

THE PENTAGON AND OTHER GEOMETRICAL FIGURES OF EUROPE'S ECONOMIC CORE

PÁL SZABÓ¹

ABSTRACT - This study focuses on the spatial structure of the European Union. The aim of the research is to analyse the geometric models of Europe's core area. We have a lot of flat shapes for the spatial structure: we have axes, polygons and they have a lot of different geographical extensions in Europe. These formations have been collected from numerous studies and they have been compared based on different statistical data. Moreover the pentagon, the newest model of EU is described in different respects.

Key words: Europe, spatial structure, geometric figure, the pentagon, GDP per capita.

1. INTRODUCTION

The social and economic attributes of the macroregions of Europe are discussed in numerous studies. Some of them focus on developed zones: where they are and what kind of spatial form is characteristic of them. Sometimes the result is such a spatial picture in which the core area is illustrated by a geometric shape. The aim of my research is to analyse these flat shapes. I have collected them from different studies (books, reports, conference papers, articles) and I have compared them based on different statistical data (GDP per capita etc.; source: Eurostat database).

There are a lot of views of Europe's spatial organization, but I have focused on the geometric formations (the names, the geographical position and the comparison), so I have not quoted the studies in which there is not any polygons or in which there is another formation (for example the 'European megalopolis', the 'golden plateau', the 'blue banana', 'nord des suds', the 'golden banana', the 'yellow banana', the 'Central European boomerang', the 'Japanese corridors', the 'blue star', die 'Kreuzbanane', der 'europäischen Champignon', la 'pieuvre rouge', the 'blue orchid', the 'bunch of grapes'). This collection of shapes presents some types and some opinions.

2. THE FORMATIONS/MODELS AND THE COMPARISONS

We create and use various geometric formations (flat shapes) during the analysis of geographical areas. Most of them are axes and flat shapes (triangles, squares, rings etc.). They show the spatial structure of an area in a simple way, that is why they are used not only in scientific researches but also in educational publishing, in education and in regional policy.

First of all we have to mention that probably we should make a difference between a flat shape which illustrates a part of an area (with a concrete name) and a geometric model. In the first case there is a concrete geographical area (for example London–Bristol axis, Milan–Turin–Genoa triangle) and in the second case there is a general spatial formation (for example the development axis or the development triangle). But the terms are mixed, some authors use the model and others use the shape, the formation, so these words are used with the same meaning. However, the difference might be important if we study the 'evolution' of the formations: for example originally the 'Sunbelt' was the name of the southern zone of the USA (a concrete geographical area), but nowadays this name is used

¹ Department of Regional Science, Faculty of Science, Eötvös Loránd University, Pázmány P. st. 1/C Budapest 1117, Hungary. E-mail: paja@ludens.elte.hu

for more and more territories to identify the emergent core zone, so the ‘sunbelt’ has become a model. In this case if we want to name the concrete area, we have to add an adjective: ‘American sunbelt’, ‘European sunbelt’ e.g. This situation is important in the case of the geometric shapes and models.

2.1. The axis

The *axis* is one form in modelling. It is often used to symbolize development corridors, linear urban and traffic zones etc. (Sometimes the axis is used to represent an area including some countries, regions which are in the same political, economic position).

In several studies which focus on Europe’s economic, social geographical picture we find an axis across Europe with different names, for example the Manchester–Rome urbanized axis (Sárfalvi, 1968); “Europe’s vital axis” from Greater London to Northern Italy (Dunford–Perrons, 1994); “the economic axis” from London to Rome (Gorzalak, 1997); “the axis from London to Turin” (Lever, 1999); “a dominant urban axis from London to Milan” (Taylor–Hoyler, 2000), “the great European development axis”.

These axes are in the same geographical zone, they extend from England to Northern Italy but these are not linear axes, so “the curved development axis” (Cairncross et al., 1974) “the curved zone” or “curvilinear zone” (Lever, 1995) is a better name for the development economic zone of Europe, across Benelux-countries, Rhine-valley, the Alps, and not across the ‘French desert’. (“Link London, Frankfurt, Milan”.) (Cairncross et al. [1974] state that this zone covers 20% of the area of EC9 and gives 50% of the GDP of EC9.) But most of the people know this zone as ‘dorsale’ (‘backbone’) due to Brunet (1989), or the ‘blue banana’ after a journalist’s comment (Lever, 1995). (In some of the quoted studies the authors connect the axis with the ‘blue banana’.) This zone is also known from the economic history of our continent as the ‘backbone of Europe’ (Pounds, 1997; Braudel, 2003).

