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**The regional economical correlations of the Central-Eastern European  
health paradox**

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## INTRODUCTION

The attain of welfare in different dimensions but it can be found in several documents of the European Union. Expressions and thoughts for example the furtherance of economic and social development, fastening the economic, social and regional cohesion, the furtherance of welfare are on a favoured place from the Treaty of Rome what declares the establishment of European Economic Community to the newest Lisbon Strategy. The question of development/improvement was explained on a regional level and it was appeared in 1957 in the Treaties of Rome, in the 158th article every effort was made to draft decreasing the inequalities among the differently developed regions. The indicator of the regional development possibility has an economic load today: the rate of the sources what can be devoted to development was and is determined by the formation of the GDP/capita and unemployment indicators. According to this the cohesive politics is focused on these features and it waits for the regional equalization and attain of welfare mainly from the economic increase and employment grow.

But does the economic output/capita really explain the development? The discipline of development economy has known and admit for decades the opposite voices from Gunnar Myrdal, Albert Hirschman, Paul Streeten and Amartya Sen. These scientists aren't above to ask the question: Having the different goods and income, namely the economic increase what was measured in GDP/capita is really the final aim, value of the development? Or all of them are needed because they help in the good way of living to live a life what we think of as a valuable life? In this obviously the goods and services have a role that can be accesible (affordable) by ourselves but these only have a value if with the using of these we can improve or life quality. They have only an instrumental value namely they are valuable as appliances and not as aims. To determine and measure the sense of development in the increasing goods- and service variety for itself, in the increasing production and consumption for itself, in the rising real income itself it's nothing else but the confusing of the appliances and aims (PATAKI 1998). However inside the European Union several voices warns to the deficiency of GDP and calling the attention to that the indicator „doesn't say anything about the people's general condition (happiness) or how sustainable is the social development" (EC 2009a: page 53.)

In my paper I didn't make an effort to define the development/improvement ideas, I considered NEMES NAGY's (1998) development features competent in a general sense:

- The development (as its static pair the maturity) is one of those complex ideas what can be defined very hard, resp. around their explanation – because of its value-content – there is no mutual agreement;
- It makes hard to define the idea that typically it isn't an easily measured quantitative but a multimembers qualitative idea;
- The development has several sides, factors, elements what can't be transferable into each other, to estimate the importance and role of different dimensions in time and space variable social value contents join;
- The difference of development and increasing is shown by a short composing whereas both mean a change because in the increasing the measures, in the development the values change. Indeed in the last time in the relation of increasing and development their conflict come to the front.

In my thesis I take over the value content, resp. –determined discusses, I didn't want to operate only with the valuefree called economic standard differences, living standards are meant by the development/maturity. I meant, resp. examined by the development the quality of life and inside that the human welfare and its main features. In my paper I composed several research questions and their common denominator is the relation between the traditional economic and social development. I aspired to make known and show the spatial features, regional methodology and efficiency of this interaction.

In the first part of my dissertation I made the survey of the connecting specific literature. First I showed the Central-Eastern and West European regional configuration. After this I pointed to the essential scantiness of the conventional economic development theory and practice and as a comparison I represented the case of human development. I highlighted the fundamental differences of the two cases, their connection between each other and also their spatial features.

Following these I pointed out to a special Central-Eastern-European human occurrence. The health paradox what is typical of the region – it appears in that considering to the social-economic development the middle aged men's health state is more worse – isn't a new occurrence, it has already started from the second part of 1960s and it worsened more during the social-economic transit. I made the analysis of the process behind this, resp. their spatial features. Because the mentioned gender and age group react to the happened social-economic processes sensitively (and drastically) I considered the men's mortality before time as a result variable what is available to express the social-economic inequalities of the region.

In the methodological chapter not only the databases and the used methods were made known but I also dealt with in greater detail with the occurrence of apparent regionalization what is illustrative of the region. The effect of these essentially has an influence on the explanation possibilities of one regional analysis.

After the writing up of the specific literature, during the analysis I looked for the answers of five questions:

1. What spatial features can be seen at the area of quality of life in the regional European integration?
2. What relation can be found between the traditional economic maturity and HDI? How big is the role of economic development in the formation of human development? How effectively can be converted the regional economic development into human development?
3. What factors are behind the human development in Central-Eastern-Europe?
4. What spatial features can describe the healthparadox in the region? What factors generate the inequalities of mortality?
5. What regions are the winners and losers of the healthparadox?

To answer these questions I built up the following hypothesis:

H1: According to my hypothesis, just as the respect of economic maturity, the West-Eastern quality of life-maturity axis can be shown up in the European integration as well as along this the significant role of the cities and developed integration is defined, too. At the same time because of the complexity of HDI a high quality of life group can be bounded too in regions what are different from the developed zone-exchanges of the economic configuration.

H2: An essentially tight relation can be waited between the economic and human development, but according to the former technical literature experiences dissonant occurrences can also be waited. According to my opinion the equalize role of human features is significant. The question of efficiency has a close relation to the redistribution, balancer and other public politics intervention what are illustrative of certain countries. Supposable higher human development can be experienced compared to the relative developed in the undeveloped, lower economic developed regions.

H3: Expectable the economic maturity is a significant concomitant by itself, resp. the tendency of the main development targets (Lisbon Strategy, Europe 2020) is in tune with the indicators of human progression. As a further task the regional leveled accurate and complete of the human development indicator set was formulated. Because of the close relation of base dimensions was criticized earlier, so I wanted to keep important the controlling of correlation relations in the case of widened human progression database, too. The answering of the hypothesis demands the using of such a mathematics-statistics methodology what result a significant and suitably explainable connection beside the low numbered elements.

H4: The regional inequalities what can be found in the health state have a close relation to the social-economic development indicators. So I make it likely the regional mortality can be construed along the illustrative of the region West-Eastern traditional regional development axis. Further takes up position a certain region from the European nurse region, higher is the measure of mortality before time. Answering the last question is very difficult. According to my hypothesis in the case of collapsing, traditional heavy industrial regions the mortality surplus is clear. During the market economy transit in the case of winner and leading regions better mortality data can be waited, while in the case of peripheries a bit favourable mortality situation can be prognostizable.

As the result of the paper I made up such new- and latter research results what show the regional differences of the European and Central-Eastern-European region along the human development, resp. they give explanation to its interpretation. They help to form such alternative improvement strategies what has the man in their centre.

## MATERIAL AND METHOD

I made known the used regional limitation during the examinations, its main features, the databasis and the used methods.

As essentially my dissertation is about the regional level maturity – consistently with the cohesion politics – I use the NUTS2 regional level during the analysis. The using of this regional level mainly was determined by the accessible regional database what was established on behalf of following the improvement actions. The Eurostat database reports NUTS3 level data but the number of these is small and available only in a limited subject matter. During the examination I worked with two different nomenclatures (NUTS2003 és NUTS2006), and the reason of this that the EUROSTAT database is incomplete on both level.

During the supposition related to regionalization I made known that fact that the regionalization in certain relation is older in Central-Eastern-Europe than in the West part of Europe. The border changes after the World War I., resp. the formation of newer countries forced the governments of these countries to think about how they could establish a viable integrated country among the new regional limits. (ILLÉS 2008) Therefore it's lamentable that the improvement regions don't have administrative powers, body of representatives chosen by the people, own decision rights and tradition in the eye of the community. After this I showed those main methodological features what can essentially influence the results of one regional analysis: the question of base limitation, the point of view of manageability (the principles of limited quantitative comparability of qualitative different individuals) and the modifiable regional unit and the problem of ecological misconception.

One of the biggest difficulty was setting up the database what was used during the examination. The accessible of regional level data has an essential influence on the analyse of one social-economic and regional progress. During the setting up of my database I used several sources (Eurostat, Espon) and several former Eurostat document and internet database helped my work. From the point of view of the examinations the using of income indicators mean innovation and it results in a new approach because it concentrates on the consumption and not on production. And from the point of view of the research topic is relevant: the human reproduction happens in the households. The appearance of mortality indicators means an essential impulse among the regional datalines. The mortality indicators are the main indicators of the social-economic inequalities. According to the cause of death group on the one hand the division is useful alone, too, because we can draw important conclusion from it, too (for example the position of demographical transition). On the other hand the mortality causes can be used as an attending sign beside several social occurrences (poverty, social deviances, transformational intensity etc.).

