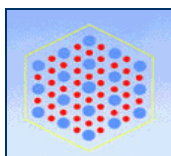


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Les politiques régionales à l'épreuve des faits

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QUELLES POLITIQUES STRUCTURELLES POUR LES NOUVELLES  
REGIONS D'EUROPE?

La question de l'approche des disparités régionales présentes et futures

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**Résumé :**

*Following the EU enlargement appears the question of a redirection of resources towards regions in the transition accessing countries (TACs). Experience of new German Lander regarding CSF 1994-1999 supports starting hypothesis: transition assessing countries may still carry the burden of the past and may behave differently than old EU member States. The paper focuses on the tools for assessing current and future disparities. Two calculations approaches of regional disparities in TACs are presented here. The first one is extending the standard tools of convergence analysis towards the building of "convergence clubs" thanks to Markov chain methodology. The second consists in an original qualitative method for anticipating future regional differentiation, based on the building of multicriteria indicators expressing sectoral and structural short and long term risks and potentials.*

**Mots clés :** *transition countries, regional differentiation, convergence club, Markov chain, regional risk, regional potential.*

## 1. THE TERRITORIAL SPECIFICITIES OF TRANSITION ECONOMIES

Despite the fact that the entry to EU means for transition countries the end of the economic transition process and the fact that they have become developed and well established market economies (criteria of Copenhagen), it would be a mistake to consider that history would be wiped-out and that there are no structural traces of the former communist system (HART and HARDY, 1995). That means that new post-communist member states are carrying specificities in economic structures and behaviours that have to be identified and taken into consideration for optimally efficient EU policies. It is also the conclusion, in form of a question, of the Germany Report Objective1 1994-1999<sup>1</sup>.

### 1.1 OVERALL RESEARCH FINDINGS

The main territorial features of transition economies are as follows (SAMSON, 2004):

- A strong trend of post-communist regional divergence as a consequence of strong inter-regional redistribution under communist system (SAMSON, 1996). This trend is also the consequence of the increased metropolisation effect and of the geoeconomic location of selected countries: dynamic impact of the proximity of EU growth centres; depressive impact of the proximity of former Soviet Union countries as Ukraine; polarisation effect of the combination of these two impacts in one single country as Poland or Slovakia. This specific regional divergence, which adds to the strong growth effect, may last 15 years after transition start.

- The structural deficiency in endogenous growth potential in the regions of post-communist countries. This weakness is not only the consequence of the command economy that led to passive and rent-seeking behaviours. It is mainly the consequence of the artificial economic specialisation of each country and region that led to mono-industrialism. Many places were characterised by the domination (sometimes in newly industrialised places the monopoly) of one industry branch or sector (de SOUZA & KOROMPAI, 1995). This lack of variety of the economic network is a strong vulnerability for the region and a strong constraint for its adaptation. This phenomenon is of course not uniform and depends on the depth of the economic history and on the specificity of each national and regional concrete realisation of the communism (GORZELAK, 1996).

- The exacerbation of polarising Krugman effects. One major feature of transition is that it means a deep change in behaviours, in mentalities. This process is long lasting and increases the gaps between capitals, a few large cities and gate regions, with industry and rural surroundings, and the rest of the country (small cities, main countryside) (GORZELAK, 1996). In the first ones concentrate new values, finance, know how and information in touch with global economy. The dimension of these new growth centres is highly differentiated; it is not only connected to the dimension of the urban centres, but also to their economic functions (MARCHAND, P., SAMSON I.) and to the quality of the economic network of the territory. A study conducted on the regional dynamics in the new German Länder between 1989 and 1993 showed that in Thüringen the developing effect of the city chains was much broader than in Saxony, where the diversity of the economic structure is weak (SAMSON, 1995).

- Another specific feature of post-communist economies is the lack and the weakness of SME's (GORZELAK, 1996). This is not a territorial characteristic, but it is a fact that has high territorial impact because in many regions the SMEs are the main or the solely driving forces. This fact has at least three dimensions: in the former communist economies, the SMEs were almost absent (only some thousands in each country!) and in transition countries their number remain low; large SMEs with 50 to 500 persons as in the German Mittelstand are a rarity; the population of SMEs is

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<sup>1</sup> The full text with all the maps and statistical calculations is available at [http://www.upmf-grenoble.fr/pepse/rubrique.php?id\\_rubrique=76](http://www.upmf-grenoble.fr/pepse/rubrique.php?id_rubrique=76) .

abnormally dominated by very small SMEs (under 10 employees) which are financially very weak and lack of management know-how, especially marketing.