There is another name used as well, the spine; for example “metropolitan spine” (Burtenshaw et al., 1991), “central spine” (Carter, 1995). In the studies we find another axis which is used for a new economic development area in Southern Europe: ‘Mediterranean axis’ from Milan to Barcelona (Gorzalak, 1997; Lever, 1999), but its well-known name is the ‘European sunbelt’ or ‘North of the South’.

In this case there is no good opportunity to analyse the numerical attributes with regional statistical data, because the axis has not extension and the spines, backbones have not concrete borders (in these studies), similarly to the cases of non-geometric formations.

2.2. The triangle and the square

The *triangle* is a very popular spatial model in geographical, regionalist circles. This flat shape may have different attributes depending on the function of the model: gold, black, industrial etc. A very frequent model is the golden triangle, it is usually used for a developed area (e.g. Milan–Turin–Genoa in Italy [Hall, 1977], Columbus–West Point–Starkville in USA) or a region with high income from illegal activity (e.g. the triangle based on opium in Thailand–Myanmar–Laos; the Kecel–Soltvadkert–Kiskőrös golden triangle in Hungary).

In the case of the core area of Europe maybe the first triangle is in J. Gottman’s book from 1962 (“A Geography of Europe”). (But we cannot find this form in his book written in 1954.) The author deals with Europe’s centre and he mentions the Amsterdam–Paris–Ruhr triangle. The name of golden triangle referring to Europe can probably be attached to P. Hall (most of the authors quote him). In his book (Hall, 1992) the London–Frankfurt–Paris golden triangle is described. But in an earlier edition of this book (Hall, 1977) we find the form with another vertices: Birmingham–Milan–Paris (it rather seems to be an axis), moreover there is another shape, a little golden triangle: Birmingham–Dortmund–Paris. Does it reflect the development of Europe’s economy? Or did Hall come to another conclusion after researches on the topic of the core area of Europe?

Beyond the golden triangle another names are used in different studies, for example “Central Triangle” (Cheshire–Hay, 1989), the “Central European triangle” (Faíña et al., 2000), “Major Triangle”. The territorial dimensions of the forms are more varied than the names. If we want to group

THE PENTAGON AND OTHER GEOMETRICAL FIGURES OF EUROPE'S ECONOMIC CORE

them, we can make four groups (*Table 1.*) if we take geographical attributes into consideration. These triangles are in the centre of the continent and the environs of Brussels are included in the most of the triangles.

The economic development and the changing spatial structure resulted new forms (in different studies): for example the Munich–Stuttgart–Milan triangle (Rechnitzer, 1998; Tóth, 2003), the Barcelona–Munich–Milan, the Barcelona–Lyon–Bologna triangle (Cséfalvay, 1999). These formations represent the new development zone: the ‘European sunbelt’.

Table 1. *The triangles of Europe's core area.*

| | The vertices are cities | The vertices are not only cities |
|-------------------------------|--|--|
| On the continent | Amsterdam–Cologne–Lille (Smeets, 2000) Brussels–Amsterdam–Frankfurt (Conti, 2000; Hall, 2002) Brussels–Amsterdam–Paris Frankfurt–Amsterdam–Paris | Amsterdam–Ruhr–Paris (Gottman, 1962) Belgium–Netherlands–West-Germany (Keeble et al., 1982) Benelux–West-Germany–North-France (Horváth, 1998) |
| The form extends over England | Birmingham–Milan–Paris (Hall, 1977) Birmingham–Dortmund–Paris (Hall, 1977) London–Frankfurt–Paris (Hall, 1992; Baudelle–Guy, 2003) London–Amsterdam–Paris (Rechnitzer, 1998; Nagle–Spencer, 1999) Manchester–Hamburg–Milan (CE, 1991) | London–Ruhr (Cologne, Düsseldorf)–Paris (Cséfalvay, 1999; Faíña, A. et al., 2000) |

Of course this great variety of formations is based on different considerations and depend on the researchers, the authors' points of view. But there are possibilities to compare these triangles, for example if we calculate the GDP per capita of the shapes' areas. We get the data of a formation if we identify those NUTS 2 regions which are included in the triangle and we average the data of the regions. (The source of the data is Eurostat.) The problem of this analysis is that the calculation is based on the whole territories of the regions but the areas of the regions usually lap over the borders of the triangles.

