

# Dynamics of inter- and intraregional development disparities in time in China and in East Central Europe<sup>1</sup>

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## Abstract

China and East Central Europe have undergone remarkable economic changes during the last decades. This paper deals with the dynamics, spatial patterns and regularities of regional disparities in these two regions. After a brief overview of the economic historical background, the connection between economic development and spatial disparities is analysed, and the validity of Williamson's inverted U-curve hypothesis is tested.

The second part of the article focuses on the spatial patterns of disparities. After the description and geographical localization of the „winners” and „losers” of the economic reforms, the emphasis is on the research of spatial regularities, such as the East–West divide, centre–periphery dichotomy and neighbourhood effect, which is analysed with the implementation of autocorrelation models. However, this part deals not only with the change, but also with the long-term stability of the spatial structure. It detects the long-standingly developed and underdeveloped regions, the reasons behind their situation, and the possible way to dynamize them in the long-term through spatial planning.

The third part of the article focuses on the problem of geographical scales in the research of disparities. The dynamics of inequalities at different levels are analysed and compared both between and within countries (in the case of East Central Europe) or provinces (in the case of China).

In the final section a short overview is given on the so far experienced and the possible future spatial consequences of the global crisis. It scratches the new phase of growth in its aftermath, based on related news and on the regularities described in the article.

Key words: regional disparities, China, East Central Europe, geographical scale, economic crisis

## Introduction

The analysis of regional disparities became a main objective of regional studies in the capitalist countries during the post-WWII economic boom lasting until the oil crises. The rich literature of these decades concentrates overwhelmingly on the inner processes of one given country. However, the number of papers comparing more (sometimes even dozens of) countries from the aspect mentioned above is remarkably high as well. Moreover, empirical results allow the researchers to reveal some major regularities behind the dynamics of

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regional inequalities and their connection with the level of economic development (*Williamson 1965, Amos 1988*).

However, the international interest towards regional inequalities began to decrease after the 1960s. Human geographers began to criticise the implementation of mathematic models and the whole positivistic approach. They judged them detrimental while hiding the human being behind the numbers (*Kitchin 2006*). At the same time, regionalists did not give up their interest towards spatial disparities. Yet, the emphasis was gradually placed on special aspects, such as neighbourhood effect, spatial flows generated by inequalities (e.g. migration) or the analysis of disparities at global level (*Nemes Nagy 2009, pp. 27–32*).

The renaissance of the researches on disparities was brought by the 1990s. In Europe and Central Asia the dramatic collapse of the socialist regimes redraw these countries' economic map. In East Asia China became interesting thanks to its economic miracle – and to the serious inequalities it caused. The rapidly growing amount of regional statistics and its improving quality enabled regional experts to use a wide variety of methods to test the models that had already been described thoroughly for the case of the Western countries. Eastern Europe (together with the former Soviet Union) and China seemed to have common traits at least in three aspects: (i) their transformation led from a totally state-controlled economy to a much more liberalized one; (ii) they became strongly embedded in global economy ; (iii) in the course of time, a tremendous growth of regional inequalities leading to social tensions was sensed by experts and even by the local population in all cases.

At the same time, there were obvious differences. The Chinese economy has undergone gradual reforms since 1978, that has led to a stable economic growth approaching, or often overriding 10% per annum. On the contrary, East Europe witnessed a very rapid transformation in economic and in political sense at the turn of the 80s and 90s – with a serious drop of economic production and standard of living, and significantly growing unemployment. Heterogeneity within East Europe should be also considered: the former Yugoslavia, which had followed a third way politics between the capitalist and socialist world, was torn apart after 1991 and some of the inheritors (namely Serbia, Croatia and Bosnia and Herzegovina) plunged into a terrible civil war. The situation of the Baltic states was absolutely unique as they had not existed as independent countries for more than six decades. Albania had been characterized by an orthodox Stalinist-type leadership having no official international relationship after 1978. The case of the former East Germany or German Democratic Republic (GDR) was very special as well: in 1990 it was merged with West Germany and developed according to the objectives of the leadership of the united Germany, based on the enormous amount of West German capital. Here the socialist economic and institutional structure was totally demolished almost overnight and a capitalist one developed from scratch.

In the case of Poland, the Czech Republic, Slovakia (the latter two united as Czechoslovakia until 1993), Hungary, Romania and Bulgaria we can speak about a more or less similar way of economic development. They were all members of the USSR-led socialist bloc. After the dramatic downturn caused by the transformation they succeeded to stabilize their economy and follow the path to a more sustainable development before the millenium. By now all of them have joined the European Union. However, differences should not be forgotten either: Romania and Bulgaria showed no sign of economic liberalization even right before the collapse of the system; as a consequence they could regain momentum later very slowly. Poland, suffering from basic disfunctions of the former economic system, chose shock therapy at the turn of the 90s, which led to a sudden economic transformation even in East European aspect. On the other hand, the economic change in Hungary was much more gradual: the country with a relatively liberal economic policy compared to the other members of the socialist bloc right from the 60s, joined the International Monetary Fund as early as

1982; the latter one led – among others – to the gradual expansion of the private sector – significantly earlier than the first multi-party parliamentary elections in 1990.<sup>3</sup> But as mentioned above, these six countries (Poland, the Czech Republic, Slovakia, Hungary, Romania and Bulgaria) can be more or less handled as one group. In this article the term „East Central Europe” relates to this circle of countries expanded with Slovenia, which was although a member republic of Yugoslavia, it is situated basically in the same economic and political field as Hungary, Slovakia, the Czech Republic and Poland.<sup>4</sup>

### Connection between the level of development and regional disparities

The first question this paper deals with is whether the regularities between the level of development and regional disparities, described in the capitalist countries, fit the case of East Central Europe and China. While seeking the answer, the often cited research of *Williamson (1965)* can serve as a starting point. In this work, containing a concise international cross-section analysis based on the regional income statistics of 24 countries, the author comes to the following conclusion: „in the international cross-section, the degree of regional inequality is very high in the Kuznets’ middle income class,<sup>5</sup> but consistently lower as we move to higher levels of development. [...] it also appears [...] that those nations below the middle income class have not yet generated the high levels of regional inequality. [...] Increasing regional inequality is generated during the early development stages, while mature growth has produced regional convergence or a reduction in differentials.” (*Williamson 1965, p. 44.*)<sup>6</sup> These thoughts, commonly referred to as Williamson hypothesis, were cited in and visualized later in a number of papers (see Figure 1.). The reasons behind the relationship it mirrors were described thoroughly (*Nemes Nagy 2009, pp. 319–329.*). Conclusions were focused on the effect of early industrialization leading to divergence, followed by the spontaneous spatial spreading of new innovations and the emergence of spatial planning leading to convergence. Furthermore, *Amos (1988)* pointed at the fact that the post-Fordist economic phase leads to a new divergence through the concentration of postmodern leading branches in already developed metropolitan regions (see dotted line at Figure 1.).

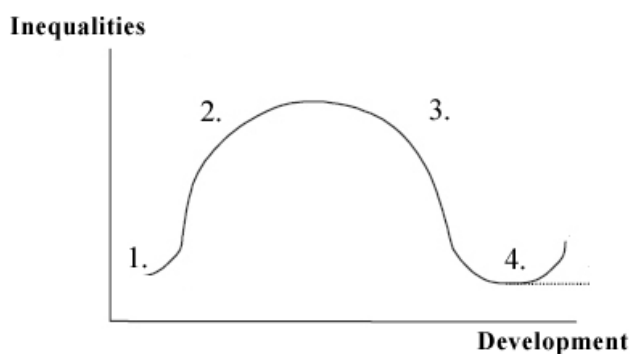


Figure 1. Williamson’s inverted U-curve. The author’s figure based on *Lee (2004)*

<sup>3</sup> The theoretical background of the different types of system transformation from the aspect of political economy is described by *Csanádi 2006*.

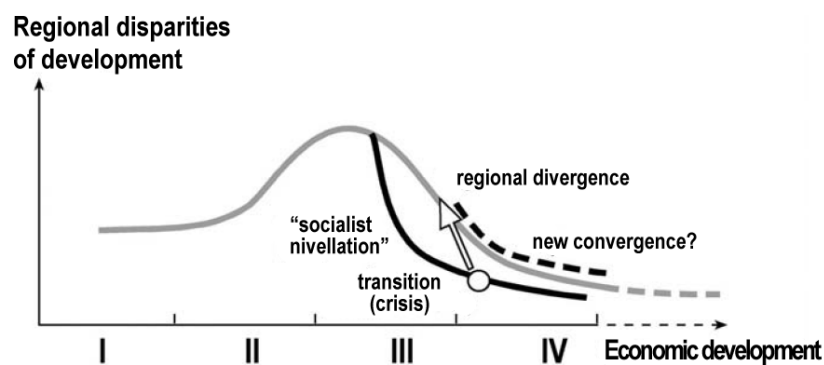
<sup>4</sup> There is no consensus about the precise meaning neither of East Central Europe nor of East Europe or Central Europe, therefore the actual meaning of these terms should be defined in a given article.

<sup>5</sup> The term refers to the countries with a middle level of income.

<sup>6</sup> Williamson uses the terminology of the Rostow model distinguishing different stages of development belonging to higher and higher levels of economic production (see *Rostow 1960*).

Anyway, before the 1990s the hypothesis was tested only on capitalist countries. The only exception was the Socialist Federal Republic of Yugoslavia in the original Williamson paper, but it was in fact not a typical socialist country with its „third-way policy”. Although Williamson raised the question whether these regularities occur in the case of the Soviet Union as an example of socialist planned economy, he was not able to give an answer to it, as no proper statistical data were available. He only suspected that the hypothesis should be valid for this case (*Westlund 2000, pp. 9–10.*).

After the political transformation and the modernization of the circle of statistical indicators measured by the statistical offices,<sup>7</sup> the Williamson hypothesis could be tested in East Central Europe. However, the results revealed a special model differing from the original one in some important points (Figure 2.). The main difference is caused by the strong – and often non-market conform – spatial nivellation trend during the decades of socialism („socialist nivellation”). Nivellation led to a much lower level of regional disparities than it would have been typical for capitalist countries at the same level of economic development. After the transformation, an economic recession with a regional divergence together occurred: postsocialist countries began to „move back” towards the original „capitalist” curve; when they will have reached it, they will possibly move along it, although the existence of this „new convergence” has not been proved unambiguously in any country yet (*Nemes Nagy 2005*).



