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Ph.D. thesis

CONNECTIONS OF THE ECONOMIC, ECOLOGICAL AND SOCIAL FUNCTIONS OF RURAL DEVELOPMENT IN COMMUNITIES BORDERING THE HORTOBÁGY

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INTRODUCTION, PURPOSES

Joining the European Union is expected to be one of the most challenging events in the history and in the Hungarian agriculture. Therefore, establishing the conditions for sustainable development, in a manner, of course, reflecting the country's natural conditions, must be one of our key interests. The pre-conditions, however, should be realised within strict competitive disadvantages, as the amount of the projected subsidies will be far behind that which has been provided to-date, i.e. the pre-accession. Structural change should be the solution, in which bio-farming, cultural conditions and rural tourism may play important roles. Agricultural mass-production in Hungary got to a critical situation by the end of the 1980's. The agricultural income sources of rural areas decreased radically together with the collapse of the traditionally industrial regions, thus rural development has become an important issue for solving crises. The unfavourable situations of agricultural communities have been worsened due to the economic and social changes following 1990, which has led to the loss of work places, an increasing unemployment rate, migration of citizens of working age from these communities, therefore, a demographically ageing population. While the situation of the developed and relatively rich areas improved, the unfavourable conditions of agricultural regions turned to conserve in the 1990's, and the unemployment figures in the industry only worsened the situation. These agricultural rural areas became subjects of research and several attempts have been made to define them and to measure their development on the basis of Western European practices. Although a common approach does not exist at present, one of our many tasks before joining the European Union is to define our rural areas and to measure their development, in order to spread and utilise subsidies in a realistic way.

The connections between agriculture and rural development involve several unclarified economic issues, both in their inner systems and in Europe. These issues are especially true for the agricultural activities performed on the border areas of nature reserves and national parks, where environmental aspects have priority. Agriculture in these areas shows a tendency of farming in a traditionally and extensive way, which plays role even in maintaining and saving natural values. It is important to harmony the agriculture with nature conservation and to realise the social acceptance.

Are the industry and the third sector strong enough to take up the employees getting out from agriculture? What other alternative income sources are there for rural population where the

agriculture is loosing its population maintaining power? These are very important issues of the multifunctional agriculture in the EU, whose adaptation is necessary in Hungary. Several literatures for example see rural tourism as a cure-all for rural areas, which may supplement the income from agriculture. The alternative income sources of agriculture may be widened, for example with bio-farming, producing herbs, hungaricums, small animals, handicraft products within farm family or joint business.

I investigated the economic, ecological and social functions of rural development in four of the communities along the Hortobágy, namely in Balmazújváros, Hortobágy, Tiszacsege and Egyek. I started with the hypothesis that besides investigating subregions the objective examination of communities cannot be neglected under the special Hungarian conditions.

My purposes are the followings:

- To analyse the previous research aiming at outlining rural areas and measuring their development, and to carry out a method development, which shows the real development of communities from economic, ecological-environmental and social aspects.
- To analyse the changes of the role of agriculture by comparing the operations of old agricultural big firms with those of their successors.
- To systematise the effects, advantages and disadvantages of Hortobágy National Park in harmony with the economic, ecological-environmental and social lives of the examined communities.
- To make economic calculations of alternative income sources for family farms, such as for rural tourism, herb production and bio-farming.

METHOD

I started my research by studying the technical literature relating to the subject. I analysed 181 studies and 20 acts and regulations relating to the research for this dissertation. In addition to the literature on defining rural areas, rural development, agriculture, sustainability and rural tourism, I collected and analysed research on the communities I examined, as well.

I concentrated my study on four rural communities of the total twenty-two located bordering Hortobágy National Park. The score of communities form a statistical subregion and constitute a significant part of the Hortobágy National Park itself (Figure 1). The communities I chose for study are typical agricultural communities, thus, examining and measuring their development may be especially useful for further researchers, due to the proximity of the national park and the decreasing power of agriculture to sustain the communities in question.

Methods for Measuring Economic, Ecological-Environmental and Social Development of the Examined Communities

- I visited the chosen communities regularly and conducted detailed, monographic research. I collected all of the publications on these settlements. In addition to my own data collection, I obtained any remaining data from the Hungarian Central Statistical Office, the County Office of the Ministry of Agriculture and Rural Development in Hajdú-Bihar, The Employment Bureau in the County of Hajdú-Bihar and the T-STAR database. I held critical interviews with mayors, subregional managers, and other individuals in leading positions, which qualified them to report authoritatively on the lives of their communities.
- When analysing the economic, ecological-environmental and social development of the communities, I also collected data from the Directory of the Water Management and the Inspectorate of the Environment. I created indicators and devised a method for measuring the development of communities. While the Hungarian Central Statistical Office used a complex index containing 19 indicators, I analysed 116 indicators, 47 from economic aspects, 36 from ecological-environmental aspects and 33 from social aspects, and classified these into indicator groups within each function. I compared the indicators with the national average and showed their relative distance in percentage form. I then gave a score from -5 to +5 to a given indicator of a community, as seen in Table 1.