In 2004 the Amsterdam–London–Paris formation had the highest GDP per capita (EU27=100%; a=in euro; b=in PPS), the value is about 155% (a) and 142% (b). If we enlarge the triangle a little bit towards Brussels ('quasi square') then the value will be higher. (In those cases when one of the vertices is in England the triangle doesn't include the territory of the North-Sea and La Manche.) In 1995 the situation was different: Amsterdam–Brussels–Frankfurt (a) and Amsterdam–Brussels–Paris (b) were on the top. In 2004 out of the triangles of the European sunbelt the Munich–Stuttgart–Milan has the highest GDP per capita and this value is close to the Amsterdam–London–Paris formation's value. (But this shape does not include Swiss regions.)

The GDP density is also an indicator of an economic centre. The indicator includes two components: the economic development and the population density. [GDP/area = GDP/population * population/area.] In Europe the GDP density is the highest in the Amsterdam–Brussels–Frankfurt triangle (in 1995 and in 2004 also, in euro and in PPS also).

In modelling the *squares* are used formations, but in the case of the core area of Europe there are only a few squares. London–Amsterdam–Frankfurt–Paris (Lever, 1995) and Leeds–Lyon–Hamburg–Milan (Horváth, 2006) are in the collection. The economic development (GDP per capita) is

also calculated in these cases but these values do not reach the best triangle's values. (As it has been written previously if we create the London–Paris–Brussels–Amsterdam 'quasi square' we get the highest GDP per capita.)

2.3. The pentagon

The pentagon (Figure 1.) is the newest model of the EU. This is mentioned in some papers about the regional disparities of the EU (Schön, 2000; Faludi, 2000; Baudelle–Guy, 2003; Gren, 2003, etc.), and this model is popular in the milieu of the bureaucratic system of the EU: this shape can be found in the newest publications of the EU, for example in the "Eurostat Regional Yearbook 2007" (EC, 2007a), and in the "Fourth Report on economic and social Cohesion" (EC, 2007b). Even Danuta Hübner (Member of the European Commission responsible for Regional Policy) mentions the pentagon in her foreword in the document "Working for the regions EU Regional Policy 2007-2013" (EC, 2008).



Figure 1. *The pentagon.*
(Source: Schön, 2000)

The source of this model is the ESDP document (1999): "the core area of the EU, the pentagon defined by the metropolises of London, Paris, Milan, Munich and Hamburg. This zone offers strong global economic functions and services, which enable a high income level and a well-developed

THE PENTAGON AND OTHER GEOMETRICAL FIGURES OF EUROPE'S ECONOMIC CORE

infrastructure.” (EC, 1999, p.20.). Later the formation got attributes: ‘European pentagon’ (Baudelle-Guy, 2003; Gren, 2003), ‘20-40-50 pentagon’. The numerical attribute is due to the data of the formation: “This area represents 20 % of the total area and contains about 40 % of EU citizens producing about 50 % of the EU’s total GDP.” (Calculations of the Federal Research Institute for Building and Regional Planning [BBR], Bonn; EC, 1999, p.61.) This model and calculations were made for the EU15, so after the enlargement of the EU the numerical values changed. The non-detailed calculations of Gren (2003) show 15%, 30%, 50%. The results of my calculations are (with data from 2004): EU27 – 13% (area), 30% (population), 42% (GDP, euro). This is supported by the EU-calculations: “Today, 43% of the economic output and 75% of investments in research and innovation are concentrated on just 14% of the European territory, the so-called pentagon between London, Hamburg, Munich, Milan and Paris.” (EC, 2008, p.1.) The calculated result of the GDP per capita (EU27=100%) was 138% (a) and 129% (b). (The pentagon does not include Swiss regions.) These values are lower than the best triangles’ values.