**Figure 2. The modification of the inverted U-curve in the case of the East European postsocialist countries. Source: *Nemes Nagy (2005)***

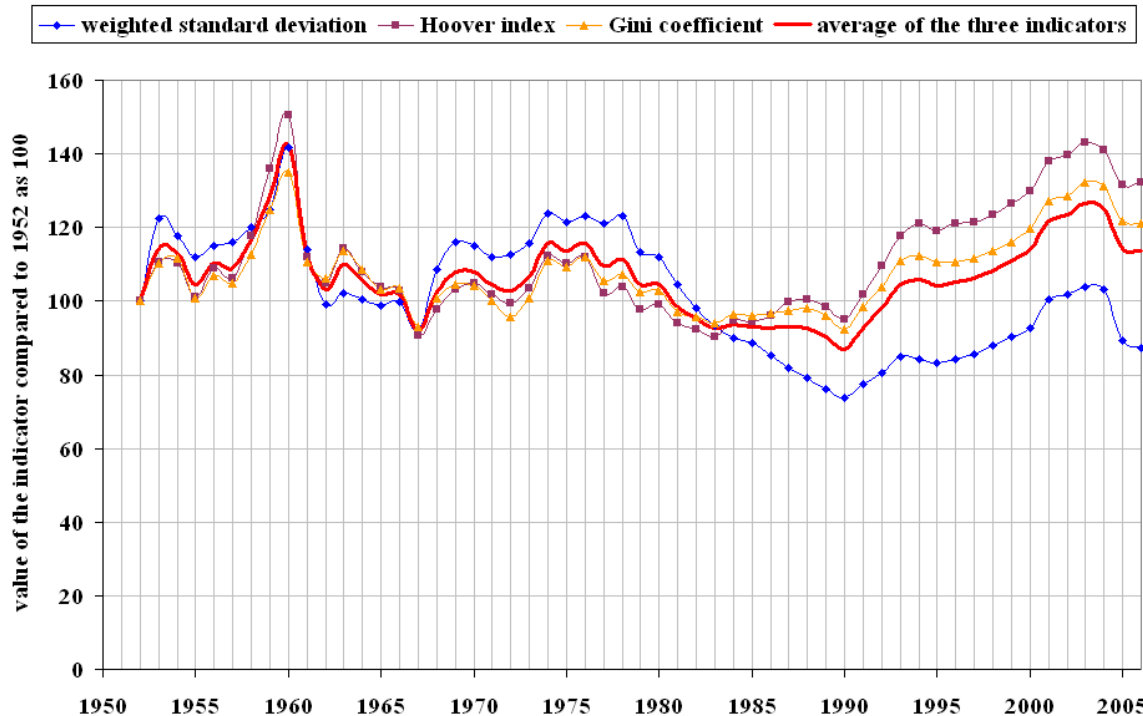
The skyrocketing economic growth of China during the last three decades raises the question, whether the Williamson hypothesis or its „postsocialist version” can be used to describe the dynamics of regional inequalities in this case. In order to give an adequate answer, we have calculated the value of different inequality indicators for the period between 1952 and 2006 based on the provincial level GDP data contained by the All China Data Center at the Michigan University.<sup>8</sup> Although the international literature is rich in papers dealing with the regional disparities in China, very few of them overarch the period before 1978, give information about the years since the millenium, and are based on the value of more than one indicator.<sup>9</sup> Taking these into consideration, we have calculated the value of weighted standard deviation, the Hoover index and the Gini index for the whole period. To filter out the effect of administrative changes, all regional data sets were projected onto the

<sup>7</sup> In Hungary, for example, regional GDP values were first calculated and published in 1994 by the Central Statistical Office.

<sup>8</sup> Data were acquired within the framework of the project titled „Regional Disparities of System Transformation in China” led by Maria Csanádi, supported by the National Research Foundation in Hungary. The validity of the data is officially certified by the National Bureau of Statistics of China.

<sup>9</sup> In an article published in Hungarian in 2007, the author cites 23 papers on this field of interest; none of them fulfils all three criteria (*Gyuris 2007, Tab. 1.*).

system of 1987 with 29 province-level units.<sup>10</sup> It is easier to overview the dynamics mirrored by the different given indicators, if we express their values compared to the value of the first year (1952). Furthermore, as this step makes all indicators comparable, their average can be reckoned, that minimizes the distortion, characteristic to each of them (Figure 3.).



**Figure 3. The value of weighted standard deviation, Hoover index, Gini coefficient and the average of the three indicators in China based on provincial per capita GDP data. The author's own graph. Data source: All China Data Center, University of Michigan**

At this point we should deal with the reliability of the data as well. Many researchers relate critically to the regional economic statistics of China. This is true especially for the data from the period before 1978, but even if they refer to the recent situation (*Rawski 2001*). Our point of view is, however, closer to that of *Holz (2005)* and *Chow (2005)* as far as they argue that the quality of these data is good enough to use them for regional analysis. In our opinion, if the calculation shows very strong trends (long-term stability or ongoing convergence/divergence) or rapid changes in the dynamics of spatial disparities, these can be accepted as real. Thus, from this stance, Figure 3. can be interpreted as follows:

- (i) Apparently there is no clear trend before 1978. This period is characterized by frequent swings. The amplitude of the waves is usually moderate, except for the years of the „Great Leap Forward”. The redistribution of significant financial sources from the agriculture to the industry led to a rapid growth in the already industrialized provinces, as they could use extra sources much more effectively than the dominantly agricultural regions. Likewise, the economic dropback that reached the bottom in 1961 was the strongest in the most developed industrial provinces, leading to a „downward nivellation” of the regions.

Anyway, it can be noticed that the level of regional disparities – except for 1958–60 – was moving in a relatively narrow interval during the whole period, although the per capita real GDP tripled. In other words, economic growth caused no stable divergence in the long-term.

<sup>10</sup> Therefore Chongqing is handled as a part of Sichuan, while Hainan as belonging to Guangdong.

- (ii) The tendency since 1978 seem to be rather obvious: the first 12 years of the reform process were characterized by a stable regional convergence, which has been followed by a massive divergence since 1990.

Putting these pieces of information together, China fits neither to Williamson's original inverted U-curve nor to the „post-socialist model“. Instead, the connection between economic development and regional disparities can be visualized as Figure 4. shows.

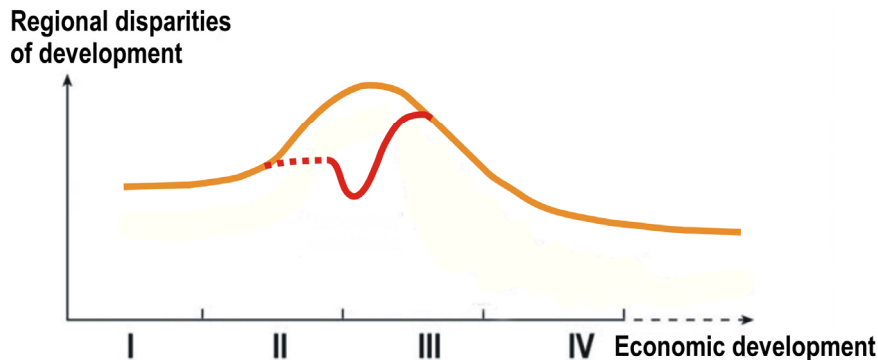


Figure 4. The modification of the inverted U-curve in the case of China. The author's own figure.

This special „Chinese curve“ differs from the post-socialist version basically in three points:

- (i) The socialist-type economy was introduced in China at a lower stage of development than in East Central Europe. Although agriculture was the leading sector in the latter case as well (except for Czechoslovakia as its Czech part was a relatively highly industrialized territory), the industrialization of these countries had begun earlier, and they already had not insignificant industrial production. On the contrary, China was a predominantly agricultural country when the people's republic was proclaimed. That is why the „Chinese curve“ diverge from the original U-curve right at the beginning of the second phase of development (industrialization and the emergence of the industrial society). The following decades characterized by real economic growth and heavy industrialization parallel to stagnating regional disparities in the long-term show the strong effect of the nivellating state policy; this is a special case of „socialist nivellation“ which occurred in East Central Europe at a latter stage of development.
- (ii) As gradual economic reforms had their beneficial effect on economic development very early, but hindered the rapid collapse of the state-owned sector, the Chinese economy did not lose but gain a momentum much bigger than before. As a consequence, the horizontal component of the direction of the „Chinese curve“ points to the right all the time. In East Central Europe, the sudden economic transformation led to the collapse of whole branches within few years' time, but its positive effect occurred only several years later. The result is that a part of these countries' curve shows a direction partly to the left.<sup>11</sup>
- (iii) In China, the economic reform period began with a twelve-year long phase of spatial convergence, which is just the opposite of the East Central European case. This phenomenon roots in some fully geographical aspects. In China the biggest „winners“ of the reforms were the southeastern provinces which were underdeveloped in 1978. Their growth contributed to a stable spatial convergence as they could get nearer to the national average. However, when they reached the average and their growth rate remained high, their later development led to divergence at national level.

<sup>11</sup> This remarkable difference between the case of China and East Central Europe derives mainly from the different types of system transformation. In China, economic transformation happened among the circumstances of an authoritarian political regime, while in East Central Europe it occurred in a newly-formed democratic political framework (Csanádi 2006).

The situation in East Central Europe was different. The economic downturn of the formerly developed coal mining and heavy industrial regions and the emergence of others – usually from a relatively poor position – thanks to their beneficial geographical location (it means mainly a Western position relatively near to the European core area) was typical in these post-socialist countries. However, thanks to the rapid transformation, this process was very fast: the „winners” usually jumped to the top of the development list in one year’s time. A typical example is Hungary. The counties of Vas or Győr-Moson-Sopron, lying on the Western border, could hold their per capita GDP and income level relatively well, moreover, they began to grow in few years’ time. At the same time, the traditional mining and heavy industrial zones showed a strong dropback, falling behind the new „winners”.

## **The spatial pattern of development disparities**

### **a, Spatial restructuring caused by economic reforms**

The process of economic restructuring has had a serious effect on the pattern of spatial disparities in East Central Europe and in China as well. In the East Central European countries, during the decades of socialism, the development level of the regions was dominantly influenced by their economic structure. A relatively high value of per capita production characterized the main districts of heavy industry, whose development was a main goal of the socialist system and was originally based on their noticeable reserves of natural resources, foremost coal or metallous ores. From a physical geographical point of view, the similarity of these regions is that they are positioned along mountainous regions with significant coal reserves. Beyond these industrial zones the capital cities (and few other important urban centres if such existed), characterized by a diverse and relatively developed industrial and tertiary sector, belonged to the leading regions of their countries. On the contrary, rural territories with a dominantly agricultural profile and a low level of urbanization were standing at the end of the development lists of the regions. They were common in their remote position, lying usually close to or in the border regions.

However, the economic transformation redraw the spatial structure of economic development. Although the capital cities could improve their advantageous position further, the heavy industrial zones underwent a dramatic collapse of their main industries. What is more, the majority of the formerly underdeveloped regions witnessed a decline faster than before. Practically both latter categories belonged to the „losers” of the transformation. The „winners” were mostly the western regions, relatively near to the European economic core area. Thanks to it, they proved to be very successful in attracting foreign investments, which has been the main driving force of growth in the whole post-socialist East Central Europe (*Pavlínek 2004*; for country case studies, see *Domański 2003, Fazekas 2005*). Somewhat later the robust suburbanization, which had been impossible before as real estate market had been absolutely centralized, led to the massive dynamization of the broader „neighbourhood” of the leading metropolitan regions. In other words, the former spatial structure, influenced strongly by the sectoral structure of economy (and eventually by the location of mineral resources), was changed to a new one, where geographical position – mainly the distance from the Western border or from the dominant centre of the country – became a (if not even the) major factor (*Nemes Nagy 1993, Timár–Barta–G Fekete–Kukorelli Szörényiné 2005*). This shift happened even in capitalist countries at a certain level of economic development, but in the postsocialist countries economic transformation was its necessary precondition (*Nemes Nagy 1987, Lőcsei 2004*).

