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# Major changes in the Hungarian micro-regions[1]

***Abstract:*** *This paper analyses first and foremost the micro-regional (NUTS-IV) level changes of the past 15 years in Hungary, adopting the method of multivariate factor and cluster analysis as its fundamental approach.*

*Accepting the popular view that Hungary is a "highly rural" country, this study first provides an overview of academic and political debates over the definition of rurality, then it goes on to examine the principal geographic factors of rural areas, namely the natural environment, agriculture and other economic activities, accessibility, infrastructure, settlement networks as well as local society and culture, assessing these factors on a nation-wide scale.*

*Secondly, this study examines the interaction between the above-mentioned quantifiable factors and the strength of these changes, with the help of a statistical (factor) analysis performed for various chronological times.*

*Finally, for the purpose of a comprehensive and integrated rural development, we identify, using the method of cluster analysis, the individual settlement types with various characteristics and evaluate them as well as the typical spatial processes taking place in these settlements.*

***Key words:*** *rurality, factor analyses, regional development capacity, Hungary*

## A few introductory remarks

During the past decade and a half that has passed since the political regime change (1989–90) small regions (or micro-regions), which, according to the European Union's statistical classification represent the NUTS IV level, have become one of the most important areas for analysis and interventions in terms of spatial changes in Hungary. The new Local Government Act that was passed 15 years ago significantly reduced the role of counties, which had a pre-eminent status in both spatial and power structures in the socialist era, and allowed for the possibility that settlements could, of their own accord, organise regional development associations for various purposes.

[1] A study conducted within the framework of OTKA Research T037620.

In the early 1990s, when the first PHARE projects were launched, hundreds of voluntary, grassroots associations of regional development of this type were formed in order to help achieve the development objectives of the various rural regions.

In the first years of the 1990s, the Central Statistical Office defined what was (and still is) called official small regions, mainly as units of statistical assessment (Kovács 2002).

Act XXI of 1996 on Area Development and Spatial Planning granted – again rather specifically – a legal status of a kind to small regions in Hungary. They were entitled to elect representatives with voting rights to municipal and regional development councils as the organisations of official municipal associations that were about to be set up. Micro-regions as a level of territorial development further grew in importance when territorial development funds became available as a result of the Act and after a parliamentary decree on the guidelines for decentralisation and on the requirements for the classification of prioritised areas came into effect in 1997. This enabled those municipalities that were able to co-operate efficiently together to use additional decentralised funds in the relevant regions.

With this, NUTS IV-level regions, which had been created for purposes of a statistical system, were turned into an 'official' reality. However, debates over development funds and local competition for them have been going on ever since between official small regional organisations, mainly with mayors in charge of them, and civil grassroots micro-regional organisations, operating mostly as associations or foundations. In 2000 the so-called small regional commissioners were appointed by the central government to act as mediators for the territorial and rural policies and publicise opportunities for applications to small regions. Some of these government commissioners managed to participate in the operation of both (i.e. voluntary and official) types of small regional organisations. Others were able to achieve only modest results, often because small regional organisations of development were hardly viable operationally.

In 2004 new regulations governing small regions were adopted. The system of over 3,000 independent municipalities is now barely functional. Hence the government intends to transform, in a quasi-compulsory manner, this fragmented and costly system into multi-purpose small regional associations so that they can perform important local duties.

Such duties mainly include public administration-related responsibilities as well as services (e.g. education, healthcare and social care) that must be provided by the central government and municipalities. The territorial and rural development, formerly prioritised responsibilities, hardly feature among them.

Spatial changes at the small regional level – the subject matter of a large number of analyses, evaluations and opinions – have been profound (Nemes-Nagy 1998, Csatári 2000, Fekete 2001, Pálné Kovács 2003).

In the near future, small regions as spatial units will play a more significant role than they currently do in territorial and rural development in Hungary. Hence, there will be a growing need for the description, evaluation and detailed analysis of spatial processes at the small region level.

Figure 1 shown a spatial differentiation of small regions in Hungary according the value of index of rurlaity. The index of rurality/urbanity, adopted in OECD statistics and also adopted/calculated in part by EUROSTAT, shows the proportion of the population in small regions that live in urban settlements with a high density of population. Adjusting this value to the average density of population in Hungary (112 persons/km$^2$) and the country's rather peculiar settlement structure, for the purpose of our analyses, we put the Hungarian index of urbanity/rurality at 120 persons/km$^2$. So this index of rurality shows how many proportion of population of micro-region live in less than 120 persons/km$^2$ population density of settlements.

