Quantification of Villages' and Rural Communities' Conditions

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Abstract:

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The presentation deals with the quantification of villages' and rural communities' conditions. Distributing financial sources of rural development among the regions is not an easy task. The authors confirm the fact that the results of different methods used for quantifying conditions may be dissimilar. The methods seem to be effective in Hungary which quantify the economic, ecological and social conditions of communities separately in harmony with the functions of rural development. The authors propose an international research, which use the same method to compare communities in the USA, in Europe and even in the candidate countries of the European Union.

Key words: rural development, rural communities, quantification, realistic distribution of financial resources.

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Introduction

There are several suggestions for defining the term "rural", though specialists in Europe have been considering an area as rural if agriculture and green area dominate there, the population density and even the ratio of built-up area is low and the majority of the population make a living by agriculture, game management and fishery (European Charter of Rural Areas, 1995).

Rural development aims at developing the activities that improve living conditions and income sources of rural population, preserving natural resources, environment and landscape as well as strengthening the supply of rural society. The three functions of rural development, such as **economic, ecological** and **social** functions, should prevail in harmony by strengthening each other (The Cork Declaration, 1996).

Villages and rural communities make up elemental parts of rural areas. There are huge differences among villages and rural communities all over the world, in Europe and even in Hungary. The structures of rural communities differ significantly in the USA and Europe. The differences appear in external marks and in contents. On the other hand there is correspondence between the political objects in Europe and in the USA. The communities lagged behind require extra assistance in compared to developed communities. This extra subsidy is needed not only for the sake of lagged behind communities, but for the whole country, as the development reacts to the country.

Quantification of villages' and rural communities' conditions is not an easy task even in Hungary. There have been several adjectives used for qualifying areas, villages, communities or coherent territories of the country. For example, the adjectives "developed-underdeveloped, favorable-unfavorable, depressed-, critical-, lagged behind-beneficiary" and so on, qualify the two poles of the situation. There have been several methodical approaches for the quantification of developed or underdeveloped conditions to aggregate a single index. A **complex index** was developed in Hungary (from 1 to 10), which is calculated from 19 indicators relating to e.g. from population density to transport conditions. The average of the complex index is 3,91 relating to the Hungarian communities. There are 1049 villages and rural communities having a complex index lower than the Hungarian average. These are the lagged behind communities including even most of the communities bordering the Hortobagy National Park.

Research Field

The Hortobagy National Park was found in 1973 as the first national park in Hungary with a territory of 52 thousands hectares that expanded with a nature conservation area of 11 thousands hectares.

The Hortobagy National Park in Hungary is a wonder of the World Heritages. The Hortobagy prairie ("puszta") has a territory of 200 thousands acres bordered by altogether 22 villages and rural communities. Even the pond fish of Hortobagy has been the part of the national park since 1999. Thus its territory reaches the 80 thousands hectares.

Its natural values attracts up to 200 thousands tourists every year. It has been the part of the World Heritages since 1999.

The communities bordering the Hortobagy belong to four counties as follows (Kollarik, 1999):

- County of Hajdu-Bihar: Balmazujvaros, Egyek, Tiszacsege, Hortobagy, Ujszentmargita, Gorbehaza, Nagyhegyes, Hajduszoboszlo, Hajduboszormeny, Nadudvar, Puspokladany

- County of Jasz-Nagykun-Szolnok: Karcag, Kunmadaras, Nagyivan, Tiszafured

- County of Heves: Poroszlo, Ujlorincfalva

- County of Borsod-Abauj-Zemplen: Arokto, Borsodivanka, Negyes, Tiszababolna, Tiszavalk

We concentrated on four rural communities of the total twenty-two located bordering Hortobagy National Park, namely Balmazujvaros, Hortobagy, Egyek and Tiszacsege. The score of communities form a statistical subregion and constitute a significant part of the Hortobagy National Park itself. They are situated in the County of Hajdu-Bihar and in the Region of North Great Plain. The communities we 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.

One third of the territory of Balmazujvaros belongs to the Hortobagy National Park, while the village Hortobagy constitute the central part of the national park. The Eastern part of Tiszacsege is the part of the national park, and Egyek makes the South-Western part of the national park.

The Hortobagy national park has positive and even negative effects to the economic, ecological and social conditions of the examined communities (*Table 1*).

