

# **Spatiality of health inequalities regarding economic crisis in Hungary**

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## **Introduction**

Social inequalities related to health are presented in every country and mostly depend on macro economic conditions. The interpretation of the social factors defining health inequalities presumes that during a crisis, not only the labour market position and the level of income counts from a health point of view, but also the level and growth of already existing social and health inequalities (e.g. Mladovsky et al., 2012).

Health inequalities are always linked to economic inequalities, the unfairness of the distribution system, bad labour market position (e.g. low educational qualification, low income, unemployment), difficulties in access to health care and education system, disadvantaged living and life conditions (e.g. Benach et al., 2008; Marmot and Wilkinson, 2006; Marmot-Bell, 2009). For the evaluation of risk factors and their prevention, it is very important to analyse the social situation's role regarding health status and its effect on health inequalities. The formation of health inequalities is determined by a complicated system of inter-relations between many simultaneously effective (determinative and influential) factors (Raphael, 2008). The most important factors are mostly referred to by the acronym "PROGRESS": Place of Residence, Race/Ethnicity, Occupation, Gender, Religion, Education, Socio-economic status, Social capital/Resources (Oliver et al., 2008).

At the very beginning of the crisis during the spring of 2009 the World Health Organization's warning was an important message for the national health systems, institutions, political decision makers (Congress of WHO European Regional Committee, 2009). It is said during the period of crisis increasing the frequency of high blood pressure, diabetes, cardiovascular diseases (WHR, 2010), because the probability of the below risk factors are growing:

- Low income and unemployment
- Feeling of hopelessness
- Risk of psychiatric disorder and its somatic sequelae
- Depressive symptoms, risk of suicide
- Decreasing consumption of healthy products and health related services
- Prevention and health protection does not reach the required level

During the economic crisis besides of growing unemployment at the same time income decreasing according to the e.g. reduced working-time. It increases the feeling of hopelessness, depressive symptoms, and the risk of suicide (e.g. Catalano, 2008). The suicide rate of young or middle-aged groups often correlates with the changes of unemployment rate. When crisis hits, everybody wants to keep their workplace. Therefore, permanent uncertainty, increased stress result in physical and psychical diseases.

## **Aims and methods**

How did the crisis of transition result health deterioration for those social groups who are most affected by unemployment and poverty at the beginning of the 1990s in Hungary? Does the present crisis have effects on health and life expectancy at all? How strong is the connection between unemployment and life expectancy? Do regional differences unequivocally prove a western–eastern split in health inequalities in Hungary? Does favourable socio-economic environment and low unemployment always mean better life expectancy?

The current objective is to answer these above questions with quantitative analytical tools, particularly regional analytical methods. We wish to emphasize that the study examines primarily the relationship between the crisis and health. That is the main reason we define unemployment rate as crisis factor, while we consider life expectancy as the determinative indicator of health inequalities. Namely, the most important aim of the examination is to interpret the correlation between changing labour market position and health. This paper intends to analyse the supposed relation between unemployment and run of life expectancy with the help of statistical indicators.

In the spatial analysis of the Hungarian health inequalities the prioritized tasks are the followings:

- to interpret the most disadvantaged spatial units according to health inequalities during the crisis periods,
- to examine the role of western–eastern gradient in the spatial pattern of health inequalities,
- to observe whether there is a regular pattern in the connection between unemployment and life expectancy.

The levels of the statistical analysis were micro-regions (now as administrative units of townships/districts – LAU 1).

