

Innovation in the Rural Development with Hungarian Examples

Gabor Gyarmati

University of Óbuda, gyarmati.gabor@kgk.uni-obuda.hu,

Abstract: Several studies have examined the relationship between innovation and economic development and found that there is a link between the two. Rural areas are typically agricultural-centered, but that does not mean that there is no industry or service area. The study examines the role of innovation in rural areas. How unique or different is the characteristic of an urban area in relation to the innovation? Research, development and innovation activities in the quadrants of research, support, education and education, as well as innovation activities, need strong support in rural areas where there are already disadvantaged municipalities and activities. Research has shown that increasing R&D can be a first step in adapting to changing economic conditions. The income of innovators can grow even with less successful innovations. Education and training stimulate innovation and job creation. Producer cooperations can significantly improve the transfer of innovative knowledge and promote EU-wide dissemination among members. The innovative activities of clusters cover the innovation process, from information sharing to generating joint innovation. Rural development partnerships can generate significant added value in the dissemination of innovation by representing societal values and interests and helping to mobilize local initiatives.

Keywords: innovation, sustainability, rural development.

Introduction

The main objective of rural development policies is to promote the vitality of rural areas, which includes the preservation and viability of their economic, social and natural resources. This requires strong, cohesive communities, a stable, strong economy and the protection and even reproduction of natural resources. If these conditions are met, the quality of life of the rural population will increase. According to Kukorelli (2015), there are five qualities to ensure this.

The first is innovation, which helps bring about a new quality that has not been present in processes or physical reality. Innovation is not only a social but also an economic advantage. According to Schumpeter (1980), innovation is a novel combination of factors of production, a new production method, a new resource, a raw material, an equipment, a process, a market or a reorganization of an existing

industry. Since then, there have been changes that have made the concept of innovation more widespread. According to the OECD (2005), innovation is a new or significantly improved product, service, process, solution, marketing or organizational management approach that occurs in practice, in the organization, or in employment relationships. Any scientific, technological, managerial, organizational, financial or commercial process that promotes or directs development. Here's how innovation can be:

Product innovation for which the product or service has been significantly renewed, in whole or in part, process innovation, in the case of which the production and logistics method has also been partly or completely renewed. Marketing innovation means innovation, introduction related to the market, product, consumer channels, while organizational and management innovation means the renewal of management, or the restructuring of the organization or the development of working relationships. (OECD, 2005)

The second factor is sustainable development, where we are present on earth in such a way that both our activities and our existence are viable and sustainable in the long term.

The third is the competitive rural space, which means that there are production factors and methods in the area that ensure that products and services of the right quality are delivered to consumers at the right price, thus enabling the region to sustain economic development (Lengyel 2003),

The fourth is a knowledge-based rural society - a person with competitive training and knowledge is in a position to enter the labor market, providing continuous training for the labor market conditions created by the knowledge economy in order to sustain its growth,

Fifth is the acceptance of the need for new functions and their spreading and grasping. This is because rural areas are also affected by globalization and changes that are unrelated to it, with the result that new types of needs, services, jobs, economic functions are emerging. There may be changes in social formations or even in technologies. The rooting of these is a prerequisite for viability. (Kukorelli, 2015)

1 Innovation and its characteristics

When examining innovation, it is important to look at the level at which it is applied. Comprehensive, or more local. From this point of view, it is possible to speak of individual, group, enterprise, regional, national, larger regional, ie cross-border or global innovation. Innovation, if spread and applied, will eventually lead to success. Because innovation is an investment, that is, whether it pays off or not,

and its payback period is still questionable. It also carries risks. That is, it is far from certain that it will succeed. The pace of innovation can be intermittent or continuous. In the first case, innovation is a change that results in greater development with new technologies, while continuous innovation is characterized by an improvement in certain functions of the product. (Szabó, 2012)

