

The Social Innovation Potential of the Northern Hungarian Region

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Abstract

In the last two decades, a new direction has appeared in the study of innovation processes in the literature. Researchers are paying more and more attention to social innovation beside the classical Schumpeterian approach. Social innovation is new solutions (product, technology, organizational solution) that can effectively meet market needs that are not or hardly met on a market basis, innovation can lead to new or more advanced skills / relationships, and contribute to a more efficient use of resources. However, there is no uniform definition of the concept. The issue of social innovation is particularly important in the case of the Northern Hungary region, because it can bring hope for some peripheral areas and a new approach to solving problems. High technological innovation potential and performance do not necessarily go hand in hand with high social innovation activity, so in the case of peripheral regions there is a hope for social innovations even in the absence of technological innovations.

Keywords: social innovation, Northern Hungary, peripheries, inequalities, technological vs. social innovation

Introduction

Defining Social Innovation

One of the most complex and shortest definitions of social innovation is the definition of Mulgan et al. (2007, p. 4), who argue that social innovation is a “new idea that provides a solution to fulfil unmet social needs”.

In another point of view, social innovation aims to form social practices that can respond to challenges, thereby it can result in increasing life quality and reach greater social responsibility from civil society actors than before (Lombardi et al. 2020).

Cajaiba – Santana (2014, p. 44.) examined the social innovations from a sociological perspective and concluded that these are new social practices created from collective,

intentional, and goal-oriented actions aimed at prompting social change through the reconfiguration of how social goals are accomplished.

Phills et al. (2008) also focus on social problems, according to them social innovations are novel solutions for problems that are more efficient, effective, sustainable than the existing ones, the value created through them primarily serves the well-being of the society as a whole (not just separately the individuals).

According to the definitions, not only an idea can be new or novel, but as Rehfeld et al. (2015) states it, a novel combination of ideas and a higher level of collaborations can also result in a social innovation.

To sum up, therefore, the social innovation has a number of unique characteristics that distinguish it from the traditional technical innovations. According to the OECD (2016, p. 82), social innovation differs from classical technical innovation in the following ways: "social innovation does not aim to create new forms of production or reach new markets, but provides a new opportunity to meet social needs, and their integration into production." Thus, some definitions emphasize the character of social innovations to meet social needs in a novel way that the market cannot (e.g., Mulgan et al. 2007), while others focus on increasing efficiency (Phills et al. 2008; Lombardi et al. 2020), and also others highlight that it can help to solve problems caused by market and government failures (Rehfeld et al. 2015).

According to the most definitions, the basic goal of social innovation is to improve the quality of life of people living in the area through innovative ideas and solutions and to solve critical problems to which the market cannot respond effectively. In this way, the value creation can be realized for all those involved in the innovation process. From the definitions, we can conclude, that these innovations typically emerge as bottom-up initiatives to meet a need of the society in a novel way. Social innovations, similarly to classical technological innovations, can take many forms, covering the full range of processes (product, technology, organization, marketing, service, business model, etc.). Their form of financing can range from self-financing to various forms of support (Figure 1).

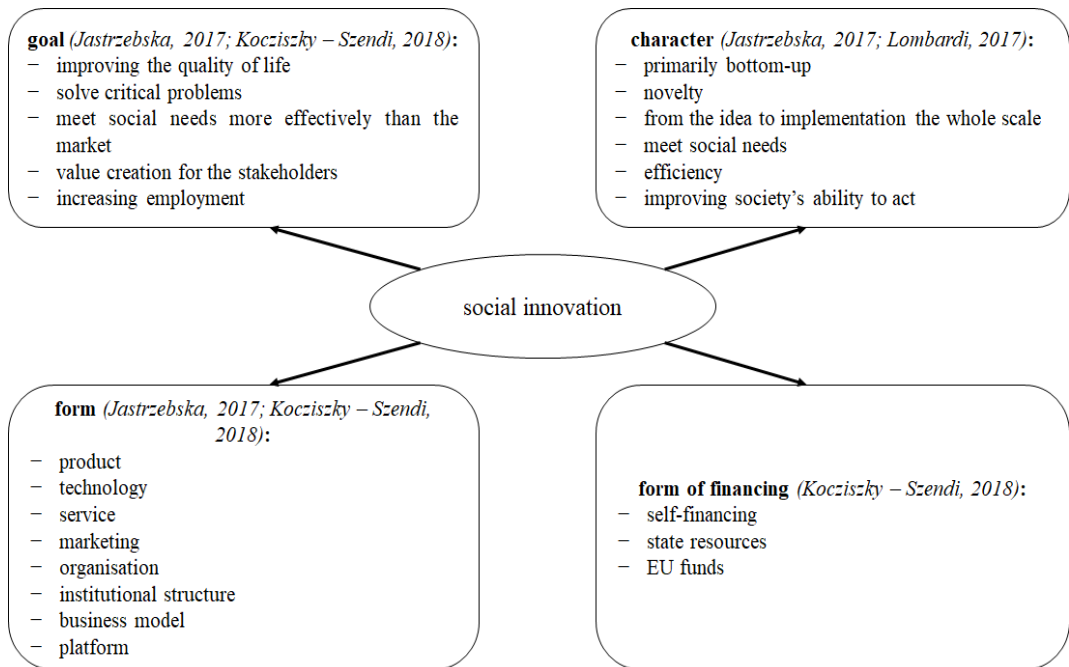


Figure 1. The goal, character, form and financing of social innovation

Source: own compilation based on Jastrzebska (2017), Lombardi (2017) and Kocziszky-Szendi (2018)