This model has gradually become popular in the regional documents of the EU since the publication of ESDP. We do not find it in the Second Report on economic and social Cohesion (published in 2001), because in this paper another conception of the spatial structure is described: Central regions, Intermediate regions and Peripheral regions (“an index of accessibility has been developed, which measures for each region the time needed to reach other regions weighted by their economic importance. ... Regions can be divided into three groups in the terms of the index. The emerging picture is one of a very high concentration of activities in central regions which account for only 14% of the land area (EU27) but a third of the population and almost half (47%) of the GDP.” [EC, 2001, p.30.]). These data are close to the pentagon’s values, but the extension of the central part of the EU is different: the centre did not include the Italian regions, but included Middle France and North England.

In the Third Report there is the pentagon: “at EU level, a high concentration of economic activity and population in the central area or pentagon (which stretches between North Yorkshire in England, Franche-Comté in France, Hamburg in northern Germany and Milan in the north of Italy), ... and which covers 18% of the EU15 land area while accounting for 41% of population, 48% of GDP and 75% of expenditure on R&D. Enlargement will only increase this degree of concentration by adding to the EU land area and population but increasing GDP relatively little.” (EC, 2004, p.27.).

The Fourth Report emphasizes the convergence: the narrowing of the gap in GDP per head between the most and the least prosperous regions. And as part of this convergence “there was also reduction in the gap between the core regions in the central part of the EU (the so-called Pentagon stretching from London across Hamburg, down to Munich, across to Milan and up to Paris) and other parts of the EU” (EC, 2007b, p.10.) The economic prosperity in the EU is becoming less geographically concentrated: the economic ‘core’ of Europe “contributed a substantially smaller share of EU-27 GDP in 2004 than in 1995, while its share of the population remained stable.” (EC, 2007b p.xii.). According to the authors this tendency is due to the emergence of new growth centres out of the pentagon, such as Dublin, Madrid, Helsinki and Stockholm, but also Warsaw, Prague, Bratislava, Budapest and Bucharest, Sofia. This and the fact that between 1995 and 2004 all capital city regions (with the exception of Berlin) increased or at least maintained their share of national GDP (EC 2007b), are very important in the case of the models, because these processes weaken the reason for the existence of these simple geometric models and strengthen the fact of the urban-rural contrast and in this way the polycentric model of Europe (‘bunch of grapes’, Kunzmann, 1992). But it is true that the majority of the Metropolitan Growth Areas (MEGAs) (76 MEGAs were identified by the ESPON project on the potential of polycentric urban development) are located in or close to the Pentagon (ESPON, 2005).

The Regional Yearbook 2007 emphasizes that “Looking at the period 1995–2004 ..., we see very high growth rates outside the core of the European Union as defined by the pentagon created by linking London, Paris, Milano, München and Hamburg. Growth was particularly high in Ireland and the three Baltic States, with average annual real GDP growth over 6%, which means GDP grew by more than 70% over the period. In the new Member States, Polish, Slovak and Hungarian regions

together with Slovenia and Cyprus all achieved high growth rates. In the Czech Republic, Romania and Bulgaria, growth was concentrated in the capital regions.” (EC, 2007a, p.28.). It is also important that the centre-periphery contrast has changed significantly. We can present it with another method, if we create a curve for the accumulated GDP and population – we accumulate the regions’ data against the regions’ distance to the geometric centre of the EU. The curve of 2004 is closer to the axis, so the gap is closing slowly (Figure 2.).