At the end of the chapter beside the recent multivariable methods what can be consider traditional (factor-, cluster-, discriminant-analysis) I highlighted on the introduction of methods of pathmodell and factor effects disintegration. We can use the last method in the case of separation of explanative factors what are in the regression modell. The claim of report of direct and indirect effects of certain variables is based on that the separation of factoreffects aren't always definite.

## RESULTS

The analysis has three parts. According to the hypotheses first I made known the alternative development configuration of European regional integration, compare to the conventional economic configuration features. In the second examination I tightened the surveys to the Central-Eastern-European region and first I showed the human development configuration. After it I identify the attendant occurrences what result in human development with multivariable jointed methods. The third part put the special human problem of the region into the centre and I made known its causile modell and then I cleared up the causes of the deviation from the main regional-economic-social explanation plane

### *Human development in the regional Europe*

For mapping the regional quality of life I made a regional defined human development indicator<sup>1</sup>. I have done the index with a little different indicator content but I kept the dimension content of the original indicator (long and healthy life, attainable knowledge and honest lifestandard). I left out the GDP/capita indicator because of the critics of general and regional levels. Instead of that I used the available income what is based on the consumption. I took out the former qualification indicator (literacy willingness and schooling rates) to the degree qualified rates. I left the expectable lifelong indicator according to the original methodology.

First I showed the configuration features of quality of life (Figure 1.): the undeveloped Eastern wall what was formed by the Central-Eastern-European regions and the South-Atlantic failed bend what is formed the Portuguese, South-Spanish, South-Italian and the Greek regions. The developmental focuses of Central-Eastern-European regions are mainly the capital regions but other favourable tendencies also appear for example: in the case of Little-Poland and South-Czech regions. The Northern continuation undeveloped bend what was reviewed by CSEFALVAY (1999) isn't undeveloped in the sense of human development: Ireland, Scotland and the Scandinavian regions with some expects (but those are also medium developed) are the representative of the good or high categories. Along Pyrenees (the region between the front region of Atlantic bend, resp. „North of South”) a cluster can be found what offer a high quality of life. The European (in economic sense) mother region from the point of view of life standard isn't homogen, divided region.

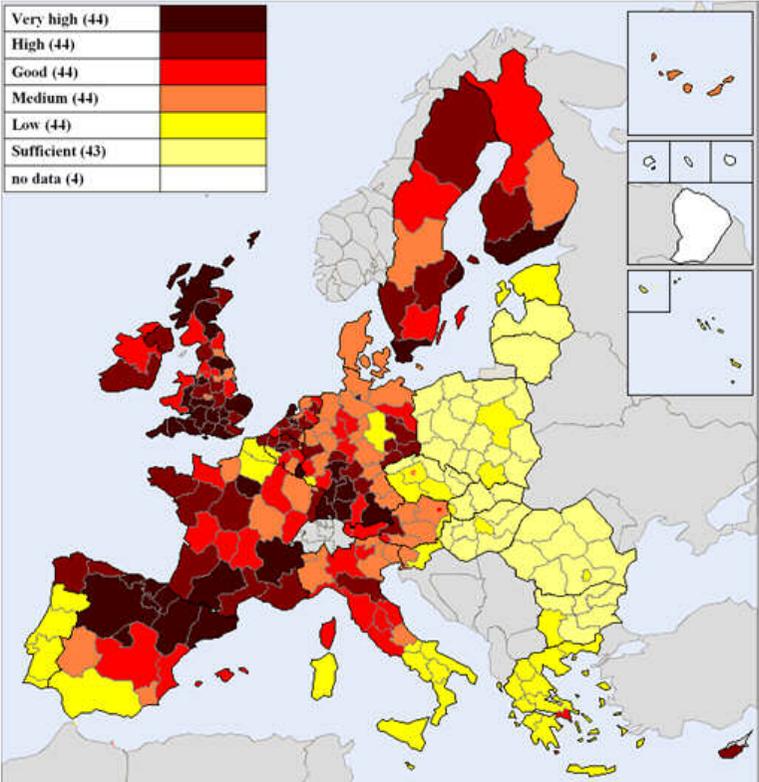
The done configuration of researches with the toolbar of statistics first I outlined the connection of human indicators – contrast with – and GDP/capita and the certain area parametres. During the examinations I desintegrated the EU27, the integration with 15 members and I separately scanned the new connecting regions. According to the correlation relation we can say in the case of both indexes the same ways can be seen in the instance of certain configuration features. In the case of HDI the correlation relations are usually stronger than in the instance of economic development. The strongest

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<sup>1</sup> I did the counting of the deprivation indexes of HDI according to the methodology what was outlined by UNDP: the certain portindexes can be explained as the ratio of the distance from the smallest standardized data and the complete value spread. During the standardization the worst partfeature can be characterized with 0 and the best with 1. The arithmetical mean of the three partindexes give the value of HDI. So the HDI can determine the positions of certain territories compared to each other. (And it means a limited suitability.) The basisdata are the mean of 2004-2006.

significant activefactor is the surroundings assimilation, second is the distance from the nearest MEGA-territories, third is the West-Eastern (geographical) position and the last is the distance from the pentagon territory in the case of both indicators.

There is a big similarity in the regression modell what shows the complex spatial of both indexes: in the case of EU27 and EU15 the surrounding assimilation and the distance from the nearest MEGA-territories, while for the new connectors only the surroundings assimilation is a significant exponent factor. The index of the distance from the economic focus didn't get into among either of the exponents of the development indicators. This forecasts the mother region of development-maturity rather suits to the cluster of grapes (KUNZMANN 1992).



source: database – Eurostat, basemap – Espon, own editing 2011

**1. figure: The spatial differences of the HDI in the European Union**

I used NEMES NAGY'S (2006) competitiveness, resp. economic development analysis method to express the relation between the human development-maturity as a tinted, more complex way. According to that the index of economic maturity (GDP/capita) can be dissolved into well defined, clear components.

The three factored (triadic) dissolve looks like as the following:

$$\frac{GDP}{population} = \frac{GDP}{employment} * \frac{employment}{activity} * \frac{activity}{population}$$

The competitiveness typology (advantageous/disadvantageous) what was explained on the whole territory of the European integration is nearly completely symmetrical, while in the case of old and new member countries it shows an asymmetrical distribution picture<sup>2</sup> for the good who has competitive advantage. The reason of these is the effective success of prominent values in the two regions (EU15: Inner-London, Luxembourg, Bruxelles, Hamburg, Groningen and Ile de France, Upper-Bavaria, Wien and Stockholm; Newly joined: Prague, Bratislava, Middle-Hungary and West-Slovenia) and put the mean higher. During the further analysis of factors what determine the economic factors I scanned that the role of labour productivity is primer in the differentiation of economic development and it's followed by the activity and only the next is the employment; this occurrence shows to the main role of today's maintenance load.

Highlighting the global centres what mediates the economic and social impulses and the MEGA-regions I scanned that the favoured position in the town morphology and economic development (for example the case of Ile-de-France, Inner-London, Wien, Bruxelles) doesn't mean a complex advantage in the case of competitiveness. But at the same time the Central-Eastern-European capitals (Prague, Bratislava and Middle-Hungary) not only in their own surrounding but in the whole European integration have an excellent complet.

**Table 1.: The connection of economic competitiveness and human development**

Economic competitive advantage			
	Complex	Multifactored	Onefactored
HDI <sub>EU27</sub>	0,702	0,662	0,665
HDI <sub>EU15</sub>	0,731	0,689	0,667
HDI <sub>NMS</sub>	0,465	0,355	0,330
Economic competitive disadvantage			
	Onefactored	Multifactored	Complex
HDI <sub>EU27</sub>	0,530	0,481	0,384
HDI <sub>EU15</sub>	0,632	0,628	0,583
HDI <sub>NMS</sub>	0,160	0,234	0,248

source: database – Eurostat, own calculation, editing 2011

The table 1. shows the connection of human and complex economic output, in the case of EU27 and desintegrated regions separately too. Under the certain competitiveness categories the HDI meanvalues appear. Except the 27 membered integration competitive advantageous and the economic competitive disadvantageous regions of the new accession region the human development follows the structural features of economic maturity: more developed the certain region economically, more developed the explained progression along the life expectancy-qualification-income indicators. In the case of EU27 the multi- and onefactored regions with economic advantageous can be described with nearly the same human output, while in the case of new accessions the dissonance appears in the opposite trends. More „non-competitive” the certain region more higher is the measure of human development.