- All these factors combine to create specific negative externalities which are unknown or without equivalent in EU countries. The study conducted in the 215 East German Kreise (Samson, 1995) showed for example that in the regions of the "dark" belt of the South of East Germany, with concentration of mines and processing of lignite and of heavy chemical industry highly polluting, the negative externalities for future economic dynamism (thanks to external investors or local start ups) were not only active close to these industry places, but for the whole regions (former Bezirk). Mono-industry cities carry the same illness, and we showed that in the NGL, (former) "industry was neither supporting industry nor firm creations". Specific and unknown depressive virtuous circles, with migration outflows and population ageing, appear in peripheral rural areas due to several factors: too high animal or vegetal specialisation of the region and too poor diversity of the economic structure, difficulty to convert huge agricultural complexes, lack or lost of farm spirit, accumulation of specific handicaps as distance from cities, from main axes of communication and sometimes proximity of borders. IWH Institute developed the idea that in many places there are some signs of economic dynamism (creation of firms from scratch or thank to external investors) but the density is too low to reach the threshold for a local cumulative growth. All this draws pictures of strong intra-national but also strong intra-regional lasting differentiation and disconnection (deficit in integration) between activities and locations. It was one of the key observations of the Germany Objective 1 report.

- Another factor is the high importance of FDI for economic performance or regions and of location of recovery. At the country level, the fear of a divergence mechanism does not seem valid for the moment because of consequent flows of foreign direct investments in particular, from EU15 essentially, of inputs in human capital in the context of an ageing Europe, a very low mobility of the working population, and finally of low transaction costs and transport costs with their western neighbours.

- At the intra-regional level in CEEC, the absence of long time statistical series does not provide a clear image of the transformation process, and in particular of the reinforcement of the disparities. Nevertheless, the data provided by Eurostat seem to consolidate theoretical assumptions<sup>2</sup>. As a matter of fact, the faster the catch-up growth was, the more the index of dispersion grew in the fast phase of growth after 1995. Conversely, countries as Bulgaria which experienced the weakest growth would have also known a reduction of their intra-regional disparities. At the sectoral level, the variation levels of wages and rates of unemployment resulted in a rebound of the FDI and delocalization of traditional industries as in textile-clothing or furniture industry, in favour of the less advanced CEEC.

Lastly, the observation at a fine level of the most recent FDI in these countries shows the simultaneous existence of two processes:

- in Hungary or Czech Republic, the move of FDI towards the east of the country seems to indicate a possible reversal of the curve of disparities and the emergence of a kind of basin relatively integrated allowing to avoid the marginalisation of the areas (the last very large operation of FDI PSA-Toyota is located at Kolin close to the beginning of a motorway under construction towards the depressed industrial area of Ostrava),

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<sup>2</sup> In accordance with the theory but also with the empirical observations of the current countries of cohesion whose rhythm of catch-up is fast, the profiles of specialization of the future Member States should be modified considerably like their regional equilibrium. In addition to the differences of economic sizes and their proximity to highly developed European centres, much will depend on management by each country of the traditional dilemma between fast national convergence or reinforcement of the regional convergence outlined in the model of Lucas (2000).

- Conversely, in Slovakia or Poland, west/east dualism could be reinforced. In the case of Romania, dualism would take the shape of two basins: one in north being attached gradually to the area of expansion of Mitteleuropa, the other in the south more attached to Balkans Eastern.

- A last important specificity of the transition process is the commercial integration and the geographical evolutions. In a few years, CEEC became very open specialized economies, passing from a stretched spangled structure west/east around the ex-USSR with a structure even more spangled but east/west and around the main developed EU urban centres. There are sub-regional polarizations which exceed the simple effect of proximity. They are organized according to principles of horizontal and vertical divisions of labour which depend on the level of relative development of the countries which compose the basins. Three main basins could be identified:

- Scandinavian basin around the Baltic with the integration of the Baltic States and the north of Poland to the Scandinavian economies like Finland, Sweden or Denmark.

- Central European basin, sometimes called Mitteleuropa in reference to the history, also appears in a rather clear way around Germany and of Austria.

- Basin of Eastern Europe appears for its part with Italy appearing as a developed centre in its heart. It is on a geographical level very complementary to Mitteleuropa basin and it is widespread from Slovenia to Greece, including all CEEC of the zone, in particular Western Balkans.

## 1.2 UNDERSTANDING THE SPECIFICITIES OF THE NEW GERMAN LÄNDER

Fore using the very rich conclusions of the Germany Objective 1 report, one has to take into account some specificities of the German situation. One may distinguish four types of specificities.

- Macroeconomic specific crisis following unification. The transition in East Germany was different from the other ones, especially by the violence (speed and extension) of the shock it represented. We identified three supply shocks (sudden opening of borders without protection by exchange rate; effective appreciation of exchange rate to DM in the money conversion whereas all other countries actually devaluated their currency; real wage increase of 150 to 200 % between 1990 and 1995 with a much lower increase in productivity) and two demand shocks (disruption of Comecon ensemble and recession in these markets that were employing 20% of German workforce; refusal of consumers to buy domestic products between 1990 and 1992)<sup>3</sup>. Among these severe shocks, only n°4 is not specific. The conclusions are well known: 50% of the jobs disappeared (a lot for ever because of emigration), and economic growth is still not sustainable, despite huge financial means transferred from West Germany. The NGL still consume twice higher than they produce.

- Huge transfers from Western part of Germany: about 100 bn USD each year in average since 1990, coming from Federal budget and from Western German Länder. That means that the total allocation of Structural Funds during the 1994-99 period (15 billion ECU) represented only 5% of total public transfers in the same period. This creates a special environment of CSF policies, in principle more favourable. On the other side it makes them less visible and hard to evaluate. One consequence of these transfers is the existence of a second labour market with underemployment, which was strongly reduced thanks to CSF policies.

