FACTORS INFLUENCING DEVELOPMENT LEVEL OF SETTLEMENTS IN SOUTH-TRANSDANUBIA
A TELEPÜLÉSEK FEJLETTSÉGI SZINTJÉNEK ALAKULÁSÁRA HATÓ TÉNYEZŐK DÉL-DUNÁNTÚLON

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ABSTRACT

Study delivers an overview on general approach of economic development being most commonly connected to GDP per capita values The given index, however – beside its advantages – shows up a number of disadvantages e.g. it can be calculated only on county- (NUTS III) level. A regional statistical classification system has already been created in Hungary but on the compulsory NUTS II level (regions) the development levels of counties, micro-regions and settlements are remarkably different. Development level is measured on settlement level by the author on the basis of 17 socio-economic and infrastructural factors. Results point out that differences between the development level of settlements failed to decrease, in contrary the gaps slightly increased by the end of the examined period as it is shown by the variation co-efficient of annually calculated Complex Development Index.

Keywords: regions, factors of development, complex development of settlements, measure of development

ÖSSZEFOGLALÁS

A szerző a a cikkben áttekintette a gazdasági fejlettség általános megközelítésének főbb nézőpontjait, amelyben elsődleges szerepet játszanak az egy főre jutó GDP alapján történő kategorizálások. Ennek a mutatónak sok előnye mellett számos hátránya is van, nem beszélve arról, hogy csak megyei (NUTS III.) tervezési-statisztikai szintre számítható. A területi statisztikai besorolás (NUTS) bevezetése megtörtént Magyarországon is, azonban NUTS II. (tehát régiós) szinten nagyon eltérő fejlettségű a megyék-, kistérségek-, illetve települések a jellemzőek. Ezért a szerzők településszinten mérték a fejlettséget 17 gazdasági-, társadalmi- és infrastrukturális mutató alapján. A kapott eredmények alapján megállapította, hogy a települések fejlettsége közötti differenciák, a vizsgált időszak végére nem csökkentek, sőt kissé emelkedtek, amit az általa számszerűsített Komplex Fejlettségi Mutató évenként kiszámított variációs koefficiense mutatott.

Kulcsszavak: régiók, fejlettségi tényezők, települések komplex fejlettsége, a fejlettség mérése

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RÉSZLETES ÖSSZEFOGLALÓ:

A szerző a regionális fejlettség, növekedés a fenntartható fejlődés aprólékos és széles körű szakirodalmi áttekintését adja a néhol átfedéssel használt fogalmi együttesnek. A gazdasági fejlettség általános megközelítésének főbb nézőpontjait, amelyben elsődleges szerepet játszanak az egy főre jutó GDP alapján történő kategorizálások, ennek egyik megnyilvánulása a triád módszerrel való megközelítés:

$$\frac{GDP}{lakónépesség} = \frac{GDP}{foglalkoztatottak} \cdot \frac{foglalkoztatottak}{munkaképes korúak} \cdot \frac{munkaképes korúak}{lakónépesség}$$

Ennek a mutatónak számos előnye több hátránnyal jár, az EU-ban is elfogadott a fejlettség településszintű vizsgálata. Ezt követve a szerző a fejlettséget 17 gazdasági-, társadalmi- és infrastrukturális mutató alapján számította a Dél-Dunántúli régió települései esetén. A mutatók nagyságrendje és mértékegysége is eltérő volt, ezért egy skálaösszehangoló transzformációval ezeket összeadhatóvá és átlagolhatóvá alakította, amelynek formulája a következő:

$$\frac{X_i - X_{min}}{R_x} \text{, ahol}$$

X_i = az adott településen az adott változó értéke,

X_{min}. = az adott változó legkisebb érték a települések között,

R_x = az adott mutató terjedelme.

INTRODUCTION

Development, growth and gain are used as synonyms not only in colloquial but also in scientific speech. The given abstractions indicate a certain change in time while development represents a stock/status-like value. Development levels of settlements are nominated in the paper on the basis of economic, social and infrastructural indices. It counts 17 variables having been chosen from decision no. 24/2001 of the Parliament. Based on the indices a development sequence of settlements was defined for the years in concern (2001-2004). Results point out that differences between development levels of settlements slightly increased.

Defining development and growth

In regional development both the categories of developing and economic growth have a key role, therefore the two words are often taken as synonyms. The well known book, Economics by Samuelson and Nordhaus also takes development and growth as identical phrases. (17).