The interpretation of social innovation may also differ from one geographical area to another. For example, in the Western Balkans or Eastern Europe, in the case of innovation the countries still focus on classical technological innovation and on R&D activities. Besides the classical challenges (demographic change and aging societies, social inclusion), factors such as political change and the need for economic reforms are the main drivers of social innovation in the Eastern European region. In Anglo-Saxon countries, the role of individual responsibility is high, so social innovations are usually as “greenfield” investments, with the cooperation of a large number of independent stakeholders, and the micro, mezzo and macro levels. In the continental countries, there is a strong dependence on social welfare systems, so the main objective is to achieve the “common good”. In the Eastern European model, we encounter larger differences in quality of life. Here, social innovations are even less institutionalized, resp. in many cases, they have lower social acceptance (OECD, 2016).

Comparing social innovation potential and performance is a major challenge, as there are different measurement methods for each geographical area and even within individual countries. One of the EU's key objectives is to strengthen social innovation activity. Therefore, a huge number of projects are being supported. In the last 10

years, a number of analyzes have been carried out to measure the social innovation potential of a given region (country, regional or local level), but till now there is no agreed-on methodology and indicator structure.

One of the most complex models suitable for regional analysis was developed by the Economist Intelligence Unit in 2016, which has four basic pillars: political and institutional, financing, entrepreneurial, and social.

The Role of Social Innovations in the Catch-up of the Peripheries

One of the critical features of social innovations is the support of grassroots initiatives, so its bottom-up nature (Lombardi, 2017), which makes it suitable for meeting the needs of individual social groups more effectively than by top-down methods. As social innovation usually tries to satisfy social needs that the market cannot, it can also be a solution in the catch-up of the peripheries (Kocziszky et al. 2015; Szörényiné, 2015; Benedek et al. 2016; Kocziszky et al. 2017; Kocziszky – Szendi, 2018; Lombardi et al. 2020). Some problems of the disadvantaged, peripheral regions (e.g. low educational attainment, low activity rate, high unemployment, low human development index, poverty, etc.) cannot be solved by technological innovations due to low innovation potential (absorption capacity). Therefore, new or novel solutions are needed that provide creative answers to these problems (Moulaert et al. 2014; Benedek et al. 2016) and can serve as effective innovation through bottom-up initiatives.

From the 24 districts of the Northern Hungarian region, 10 can be classified by the 106/2015. (IV. 23.) Governmental Regulation in the category, that is called most disadvantaged area which problems can be solved by a complex program, therefore the examination of the social innovation capacity is significant in this region (Figure 2).

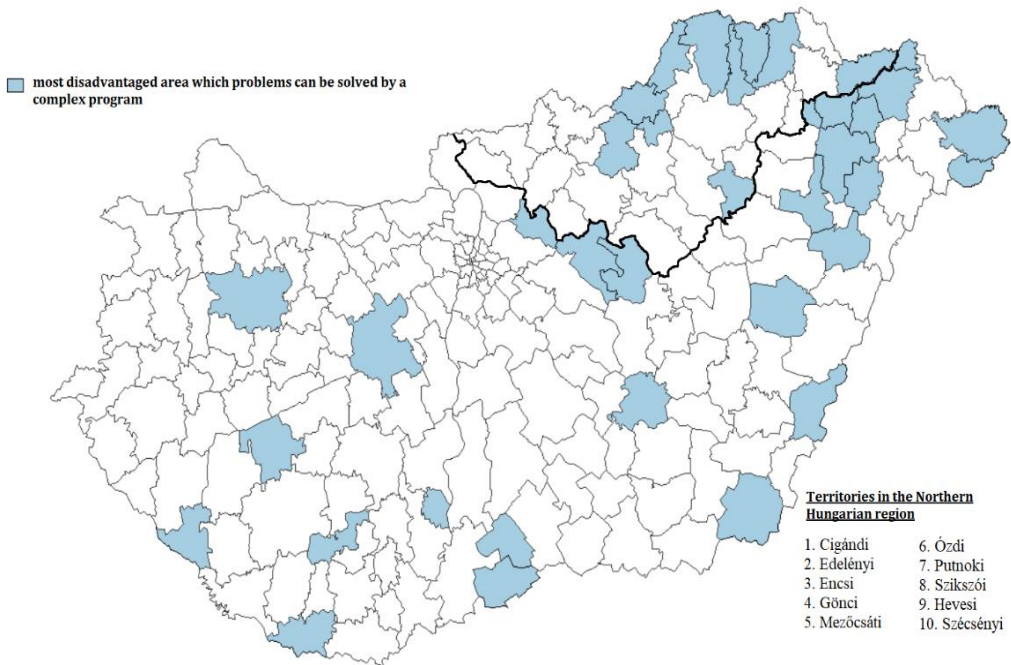


Figure 2. List of the most disadvantaged areas which problems can be solved by a complex program (2020)

Source: own compilation based on the 106/2015. (IV. 23.) Governmental Regulation

Technological innovation performance is usually examined on the basis of R&D expenditures, research and development, and the regional number of patents created. There are a number of recommendations for measuring social innovation performance in the literature (e.g. Krlev et al. 2014; Economist Intelligence Unit, 2016; Castro Spila et al. 2016). Usually, three indicators are analysed (social enterprises, non-profit organizations, self-employment rate). In this case of the social innovation potential we think on the regions' capabilities (agreeing with Kocziszky et al. (2015)) that help the generation and creation of social innovations. The choice of each indicator is justified by the following factors:

Number of social enterprises per 1000 inhabitants: As in the case of the social enterprises the main objective is not only the profit maximization, but similarly to make social innovation efforts, to address and solve social problems (e.g. labour market, equal opportunities, health, culture) (Popoli, 2016; Market & Profit, 2017). In the areas with a significant number of social enterprises, social sensitivity and responsibility are stronger, and in the long run more ideas and creative solutions can be created to address the challenges.