In the study, relying on multi-variable factor analyses performed for different points in time, we sought to identify changes in the general and human factors that influence the spatial development of Hungarian small regions and, among them, rural regions. We further sought to establish general relations among these factors, as well as those differentiating spatial and rural development that jointly

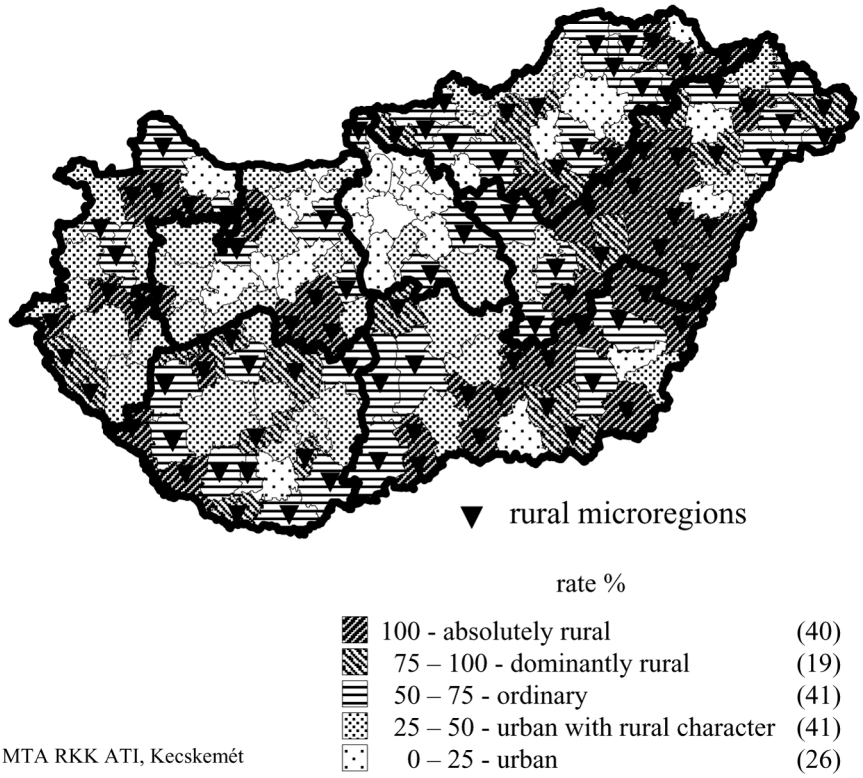


**Figure 1.** Index of rurality in Hungary

characterise and represent the changes. After our discussion and general analysis we show the spatial imprint these changes have left on Hungary's NUTS IV--level map.

## The method of research

The essence of the multivariate factor analysis is to find the strong relations between the factors indicating various processes that shape settlements and space in small regions. They show the extent of departure from the average, and the strength or modesty with which the factors used in the research jointly differentiate spatial changes (Tables 1 and 2).

A small regional database containing data for over 3,000 Hungarian settlements was compiled, and then principal factors reflecting the general development of small regions were calculated for two points in time (1992 and 2002). Factors that are likely to have influenced the spatial characteristics of the transfer of knowledge and technology, the innovational environment and spatial processes were analysed separately.

The main goal of the analyses was to identify the way spatial changes influenced by general (i.e. small regional-level) territorial development and human and R & D factors are interrelated. For this, the two groups of indicators for the starting and closing points were combined, and two factor analyses were also performed.

In factor analysis concerning general territorial development, 28 variables were used (Table 1), including demographic data, indicators of economic activity and employment structure, some data for infrastructure and a few others reflecting development dynamics (e.g. speed of housing construction and level of education).

For the human and innovational (R & D) analyses (Table 2) 16 spatial and settlement variables – typical of and mainly available for this sector and their small regional aggregates – were used. The total of six correlation calculations and six factor analyses were performed for the study of 150 Hungarian small regions.

## Main findings of the research

### Results of the analysis of indicators of general development

When studying the level of general development in small regions in this way, we found that extremely large differences had evolved in spatial development following the political changeover.

In the early 1990s, spatial differentiation was attributable mainly to differences in economic opportunities and the results of economic activities.

This was made apparent by preliminary correlation calculations, where correlations of economic indicators exceeding +0.7 were found to be the strongest. The

**Table 1.** List of indicators for the analysis of general development

| Abbreviations | List of indicators |
|---|---|
| 3XROOM | Percentage of 3-x-room houses built after 1990 |
| 60YEAR | Percentage of 60+ year-olds of the total population |
| OUTLETS | Number of retail outlets per 1,000 residents |
| SEWAGE | Length of sewage network in km per 1-km water network |
| PRIENTER | Number of private entrepreneurs per 1,000 residents |
| ACCESS | Evaluation of comprehensive accessibility |
| HOUSECON | Proportion of houses constructed between 1990 and 2001 |
| BUSINESS | Number of business entities qualifying as legal persons per 1,000 residents |
| INDUSTRIAL | Proportion of industrial wage earners |
| EDUCATION | Average school education |
| AGRICULT | Agricultural wage earners |
| AGRIENTER | Number of agricultural entrepreneurs per 1,000 residents |
| NUMUNEMPL | Changes in the number of unemployed |
| CINEMA | Number of visits to the cinema per capita |
| PERUNEMPL | Percentage of unemployed in the total population |
| DENSITY | Population density (persons/km$^2$) |
| CHANPOP | Changes in resident population |
| AGEING | Index of ageing |
| CAR | Number of passenger cars per 1,000 residents |
| LONGUNEMPL | Percentage of persons unemployed for over 180 days of total registered unemployed |
| TELEPHONE | Telephone main lines per 1,000 residents |
| TERTIARY | Percentage of tertiary earners |
| DENBUSINESS | Business density |
| MIGRATION | Annual average of migration |
| URBAN | Percentage of urban population |
| NIGHTTOUR | Number of nights spent at facilities of tourist accommodation per 1,000 residents |
| GAS | Percentage of households with a piped gas supply in the total housing stock |
| WATER | Percentage of houses with a public water supply |