The growing importance of geographical location in development disparities can be proved with spatial autocorrelation analysis. If we calculate for each Hungarian county-level subdivisions (20 units, namely 19 counties and the county-level unit of the capital city, Budapest) the average per capita GDP value of their neighbours', and calculate the linear correlation between these values and the counties' own value, the result is  $r=-0,49$  for 1975, indicating a significant probability that the neighbour of the rich was poor and that of the poor was rich. It was because the highly developed heavy industrial regions were surrounded by poor territories owing no – or not significant – reserves of important mineral resources, being also unable to take part in the rapid industrialization process. Nevertheless, the value of spatial autocorrelation is  $r=-0,07$  for 1995 and  $r=+0,29$  for 2006. The results mirror obviously the increasing role of the geographical neighbourhood effect.

Although we do not have enough statistical data to expand these calculations onto the other countries of East Central Europe (basically because of the loss of coherent data sets, caused in most cases by the serious changes of the administrative system in time), the regional database REGIO of the Eurostat (the statistical office of the European Union) contains data, based on which we can make the calculations for the time period between 1995 and 2006. As there are big differences between the administrative systems, not only the number, but also the average area and population of the subdivisions in the analysed countries vary on a broad scale (for example, there are only 14 subdivisions at NUTS 3 level<sup>12</sup> in the Czech Republic, while their number is double as high, 28 in Bulgaria; the latter country is only 41% bigger in area and 26% smaller according to population). As a consequence, the spatial autocorrelation values of the countries cannot be compared directly to each other, but their changes between 1995 and 2006 mirror real tendencies significantly. Except for the case of Slovenia, the value of spatial autocorrelation grew in this period and became positive by 2006 in all countries (Table 1.).

Country	N	1995	2006
Bulgaria	28	-0,09*	+0,25
Czech Republic	14	-0,29	+0,25
Hungary	20	-0,07	+0,29
Poland	66	+0,17	+0,21
Romania	42	+0,48	+0,70
Slovenia	12	-0,16	-0,24
Slovakia	8	+0,55	+0,68

\* based on the data of 1999; N=number of territorial units

**Table 1. Spatial autocorrelation at NUTS 3 level based on per capita GDP in the East Central European countries. Data source: REGIO database, EUROSTAT**

As for China, the changes of the spatial structure in the reform era are not less significant. Although all provinces have witnessed a radical growth of per capita GDP in purchasing power parity since 1978 (from this aspect we cannot speak about „loser regions” of the economic transformation in contrast to East Central Europe), some of them have a strongly different relative development position as in the beginning of the reforms. The largest relative dropback characterizes the formerly leading heavy industrial regions in Northeast China, the „Chinese rustbelt”, namely Heilongjiang (-7 places in the rank of regions), Jilin (-5) and Liaoning (-4), the leading coal mining region of Shanxi (-4), some provinces in Inner China at a lower level of development but with a disproportional weight of mining and smelter

<sup>12</sup> NUTS (French abbreviation of Nomenclature of Territorial Statistical Units) is a statistical system used by Eurostat to categorize the different spatial levels of the administrative system in the member states. Detailed description is given in the later part of the paper.



industries in their economic structure (Qinghai: -14; Gansu: -13; Ningxia: -10). Furthermore, the relative situation of some underdeveloped rural regions worsened, as they could attract few new investments to modern branches (Tibet: -15; Sichuan: -8).

On the other hand, the provinces lying on the southeastern, eastern coastline could benefit a lot from their special economic zones and open ports, which have joined the global economy very soon with success. The greatest „winners” were Fujian (+15), Zhejiang (+13) and Shandong (+13), followed by Guangdong (+7). A special case is Inner Mongolia (+8) as its production structure is dominated by the outputs of extracting, smelting and chemical industry; however, the positive spillover effect of Liaoning province, and the municipalities of Beijing and Tianjin, leading to a dynamic inflow of FDIs during the last years, – in other words, the positive effect of the economic reform – can be detected in the background of Inner Mongolia’s rapid growth (the per capita value of FDI was here almost 20 times higher in 2006 than three years before, while the growth of the national average was „only” 83%).

On the whole, the tendencies mentioned above led to a significant growth of the economic weight of the eastern provinces<sup>13</sup> from the already high value of 59,8% in 1978 to 66,3% in 2006, while their proportion from the population hardly changed (from 51,9% to 53,0%). As a consequence, the traditionally existing „East–West divide” in economic development was strengthened by the processes of the last three decades.

Moreover, the results described above suggest that the regularity detected in East Central Europe, namely that the economic transformation has brought a decreasing importance of the economic structure but an increasing role of geographical location, is valid for China as well. The results of several quantitative methods seem to justify this validity. We can make the spatial autocorrelation analysis for the province level units of China, based on their per capita GDP level. The result is  $r=+0,39$  for 1978,  $r=+0,41$  for 1990 and  $r=+0,60$  for 2006. This trend shows that the importance of geographical neighbourhood (and eventually spatial location) was *a priori* much greater in China than in most East Central European countries, which is a consequence of the dramatic diversity of China according to physical geographical conditions, being unexampled in East Central Europe. But, from the aspect of the tendency in time, the trend is obviously very similar in the two regions.

A multivariate linear regression for the provinces of China reveals the same phenomena. In our model we have chosen logarithmic per capita GDP<sup>14</sup> of the province level units as dependent variable, while independent ones were indicators relating to geographical position (COAST as a dummy variable with a value of 1 for coastal and a value of 0 for inland provinces; YCOOR as geographical latitude of the capital of the province), demographical background (PDLN: population density), economic structure (PRILN: the proportion of primary sector in GDP; SECLN: the same for the secondary sector), capital and infrastructure (FDILN: per capita FDI; PTCLN: value of postal and telecommunication services per 1000 inhabitants), and the situation of education system as a factor with a strong direct effect on the quality of labour force (THIGLN: number of scholars working in higher education per 1000 inhabitants; TSECLN: the same for secondary education).<sup>15</sup> The calculations were made in the SPSS software with Backward method, meaning that all insignificant independent variables are excluded from the regression model step by step, until only the significant ones remain (see in Table 2.; significant values are in parentheses).

<sup>13</sup> In this paper, this term relates to Heilongjiang, Jilin, Liaoning, Hebei, Beijing, Tianjin, Shandong, Jiangsu, Shanghai, Zhejiang, Fujian, Guangdong, Hainan and Guangxi.

<sup>14</sup> Logarithmisation is an adequate method to „contract” the data set with the aim to avoid distracting effect of extraordinary values.

<sup>15</sup> The circle of indicators which we could choose from was limited, as the method needed full data sets for all provinces and for the whole period from 1952 to 2006. However, the used variables give a basically authentic insight into the background of development disparities.

Independent variable	1952	1958	1966	1978	1990	2006
COAST	–	–	–	–	+0,301 (0,001)	+0,180 (0,013)
YCOOR	+0,294 (0,000)	+0,176 (0,016)	–	–	–	+0,167 (0,001)
PDLN	–	–0,130 (0,094)	–0,242 (0,012)	–	–	–
PRILN	–0,415 (0,001)	–0,724 (0,000)	–0,513 (0,001)	–0,588 (0,000)	–0,329 (0,029)	–0,195 (0,021)
SECLN	–	–	–	–	–	–
FDILN	–	–	–	–	–	+0,308 (0,000)
PTCLN	+0,051 (0,000)	+0,273 (0,002)	–	–	–	+0,384 (0,000)
THIGLN	–	–	–	+0,401 (0,002)	+0,476 (0,001)	–
TSECLN	–	–	+0,549 (0,001)	–	–	–
Adjusted R <sup>2</sup>	0,908	0,925	0,844	0,898	0,868	0,948

**Table 2. Standardized  $\beta$  coefficients and significance (in paranthesis) of the independent variables for chosen years. Data source: All China Data Center, University of Michigan**

Results show that only one of the chosen independent variables had a significant and relatively strong correlation with per capita GDP along the period of 1952 and 1978: PRILN, the proportion of primary industry in economic production. The greater importance of agriculture increased the probability of being poor, which reveal a typical duality between the „poor agricultural” and „wealthy industrial” zones. Although some further variables proved to have a significant connection with economic development for certain years, their haphazard emergence in the model suggest that these connections were either important only in a limited period of time, or there were no causal relationships behind the stochastic connection. Anyway, it seems to be sure, that these connections were not characteristic to the economic system before 1978.

After the beginning of the reform era the importance of geographical position obviously increased. The results indicate not only the beneficial effect of coastal location but point to a positive correlation between northern position and higher per capita GDP. This latter is caused by the fact that among the inner provinces the most underdeveloped ones lie in the south. However, the connection seems to be only stochastic and not causal, as their development level derives mainly from physical geographical factors.<sup>16</sup> At the same time, the beneficial effect of the coastal location is obvious. An other interesting result is the importance of FDI-inflow and of the development of communication infrastructure networks. These are further common traits between China and East Central Europe (for the latter see *Domański 2003, Fazekas 2005, Enyedi 2005*). At the same time, the influence of economic structure proves to be far weaker than ever before. It should be noticed, that the low importance of the economic proportion of agriculture is mainly a consequence of the sectoral shift, thanks to which only 11% of China’s GDP is produced in the primary sector. Thus, its overall economic effect can therefore not be decisive. However, the weight of secondary sector in the GDP, despite its larger share, has not gained any significance. This indicates that the industry/service ratio (the new economic structure) is merely unimportant from this aspect

<sup>16</sup> This question is analyzed in more detail in the following part of the paper.

– mainly because its value is similarly low in some leading regions with a highly developed tertiary sector, and in the underdeveloped regions with poor industrial potential but a relatively well-organised net of some basic services (such as public administration, or education and health care system in urban territories).

In general, the changes of spatial structure of development have been driven by very similar factors in China and in East Central Europe, and the increasing role of geographical location and the depreciation of economic structure are major common points.

### **b, Spatial stability in the long term**

The previous part revealed some main characteristics of the changes in the spatial structure of development after the economic reforms. However, the question can be raised, whether there are any features of the spatial structure in any or both regions, which have been very stable during several decades. One method to give an answer is calculating rank correlation between the development ranks of the same country's subnational territorial units for two dates. In the case of the East Central European countries we can only analyse the period from 1995 to 2006 based on the REGIO database. The results show a great spatial stability for this decade. They reveal that the new spatial structure had basically formed in the first half of the 90s with some smaller changes between 1995 and 2000. Since then, the structure has remained relatively stable (Table 3.). The only exception is the Czech Republic, where the lower rank-correlation value mirrors significant changes even after 1995, indicating a relatively slow spatial restructuring after the transition (see delays due to first voucher privatization [*Soós 2009*]).