Figure 1: **Communities and the Hortobágy National Park**

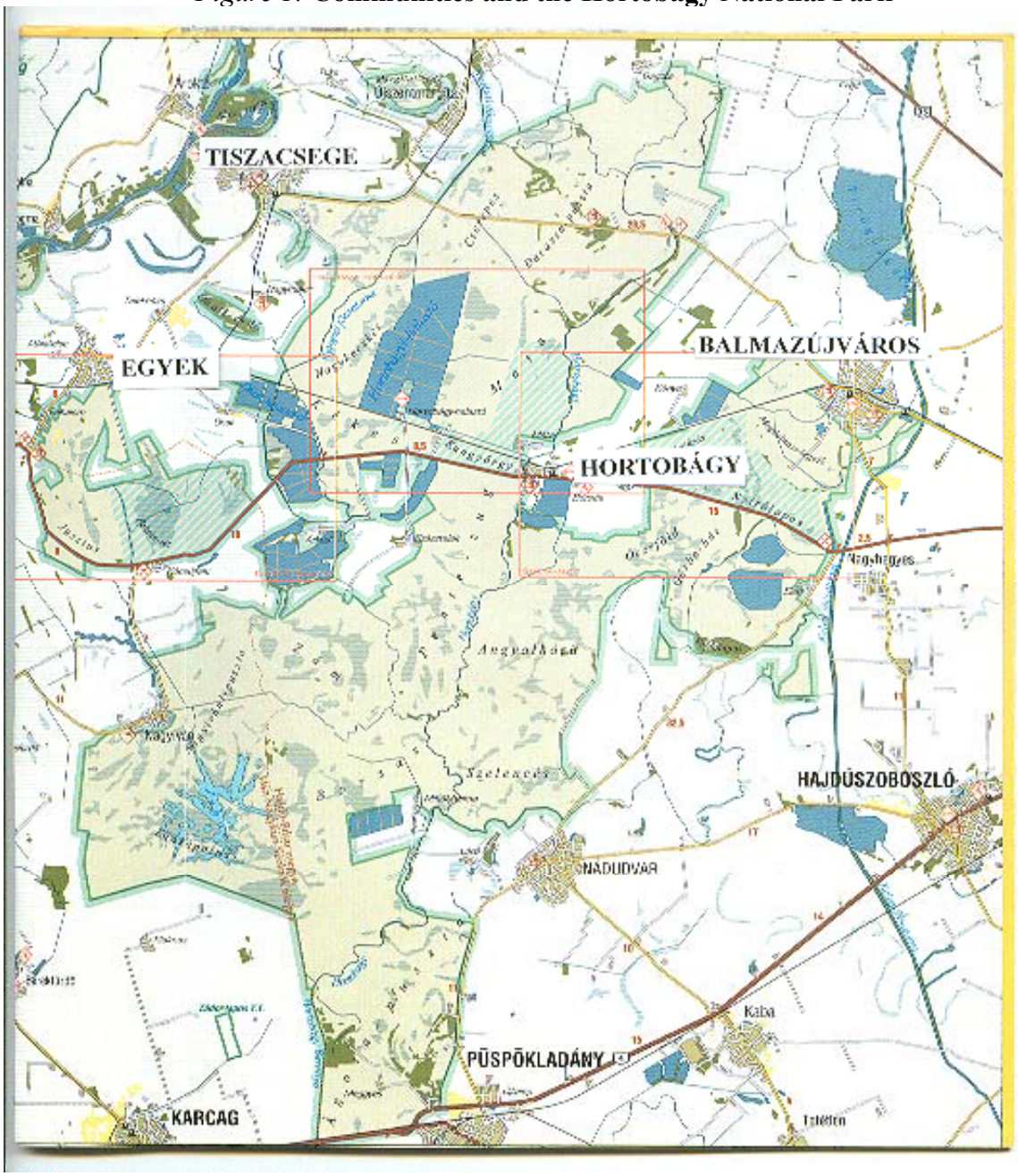


Table 1

Ranking the Indicators

Value of Indicators in Comparison with the National Average (%)	Score	Value of Indicators in Comparison with the National Average (%)	Score
101-120	1	99-80	-1
121-140	2	79-60	-2
141-160	3	59-40	-3
161-180	4	39-20	-4
>180	5	<20	-5

Note: 100% = 0 score

If a certain indicator is more favourable than the national average, it got a score from +1 to +5, if unfavourable, from -1 to -5. I used the reciprocal value of the % of converse indicators (e.g. unemployment rate). In this way, the results above 100% always show the favourable situation from the national average. I could calculate the so-called group number by counting the average of the scores of the indicators within specific indicator groups. In the end, I calculated the development of the given function by averaging the group numbers, which resulted in the category number of the given function. By using the category number, the settlements may be classified into either categories of development or underdevelopment (*Table 2*).

Table 2

Classification of Settlements into Categories of Development or Underdevelopment on the Basis of Category Numbers

Category Numbers	Categories of Development	Category Numbers	Categories of Underdevelopment
0,1-0,5	I.	-0,1-(-0,5)	-I.
0,6-1,0	II.	-0,6-(-1,0)	-II.
1,1-1,5	III.	-1,1-(-1,5)	-III.
1,6-2,0	IV.	-1,6-(-2,0)	-IV.
2,1-2,5	V.	-2,1-(-2,5)	-V.
2,6-3,0	VI.	-2,6-(-3,0)	-VI.
3,1-3,5	VII.	-3,1-(-3,5)	-VII.
3,6-4,0	VIII.	-3,6-(-4,0)	-VIII.
4,1-4,5	IX.	-4,1-(-4,5)	-IX.
4,6-5,0	X.	-4,6-(-5,0)	-X.

- I also recorded the development of the communities on the basis of local opinion. I conducted a survey among the population of the four settlements aimed at studying their living conditions and opinions about the economic, ecological-environmental and social development of the given community. I had 337 questionnaires filled out personally in 2002. The population sample represents the whole population of the examined communities, their selection occurred randomly.