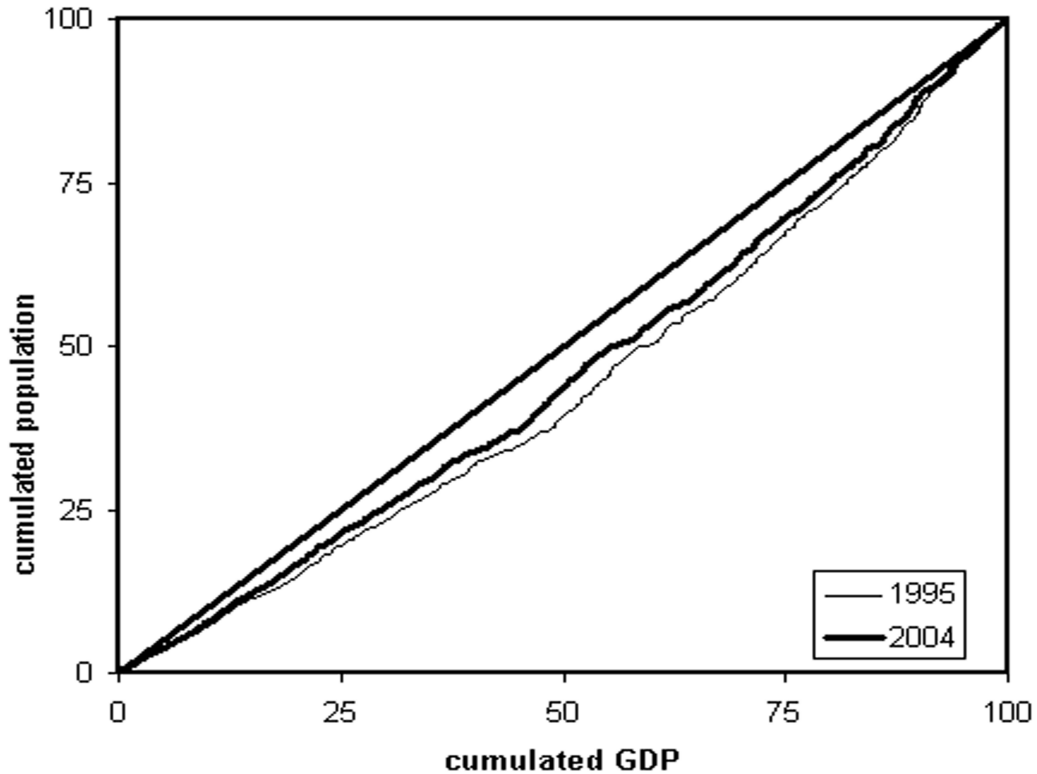


Figure 2. *The cumulated GDP and population of the regions against the distance to the central point of the EU.*

At the end of our analysis we have to emphasize one more point of view. If we study the map based on the regional GDP per capita, we don't find a geometric form for the development area. Moreover the economic centre is not outlined well because for example some regions of Northern Europe have high values. However, if we make the regional GDP density map, then we can establish the main zone of Europe extending mainly continuously from Middle and Southeast England to Northern Italy and it shows the well-known 'blue banana', the historical backbone (Probáld–Szabó, 2005) and not a geometric shape. (The Alps and some regions with economic problems in Southern Belgium and in Germany break the formation.) (Figure 3.)