- Extroverted and dual structure of firms. According to the Germany objective 1 report, there are two groups of enterprises. "On the one hand, the subsidiaries and branch plants of West-German or West-European large enterprises which are in general large plants specialising in pure production activities". "A second group emerged progressively, composed of indigenous East-German

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<sup>3</sup> Samson I. (1993) La douloureuse intégration allemande ; in : Reflets et perspectives de la vie Économique, Brussels, XXXII, n°3/4, pp. 189-208.

enterprises (owned and managed by East-Germans). These are very small enterprises which have to develop all business functions (production, R&D, marketing etc.), but which have a very weak financial basis (...). Large enterprises benefited more from investment subsidies than small enterprises". These two features can be found in other transition countries, but not as strong as in the NGL.

- Strong regional administrations and strong local support policies at national or regional levels. The well-organised Federal and regional organisational routines helped the implementation of the CSF policies, which were successfully combined with domestic policies. This had some negative side-effects but the result was mainly very positive.

Within this context, one could say the following about CSF policies in the NGL:

- All in all the conditions were more difficult in the NGL, and despite huge financial transfers, the macroeconomic environment remained very pessimistic.

- That explains that CSF policies were rather successful although this cannot be reflected in overall economic situation improvement.

- This situation due to the East-German crisis is not likely to appear: "Numerous programme modifications had to be made, partly due to an involvement of the private sector that was lower than expected. Consequently, more public activities (infrastructure, social labour market measures etc.) were supported (with a higher level of public match funding) than originally planned".

- These policies were however rather inefficient for depressed areas in rural peripheries, in some border regions and in some urban and industry places, as well as for small firms.

- The experienced regional administrations made the use of CSF funds very rationale, a situation that will hardly be found in other countries. The report shows however that the conduct of these programmes in the NGL was not decentralised enough for becoming optimally efficient.

One critical issue is to analyse further in what extent these conclusions could be valid also for transition accessing countries (TACs). A first step is thus to understand the degree and the determinants of regional differentiation of TACs.

## **2. REGIONAL DISPARITIES AND CONVERGENCE AT NATIONAL AND REGIONAL LEVEL**

Let's start by analysing the evolution of TAC's regional disparities in the light of the theory of convergence. The first part presents the limits of the methodology traditionally used in most studies of the convergence process. For example, the choice of indicators (usually per capita income or labor productivity) and the statistical test applied (beta- or sigma-convergence) strongly influence the results obtained, sometimes adversely. Then, following the works of Quah and Fingleton, we explain the superiority of an analysis of distribution dynamics, especially one based on Markov chains. In the second part, we present our main results (beta- and sigma-convergence are tested) based on the per capita GDP and the labor productivity of 39 TAC's regions (to which we can add the 6 Bulgarian regions and the 8 Romanian ones) over the period 1985-1999. And, in a third part, we apply the Markov transition probabilities matrix and highlight the tendency towards a unimodal distribution that corresponds to a convergence process.

### **2.1 THEORETICAL FUNDAMENTS OF CONVERGENCE ANALYSIS**

The notion of convergence may have several meanings. This is mainly due to empirical findings that have shown the weakness of the standard hypothesis of a catching-up process between nations, thereby compelling theoreticians to modify their definitions. The study of absolute convergence (existence of a negative relationship between the initial level of a variable and its further growth)

does not reveal the main determinants of regional specificities (BARRO, 1997). Such a study must be supplemented by a multivariate analysis using a large set of variables (conditional convergence) and, more surely by convergence clubs (dynamic analysis), so as to explain regional performances and disparities. In order to highlight the dynamics of transition within and among clubs, that is to say the trajectory shifts (cumulative growth, inertia or reversal), a tuning analysis must be realized. To this end, several sophisticated non-parametric methods have been developed, which attempt to describe this diversity of evolutions. Of these tools, the Markov chain approach is one of the more realistic, since it always takes into account the possibility of change and partly solves the indetermination of regression-based cross-sectional analyses.

The Markov chains approach (NORRIS, 1997) is helpful in any attempt to highlight the distribution mobility (and the convergence of a region to a specific club over time), since it characterizes the transition process towards a finite set of states over time (MAGRINI, 1995); (FINGLETON, 1997). If a set of economies is considered on the basis of a performance indicator between two dates ( $t$  and  $t+n$ ), it is possible to define  $I$  intervals of values corresponding to  $I$  income level states (from the poorest region to the richest) and to build a transition matrix on the basis of the observations, depending on the number of economies being in state  $i=1$  to  $I$  at the beginning of the period ( $t$ ) and  $j=1$  to  $I$  at the end of the period ( $t+n$ ). The diagonal elements represent the proportion of economies that stayed in the same state. The formal nature of the matrix implies that the elements of  $M$  are non-negative and the sum of each line is equal to one. Consequently, this matrix underlines the importance of inertia and mobility forces:

- high values on the diagonal indicate considerable inertia of evolution;
- high values to the right of the diagonal imply that upward mobility took place during the period, with a majority of economies now belonging to an upper group;
- high values to the left of the diagonal show the presence of downward mobility, that is a retrogression (on average) in the scale of the clubs.