spread and increase in the number of new business entities qualifying as legal persons showed a strong positive correlation with business density, the quality of the available infrastructure and accessibility. However, they were negatively correlated with unemployment and a high proportion of employment in agriculture.

The early 1990s saw only the beginning of the collapse of socialist agriculture in rural regions. Only later did crises unfold in rural areas.

**Table 2.** List of human and innovation factors

| Abbreviations | List of indicators |
|---|---|
| INFOENTER | Number of info-sensitive enterprises per 1,000 residents |
| COMMENTER | Number of communication enterprises per 1,000 residents |
| R+DENTER | Number of R & D enterprises per 1,000 residents |
| EDUENTER | Number of educational enterprises per 1,000 residents |
| DENBUSINESS | Business density |
| PATENT | Number of patents per 1,000 residents |
| DOMAIN | Number of domain servers per 1,000 residents |
| PEREDU | Percentage of those with a tertiary education compared with those in the same age bracket |
| WHITECOLLAR | Percentage of white-collar workers of the total of active earners |
| FULLSTUD | Number of full-time students per 1,000 residents |
| EXTRASTUD | Number of extramural students per 1,000 residents |
| EDUCATION | Average school education |
| TELEPHONE | Telephone main lines per 1,000 residents |
| TERTIARY | Percentage of tertiary earners |
| LIBRARY | Number of library members per 1,000 residents |
| CINEMA | Number of visits to the cinema per capita |

In addition to economic indicators, data on the average level of education also strongly differentiated spatial changes at the small regional level.

The contents of the main factor of the first general analysis for 1992 essentially combine the above correlations.

The first four indicators of the main factor with an explanatory power of 37.7% were education, business density, migration balance and accessibility (Table 3).

When these factors emerged simultaneously in a region with a relatively favourable infrastructure, spatial differences in the level of general development at the small regional level became clearly discernible, as is illustrated by the figure showing factor point values.

As early as 1992 there were 89 rural regions and general regions hit by industrial crises where the values of the main factor with the above indicator content were negative. Urban regions (33 small regions, mainly the county seats and the small regions in the Budapest agglomeration), where favourable economic and social processes evolved simultaneously, and which revealed even then strong spatial differentiation relative to lagging regions, unequivocally took the lead.

Measured against the initial period, the correlation matrix of the analysis for 2002 did not change greatly, though the strength of correlations did diminish overall.

This also means that the joint impact and the formerly acute differentiating power of the factors that had triggered changes in the level of the general development of small regions diminished somewhat. A spatially discernible steady equalisation of certain factors (e.g. technical infrastructure including the telephone network, gas supply and piped water supply and waste disposal) occurred during the period in question.

The numbers in Table 3 reveal that – relative to 1992 – it was the density of business entities and enterprises and changes in the number of private enterprises rather than the level of education that took the lead. These had a primary impact on the spatial processes that can be evaluated in this way at a small regional level. In other words, with the transition to a market economy having been completed, the differentiating impact of the economic processes increased further.

The analysis of the figures for the main factor, the explanatory power of which also weakened between 1992 and 2002, also confirms this key fact. Choosing a different interpretation, it may also be the case that spatial processes became more diffuse and, if anything, even more complex. The above general regional improvement in infrastructural factors was not always followed by economic development or the development of business enterprises. At the same time, however, the number of factors that unequivocally determine spatial differentiation increased in a negative or positive direction (and also in a negative or positive sense e.g. unemployment, long-term unemployment and a small proportion of agricultural enterprises and active earners) in the main factor.

In other words, even this limited indicator set reveals and sums up the essence of those spatial processes in Hungary that are measurable at a small regional level. While the number of regions with negative and positive factor values remained unchanged overall, that of micro-regions with positive factor values and an outstanding level of economic and social development grew consistently in Northern Transdanubia and in the Central Region and its wider attraction zone between 1992 and 2002. Changes in these micro-regions were favourable. As a result, their position also became more favourable, and the quality of data used to measure them also improved.