Clearing up the dissonant trends I made a newer examination, I estimated the effect of regional economic maturity to the life of quality with the help of regression-analysis. After taking the logarithm of GDP/capita I got the best joining regression relation of the two

<sup>2</sup> The symmetry/asymmetry refers to the distribution of competitive advantageous/disadvantageous regions.

maturity indicators, the measure of determination is 75,8%. This also strengthens the occurrence of diminishing returns. Examining the question of efficiency more I did the map plotting of residuals. (Figure 2.) With the help of residuals I describe those regions that have human deficit or overage during the transformation of economic output. It can be seen very well that so far undeveloped South-Atlantic-Mediterranean bend has an efficiency overage<sup>3</sup> now. But this isn't homogeneous either for example the South-Portuguese regions, resp. some Greek regions have deficit but for the most regions the favourable human development is illustrated of what was measured to the economic maturity. The favourable human maturity along the Pyrenees also guarantees a higher human surplus for the population here and the Spanish and French regions of „North of South” join to this.

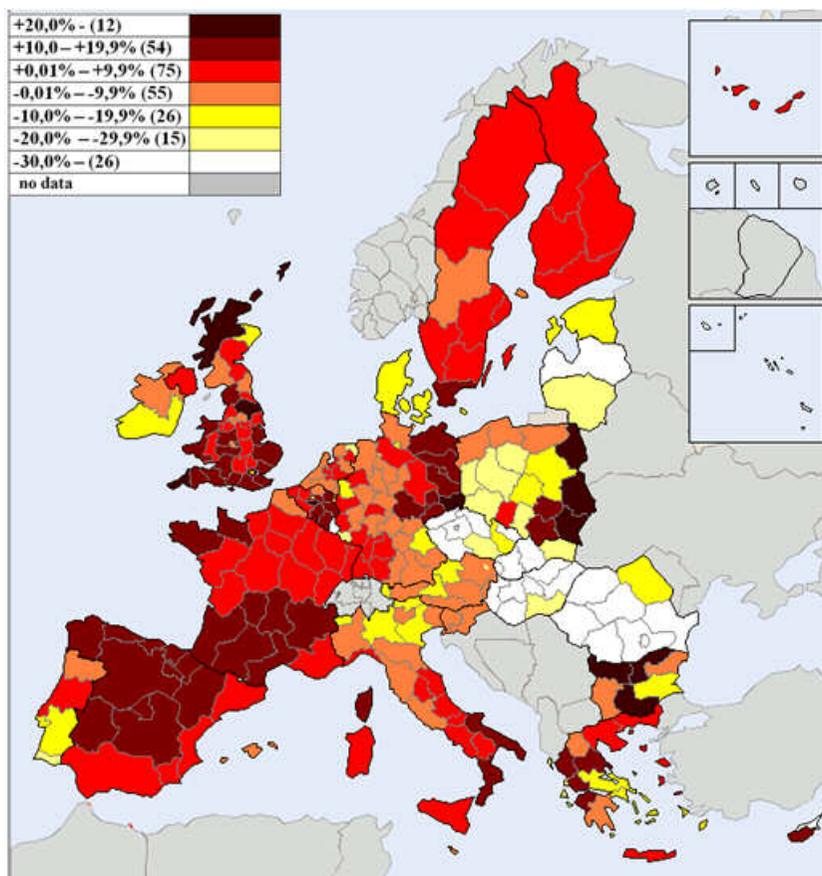
I showed also that inside the countries a significant regional differentiation can be seen: beside the advantage of South-Italian regions, the disadvantage of the North-Italian regions is the spatial feature, in Poland the foregoing (in the sense of Gorzelak, otherwise complex competitive handicapped) Eastern wall with Little-Poland and Holycross voivodship can be described with definitely favourable human development features. The same regional typicalness can be seen also inside Germany: the advantageous part of the provinces at the territory of the old German-Democratic-Republic signs a clear regional differentiation. It has a big probability that the regional division is resulted by the state intervention; the case of Polish regions make it stronger (TRIDICO 2007), resp. significant West German subsidy is also generally known and its spatial differentiation effect significantly appears here.<sup>4</sup> The regional differentiation is not only the result of state intervention, the human deficit that reaches the capitals the effect of commuting also can cause, because to the outstanding economic output the natural frontier regions also contribute (see the relation of Inner- and Outer London) so other regions are also winners in the respect of human results. In the Central-Eastern-European regions an axis can be found what can be illustrated with an extreme efficiency deficiency. It is from the Czech North-West region to the Romanian South-Eastern region and nearly consists of all the regions, including the capitals. It is without avail that Prague from Wien and Stockholm nearly failed, Bratislava is more than Salzburg, Stuttgart and Madrid, resp. the economic output of Middle-Hungary that overtakes Rhineland-Pfalz, mainly in the life chances and the income features it doesn't have a sign. Highlighting the example of Prague we can say in the case of life expectancy 1-4 years backwardness, in the case of income levels 3.000-9.000 Euros backwardness can be experienced from the West-European regions<sup>5</sup> what have the similar economic output. Several countries can be found where we can see an efficiency surplus on the territory of nearly or the whole country for example: Spain, Finland, France, Sweden and Belgium.

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<sup>3</sup> The deficit/overage ideas can be explained in its function that compared to the GDP the value of HDI lower or higher.

<sup>4</sup> FARKAS (2000) made known in his study the main features of interregional transfers from the budget of certain countries, in this appears „the Robin Hood-effect” in Germany, Italy, Spain, Portugal, Sweden, United Kingdom what is a rearrangement from the economically developed regions to the poor regions.

<sup>5</sup> The economic output of Prague is on 38.354 Euros purchasing power-parity and in the European rank is on the 12th place. In the case of life chances the 198th, qualifications the 81th, income the 179th. In my opinion in the present situation in the case of economic output the higher effect of foreign operating capital can be felt, but welfare level what can be felt in reality is failed from this. The situation is also similar in the case of Bratislava, Middle-Hungary and West-Slovenia.



source: database – Eurostat, basemap – Espon, own editing 2011

## 2. figure: Spatial distribution of the residuals of the economic and human interaction

The efficiency what was measured on a regional level has a close connection with such an interregional actions as for example the measure<sup>6</sup> of the state, trans- and supranational intervention, resp. the occurrence of commuting-migration or the spatial position of production factor-owners. These influential factors significantly tint the result of regional efficiency examination. We have to take these account at the examination of this question.

<sup>6</sup> The 2,3 billion Euros cohesion support between 2007-2013 what was planned to the human effective Polish Eastern wall (Warminsko-Mazuria, Podlazia, Lubelski, Ruthenia and Holycross voivodship) and its aim is to make faster the social-economic maturity-pulse. The separate only to this region defined name of the operative programme is the development of East-Poland OP. Its amount is separate from the development source what is from the Cofesian Fund and it's separate from the five regions. (EC REGIONAL POLICY 2007). To complete this the higher humanindexes values of these regions result the human disharmony what can be found in the case of economic competitive disadvantage.

### *The result of Central-Eastern European<sup>7</sup> human examination*

As the HDI doesn't show the indicator, resp. the social-economic progresses (result or attendant) what are in this and behind certain shared territories („to create an environment in which all people can expand their capabilities” – HDR 1994: page 13.), so my aim was to determine the progresses what show the differentiation of human result factors.

In the first step I finished the completion of regional human features. Because the HDI wants to define only the essential human-development features („the survival is only the precondition to reach the further abilities and functions” ANAND – SEN 1994: page 12.-13.), so I initiated complementary features according to the writing up of the technical literature. I didn't complete the dimensions in HDI with newer, I decided to have ANAND – SEN'S (1994) principles as a leading part. I completed the dimensions of long and healthy life, life expectancy with infant mortality, the dimensions of obtainable knowledge with the rate of life long learning students, and the living standard became wider with the GDP/capita (on purchasing-power parity, logarithm form) indicator.