Methods for Analysing the Changes in the Role of Agriculture

I made critical interviews with village managers, leaders of old large agricultural firms, and their successors. The results of these supplement the database obtained from the Association of Agricultural Producers in the County of Hajdú-Bihar, the Office of Taxation and Finance in the County of Hajdú-Bihar and the Hungarian Central Statistical Office. I utilised a comparative economic analysis on the basis of the normative practices used by the School of Farm Business Management in Debrecen.

Methods for Systematising the Effects, Advantages and Disadvantages of Hortobágy National Park

I utilised the results of critical interviews made with leaders of enterprises established bordering the Hortobágy National Park, and the answers to the questions of bio-farming, rural tourism and effects of Hortobágy in the already mentioned questionnaire. On the basis of these, I systematised the advantages and disadvantages of the national park from economic, ecological-environmental and social aspects.

Methods for Analysing Alternative Income Sources

- I studied the situation of rural tourism in the four settlements according to a statistical database.
- I made critical interviews with tourism managers in the communities.
- I carried out a survey among rural hosts in the communities in 2002, aimed at studying the conditions, prices, tourism nights and costs of rural tourism. 60% of the rural hosts made it into the sample.
- I made economic calculations for reflecting the cost - profit relations and returns of different investment conceptions of rural tourism and constructed a model, which is illustrated in Table 3.

Table 3

Model for Studying Cost - Profit Relations and Returns of Rural Tourism

Denomination		Input Data	Output Data
Service	1. Accommodation	Tourism Nights Prices of Accommodation, Breakfast and Dinner	Fixed Costs Variable Costs Revenue Net Income Gross Income Profitability Related to Costs Discounted Recovering Time Net Present Value
	2. Accommodation + Breakfast		
	3. Accommodation + Partial Board		
Investment Conception	1. Utilising the Already Existing Capacities		
	2. Renovating a Room		
	3. Renovating a Bathroom		
	4. Renovating Both a Room and a Bathroom		
	5. Building a Room		
	6. Building a Bathroom		
	7. Building Both a Room and a Bathroom		

This model is suitable for reflecting the costs, revenues, and incomes of rural tourism, as well as returns of investments for rural tourism by considering the discounted payment period and net present value by community, for three types of services and using seven investment conceptions.

- I made a joint economic analysis of alternative income sources typical of Hortobágy within a family farm. I based my calculations on technological plans, strengthened by the feedback from critical interviews with family farmers, herb producers and herb processors and bio-farmers.

IMPORTANT FINDINGS OF THE THESIS

My study focused on four issues: (1) measuring the development of communities, (2) showing the changes in the role of agriculture, (3) systematising the effects, advantages and disadvantages of Hortobágy National Park from economic, ecological-environmental and social aspects, and (4) making an economic analysis of alternative income sources typical of Hortobágy, such as the cost - profit relations and returns of rural tourism, and evaluation of alternative income sources for a family farm.

Measuring Development of the Examined Communities

To measure the development of the communities, I conducted monographic research and systematised the economic, ecological-environmental and social relations of the examined settlements according to the factors given in Table 4.

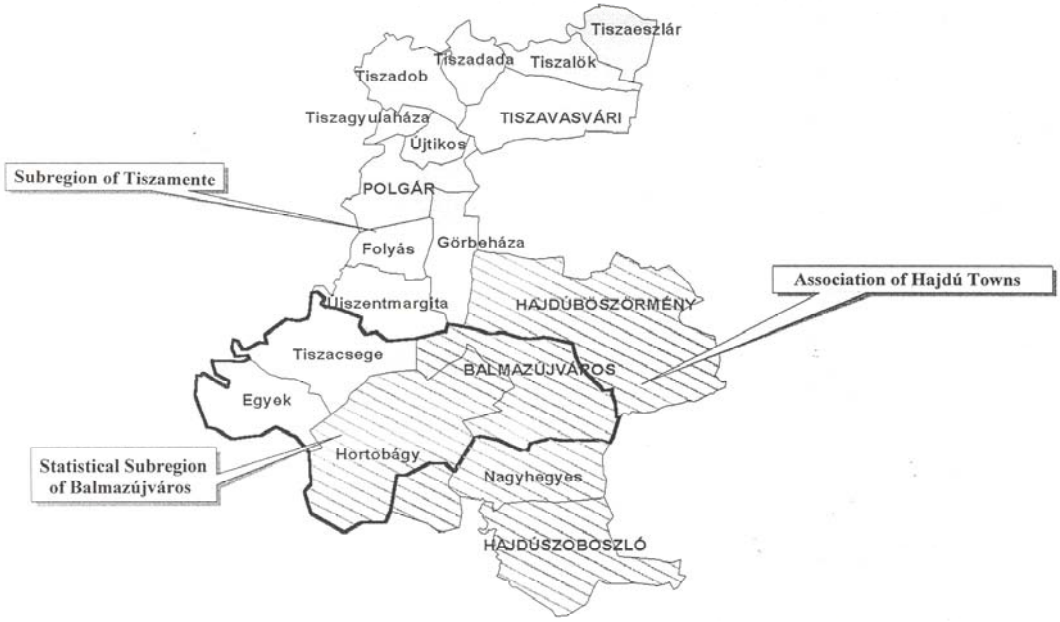
Table 4

Factors for Systematising the Communities on the Basis of the Three Functions of Rural Development

ECONOMY	ECOLOGY-ENVIRONMENT	SOCIETY
LOCATION, HISTORY		
Agriculture Industry Services Employment Technical Infrastructure Human Infrastructure Incomes, Taxes	Natural Conditions Built Environment	Demography Human Infrastructure Subsidies from Local Government Architectural values Culture

