

Ph.D. School of Earth Sciences
University of Szeged, Faculty of Science and Informatics
Department of Economic and Social Geography

Agricultural and Rural Geographical Research with Case Studies from Bács-Kiskun County

Abstract of Ph.D. Thesis

Farkas Jenő Zsolt

Consultant: Dr. Bálint Csatári

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1. Introduction

It can be considered as one of the „debts” of the Hungarian geography that assessment of the change of domestic agriculture in geographical aspect after the system change and its impacts on the rural spaces – excepting some attempts – has still not performed. My thesis aims at an attempt to make such an analysis, since looking back upon the time passed from 1990, probably the most significant changes affecting the broadest social classes were intervened even in the agriculture and in the environmental, economic and social structures of the rural spaces.

In the beginning of the 2000s the preparation for the accession to the European Union and further our membership brought new challenges for the agricultural sector and our rural society. By this time in the developed regions of Europe due to the crisis of agricultural policy on Community-wide basis, its reform was on the agenda. In scope of it the conceptional bases as well as the supporting system of the agricultural policy were reformed. In the new Common Agricultural Policy (CAP) adopted after 2000 the model of the multifunctional agriculture become determinant and the partly independent rural development policy and its support were also appeared. Besides the above proceedings, agriculture faced social demands and environmental challenges, like the preservation of rural areas, or the local impacts of global climate change. As a consequence this process both in Europe and in Hungary the target and instrument system of the agricultural policy was transformed as well as the structure of the agricultural production, and respectively the role of the agriculture was changed within the rural economy and the rural societies. These changes pose many scientific questions, which need to be answered, and that was our motivation to do this research.

2. Background of research, targets

In the last half century, domestic agricultural geographical researches – especially by György Enyedi – have achieved significant professional acknowledgement also in the international academic life. However after 1990 within the domestic science of geography the agricultural geography was almost „empty”, nevertheless after 1990 mostly only the agricultural researchers published scientific articles, books in this thematic. Nevertheless the effacement of the agricultural geography in our country – differing from the international trends – was not followed by the broad presence, propagation. Therefore the more detailed geographical analysis of the processes was taken place after 1990 in the Hungarian agricultural development and in the rural spaces is mostly still expected.

The author started to deal with the examination of the certain factors of the subject as the civil servant of the Ministry of Agriculture and Rural Development (FVM) Bács-Kiskun County Agricultural Office dealing with the local supporting matters; primarily with the analysis of the characteristics of the farms registered in the Duna-Tisza köze, having headquarters in outer area as well as the changes of the use of land affecting the region. The PhD thesis was formed from these professional experiences, as well as from the results of basic and applied researches, which the author made at the Kecskemét Department of the Great Plain Institute of Centre of Regional Studies of HAS.

At the determination of the concept of the PhD thesis in the aspect of theory and content it was based therefore on the classical and actual subjects of the examination developed in the science literature both of the agricultural geography and the rural geography, completed also with the comparative analysis of the development of the the two sciences from the

point of view of the history of science. Therefore the drafted targets are featured of basic researches on the one part and such applied researches connecting to the practice of the Hungarian development of agriculture and rural spaces on the other part which shall assist in the future to place the agricultural and rural spaces of the county in orbit of a sustainable development according to our hopes.

On the above basis the thesis is divided into three major sections:

- The history of the evolvement and development of the agricultural and rural geography sciences were wished to represent in the first chapter from the point of view of the philosophy and history of science based on the international and domestic literature. In this scope our aim was to review their determinant theatics as well as the theoretical conceptions connecting to them, and to clarify the relation of the two disciplines to each other.
- In the next chapter we wished to summarize some of the aspects of agricultural development of the developed countries (USA, countries of the European Union) and Hungary. The aim of this review and examination of the literature was to analyse the impacts of agricultural and rural development policy on the environment (use of land, agricultural-environment protection) on the one part and the assessment of the present socio-economic role of the agriculture. Therewith, connecting to the Common Agricultural Policy we endeavoured to review the several determinations of the target fields – the rural spaces - of the rural development policy, respectively we made an attempt to adopt these space standardization in the domestic circumstances.
- In the last chapter our aim was to analyse the local impacts of the previously explored processes, in a special rural region having