I made a so called human factor with the help of maincomponent analysis and I formed five groups – deviate from the traditional human development categories – in accordance the manageability and the adaptability of further examinations. (Figure 3.) The low observation unit-number motives the using of hierarhic cluster analysis. I chose Ward's proceeding. In the next step I defined the social-economic profil, features of certain human development-clusters with the help of factor- and discriminant-analysis. The further using of factor analysis is also support by more reasons: on the one hand the lower unit numbers involved into the examination what significantly determines also the numbers of initinted observation variables; the using of discriminant-analysis demand the low level of multicollinearity. The method has a solution to both principled and practical problem: it's suitable to the information condensation, to make latent variables, to define the more complex and divers effect, resp. it makes incorrelated variables. (SAJTOS-MITEV 2007, SZEKÉLYI-BARNA 2005)

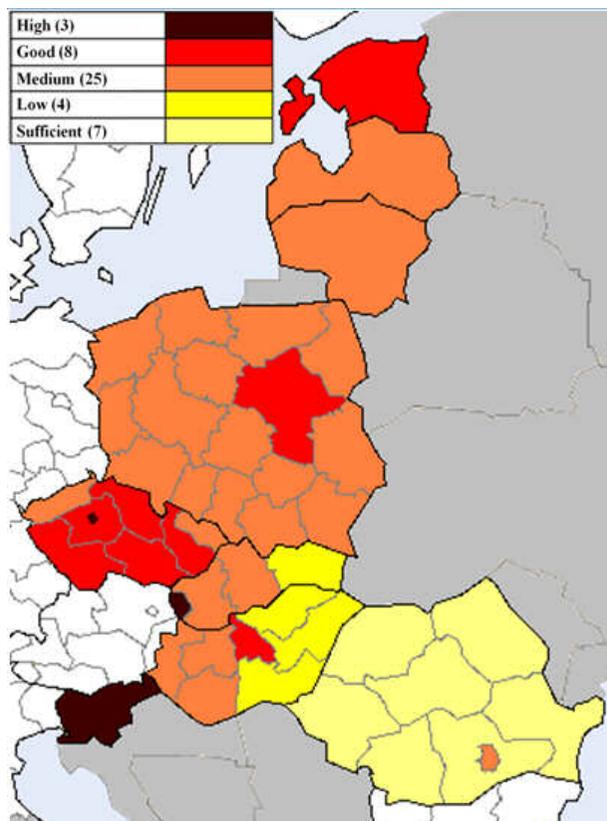
The first – I call it economic competitiveness –factor of the factor-analysis what shows the differentiation-attending progresses of human features condensates six variables. These can be economic structural, economic efficiency, infrastructural-financial, qualifications, sectoral employment, demographical variables. The factorvalues (scores) from certain regions mean such latent variables, in what the higher primer sector added value (what doesn't improve the development of primer sector but the weak standard of industrial and service sector – ULB et al. 2006), the rate of having primary education, resp. the rate of younger and active agegroup move together. The productivity rate, the rate of cars, the rate of service employed also move together but with an opposite sign with the first three variables.

In the second factor ther is the real dependent stratum with the biggest weight and it is followed by the long time unemployment, demographical attraction and the cummulative increase rate. Bigger is the number of dependent, bigger is the rate of long time unemployment, the measure of migration has an opposite sign (the migration is bigger from regions with these features), resp. also the indicator of economic expansion. The

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<sup>7</sup> I mean behind Central-East-Europe the NUTS2 regions of Estonia, Latvia, Lithuania, Poland, Bohemia, Slovakia, Hungary, Slovenia and Romania.

indicator what shows the measure of state intervention has a significant factorweight. This moves together with the unfavourable features (dependent weight, unemployment). The balancer role appears in the disadvantageous regional ability regions. (The biggest part of the reconducted taxes what was taken from more developed economy, higher life standard goes to the undeveloped regions in the form of transfers.) It can directly show the balancing of regional inequalities what are produced by the market can be influenced with state interventions, or as NEMES NAGY (2005: page 149.) composes in a „regional sense”: „the extension of state, welfare redivision or the lack of it is also the essential development of the regional differentiation”.



source: database – Eurostat, basemap – Espon, own editing 2011

### 3. figure: Regional human development clusters in the studied area

The factor-analysis results of the human base categories can be trusted statistically, but the loss of information (nearly 30%) makes reasonable the analysis of the connection of variables what indicate the outer social-economic environment and the variables what condensate in the human factors. In the case of variables what condensate in the competitiveness factor closer relations can be seen with the human factors, while the variables of dependent factors show a closer relation with the GDP and income indexes. In the first case we can say the correction of competitiveness goes with the improvement of human features, while in the last case the indirect case of dependent factor is important what can succeed through the income-economic features. During the examination of outer social-economic environment I showed the relation between the dependent rate and

demographical dependency rate and I described the actually dependent stratum (the rate of unemployed) doesn't have a close relation with the different dependency rates. During my examination I introduced the Solow-modell can be used only with maintenance during the regional level economic convergence-analysis.

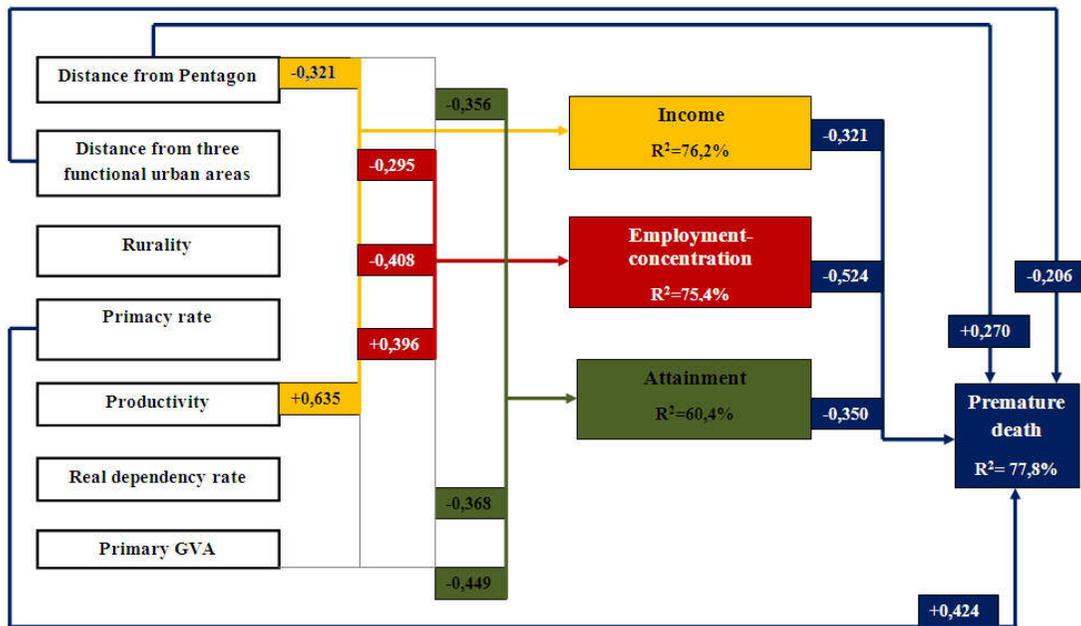
And last in the case of introducing „the outer” region of human development of Central-Eastern-European regions and showing its connection I discriminated the certain human development clusters along the factors what were got at the result of multivariable method. On the positive side of the first function there are those regions what are economically more developed, competitive, on the negative side there are the regions with structural economic weakness, lower qualification and more favourable demographical features. On the positive side of the second function an environment can be found illustrative of high dependent weight, unfavourable employment, migration and higher state intervention, on the negative side there are the more favourable economic-social features.

The classification sign, the analysis of the most important efficiency evaluation output of discriminance-analysis gives an excellent result. During the testing of the modell fitting the rate of correctly ranged elements is 85,1%, while after the crosscontrolling 83,0%, and it can be considered very good. The migration of seven region can be seen and these movings sign the features of human development efficiency. I established that Slovenia and Middle-Moravia have much more favourable human features than their economic and social features predestine. In the case of Bucarest-Ilfov, North-Hungary, North- and South Great Plain and Eastern-Slovakia there is a reversed case: they can't change their economic-social power into the same human output. The other regions can be illustrative of with the suitable human development to their social-economic development.