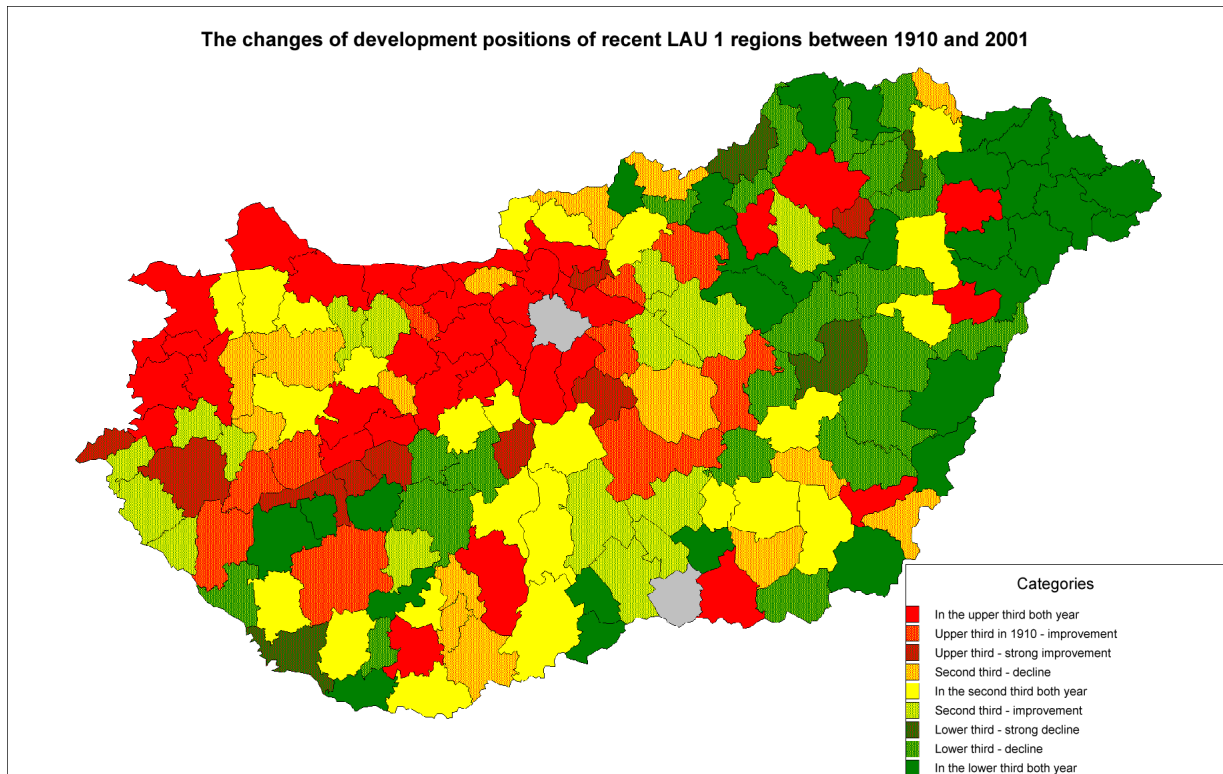
Country	1995;2006	2000;2006
Bulgaria	no data	no data
Czech Republic	+0,43	+0,83
Hungary	+0,77	+0,93
Poland	no data	+0,98
Romania	+0,77	+0,92
Slovenia	+0,89	+0,98
Slovakia	+0,95	+0,95

**Table 3. Rank correlation of the East Central European countries calculated from the per capita GDP ranks of the NUTS 3 regions between the given years. Data source: REGIO database, EUROSTAT**

In the case of Hungary, however, based on the ex-post calculated county (NUTS 3) level GDP data set for 1975, the rank correlation analysis can be made for a longer period. The result for the period between 1975 and 2006, +0,51, compared to the more recent values of +0,77 and +0,93. Increasing values root in the dropback of the formerly leading mining and heavy industrial zones. Results were also influenced by the emergence of Pest county containing the dynamic suburban ring of Budapest, and the positive tendencies in the counties along the western border with Austria. It should be taken into consideration, that this rank correlation value suggests the relatively stable position of some counties. One of them is Budapest, which has permanently lead the list as the dominant centre of Hungary. An other category is formed by several underdeveloped rural regions<sup>17</sup> which have obviously declined according to their per capita GDP compared to the national average. However, this negative trend has not affected their ranks positioning them permanently to the lower part of the list Finally, some industrial regions which could regain momentum after a short but harmful period of recession had very similar ranks in 2006 as in 1975. The positive change was mainly thanks to their

<sup>17</sup> These are the following counties: Szabolcs-Szatmár-Bereg and Hajdú-Bihar in East Hungary, Csongrád and Bács-Kiskun in Southeast Hungary, Tolna and Somogy in the Southwest.

developed infrastructure and a geographical location not far either from the Western border or from Budapest.



**Map 1. Stable and changing elements of the Hungarian spatial structure of development (1910–2001).**  
Source: Győri (2009)

What is even more interesting, as Győri (2009) revealed in his paper, some elements of the spatial structure of development prove to be very stable during the whole 20th century. Analyses in such a long term cannot be based on GDP data since they had not existed for a long time. However, some statistical data concerning the level of education, health care, housing and employment structure, were collected during the census of 1910 for all settlements. They can be aggregated to the level of the recently existing „small regions”<sup>18</sup> (LAU 1)<sup>19</sup> and merged into one complex indicator of development. Through mapping the value of this new indicator, a spatial structure very similar to the recent one can be revealed (Map 1.). The recently very developed territories along the whole Budapest–Vienna-axis (in Northwest Hungary) belonged to the upper third of the development list even in 1910. This was obviously a consequence of their beneficial location along the most important railway lines and roads of the country, and their relatively near location to Austria. The strictly interpreted agglomeration of Budapest had a stable good position in 1910 as it has in the first decade of the 21st century. Likewise, several rural regions at a medium-level of development and numerous underdeveloped peripheries proved to be intact by the turns of the last hundred years. They are located mostly in Northeast Hungary (Szabolcs-Szatmár-Bereg county) – with an (even recently) strong agricultural profile (Győri 2009). Although the author emphasizes the need for new researches to understand the reasons behind the permanent underdevelopment of these regions, the disadvantageous geographical position far from the traditionally more developed territories (usually from the West and/or from the given

<sup>18</sup> The number of small regions (*kistérség*) at the time the cited paper was written was 168.

<sup>19</sup> The LAU system is described together with NUTS system in the next part of the paper.

country's core zone) and the relatively low qualification level of the labor force (as an obstacle e.g. for successful industrialization) can be suspected in the background as main factors. These factors have been strengthened in their effect by the disperse settlement structure, the poor infrastructure, by the fact that (in spite of the agricultural profile of these regions) the productivity of the primary sector has been traditionally low because of the cooler climate, poorer soils and relatively low niveau of the way production is organised, and by the massive outmigration of the younger and skilled social strata rooting in these challenges.

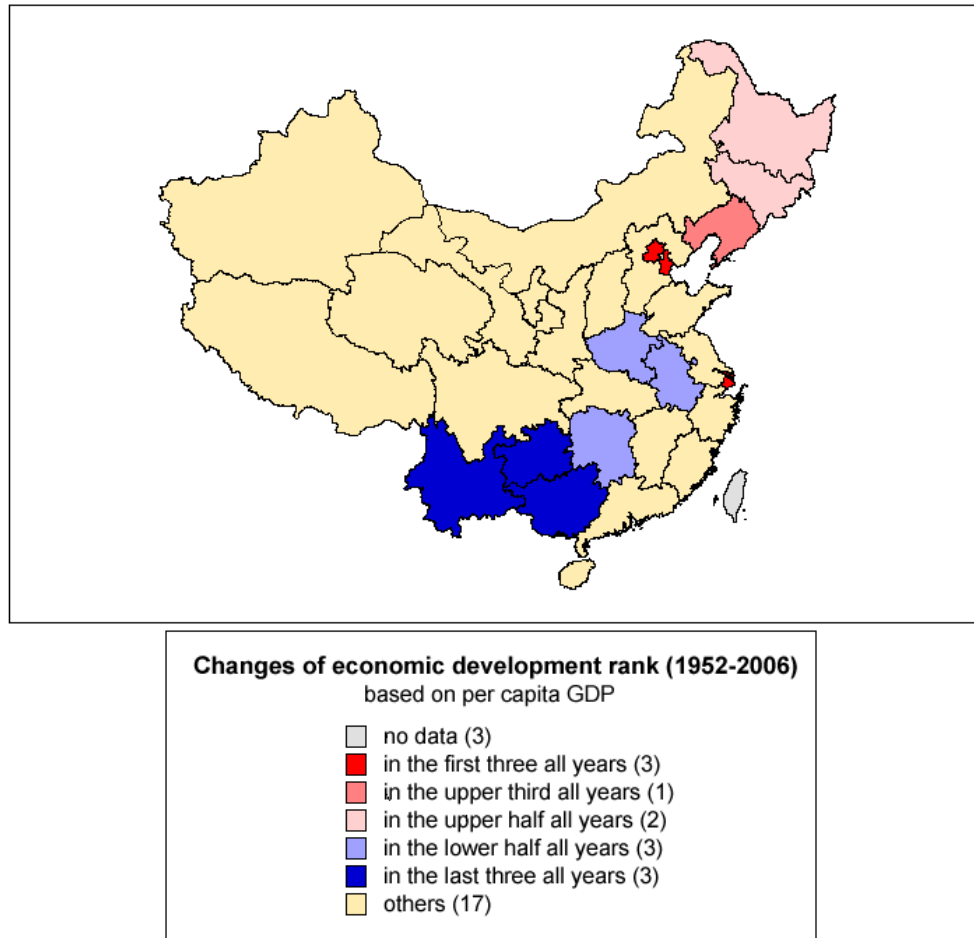
This phenomenon is not without example in other East Central European countries. For instance, the region of the capital city (Warsaw), the neighbourhood of Cracow in the South, or the main port cities along the Baltic Sea (such as Gdańsk or Szczecin) have belonged to the most developed zones within the recent borders (created after 1945) of Poland for hundreds of years. On the contrary, the underdeveloped agricultural regions of Warmińsko-Mazurskie, Podlaskie and Lublin in East-Northeast Poland have been characterized by similar factors as Northeast Hungary. Likewise, the contrast of permanent development and underdevelopment can be revealed in other countries (e.g. Transsylvania – East and South Romania; the major cities of Bratislava on the West and Košice in the East in Slovakia – south-central Slovakian regions).

These examples raise the question, whether do traditional stabilities exist in the spatial structure of development in China. To give an answer, we have calculated the value of rank-correlation between the provinces' per capita GDP rank in different years (Table 4.). Surprisingly, the result of the calculation for 1952 and 2006 is +0,61, which, taken the huge area, the geographical diversity and the length of the time period into consideration, indicates a noticeable stability.

	1952;2006	1952;1978	1978;1990	1990;2006
Value of rank-correlation	+0,61	+0,83	+0,75	+0,89

**Table 4. Rank-correlation in China based on provinces per capita GDP.**  
**Data source: All China Data Center, University of Michigan**

To detect the territorial units with stable ranks, we have calculated the ranks for each year between 1952 and 2006, and ordered each provinces into one of the following groups: belonging to (i) the first three, (ii) the upper third, (iii) the upper half or to (iv) the lower half, (v) the lowest third of the list and (vi) all others. Thereafter, the results were mapped (Map 2.). On one hand, the group of the leading three has always been formed by the three big metropolitan areas, namely Shanghai, Beijing and Tianjin. This fact is a consequence of the advantegous geographical location, the higher qualification level of the labour force, the dense infrastructure, the outstanding role of these cities even at a national level in public and business administration, economic production. Additionally, a statistical effect is included, as far as these municipalities contain just the urban cores with their agglomeration, but no large rural regions.