Method

The condition of spreading subsidies more realistically and defining beneficiary subregions and settlements relating to the Structural Funds after accession is to reflect development and disparities with reliable indicators. There have been several regional studies in Hungary and even suggestions for defining rural areas. The Hungarian Central Statistical Office in 1999 ranked communities using a complex index containing 19 indicators (*Table 2*).

These indicators were determined for every settlement, the spread of the indicators was distributed at ten equal intervals. The indicators of a specific community were scored from one to ten, depending on the position of the indicators in the intervals. Finally, the average of the scoring resulted in the complex index relating to a given settlement, which has a national average of 3.91. Those settlements are considered to be underdeveloped whose complex index do not reach this national average. 1,051 settlements are considered to be underdeveloped according to this approach constituting near one third of all the settlements in Hungary.

- National Average: 3,91

- North Great Plain: 3,51

- County of Hajdu-Bihar: 3,49

- Statistical Subregion of Balmazujvaros: 3,42

                        1. Hortobagy   4,53

                        2. Balmazujvaros   4,37

                        3. Tiszacsege   3,32

                        4. Egyek   3,16

We 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 and a single **complex index** in not suitable for the quantification of villages' and rural communities' conditions (Nemessalyi, 2000). Our starting point was the complex index of the Hungarian Central Statistical Office, which showed a developmental ranking as follows: Hortobagy, Balmazujvaros, Tiszacsege and Egyek. We analyzed the economic, ecological and social development of the communities by separating the 19 indicators, and we 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 we raised the number of indicators as mentioned in the methodical section. We classified the economic, ecological and social indicators into indicator groups within each function, which make the determination of causes for underdevelopment possible.

While the Hungarian Central Statistical Office used a complex index containing 19 indicators, we analyzed 116 indicators, 47 from economic aspects, 36 from ecological aspects and 33 from social aspects, and classified these into indicator groups within each function. We 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 (Bainé Szabo, 2003).

If a certain indicator is more favorable than the national average, it got a score from +1 to +5, if unfavorable, 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 favorable 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, we 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.

Results

The methical development justified the hypothesis that a few indicators are not enough to establish decisions objectively. New developmental orders emerged, as follows: Hortobagy, Tiszacsege, Balmazujvaros and Egyek from economic aspects; Tiszacsege, Hortobagy, Egyek and Balmazujvaros from ecological aspects; Hortobagy, Balmazujvaros, Egyek and Tiszacsege from social aspects (*Table 3-5*).

These are summarized in *Table 6*, comparing the situation of the examined communities with those of the County of Hajdu-Bihar, the Region of North Great Plain and the national average (*Table 6*). *Table 7* summarizes the results of different research studies and the developmental orders of the examined communities (*Table 7*).

While only Tiszacsege and Egyek were considered to be backward on the basis of the complex index of the Hungarian Central Statistical Office, our investigations showed that even Balmazujvaros and Hortobagy 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. The economic, ecological and social conditions of communities should be handled separately according to the three functions of rural areas, in this way the financial sources for rural development may be distributed more realistic.

For improving our method, we separated these indicators into the indicator system of the efficiency (Nemessalyi et al., 2004). We concluded that there is not any indicator which shows the capital efficiency, the economic turn-over of inputs or profitability. In this way the number of indicators may be raised for quantifying development of rural communities to make the results more precise.

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Table 1: The Effects of the Hortobagy National Park to the Economic, Ecological and Social Situation of the Examined Communities

	ADVANTAGES	DISADVANTAGES
ECONOMY	- Bio-farming, herb production, native animals - Financial assistance from the National Agri-Environmental Program - Eco-tourism, rural tourism	- Unfavorable 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	- 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

Table 2. The 19 Indicators of the Complex Index Used by the Hungarian Central Statistical Office

1. Population density (inhab. per km^2)	11. Number of guest nights
2. Ratio of population above 60 (%)	12. Personal income (per capita HUF)
3. Migration deficiency	13. Built flats (%)
4. Educational level[1]	14. Water supply (%)
5. Employment in agriculture (%)	15. Canalization (meter)
6. Employment in the third sector (%)	16. Gas supply (%)
7. Change in employment in industry (%)	17. Number of cars (per 1000 inhab.)
8. Unemployment rate (%)	18. Telephone supply (per 1000 inhab.)
9. Number of enterprises (per 1000 inhab.)	19. Transport conditions[3]
10. Average AK-value (per hectare)[2]	