Thus the steady distribution for the Markov chain is attained when the proportion of the four clubs (namely the poor, below-average, above-average and rich economies) remains constant over time. It then becomes possible to scan the modalities of the distribution. Thus the basic Markov chain approach avoids the need to reduce a priori the diversity of possible evolutions and makes it possible to capture the plurality of regional trajectories and to highlight the convergence or divergence process itself, and even to explain structural change (CHATTERJI and DEWHURST, (1996); VERSPAGEN, (1997); BEINE et al. (1999)). This approach is therefore particularly valuable in analyzing countries such as ETC, which have experienced a difficult transition period.

## **2.2 THE TAC'S REGIONAL DISPARITIES: WHAT LEVEL OF CONVERGENCE?**

This study draws on data on per capita GDP 1995-2000 for the 39 TAC's regions (to which we can add the 6 Bulgarian regions and the 8 Romanian ones). In order to evaluate more precisely the convergence of per capita income we could apply the two concepts of beta and sigma-convergence. The former refers to the existence of a negative relationship between the initial level of income and the further growth. The beta-convergence is a necessary but not sufficient condition for the sigma-convergence to be verified. The latter merely shows the variance reduction of productivities in cross section between two dates. It should be noted that, in the case of strong asymmetrical regional shocks, the per capita income dispersion could not diminish even in the presence of the beta-convergence. The results of a standard empirical analysis of regional disparities using the hypothesis of sigma-convergence and beta-convergence corroborate this trend.

Estimates are performed on our cross section of 53 or 39 regions if Bulgarian and Romanian regions are included, and from per capita GDP and labour productivities time series (1995-2000 and 1996-2000 respectively).

During this period, and for the two series, we find:

- a strong sigma-divergence, because there was a 30% and a 20% increases of the cross regions variance of (logarithms of) per capita GDP and productivities respectively (variance ratio –final on initial variance– of 1.30 and of 1.20).

- a real beta-convergence of the per capita GDP which speed is about 2.29 %<sup>4</sup>, but does not exist when Bulgarian and Romanian regions are analysed jointly. There exists even a beta-divergence (but not significant) when all the regions of TAC are considered. From the productivity perspective, things are different because the intensity of beta-convergence is very stronger (7.49% per year) and present whatever the space considered.

Yet, those results hide some important spatial and especially sectoral heterogeneities;

- From a spatial point of view, the observed convergence does not imply that the lagging regions tend to catch up with the leading regions, especially in terms of per capita GDP. In fact, four of the five richest regions (mainly metropolitan) increase their advance between 1996 and 2000. The estimated convergence speed doubles to 4.14% when the capital regions are excluded and the variance reduction is equal to 97%! (sigma-convergence), so as we can conclude to global convergence in this special case.

- At the sectoral level the main fact is the great difference between industry and services. The divergence trend is very strong for the former (the variance ratio exceeds the 60%) and relatively low for the latter (under 10%). The case of agriculture is intermediary.

Strictly, we cannot say that a convergence process has taken place in the TAC's regions during the last years of the century because a sigma-divergence and a beta-convergence appear simultaneously.

### 2.3 THE TAC'S REGIONAL CLUBS

A second, more relevant analysis of TAC regional disparities can be undertaken by constructing regional clubs (based on decomposition by quartiles). The overall results (for per capita GDP and for total productivity perspectives) were in the following table. The rows show the position of the regions in 1995 and the columns in 2000.

The results show that the first club (leading regions) maintained its position, because more than 90% of its regions were in the same club in 2000: only one region, the Morava (Cz07) has fallen in the second club. In a lesser measure, the second and the last clubs kept a great number of their members (about 70%). On the other hand, the third club (middle-lower club) has recorded a genuine implosion. Indeed, only three regions about thirteen remain in this club that is to say hardly 20%. However, an upward mobility has taken place because seven regions are now in the second club while three regions rejoin the lagging club. This striking fact is confirmed by the dominant upward mobility of the second club: the per capita GDP of a majority of the "followers" regions (three against one) have increased during the period, and thereby have reached to the first club. Thus a systematic trend towards convergence appears and confirms the beta-convergence findings.

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<sup>4</sup> This annual speed is very near to the famous « 2% » of Barro and Sala-i-Martin (1999), showed up on numerous samples of regions and countries.

Geographical position plays a key role in determining per capita GDP, and hence membership to one of the four clubs. All the former results are enlightened by the fact that the Romanian and the Bulgarian regions lost ground during the period. Indeed, four of the five East-southern regions belonging to the third club are now present in the last club (only Bucharest region escapes the phenomenon). The second established fact is the nationality importance. The country effect is strongly evident when we consider, for example, Poland for which 9 of the 16 regions walk one step forward, together with the Baltic States. Only, Hungarian regions are equally spread among the three first clubs, whereas the Czech and the Slovakian regions are concentrated in the first and the second clubs. It is also the case for Slovenia.