THE PENTAGON AND OTHER GEOMETRICAL FIGURES OF EUROPE'S ECONOMIC CORE

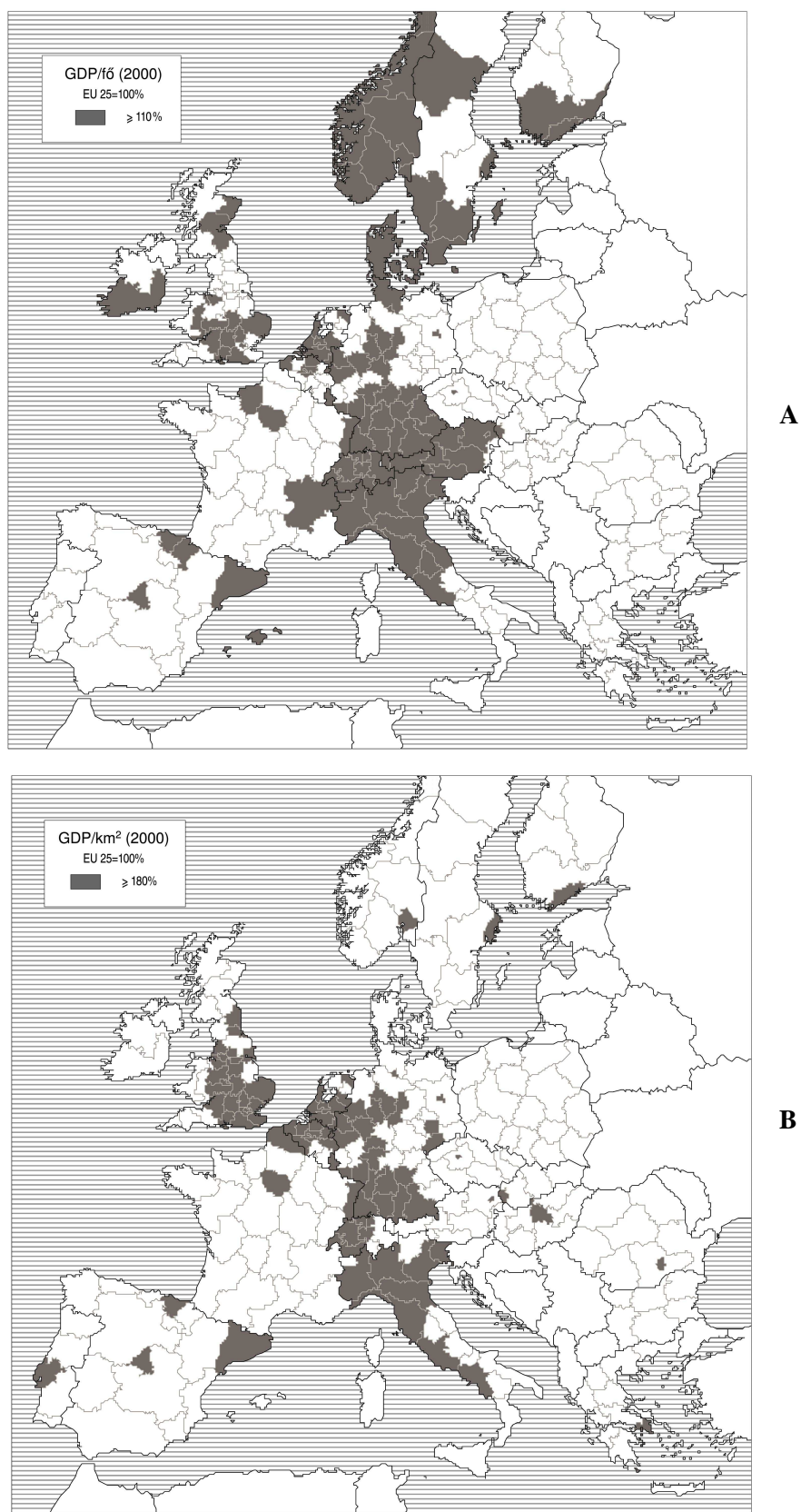


Figure 3. *The economic centre in Europe based on GDP per capita (A) and based on the GDP density (B).*
(Source: Probáld-Szabó, 2005)

CONCLUSION

According to the examinations of the geometric models of the European core area we came to the conclusion that the London–Paris–Brussels–Amsterdam ‘quasi square’ has the highest GDP per capita among the published geometric formations, and the Munich–Stuttgart–Milan formation is close to it. However, the pentagon’s value is below this. In the case of the GDP density the Amsterdam–Brussels–Frankfurt triangle is on the top, but the economic centre of Europe outlined by this indicator shows the classical zone, the backbone of Europe.

Of course it is only one way to compare the models and this analysis may cause some disputes. We didn’t generate new formations, only the published models were tested. It is also important that the areas of the shapes are not homogenous: cities, great agglomerations and rural areas are included in one formation. This fact may cause that these geometric formations nowadays are not frequently used in the regional circles, the new mainstream is the polycentric spatial structure and the polycentric development in the case of the spatial structure of the EU. (The geometric forms and the other geographical zones [for example ‘blue banana’] portray Europe as having a core and periphery and the polycentric structure [for example it is illustrated by the symbol of European ‘bunch of grapes’] reflects the contrast of cities and rural areas in Europe, and some researchers’ opinion is that the ‘blue banana’ thinking is no longer acceptable). Moreover, some studies (e.g. Conti, 2000; Brunet, 2002) emphasize that there is not one simple model for Europe’s spatial structure, so we have to use complex graphic models. Other authors’ opinion is that there are no models (neither geographical abstractions, nor geometric models): “the corporate map of Europe may look more like a bowl of fruit salad than a banana” (Goddard, 1995).

