

THE INTERPRETATION OF LAND-USE SYSTEM IN HUNGARY IN THE CONTEXT OF RURAL DEVELOPMENT

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Abstract. Due to the explosive increase in the world's population as well as the economic and technological development serving to provide the increasing standard of living, humans intervene more and more into the system and order of nature, therefore causing various damages in the environment. Consequently, damages to the living creatures on some parts of the Earth have become so serious that they endanger the essential elements of the environment that are necessary for living. In order to apply an efficient spatial development policy, the most suitable tools and methods should be found. They should include technical, biological, ecological, legal, official, economic and organizational etc. methods and solutions, i.e. only a systematic approach can lead to success. Based on the abovementioned, the elaboration of spatial development strategies is a much more complicated and complex issue than simply the development of the economy. The development policy of a given area is a complex of various economic, natural, social coherences, with a special focus on the optimal use of the endogenous resources of the area. In this study we discuss the major relationship and coherences between land-use and the use of space. Based on our former researches, we could observe that in the various development strategies, including the rural development or regional development ones, land is considered as only a resource used in agriculture and its value is calculated primarily based on its agricultural quality. However, nowadays, many researchers are shifting from land-use analysis to the use of space when it comes to endogenous resources and helping to catch up the rural areas.

Keywords: territorial inequalities, use of space, rural development, spatial development.

Introduction

The European Union Rural Development Policy (RDP) for the period 2007–2013 sought to establish a coherent and sustainable framework for the future of Europe's rural areas and is closely related to the improvement of living conditions in the countryside involving aspects of housing, the environment, infrastructure, communication, employment possibilities, land management, etc. Such interventions were very welcome in many Central and Eastern European countries where land reform after the collapse of the Soviet regime has resulted in a worrying drift towards rural depopulation. It is expected that the land consolidation (LC) process will not only allow solutions to the structural problems of rural land but could also create viable rural areas through improvements to rural services and infrastructure, and incentives for economic diversification, etc. [Giedrius et al, 2013]. One of the main attractions for Hungary in relation to the EU accession was joining a more developed region whose constitution declares that it helps the regions lagging behind to catch up and thus moderating the territorial inequalities. However, in the past 25 years fast economic development caused significant damage on the environment in the European Union, with resulting in global issues and problems in some areas. Such global issues expended to Hungary as well, since the change of regime and its economic and social transformation consequences started such processes which had unfavorable economic impacts on the country, namely the increase of territorial imbalances, the transformation of agricultural sector as well as the decrease in the role of domestic food industry. However, the rich natural endowments and their relatively untouched conditions are even internationally acknowledged resource-reserves of the country. Therefore, a basic question for Hungary (and its regions and micro-regions) is whether there is a development path in catching up to the member states of the EU which enables the country to get out of the lagging behind status while it preserves its valuable natural resources and cultural and social roots [Mozsgai, 2011].

Researches show that multifunctional agriculture has been commonly recognized in peri-urban areas - a phenomenon that includes a large variety of activities and diversification approaches within the context of environmental, social and economic functions of agriculture. In response to the post-productive, consumption-oriented requirements of the urban society, peri-urban farmers have intensified their uptake of multifunctional activities [Zasada, 2011]. Due to of its multifunctional character, the Hungarian rural economy plays much more important role in the national economy than it is reflected by its contribution to the GDP [Baranyi, 2004], thus one of the main challenges of Hungary in the catching up process is whether the desired quality of life and environment as well as

the development of the agricultural sector in the rural areas can be reached in a way where the economic development paths are also followed. In our study we intended to give an overview on the use of space in the development of rural areas in Hungary.

Due to the country's geographical and ecological conditions, as well as its traditional trade relations, the agricultural sector plays more significant role than in the more developed industrialized countries. It is obviously reflected not only in its contribution to the GDP but in the complex relationships how it influences the life of rural areas. However, its role in the national economy gradually decreased over the past few years, but it did not change the fact that everyone is considered customer of agricultural products as well as beneficiary of the environmental and landscape conservation work carried out in the rural areas. Therefore, the agriculture of Hungary – due to its multifunctional role – is a much more important sector of the national economy than just considering its contribution to the GDP. The sector still plays important role in using the favorable ecological endowments, in the rural development, employment of rural population, the improvement of quality of life as well as in the conservation and development of cultural values. Its role in stabilizing the economy is significant due to its positive foreign trade balance. It is not surprising since 70% of the country's territory is used in agriculture, there are favorable climate, water and landscape conditions, there is sufficient workforce and technical equipment to do high quality production and the secondary and tertiary education system is also of high quality. At the same time, Hungary has poor reserves in other resources and energy sources, thus it is very much dependent on such imports.