Growth is basically a quantitative change while development is rather a qualitative category. (10). According to Nemes Nagy development only occurs when change is accompanied by certain values. The difference is that growth implies the changes of measures and scales but development always points at the changing of values (15).

Figure 1 shows the connections between growth and development.

Sets of development and growth – although they have an intersection – may fail to overlap each other, so it is possible to speak about growth without development
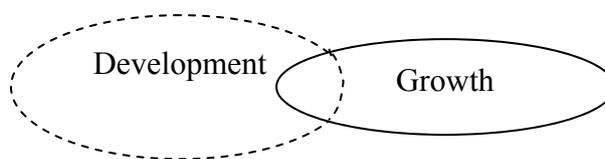

Figure 1.: Connection between development and growth
Source: 6

(e.g. suburban slumps) and also development without growth (e.g. human body). In Fig. 1 a dashline represents that theoretically development has no limits but barriers that can be eliminated and overcome (e.g. certain social-economic systems can obstruct human wellfare). Another difference is that growth can be accelerated, while development can only be assisted and supported. (6).

Expansion and development

In his book Madarász discusses expansion and development as factors influencing the economic basis of human life. He does not restrict the problem of progression to economic growth or development but points out that real development occurs only if it can affect all fields of human life. Categories of development are based on values since the definitions of development, retrogression or even backwardness depend tightly on the system of values (12).

Expansion can be taken as a process leading to development. Level of development is a status resulting from the process of development. Development level is a multifactorial phenomenon that can be reproduced by a number of statistical indices therefore measuring it is far from being a simple routine. (18).

Economic development and growth

Economic growth is taken by most authors as the positive percentage change of gross national/domestic product

(GNP/GDP) – or their per capita values – derived from two consecutive periods (19; 7; 4). According to Cameron economic growth in a society is a constantly growing tendency in producing all goods and services. Economic development is such an economic growth that is accompanied by substantive structural and organizational changes in the given economy ([4]). Basically neither economic development nor economic growth can be defined by absolute definitions, hence no single indicator is available to measure their dimension. Woll made it clear that picking out the appropriate indices is undoubtedly the task of the decision makers being in full knowledge about the problem in concern (19).

Sustainable development and growth

The given categories have also a range of different approaches. According to the most common definition „... development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (3). Agenda 21 document of the UNO Conference on Environment and Development defines sustainable development as a progressive development that fails to demolish or destroy the ecological, economic and social fundaments being to present the basis of its assumed continuous progress. (16). Sustainable economic growth, however, is a real-term increase of GDP per capita being threatened neither by biological (i.e. pollution, resources, problems) nor by social (i.e. poverty, social gaps) factors (9).

Regional development

Social-economic development follows an uneven spatial distribution pattern resulting in the fact that developed and under-developed regions are changing continuously, so the uneven development leads to new regional differences, therefore the definite positions of regions are always changing. The unevenly distributed development maintains the regional differences being mainly influenced by infrastructure, human resources, R&D, capital, geographical position, national policies and environmental quality (15).

In the 80s the accelerated integration of European Union (EU) was caused partly by the sharpening of global competition and partly by the ever slowing economic growth of the member states and it was followed by the highlighting of questions concerning competitiveness and cohesion. As for the social and economic cohesion, by the mid 90s it turned out that achieving cohesion requires more than sole financial support, it assumes the assistance in sustainable economic growth of the regions and that means to improve the competitiveness of the regions through narrowing the development gaps between them.

Significant changes have occurred in the Hungarian social and economic life since the transition. Previously remarkable differences reached more excessive values within the country. The presence of differences in development (social-, economic and cultural) is quite obvious since each territory has different ecological, economic and social potentials. The coexistence of developed and lagging regions is a permanent feature of a society. A strategic goal of the EU is to strengthen economic and social cohesion coming to effect in the terms of regional and social politics. The main objective of regional politics is to provide assistance in raising the underdeveloped regions by developing infrastructure, quality of human resources, R&D and through all these three factors improving the capital acquiring ability of the given region. These variables together are the main factors of regional competitiveness. Competitiveness, however, cannot be measured directly since it has no single descriptive index (2). In case of a unified competitiveness category the two main factors are the relatively high income (given in GDP per capita) and the relatively high employment level (represented by employment rate). Both of them can be measured alone but there is a notable interaction between them stating that GDP per capita can be derived from three separate elements through the following method (triad routine):

$$\frac{GDP}{population} = \frac{GDP}{employees} \cdot \frac{employees}{active\_age\_population} \cdot \frac{active\_age\_population}{total\_population}$$

According to the above formula regional competitiveness is the per capita income produced in the region and its growth rate, and that income is resulting from high levels of labour efficiency and employment. GDP, however, fails to be an accurate indicator of welfare so in case of analyzing a given region it can lead to false conclusions. The other problem is that the method builds only on output indicators and does not consider the factors influencing the competitiveness.