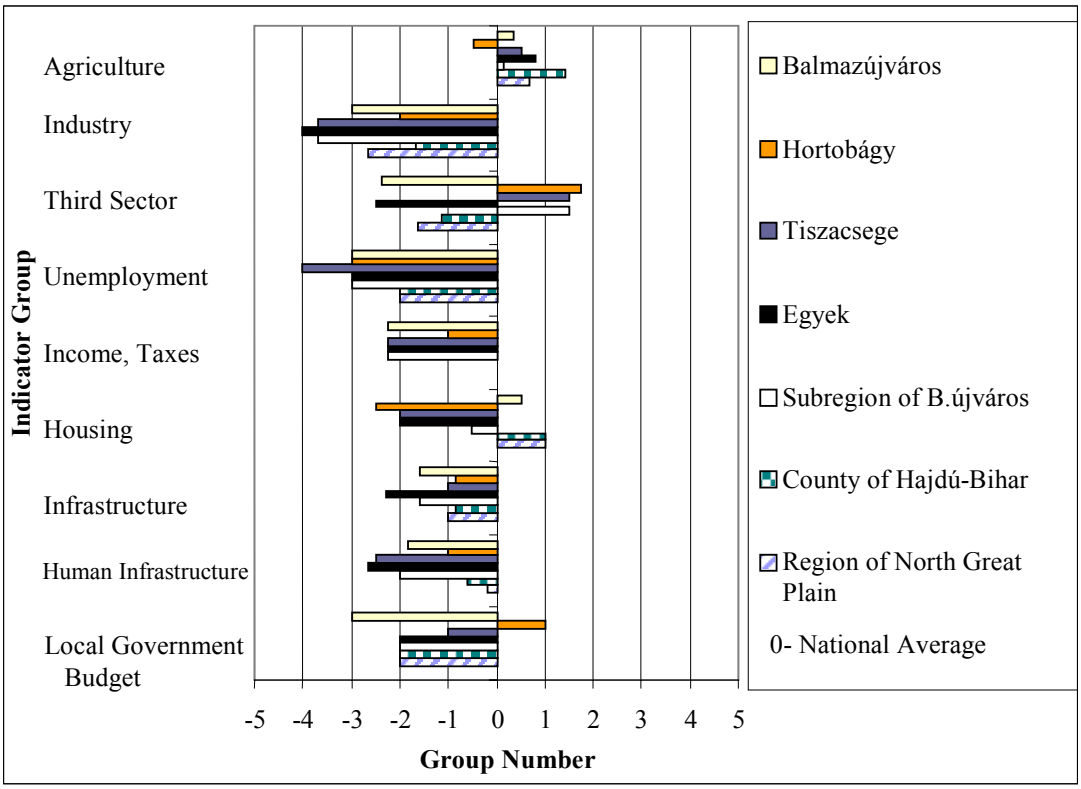
I started with the hypothesis that, in addition to investigating subregions, the objective examination of communities cannot be neglected when considering the special Hungarian economic conditions. Figure 2 illustrates the subregional relationships of the communities. My starting point was the complex index of the Hungarian Central Statistical Office, which showed a developmental ranking as follows: Hortobágy, Balmazújváros, Tiszacsege and Egyek. I analysed the economic, ecological-environmental and social development of the communities by separating the 19 indicators, and I concluded that complex indexes obscure the real consideration of the three functions of rural development and the possibility for comparing them on a community level. Furthermore, these 19 indicators are not enough to evaluate the situation, thus I raised the number of indicators as mentioned in the methodical section. I classified the economic, ecological-environmental and social indicators into indicator groups within each function, which make the determination of causes for underdevelopment possible. These causes are the following in the examined settlements:

Figure 2: **Connections of Communities of the Statistical Subregion of Balmazújváros**



- From economic aspects (Figure 3), the industrial conditions are unfavourable, the unemployment rate is high and the budget of the local government is low in Balmazújváros. Both technical and human infrastructure need to be developed.

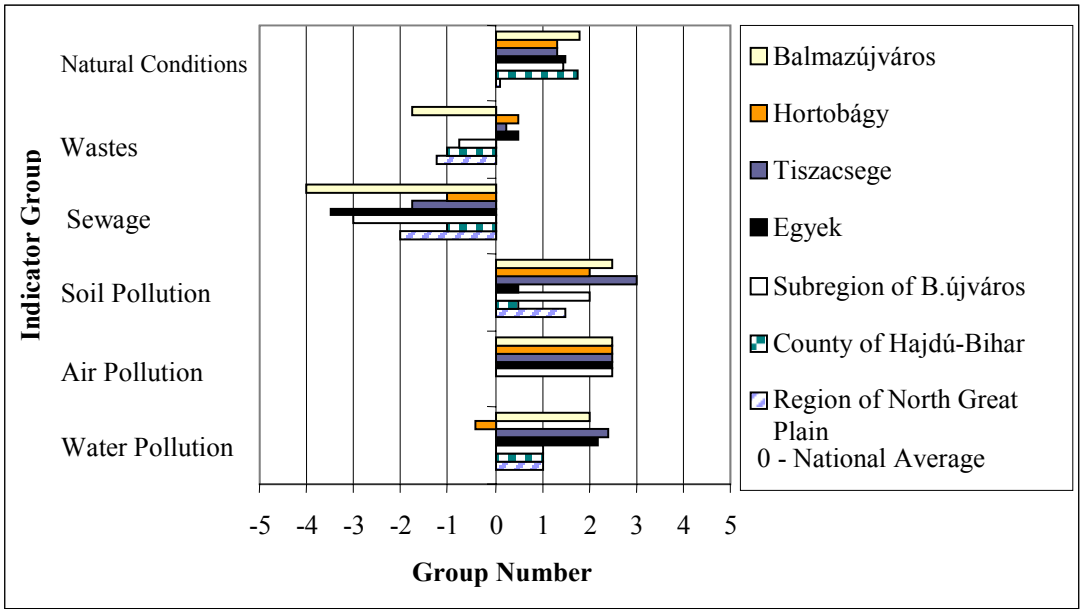
Figure 3: **Economic Indicator Groups According to the National Average**