Hungary has such natural endowments (economic geographical and weather conditions, biological resources, production cultures) and human resource capacities which may provide comparative advantage compared to most of the European countries. However, the question in relation with the Hungarian rural sector is not whether the agriculture is a leading sector of modernization or not, rather whether it is able to continue its efforts to get out of the deep crisis resulted from the change of regime [Jámbor, 2012]. The dramatic decrease in the production volumes, in the number of livestock, the debated ownership issues, the financial difficulties, the break in the integration chains, the decreasing motivation, the dependence on purchasing players, the lack of representing interest, as well as the rate of unemployment in rural areas urged the stabilization process as well as the cooperation between the sectoral players and the government. It was not only the EU accession which influenced the Hungarian rural strategy, but the reconstruction and the socio-policy also had to consider the really potentials and aims of the rural areas, not to mention that the domestic food supply should remain a strategic issue for every country. Based on the abovementioned, the efficient use of land as well as in broader terms the use of space is a key issue in the development of the Hungarian countryside.

Materials and methods

In this chapter, giving an overview on the literature of land, we intend to focus on the importance of land as well as the methodologies for measuring its value. Due to the economic and social development, the continuous changes in the agricultural sector, the changes in the value of land in resource management, the economic value and the rational use of land as a natural resource require scientifically established and justified economic policy decisions [Lökös et al. 1984]. The soil, which a unique national treasure and which cannot be substituted by any other resources, has several fundamental functions in the society. The analysis of such functions and its relationships to other factors is necessary to judge the nature of related legal, economic and economic geographical issues [Szűcs, 1993]. Soil is the fundamental resource and the basis of agricultural production. It has direct and indirect impact on the production [Szűcs, 1986]. It is also the basis of the existence of a nation, since it provides space for all the sectors, it is also the scene of the social existence and the development. Its value from this approach cannot be defined, since we live in a world with country borders. In this context, we face the limited amount of land, since the size of the territory of the country does not change over the time. There is a general approach that in the use of land, both private and common interest should be aimed.

Land use can be interpreted in various forms considering the findings of different scientific fields. Based on the abovementioned, it can be stated that soil is a renewable resource, meaning that it does not loose from its value, moreover, its value can be increased by appropriate methods. The most important land use feature might be that it allows various forms of use and combinations of sectors

(which is not true for other important natural resources [Szabó, 1975]. Considering all the abovementioned, there can be two objectives of the society in using agricultural land. On one hand the agricultural production, on the other hand, environment management [Petrasovits, 1982]. Within the agricultural land use, we can distinguish the conventional and the rational land use. Conventional land use means that it is adjusted and harmonized with the structure of production as well as the local conditions. This is when the production is much dependent on the natural resources. The rational land use is a practice of a higher production level, since it requires the optimization of several conditions.

This type of land use takes the production, scientific, technical, agrarian and demographic conditions into consideration and intends to harmonize them to the land. In addition, it also considers the settlement development demands as well as the requirements of their short-, middle-, and long-term harmonization with the strategies. In this way of land use, the adaptation to the local ecological endowments is carried out while aiming at the least possible damage on the environment [Petrasovits, 1979]. According to Szűcs [1990], land use system includes „... all the land use forms applied on the territory within the country borders as well as all the conditions that determine the use and the cost-yield relations.” Therefore, all the activities should also be considered which use the land apart from agriculture. Land represents an important resource for the economic life of a majority of people in the world. The way people handle and use land resources impacts their social and economic well-being as well as the sustained quality of land resources. Land use planning is also integral to water resources development and management for agriculture, industry, drinking water, and power generation [M. V. Rao et al, 2015]. Thus, the system of land use should be the complex analysis of the use of space by industries and services, too. Professional literature defines four categories in the system [Kornai 1970, Horváth, 1973, Bartke, 1981, Csáki, 1982]:

1. general systems,
2. life science systems,
3. socio-economic systems,
4. farming systems.

The various forms of the use of surface, the related inputs, the relations created during its use as well as the products resulted from its use, all represent the sub-systems of land use. After collecting the literature from Hungarian authors about the sub-systems, we could see that the production purpose use is dominant in most theories.

Results and discussion

Based on the literature review, we considered the sub-systems defined by Szűcs as a basis, since it was the only one which included other approaches and types of use in the analysis. Of course, as the economy is developing, we can add further sub-systems and categories into the model. Therefore, improving the model of Szűcs, we consider the following sub-systems as elements in the complex system of land use (1):

1. land use for agricultural purposes (F^m)
2. land use for forestry purposes (F^e)
3. land necessary for mineral production and mining (F^a)
4. land occupied for water management purposes (F^v)
5. land used in processing industry (F^i)
6. land used by the service sector (F^l)
7. land used for recreational purposes (F^r)
8. land occupied by infrastructure (F^{in})
9. nature protection land (F^{lv})
10. land used for alternative energy production (F^{alt}).