The concept of rural innovation was introduced by Schumpeter, which differs from the concept known in the life of companies. The point is that the issue is examined on an area basis, not on an organizational level. While we have already described corporate innovation, rural innovation includes all the changes, developments and developments that have not occurred in the area before. (Schumpeter 1939) In the countryside, the extent to which innovation can be realized and diffused is highly dependent on the relationship between the economy and society. Rural communities and societies are more closed than urban communities and less open to change. Yet change is inherent in life, and a village man living in a community closer to his natural habitat is rooted in traditions so much that he rejects, or at least is more cautious about, change. One reason for this may be that he is more skeptical of the changes presented by the urban technocratic man and is more attached to tradition. This may have the advantage that some of the innovations have not been studied in their social context and impact, so that the rejection of change may even be true. For this reason, the introduction of innovations means not only economic but also social change and demands a social task. If this happens, it may result in a positive change, ie acceptance of the change. It came mainly in the late 20th century and appeared as social innovation. It is characterized by facilitating acceptance and participation of communities in change. (Kukorelli, 2015)

With these new innovations, new paths, goals, new organizational, regulatory, and new lifestyles can be achieved. They enable a new and solution-oriented life that is easy to plant and distribute in local communities and institutions. (Zamf 1994,)

As discussed, rural innovation is strongly tied to the place, that is, they are created locally and modified, changed and used there. In most cases, agriculture and agriculture are linked to the countryside, to rural development. This means competitive agriculture with high quality and productivity, the spread and use of new technologies. Research networks in the 1970s and 80s facilitated its existence and spread. So the related product development was solved. Product mediation and development takes place in the countryside, and its spread is also connected here. (Enyedi, Rechnitzer 1987).

Agrarian-related innovations may include:

-As innovation requires significant R&D activities, it requires significant capital. This can result in floral breeding or veterinary development,

- Improvements in processing, trading, which may result in demand-driven supply or use of by-products,

- in the final phase of production and services, independent innovations such as recreation, new markets, rural or agro-tourism.

Networking and diffusion of telecommunications tools can help spread innovation in rural areas. (AKI, 201)

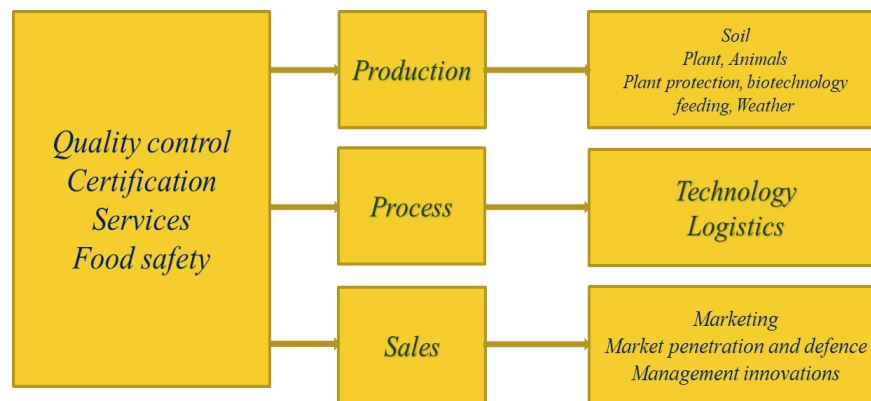


Figure 1. Areas affected by agricultural innovation

Source: AKI own edition

If you want to group innovations related to the countryside, the following solutions can be found.

- production, use of renewable energies, biodiesel, bioethanol or other agricultural products

use of product-based energy, solar collectors, solar energy, wind energy, geothermal energy,

- products and services related to the improvement of quality of life: healthy foods (whole foods, non-chemical products), organic or organic products, environmentally friendly products and services,

- nature tourism activities and recreational activities for the urban population.