The third sector has unfavourable conditions and the income of the population is very low. The unfavourable industrial conditions, the high unemployment rate and the improper housing situation cause problems in Hortobágy, where conventional agriculture does not have suitable conditions. The most important problem to be solved in Tiszacsege is to handle the high rate of unemployment. The unfavourable conditions of industry, the improper conditions of human infrastructure and the low income of the population need to be also improved. The main problem in Egyek is the weak industry, the high unemployment rate and regardless the agricultural sector, every indicator group is lagged behind. To sum up, the statistical subregion of Balmazújváros is lagged behind relating to industry, is a subregion typical of agriculture, the unemployment rate is high and the conditions for technical and human infrastructure need to be developed.

- From ecological and environmental aspects, the proper sewage and waste management is the main objective in Balmazújváros (Figure 4).

Figure 4: **Ecological-Environmental Indicator Groups According to the National Average**

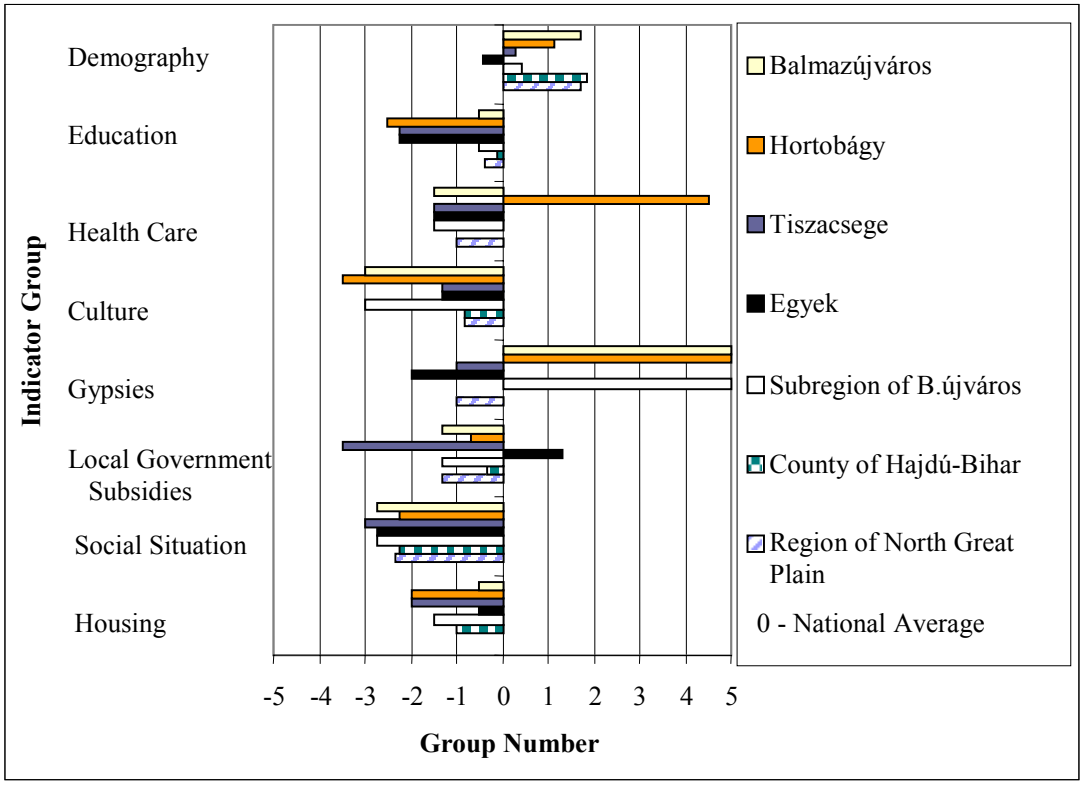


There are not any significantly lagging behind indicator groups in Hortobágy. Improper sewage management is considered to be a problem both in Tiszacsege and Egyek. The main problem of the statistical subregion of Balmazújváros which needs to be solved are the completion of the sewage network and the introduction of strict waste management, which are especially imperative due to the presence of Hortobágy National Park.

- From social aspects, the lack of community services and the improper handling of the social situation are the problems in Balmazújváros (Figure 5). The lack of community services, problems in education, social situation and housing are typical in Hortobágy. The rate of local government subsidies is high in Tiszacsege, the social situation is unfavourable and there are problems to be solved in the case of education and housing. Handling the social situation, education and the problems of gypsies are the main problems in Egyek. The statistical subregion of Balmazújváros may be characterised by unfavourable social situation and the lack of community services.

The methodical development justified the hypothesis that a few indicators are not enough to establish decisions objectively. New developmental orders emerged, as follows: Hortobágy, Tiszacsege, Balmazújváros and Egyek from economic aspects; Tiszacsege, Hortobágy, Egyek and Balmazújváros from ecological-environmental aspects; Hortobágy, Balmazújváros, Egyek and Tiszacsege from social aspects.

