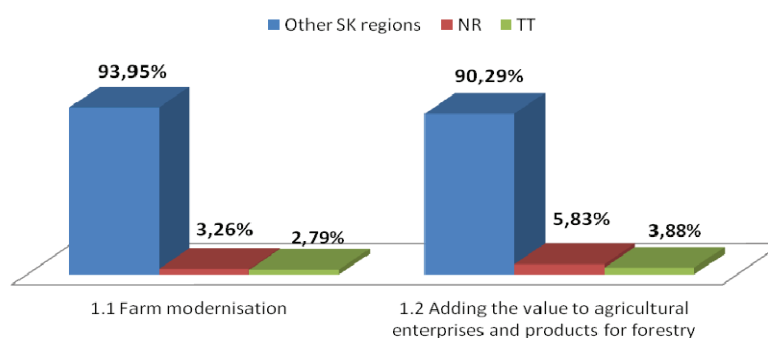
tracted agricultural subjects in total amount of 121,1 mil. EUR. This represents support of less number of agricultural subjects comparing to the measure 1.1, only 23% from planned number of 450 subjects.

Table 1. The number of supported farms and total support of contracted innovative projects until 26.03.2009

Measure	The number of supported farms	Support in total
1.1. Farm modernization	645	263,72 mil. EUR
1.2. Adding the value to agricultural enterprises and products for forestry	103	121,1 mil. EUR

Source: Author's calculations based on Agriculture Paying agency (APA) data, 2011.

Based on data realized via project Vega n. 1/0775/10 until 26.03.2009, there were 18 innovative projects in examined agricultural subjects of Trnava region and 21 projects in examined agricultural subjects of Nitra region contracted under the measure 1.1 – Farm modernization (including the projects oriented on renewable energy sources). Under the measure 1.2 – Adding the value to agricultural enterprises and products for forestry was contracted the number of 4 innovative projects in examined agricultural subjects of Trnava region and number of 6 projects in examined agricultural subjects of Nitra region until 26.03.2009.



Graph 5. Ratio of the EAFRD Supported Projects in the Regions of Slovak Republic

Source: Author's calculations based on Agriculture Paying agency (APA) data, 2011.

From the view point of development of rural areas, these numbers are not very positive. The situation in other region is similar; number of innovative projects is insufficient to reach the overall European competitiveness. There are a lot of factors causing this situation on the agricultural subject's side, as well as on the side of Slovak government administration. If we compare these selected subjects according their economical results, we can allege that there were stabile

farming results in the years 2008 and 2009 the, profit in the year 2009 slightly decreased, but the share of profitable subjects stayed unchanged in all legal forms of agricultural subjects in Trnava and Nitra region. Due to research realized in the frame of project Vega n. 1/0775/10, we can state that market support and efficiency of production realized through innovative projects contributed to reaching the profitability of examined agricultural subjects.

The EU possibilities of financial support for innovative projects does represent very important source of introducing the new innovative technologies to production process in Slovak republic. In the future, they can help to increase the competitiveness in the examined agricultural subject, as well as in other agricultural subjects in Slovakia. During the monitored period (2 years, which is a short period to estimate a long-term predictions), the evaluated agricultural subjects stabilized their incomes and despite of overall unfavorable economical developments, agricultural subjects did not notice notable decrease of profit, only slight increase of costs. Based on the facts listed above, it is possible to state that used financial sources from the EAFRD Fund approved for the realization of innovative projects via introduction of innovative technologies and technological process by examined agricultural subjects. Moreover, they had positive impact on sustainment and stabilization of incomes in these subjects.

Main agricultural subject are located in rural areas which do have special structural features, e.g. relatively low economic basis, limited business opportunities, low interface between sectors, relatively low level of knowledge transfer. Because of listed features, these rural areas belong to less favorite areas to implement innovations. Therefore, support of implementation of innovation on agricultural level is the main task of government support via Programme for rural development in Slovak republic for the years 2007–2013. Such a support should lead to the creation of strong and viable agricultural sector, which will fulfill the requirements of consumers. It is requisite that agricultural subjects will realize technological innovations to reach the competitiveness not only on regional, but also on European level. The importance of EU financial support for innovative projects can be seen also from previous programming period. Evaluation of programming period realized in the years 2004–2006 found out that there were 907 projects approved under the measure 1.1 Investment to agricultural holding for all regions of Slovakia, but intention to receive EU financial support doubled. The same situation was about the measure 1.2 oriented to agro food sector, where the main interest was oriented on the improvement and rationalization of production processes.

3. Conclusions

Summarising presented results, we can state that constant level of innovation index with minimal year-on-year changes means that Slovak republic and European Union fail in fulfilling goals of Lisbon Strategy related to innovative efficiency, so as in its continuer – Europe 2020, whose goal is to make European Union become a world leader in innovations and increase share of investments to research and development to 3% of GDP. Situation in SME is also terrible. Investments to innovations are very low. Business companies need financial support with using of structural funds of EU.

This article evaluates also the possibilities of financial support (EAFRD) for agricultural subjects in the area of innovation projects. The primary goal of SR is to create a strong and viable agricultural sector through market oriented production. Reaching given goals on the agricultural level is possible mainly through the investments into production facilities with the accent on innovative approach. Article results show that the interest of agricultural subjects on the possibilities of using the EU financial support is relatively the same also in programming period 2007–2013. Demand of agricultural enterprises on the financial support for projects during the programming period 2007–2013 is relatively high. Despite of mentioned interest from the agricultural subject's side, there is still evident inefficient demand on innovations in this sector and weak motivation for introduction of innovations in agricultural sector. From the article results we can also state that selected agricultural subjects from region Trnava and Nitra are actively using the financial support from the EAFRD Fund. We can state that this support for innovation projects and production efficiency in connection with realization of these projects has helped to profitability of these subjects. It is necessary to state that not only innovations and their implementation in production process, but also rational allocation of production structures into the most appropriate natural and production conditions and optimal combination of the use of the main production sources, are contributing to strengthen the competitiveness of agricultural subjects.

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This article was based on the research realized via project Vega n. 1/0775/10.

Streszczenie

Wpływ innowacyjnych projektów na rozwój rolnictwa w wybranych regionach Słowacji

Artykuł analizuje możliwości wsparcia innowacyjnych projektów w rolnictwie w Republice Słowacji w latach 2007–2013. Celem jest oszacowanie wpływu innowacyjnych projektów wspieranych przez Fundację EAFRD na konkurencyjność wybranych przedsiębiorstw rolniczych w regionach Nitry i Trnawy. Możemy stwierdzić, iż przedsiębiorstwa rolnicze osiągają wysokie korzyści, wprowadzając w życie innowacyjne pomysły, które są współfinansowane przez środki z Unii Europejskiej. Wsparcie finansowe Fundacji EAFRD wynosiło 80% w analizowanych latach. W tekście poruszono też kwestię wspierania innowacyjnych projektów oraz efektywność produkcji w związku z realizacją tych projektów, opartych na kryteriach ich opłacalności.

Należy zaznaczyć, że do wzmocnienia konkurencyjności podmiotów rolniczych przyczyniają się nie tylko innowacje i ich wdrażanie w proces produkcji, ale także racjonalna alokacja struktur produkcyjnych w najbardziej odpowiednich warunkach naturalnych i produkcyjnych. Ponadto warto nadmienić, że optymalne połączenie użytych źródeł produkcji przyczynia się do wzmocnienia konkurencyjności podmiotów rolniczych.