Number of non-profit organizations per 1000 inhabitants: In the case of social innovation, as it is supported by its different approaches, the existence of community-based bottom-up initiatives has critical importance as the starting points for innovative solutions. The non-profit sector can contribute to a more efficient use of scarce resources, thereby increasing the quality of life, which is one of the main goals of social innovation efforts (Economist Intelligence Unit, 2016; Andion et al. 2017; Krlev et al. 2019).

Proportion of self-employed as a percentage of total employment: The self-employed not only contribute positively to economic growth and the traditional innovation activity, but also play an important role in social innovations by satisfying local needs and generating ideas (Interreg, 2019; Akgüc, 2020). The role of the self-employed in social innovation can also be observed as creative actors with innovative ideas and / or venture capital to implement these new ideas and even create start-ups.

The Social Innovation Situation in the Northern Hungarian Region

Settlement Level Surveys

In terms of the non-profit organizations per 100 inhabitants, the largest positive changes in the national comparison took place in Inke, Ziliz and Zalasabar in the period of 2012-2017, where the number of these organizations increased significantly. In contrast, in the case of Vásárosdombó, Zsombó, Adács, Csobánka or Zselickislak, for example, the number of non-profit organizations decreased. The majority of settlements have on average 1-2 organizations per 100 inhabitants (interesting note, that there are zero non-profit organizations in 258 settlements in Hungary).

The most non-profit organizations in the Northern Hungarian region have three small villages in Borsod-Abaúj-Zemplén county: Teresztenye, Tornabarakony and Sima, where there are more than 10 organizations per 100 inhabitants, while in Abaújlak, Gagyapáti, Kozárd and Égerszög there are 7.5-8 non-profit organizations per hundred inhabitants.

The assumption that the social innovation may be a breakout point for peripheral areas seems to be justified in the distribution of non-profits. Specifically, the most number of non-profit organizations can be identified in the northern, north-eastern part of the region, in the areas of Cserehát and Zemplén (parts of the complex disadvantaged areas, Figure 3). In this territory, there are only few for-profit companies due to the disadvantaged socio-economic situation and accessibility conditions, so a part of the population should be engaged in non-profit activities. In the case of the county capitals, the non-profit activity is weaker, but in all cities it exceeds the regional average (Eger: 2.1; Miskolc: 1.3 and Salgótarján: 1.6 non-profit organizations per 100 inhabitants). There is no registered non-profit organization in

45 settlements of the region, including also areas that fit to the 106/2015. (IV. 23.) Government Regulation (e.g. Csenyéte, Dámóc, Felsőgyagy, Gadna or Kiscséc).

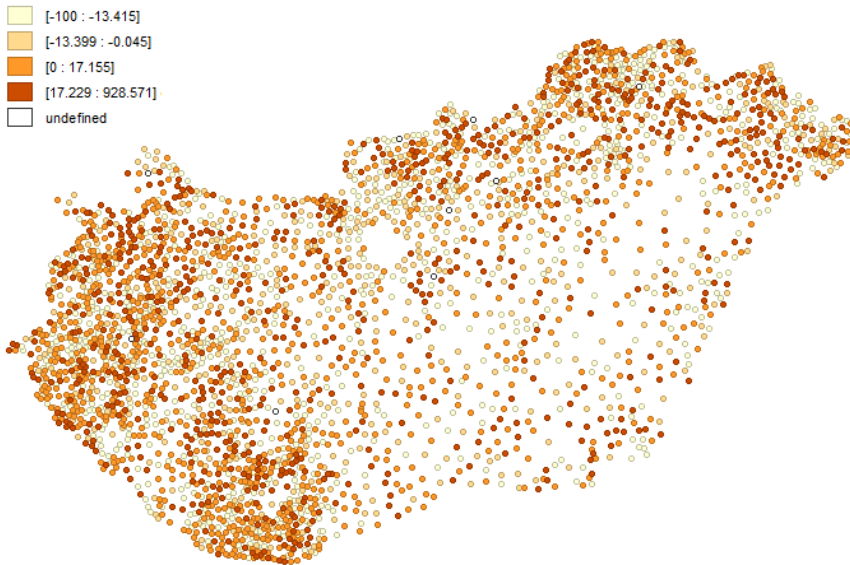


Figure 3. Number of non-profit organizations per 100 inhabitants at the settlement level (2017)

Source: own compilation based on the data of the Hungarian Central Statistics Office

Based on the number of social enterprises per 100 inhabitants, Záhony, Adács and Áporka have the biggest changes in the period of 2012-2017 (with extremely high values in some places), while the largest decline in social enterprises occurred in Zsédény, Zók and Aka. In total, in the case of 549 settlements, all social enterprises ceased to exist in the period of 2012-2017, while in the case of 726 settlements, no social enterprises are present. Specifically, most enterprises are located in Iborfia, Kaszó and Patca, while (where there is at least one) the fewest are in Tornyospálca, Ópályi and Arló.