**Map 2. Stable and changing elements of the Chinese spatial structure of development (1952–2006).**  
The author's own map. Data source: All China Data Center, University of Michigan

A relatively stable positive situation characterizes the northeastern provinces of Heilongjiang, Jilin and Liaoning. However, there is an obvious difference between the pre- and post-reform era: before 1978, these provinces were the leading zones of the heavy industry, the most important engine of the Chinese economy. After 1978, they could no more compete with the rapidly growing coastline provinces. During this period they had to face the crisis of their traditional branches and the necessary process of restructuring since the 1990s. The fact, that they recently belong to the upper half is due to their „inherited” high rank. The situation of Liaoning is somewhat more special: as a coastal province it have attracted a huge amount of FDI. This has led to the emergence of new, highly competitive industries compensating the dropback of heavy industry. That is why Liaoning has managed to stay in the upper third.

At the same time, three provinces in the South Central region, namely Guizhou, Yunnan and Guangxi have not been able to catch up and let the lowest third behind. Moreover, Guizhou has been the straggler all the time since 1967. The reasons are very similar to those mentioned in the case of East Central Europe. They are in a peripheral location, far from the capital of a strongly centralized state. All three provinces have dominantly agricultural character despite disadvantageous terrain conditions. Remoteness, poor infrastructure and low level of human capital hindering industrialization characterize them. They are relatively overpopulated. In the three provinces underemployment is high, reducing already low per capita production and wages. Finally, they suffer from massive outmigration of the young and skilled workforce. Moreover, the significant proportion of ethnic minorities

with special cultural background, the tensions between them and the Han community are serious special challenges – just as the case of the Roma minority for Northeast Hungary.

To sum it up, there are traditionally developed and underdeveloped regions both in East Central Europe and in China. Underdeveloped ones seem to be unable to gain momentum compared to other regions during any economic system. From the aspect of spatial planning this underlies the fact, that the overall growth of national economy and the projects serving it, have mostly been unable to improve these regions' situation. Although the overall growth allows for special support to these provinces through redistribution, this apparently does not solve the above cited major problems in the long term. As a consequence, these territories can be dynamized only through special projects that are aimed directly at their unique characteristics. These measures are expected to have their effect only in the long term. In the short term, the only realistic goal is to halt further relative dropback.

### **Dynamics of regional disparities and the question of *geographical scale***

The first part of this paper focused on the regularities between the economic development and its enduring spatial disparities in East Central Europe and China. However, as these regions have undergone serious economic changes, it is important to pay special attention to recent tendencies. The analysis of contemporary developments is a necessary precondition for the prediction of future tendencies. Moreover, thanks to the „boom” in the amount of coherent regional statistics, calculations can be made at different geographical levels and comparable results can reveal previously hidden relationships.

As for East Central Europe, the different spatial levels of the NUTS system used by the EU regional policy offer a good possibility for such comparative analysis. The system contains three spatial levels called NUTS 1, NUTS 2 and NUTS 3, with declining area and population in this order.<sup>20</sup> An extension of this system is the LAU system, distinguishing two more territorial categories (LAU 1 and LAU 2) at lower („local”) spatial levels.<sup>21</sup> The real situation for the East Central European countries is shown in Table 5. Although there are obviously great differences between the countries, NUTS 2 units can be interpreted as „regions”, NUTS 3 units as „provinces” and LAU 2 units as „municipalities”.

<b>Country</b>	<b>NUTS 1</b>	<b>NUTS 2</b>	<b>NUTS 3</b>	<b>LAU 1</b>	<b>LAU 2</b>
Bulgaria	2	6	14	264	5329
Czech R.	1	8	14	77	6249
Hungary	3	7	20	168	3152
Poland	6	16	66	379	2478
Romania	4	8	42	-	3174
Slovenia	1	2	12	58	210
Slovakia	1	4	8	79	2928

**Table 5. The number of NUTS 1, 2, 3 and LAU 1, 2 units in the East Central European countries.**

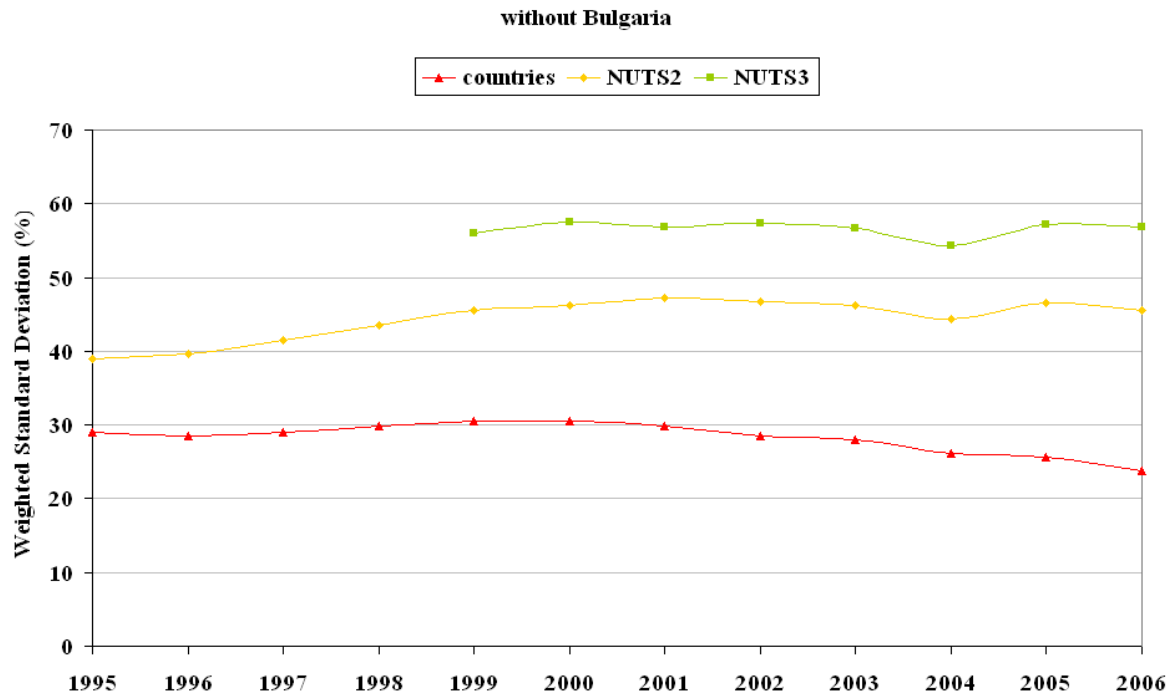
*Source: Nemes Nagy 2009, Tab. 5.4., p. 149.*

Based on the statistics of the official REGIO database of the European Statistical Office (EUROSTAT) we have calculated the level and dynamics of regional disparities for East

<sup>20</sup> All categories are based on the national administrative systems, also their average size differ in different countries. There are officially determined thresholds according to which NUTS 1 units should have a population between 3 and 7 million, NUTS 2 units between 800 000 and 3 million, and NUTS 3 between 300 000 and 800 000. However, this regulation is flexible; as a consequence, there are numerous units at each level with a significantly bigger or smaller population than the officially advised one.

<sup>21</sup> Originally these two categories were called NUTS 4 and NUTS 5, but later they were renamed to LAU 1 and LAU 2 (LAU referring to Local Administrative Unit).

Central Europe at different scales. These were: at the level of countries, NUTS 2 and NUTS 3 units. We have chosen the weighted standard deviation as inequality indicator. The calculations were made for the years between 1995 and 2006; as the database contains regional statistics for Bulgaria only from 2001 to 2006, this country was excluded from the analysis. Furthermore, the research of the NUTS 3 level overarches only the period beginning with 1999. This is because there is no regional data for Poland for the years before 1999 due to a major change of its administrative system (*Drajko 2004*).



**Figure 5. The dynamics of spatial disparities in East Central Europe according to country-, NUTS 2 and NUTS 3 level data. The author's own figure. Data source: REGIO database, EUROSTAT**

The results indicate complex tendencies: for the whole region, development differences between the countries were basically stagnating between 1995 and 2000 while there has been a slight but obvious convergence among them since the millenium. However, among NUTS 2 level units of the whole region a divergence trend can be detected for the period 1995–2000, and stagnation is revealed since 2000 (Figure 5.). If we analyze the dynamics of disparities *within* the countries, the divergent tendency is obvious both at NUTS 2 and 3 levels. This is true for countries except for the case of Slovenia, where divergence can be proved only at NUTS 3 level, while NUTS 2 datasets indicate stagnation (Figure 6.).



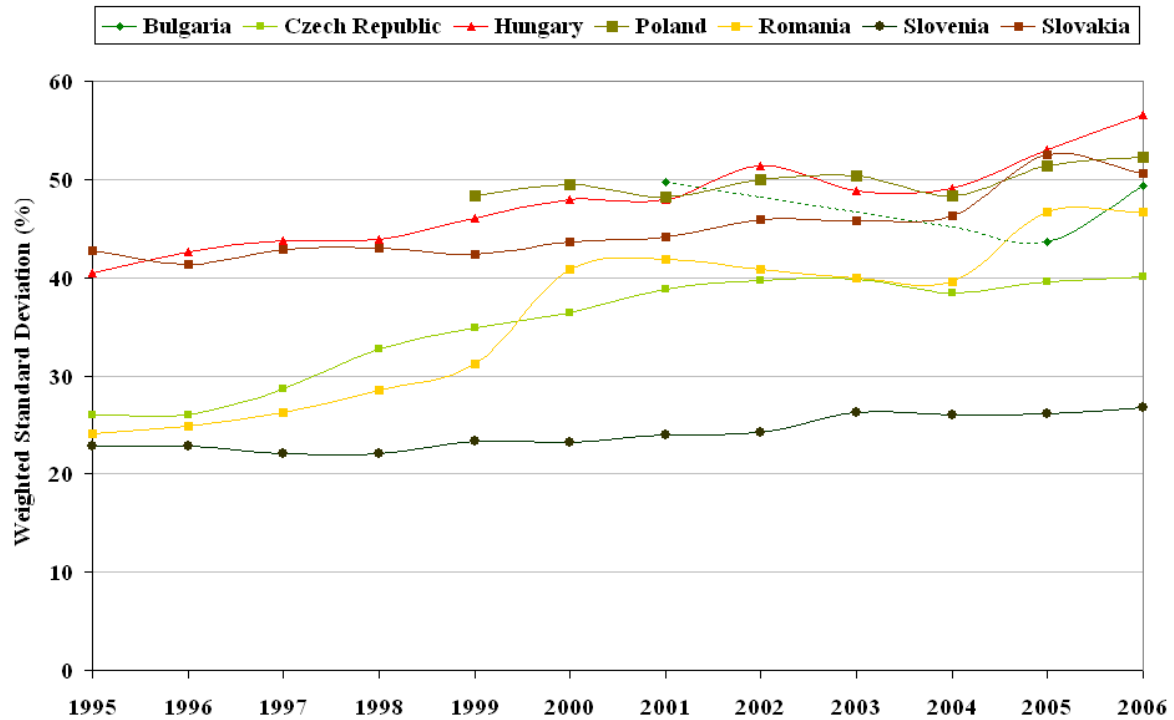


Figure 6. The dynamics of spatial disparities in the countries of East Central Europe based on NUTS 3 level data. The author's own figure. Data source: REGIO database, EUROSTAT

The simultaneous occurrence of controversial trends at different territorial levels is not unique. For instance, that is the case in the European Union, where spatial disparities show a declining tendency between the member states but a divergence between the regions. The reason is simple: the core regions (with the capital city) of the new, formerly socialist member states have undergone a rapid growth, while the dynamics of their other regions were usually much lower. As a consequence, there is a polarization between the regions within a given country, but the growth of their core regions have a strong positive effect on the national GDP-value (thanks to their big proportion of the population), therefore the disadvantage of the new member states has declined (Szabó 2008).