Innovation affects not only urban areas but also rural areas. Innovations from the city or companies to the countryside are slower to spread, but they have an impact on the social and economic life there. The creation of innovations can be linked to centers, which means that their access to the countryside is an adaptation. Such innovations include:

- processes to support rural urbanization, also known as counter-urbanization, whereby settlements in the countryside bring new experience, increase expertise, thereby increasing the human and social capital of the area,
- spread and use of telecommunications, Internet,
- internet-related services such as health and welfare services,
- e-learning courses. (Kukorelli, 2016)

2 Domestic examples of innovation

Budapest centered situation is typical, while Székesfehérvár, Győr and Budapest are the main axis of domestic development. Not surprisingly, this area has the highest expenditure on innovation. EU and domestic grants are one of the main sources of domestic innovation activities. According to Dőry (1996), in several counties (Pest, Borsod-Abaúj-Zemplén), those involved in innovation gained extremely high development resources between 1991 and 1994. Grosz et al. (2004) found that at the rural level, the biggest problem faced by organizations is to provide services in the development process was the unpredictability of their funding, the low or lack of available resources. This results in a reduction in the efficiency of these organizations and the risk that funding problems may lead to their dissolution. (Grosz et al., 2004)

In general, it can be stated that the domestic GDP is approx. 0.6-1.4% is spent on research and development.

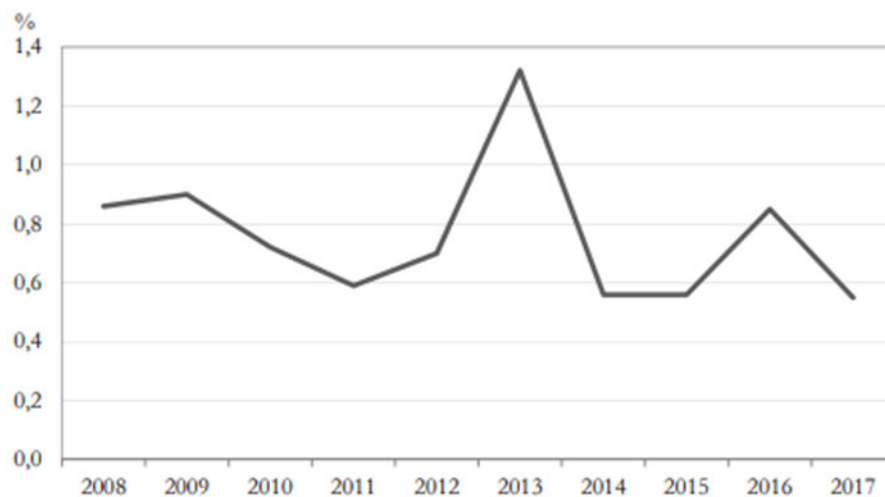


Figure 2 Government expenditure for R&D

Source: Eustat, own edition

According to Gajzágó and Gajzágó, the main topic of innovation tender sources was the development of R&D enhancing services, 40% of the calls were related to this. More efficient use of aid for R&D service development would support innovation. However, we are currently experiencing efficiency problems. The Hungarian support system is unpredictable, unstable in time, based on projects, lacking a comprehensive strategy that could provide some stability and, as a result, create uncertainty among applicants. If the subsidy system were to be stabilized in time, it could significantly increase efficiency, with the result likely to have an impact on GDP. (Gajzágó and Gajzágó, 2019)

Domestic innovation activity is stable at between 1% and 1.5% of GDP, which is not outstanding compared to European countries. As domestic GDP increased steadily from year to year, it can be concluded that the level of innovation increased in absolute terms during this period as well.