Figure 5: **Social Indicator Groups According to the National Average**



These are summarised in Figure 6, comparing the situation of the examined communities with those of the County of Hajdú-Bihar, the Region of North Great Plain and the national average. There were other developmental orders that emerged on the basis of the population survey. According to the questionnaires, the economy is under a more favourable condition. The population considered the ecological-environmental and social situation to be better than they actually were, in my calculations. Although it is relevant to record the opinion of the population for strengthening decisions in rural development, which may be of assistance for experts, only scientific research may provide an objective view on the development of communities. Table 5 summarises the results of different research studies and the developmental orders of the examined communities.

Figure 6: **Determining the Economic, Ecological-Environmental and Social Development of Settlements According to the National Average**

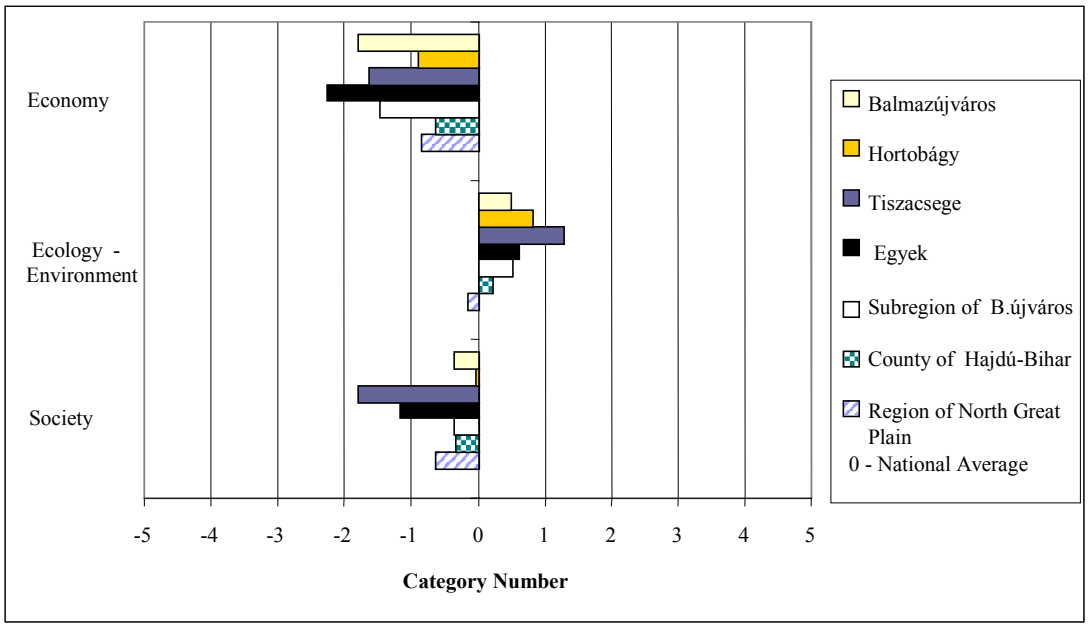


Table 5

Developmental Orders of the Examined Communities

HSCO	19 Indicators			New Method			Population		
	Economy	Ecology-Environment	Society	Economy	Ecology-Environment	Society	Economy	Ecology-Environment	Society
H	B	T	B	H	T	H	H	H	B
B	H	E	H	T	H	B	T	B	H
T	E	H	T	B	E	E	B	T	T
E	T	B	E	E	B	T	E	E	E

Note: HSCO - Hungarian Central Statistical Office, B - Balmazújváros, H - Hortobágy, T - Tiszacsege, E - Egyek

Changes in the Role of Agriculture

I tried to study the past and present situation of the agriculture in the examined communities. My original purpose was to investigate the resources, production structure and economic results of agriculture. It soon turned out that the database of the old large agricultural firms, such as the documents of general meetings, statistical reports on cultivation structure, animal stock and yields in the 1980s, had disappeared. I tried to reconstruct the past situation on the basis of meetings with the leaders of these larger firms, but I could not reach my original purpose. I studied only the changes in the personal income. I made calculations on the basis of the database of the Office of Hungarian Finance and Taxation, and utilised the data on personal income realised in the big firms. Finally, I had to realise that the results are debatable, thus I made a short summary on the past and present situation of the agriculture.

Agriculture used to play an important role in the income sources of the population, just as in any other rural settlements. The old large agricultural firms had relevant significance in employing local dwellers and maintaining the population. Due to their privatisation, the transformation of co-operatives and the state farm, the number of agricultural workers decreased radically. The number of agricultural employees decreased to 10 to 25% between 1985 and 2000 depending on the communities. The weaker population maintaining power of agriculture only further justifies emphasising the importance for development and alternative income sources.

The Effects, Advantages and Disadvantages of Hortobágy National Park on the Communities

A significant part of the communities' territory belongs to Hortobágy National Park (HNP). It determines the economic, ecological-environmental and social development of the communities, which goes with not only advantages but with disadvantages, too. This is especially true, since HNP came to be listed among World Heritage sites.

From an economic aspect, the national park is rather disadvantageous, despite its positive effects. There is a great contrast between the interests of agriculture and nature conservation. While the national park provides several opportunities for the economy due to its unique natural conditions, on the other hand, it also controls these opportunities because of strict environmental regulations. The national park urges the communities to develop their

infrastructural conditions and to realise environmental friendly investments. The HNP has a significant role in maintaining age-old traditions, organising and holding programs, events and markets, ensuring working facilities and preserving local crafts. However, all these responsibilities mean one-sided opportunities and, in some cases, restrictions for the local communities. It is relevant to prepare people living in this area that they will have to live together with the principles and aims of sustainable development.