In East Central Europe, behind the different trends the following factors can be revealed:

- (i) The obvious divergence between the regions within a given country is caused by the complex effects of the economic transformation: strengthening West–East divide, the further worsening position of rural peripheries with agricultural profile etc.. But the main cause of divergence is the strengthening of centrum-periphery dichotomy.<sup>22</sup> In 5 of the 7 countries analyzed, 45-50% of the regional inequalities root in the disparities between the capital region and the periferies. The ratio is somewhat smaller only in Romania and Poland, as these are the most populous countries with a capital city bearing a relatively smaller proportion of the national population. However, the role of the core region in these two countries (25-35%) is not insignificant at all (Figure 7.). The capital regions' advantage compared to the average of the rest of the country has grown in most countries, leading to further divergence (Figure 8.).

<sup>22</sup> Kiss gives a detailed description of this problem in the case of Hungary (2001).

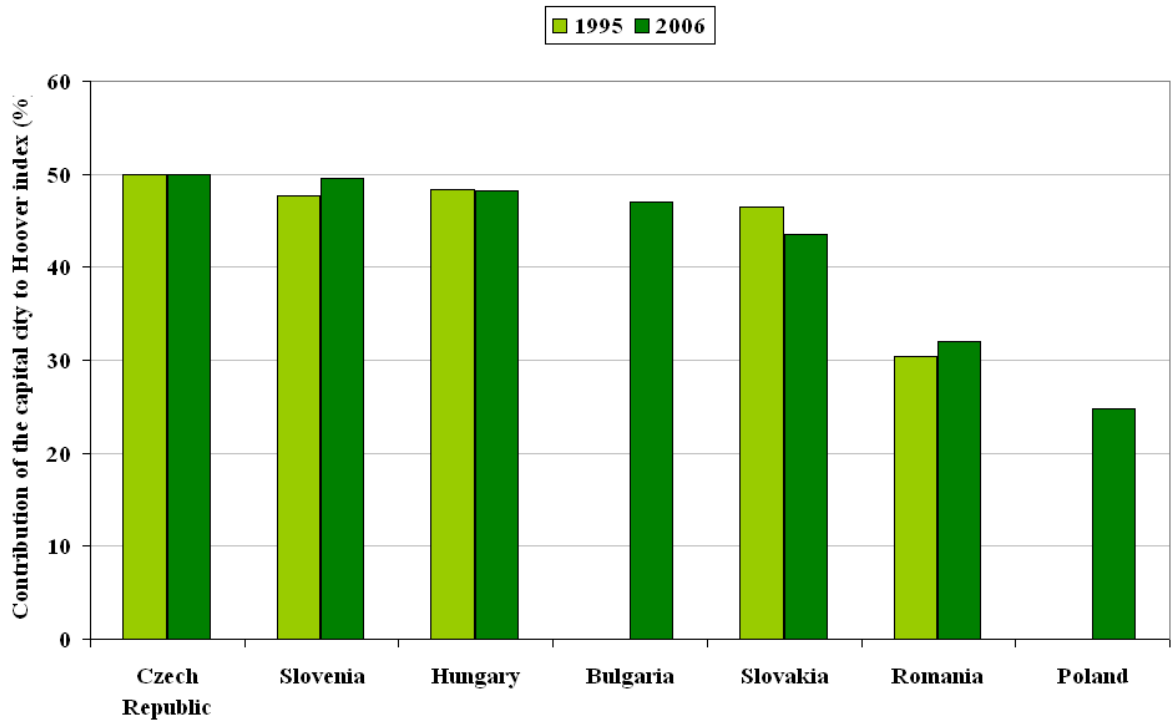


Figure 7. The contribution of the region of the capital city to the Hoover index based on NUTS 3 level per capita GDP data. The author's own figure. Data source: REGIO database, EUROSTAT

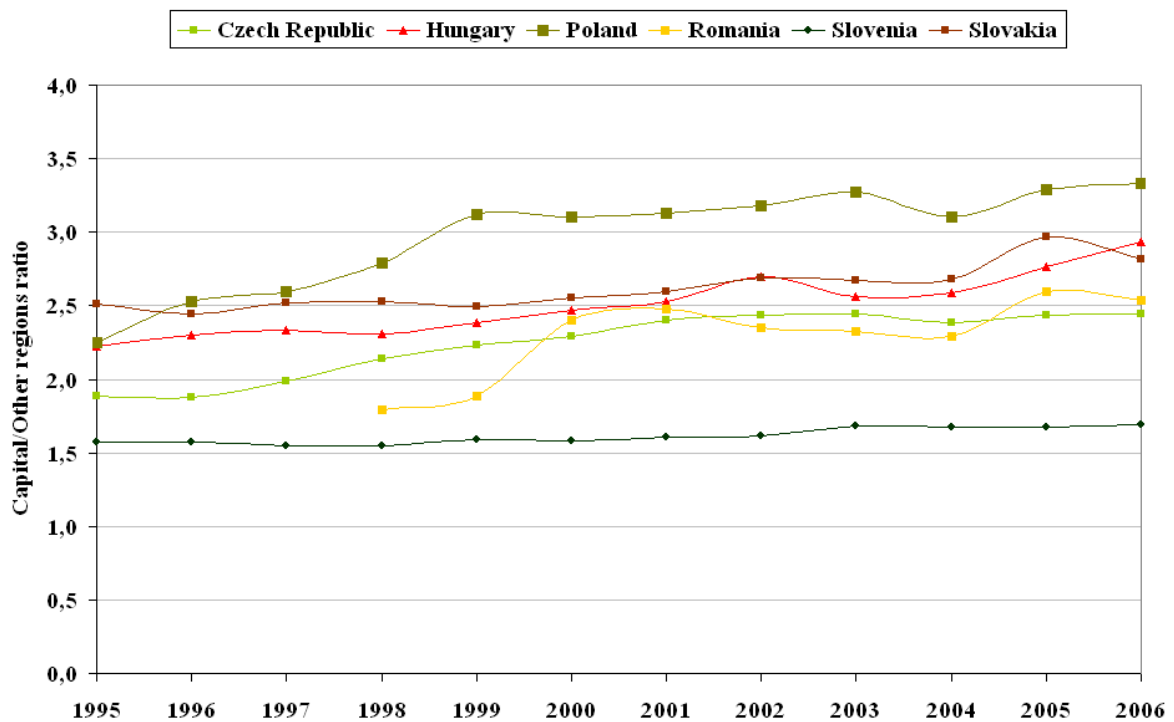
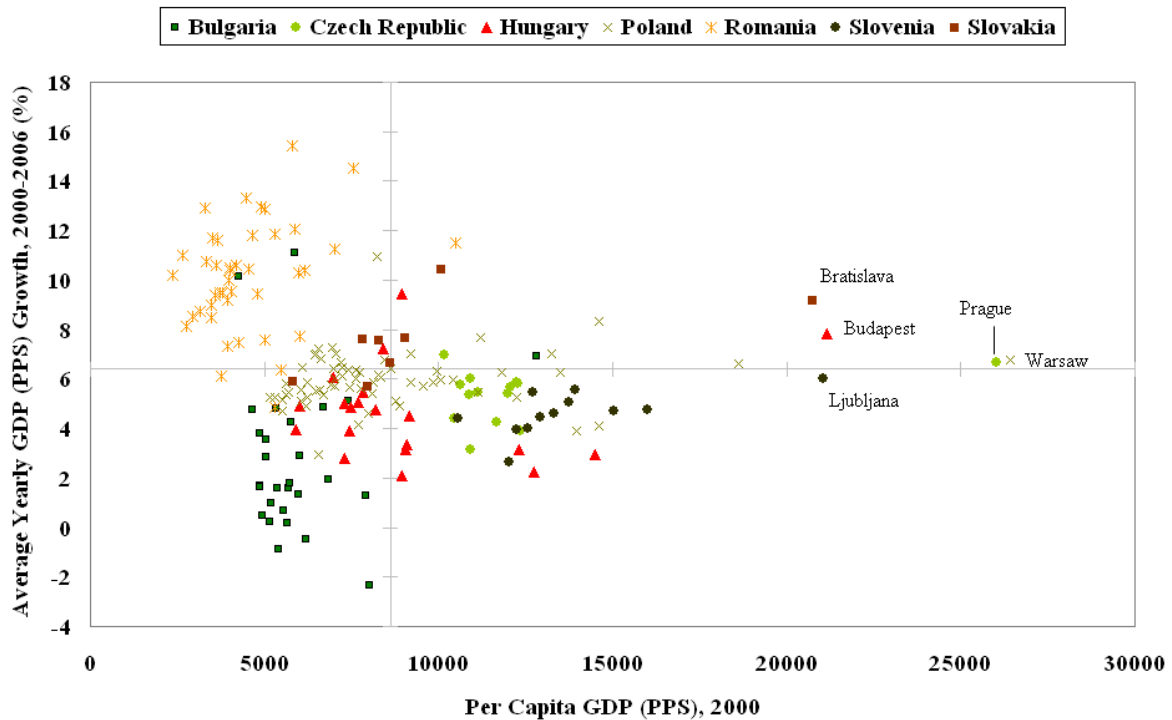


Figure 8. The ratio of the per capita GDP of the capital region and the average of the other regions. The author's own figure. Data source: REGIO database, EUROSTAT

(ii) To understand, why the spatial disparities at NUTS 3 level have not increased, we have made a  $\beta$  convergence analysis based on these regions per capita GDP in 2000 (independent variable) and their yearly average economic growth between 2000 and 2006 (dependent variable) (Figure 9.). Results show no significant overall connection between these two variables for the whole of East Central Europe. However, on the one hand, Romania, as a relatively underdeveloped country, showed a remarkable economic growth in this period, thanks to which the originally underdeveloped regions of Romania could get closer to the regions of Hungary, Poland, or the Czech Republic. On the other hand, all regions of the relatively developed Slovenia or Czech Republic underwent a moderate economic growth. Meanwhile in Hungary, Slovakia and Poland regional development tendencies were diverse. All these processes pointed towards overall convergence. However, extremely slow growth of the a priori underdeveloped Bulgarian regions balanced convergence. This fact led to stagnation in spatial disparities of East Central Europe at NUTS 3 level. At NUTS 2 level the situation is basically the same.