At the same time, as a comparison of the spatial images in Figure 2 clearly reveals, the level of development in Eastern and Southern Hungary remained below the national average. Except in a few isolated urban regions, poor accessibility, high long-term unemployment, economic crises and the dominance of agriculture indicate a grave and entrenched economic and social conflicts. The country seems to have split into a developed Hungary and an undeveloped one.

**Table 3.** Changes in the main factor points of factor analyses between 1992 and 2002

| Indicators | Main factors of general development | | | Indicators | Main factors of complex development | | |
|---|---|---|---|---|---|---|---|
| | 1992 | 2002 | Change | | 1992 | 2002 | Change |
| EDUCATION | 0.920 | 0.913 | ↓ | PEREDU | 0.940 | 0.937 | ↓ |
| BUSINESS | 0.869 | 0.931 | ↑ | EDUCATION | 0.936 | 0.923 | ↓ |
| MIGRATION | 0.753 | 0.571 | ↓ | INFOENTER | 0.904 | 0.917 | ↑ |
| ACCESS | 0.732 | 0.617 | ↓ | BUSINESS | 0.890 | 0.963 | ↑ |
| AGRICULT | -0.713 | -0.570 | ↓ | WHITECOLLAR | 0.823 | 0.831 | ↑ |
| DENBUSINESS | 0.709 | 0.725 | ↑ | DOMAIN | 0.808 | 0.861 | ↑ |
| TERTIARY | 0.702 | 0.547 | ↓ | PATENT | 0.784 | 0.755 | ↓ |
| CAR | 0.696 | 0.835 | ↑ | DENBUSINESS | 0.767 | 0.785 | ↑ |
| SEWAGE | 0.679 | 0.558 | ↓ | COMMENTER | 0.754 | 0.901 | ↑ |
| DENSITY | 0.671 | 0.714 | ↑ | MIGRATION | 0.747 | 0.525 | ↓ |
| PRIENTER | 0.671 | 0.784 | ↑ | ACCESS | 0.737 | 0.626 | ↓ |
| PERUNEMPL | -0.670 | -0.714 | ↑ | DENSITY | 0.718 | 0.764 | ↑ |
| CINEMA | 0.635 | 0.487 | ↓ | AGRICULT | -0.708 | -0.560 | ↓ |
| CHANPOP | 0.632 | 0.564 | ↓ | HOUSECON | 0.695 | 0.635 | ↓ |
| HOUSECON | 0.631 | 0.665 | ↑ | TERTIARY | 0.678 | 0.596 | ↓ |
| URBAN | 0.631 | 0.464 | ↓ | SEWAGE | 0.648 | 0.505 | ↓ |
| TELEPHONE | 0.613 | 0.730 | ↑ | URBAN | 0.643 | 0.493 | ↓ |
| WATER | 0.609 | 0.374 | ↓ | CHANPOP | 0.640 | 0.559 | ↓ |
| AGEING | 0.290 | -0.074 | ↓ | CAR | 0.640 | 0.790 | ↑ |
| NIGHTTOUR | 0.427 | 0.346 | ↓ | FULLSTUD | 0.628 | 0.445 | ↓ |
| 60YEAR | -0.479 | -0.294 | ↓ | EDUENTER | 0.621 | 0.830 | ↑ |
| LONGUNEMPL | -0.580 | -0.530 | ↓ | PERUNEMPL | -0.617 | -0.628 | ↑ |
| INDUSTRIAL | 0.248 | -0.150 | ↓ | TELEPHONE | 0.590 | 0.667 | ↑ |
| OUTLETS | 0.508 | 0.410 | ↓ | EXTRASTUD | 0.588 | 0.424 | ↓ |
| AGRIENTER | 0.080 | -0.548 | ↓ | CINEMA | 0.582 | 0.548 | ↓ |
| GAS | 0.521 | 0.567 | ↑ | R+DENTER | 0.554 | 0.796 | ↑ |
| 3XROOM | -0.264 | 0.026 | ↓ | WATER | 0.547 | 0.337 | ↓ |
| NUMUNEMPL | -0.467 | -0.607 | ↑ | GAS | 0.544 | 0.551 | ↑ |
| **Explanatory power** | **37.735** | **34.853** | ↓ | 60YEAR | -0.497 | -0.337 | ↓ |
| | | | | NUMUNEMPL | -0.463 | -0.533 | ↑ |
| **Indicators** | **Main factors of human development** | | | NIGHTTOUR | 0.307 | 0.255 | ↓ |
| | 1992 | 2002 | Change | LONGUNEMPL | -0.477 | -0.410 | ↓ |
| PEREDU | 0.948 | 0.962 | ↑ | PRIENTER | 0.579 | 0.733 | ↑ |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| EDUCATION | 0.922 | 0.902 | ↓ | OUTLETS | 0.401 | 0.348 | ↓ |
| INFOENTER | 0.879 | 0.894 | ↑ | AGEING | 0.323 | -0.011 | ↓ |
| DOMAIN | 0.852 | 0.866 | ↑ | LIBRARY | -0.035 | 0.093 | ↑ |
| WHITECOLLAR | 0.821 | 0.878 | ↑ | AGRIENTER | 0.093 | -0.564 | ↓ |
| PATENT | 0.815 | 0.741 | ↓ | 3XROOM | -0.286 | 0.037 | ↓ |
| COMMENTER | 0.785 | 0.904 | ↑ | INDUSTRIAL | 0.263 | -0.209 | ↓ |
| DENBUSINESS | 0.776 | 0.785 | ↑ | **Explanatory power** | **40.573** | **40.012** | ↓ |
| FULLSTUD | 0.708 | 0.559 | ↓ | Based on CSO Censuses 1990 and 2001 | | | |
| EDUENTER | 0.695 | 0.887 | ↑ | CSO TSTAR 1992 and 2002 | | | |
| TERTIARY | 0.666 | 0.618 | ↓ | | | | |
| EXTRASTUD | 0.666 | 0.532 | ↓ | Legend: | | | |
| R+DENTER | 0.595 | 0.841 | ↑ | Increase in the point values of the main factor in absolute terms | | | ↑ |
| TELEPHONE | 0.591 | 0.608 | ↑ | Decrease in the point values of the main factor in absolute terms | | | ↓ |
| CINEMA | 0.548 | 0.625 | ↑ | | | | |
| LIBRARY | -0.022 | 0.120 | ↑ | | | | |
| **Explanatory power** | **54.234** | **58.041** | ↑ | | | | |