The land use forms listed above basically cover the whole territory of countries, also in the case of Hungary:

$$(F^m)+(F^e)+(F^a)+(F^v)+(F^i)+(F^l)+(F^r)+(F^{in})+(F^{lv})+(F^{alt})=93.040 \text{ km}^2 \quad (1)$$

Based on former researches, it can be stated that defining the real value of land/space is a complicated issue, since land is not only the basic resource of agriculture but it can be utilized in several other ways. Our responsibility is always to make rational decisions on the use of space, whether it should be used for agricultural purposes or should be given to other sectors. Moreover, such decisions must not be made considering only economic factors, since land should be assessed in a complex system. Based on our research, it can also be stated that the complex system of land use is a dynamic system with inputs and outputs. By measuring the input and output factors, we can get the economical indicator of land. Most of the elements of economical feature can be examined and can be statistically justified, but it has some internal and external links which cannot be measured or they do not represent equal values in the system (some activities and links have direct impact on the use of land, while other only have indirect influence).

Our study intends to emphasize that instead of focusing only on agricultural land use, there should be a shift to the application of a complex, rational system of the use of space, considering economic, social and sustainable factors as well. That is why spatial approaches are gradually spreading and having influence on the scientific researches on land in the world, though the spatial economic studies accumulated slower than general economics. It is because they are more complicated than the theoretical models in economics due to the fact that space is a dynamic and active element of analyses. It was approximately in the middle of the 20th century when such knowledge has been accumulated in spatial topics that theories, phenomena and research findings started to create a complex system spreading to all elements of the economy. Thus it can be considered as the birth of space-management systems. The use of space or the space-management can be considered as the most complex category of land use. It comprises all the renewable and non-renewable resources on and under the surface, as well as the infrastructural, economic and social coherences. This approach also proves that even natural resources which have no relations to each other and can be used independently have significant impact on the economic and social relations as well as the efficiency of use. Due to the interference, the use of one resource influences that of the other either positively or negatively, causing extra costs or decreasing competitiveness.

Consequently, resources available should be shared by the different sectors, since one type of use can be developed only if the others decline. Overall, such complex system of factors define the competitiveness of the given space, which – in our globalized world – requires the examination of competitive advantages, which is a more complicated than that of the comparative ones. Spatial examination is much broader than that of the location itself, since it covers the relationship to market, customers, spatial networks, as well as other dynamic factors. The fact that economy exists in space, was not respected by economics for long, since the focus was on creating value only and not on the dynamic complex systems of the economy. Space, the spatial and territorial, as well as geographical differences were not considered in the static, abstract models of economy. We believe that economy is distributed in and also linked by space and there are no places of the globe which have the same features and conditions.

As analyzing the spatial conditions of the economy, we can see several factors that prevent the balance in traditional sense. There are a lot of obstacles of balancing the profitability among regions or economic sectors. It means that the rational use of space could serve the creation of the conditions for profitable and sustainable activities in the rural areas of Hungary, highlighting the local specialties. Even if the bottom-up approach is greatly promoted and popular in the European Union, and should be applied in Hungary as well, the Hungarian countryside faces various challenges in this matter. Due to our historical and former economic policy characteristics, bottom-up approaches seem quite artificial and difficult to be applied especially in the rural areas lagging behind. Among others, the main reasons are the lack of necessary human resource, the lack of own financial resources for the development projects, the history in top-down measures, the strong link of the population to their place of residence (poor immobility motivation), the strong family relations as well as the existing territorial differences regarding business sectors, social conditions, ethnic minorities, imbalances in efficiency. Since – in the past years – there were no conscious and targeted measures to help the catching up of rural areas, which are dominated by agricultural production, they were left alone and according to the bottom-up expectations, they were supposed to define their own strategies. However, by the time the rural population recognized their unfavorable situation, the rural villages and small towns lost the young,

active and motivated group in the society. They have moved to the capital or other developed cities. The problem is that at the moment the regions compete with each other, instead of thinking in a complex way about the utilization of space, finding the role for each region in the complex national economy. Another important issue is sustainability. Many scientists as well as decision-makers only consider the profitability of developments and forget about the environmental sustainability, which should be highlighted especially in the rural areas. They usually forget that economic and profit results are not the only targets in development strategies, especially in rural areas several other social, environmental factors should be emphasized even if they are not profitable activities, but contribute to the conservation of natural resources and keeping the population in the countryside, as well as maintaining the standard of living.