*Table 1: Club membership and mobility of the 53TAC's regions: per capita GDP (1995-2000)*

	CLUB 4	CLUB 3	CLUB 2	CLUB 1
CLUB 4	<b>Bg01 ; Bg02 ; Bg06 ; P103 ; P109 ; Ro01 ; Ro02 ; Ro03 ; Ro04 ; Ro06</b>	LV ; P10a ; P10d ; P10e		
CLUB 3	Bg03 ; Bg05 ; Ro05 ; Ro07	<b>Hu05 ; Hu06 ; P108</b>	EE ; LT ; P102 ; P104 ; P105 ; P106 ; P10f	
CLUB 2		Bg04	<b>Hu04 ; Hu07 ; P101 ; P10b ; P10c ; P10g ; Sk02 ; Sk03 ; Sk04</b>	Hu02 ; P107 ; Ro08
CLUB 1			Cz07	Cz01 ; Cz02 ; Cz03 ; Cz04 ; Cz05 ; Cz06 ; Cz08 ; <b>Hu01 ; Hu03 ; SI ; Sk01</b>

The metropolitan dynamics seems to be an advantage but not determinant: Slovenia and several capitals such as Prague, Bratislava and Warsaw, or even Bucharest, have got out of the ticklish transition. The key points of the regional sectoral productivity evolutions are: the huge difficulties encountered in agriculture (a bimodality appears), the coexistence of two unequally performing distribution sectors, the revolution in the finance sectors (all the positions are changing), a great catch up in the business services or, in a lesser extent, in the transport sector, and the uncertainty of the future evolutions of the public administration and education sectors. Thus, the regional evolutions of economic performances follow, as a whole, a Gauss function biased to right, that is to say that the application of the convergence clubs theory confirms the former beta-convergence findings.

### **3. REGIONAL POTENTIAL AND VULNERABILITY IN TAC APPROACHED BY MULTICRITERIA INDICATORS**

As the EU is mainly using GDP indicators to screen regions and to allocate the European funds, it is necessary to develop new instruments in the perspective of the next programming period (2007-2014). It will be moreover useful when we consider the new trend of regional development and spatial cohesion policy of the EU towards economic efficiency and competitiveness (SAPIR (2003), EC (2004)).

Whereas the standard statistical tools are convenient to determine the former levels of production and productivity of a region and its contribution to the national GDP, they cannot of course inform about the economic prospects at regional scale. Instead of building fragile GRP based scenarios, the assessment will use a more qualitative method, looking in the current data information about the future. These trends are closely related to specific socioeconomic situations in each territorial area (district, region, country) and cannot be precisely understood without referring to a set of structural, sectoral, social and geographical factors (DUNFORD, 2002a). In other words, our purpose is to reveal hidden prospects that cannot be captured by standard econometric tools.

### 3.1 THE METHODOLOGY OF THE QUALITATIVE APPROACH

We will investigate here regional economic dynamism through four categories taking into account growth/crisis situation and short term/long term prospect. "Growth" refers to socio-economic dynamism and must be understood within a development approach. Economic "dynamism" refers to a positive trend leading to endogenous (see BARRO, 1999) economic and social development. "Crisis" situation is referring to weak or potentially weak territorial economy. For some situation we will prefer to use the notion of "risk" to point out a situation of instability or of decreasing resources. Short-term evolutions refer to the continuation and the completion of sectoral adjustment process within transition countries, whereas long term evolutions refer to structural resources that will play within the sectoral pattern as positive or negative externalities (BOILLOT, LEPAPE, 2002). The time-span of the action of the former is three-five years (the delay for closing activities with the management of the social issues, and the delay to decide and to launch new activities), and seven-ten years for the latter (the minimal delay of the externalities for differentiating territories).

The core method, developed since 10 years at UPMF University Grenoble, is the building of *composite multicriteria indicators*, based both on evidence and on computed correlations between variables. This operation concentrates the information carried by variables in various dimensions. Then this processed information is made visible on maps carrying spatial effects.

The first part of the work was to register the relevant economic data available between 1996 and 2001 for CEE countries at NUTS 2 level. As for dependent variables, we chose mainly the variation of current GRP in constant 1995 prices between 1995 and 2001 (dGRP). For the explanatory variables we identified two categories: sectoral explanatory variables and non sectoral explanatory variables. The first ones include the sectors of agriculture, mining, manufacturing and distribution and business services. They represent the share of employment in each sector in the total employment for each region. Agriculture (AGR) and mining (MIN) represent traditional activities in transition countries characterised by strong conversion effects. Their importance in a selected region anticipates negative impacts. Moreover East German experience shows that polluting activities like mining or chemicals have deterrent effects on the localisation of new activities (SAMSON, 1995). Distribution (DISTRIB) and business services (BS) mostly represent new economic sectors and tend to be related to economic dynamism based on a new growth model (DUNFORD, 2002b).