importance in the aspect of agriculture as well chosen by ourselves: in Bács-Kiskun County. In scope of it as a continuation of the previous agricultural geographical assessments (Asztalos-Sárfalvi, 1960; Király-Mészáros, 1984) we wished to analyse the status and the conflicts of the agriculture and its sectors after 1990. Our examination featured basically by agricultural geography was completed with the detailed analysis of two themes that can be esteemed rural “geographical”, which can be connected especially to this field. These affect not only the agriculture but the future of the rural spaces as well, for example the drying which can be experienced in the Duna-Tisza köze and the question of the Duna-Tisza channel is linked up with it, as well as the status and the possibilities of the farming management in rural development.

3. The surveyed area, the applied methods and the data bases

During the choice of the geographical area of the research we sought primarily a rural region having strong agricultural traditions, but resulting from this facing special environmental, economical and social challenge. Finally, our choice was Bács-Kiskun County which on the basis of several features, and due to for example the share of the agriculture from the gross added value, the number of the registered farmers, the high rate of the factories having headquarters in outer area, the determinant nation-wide share from the vine, fruit and plough areas belongs to the dominant agricultural counties. Besides these factors the rate of the nature preserved areas is high and the Homokhátság situated in the Duna-Tisza köze within the area of county is one of the most environmentally sensitive area of

Hungary, of which landscape changes mainly determined by the drying process linked to the ground-water level falling.

The major part of the methods applied in thesis are the mathematical statistical (factor analysis, correlation) and geographical information system (GIS) methods which are generally known and applied in the science of geography. Besides these we applied a methodics classified in data mining techniques, which called artificial neural network on summary name. The method is wide-spreading applied in the geographical information system, for example for the analysis of the aerial photos, or in the researches modelling the changes of the use of land. Besides we found examples in the literature for the use of it for geographical and rural geographical purposes. We chose this method because its further application in the geographical research was proposed by several authors, respectively it was accounted better than the traditional static methods in many cases. Beyond that in our opinion the great advantage of the methodology of the artificial neural network is that it facilitates the processing of the numerical input data differing in their units of measure and dimensions.

The method was applied in the thesis to carrying out two classifying tasks:

- Primarily such types of geographical small region were determined which shall conform to the planning regions of the European regional and rural development ,
- secondly farms having headquarters in outer area were classified into types defined previously by us.

The applied data bases are heterogeneous, regarding both their content and format. Besides the basically alphanumerical data (economic, social) we broadly applied map data bases used in geographical information system, for example the Corine Land Cover or land cover change. The data concerning to the agriculture are basically originating from three places,

from the Hungarian Central Statistical Office (HSCO) (ÁMÖ county annual reports), from the Ministry of Agriculture and Rural Development (FVM) Bács-Kiskun County Agricultural Office, and from the Agricultural and Rural Development Agency. These were completed with the T-STAR data base of HSCO and information can be found in other planning-developing documents relevant in the aspect of the subject.

4. Results of the research

Major results of the analysis of the science history

In our comparative science historical survey we explored the major milestones of the development of the agricultural and rural geography in uniform structure, both in domestic and in international relation. Besides that the analysis of the thematic, methodical connection between the two sub-disciplines was studied with emphasis, and on the basis of these the determination of their places taken in the system of the geography. The major results of our research are as follows:

- we completed and respectively made more exact the previous national information relating to the date of establishing, the agricultural geography as well as its circumstances and thematic,
- we established that all of the major changes of paradigm affected the two sub-disciplines, from spreading the quantitative analysis methods to the cultural geographical turn.,
- consequently the two sciences has experienced considerable changes both in its thematic and in analysing methods since its establishing,
- we ascertained that the agricultural geography parallel with the decline of the employment of the agriculture in the economy of the

developed countries lose from its importance filled in the science of geography and due to it the agricultural geographers started to deal with a more complex subject from the beginning of 1970: they started to deal with the rural changes, within the frames of the new rural geography. ,