Due to these facts the geometric models of geographical areas may be forced back, but we know that the simple models are efficient forms in the publishing of the researches due to the simple form, so we have to use them if we don’t want to close our science and if we want communication and we would like to show the results of our researches to the public and to the politicians, mainly to the decision-makers of regional policy. The spatial models have important roles, but we have to create them carefully, because if we make a lot of formations and give them to the public and the politicians without strong scientific coordination it will cause a chaos.

REFERENCES

- BAUELLE, G.–GUY, C. (2003) *The Peripheral Areas of Western Europe and EU Regional Policy : Prospective Scenarios*. <http://www.regional-studies-assoc.ac.uk>
- BRAUDEL, F. (2003) *Franciaország identitása. 1. kötet. A tér és a történelem*. Helikon Kiadó, Budapest.
- BRUNET, R. et al. (1989) *Les villes 'Européennes'*. DATAR/RECLUS, Paris. (is quoted in Kunzmann, K. R. (1992) Zur Entwicklung der Stadtsysteme in Europa. nn: Stiglbauer, K. ed. Mitteilungen der Österreichischen geographischen Gesellschaft. Band 134, Wien. pp.25-50.)
- BRUNET, R. (2002) *Lignes de force de l'espace Européen*. Mapped Monde 66, pp.14-19. <http://www.mgm.fr>
- BURTENSHAW, D.–BATEMAN, M.–ASHWORTH, G. J. (1991) *The European City. A Western Perspective*. David Fulton Publishers, London.
- CAIRNCROSS, A.–GIERSCH, H.–LAMFALUSSY, A.–PETRILLI, G.–URI, P. (1974) *Economic policy for the European Community*. Kiel. (is quoted in Vanhove, N.–Klaassen, L. (1980) *Regional policy: A European Approach*. Saxon House, Rotterdam.)
- CARTER, H. (1995) *The Study of Urban Geography*. Arnold, London.
- CE (1991) *European Regional Prospects*. Cambridge Econometrics, Cambridge.
- CHESHIRE, P.–HAY, D. (1989) *Urban problems in western Europe: an economic analysis*. Unwin Hyman, London.