### ***The examinations what affect the men's premature mortality***

As the first step I described that in the European regional integration the connection of income situation and the men's mortality before time can be written with a big efficiency with the help of a quadratic polinomial function. We can say bigger is the regional income, smaller the measure of mortality, but only until a certain level (18.500 EUR). After this the mortality level increase a little what can be thanked to Luxemburg, Inner-London, Bremen, Hamburg, Upper-Bavaria and Ile de France. The cause of increasing is the higher inequality what can be found in these regions. But if we analyse the two regions separately we can discover a different regional pattern. The health state-income relation appears what was made known (on national level) by WILKINSON (1994): in the case of developing Central-Eastern-European regions the health condition increases (nearly) proportionately with the income, while in the developed regions (from old membercountries) the inequalities are significant. On the Eastern side of health-iron curtain Slovenia and Prague go into the databases of the Western regions and it gets into the company of Denmark, Portuguses Algavre, North-and West Finland.

In the next analysis I showed the causal modell of Central-Eastern-European men's mortality in regional level. In the first part of it I tried to show the connection of before time mortality and the spatial configuration and among the baseindicators of regional development and to make a new modell with a better explanatory power. During the second examination I wanted to examine that the results of worked up modell how suitable to the regional division of traditional regional social-economic development, resp. who are the relative winners/losers in the regional division of mortality crisis.



source: database – Eurostat, basemap – Espon, own editing 2011

#### 4. figure: The explanatory modell of the premature death

For this I used a „double” path analysis: on the one hand the used method by CSITE-NÉMETH (2007), resp. NÉMETH (2008), on the other hand SZÜCS-TÖRCSVÁRI (2004), resp. GALÓ-KVANCZ (2006). The connection of directly and indirectly effect variables and mortality is analysed by myself with the help of multiple stage regression analysis while I analyse the connection of directly effect factors, resp. dependent variable with path analysis.

I made wider the circle of examined Central-Eastern-European regions with Eastern-German (former socialist) regions what were reached by the health paradox: Berlin, North-Eastern and South-West Brandenburg, Mecklenburg-Vorpommern, Chemnitz, Leipzig, Dresden, Saxon-Anhalt and Thuringia NUTS2 regions. The data of Bulgaria can't be reached on regional level (in the case of mortality or explanatory variables) so I left it out of my analysis.

I use from the indicators of regional development (according to the technical literature describing the social-economic inequality of mortality) the qualification, income, economic and employment; I use main features of regional structure, situated indicators as public road distance, rurality, resp. regional concentration. According to my idea the spatial position and the configuration have an influence on general economic maturity and that has an influence on the social-economic maturity factors what have a direct effect on the mortality. Metastatic effect also can be supposed, the availability and the configuration have an effect on the social-economic progress, resp. to the men's mortality before time. The big part of the way of directly and indirectly succeeded factors is formed according to the hypothesis: better availability and geographical position, more favourable the general economic and social-economic maturity, resp. also the values of mortality. The result of explanatory path-analysis what gives the centre of the analysis can be seen on Figure 4. I

made a model with an outstanding explanatory rate considering to the regional leveled analysis and this model after removing the capitals<sup>8</sup> is also significant and can be illustrate of nearly the same determinant coefficient.

In the regional research I keep as a new method the path-analysis<sup>9</sup> what shows direct, indirect and common effects. I described that in the case of several indicators (qualifications, income, resp. distance from the pentagon territory) the direct effect is bigger than the indirect. In the case of employment indicator the power of direct effect is reduced by the indirect effect signing with these the extreme and unhealthy concentration progresses what appear in the engineteritory of the region. With the help of this method we can also show that certain indicators – those who haven't got a significant relation with the dependent variable – how and after what connections become a reasonable factor in the certain model.

During the examination of indirect effects I proved the closer relations of the mainer maturity indicators (employment, income, qualifications), resp. the significant relation of these indicators with the distance of the economic mother territory. Its explanation is still West-Eastern way maturity axis and the occurrence what was named by CSÉFALVAY (1999) as dominance of „house with passageway typed borders”. The case of this occurrence primary is in the development differences what divide the Central-Eastern-European region. In Central-Eastern-Europe going from Eastern to West nearly after every country- or regionborder we can step into a more developed region. Moreover the most of the Central-Eastern-European regions are strongly centralized, their development energy and source are concentrated into only one or some centres and these energies and sources go towards to the frontier edges very slowly and weakened. (CSÉFALVAY 1999)

In the following step I wished to examine the position of mortality how agree with the configuration pattern of traditional social-economic maturity. Have the more favourable economic development regions considering to their relative positions more favourable mortality data? (And vica versa.) Before this examination we have to analyse my path model in a more detailed way.

Explanation of the error factors of regression models as local features highlights (NEMES NAGY 1998, NEMES NAGY – NÉMETH 2005) the differences from the explanatory regional, social and economic key level. The explanation – in my opinion – only partly can lead back to the intraregional inequalities, point beyond them. Several cultural, historic feature result the mortality surplus or the favourable situation. Showing the intraregional inequalities I used a model what express the relation of income situation and the mortality what was caused by tuberculosis and this established that case by itself that lower the income position, higher the rate of deprived population, resp. the rate of death caused by tuberculosis. The surplusinformation is given by the deviation from the trendline what signs the connection: according to these all of the Baltic countries, the Romanian South and Bucarest-Ilfov, Middle-Hungary, Lodz, Silesia, Lower-Silesia and Mazóvia regions are illustrate of significant inner inequalities.

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<sup>8</sup> I considered to do the examination without capitals important because in several cases the social-economic progresses what are concentrated in these regions have a significant influence on the result, composition, significancy etc. of one model.

<sup>9</sup> In practice this also means a path-analysis but because of the methodological features I use the English naming.

I proved that from the Central-Eastern-European region Silesia struggling with heavy industrial transformation has the highest mortality surplus, resp. also can illustrate of with significant surplus the former heavy industrial centre, the black triangle what can be described with Budapest-Lodz-Halle butt piers. Although the region isn't homogen – some regions successfully treated the transformation period – but the biggest part of it can be described with unfavourable mortality. To these regions in the consequence of the former forced industrialization for today the stunted environment, relative high and concentrated unemployment, lower qualification and lower social capital is characterized what has a significant unsanitary effect. In Slovakia the surplus mortality appears not only because of the transformation troubles. The health features of the considerable Roma majority in the South regions are significantly failed from the majority society, Gypsy men live 13 years less, the women 17 years than the national mean.

As the biggest winners of the regions the former German Republic provinces and Slovenia can be considered. As the result of the incometransfer trending to the former socialist German Provinces forming social cohesion can be considered successful because in the most of the provinces the measure of mortality is less than it could have been waited from the features of spatial-social-economic. At the same time the social projection has to be stressed because during the examined period the rate of men's unemployment and stable unemployment is the highest in the region, more than the meanvalue of Polish and Slovakian, too. Slovenia was one of the most developed and opened country during the socialist period, using the former relations it easily accomodated to the new situation what was new for the majority. Pomerania in a historic sense can be considered to the same winner.

The regions with the Eastern periphery (it refers to the Eastern wall „subject to” Poland and Slovakia and the whole of Romania) and the most part of South-Bohemia can be illustrate of more less mortality than their maturity has been reasoned. I can see its explanation in the cooperation and solidarity what is illustrate of the agriculturalregions and this is illustrate of these regions. The here directed sourcetransfer is significant in Poland, in Romania in comparison of EU the biggest measured home reference amount has a positive effect on the quality of life. In connection with this in my opinion the Easterlin-paradox also explains these results: in the whole world that trend is succeeded the happiness level of poorer countries is higher than in the countries what are rich in income the happiness level is lower. Its explanation is that the measure of inequality is also determinant in the case of life quality in the developed countries. The regional projection of Poland of this occurrence is made known by TRIDICO (2007). In the Eastern undeveloped Polish regions relatively better gender-economic features (lifechances, qualifications) can be seen, while in the developed West the role of inequalities has a more determined explanation to the relative unfavourable situation of life chances.

In the case of the only one Romanian identified unfavourable region the measure of inner inequalities is significant (see the relation of income-tuberculosis), resp. the lower fertility what may be lead back to more centuries antecedents (and with this an older agestructure) is a significant occurrence in the explanation of mortality surplus.