- the mobility of the researchers between the two sciences was realised in the „Eastern block” with the delay of 15-20 years, mainly after the East-European political changes,
- according to our results it can be esteemed a Hungarian speciality that in our country this flow was not realised, moreover the researchers of the rural geography of today come from the side of the settlement geography (farm and village research) to practice the new discipline,
- linked to the above ascertainment we called the attention that the elaboration of the questions of the agriculture after the system change in broad geographical aspect – partly because of “leaving the profession” – was not performed yet in Hungary,
- we ascertained that the geographical information system and its application in the agricultural production open new possibilities in the survey of the traditional and important thematic – of the production features of the factories and gynaecium - having importance even today.

Instructions of the agricultural development of the developed countries and Hungary

The aim of our research in this field was basically the review of the development of the agriculture and the rural spaces as well as the impacts of the agricultural policy relating to those in geographical aspect. In this scope we drafted the milestones of the agricultural development of the developed countries and Hungary and some questions basically determining the future development. Among these we particularly studied the increase of the political weigh, as well as the definition of the planning-developing types of regions of the rural areas. The results of our performed are summarized in the followings:

- on the basis of our review of literature we asceratined that the agricultural development of the developed countries after teh Second World War can be divided into two periods: the productivist period from 1945 until the beginning of the 1980s and the following period of the post-productivist transition,
- in the productivist period the most important aim of the agricultural policy was the increasing of the production, which was achieved by introducing industrial-like agricultural technologies and the support of the production on the basis of quantity,
- the impact of the agricultural policy was manifested in the intensification, modernization, adjustment to the subventions of the agricultural production in that time and in the “eroding” of landscape values of the rural spaces, in the reducing of the landscape ecological and biodiversity.
- In the period of the transition of the post-productivist due to the environmental, market and social limits the introduction of new conceptions, supporting aims and instruments become required in

the developed countries, for example the agri-environment management, the multifunctional agriculture, or the complex rural development building on regional,

- the important feature of this period is that the role of the agriculture was strongly decline within the economy and the society, which resulted the appearance of such problems in the rural areas as the accelerated reduction of the agricultural areas,
- we ascertained that the main processes and trends featuring the agriculture of the developed countries – despite of the differences of the owner and property structures – due to the identical political aims they had determinant role in the change of the Hungarian agriculture as well,
- on the basis of the comparative analysis of the european and the Hungarian development of the agriculture the belated development of this latter was highlighted as important difference, as well as the lack of the middle and long-term strategic planning and the unreasonable dominance of the sectoral agricultural developments in these days instead of rural development on regional basis,
- due to the importance of the European level prominence of the rural development policy we defined the rural region types of the Hungarian small regions, which shall be applied in the planning and strategy formulating process of the agricultural and rural development in the future.

Instructions of the agricultural and rural development of Bács-Kiskun County after system change

The agricultural development of Bács-Kiskun County due to its environmental and social characteristics before the system change as well as after that differed from the other regions of the country in several aspects

The loss of the Eastern markets of the agriculture seriously affected the economy and the society of the county. Due to the role and the importance of the agriculture significantly changed in the beginning of the 1990s respecting the use of land, the rural economy and the society.

In order to explore the most important features of this change, similar to the geographical works of István Asztalos, Béla Sárfalvi, as well as Rezső Mászáros and László Király published in 1960 and in 1984 and according to the new, more complex approach to the rural geography we elaborated the environmental, economical and social characteristics of the agricultural production and its most important problems, and future challenges. The results of our analysis were summarized in the following establishments:

- after the system change the sectors of the agriculture of Bács-Kiskun County come to a crisis, from which they recovered successfully with the exception of the stock-farming by the beginning of the 2000s,
- the compensation and the co-operative provisions of law changed the owner and property structure also in the county, of which most consequences are the separation of the land-owning and the use of land,
- the high rate of the hired areas in relation of the production, and the infiltration of the agricultural supports into the land prices and the

land-hiring fees, due to the latter the significant part of the income of the agricultural sector flows to the urban land-owners,