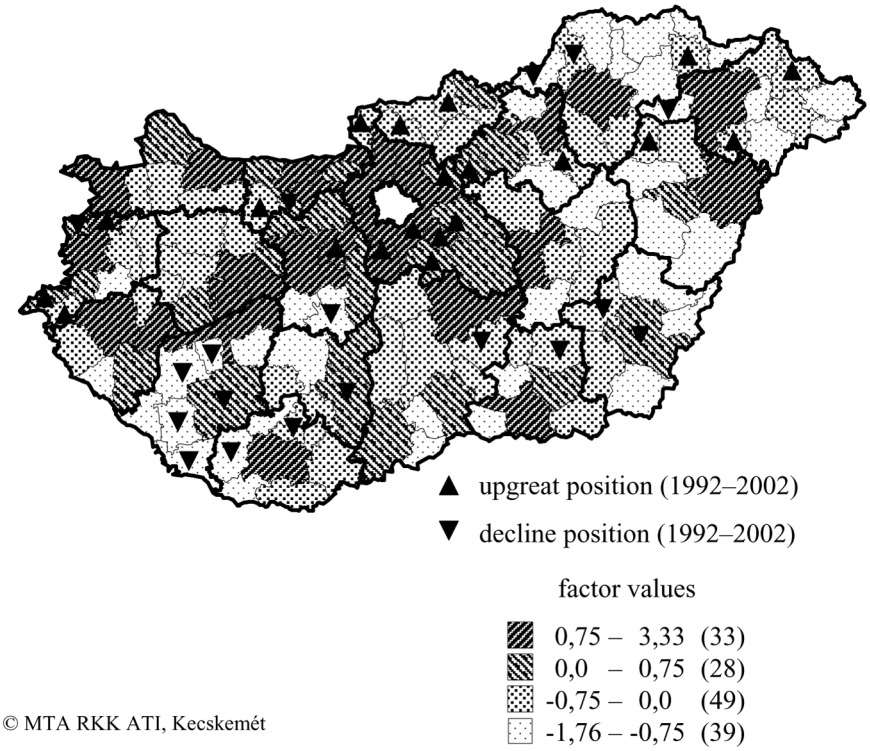


**Figure 2.** Value of main factor of „general" factor analysis

## Some findings from the examination of human and innovative factors

As shown before, 16 variables were accounted for when human factors were examined at a small regional level[2]. The only indicator that lent itself to proper averaging was that of 'library coverage'. Data on higher education had a strongly differentiating impact as not all small regions have a university or college. As a consequence, a large number of close correlations were discovered in the correlation matrix. The combined explanatory power of the factors was obviously higher than that of the general analysis outlined above (81.2% and, within this, the explanatory power of the main factor was 54.2%, i.e. higher than that from the factor analysis which measured the level of general development).

As regards factor points, the proportion of those with university/college education and an average education were already at the top of the list in 1992, and, except for the library coverage mentioned above, all indicators had a strong positive impact. By the end of 2002, the only change in the main factor weights of the human factors came from a similar series of indicators. They were info-communication indicators and data on educational enterprises (namely factors that can be linked to the R & D sector), which had become unmistakably prominent. The combined explanatory power of the sub-factors within the factor rose higher, even though they were high before.

This may suggest two important things: one is that the strong ability of human factors to spatially differentiate small regions has further strengthened; the other is that novel elements (i.e. novel in terms of their impact) in the above structure of factors (e.g. registered domain servers and R & D enterprises, etc.) have further added to spatial differences since 1992 (Table 3).