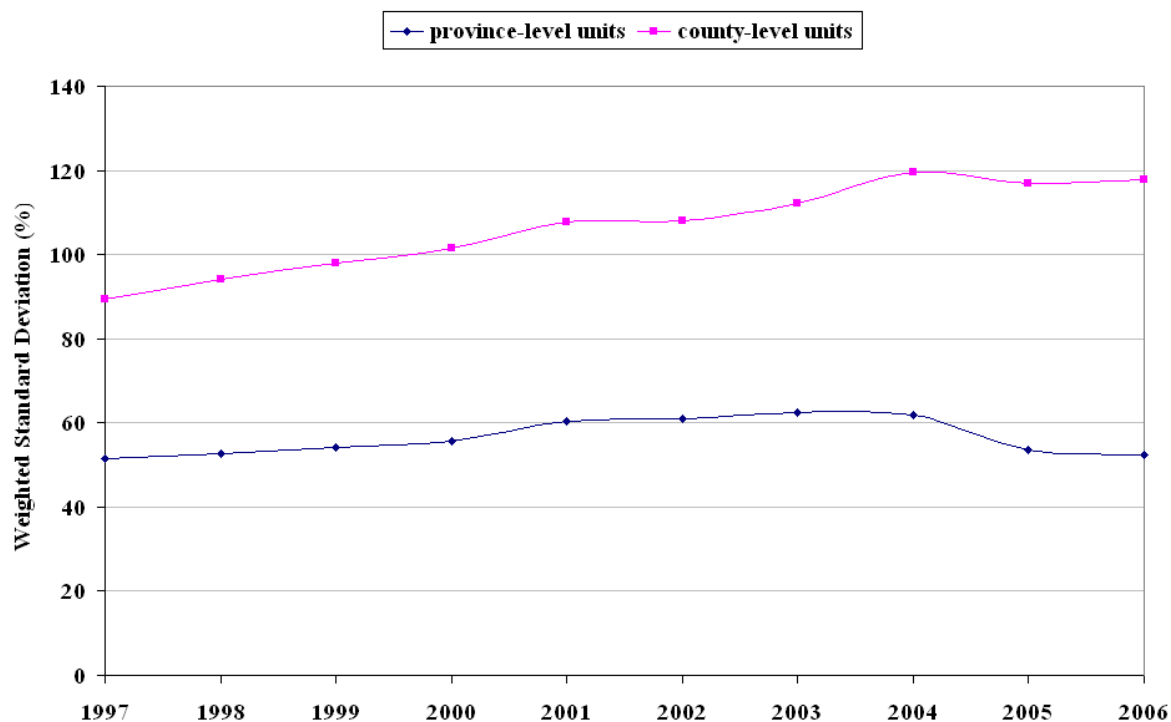


**Figure 9.  $\beta$  convergence analysis for the NUTS 3 regions of East Central Europe based on their per capita GDP (2000) and average yearly GDP growth (2000–2006). Data source: REGIO database, EUROSTAT**

These results indicate two important regularities. First, the disparities of East Central Europe between the countries are influenced dominantly by spontaneous economic processes, namely the relative competitiveness of national economies. If countries with a lower per capita GDP can attract more productive economic activities (that was the case of Romania), their growth can contribute to the overall nivellation of East Central Europe. Second, despite the revival of spatial planning in these countries in the second part of the 1990s, divergence between the given countries' regions is obvious. This fact point to the relatively weak influence of planning compared to those of the spontaneous economic processes and to the

effectivity-centric national economic development programs.. This is reflected for example by the influx of FDI to the more competitive territories.<sup>23</sup>

As for the case of China, based on the datasets of the All China Data Center of the University of Michigan, the dynamics of regional disparities can be calculated for the whole country at different levels. In the first part, concerning the validity of the Williamson model for China, a significant divergence for the period between 1990 and 2006 was revealed. The trend was broken by a dropback from 2004 to 2005 (Figure 3 and 10.). However, as this was caused by a new method of counting population that influenced the value of per capita GDP, a turn in the previous divergent trend is not obvious. Moreover, if we make the calculations based on the data of the county-level units, a similar tendency can be revealed (Figure 10.).



**Figure 10. The weighted standard deviation of the province- and county-level units of China based on per capita GDP (1997–2006). The author's own figure.**  
Data source: All China Data Center, University of Michigan

Do the three big metropolitan areas (Beijing, Shanghai and Tianjin) influence the overall tendencies of disparities out of proportion, as the capital cities' regions do in Europe? To give an answer, we have analyzed the contribution of these three regions to the value of Hoover-index. The result clearly shows, that: (i) this value has never increased above 27,1% since 1952 (compared to the 40-50% typical for the most countries in East Central Europe). The result indicates a smaller role in affecting regional disparities than in the case of almost all East Central European countries; (ii) As the value decreased from the peak of 27,1% in 1978 to 16,9% in 1990 and to 13,7% in 2006, we can argue that neither the whole reform era nor the period of massive divergence since 1990 has been characterized by an increasing centrum-periphery dichotomy. On the contrary, the divergence was caused basically by the economic development tendencies of other provinces.

<sup>23</sup> A study in Hungary revealed, that the value of spatial planning support given to the NUTS 3 units does not show significant negative correlation with the economic development of these units, although it would be a precondition for convergence (*Nemes Nagy–Kullmann–Fekete–Szabó 2000*).

Province	1997	2006	Change (1997–2006)
Inner Mongolia	54,49	105,11	+50,62
Shaanxi	53,19	102,87	+49,68
Qinghai	69,06	109,44	+40,37
Jiangsu	75,51	115,29	+39,78
Gansu	73,03	111,29	+38,25
Heilongjiang	33,98	62,18	+28,20
Xinjiang	113,73	137,39	+23,66
Hebei	43,32	66,57	+23,25
Shanxi	50,22	71,22	+21,00
Fujian	41,70	61,46	+19,76
Zhejiang	40,87	59,37	+18,50
Hunan	33,77	51,81	+18,04
Jiangxi	28,97	46,00	+17,03
Guangxi	37,09	51,35	+14,26
Jilin	28,95	41,42	+12,47
Henan	51,00	62,86	+11,87
Shandong	53,81	64,55	+10,74
Guizhou	44,16	54,28	+10,12
Guangdong	68,47	76,50	+8,03
Ningxia	68,14	75,31	+7,17
Sichuan	56,85	63,54	+6,69
Anhui	40,41	42,71	+2,30
Yunnan	70,50	71,28	+0,78
Hainan	30,08	29,87	-0,21
Chongqing	40,33	39,10	-1,23
Liaoning	56,17	53,92	-2,25
Hubei	55,06	47,84	-7,23
Tibet	113,84	no data	no data

**Table 5. The weighted standard deviation of county-level per capita GDP in 1997 and 2006 and their change in between the period within the Chinese provinces.**  
Data source: All China Data Center, University of Michigan

In connection with the dynamics of disparities within provinces, the analyses based on the county-level data indicate divergence in most cases. Among the 28 province-level units<sup>24</sup> 22 were characterized by increasing disparities between 1997 and 2006, (Table 6.).

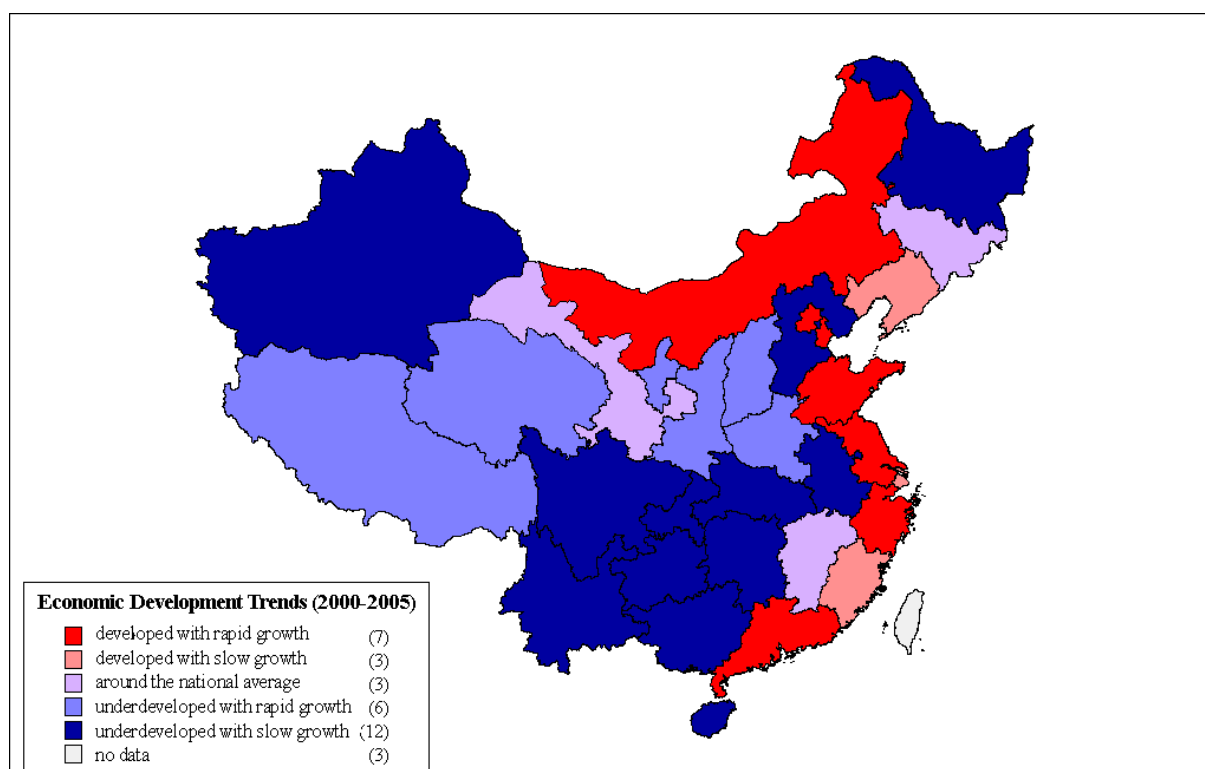
For the time period between 1997 and 2004, our calculations have revealed a divergent trend not only between the provinces, but between the counties as well, both at national level and usually within the provinces. As for 2004–2006, the methodological changes of collecting statistics hinder the clear detection of tendencies at province level. However, at county level no significant convergence occurs. The main factors we can suggest in the background of these tendencies are on the one hand, the spatial effects of spontaneous economic processes in the gradually liberalizing Chinese economy. On the other hand, tendencies were influenced by the national programmes aiming economic growth and improving effectivity -- even if they unavoidably lead to regional divergence<sup>25</sup>

Regional divergence always means the existence of regions with a growth above average and of those lagging behind. The spatial location of these two categories is an

<sup>24</sup> The calculations exclude Beijing, Shanghai and Tianjin because of their little area and the small number of their counties, while for Tibet the used database contains no county-level data for 2005 and 2006.