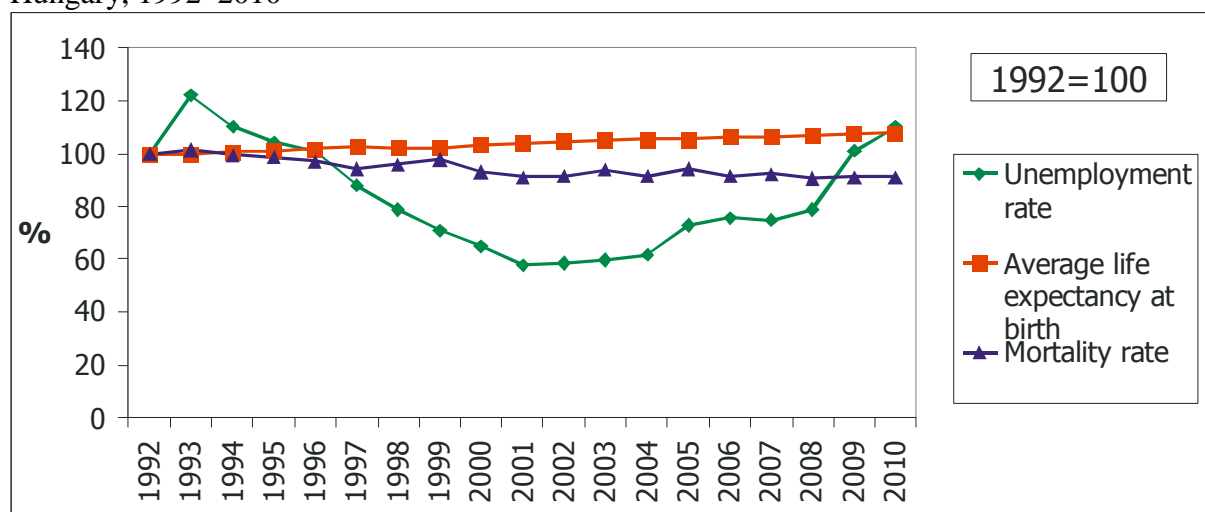
In order to explain cause and effect correspondences we justified the link between unemployment rate and average life expectancy at birth with correlation coefficient, regression calculations, spatial autocorrelation and contingency/cross tables. In order to describe tendencies, we analysed historical data: this comparative analysis could help us to select the typical years of crisis periods in Hungary after 1990. These crisis periods were identified with the period of transition and the recent economic crisis. To examine and to compare the health effects of the Hungarian economic crisis periods after 1990 we selected two typical years of crises (1993 and 2010), and a reference year (2001) (Figure 1).

1993 is the typical year of the Hungarian transition and epidemiological crisis. The life expectancy was the lowest while the unemployment rate was the highest after 1990 due to the economic and political turn. 2010 is the typical year of the current crisis in our examination.

We analysed and compared all data of 2009/2010 from the beginning period of the recent crisis to select the typical year. The results of calculations and comparisons could show in 2010: there is stronger correlation between indicators (Table 1), there is more regular pattern among neighbourhoods, the spatiality becomes marked influential factor.

2001 is the reference year when the unemployment rate was the lowest after the transition, and there was a continuous improving trend in life expectancy from 1996.

Figure 1. Run of unemployment rate, average life expectancy at birth, mortality rate in Hungary, 1992–2010



Data source: www.ksh.hu

Table 1 Pearson's correlation coefficient between unemployment rate and average life expectancy at birth, 1993–2010

		Unemployment rate	
Indicators of health	1993	2001	2010
Average life expectancy at birth	-0.488	-0.692	-0.727
Average life expectancy at birth, male	-0.471	-0.710	-0.722
Average life expectancy at birth, female	-0.467	-0.637	-0.720
Mortality rate	0.293	0.270	0.339

Data source: www.ksh.hu

### Health inequalities and its spatial dimensions in Hungary

The marked deterioration in the health status of the Hungarian population has been going on since the middle of the 1960s (Józán and Forster, 1999). General health status of the Hungarian people is worse than justified by the level of economic development (Józán, 1991, 1998). The average life expectancy at birth in Hungary is one of the lowest in the European Union (Uzzoli and Szilágyi, 2009). According to the general state of health of the population Hungary belongs to the middle-ground countries in the world, however by European standards it is among the countries with the worst characteristics regarding general state of health. All the health indicators are worse than the average European values and it is especially true about the mortality rate of the middle-aged male population.