When examining the spatial image of the changes in the factor point values of the analysis of human factors for 1992 and 2002, we find that – despite a large number of changes in the data – their spatial structure has changed only modestly over the past 10 years (Figure 3).

The human factors examined reflect urban and even metropolitan phenomena so distinctly that there was hardly any change in spatial groups. Only Nyíregyháza, a dynamic city in Eastern Hungary, with a population of 100,000, and a few regions in the Budapest agglomeration were included in the most favourable group.

Based on these two special factor analyses, it is safe to assume that there is a sharp demarcation line between large cities (and their suburban regions) and the (remaining) rural regions.

## Findings of aggregate (complex) factor analyses

Given the strong ability of the human factors to differentiate spatially, as we saw above, combining the two systems of indicators seemed to be the next logical

[2] In effect, these variables, combined in this manner, are suited to factor analyses only with certain reservations, as correlation between them is, for obvious reasons, very strong.

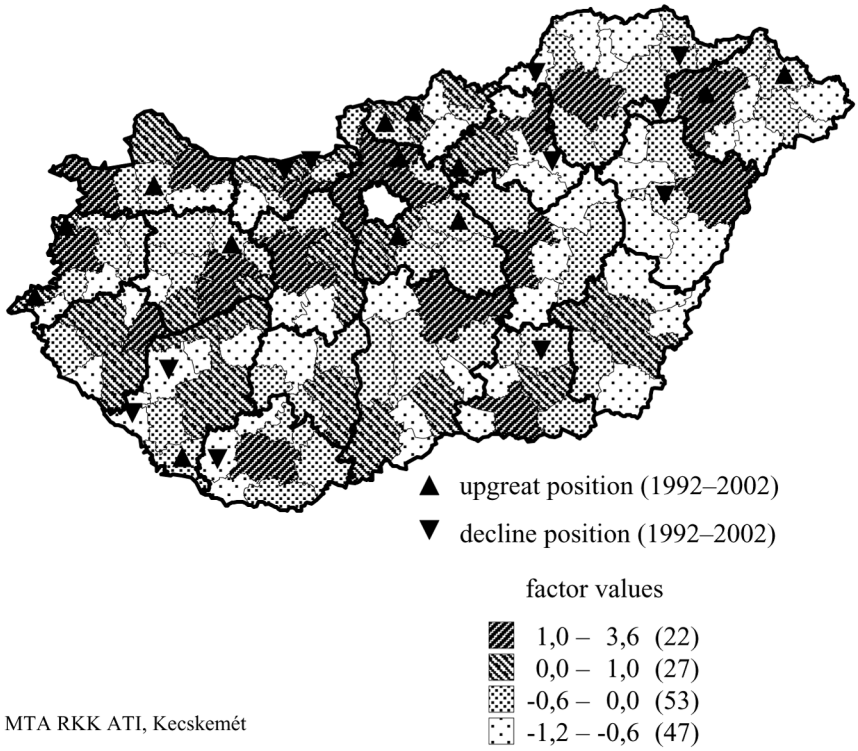


**Figure 3.** Value of main factor of „human" factor analysis

step. Thus, we performed two additional complex factor analyses for 1992 and 2002 in order to learn about the way in which the indicators and processes of general development and the human (R & D) sector are interrelated. These were examined separately earlier.

The complex factor analysis performed for the 1992 and 2002 data made use of 39 variables. When the values of the calculations of this complex analysis were compared with those of its general counterpart, we found that the proportion of those with a university or college degree, then the low proportion of Internet penetration and data for the communication sector already displayed a decisive differentiating impact in the correlation matrix in 1992.

This demonstrates that they had a strong impact on regional changes at the beginning of the period under review. The increasingly strong influence of human and innovative factors is further supported by the fact that, as regards the main factor point values of the combined complex factor analysis, only the regions of large cities stand out in terms of development. Furthermore, based on this complex measurement, the truly developed small regions were fewer in number than what could be revealed by a general analysis (Figure 4).

At the other end (of what is called the 'development slope' of the West-East direction) are lagging rural and peripheral rural regions. The number of regions

with rather unfavourable main complex factor point values was already by twelve higher in 1992.

It is safe to say that innovative factors calculated for the small regional level took the lead in generating regional changes first 'surreptitiously' (1992), then increasingly more openly. There were no such regions where the human factors in question differed significantly from the factor point values showing a general development. This is borne out by the data in Table 3, where all the main factor point values of the two analyses were rendered comparable (Table 3, right-hand column).

Naturally, there were a few regions where the complex analysis performed through a combination of general and human factors yielded a result that was different from what had been expected (e.g. a weak human factor was offset by a higher level of general development, as was the case in Komló, a former mining town and in Gárdony, a tourist spot). Overall, however, the analyses performed yielded roughly similar spatial point values.

Between 1992 and 2002 the human factors became even more dominant, with rural regions falling behind to a growing extent.