Regarding the Northern Hungarian region, the most social enterprises can be found in the middle path of the region, only a few can be identified in the mentioned most disadvantaged regions (with a few exceptions: Tereszténye, Galvács, Keresztéte, Varbóc and Visszló). The county capitals also perform outstandingly, Eger is 17th, Miskolc is 26th, and Salgótarján is 46th in the distribution of social enterprises (Figure 4). (Social enterprises are still relatively new economic formations, so it is not surprising that 260 settlements in the region have no one from this type.) Empirical research proves that social enterprises operating in a given field have a multiplier

effect, as they can help financial, tax and tender consulting local initiatives that enable the creation of new businesses (G. Fekete et al. 2017).

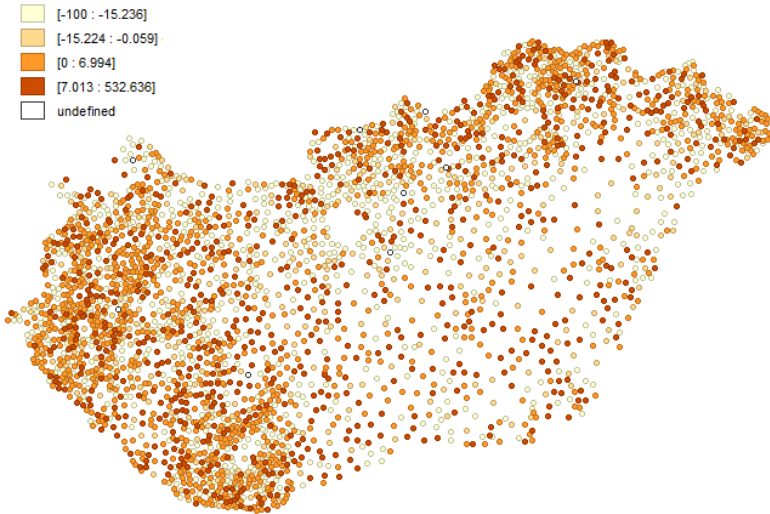


Figure 4. Number of social enterprises per 100 inhabitants at the settlement level (2017)

Source: own compilation based on the data of the Hungarian Central Statistics Office

The studies confirm that the settlements mostly affected by complex problems are the settlements of the previously mentioned Northern Hungarian region's borderline area, with mostly foreign neighbourhood (Figure 5).



Figure 5. Complex social innovation problems in the settlements (2017). Source: own compilation

The Situation of the Northern Hungarian Region and Its Counties from the Aspect of Social Innovation

Between 1996 and 2018, the number of non-profit organizations per 1,000 inhabitants showed a slight increase in the case of the Hungarian regions (except for the Central Hungarian region after 2010), which is favourable in terms of social innovation conditions. At the same time, the position of the Northern Hungarian region deteriorated throughout the analysed period, despite the fact that all three counties of the region significantly increased the number of their non-profit organizations. By 2018, the Northern Hungarian region was the penultimate among the Hungarian regions, surpassing only the Northern Great Plain region (Figure 6). The most non-profit organizations (in the proportion of all organizations) are in the Southern Transdanubia region, which can be an example to follow for the Northern Hungarian region as well, because the settlement structure (existence of small village areas, significant peripheries, spatial features) and socio-economic situation are very similar.

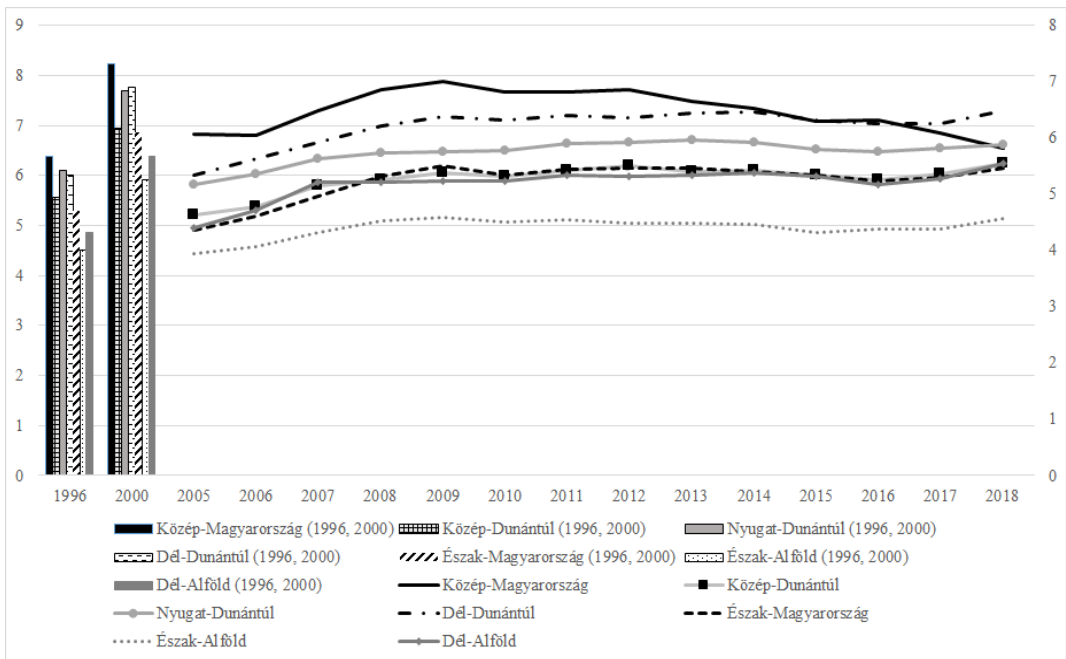


Figure 6. Change in the number of non-profit organizations per 1000 inhabitants (1996, 2000, 2005-2018). Source: own compilation