Hungary's economy has been experiencing significant transitional difficulties after 1990. Its social effects as the relevant problems of unemployment and poverty among low-income population groups have gone together with their 'health recession'. Jointly the role of the

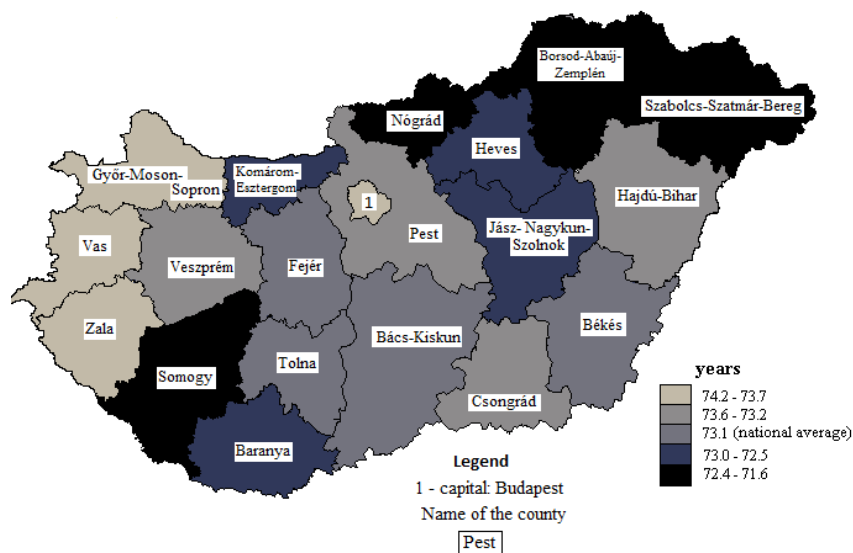
epidemiological, the demographic and the latest economic crisis have shown some unique trends in the Hungarian health indicators over recent years.

The spatial dimensions of the socio-spatial inequalities in health are justified by means of regional inequality indicators. Significant relationship can be detected by the examination of the impact of economic conditions on health state characteristics. The post 1990 transformation of the economic spatial structure of the country greatly affects the arrangement of the counties and micro-regions with favourable and unfavourable general health.

According to most examined life expectancy indicators the regions with the most favourable general state of health include North Western Hungary (Győr-Moson-Sopron, Vas, and Veszprém counties), while the most disadvantageous area can be found in North Eastern Hungary (Szabolcs-Szatmár-Bereg and Borsod-Abaúj-Zemplén counties). In Western Hungary with better than average indicators Somogy county stands out as a county with the relatively worst conditions. The county with the best indicators in the fairly bad context of the east of the country is Csongrád. Budapest in general has favourable values regarding the examined indicators, nevertheless it has a bad reputation for the high rate of deaths caused by malignant tumour. Even more articulated are the spatial inequalities of health within the boundaries of the capital than those of the country itself. The difference between the life expectancy of the counties of the best and the worst values is approximately 3.1 years (Figure 2), while in the capital it is meaning a 10 years difference between the most and the least “healthy” districts.

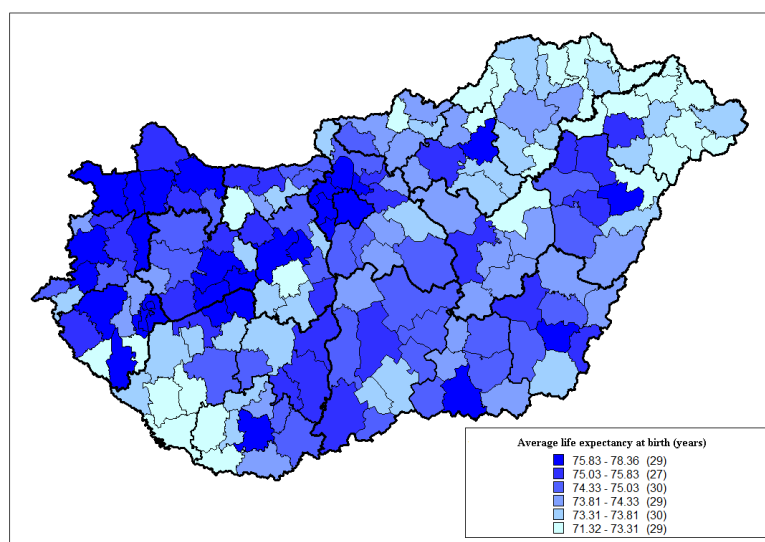
The micro-regional difference between the most and least favourable average life expectancy at birth is 7.1 years, which is larger than in the counties (Figure 3).