Table 6 illustrates the effects, advantages and disadvantages of the HNP to the economic, ecological-environmental and social situation of the examined communities.

Table 6

The Effects of the Hortobágy National Park to the Economic, Ecological-Environmental and Social Situation of the Examined Communities

	ADVANTAGES	DISADVANTAGES
ECONOMY	• Bio-farming, herb production, native animals • Financial assistance from the National Agro-Environmental Program • Eco-tourism, rural tourism	• Unfavourable natural conditions for farming • Strictly controlled production • Only extensive agriculture • Limited development of industry • Damage by birds • Uncertainty of reed harvesting • Limited herb gathering and hunting • Restricted intensive tourism
ECOLOGY-ENVIRONMENT	• The biggest coherent sodic area in Europe • Low rate of pollution	• Strict technologies in waste management • Ecological burden of tourism
SOCIETY	• Traditions • Common events • Working facilities	• Limited opportunities for joint development with communities • One-sided working facilities • Emigration

Alternative Income Sources By the Hortobágy Area

I dealt mainly with rural tourism, then herb production and bio-farming from the several alternative income sources available in the Hortobágy area, within a family farm. According to the survey done among rural hosts in the examined communities, I could conclude that rural tourism is done mainly out of necessity, as the main reason for starting rural tourism is the need for supplementary income. One can hardly find anybody dealing with rural tourism in two of the communities. The average staying time is low, the tourism supply is one-sided, and, moreover, the utilisation of the available capacities is also low. The personal conditions for rural tourism are improper: more than half of the asked rural hosts do not speak any foreign language.

Rural tourism does not operate in the sense of its classical meaning. It is not attached to the agricultural sector and, furthermore, meals and organising programs can hardly be found among the services that are provided. Rural hosts cannot separate the variable costs incurring in rural tourism from the household budget, thus they are not aware of the profit coming from their activity.

In spite of these facts, this area is worth developing due to the presence of HNP. I modelled the effects of different investment conceptions. On the basis of my model, which is suitable for reflecting the cost - profit relations and returns of rural tourism, I concluded that any development or investment made (renovation, building) for the case of rural tourism, provide hardly bigger income than the utilisation of the already existing capacities (Table 7).

Table 7

Gross Income from Rural Tourism (HUF per One Tourism Night)

Community	Already Existing Capacities	Renovation			Building		
		Room	Bathroom	Room and Bathroom	Room	Bathroom	Room and Bathroom
Only Accommodation							
B.újváros	930	900	900	790	900	***1100***	975
Hortobágy	480	370	370	40	***-250***	360	80
Tiszacsege	840	790	790	630	630	935	730
Egyek	370	290	295	60	-60	370	180
Accommodation + Breakfast							
B.újváros	1250	1210	1210	1110	1220	***1415***	1290
Hortobágy	600	480	490	160	***-135***	480	190
Tiszacsege	1060	1000	1005	840	845	1150	940
Egyek	490	410	410	180	50	490	300
Accommodation + Partial Board							
B.újváros	1945	1910	1910	1805	1910	***2110***	1990
Hortobágy	1090	980	980	660	360	970	690
Tiszacsege	1455	1400	1400	1240	1240	1550	1340
Egyek	680	600	610	370	***250***	685	495

The expectable per tourism night gross income may range, from -250 to 1100 HUF when providing only accommodation, from -135 to 1415 HUF when providing accommodation and breakfast, and from 250 to 2110 HUF when providing accommodation and partial board. Besides utilisation of the already existing capacities, building and renovating a bathroom will promise extra profit.

As Table 8 shows, utilising the already existing capacities will return much sooner than the other investment conceptions: between the period from 0,3 to 3,9 years on the basis of the discounted payment period. The renovation conceptions will return between 0,9 to 18,7 years and the building conceptions between 2,3 to 49,0 years depending on service types. If a meal is also included in the services, the return conditions will be more favourable.

Table 8

The Discounted Payment Period of the Investment Conceptions (years)

Community	Already Existing Capacities	Renovation			Building		
		Room	Bathroom	Room and Bathroom	Room	Bathroom	Room and Bathroom
Only Accommodation							
B.újváros	0,7	2,0	1,8	3,2	10,7	4,1	11,2
Hortobágy	***3,9***	11,0	8,4	***18,7***	***49,0***	17,4	31,2
Tiszacsege	1,2	3,4	2,9	5,5	17,6	6,7	16,3
Egyek	3,6	10,2	7,9	17,2	41,1	14,8	27,8
Accommodation + Breakfast							
B.újváros	0,5	1,5	1,3	2,4	8,5	3,3	9,2
Hortobágy	3,1	8,8	7,0	14,7	42,2	15,2	28,2
Tiszacsege	1,0	2,7	2,4	4,4	14,9	5,7	14,2
Egyek	2,8	8,0	6,4	13,3	35,4	12,9	25,1
Accommodation + Partial Board							
B.újváros	***0,3***	1,0	***0,9***	1,5	5,9	***2,3***	6,6
Hortobágy	1,8	5,2	4,3	8,4	28,5	10,6	21,1
Tiszacsege	0,7	2,0	1,8	3,2	11,6	4,5	11,4
Egyek	2,0	5,9	4,8	9,6	28,7	10,6	21,7

Taking a 15 year-long working period into consideration, the calculation of the net present value also justifies the fact that utilising the already existing capacities and renovation of the bathroom are the most pursued activities in the ranking of investment conceptions.