In 2018, HUF 3 129 billion of the domestic budget R&D allocation was spent on innovation. 30% (39 billion HUF) was spent on research to increase general knowledge, 23 billion HUF (18%) was allocated to industry, including production and technology development, 11 billion HUF (8.8%) was allocated to agriculture, 19 billion HUF (15%) health, with socio-economic research at the expense of these sources. (KSH, 2018)

In 2018, companies used the results of all their research and innovation activities not only in their core business but also in other areas. Companies in the agriculture, forestry and fishing sectors used the most, with 76% of their expenditure in their respective branches. Industrial enterprises have the highest proportion of R&D activities in their main activity (industry (48%), including manufacturing (47%), public administration, education, health care (45%) and information, communication (40%)). It is also common for construction and other market service companies to carry out their R&D activities in other professional fields. (KSH, 2018)

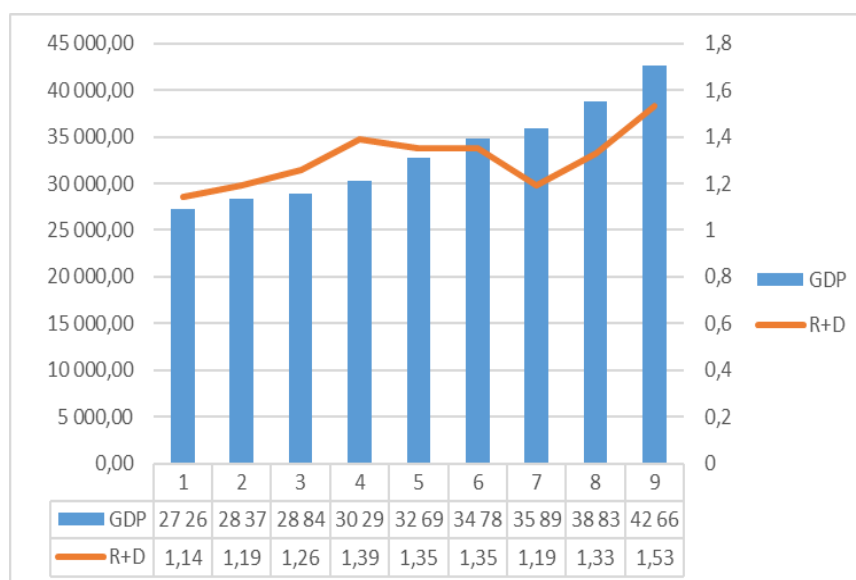


Figure 3 Ratio of R&D and GDP in %

Source: KSH 2018

Research and development has not changed significantly over the last decade. It is typically Budapest and Pest counties where this activity is most intensive. There were 3,491 research facilities in the country, 52% of which were located in the central region of the country. 61% of researchers worked here and 69% of full-time employees. The weakening role of the Northern Great Plain and the strengthening of Central Transdanubia and Northern Hungary can be witnessed. Central Transdanubia spent the most on research and development in rural areas, but Northern Hungary was the largest contributor to growth. This is partly due to the redeployment of central resources and companies located in the regions. South

Transdanubia achieved the lowest R&D expenditure in 2018, which is a projection of the decline in this region.