Figure 2. Average life expectancy at birth and its divergence from the national average in Hungary, 2000–2009



Data source: Hungarian Demographic Yearbook 2009.

Figure 3. Average life expectancy at birth (years) in the Hungarian micro-regions, 2010



Data source: teir.vati.hu

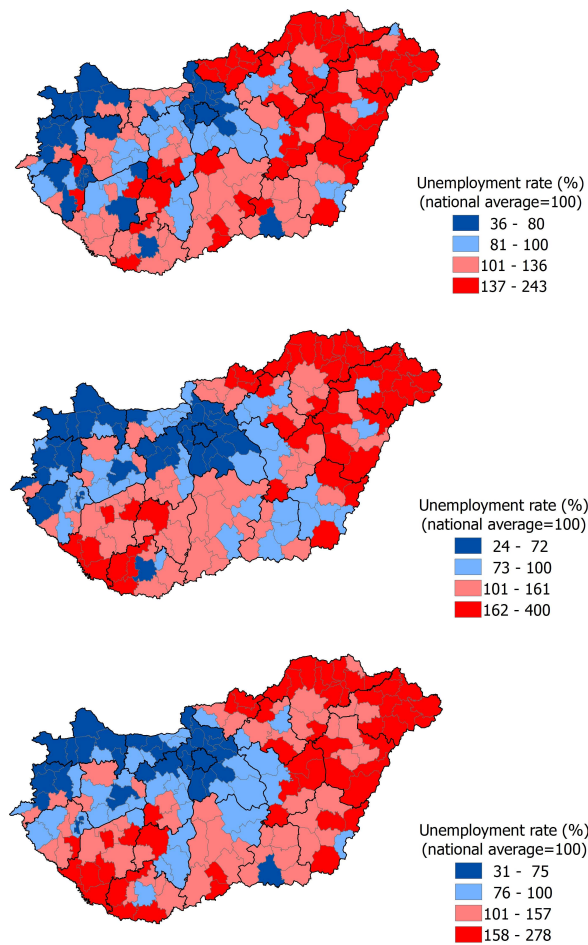
### The effects of economic crisis on health inequalities

The economic crisis of the last years has rather differentiated the areas in a better situation, deepening the contrast between the capital and provincial/rural areas (Szilágyi and Uzzoli, 2013). The long-term spatial effects of crisis may result in the slight increase of territorial inequalities and the continuous lag of backward areas. The scale of health differences within Hungary is surprising. The following regional analysis finds a medium-strength relationship between unemployment and life expectancy which it has become stronger from 2009 to 2010, especially in the case of males' life expectancy. These health differences structure is not confined to differences between the poor and the rest of society, but instead run right across society with every level in the social hierarchy having worse health than the one above it (Uzzoli, 2011). This is the main point where health differences have a typical pattern due to the socio-economic spatial position of the Hungarian counties and micro-regions.

According to unemployment rate, the spatial pattern became more homogeneous during the last 20 years (Figure 4). The most advantageous spatial units were located around Budapest and in the North Western half of the country in 1993. The whole Eastern part of Hungary was in a very disadvantageous position due to the unemployment of transition. In 2001 can be experienced marked differentiation between the most favourable and unfavourable areas. There were some micro-regions in the Eastern part with better values of unemployment in 2001: in these micro-regions can be found county headquarters. In 2010 the highest unemployment rate could experienced in Eastern and North Eastern Hungary, and in South Western Hungary, but in the Eastern part of the country most of the micro-regions with better situation have disappeared in 2010 (Uzzoli and Szilágyi, 2013).