<sup>25</sup> The later factor has seriously changed since the introduction of the „Open Up the West” campaign in 2000 (Goodman 2004). However, such programmes usually need several years to bring significant changes in the spatial structure.

important question. If we categorize the Chinese provinces according to their level and dynamics of development (per capita GDP in 2000 and its average annual change between 2000–2005), and depict the results on a thematic map (Map 3.), the following can be seen: (i) the majority of the developed coastline provinces is characterized by an economic growth above average, indicating a possible growth of advantage; (ii) the provinces in the north, northwest and southwest are usually underdeveloped but their growth is rapid. Thus, they have a real chance to get closer to the level of leading provinces, even if the distance between the two groups is likely to remain significant; (iii) the provinces in South Central China lag behind and their disadvantage becomes more serious with the time. The fact, that they form a compact bloc in space, proves not only the significance of geographical neighbourhood in the post-reform spatial structure of China. Being in a bloc is also a huge challenge, as the underdeveloped region cannot be dynamized by spillover effects originating from its neighbours, if the latter ones are facing the same challenge. This reinforces our former argument that spatial planning can give a growth momentum for territories characterized by traditional and massive underdevelopment only through programmes designed specially for them.

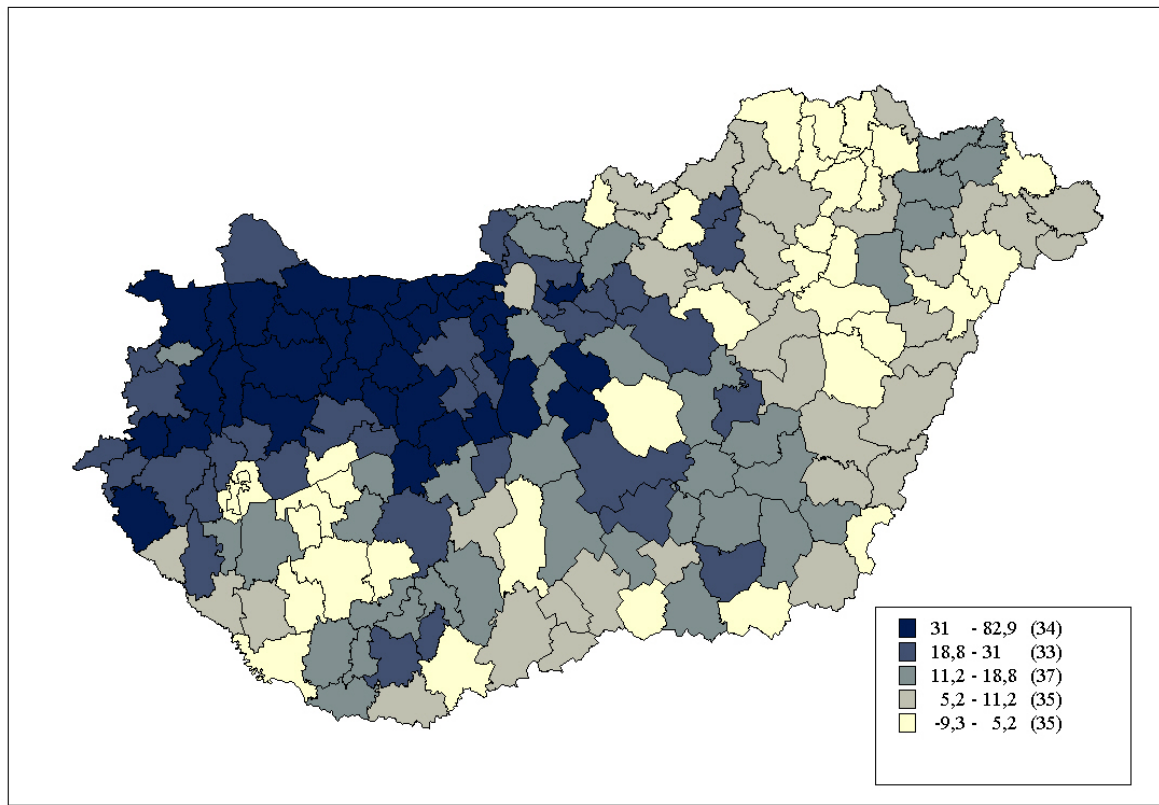


**Map 3. The economic development trends of the Chinese provinces based on their level and growth of per capita GDP (2000–2005). Data source: All China Data Center, University of Michigan**

### The economic crisis and its possible consequences

The previous parts of the paper dealt with numerous questions concerning the recent and possible future tendencies of spatial disparities in East Central Europe and China. However, all the results are rooted in the hypothesis that overall economic circumstances will remain relatively stable. The economic crisis beginning in 2008 seems to override this precondition. Although we do not know, how long the crisis will last and how diverse its effects will be, we have some fragmented information to see some important pieces of the story. One of them is a thematic map compiled and analyzed by *Lőcsei (2009)*, indicating, how the number of

registered unemployed changed in the LAU 1 units of Hungary between March 2008 and March 2009 (Map 4.).



**Map 4. The change of the number of officially registered unemployed in Hungary between March 2008–March 2009 (in percent). Source: *Lócsei (2009)***

The pattern shown by the map reveals regularities of elementary importance. The greatest „loser” of the crisis is Northwest Hungary. This region was the one which could benefit from its advantageous geographical location and could attract an enormous amount of FDI after the transformation. It underwent a „boom” of export-oriented sectors (such as car manufacturing or mobil telephone industry) and became the most developed region of the country following the capital city (*Barta–Czirfusz–Kukely 2008*). However, the economic openness apparently made the region very vulnerable to global impacts. Budapest, as the most developed region with the dominance of highly productive tertiary activities, cannot remain intact from the crisis either. However, the impact here is much smaller than in the Northwest, thanks to the much bigger diversity of the economic structure. As yet, the crisis has had a relatively small effect on the other, underdeveloped zones of the country. These spatial patterns suggest that the disparities between the capital city and the whole of the country keep growing, even more rapidly than before. Meanwhile, inequalities among the regions excluding the capital will decline. As these two tendencies are different in direction, the probability of a significant, sudden divergence or convergence is very small. The „structure” of the inequalities can change somewhat, however, as the centrum-periphery dichotomy can strengthen. Of course, after the crisis, the recent losers – thanks to their beneficial conditions – have a good chance to regain momentum. Also the disparities before the crisis are likely to reemerge more or less when the new growth period begins. As the formerly „booming” regions of other East Central

European countries are characterized by a high ratio of export-oriented production as well,<sup>26</sup> the probable changes in spatial disparities can be similar to those in Hungary.

A similar situation is reflected in China. The greatest „winners” of the economic reforms, namely the eastern and southeastern provinces have the strongest ties to world market. Some of them have a yearly export value reaching more than 50% of their GDP. Because of this vulnerability the number of dismissed employees and the economic dropback is here the highest (*Csanádi-Lai-Gyuris 2009*). On the whole, the crisis can lead to a reduction of spatial disparities at least at the level of provinces. However, the fact that dismissals affect mostly migrant workers, the negative consequences of the crisis will possibly be repatriated from the centre to the periphery, also from the coastal provinces to the underdeveloped inner ones. This will further increase spatial disparities. Similar was the process in Hungary in the early 90s, when rural commuting employees were the first being dismissed from companies in Budapest.

As for the years after the crisis, the situation of East Central Europe and China is basically different. As we have already proved in East Central Europe, the state-level spatial planning has been unable since the transformation to compensate the spontaneous economic processes leading to regional divergence. The national governments’ room for manouver is strongly limited, due to high amount of debt and small amount of financial deposits. to. Even if they can intervene effectively to the economy, their main goal will presumably be improving overall economic growth, not reducing inequalities.

On the contrary, China has enormous financial deposits and a relatively little amount of foreign debt. As a consequence, it managed to introduce a \$585 billion stimulus package, which has a good chance to give a push to economy (*financialexpress.com*). However, it is a question of the future, what the spatial effects of this package will be. If its aim is to redynamize the economy, the effect will possibly be the revival of the pre-crisis spatial structure with significant and growing disparities at all territorial levels. But if the package will contain important direct steps to change the former spatial structure in favour of the development of the poorer regions, a longer period of convergence can begin in the country. Anyway, one thing seems to be very probable: East Central Europe will remain a basically passive participant of the events, while China has the tools to play an active role.

## Conclusion

The main objective of the paper was to give a comparative analysis of spatial disparities of development in China and in East Central Europe, focusing mainly on the period after the beginning of the economic reforms. As our calculation revealed, neither regions fit the original inverted U-curve of Williamson: before the reforms both cases were characterized by relatively lower inequalities than supposed, thanks to massive state intervention („socialist nivellation”). However, the opening led to obvious spatial divergence. The modified inverted U-curve model for the East Central European countries and that for China are somewhat different. China stood at a lower level of economic development when the socialist turn occurred, and it could witness a temporary phase of spatial convergence between 1978 and 1990, rooting in the massive dynamization of the formerly poorer regions in the southeast.

As for the geographical aspects, it could be proved that the capital cities and large metropolitan areas could adapt to the changing economic situation rather easily. Furthermore, the influence of economic structure on spatial disparities has become much weaker, while geographical location, spatial effects became much more important than before. As a

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<sup>26</sup> For instance, globally declining car industry was a main engine of the growth in the prosperous zones of Slovakia, in South Poland, or in the Czech Republic.



consequence, formerly leading industrial zones became the „losers” of the transformation; other regions, however, lying closer to global core areas, could benefit a lot from the changes.

On the other hand, a relatively strong spatial stability characterizes both China and East Central European countries. The major reason is not only the stable positive situation of the big metropolitan areas, but that of permanently underdeveloped regions. These latter are mostly remote, agricultural territories characterized by a low level of qualification of the population, poor infrastructure and significant outmigration. „Lagging behind” zones could not be mobilized by any economic systems. This suggests that their development can be reached only through individual programmes, concentrating on the specialities of these regions.

The influence of choosing geographical scale on the results of disparity research was analyzed as well. In East Central Europe the convergence between countries could be proved. This process occurred parallel to the divergence within countries that was caused mainly by the strengthening centre-periphery dichotomy. The reason of both tendencies could be revealed in the fact, that the spontaneous economic processes have a much stronger effect on spatial tendencies in these cases than any programmes of spatial planning. As for China, it?? was characterized by a massive regional divergence between 1990 and the middle of the recent decade at all geographical levels. This was mirroring the common effect of spontaneous economic tendencies and the efficiency-centred state-level economic policy, putting a relatively small emphasis on spatial convergence until the very last years.

However, the financial crisis has a strong influence on spatial development tendencies. The most negative consequences could be revealed in the case of the export-oriented regions, the „winners” of the transformation, witnessing now a serious dropback of growth. On the contrary, the traditionally underdeveloped rural regions face much less new challenge, which presumably leads to a temporary convergence between the provinces. This happens if we exclude the leading metropolitan regions with a further improving relative position of development. It is an obvious difference, that East Central European countries do not have effective tools to regulate spatial processes, thus, the new spatial structure that develops during global recovery will be formed mostly by spontaneous economic tendencies. The case of China is totally different, as the Chinese state has a much broader scale of economic tools. As a consequence, the Chinese state can strongly intervene in the emergence of the new spatial structure after the crisis. Whether it will cause further divergence or a new era of convergence, depends basically on state policy.

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