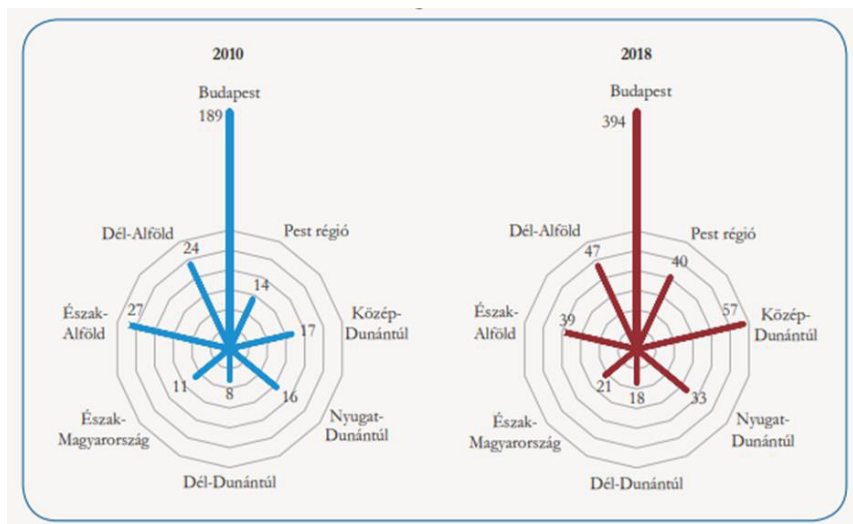


Figure 4. R&D expenditures by region, billion HUF

Source: KSH, 2018

Conclusion

Innovation activity is not only important for the national economy as a whole, but also especially for rural development, as rural areas are less open to development than in urban areas. The seclusion, or traditional wisdom, of these areas can only be resolved through inter-community cooperation and agreement. In economic terms, there is certainly a correlation between economic development and the level of innovation activity, which is why it is of the utmost importance to make people living in these areas open to innovation. Regional differences in Hungary are also reflected in the intensity of innovation activities. In the central, industrially more developed areas of the country, its extent exceeds that of the underdeveloped areas, and this should be given special consideration in development.

References:

- [1] Bíró, Sz. (Szerk.)(2014): Innováció az Agrár- és Vidékfejlesztésben, Agrárgazdasági Kutatóintézet
- [2] Dőry, T. (1996): A kutatás-fejlesztés egyes jellemzőinek területi szerkezete Tér és Társadalom 10 (2-3): 157–165.

- [3] Enyedi Gy., Rechnitzer J. (1987): Az innovációk térbeli terjedése a magyar mezőgazdaságban. *Tér és Társadalom*, 2., 31–48.
- [4] Eurostat honlapja
- [5] Gajzágó É.J. és Gajzágó G. (2019): Az innováció finanszírozásának lokális vetülete. *Területi Statisztika*.
<http://www.ksh.hu/docs/hun/xftp/terstat/2019/01/ts590104.pdf> Letöltés: 2019. 11. 24.
- [6] Grosz et al., (2004): A regionális innovációs rendszer kínálati oldala a Közép-Dunántúlon *Tér és Társadalom* 18 (3): 111–125.
- [7] KSH (2018): Kutatás-fejlesztés.
<https://www.ksh.hu/docs/hun/xftp/idoszaki/tudkut/tudkut18.pdf> (letöltés: 2019.11.21.)
- [8] Lengyel I. (2003): Verseny és területi fejlődés: térségek versenyképessége Magyarországon. JATEPress, Szeged
- [9] OECD (2005): The Measurement of Scientific and Technological Activities: Proposed Guidelines for Collecting and Interpreting Technological Innovation Data: Oslo Manual, Third Edition OECD, Paris
<http://www.oecd.org/science/inno/2367614.pdf> (letöltés: 2019. 11. 24.)
- [10] Schumpeter, M. (1939): *Business Cycles*, McGraw-Hill, New York.
- [11] Schumpeter (1980): A gazdasági fejlődés elmélete - Vizsgálódás a vállalkozói profitról, a tőkéről, a hitelről, a kamatról és a konjunktúraciklusról, Budapest, Közgazdasági- és Jogi könyvkiadó
- [12] Szabó, K. (2012): Hol tartunk? Innovációs trendek a globális gazdaságban. In Hámori B., Szabó K. (szerk.) *Innovációs verseny. Esélyek és korlátok*. Budapest, Aula Kiadó Kft.- Budapesti Corvinus Egyetem.
- [13] Szőrényiné Kukorelli, I. (2015): Vidéki térségeink innovációt befogadó képessége -Egy kutatás tapasztalatai, *Tér és Társadalom*, 29.1. 97-115. o.
- [14] Szőrényiné Kukorelli, I. (2016): Az innováció szerepe a falvak életében In: Sikos T.– Tiner (szerk.) (2016): *Tájak, régiók, települések térben és időben* © Dialóg Campus Kiadó (Nordex Kft.).
- [15] Zmf, W. (1994): *Modernisierung, Wohlfahrtsentwicklung und Transformation*. Wissenschaftszentrum Berlin für socialforschung, Berlin.