The distribution of non-profit firms by organizational form has changed only moderately over the past 20 years (Table 1). In the Northern Hungarian region, the largest proportion of non-profit organizations are associations and foundations, which have one of the highest shares after the Central Hungarian region. Similarly,

compared with other territorial units, the share of public bodies in the total non-profit structure is the lowest. There is also a small difference in the distribution of foundations and associations in the counties of the region, as the former has the highest share in Borsod-Abaúj-Zemplén county and the latter in Nógrád county, for example. The region of Northern Hungary is in a particularly good position in terms of foundations in a national comparison as well. The 11.4% of all foundations and 17.5% of public bodies are concentrated here, which in both cases is in the third place among the regions.

Table 1. Distribution of non-profit organizations by organizational form (2018)

| | Distribution of non-profit organizations by organizational form in the regions of Hungary (%) | | | | | | | | |
|-------------------------|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | summa |
| Central Hungary | 37.3 | 0.8 | 47.9 | 0.2 | 1.4 | 4.8 | 7.3 | 0.2 | 100 |
| Central Transdanubia | 28.5 | 3.0 | 59.2 | 0.5 | 1.2 | 2.5 | 5.0 | 0.1 | 100 |
| Western Transdanubia | 26.4 | 2.1 | 64.0 | 0.4 | 1.2 | 2.3 | 3.7 | 0.1 | 100 |
| Southern Transdanubia | 25.3 | 2.4 | 63.5 | 0.6 | 0.8 | 2.8 | 4.5 | 0.1 | 100 |
| Northern Hungary | 31.4 | 2.2 | 56.2 | 0.7 | 0.9 | 2.4 | 6.3 | 0.0 | 100 |
| Northern Great Plain | 28.8 | 1.7 | 59.4 | 0.4 | 0.8 | 3.0 | 5.9 | 0.0 | 100 |
| Southern Great Plain | 29.2 | 1.6 | 59.2 | 0.6 | 0.9 | 3.1 | 5.4 | 0.0 | 100 |
| Borsod-Abaúj-Zemplén | 34.6 | 2.1 | 52.8 | 0.4 | 1.0 | 1.9 | 7.2 | 0.1 | 100 |
| Heves | 29.6 | 2.2 | 56.7 | 1.4 | 1.0 | 3.7 | 5.3 | 0.1 | 100 |
| Nógrád | 24.8 | 2.5 | 65.0 | 0.3 | 0.5 | 1.7 | 5.2 | 0.0 | 100 |
| Country total | 1917 | 105 | 345 | 269 | 674 | 207 | 360 | 59 | 61491 |
| | 9 | 6 | 79 | | | 5 | 0 | | |
| | Share of regions in non-profit organizations by organizational form (%) | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | summa |
| Central Hungary | 38.2 | 15.4 | 27.3 | 18.2 | 40.9 | 45.8 | 40.1 | 62.7 | 32.0 |
| Central Transdanubia | 9.8 | 18.9 | 11.3 | 12.6 | 11.6 | 8.0 | 9.1 | 6.8 | 10.7 |
| Western Transdanubia | 9.0 | 13.0 | 12.0 | 9.3 | 11.4 | 7.1 | 6.7 | 6.8 | 10.6 |
| Southern Transdanubia | 8.5 | 14.6 | 11.9 | 13.8 | 7.7 | 8.8 | 8.1 | 11.9 | 10.5 |
| Northern Hungary | 11.4 | 14.4 | 11.3 | 17.5 | 9.2 | 8.0 | 12.1 | 5.1 | 11.3 |
| Northern Great Plain | 11.3 | 12.0 | 12.9 | 10.8 | 8.5 | 10.8 | 12.3 | 3.4 | 12.2 |
| Southern Great Plain | 11.8 | 11.6 | 13.3 | 17.8 | 10.7 | 11.5 | 11.6 | 3.4 | 12.6 |
| Country total | 100. | 100. | 100. | 100. | 100. | 100. | 100. | 100. | 100.0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Borsod-Abaúj-Zemplén | 6.7 | 7.4 | 5.7 | 5.9 | 5.3 | 3.4 | 7.4 | 3.4 | 6.1 |
| Heves | 3.0 | 4.0 | 3.2 | 10.0 | 3.0 | 3.5 | 2.9 | 1.7 | 3.2 |
| Nógrád | 1.7 | 3.0 | 2.4 | 1.5 | 0.9 | 1.1 | 1.9 | 0.0 | 2.1 |

Source: own compilation based on the data of the Hungarian Central Statistics Office

Note: 1. foundation, 2. public foundation, 3. association, 4. public body, 5. employee advocacy, 6. professional advocacy, 7. public benefit company, 8. union/merge

There is also a positive trend in the change of the number of social enterprises per 1000 inhabitants (Figure 7). The number of enterprises increased in all regions during the whole period, the largest positive shift happened in the capital region, while in the Northern Hungarian region the number of enterprises developed positively, but its value was the last in the ranking of regions except in 1996 and 2000. This is largely due to the fact that in Heves and Nógrád counties, the proportion of social enterprises (15-16 enterprises per thousand inhabitants) goes significantly behind the national values (approximately 22-23 enterprises per 1000 inhabitants).