A further conclusion that can be drawn from this 39-variable analysis is that, although the developments aimed at equalising the level of general regional

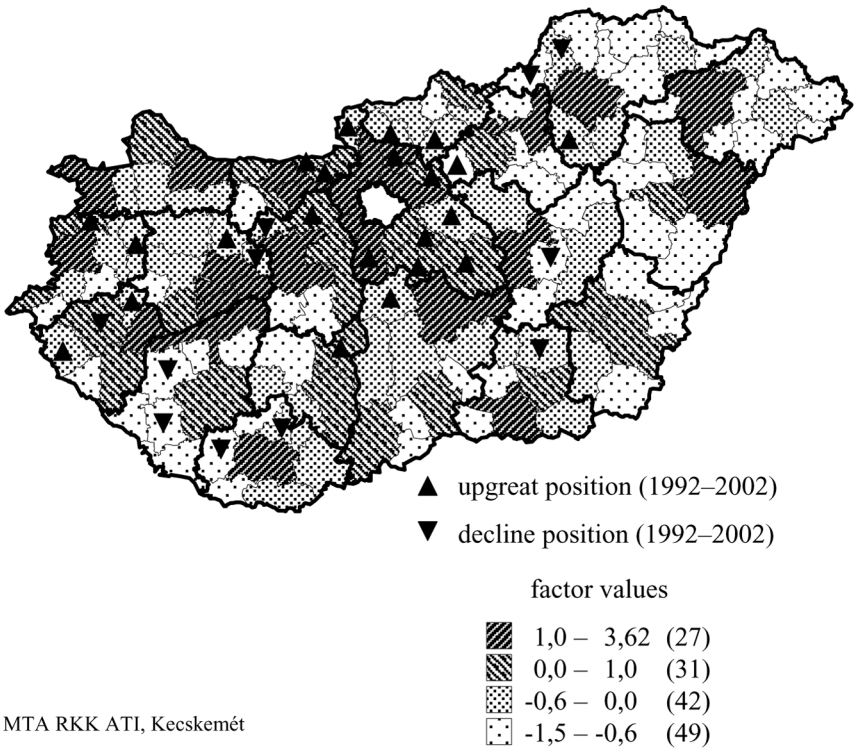


**Figure 4.** Value of the main factor of „complex" factor analysis

development did have some measurable influence at the small regional level, they ignored complex development, i.e. development measured with the inclusion of human factors.

It is also obvious that the much-heralded info-communication developments that were supposed to reduce spatial inequalities barely led to any tangible spatial or rural development – general or complex. On the contrary: these factors increased in value almost exclusively in the developed regions studied in the general analysis at a pace that strengthened their position materially in the complex analysis (see the main factor of the six analyses in Table 3).

Those results of the human and complex analyses that suggest favourable changes were only typical of the central, metropolitan region. In the Hungarian Great Plain only Nyíregyháza and its environs showed outstanding values.

Generally speaking, the regional centres that did indeed advance were those where human factors played a major role in the development defined by the complex factor analysis. In their case the changes that occurred were unambiguously positive and more harmonious in both human and complex sense in the period 1992-2002. These 15 non-rural regions underwent the highest proportional development in every respect even when other regions had higher factor point values or their values decreased only slightly in the positive domain. The latter does not, however, indicate any decline. Rather, it simply means that their values were not as outstanding as in 1992.

### A comparative analysis of general and human development

Finally, it was intriguing to see how the processes and results of these two approaches changed together (Figure 5).

When the factor points of the general and human factor analyses for the dates of two examinations are displayed in a system of co-ordinates, the regions along the ‘harmony line’ can be considered to be the most balanced (the same is the case when their values are negative).

The main factor points of general and human development indicate a similar level of development or backwardness in these regions. In the case of those above the line where, in addition, differentiated processes and changes in rural regions occurred more strongly than expected, the values of human development are higher than those for general development. In the case of those below the line, just the opposite is the case.

During the period in question, as can be seen in the diagram, the number of the regions above the line diminished somewhat; i.e. generally speaking, the effects of the two groups of factors approached each other. In addition to large provincial university centres, Szeged and Pécs, with outstanding values, county seats and small regions on the Buda side of the Budapest agglomeration improved their position expressly through an increasingly important role of human factors, while the dynamics of their general development fell behind somewhat.