In my opinion the capitals what are in an unfavourable situation have to be divided into two groups. In the case of Mazovia the so high being of inner inequalities have an

explanatory power<sup>10</sup>, while in the case of Prague and Middle-Hungary the situation of mortality is unfavourable because of the extreme regional concentration. While in the case of Prague the surrounding Middle-Bohemia already has a profit from the geographical position, as far in the case of Hungary the mortality situation of all of the other regions is more unfavourable compared to the relative maturity. In the case of Hungary the industrial change not only in economic sense but also in human sense had a negative touch to North-Hungary what former had a heavy industrial character (and significant Gypsy minority), resp. the agricultural transformation also established a different – more unfavourable – carrier than in the case of other Central-Eastern-European countries.

In the Baltic countries the fast social-economic changes, the higher being of inequalities (capital-rural – JENEY 2008), the ethnic division and the social anomy spaek in the mortality surplus favour. Beside the deathcauses what express the inequalities (tuberculosis, infant mortality), the death rate what signs the fastness of changes and because of different other causes (suicide, accident, poisoning) is on the first place in the EU. And these show the significant being of regional differences, resp. its strained occurrence.

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<sup>10</sup> The relative dispersion of GDP/capita is nearly 63%.

## NEW AND ORIGINAL RESULTS

The new and latter research results can be summarize according to these:

1. I mapped in the European integration the regional specialities what can be found in the human development. I proved that the surrounding assimilation (regionalization) and the polycentricity are the main configuration features in the case of quality of life.
2. Considering the relation of GDP/capita and HDI it's very close, positive and reliable. Transformating the economic maturity into human maturity can be explained only with corrected GDP/capita data with the consideration of the law of diminishing return.
3. I established that the united European mother territory can be bordered without using of multivarible methods and condensation indicators too, although the economic limitation cover a bigger territory than the blue banana or the Pentagon territory. Inside the mother territory as well as outside I identified well bordered, developed head exchanges and over this I also showed the mainer European configuration features.
4. I showed the weigh of factors what result the inequalities of competitiveness and I established different features can be seen in different regional levels. The difference is caused by the productivity and activity (dependant) level, and this overtakes the employment level too as a significant explanatory factor.
5. Reviewing the spatial features of human territory-economy interaction I highlight on that the effect of interregional actions is an essentially influenced factor in the case of human features. I determined the regions in the European territory the regions with human deficit and overage.
6. I completed the database of human regression and I formed a new human developed index with the help of maincomponent analysis. I bordered very characteristics human development clusters and I defined the social-economic progresses drawing back behind the human development of Central-Eastern-European regions. It was found that differentiated regions by the base cathegories of human development can be put in the competitiveness system of coordinates (efficiency, equality) buti n the case of several regions significant efficiency dissonance can be discovered.
7. During the regional analysis of Central-Eastern-European health paradox I proved that the men's mortality before time is available to express the regional differences and social economic inequalities. I formed a mathematics-statistics modell explaining the Central-Eastern-European regional mortality csisis, in this I showed the relation of the main and connecting with each other configuration, economic and social active components. With the help of the modell I defined the regions what are touched in the mortality csisis and I found an explanation to the features what result in the loser and winner positions.

## CONCLUSIONS AND SUGGESTIONS

In consequence of the widening in 2004, resp. in 2007 the Central-Eastern-European area become a complete righted member of the European Union. So the regional development got into among the communal frames; the creation of economic, social and regional cohesion and the „contribution” to that become a highlighted task. As the result of writing up the technical literature and the examinations I clear up the conclusions and suggestions from three point of view. These touch the future of methodology, regional development and development politics, human examinations.

From the methodological piont of view we can say from the pont if view of the economic as well as human examinations the NUTS2 leveled regional system is available to show European regional differences and configuration features but they have to be treated with maintenances. The nature of maintenance shows on the one hand that the regional borders not in every case go close to the way of functional connection and real organization, on the other hand the regional politics suppose homogen regions. Is spite of the difficulties what happened from the features of this regional border my results can be interpreted well, buti n any case it is a solving task the regional approach of so far and in several cases latent borders and functional relations. This can be solved in my opinion with forming former historic, ethnic regions (Romania, Slovakia) but the development region definition what is based on the so called functional city territories border or labour-market system (make known by TÓTH-SCHUCHMAN 2010) result a more exact and more useful solution. The „antidote” of the false belief of homogenity in my opinion expressing the inequality features inside the certain region and the solution of this is an essential question and urgent task for those who are interested in the regional statistics. The main problem is the further non-dividable regions (Prague, Wien, Morva-Silesia etc.), here the report of districts or small regions leveled inequalities can be possible. I think to express social contented regional inequalities not only being on the area of health the tuberculosis incidenty can be a suitable indicator or those people’s rate who die din this illness.<sup>11</sup>

About the development of regional economic could give a much better picture the report of differentiated economic output according to the production component owners and the place of production, because the recent system is only limitedly available to express the economic development, and so it’s false and isn’t suitable in every case to found and appreciate of development strategies. In the case of economic value content indicators (GDP, available income) the regional pricelevels have a radical influence to people’s life standard who live there, so their report to the unified European regional area is essentially important.

The social capital- and stress indicators could give a more exact and tinted picture about the regional development. Knowing that their definition is also a difficult task the estimation and report of these features essentially would be needed. Undoubtedly we can seize the rate of suicides or migration as a kind of social capital indicators too, but exactly in the case of this last occurrence the cultural feature can be found what makes difficult the claring up of the real state. The regional knowledge of these factors is mainly important in the Central-Eastern-European countries, because from the transition from the

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<sup>11</sup> Considering the spatial features of illnesses too.

economic/social/political system on its own also meant a significant stress and the recently increasing inequality progresses are also burden from the population of the region.

The increasing of indicators for expressing the state/EU liabilities, balancer mechanism, resp. other public politics interventions are also composed as a suggestion because in the regional analysis we can give them a stressed role. The further widening, developing of NUTS2, but the NUTS3 leveled databasis (mainly in the case of accession countries) is strongly recommended with the further standardization of statistics norms.

Over the multiplied and multivariables methods (regression-, factor- and discriminantia analysis) what mainly can show only the linear connections and used in the regional analysis we need to use mathematical-statistical analysis technics what can treat the non-linear connections, too.

In the case of regional development and developmental politics in my opinion we should step over the regional strategies what are based on regional output. The indicator of human development – can't directly used as an indicator what based the development – in any case is the essential relative indicator of progression. Mainly in the mirror of the traditional development- indicator it gives surplus information and analysing on regional level it also can be used to express the interregional interactions. Because of this it may be available to express the controlling function signing the net efficiency of the regional economic efficiency. According to the HDI highlight the most undeveloped regions – similarly than in the Hungarian development politics in the case of the most disadvantageous position small regions what were rated according to the complex development indicators – it would be worth to give surplus liabilities to these regions or at least prefer them to other regions what are in a favourable state in a human sense.

I think the developmental strategies what based on one dimension is exceeded by the time, it is needed to use complex approaches during the general and regional development what include more social-economic occurrence. The Lisbon Strategy what put the European competitiveness into the centre and the Europe 2020 plan has suitable aims but with the regional adaption, resp. the regional level disposal of the liabilities what are needed to the plans is the European Union in debt. It's a primary task mapping, expressing the synergies between the developmental strategical aims in the point of view of the human centered development.

The other excellent example of the complex approach is the Barca-report and the importance of the main part of the main priorities (children, aging, climatechange, migration, innovation and abilities) what appear in it, were strengthened by my examination. The maintenance load is an important question in the old as well a sin the new member states and we have to find a solution. In my opinion – from this point of view – from the four human rights the individual's for the Central-Eastern-European countries essentially induced and induce continuously harmful progresses. From the poorest, the most undeveloped regions the qualified human source migrate and with this it „tears out” the essential subject of the development from the progress. At the question of the maintenance I think we should step over those approaches what based only on dependency rates, the topic needs a complex examination: take the employment, demography and migration trends into account.

As the result of my researches we can say the claim of the place-based development politics is reliable (in human sense too), this development approach touches in the Central-

Eastern-European regions mainly the former heavy industrial regions (mainly Silesia). I think on behalf of reaching the regional dynamism beside the social and economic expresses we have to answer to the ecological disadvantages.