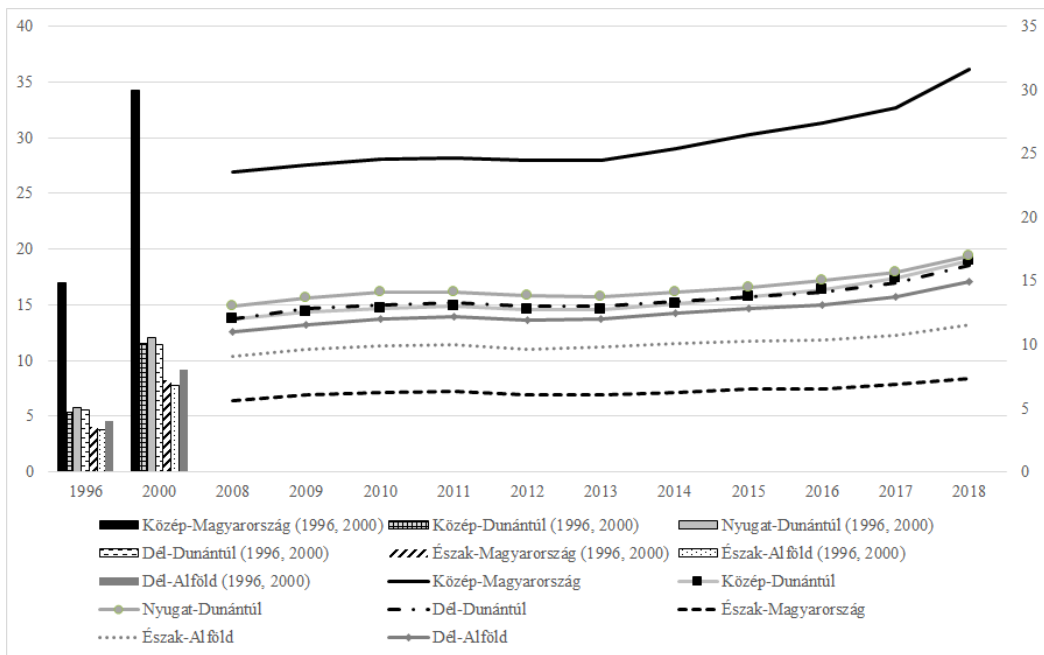


Figure 7. Change in the number of social enterprises per 1000 inhabitants (1996, 2000, 2005-2018). Source: own compilation

According to their main form of activity, the non-profit organizations can be classified into the following categories: culture, sports, leisure, education, social care, professional and economic advocacy. The proportion of non-profit organizations engaged in non-social activities was extremely low in all counties in 2018 (Figure 8), suggesting that the survey of non-profit organizations may be an appropriate measure for examining social innovation, as the vast majority deal with social problems. The proportion of non-profit organizations engaged in social activities is over 90% in all counties, and their distribution has not changed significantly since

2001, which indicates the growing social role and activities of the organizations. In the region of Northern Hungary, the total share of non-profit organizations engaged in non-social activities is 3.98%, while in its two counties (Borsod-Abaúj-Zemplén 3.41% and Nógrád 2.4%) it is even lower. The scope of activities of non-profit organizations varies in the counties of the region, in the case of Borsod-Abaúj-Zemplén and Heves counties the main profile is culture, sports, leisure and education, while the share of social care providers is lower and the proportion of professional and economic advocacies is the lowest. In contrast, the distribution of non-profit organizations differs in Nógrád county, and the proportion of organizations engaged in educational activities is also lower. The organizations operating in the region have significant tender/EU funding resources in proportion to their total revenues (region: 14.3%, which corresponds to the national average, and only Budapest (14.5%) and the Northern Great Plain region (19.5%) overlaps it). The situation of Nógrád county is especially outstanding, where this ratio is 28.7%.

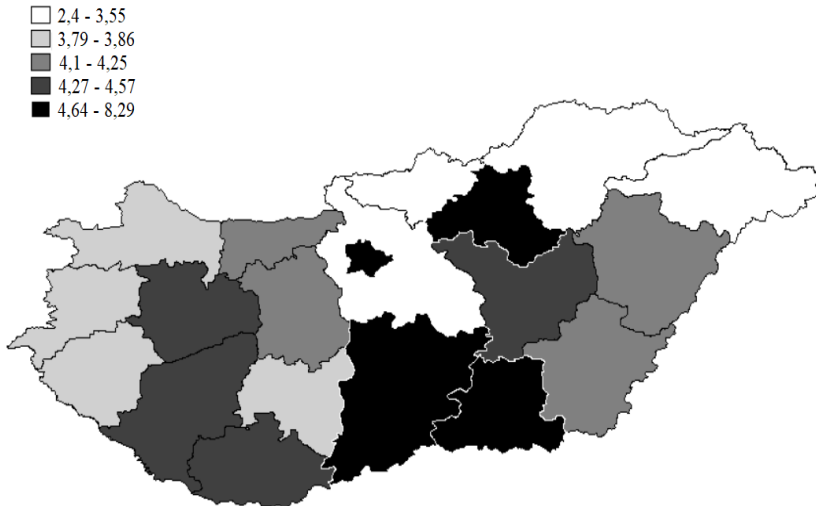


Figure 8. Proportion of non-profit organizations with non-social activities (2018)