The second group of variables (non sectoral) focuses on regional income (INCGRP), unemployment (UNR), migration (dPOP), dependency (DEP), higher education (EDUC), foreign direct investment (FDIR), SMEs (E9 and E49), presence of doctors (DOC) and urbanisation (T4). As for the income (INCGRP), we compare for each region the level of income of households to gross domestic product per inhabitant. The hypothesis is that, according to the theory of the basis (SOMBART, 1916), the growth of the cities is explained by the revenues they are able to attract from outside. Expanded to overall regional development issues, this theory shows that regional

economic development and employment is more connected to the incomes per inhabitant than when the focus is more usually made on production level (DAVEZIES, 2001). In this respect, the most interesting indicator should capture the ability of a region to catch the wealth produced by itself or by others. This variable could for this reason be well correlated with the urbanisation indicator (T4). We can add here the education level, FDIR and migration which are more urbanisation related variables.

The T4 indicator is based on four categories taking into account the presence (or not) of a city with more than 400.000 inhabitants and the level of population density. It originates from German BfLR (SAMSON, 1995). This kind of indicator has been previously used in economic regional analysis and appeared to be a very good explanatory variable of territorial potential (SAMSON, 1996). This approach allows identifying urban and rural oriented areas, taking into account situations of polarisation and urban spreading. In less urban and polarised regions, the density of population can be related to the existence or not of a network of small and middle towns. Low density refers to deep rural areas often weakly connected to major communication infrastructures.

Dependency rate will reflect trends in rural environment with ageing population. It will reveal demographic strengths and weaknesses of regions in the long prospect. As for the unemployment rate and the presence of small and medium enterprises, the analysis must be particularly cautious because similar profiles could be observed in different environments. In a context of transition, the employment rate has ambiguous meaning and a high unemployment rate may be a good or a bad thing. A high level of unemployment may express a strong crisis situation characterised by the crumbling of entire economic sectors (SVEJNAR, 2002). It can be as well observed in restructuring situation where the reorganisation of local economy can't avoid a period of high rate or unemployment (SAMSON, 1995). Potential dynamism can then be observed with a high increase of growth and productivity per head. Concerning SMEs, dynamism of small enterprise (less than 10 employees) will more be related to short term (and fragile) economic dynamism. Presence of middle size enterprise (from 10 to 49 employees) indicates a longer term and more sustainable economic potential.

### 3.2 SCANNING THE PANEL OF VARIABLES

We have tested all the variables by correlations with selected regional performance variables. We have also analysed the organisation of our set of independent variables to identify which are connected to each other, and which belong to different dimensions. Unlike the standard search for causal relations by regression calculations, we use here the correlations for the purpose of qualitative analysis and the building of maps as the way of using indicators. The maps add to the statistical analysis by revealing geographic dimensions of the phenomena like territorial dynamics and proximity effects, difficult to show by pure calculation.

The heuristic functions of the tests (Student tests) are following:

- To identify the most active explanatory variables.
- To give sense to relations and to understand the significance of each variable through its behaviour.
- This gives us a first set of information about data which are interrelated and which could be used to elaborate synthetic indicators revealing more information.

For being able to catch the main information coming from the huge correlation tables, we draw a correlation chart showing the most robust links between variables (I1 is polarisation : T4+INCGRP, I2 is services: DISTTRIB+BS).

*The organisation of the panel of non sectoral explanatory variables*

Three variables are closely interrelated: INCGDP, EDUC and T4. They appear to be structural explanatory variables (long term) of regional dynamism and competitiveness. Their potential to attract capital and investments is confirmed by the strong correlation with FDIR variable. FDIR should here be considered as a dependent variable explained by income, urbanisation level and education variables. INCGDP, EDUC and T4 could be the base to build long term growth indicators.

It is interesting to see that according to the size SMEs have not the same behaviour. E9, ie very small SMEs up to 9 employees positively correlate with unemployment, whereas the bigger SMEs from 10 to 49 positively correlate. If we except Romania (where low unemployment reflects a deficit in restructuring), the high unemployment level – as several Polish or Bulgarian regions – is connected to intensive birth and death of very small firms (one or two persons). This can be explained by the fact that very small firms reflect the fragile situation of start of restructuring where large amount of employees leave the big plants to start the trial-and-error process of entrepreneurship. When the restructuring is mainly completed, this Brownian demography of firms slows down and the average size of SMEs increases, over passing the threshold of 9 employees. In a post-communist transition, the average size of SME's is increasing with recovery after the shock crisis (DALLAGO, MCINTYRE 2003). This is confirmed by a correlation with productivity increase and real growth much stronger for E49 than for E9. That makes E49 a good indicator of long term socio-economic potential.

#### *Sectoral profile of non sectoral variables*

From this correlation table we can notice that the three variables (INCGDP, EDUC, T4) are strongly correlated with activities of the service sector. The most attractive regions are also the most service oriented. Then FDI is negatively correlated with agriculture sector, which presents poor attractiveness, and is positively correlated with distribution and service sectors. This confirms the idea that service strong endowment plays positively and agriculture negatively for growth.

#### *Explanation of regional performance by non sectoral variables*

This correlation table shows a close relation between growth on one side, urbanisation level and education level on the other. Urbanisation level and level of income/GDP shows that economic growth is mainly an urban phenomenon. Unemployment level shows a positive correlation with both increase in GDP and productivity. This paradoxical situation is typical of transition, as explained above: the regions experiencing the deepest economic restructuring are characterised both by a strong growth level and a high level of unemployment (GORZELAK, 1996).