In my opinion the role of the state can't be neglected either during the regional development in Central-Eastern-Europa. The state has to behave as an impulse and catalyzer first in the formation of regions with unified, inner cohesion. After this these regions can already bring their own, (demand orientated) developmental strategies what based on inner sources and with the help of these the intraregional inequalities already can be reduced the measure of social share can be increased and with all of these favourable human result features can be reached. (Mainly in the case of undeveloped regions.) In the case of economically more developed, more competitive regions the state intervention is needed to focus on the reduction of the inner inequalities while in the undeveloped regions it is needed to motivate for the equalizing and increasing of the competitiveness. This last aim is needed to do with the regroup of liabilities what can devote to regional development to poorer regions (inside the undeveloped regions), for the prevention of further divergence. But the continuous controlling of the relation of general economic development aims and features and the definitions of regions with human deficit and overage. In the case of inconsistent occurrences (for example in the case of Irish regions<sup>12</sup>) interventions are needed.

As the result of my researches it can be established that taking arrangements is also needed to reduce the extreme concentration progresses in the Central-Eastern-European regions, in the case of reaching the polycentricity. At the solution of this task a double aim is has to be carried out: on the one hand the sources have to be taken to the more undeveloped regions, but beside this in the certain region usually only one region with European level competitiveness isn't allowed to weaken, to reduce its competitiveness potential.

Introducing the configuration features of the wider European environment in the case of the Central-Eastern-European region Wien absolutely can't be the only one coordinator of the region and all in all in my opinion it only can be a mediator. The regional analysis and the specific literature also showed that in the respect of the region Berlin, München are the same significant moderators, in the case of Baltic region Helsinki, or in the Balcan region the occurrence of Turkish and Greek influence what means the historic continuity. As a function of this I suggest the continue of researches what direct into the report of historical features what can be found behind the regional inequalities.

In the respect of economic and human closing up of Central-Eastern-Europe further pessimism is reasonable. As GLATZ (2003) says: „the EU has a sharp political system (Maastricht), protection politics (NATO), economic- and fiscal politics (euro), and now an environment politics too, but how strong its humanpolitics?“ (page 456.) The conclusion of the 1000 years old European integration is said by the author as the following: „the integration was always strong on those territories where the economic independence was joined to the social-cultural integration too.“ (page 455.) In the present situation after the financial-economic crisis ENYEDI (2010) makes known two screenplays prognostic the integration progresses inside the European Union. One of them shows to the closer way

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<sup>12</sup> The role of the Irish region in my opinion is important because they mention Ireland as an examplar int he respect of the development dynamics of EU. But the efficiency of economic-human development interaction is similar to the regions of Central-East-European regions.

(for example the question of economic government), while the other goes together with the weakening of solidarity and integration. (The two-speeded Europe.) Both way result the further regional differentiation of the Central-Eastern-European region, in the respect of that in my opinion the spatial, social, economic, cultural and human integration of the region still waits for itself.

Because of this it would be needed for a loose integration form in the case of Central-Eastern-European member countries, as the Visegrád cooperation what recognizing the common interests can represent suitable weight in the development politics decision making. In my opinion this would touch all of the Central-Eastern-European countries in the case of one strategy what put the human development into the centre and especially the Baltic countries, Bohemia, Slovakia, Hungary and Romania are interested.

During the analysis I didn't mention the role and the features of the health system, its development also can determine as a suggestion, because the possibility of hypothetic, immediate, satisfied economic-social development (and the formation of „health-equality” also goes with that) by itself wouldn't solve the unfavourable health state of the unfavourable Central-Eastern-Europe.

As the result of the human resources I can say the human result features are available showing of the regional differences of the European Union as well as Central-Eastern-European region, so their further examination is indispensable.

As the first step I determine the dynamical examinations of economic and human relations as further analysing aim with retroactive effect too. (In the case of Central-Eastern-European countries also to the beginning of social-economic transition.) With the help of these during more years the interaction of economic-human territory can be shown also in every planning cycle. In the case of HDI I also justified the sigma- and beta convergency and these can give a new dimension to the report of the regional differentiation, mainly in the case of political transformer countries.

Beside this the enlarging of the regional database of human progression is justified with the lifting into the statistics, for example: the crime, suicides, subjective welfare measured, poverty and inequality relations, resp. decision freedom expressing (for example: the rates of those who were taken part in the elections).

Of course it's necessary to suggest the creation of composite indexes what are suitable establishing the further regional development (for example the HPI), with the claim together with the claim of expressions of inner inequalities. Because „the indexes by itself mainly are good for focusing the attention and make the problem simple” (STREETEN 1995: page 350.), understanding and synthesize the progresses multivariables analyses are needed in the case of expert and exact knowing of the connection of certain human features. Without this the foundation, making of the development strategy is unimaginable what put the human progression into the centre.

In my opinion the further examination of mortality is also justified: in division of age, gender and death cause too. It would be worth to show the regional features of women mortality and infant mortality too. The continue of death cause examinations what touches the Central-Eastern-European countries should related to the economic transformation: the analysis of outer death causes signs intensity, resp. of the tuberculosis as „social illness” is needed.

**LIST OF PUBLICATIONS OF THE AUTHOR OF THE DISSERTATION**  
**CONNECTED TO THE TOPIC OF THE DISSERTATION**

**a) Books, Excerpts**

*Foreign language*

1. **Zoltán Egri** – Viktória Töröcsik – Tamás Tánczos: Regional HDI as a territorial and social differentiation index in Central Europe. 167-180. pp. In: József Káposzta CSc (Ed.): New elements and research in spatial economy. Research Institute of J. Selye University, Komárno 2009., 180 p. ISBN: 978-80-89234-72-1
2. Tamás Tánczos – **Zoltán Egri**: Study of microregions in Hungary based on the state and pace of their social and economic development. In: Economics of Sustainable Agriculture. Szent István Egyetem, Gazdálkodás és Szervezéstudományok Doktori Iskola, Gödöllő. (Közlésre elfogadva, várható megjelenés 2011. második fele.)

*Hungarian language*

3. **Egri Zoltán**: A humán fejlettség indexének alternatív értelmezése az európai térség országaiban. 218-239. pp. In: Dr. Kulcsár László (Szerk.): Térség – Gazdaság – Társadalom. Gödöllői Innovációs Központ Kft.; DIPO Khe. – Duna-Ipoly Határmenti Együttműködés Helyi Közössége Közhasznú Egyesület, Gödöllő – Bánk 2009., 347 p. ISBN: 978 963 9742 38 3

**b) Scientific articles**

*Foreign language*

4. **Egri, Zoltán** - Tánczos, Tamás: Regional progress of the Lisabon strategy objectives in the European region. Gazdálkodás Agrárökonómiai Tudományos Folyóirat, 2007. 19. különszám, 165-172. pp., ISSN: 0046-5518 index: 25 341
5. Tamás Tánczos – **Zoltán Egri**: The Testing of Williamson's Hypothesis in View of the Social and Economic Development of Microregions in Hungary. Periodica Oeconomica, 2010. October, Vol. 3. Issue 1., 48-66. pp. ISSN: 2060-9078

*Hungarian language*

6. **Egri Zoltán** - Ménes András - Tánczos Tamás: A tudásbázis és a munkaerő-piaci jellemzők regionális összehasonlító elemzése az európai térségben a Lisszaboni stratégia tükrében. Humánpolitikai szemle, 2007. február, XVIII. évf. 2. sz., 17-27. pp., ISSN: 0865-7009
7. **Egri Zoltán** – Ménes András – Tánczos Tamás – Töröcsik Viktória: A fejlődés humán és gazdasági vonatkozásai a regionális Közép-Kelet-Európában. Valóság, 2009. december, LII. évf. 12. sz., 59-74. pp., ISSN: 0324-7228 index: 25 865
8. Tánczos Tamás – **Egri Zoltán**: Differenciálódási folyamatok a magyarországi kistérségek társadalmi és gazdasági fejlettségében. Területi Statisztika 2010. május, 50. évf. 3. sz., 279-294. pp. ISSN: 0018-7828