Source: own compilation based on the data of the Hungarian Central Statistics Office

Technological and Social Innovation Performance in the Nuts3 Regions of the Visegrad Countries

Based on the complex technological innovation index, the capital regions of the Visegrad countries are the best performing territories at the beginning (2001) and the end (2015) of the analysed period, as well. The best-performing region in both years is Prague (a leader in two components, see Table 2), ahead of Budapest and Bratislava regions. By 2015, the Northern Hungarian region had deteriorated one place in its position among the regions and was only 27th in the ranking; it shows the

best ranking in both years in the number of patents per million inhabitants (where it is 5th in a national comparison), while its performance is weaker based on the other two factors. The relatively favourable position of the patent activity among the regions can be the result of the good performance of corporate research (e.g. Bosch) and university research institutes (University of Miskolc, Eszterházi Károly University). Based on technological innovation factors, the worst performing territories are Polish regions, showing relatively poor performance in all dimensions.

Table 2. The position of the Northern Hungarian region in the ranking of the NUTS2 regions of the Visegrad countries based on the technological innovation index (2001, 2015)

| No | Region | 2001 | | | | No | Region | 2015 | | | |
|-----|---------------------|------|----|----|-----|-----|---------------------|------|----|----|-----|
| | | 1 | 2. | 3 | Sum | | | 1 | 2 | 3. | Sum |
| 1. | Praha | 1 | 1 | 2 | 4 | 1. | Praha | 1 | 1 | 2 | 4 |
| 2. | Central Hungary | 3 | 3 | 1 | 7 | 2. | Bratislavský kraj | 2 | 2 | 4 | 8 |
| 3. | Bratislavský kraj | 5 | 2 | 3 | 10 | 3. | Central Hungary | 4 | 4 | 1 | 9 |
| 4. | Mazowieckie | 4 | 4 | 10 | 18 | 4. | Jihovýchod | 3 | 3 | 9 | 15 |
| 5. | Jihovýchod | 6 | 5 | 7 | 18 | 5. | Mazowieckie | 5 | 5 | 6 | 16 |
| ... | | | | | | ... | | | | | |
| 26 | Northern Hungary | 33 | 28 | 15 | 76 | 27 | Northern Hungary | 30 | 31 | 20 | 81 |
| ... | | | | | | ... | | | | | |
| 31 | Podkarpackie | 28 | 30 | 30 | 88 | 31 | Severozápad | 28 | 33 | 28 | 89 |
| 32 | Lubuskie | 34 | 33 | 24 | 91 | 32 | Kujawsko-Pomorskie | 29 | 28 | 32 | 89 |
| 33 | Opolskie | 31 | 31 | 32 | 94 | 33 | Swietokrzyskie | 27 | 34 | 30 | 91 |
| 34 | Warminsko-Mazurskie | 32 | 32 | 33 | 97 | 34 | Lubuskie | 35 | 35 | 27 | 97 |
| 35 | Swietokrzyskie | 35 | 34 | 34 | 103 | 35 | Warminsko-Mazurskie | 34 | 30 | 35 | 99 |

Source: own compilation

Note: 1. R&D expenditure per capita (Euro); 2. Number of researchers and developers per 100 inhabitants; 3. Number of patent applications per million inhabitants.

Based on the components of the social innovation index, Prague is at the top of the ranking (Table 3) also in this comparison, but the dominance of the capital regions is not so significant. The first part of the list contains predominantly Czech regions, the region of Northern Hungary is one of the worst positioned regions (32nd in 2001 and last in 2015), mainly due to the low proportion of self-employed. Based on the other two indicators the region is located also in the last third of the list.

Table 3. The position of the Northern Hungarian region in the ranking of the NUTS2 regions of the Visegrad countries based on the social innovation index (2001, 2015)

| N o. | Region | 2001 | | | | N o. | Region | 2015 | | | |
|------|-----------------------------|--------|--------|--------|------|------|-----------------------------|--------|--------|--------|------|
| | | 1 | 2 | 3 | Su m | | | 1 | 2 | 3 | Su m |
| 1. | <i>Praha</i> | 1 2 | 1 | 3 | 16 | 1. | <i>Praha</i> | 6 | 2 | 2 | 10 |
| 2. | <i>Strední Cechy</i> | 1 6 | 4 | 5 | 25 | 2. | <i>Strední Cechy</i> | 5 | 4 | 7 | 16 |
| 3. | <i>Jihozápad</i> | 2 2 | 6 | 2 | 30 | 3. | <i>Jihozápad</i> | 1 9 | 6 | 3 | 28 |
| 4. | <i>Jihovýchod</i> | 1 9 | 5 | 7 | 31 | 4. | <i>Severovýchod</i> | 1 6 | 7 | 5 | 28 |
| 5. | <i>Severovýchod</i> | 2 1 | 7 | 4 | 32 | 5. | <i>Jihovýchod</i> | 2 1 | 5 | 4 | 30 |
| ... | | | | | | ... | | | | | |
| 31 | <i>Northern Great Plain</i> | 2 7 | 1 8 | 3 1 | 76 | 31 | <i>Východné Slovensko</i> | 1 3 | 2 7 | 3 4 | 74 |
| 32 | <i>Northern Hungary</i> | 3 0 | 2 0 | 3 0 | 80 | 32 | <i>Southern Great Plain</i> | 3 0 | 1 9 | 2 6 | 75 |
| 33 | <i>Stredné Slovensko</i> | 3 3 | 2 3 | 3 2 | 88 | 33 | <i>Západné Slovensko</i> | 2 6 | 1 4 | 3 5 | 75 |
| 34 | <i>Západné Slovensko</i> | 3 4 | 2 2 | 3 4 | 90 | 34 | <i>Northern Great Plain</i> | 3 4 | 2 2 | 2 8 | 84 |
| 35 | <i>Východné Slovensko</i> | 3 5 | 2 9 | 3 3 | 97 | 35 | <i>Northern Hungary</i> | 3 5 | 2 4 | 2 5 | 84 |