Source: Faluvegi (2000)

[1] - Number of levels completed by the population above 11; [2] - "The "taxable net income" of each parcel of land registered in the land cadastre was established almost a hundred years ago, in the execution of Act VII of 1875, and was later converted to Gold Crowns, the monetary unit of the Austro-Hungarian Monarchy. This valuation still serves a basis of valuating agricultural land for the purposes of taxation or redemption. The national average of taxable net income of all agricultural land was 19.46 Gold Crowns per hectare." (Szabo, 1977); [3] - converse indicator includes: distances from the centre of the subregion and the county centre, and own supplement

Table 3. Economic Indicator Groups According to the National Average

Indicator Groups	B.ujvaros	Hortobagy	Tiszacsege	Egyek	Subregion	County	Region
Agriculture	0.333	-0.467	0.533	0.800	0.133	1.400	0.667
Industry	-3.000	-2.000	-3.667	-4.000	-3.667	-1.667	-2.667
Third sector	-2.375	1.750	1.500	-2.500	1.500	-1.125	-1.625
Unemployment	-3.000	-3.000	-4.000	-3.000	-3.000	-2.000	-2.000
Income, taxes	-2.250	-1.000	-2.250	-2.250	-2.250	-1.000	0.885
Housing	0.500	-2.500	-2.000	-2.000	-0.500	1.000	1.000
Infrastructure	-1.571	-0.857	-1.000	-2.286	-1.571	-0.857	-1.000
Human infrastructure	-1.833	-1.000	-2.500	-2.667	-2.000	-0.600	-0.200
L.gov.budget	-3.000	1.000	-1.000	-2.000	-2.000	-2.000	-2.000

Table 4. Ecological Indicator Groups According to the National Average

Indicator Groups	B.ujvaros	Hortobagy	Tiszacsege	Egyek	Subregion	County	Region
Natural conditions	1.778	1.333	1.333	1.500	1.444	1.750	0.125
Wastes	-1.750	0.500	0.250	0.500	-0.750	-1.000	-1.250
Sewage	-4.000	-1.000	-1.750	-3.500	-3.000	-1.000	-2.000
Water pollution	2.000	-0.400	2.400	2.200	1.000	1.000	1.000
Air pollution	2.500	2.500	2.500	2.500	2.500	0.000	0.000
Soil pollution	2.500	2.000	3.000	0.500	2.000	0.500	1.500

Table 5. Social Indicator Groups According to the National Average

Indicator Groups	B.ujvaros	Hortobagy	Tiszacsege	Egyek	Subregion	County	Region
Demography	1.714	1.143	0.286	-0.429	0.429	1.857	1.714
Education	-0.500	-2.500	-2.250	-2.250	-0.500	-0.125	-0.375
Health care	-1.500	4.500	-1.500	-1.500	-1.500	0.000	-1.000
Culture	-3.000	-3.500	-1.333	-1.333	-3.000	-0.833	-0.833
Gypsies	5.000	5.000	-1.000	-2.000	5.000	0.000	-1.000
Local gov. subsidies	-1.333	-0.667	-3.500	1.333	-1.333	-0.333	-1.333
Social situation	-2.750	-2.250	-3.000	-2.750	-2.750	-2.250	-2.333
Housing	-0.500	-2.000	-2.000	-0.500	-1.500	-1.000	0.000

Table 6. Determining the Economic, Social and Ecological Development of Settlements According to the National Average

Functions	B.ujvaros	Hortobagy	Tiszacsege	Egyek	Subregion	County	Region
Economy	-1,800	-0,897	-1,598	-2,211	-1,484	-0,650	-0,869
Ecology	0,505	0,822	1,289	0,617	0,532	0,208	-0,104
Society	-0,359	-0,034	-1,787	-1,179	-0,368	-0,336	-0,645

Table 7. Developmental Orders of the Examined Communities

HSCO	19 Indicators			New Method		
	Economy	**Ecology**	**Society**	**Economy**	**Ecology**	**Society**
H	B	T	B	H	T	H
B	H	E	H	T	H	B
T	E	H	T	B	E	E
E	T	B	E	E	B	T

Note: HSCO - Hungarian Central Statistical Office,

B - Balmazujvaros, H - Hortobagy, T - Tiszacsege, E - Egyek