**c) Full Text of Scientific Presentation Published in Conference Proceedings**

*Foreign language*

9. **Egri, Zoltán** - Tánczos, Tamás - Törőcsik, Viktória: Agriculture of the Visegrád Countries in the Central European Region. MendelNet 2006., Konferencia studentu doktorskeho studia, Mendelova Z.L.Univerzita Ekonomicka Fakulta, Brno 2006. 11. 29., terjedelem: 7 p., full paper CD kiadvány, abstract nyomtatott kiadvány, ISBN: 80-86851-62-1
10. **Egri, Zoltán** - Tánczos, Tamás - Törőcsik, Viktória: Central European Competitive Regions by the Lisbon Agenda. Rural Development 2007., The third International Scientific Conference, Lithuanian University of Agriculture, Kaunas 2007. 11. 08-10., volume 3, book 1, 56-60. pp., ISSN: 1822-3230
11. Tánczos, Tamás - **Egri, Zoltán**: Social welfare indicators and their use in territorial analysis. Rural Development 2007., The third International Scientific Conference, Lithuanian University of Agriculture, Kaunas 2007. 11. 08-10., volume 3, book 1, 140-145. pp., ISSN: 1822-3230
12. Tánczos Tamás - **Egri Zoltán** - Törőcsik Viktória: Results of the mitigation of regional development differences in Hungary, 5<sup>th</sup> International Conference for Young Researchers of Economics, Szent István Egyetem, Gödöllő 2008. 10. 13-15., Poszter prezentáció, 174-180 pp., full paper CD kiadvány, abstract nyomtatott kiadvány, ISBN: 978-963-269-071-1
13. Törőcsik, Viktória – **Egri, Zoltán** – Tánczos, Tamás: The part of the ecological footprint in the sustainable development, 5<sup>th</sup> International Conference for Young Researchers of Economics, Szent István Egyetem, Gödöllő 2008. 10. 13-15., Poszter prezentáció, 188-195 pp., full paper CD kiadvány, abstract nyomtatott kiadvány, ISBN: 978-963-269-071-1
14. **Egri, Zoltán** – Törőcsik, Viktória: Demographic challenges and their implications for the workforce market in the Eastern regions of the European Union. International Conference on Science and Technique in the Agri-Food Business, University of Szeged Faculty of Engineering, 2008. 11. 05-06., terjedelem: 7 p., abstract nyomtatott kiadvány, full paper CD kiadvány, ISBN: 963 482 676 8

*Hungarian language:*

15. **Egri Zoltán** - Tánczos Tamás: Elmaradott vidéki térségek az Európai Unió keleti határán. Agrárgazdaság, vidék, régiók – multifunkcionális feladatok és lehetőségek XLVIII. Georgikon Napok, Pannon Egyetem, Keszthely 2006. 09. 21-22., terjedelem: 10 p., CD kiadvány, ISBN: 963 96 39 12 5
16. Törőcsik, Viktória – **Egri, Zoltán**: A geotermikus energia hasznosítási lehetőségei a Szentesi Kistérségben. Agrárgazdaság, vidék, régiók – multifunkcionális feladatok és lehetőségek XLVIII. Georgikon Napok, Pannon Egyetem, Keszthely 2006. 09. 21-22., terjedelem: 5 p., CD kiadvány, ISBN: 963 96 39 12 5
17. Törőcsik, Viktória – **Egri, Zoltán**: A geotermikus energia hasznosítása a mezőgazdaságban és a balneológiában. Az alternatív energiaforrások hasznosításának gazdasági kérdései, Nemzetközi Tudományos Konferencia, Nyugat-Magyarországi Egyetem, Sopron 2006. 11. 08.-09. terjedelem: 7 p., CD kiadvány, ISBN: 978-963-9364-82-0
18. **Egri, Zoltán** – Törőcsik, Viktória: A megújuló energiahasználat alakulása az Európai Unióban. Az alternatív energiaforrások hasznosításának gazdasági kérdései, Nemzetközi Tudományos Konferencia, Nyugat-Magyarországi Egyetem, Sopron 2006. 11. 08.-09. terjedelem: 8 p., CD kiadvány, ISBN: 978-963-9364-82-0

19. **Egri Zoltán** - Tánczos Tamás: A humán fejlettség, mint térségi differenciáló tényező Közép – Európában. I. Terület- és vidékfejlesztési Konferencia, Kaposvári Egyetem, Kaposvár 2007. 03. 2-3., 80-87. pp., full paper CD kiadvány, abstract nyomtatott kiadvány, ISBN: 978-963-06-2261-5
20. **Egri Zoltán** - Tánczos Tamás - Törőcsik Viktória: A területi különbségek vizsgálata a humán fejlettségi index segítségével. Doktorandusz Konferencia, Miskolci Egyetem Gazdaságtudományi Kar, Miskolc 2007. 04. 25-27., terjedelem: 14 p., full paper CD kiadvány, abstract nyomtatott kiadvány, ISBN: 978-963-661-767-7, A kiemelt minősítést elnyert dolgozatok között a konferencia szervező bizottsága által nyomtatásban is megjelentetve, 14-22. pp., ISBN: 978-963-661-774-5
21. **Egri Zoltán** - Tánczos Tamás - Törőcsik Viktória: Európai regionális versenyképesség a Lisszaboni stratégia tükrében. Erdei Ferenc IV. Tudományos Konferencia, Kecskeméti Főiskola Kertészeti Főiskolai Kar, Kecskemét 2007. 08. 27-28., 125-128. pp., ISBN: 978-963-7294-63-1 ö, ISBN: 978-963-7294-64-8
22. **Egri, Zoltán** – Törőcsik, Viktória: A demográfiai folyamatok és a munkaerő-piac főbb jellemzői az Európai Unió keleti vidékein. I. Nemzetközi Környezettudományi és Vízgazdálkodási Konferencia, Tessedik Sámuel Főiskola Mezőgazdasági Víz- és Környezetgazdálkodási Főiskolai Kar, Szarvas 2007. 10. 18-19-20., 2007. Tom. 7. No. 1. 2. kötet 253-258. p., HU ISSN 1587-6179
23. **Egri Zoltán** - Tánczos Tamás - Törőcsik Viktória: Regionális jólét Közép-Kelet-Európában. Tradíció és Innováció, Nemzetközi konferencia, Szent István Egyetem Gazdaság- és Társadalomtudományi Kar, Gödöllő 2007. 12. 3-5., terjedelem: 12 p., full paper CD kiadvány, abstract nyomtatott kiadvány, ISBN: 978-963-9483-85-9
24. Tánczos Tamás - **Egri Zoltán** - Törőcsik Viktória: Az indikátorok és szerepük a társadalmi és gazdasági fejlettségben, Tradíció és Innováció, Nemzetközi konferencia, Szent István Egyetem Gazdaság- és Társadalomtudományi Kar, Gödöllő 2007. 12. 3-5., terjedelem: 12 p., full paper CD kiadvány, abstract nyomtatott kiadvány, ISBN: 978-963-9483-85-9
25. **Egri Zoltán** - Tánczos Tamás - Törőcsik Viktória: Kapcsolat a magyar kistérségek emberi erőforrás jellemzői és fejlesztési forrásai között. II. Terület- és vidékfejlesztési Konferencia, Kaposvári Egyetem, Kaposvár 2008. 03. 25., 68-72. pp., full paper és abstract, ISBN: 978-963-06-5394-7
26. Tánczos Tamás - **Egri Zoltán**: A hazai kistérségek, megyék és régiók fejlettségének több mutatóra épülő vizsgálata. II. Terület- és vidékfejlesztési Konferencia, Kaposvári Egyetem, Kaposvár 2008. 03. 25., 124-128. pp., full paper és abstract, ISBN: 978-963-06-5394-7
27. **Egri Zoltán** - Tánczos Tamás - Törőcsik Viktória: A térségi halandóság főbb különbségei Közép-Kelet-Európában. II. Nemzetközi Gazdaságtudományi Konferencia /Gazdasági versenyképesség - életminőség - fenntarthatóság/, Kaposvári Egyetem, Kaposvár 2009. 04. 2-3., terjedelem: 10 p., full paper CD kiadvány, abstract nyomtatott kiadvány, ISBN: 978-963-9821-08-8
28. Tánczos Tamás - **Egri Zoltán** - Törőcsik Viktória: A társadalmi és gazdasági fejlettség területi egyenlőtlenségei Magyarországon a rendszerváltástól napjainkig. II. Nemzetközi Gazdaságtudományi Konferencia /Gazdasági versenyképesség - életminőség - fenntarthatóság/, Kaposvári Egyetem, Kaposvár 2009. 04. 2-3., terjedelem: 9 p., full paper CD kiadvány, abstract nyomtatott kiadvány, ISBN: 978-963-9821-08-8