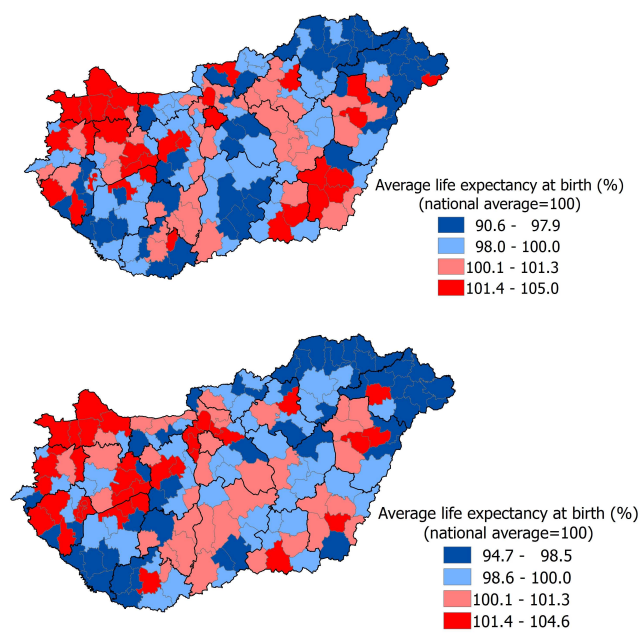
According to average life expectancy, the spatial pattern became more mosaic during the years (Figure 5). On the other hand, we have to say from 1996 the average life expectancy at birth is increasing continuously in all micro-regions. Despite of fit, there is a marked differentiation between Eastern and Western Hungary. There are more micro-regions with better values of life expectancy in the Western part. There are more micro-regions next to each other with worse values and it results space related pattern (Szilágyi and Uzzoli, 2013).

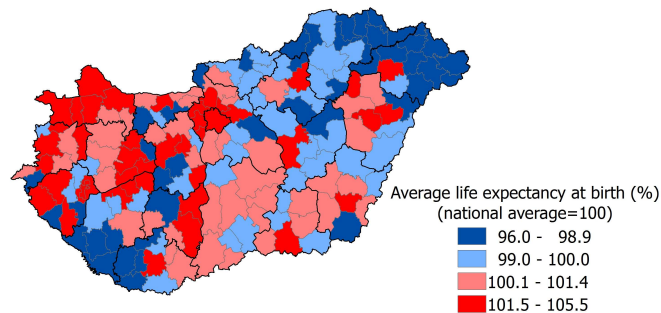
Figure 4. Changes in spatial pattern of unemployment rate, 1993-2010



Data source: teir. vati.hu

Figure 5. Changes in spatial pattern of average life expectancy at birth, 1993-2010





Data source: teir. vati.hu

## Conclusions

Macroeconomic processes have direct impact on the population's health. Since 1990 marked spatial differentiation has appeared among the best and the worst areas in Hungary regarding health inequalities. Disadvantageous life expectancy in Hungary presently affects the whole adult population, but its spatial inequalities are influenced by the connection between life expectancy and economic development.

At the beginning of the 90's the transition into the market economy created a crisis situation in Hungary. The economic and social consequences of change of system resulted epidemiologic crisis shown by mortality and morbidity statistics decaying for decades in Hungary. The latest crisis as economic recession does not attract so much attention to the direct relationships as compared with the crisis twenty years ago, and does not result change in the typical spatial pattern.

The spatial structure of unemployment and life expectancy on the micro-regional level can provide a more sophisticated view on health inequalities. The local differences of unemployment and life expectancy prove the unambiguously unfavourable position of the North Eastern and South Western parts of the county, as well as North Western and Central Hungary's favourable situation.

In Hungary the relevant epidemiological challenge is to increase life expectancy and to improve the qualitative parameters of life expectancy.

## Acknowledgement

The study was partly supported by Gusztáv Thirring Scholarship (Hungarian Central Statistical Office).

The study was partly supported by János Bolyai Scholarship (Hungarian Academy of Sciences).

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