Source: own compilation

Note: 1. Proportion of self-employed as a percentage of the total employment; 2. Number of social enterprises per 1000 inhabitants; 3. Number of non-profit organizations per 1000 inhabitants

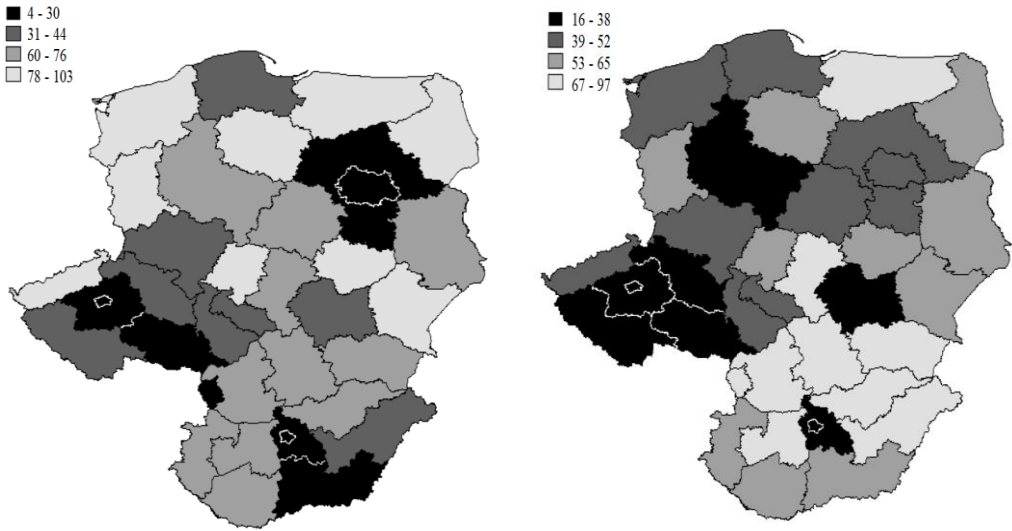


Figure 9. Clusters of the technological (left) and social (right) innovation index among the regions of the Visegrad countries (2001)

Source: own compilation

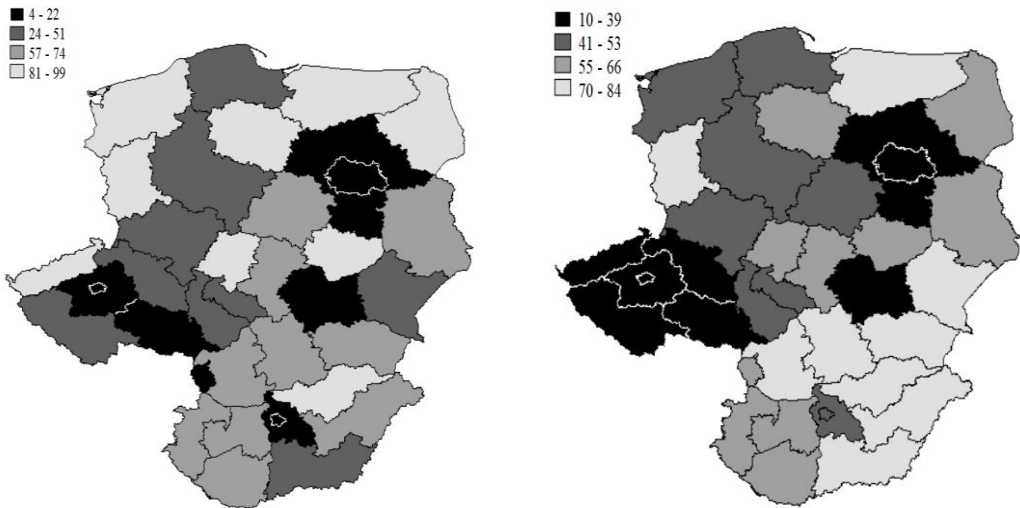


Figure 10. Clusters of the technological (left) and social (right) innovation index among the regions of the Visegrad countries (2015). Source: own compilation

Summary

Analysing the examined components together we can conclude the following. In 2001, the biggest differences among the clusters of innovation factors show the position of the capital regions indicated above, on the one hand, and on the other hand there are stronger western-eastern differences based on the social innovation index (Figure 9). The situation of the Northern Hungarian region is more unfavourable in terms of the social innovation index than its technological innovation performance. In 2015, there was a slight positive shift in all regions. The capital regions showed an improving trend in terms of social innovation, however, the examined region of Northern Hungary is still member of the most unfavourable cluster for both indicators (Figure 10). Thus, high technological innovation potential and performance are not associated with high social innovation activity, i.e. in the case of peripheral regions, there is hope for social innovation even in the absence of technological innovations.

Acknowledgments

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Resources

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