- due to the high rate of the nature preserved areas the special element of the agricultural development of the region after 1990 that the Kiskunsági Nemzeti Park become determinant land-owner and farmer of the agricultural sector,
- also consequently from the characteristics of the long-term agricultural development of the region a so-called family farming section was formed after the system change in a significant number, who shall constitute the economical-social basis of the agricultural development of the county in future on the basis of the sizes of their factories as well as their professional knowledge,
- after our accession to the European Union parallel with the increasing supports a property concentration process was initiated which makes possible the achievement of the economical size of property for further individual producers, and which process shall be necessary supported by any possible instruments in the future,
- in the county the number of the employees of the primary sector and the people linked in some form to the agriculture was reduced significantly after 1990, their number can be estimated for 120-140 thousand at present (approx. 25% of the population),
- according to our analysis it can be said that after 2004 the farming sector has grown steady, it is not affected by the social motion in a less degree,
- connecting to this the future problem of the sector shall be the ageing of the agricultural producers and the fact that in spite of the supports the number of the young farmers could not been increased,

- the explored changes of the use of land in the county are in contradiction with the environmental, economical and social processes, for example the stockings on the table-land performed against the drying or the increasing built-in areas along with the reducing number of population,
- in connection with it we ascertained that the agricultural supporting system does not serve the achievement of the sustainability of the region in wider sense in the present form, because the national and regional preferences are missing next from the priorities proposed by the European Union, and we do not have long-term strategic plans,
- from the period of the preparation for the accession to the European Union the plant production of the county is determined almost exclusively by the preferences of the agricultural supports, and as an impact of it, on 85% of the plough-land so-called “GOF” plants are grown at present,
- in the viney and fruit sectors due to the crisis the conditions of the plants of the county was damaged heavily, which was attempted to remedy with a planting programme between 1998-2004, and after 2004 contrary to it the vine plants cutting supports were determinant,
- the stock-farming of the region is fighting with problems continuously from 1990, by now its volume reduced with 60%, which reason is that both the standard level of the production of the grassland farming and the fodder crops strongly declined, and the producers (milk-meat) are the most exposed to the multinational retail chains, and the stricter regulation come into effect with

accession to the European Union demanded significant investment from the farmers,

- the landscape production specializations characterizing the county was successfully preserved partly in the agriculture after 1990,
- on the basis of the analysis of the factories, farms operating on the Homokhátság having headquarter in outer area it was ascertained that in the agricultural and rural development plans of the region the farms shall be taken into account further on, especially because the economy can be linked to them and the mosaic use of land shall facilitate the utilisation of the natural facilities in the best and ecologically beneficial way at the same time in this “sensitive” region,
- in connection with the global climate change and the drying we have prepared the impact assessment of the route plan of the Duna-Tisza channel concerning to the agricultural production, on which basis we ascertained that the channel construction shall be calculated upon only in the long-term (35-50 year) plans – in case of significant water shortage – on a real basis,
- We ascertained the possible tends of the sustainable rural development of Bács-Kiskun County such as the adaption to global climate change, the multifunctionality of agriculture, green technology, food industry and rural tourism.

5. Publications in the topic of the dissertation

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Farkas Jenő Zsolt – Csatári Bálint: A területhasználat változásai. – *Gazdálkodás*, 53. 2009. 5. 413–424. p.

Farkas Jenő Zsolt – Kanalas Imre: A mezőgazdaság fenntarthatóságának egy új lehetősége az Alföldön. In: *Helyünk a világban – alföldi válaszok a globalizáció folyamataira. IV. Alföld Kongresszus, 2008. november 27-28. Békéscsaba*. Szerk.: Belanka Cs., Duray B. Békéscsaba: MTA Regionális Kutatások Központja Alföldi Tudományos Intézet, 2009. 72–77. p.