Economic development and establishment of market economy happened in a differentiated way in the individual regions resulting in increasing spatial differences. On one hand traditional, historical differences strengthened, and on the other new inequalities emerged. As a result of changes in politics then in the economy, the western border zone of the country became a dynamically developing area while border zones of South-Transdanubia, East- and North-Hungary turned to be lagging behind. The most obvious contrast can be observed comparing successful structural changes of Central-Hungary, West- and Central Transdanubia to the slow stabilization of North- and East Hungary as well as South-Transdanubia. Uneven patterns

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of spatial development occur not only on regional level but also within a region, on the level of the so-called micro regions (NUTS IV, that is, LAU 1 levels).

According to the above, one cannot speak about homogenous regions of the same development level in Hungary. It cannot even be done on the level of counties (NUTS III. level) Detailed picture can be obtained when the settlement level (NUTS V) or at least the microregional level (NUTS IV.) is analyzed. (5). Data available on these levels – after processing them by math-statistical methods – can deliver appropriate, realistic results and conclusions concerning the actual development level of the given settlement or micro-region.

Beneficiaries of Hungarian regional development policies are the micro-regions with development levels below the average. According to 24/2001 (IV.20.) decision of the Parliament the types and conditions of beneficiary territories are defined on the basis of economic, social, infrastructural and employment data. This definite categorization formed the essential fundament of designing the research project reported here.

Scientific asessment of regional development has been carried out by a number of authors, among them Lackó stating that spatial development includes the changes in the country, its areas and settlements as well as the interactions of the given changes. In his definitions, however the changes of values fail to appear but they highlight the economic, social and environmental elements of development (11). Enyedi points out that regional development includes the changes of living conditions and the quality of life (7).

The set of objective and tools of regional politics vary constantly, hence regional politics itself is changing continuously. At the beginning its basic aim was to eliminate regional inequalities but it soon turned out that full smoothing was an utopia, which cannot be achieved, so the basic approach had to be changed.

The report presented here is a part of a survey series aiming to analyze the South-Transdanubian region in Hungary, with the aim of determining the effects of grants and subsidies flowing into the region, their ability to induce changes in the development of settlements and to see if their development levels closed up to each other or not..

According to the above it seems to be obvious that the author focuses on the settlement level since preliminary surveys and personal interviews showed clearly that it is the level where development can be shown in a most visible way and the obtained data – when aggregated – form a good base to determine the development issues of higher territorial levels. The complexity of the database – as a settlement can obtain subsidies from various souces

– made the fulfillment of the goal indicated in the title rather difficult. Therefore exclusively the most traceable sources were involved in the study. N note that in the near future the data are to be updated through using the OTMR database and interviewing the mayors of settlements.

Project database

The project funded by OTKA (The National Scientific and Research Fund of Hungary) is performed in two distinct ways. This report summarizes the results obtained through the first approach. It includes the determination of the development level of settlements using mostly the T-Star database of the Central Statistical Office (KSH). The first component is to measure development by using a Complex Development Index, in the following way. All settlements of the region were classified by a single number ranging from 0 to 1 on the basis of 17 economic, social and infrastructural indices. At the year-ends of the investigated period the measure number was generated applying the tools offered by T-Star database. (Table 1.) Development level was determined by establishing a Complex Development Index (14.) that is quite similar to index set of the 24/2001 decision of the Parliament but contrary to the referred regulation the calculation was performed on settlement level (the original regulation determines the factors and indices on micro-regional level).

Measuring development levels of settlements

As it was described above the development levels of settlements were described by 17 economic, social and infrastructural categories having a range of different dimensions and scales. Therefore a common nominator was generated by the so called scale-harmonizing transformation given in the following way:

$$\frac{X_i - X_{min}}{R_x} \text{, where}$$

X_i = value of given variable in the given settlement,

$X_{min.}$ = the lowestvalue of the given variable among the settlements,

R_x = Range of variable.