#### *Explanation of regional performance by sectoral variables*

Negative correlation between agriculture, mining on the one side and increase in GDP on the other side confirms that these sectors are connected with crisis situation (FOTHERGILL, 1995). Positive correlation between services and increase in GDP indicates that service sector is a good indicator of growing regions (DUNFORD, 2002b).

### **3.3 THE BUILDING OF MULTICRITERIA INDICATORS**

We built 7 multicriteria indicators able to reveal strong regional differentiation on the maps. Two short-term indicators were built: M1: Short term economic dynamism (dGDP + I2), M2: Short term sectoral potential (I3 higher services – I4 environmental unfriendly industries). More interesting are the long-term indicators: M3: Long term socio-economic risk (AGRIC+DEP-dPOP); M4 : Long term regional attractiveness (FDIRR+DOC); M5 : Long term structural resources (T4+ INCGRP+EDUC+E49) and M6 : Long term competitiveness (M4 + M5). A last indicator, synthetising all the long term information, is M7, the long term socio-economic potential of regions:  $M7=M6-M3$ .

Long term risk situation corresponds to regions where rural sector is still important in local economy and where there are weaknesses in human capital resources (GORZELAK, 1996). This means high dependency rate, emigration, low education, high unemployment rate with limited economic development potential (low urbanisation). As it is unlikely that the new member States will immediately launch strong restructuring measures in agriculture, the agricultural crisis is expected to come in a second step, in the long term. The population losses will also play negatively in the long term, as well as the dependency rate.

Long term socio-economic development is first related to urbanisation indicators and to the external agglomeration economies and Krugman effects. It includes the presence of large cities with high income levels. However, other factors might implicate long term economic potential, like a good living environment. For this reason we will take into account the location of upper class and more mobile categories of population, which is reflected by a high presence of doctors (SAMSON, 1996). Education level is one of the main explanations of the localisation of activities, and this attractiveness is confirmed by the presence of FDI (that, in turn, will boost future growth). Last, the concentration of middle size enterprise will be used to identify territories which are experiencing economic dynamism for a few years and which carry a sustainable growth potential for the future.

M3, long term socio-economic risk indicator, relies on two major risks. The weakness of the human resource in the sense of the eco-demographic resource: the absolute and relative importance of active population in the regions; the other risk is rural crisis. The effect of the combination of the two factors is quite easy to imagine: depressed regions with over-ageing population and resistant unemployment. These places without economic dynamism will not attract activities: in turn, the risk is the departure of the active persons migrating to the large urban areas or abroad, in a Mezzogiorno scenario. These regions should be the target of preventive policies and of structural policies (GORZELAK, 1996).

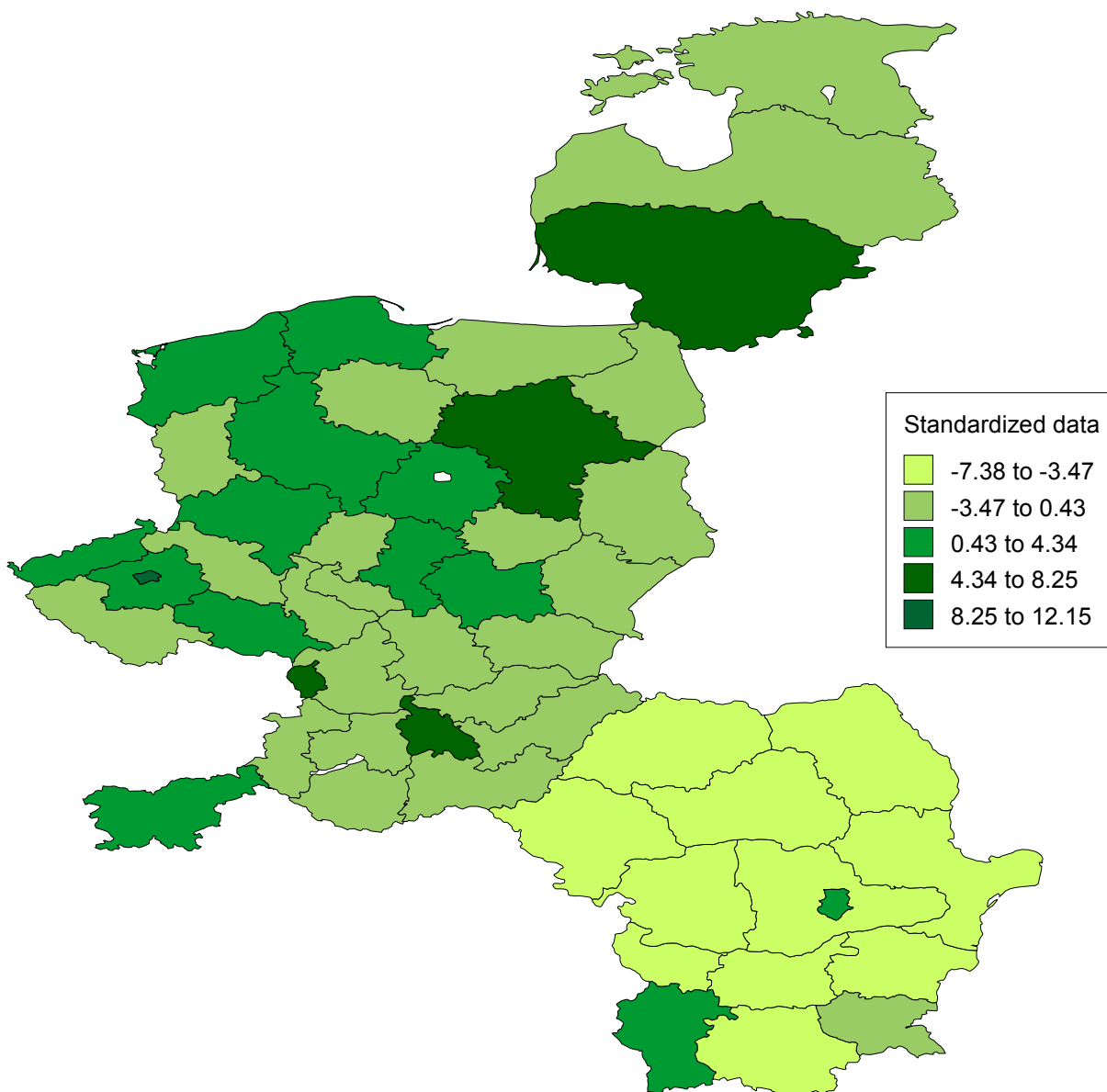
M4, long term attractiveness indicator, is oriented towards one specific resource of regions, the attractiveness. This indicator is built here on the basis of the behaviour of productive capital markets and on the behaviour of highly qualified: it is supposed that something in the regions attracts capital and skills. This indicator may be fragile because the FDI data is not stock data, but flow data of one year, 1998 or 1999. Moreover other dimensions of attractiveness are not included as for example transport infrastructure (accessibility), housing patrimony etc... But we consider however that all the other dimensions are indirectly captured by the movement of capital and brains. This is the best possible prospect for a region to accumulate these two crucial resources. In turn, regions with low attractiveness should receive special attention and develop specific centripetal and communication policies.