Conclusions

Based on our study, it can be seen that space and rational use of space can be the real link between micro-, and macroeconomic analyses. If it is left out, only a one-sided link can be established. Spatial approach is the one of the most efficient tools to avoid one-sidedness, static and mechanical point of view. Spatial studies and the complex issue of the use of space force us to recognize that there are no sterile economic phenomena. There are best practices existing but we must not forget that each and every settlement, micro-region, regions should be examined individually and endogenous development strategies based on the area-specific conditions have to be applied. Unfortunately, despite of the EU development funds, including the cohesion funds, the Hungarian rural areas could not catch up with the developed regions, therefore the gap between the developed cities and poor rural areas drastically widened over the past years. It means that the use of such funds aiming at moderating the inequalities within the countries is not a success story in Hungary. If we look at the economic, social, demographic statistics and tendencies, the most underdeveloped rural areas (mainly along the borders) have become more depressed than earlier. In order to develop their economy, parallel, strategic measures gave to be taken, based on their own area-specific conditions. We believe that it can only be carried out in a combined strategy, having a clear and targeted governmental policy from the top (watching the country as a system of interdependent various places and conditions) and having a strong involvement of local players who have the knowledge about the local economy and society and have strong motivation to develop the region. As it is clear from the study, the development of complex, dynamic theoretical approaches and models is far not enough to achieve success. There is an important human resource need as well as the need for an integrated approach. If it is not the case, the rural areas are expected to continue their recession that generates huge costs for the whole country (taxpayers) and takes long time to realize.

References

1. Giedrius P, D. Morley, V. Maliene (2013): Rural development and challenges establishing sustainable land use in Eastern European countries, *Land use Policy* 30 (2013) 703-710, Elsevier
2. Mozsgai, K. (2011): A fenntartható regionális fejlesztések lehetőségei a nemzeti fejlesztési tervek célkitűzéseinek és intézkedéseinek tükrében (The possibilities of sustainable regional developments in the mirror of national development concepts and measures). PhD értekezés Gödöllő, 2011.
3. Zasada I. (2011): Multifunctional peri-urban agriculture-A review of societal demands and the provision of goods and services by farming, *Land Use Policy*, Elsevier, Volume 28, Issue 4, October 2011, pp. 639-648
4. Baranyi B. (2004): Gondolatok a periféria képződés történeti előzményeiről és következményeiről (Thoughts about the historical causes and consequences of the creation of periphery). *Tér és Társadalom* XVIII. 2. 1-21.
5. Jámbor A. (2012): Magyar érdekek a Közös Agrárpolitika érdekében (Hungarian interests in the favour of the Common Agricultural Policy). *Gazdálkodás* 56./1. 2012.
6. Lőkös, L. et al. (1984): *Agrárgazdaságtan (Agricultural economics)*. Mezőgazdasági Kiadó, Budapest.
7. Szűcs, I. (1993): *Járadéktermelés a mezőgazdaságban (Income production in agriculture)*. AKII kiadvány, Budapest

8. Szűcs, I. (1986): A földhasználat makroökonómiai modellje (Macroeconomic model of land use). Akadémiai doktori értekezés. Budapest.
9. Szabó, G. (1975): A mezőgazdasági termőföld gazdasági értékelése (The assessment of economic value of agricultural land). Akadémiai Kiadó, Budapest.
10. Petrasovits, I. (1982): A földhasználat stratégiai kérdése (Strategic issues of land use). Gödöllői Tudományos Napok, Kézirat, VIII. 31.-IX. 1.
11. Petrasovits, I. (1979): Melioráció és földhasználat (Melioration and land use). Gazdálkodás, 1979/4. sz.
12. Szűcs, I. (1990): Verseny és rendszerszemlélet a földhasznosításban (Competition and system theory in land use). Közgazdasági és Jogi Kiadó, Budapest.
13. M. V. Rao, V. Suresh Babu, Suman Chandra, G. Ravindra Chary (2015): Integrated Land Use Planning for Sustainable Agriculture and Rural Development, Apple Academic Press p. 382, ISBN 978-177-188-10-43
14. Kornai, J. (1970): Gazdasági rendszerelmélet és általános egyensúlyelmélet (Organizational theory in the economy, balance-theory). Közgazdasági Szemle, 1970/9. sz.
15. Horváth, L. (1973): Ipari rendszerelmélet (System theory on industries). Közgazdasági és Jogi Kiadó, Budapest.
16. Bartke, I. (1981): A területfejlesztési politika kialakításának és megvalósításának tapasztalatai a hetvenes évtizedben (The experience on the creation and realization of spatial development policy in the 70s). Akadémiai doktori értekezés. Budapest.
17. Csáki, CS. (1982): Mezőgazdasági rendszerek tervezése és prognosztizálása (The planning and forecasting of the agricultural systems). Közgazdasági és Jogi Kiadó, Budapest.
18. Naár-Tóth Zs., Molnár S, Vinogradov S. A. (2014): Impact of land use change on land value in Hungary, Annals of the Polish Association of Agricultural and Agribusiness Economists XVI:(6) pp. 500-504. ISSN 1508-3535