I constructed a family farm model with 45 hectares considering the alternative income sources, which are in harmony with the natural and economic conditions provided by the Hortobágy area. The farm deals with bio-farming, such as herb production supplemented with rural tourism. Herb production and bio-farming comply with the requirements of HNP. Herb production has favourable natural and economic conditions in this area; there are two herb processing factories working in Balmazújváros. The lower yield of the wheat, millet, oat and red clover, all cultivated under ecological conditions, is compensated by the higher marketing price, and the Hortobágy Nature Conservation and Gene Preserving Public Company purchases these products within an integration relationship.

I worked out the crop rotations of camomile, wheat, millet, oat and red clover in a seven-year system realising altering revenue per year. I supposed that rural tourism and poultry keeping result in the same profit in each year. Table 9 shows the results of my calculations based on detailed technological planning.

Table 9

Gross Income of the Family Farm after Taxation (Static Model)

Crop Rotations	Plant Production	Poultry Keeping	Rural Tourism	Total	
	thousands HUF/year			thousands HUF/year	HUF/month
1. year	1760	246	146	2152	179300
2. year	1867	246	146	2259	188200
3. year	1576	246	146	1968	164000
4. year	1079	248	146	1473	122700
5. year	965	248	146	1359	113200
6. year	1259	248	146	1653	137700

The calculation shows that without any subsidies, a gross income of 113 to 188 thousands HUF may be reached in a month depending on the certain crop rotation, which ensures just a modest subsistence for a family of four (two adults and two children). Considering the examined subsidy sources, a gross income of even 350 to 425 thousands HUF may be reached, which may increase after EU accession and obtain further development sources.

NEW RESULTS OF THE THESIS

1. **I conducted monographic research and systematised the economic, ecological-environmental and social conditions of the examined communities.**

2. **I worked out a method of improvement for measuring the development of communities.** Recent research took only few indicators into consideration and focused on larger territorial units than a community, moreover they did not evaluate the economic, ecological and social situations separately. **In comparison with previous research, I analysed many more indicators, and handled them separately on a community level from economic, ecological-environmental and social aspects, in harmony with the three functions of rural development.** I studied 47 indicators from economic aspects, 36 from ecological-environmental aspects and 33 from social aspects. I classified these indicators into indicator groups within each function, which makes the causes for their lagging behind transparent. Group numbers show the development or disparity of indicator groups, the category numbers reflect all these according to their functions.

   While only Tiszacsege and Egyek were considered to be backward on the basis of the complex index of the Hungarian Central Statistical Office, my investigations showed that even Balmazújváros and Hortobágy proved to be lagged behind from both economic and social aspects.

   Measuring the development of communities may be comprehensive and based by using this new method, which may result in objective preparation of decisions in rural development and more rational spreading of subsidies.

3. **I systematised the effects, advantages and disadvantages of Hortobágy National Park.** Although the economic effects of the national park may turn positive in the future, they are considered to be negative at present. **It is relevant to obtain social acceptance and to prepare people living in this area due to the fact that they will have to live together with the principles and aims of sustainable development.**

   Extensive farming and alternative income sources relating to agriculture, such as bio-farming, herb production and rural tourism, may have greater significance in this region in the future. This opinion is confirmed by the decreasing population maintaining power of agriculture, the presence of Hortobágy National Park, the unique natural conditions unfavourable for farming, the financial subsidies from the National Agro-Environmental Program and imminent EU-accession. These may ensure the livelihood of workers leaving from the agricultural sector and the alternative income sources for agricultural workers.

4. **Rural tourism** from the alternative income sources typical of Hortobágy **does not operate in its classical sense.** It is not attached to the agricultural sector and one can hardly find anybody who provides even a meal or who organises programs for the guests.

Rural hosts cannot separate the variable costs incurred in rural tourism from the household budget, thus they are not aware of the profit they realise with this activity.

Despite these facts, this area is worth developing, mainly due to the presence of HNP. **I constructed a model for calculating the profit of rural tourism. This model is suitable for investigating the cost - profit relations and returns of rural tourism on the basis of the examined communities, three types of services and seven investment conceptions by using the methods of discounted payment period and net present value.** This model can be used in any community along the HNP.

Rural tourism may realise profit almost without any extra investment by utilising capacities more effectively that were used for other purposes in the past. If a meal is also included in the services, the cash-flow will be more favourable, thus the return will be more favourable. On the basis of my model, I concluded that **any development or investment made (renovation, building) for use in rural tourism provides hardly any increase in income over the continued utilisation of already existing capacities. Supposing a working period of 15 years, the calculations of the discounted payment period and net present value justify the fact that utilising the already existing capacities and renovation of a bathroom are the priorities, as seen in the ranking of investment conceptions.**

5. Rural tourism may contribute to supplement the income of less intensive and environmentally- friendly agriculture, and products may be marketed directly in this way.

   I concluded that alternative income sources, such as rural tourism, bio-farming, herb production and poultry keeping, **within a family farm of 45 hectares may realise only modest profit for a family of four.** When calculating financial subsidies, the gross income my be three times higher, which may rise further after the EU-accession and may result in sources for development. The results of the modelled farm draw attention to non-farm income facilities.

Although the examined communities have languished in disadvantageous conditions, they may have chances for development through rural development sources and by maintaining their traditions and co-operating with Hortobágy National Park. The economic development of this area is limited for agriculture. This refers to the improvement of the maintaining power of agriculture and to the special conditions of landscape. Thus the future of these communities depends mainly on other national economic branches and effects of other national development reaching this area.

These findings are useful for making decisions for the leaders and rural hosts of the concerned communities. Furthermore, certain results and literatures may be utilised in education, research and extension.

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