Transformed variables could be added and their average could be calculated. The simple arithmetic average of the transformed variables generated the Complex Development Index. (14), showing the development level of a given settlement at a given time, from social, economic and infrastructural aspects. Using the dimensionless

Table 1 **Factors affecting development level of settlements**

Nr. of variable	Variable
1.	Population at end of year
2.	Population density
3.	60-x yrs old population
4.	Live birth
5.	Mortality
6.	Immigration
7.	Emigration
8.	Retail shops
9.	Guest-nights in commercial accommodations
10.	Flats built in year
11.	Flats on water pipeline
12.	Length of sewage drain per 1 km water pipeline
13.	Gas consuming homes
14.	Operating enterprises
15.	Cars
16.	Registered unemployed population
17.	Registered long-term unemployed population being unemployed over 180 days

Sources: Author's own design

Table 2 Most developed settlements of South-Transdanubia by the Complex Development Index in 2000-2004

Settlement	2000		2001		2002		2003		2004	
	value	rank	value k	Rank	value	rank	value	rank	value	rank
Szántód	0,468	1	0,453	1	0,479	1	0,514	1	0,554	1
Balatonföldvár	0,362	4	0,370	2	0,406	2	0,386	2	0,329	5
Pécs	0,367	3	0,344	4	0,394	3	0,359	4	0,347	3
Balatonmáriafürdő	0,373	2	0,351	3	0,380	6	0,322	9	0,324	6
Kozármisleny	0,337	5	0,314	6	0,389	5	0,379	3	0,373	2
Zamárdi	0,327	6	0,312	7	0,357	7	0,344	6	0,333	4
Siófok	0,305	9	0,297	9	0,336	10	0,319	10	0,300	10
Keszü	0,302	10	0,328	5	0,391	4	0,350	5	0,315	7
Kaposvár	0,308	8	0,293	10	0,339	9	0,315	12	0,285	16
Balatonlelle	0,298	12	0,286	11	0,317	17	0,317	11	0,297	11
Fonyód	0,295	13	0,266	20	0,314	19	0,301	16	0,275	19
Balatonboglár	0,294	14	0,276	14	0,319	14	0,323	8	0,295	13

Source: Author's own calculation

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indices it is possible to rank the settlements in the region at a given time. When generating the index no weighting was used, although attempts have been recently done for this purpose (13; 1).

RESULTS

The ranking of settlements offered various ways for analysis. In the project the settlements near the lower and the higher development poles were investigated and also the global smoothness of the development levels was assessed in different periods.

Table 2 shows that the set of settlements with highest CDI values is basically of the same composition, although the actual rank of the settlements can differ from year to year, with the exception of Kaposvár, since the county town of Somogy dropped out ofthe "club" in years 2003 and 2004 (ranked respectively 12 and 16.) The table also

shows that the "elite members" are all either municipality towns or settlements on the Southern shore of Lake Balaton. Please note that among the latter ones Szántód picked the pole position in each year.

Now let us have a look at the lagging settlements.

The pattern is the same here, the poorest settlements are the same in the investigated period. They can be characterized as low populated "blind" villages being fairly far from center settlements, having high rates of aged inhabitants, high unemployment rate, and low rates of built flats.

A smoothness survey was also performed on the basis of the deviation values described in various methodological studies. Min-max and range analysis, standard deviation and variation coefficient were picked and calculated for each year of the period. Results are shown in Table 4.

Deviation data show that differences between the

Table 3 Least developed settlements of South-Transdanubiaby the Complex Development Index in 2000-2004

Settlement	2000		2001		2002		2003		2004	
	value	rank	value	rank	value	rank	value	rank	value	rank
Sumony	0,111	635	0,101	638	0,109	643	0,092	651	0,088	647
Szentborbás	0,099	644	0,141	409	0,123	634	0,108	645	0,091	645
Szilvásszentmárton	0,118	619	0,090	648	0,097	649	0,137	562	0,103	626
Péterhida	0,093	647	0,100	640	0,087	653	0,135	573	0,122	546
Almáskeresztúr	0,090	649	0,088	650	0,146	579	0,123	624	0,062	654
Hács	0,099	643	0,086	651	0,105	645	0,103	648	0,128	504
Sósvertike	0,113	634	0,091	647	0,088	652	0,091	652	0,107	618
Kaposkeresztúr	0,096	645	0,106	626	0,111	641	0,125	616	0,075	653
Rinyaszentkirály	0,077	653	0,090	649	0,099	648	0,104	647	0,098	633
Kisbajom	0,081	652	0,076	653	0,093	651	0,101	649	0,113	599
Zákányfalu	0,070	654	0,072	654	0,075	654	0,077	654	0,119	563