M5, long term structural resources indicator, is positively and directly oriented towards key resources of regions. One finds here the three main resources likely to attract capital in one territory, ie to generate investments. The first one is the urban and income polarisation, representing the main resource as defined by economic geography (PERROUX or KRUGMAN for ex.). The second one is the human resource at the basis of the theories of human capital (BECKER) and of endogenous growth (BARRO). The third one is the entrepreneurial resource in firms having very suited dimensions for flexible and specialised production, especially in services. These places are the most efficient for external investors, but contain sufficient potentials of increasing returns for being easily activated. In turn, the regions poorly equipped with these structural resources could become "subsidy traps" like some place of East Germany today. In those cases the optimal choice is to concentrate the policies in establishing linkages so that they could come into the influence of the former ones, the metropolitan growth centres.

M6, long term competitiveness indicator, is the combination of the two precedent ones, the attractiveness and the structural resources. It is a very good indicator of territorial wealth, of the places with the best positive externalities. The addition of attractiveness to the previous indicator means that several *generic resources* of territories are being transformed into *specific assets* according to the recent economic findings (COLLETIS, PECQUEUR, 1994). The process of building these specific assets is the way for ensuring a long term competitiveness of a territory. The whole process cannot only be the mere addition of these factors, and institutional and governance factors are of crucial importance here. But without doubt M6 belongs to this process.

The final synthesis of the long term prospects for the regions of the ECTs is M7, the long term socio-economic potential of regions. It gathers the positive and negative factors influencing the long term evolution of regions. The map is showing the good position of capital regions as well as an East-West differentiation mainly visible in Poland. In the long term prospect, the Baltic States join central Europe, whereas South-Eastern Europe prospects are poor. Romania proves to be the most problematic with few long term potentialities. The strong position of Lithuania, better than Estonia, is here again to be confirmed by further analysis. The differentiation within Poland, Czech Republic and Bulgaria should give new signals for preventive regional policies, whereas the situation of Hungary and Slovakia shows rather poor potential outside the capital regions: it reveals the need for a strong revitalising of regions, weakened by the centripetal effect of the capitals.

## M7 indicator: long term socio-economic potential



Our main conclusion is that the current EU programming tools based on macroeconomic variables are not the most adequate to understand and to reduce regional disparities. The European Commission and Eurostat, because of a lack of data and because they need to simplify the programming process are mainly referring to NUTS2 regions statistics. However for TACs, the NUTS3 level seems more adequate for capturing local dynamics or depressions. Despite this, we observe that our approach shows a much better position of Poland than in the current discussions, and in turn the relatively weak or very weak regional resources of the Czech Republic, Slovakia and Hungary. Several limitations in the analysis come from the NUTS2 level, making the data in one-NUTS2 countries (Baltic States and Slovenia) sometimes not relevant. Other limitations come from data availability, especially concerning employment rate, migratory flows, FDI and incomes compared to GRP. Moreover, the rating of the regions provided by our indicator cannot be sufficient, and should be completed by a qualitative analysis in form of a typologisation of TAC's regions.

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