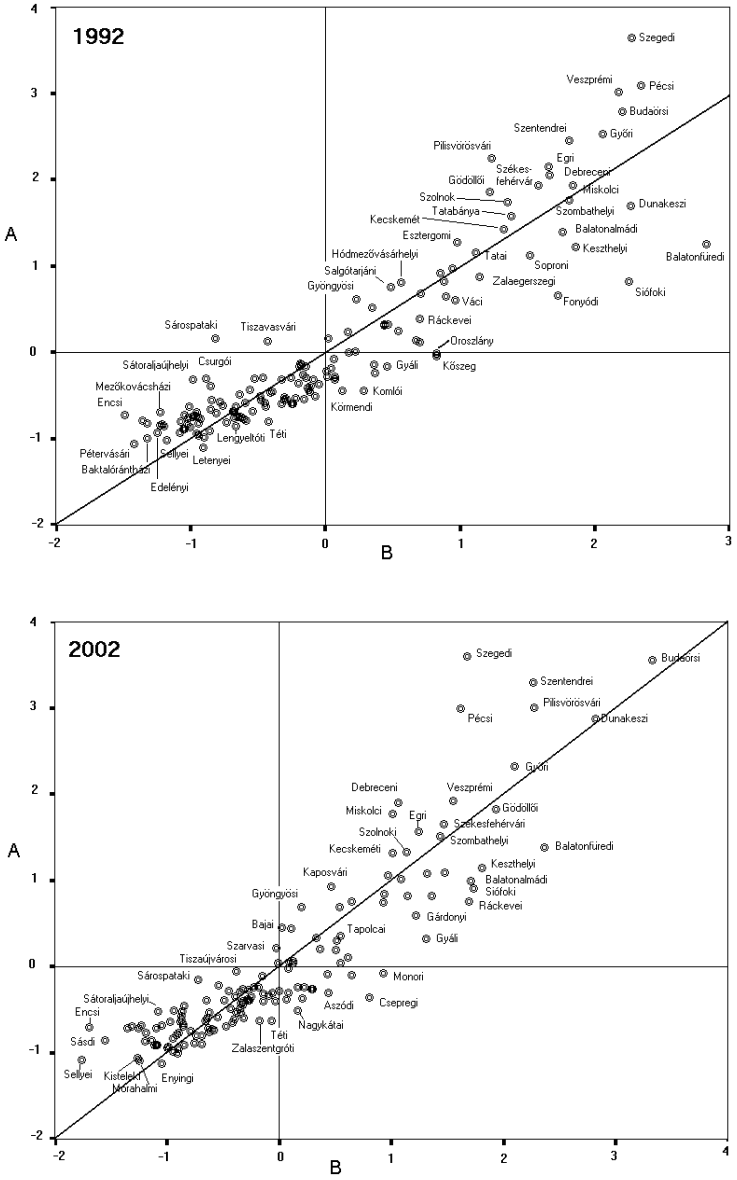


**Figure 5.** Main factor point values of small regions based on general and human factor analyses in 1992 and 2002
A – the main factor of human developement of micro regions, B – the main factor of general developement of micro regions

As the figures presented here also show, tourist destinations form clearly distinct groups, which can be attributed in part to the ability of this special sector to improve the level of general development at these places and in part to better-than-average human resources in rural regions. Hardly any shift occurred in the negative domain for underdeveloped peripheral small regions of a smaller size during the period 1992–2002.

## Conclusions

Adopting a multi-approach factor analysis as a method, an examination on the level of general and human development of Hungarian small regions as well as the evaluation of the findings of this study from a spatial point of view confirmed that the country's spatial development had strongly differentiated.

The territorial and rural development policies were able to influence unfavourable changes to only a small extent. Spatial changes were influenced first by economic crises and revival as well as the ability of the economy to revive and later by the dominance of human factors (capabilities).

The unmistakable expansion of the suburban zones undergoing variegated development in the Budapest agglomeration, the island-like separation of large cities and a vigorous increase in the number of generally developed regions in Northern and Western Transdanubia are of major importance. Relative to this, the predominantly agricultural rural regions lag behind, and are mainly concentrated in the Great Plain. A deep and persistent crisis in backward rural regions is typical of South Transdanubia and North Eastern Hungary.

Only subtle shifts can be identified based on the temporal examination of the contents of the various factor structures. As regards the contents of the main factors established for various points of time – which only changed moderately – human, economic and infrastructural factors repeatedly changed their order of importance. In the early 1990s it was the economy that differentiated small regional changes the most. Except for accessibility, strong infrastructural convergence (e.g. telephone network, gas supply and piped water supply and waste disposal) made spatial processes homogeneous to a certain extent. By 2002 the differentiating impact of human (and R & D) factors had strengthened.

These phenomena also point to the grave contradictions that place a burden on co-operation of a higher value between cities, large cities in particular, and rural cities/towns. Real changes can be generated only by the adoption of a more forward-looking and more consistent area policy than the current one with a new perspective put on it. A policy where:

- sectoral policies accurately identify the necessary (urban and rural) spaces of their intervention, which can be identified rather reliably;
- the expected interactions of larger-scale (infrastructural, economic and R & D and/or human) developments are planned meticulously;
- cities (especially large ones) assume deliberate responsibility for their rural counterparts as well as their spatial (and regional) roles;
- true and reasonable regional decentralisation does materialise in order that participants in small regional development can themselves implement development solutions needed for spatial development in a way that is far more harmonious than at present.

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