THE PENTAGON AND OTHER GEOMETRICAL FIGURES OF EUROPE'S ECONOMIC CORE

- CONTI, S. (2000) *Hierarchy and Policentrism in Europe*. Dipartimento Interateneo Territorio, University of Turin, Italy. <http://www.mcrit.com>
- CSÉFALVAY Z. (1999) *Helyünk a nap alatt... Magyarország és Budapest a globalizáció korában*. Kairosz Kiadó, Budapest.
- DUNFORD, M.–PERRONS, D. (1994) *Regional Inequality, Regimes of Accumulation and Economic Development in Contemporary Europe*. Transactions NS 19, pp.163-182.
- EC (1999) *European Spatial Development Perspective*. Office for Official Publications of the European Communities, Luxembourg.
- EC (2001) *Unity, solidarity, diversity for Europe, its people and its territory. Second report on Economic and Social Cohesion*. Official Publications of the European Communities, Luxembourg.
- EC (2004) *A new partnership for cohesion (convergence, competitiveness, cooperation) Third Report on economic and social Cohesion*. Official Publications of the European Communities, Luxembourg.
- EC (2007a) *Eurostat Regional Yearbook 2007*. Official Publications of the European Communities, Luxembourg.
- EC (2007b) *Growing Regions, growing Europe. Fourth Report on economic and social cohesion*. Official Publications of the European Communities, Luxembourg.
- ESPON (2005) *ECP Transnational Networking, ESPON Going Regional, Synthesis Report*. (by Cliff Hague) Heriot-Watt University, Edinburgh.
- FALUDI, A. (2000) *The European Spatial Development Perspective. What next?* European Planning Studies, vol. 8, n° 2, pp. 237-250.
- FAÍÑA, A.–MUNIN, F.–VEGA, L.–RODRIGUEZ, L. (2000) *The Spatial Structure of the European Union and the Enlargement to the Central and Eastern European Countries*. <http://dae.unizar.es>
- GODDARD, J. (1995) *Information and Communication Technologies, Corporate Hierarchies and Urban Hierarchies in the New Europe*. In: Brotchie J. et al. eds. *Cities in Competition. Productive and Sustainable Cities for the 21st Century*. Longman Australia, Melbourne. pp.127-138.
- GORZELAK, G. (1997) *The dilemmas of regional policy of the transition countries and the territorial organisation of the State*. "Integration and Transition in Europe: the Economic geography of integration" Conference in Budapest, 1997.09.11-14.
- GOTTMAN, J. (1954) *A Geography of Europe*. Henry Holt and Company, New York.
- GOTTMAN, J. (1962) *A Geography of Europe*. Holt, Rinehart and Winston Inc., New York.
- GREN, J. (2003) *Reaching the Peripheral Regional Growth Centres*. *European Journal of Spatial Development*. <http://www.nordregio.se>
- HALL, P. (1977) *Urban and Regional Planning*. Penguin Books, Harmondsworth.
- HALL, P. (1992) *Urban and Regional planning*. Routledge, London.
- HALL, P. (2002) *Cities of tomorrow*. Blackwell Publishing, Essex.
- HORVÁTH GY. (1998) *Európai regionális politika*. Dialóg Campus Kiadó, Budapest–Pécs.
- HORVÁTH GY. (2006) *Regionális versenyképesség Európában*. In: Horváth Gy. szerk. Régiók és települések versenyképessége. MTA Regionális Kutatások Központja, Pécs. pp.84-105.
- KEEBLE, D.–OWENS, P. L.–THOMSON, CH. (1982) *Regional Accessibility and Economic Potential in the European Community*. *Regional Studies*, Vol. 16.6, pp.419-432.
- KUNZMANN, K. R. (1992), *Zur Entwicklung der Stadtsysteme in Europa*. in: Stiglbauer, K. ed. *Mitteilungen der Österreichischen geographischen Gesellschaft*. Band 134: pp.25-50.
- LEVER, W. (1995) *The European Regional Dimension*. In: Lever, W.–Bailly, A. eds. *The spatial impact of economic changes in Europe*. Avebury, Ashgate, Vermont. pp.178-203.
- LEVER, W. (1999) *Competitive Cities in Europe*. *Urban Studies* Vol. 36. 5-6. pp.1029-1044.
- NAGLE, G.–SPENCER, K. (1999) *Az Európai Unió földrajza. Regionális és gazdasági megközelítésben*. Holnap Kiadó, Budapest.
- POUNDS, N. (1997) *Európa történeti földrajza*. Osiris Kiadó, Budapest.

- PROBÁLD F.–SZABÓ P. (2005) *Európa térszerkezetének modelljei*. In: Dövényi Z.-Schweitzer F. ed. A földrajz dimenziói. MTA Földrajztudományi Kutatóintézet, Budapest. pp.159-170.
- RECHNITZER J. (1998) *Területi stratégiák*. Dialóg Campus Kiadó, Budapest–Pécs.
- SÁRFALVI, B. (1968) *Európa népessége és gazdasága*. in: Marosi, S.–Sárfalvi, B. ed. Európa. Gondolat Kiadó, Budapest. pp.53-84.
- SCHÖN, K.P. (2000) *Einführung – Des Europäische Raumentwicklungskonzept und die Raumordnung in Deutschland*. Informationen zur Raumentwicklung, nr.3/4, I – VII. (is quoted Faludi A. 2001: Introduction: The European Spatial Development Perspective (ESDP). <http://www.asu.edu>)
- SMEETS, P. (2000) *Neurocity or Deltametropolis?* In: Hillebrand, H. et al. eds. Plurality and Rurality. The Role of the Countryside in Urbanised Regions. Report 4.00.04. Agricultural Economics Research Institute (LEI), Hague.
- TAYLOR, P.J.–HOYLER, M. (2000) *The Spatial Order of European Cities under Conditions of Contemporary Globalization*. TESSG 91, pp.176-189.
- TÓTH G. (2003) *Regionális fejlettségi különbségek az egységesülő Európában*. Területi Statisztika. 6.évf. 3.sz. pp.267-277.