Source: Author's own calculation

Table 4 Main deviation values of Complex Development Index in the period of 2000-2004

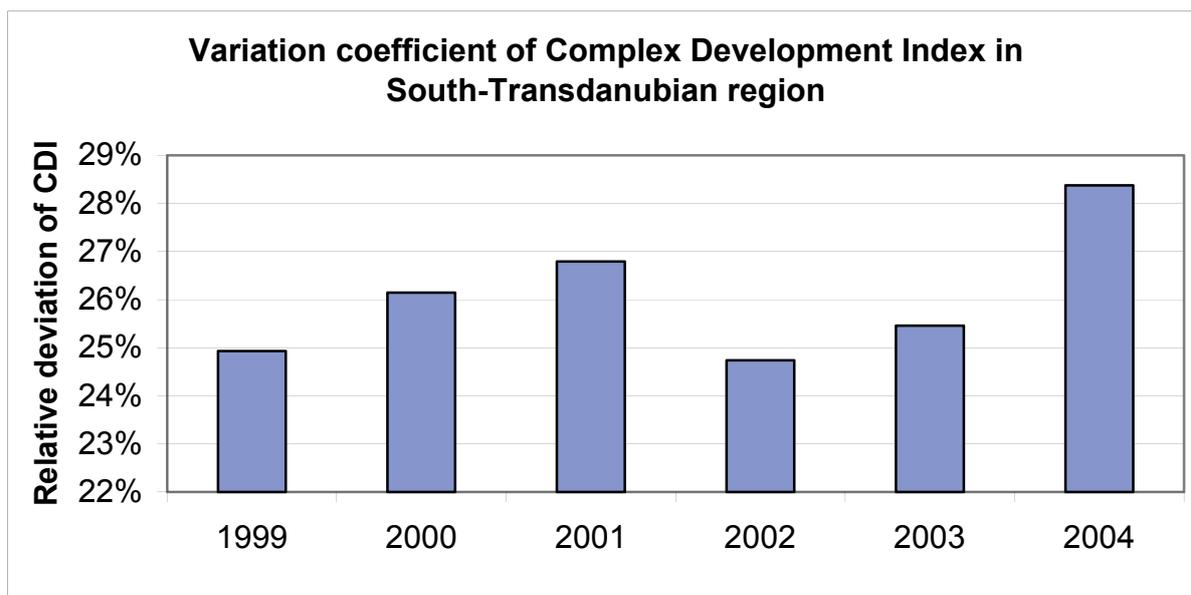|	2000	2001	2002	2003	2004
Minimum	0,044	0,042	0,047	0,044	0,045
Maximum	0,468	0,453	0,479	0,514	0,554
Range	0,424	0,411	0,432	0,470	0,509
Stand. deviation	0,044	0,043	0,047	0,045	0,045
Coefficient of variation	*0,261*	*0,267*	*0,247*	*0,255*	*0,284*

Source: Author's own calculation

Figure 2: Variation coefficients of CDI
Source: Author's own calculation

settlements were growing during the studied period. Range analysis showed a value of 0.411 in 2001 while by 2004 it increased to 0.509. Standard deviation also increased as well as the most "talkative" indicator, the coefficient of variation . It can be observed that values of the latter were slightly growing in the studied years (excluding 2002) reaching the maximum in 2004. So in terms of time no closing up in development was achieved, just in the contrary, the gaps slightly widened (see Figure 2.).

CONCLUSIONS

When estimating economic development categorization by GDP per capita has a key role. Beside its numerous advantages the index also has remarkable disadvantages, not to speak about the fact that it cannot be calculated on every statistical level. Territorial statistical categorization (NUTS) was introduced to Hungary but considering the obligatory region level (NUTS II.) the development levels of counties and micro-regions are remarkably different. In the present paper the development level is measured on settlement level relying on 17 socio-economic and infrastructural factors. Results point out that differences between the development level of settlements failed to decrease, just on the contrary, the gaps slightly increased by the end of the examined period as it is shown by the variation co-efficient of the annually calculated Complex

Development Index.

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