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Industrial Development, Public Policy and Spatial Differentiation in Central Europe: Continuities and Change

by
Gábor LUX

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Zoltán GÁL

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1 Introduction

> "It is the main proposition of this paper that ... industrialisation processes, when at length launched in a backwards country, showed considerable differences, ... not only with regard to the speed of development (i.e., the rate of industrial growth), but also with respect to the productive and organisational structures of industry which emerged from those processes. ... In addition, the intellectual climate, within which industrialisation proceeded, its "spirit" or "ideology", differed considerably as among advanced and backward countries" – Alexander Gerschenkron
> (Gerschenkron 1952, p. 5)

In Central European states, the questions of industrialisation have been asked numerous times in relation to the European core. Before WW II, industrial underdevelopment could be linked to the peripheral situation of Central European economies, and meaningful parallels could be drawn with the states of Southern Europe, who had faced the same problems. With state socialism and its focus on catch-up through industrial location, the issue became muddled. To what extent was the path taken by Central European states to industrialise comparable to other economies on the European periphery, and to what extent was it a specific outcome of socialist ideology? Furthermore, is it possible to speak about national models, or are these variations less significant?

The role of industry had to be re-evaluated during transformation. Decline in employment, economic share and exports was universal, but it is also visible that some industrial activities have been able to survive and become a new source of growth. In Central Europe's integration into European and global networks, Foreign Direct Investment (FDI) has reshaped space; however, it is apparent that the dichotomy between old and new industries is a questionable one: even new greenfield investments are closely linked to previous production millieus, while old industries have often shown ability to be revitalised. Therefore, the spatial structure of industry of Central Europe today is a patchwork of continuity and change, where convergence towards the core is just as possible as the recreation of traditional peripheral relationships.

In this paper, my aim is to trace the development of Central European industry from three aspects: public policy (what was the role of the state in influencing industrial growth?), economic development (what role did industry play in national economies, and how did national models compare to each other and western examples?) and spatial development (how did industrialisation and de-

industrialisation processes play out in heterogenous space?). Three major time periods are considered: the interwar years, state socialism and the present; and the question examined whether they represent breaks in development or continuities and organic transitions. In this paper, "Central Europe" refers to European post-socialist states excluding the successor states of the Soviet Union and the territory of the German Democratic Republic. Although these spaces present very intriguing questions, their development also poses problems which put them outside the scope of my study. In some instances, however, they are mentioned in the context of general problems under state socialism.

The paper is based on the results of a wider research, which used multiple research methods. I used modern and contemporary secondary sources, national and regional statistics, as well as a number of planning document during the assembly of material. I also consulted with policy experts involved in industrial and regional planning during state socialism and the current period. Although the latter two sources are rarely cited in the text, they were invaluable in clarifying and correcting my findings, particularly where past events were concerned. Observations on some regions; Southern Transdanubia, Northern Hungary and Upper Silesia (Poland), as well as generalised conclusions are partially based on personal experience gained during field research. While processing secondary sources and statistics, I was confronted with the dilemmas of reliability and accuracy. The heterogeneous quality of these materials required a degree of source criticism. However, even inaccurate or propagandistic/political sources were of worth in contrasting ideology and reality.

The paper is accompanied by a number of tables and charts. Many of them serve to illustrate, expand on and reinforce points made in the text, while the maps in the annex represent an independent branch of research findings, whose aim is to give readers a "bigger picture" of spatial differentiation in Central European industry.

2 Industrial development in the interwar period

2.1 The spatial and political background of industrial development after World War One

Discussions of regional development processes in Central European states commonly reference the socialist system as their starting point. These writings correctly identify the features of the planned economy as having had a strong impact on Central European space, but often pay inadequate attention to equally interesting prior events. Industry is a particularly inviting area in this respect: the massive drive to transform backwards states into industrially advanced ones was the

main cornerstone of socialist ideology, and the effects of this drive on the economy, society and landscape of the region cannot be understated. However, a more sobering note from *Gerschenkron* 1952 (cited on p. 5) warns us that the particulars of Central Europe's industrialisation have deeper roots, and that perhaps socialism was a much less clean break with previous patterns than a cursory glance suggests. In the following chapter, I do not intend to address the full implications of the problems resulting from the agrarian-industrial divide, the nationally encouraged industrialisation of the mid to late 19th century or the consequences of industry's inability to absorb surplus agrarian labour; rather, the focus is on how economic necessities in the interwar years "primed" economic policy for gradually introducing central planning, and how this played out in heterogeneous space.

The spatial arrangements and political climate produced by the peace treaties following World War One presented new challenges for industry. The fragmentation of large pre-war markets and suppliers now divided by strong borders and higher tariffs, as well as the political paranoia of small states, resulted in the break-up of supplier chains and vertical integrations. We can also see the drive towards "national self reliance", which ultimately became total during WW2 and under Stalinism: the triumph of *political* and *military* (vis-à-vis *economic*) rationality leading to sub-optimal decisions such as being forced to use uneconomic mineral resources or encouraging the development of superfluous industrial capacities. Border changes lead to the reorientation of large industrial agglomerations towards new centres of consumption. On the contrary, there was an ever increasing need to find external markets for industrial products; small states proved unable to fully absorb the output of scale-effective corporations interested in growth. This contradiction remained a persistent, insoluble dilemma of interwar development.

Enyedi (1978) points out that in addition to the restrictive influence of new borders, Central Europe was hard hit by the falling prices of agricultural products on the world market, which lead to agriculture's diminished role as a source of capital accumulation. The remaining source of competitiveness was cheap labour, hindering the development of more advanced and capital intensive industrial branches (chemical and machine industry) in favour of labour intensive ones (e.g. textiles). The response to economic hardship was stronger government intervention. *Berend–Ránki* (1976) identify four motivating factors which resulted in the increasing interest of central control in industrialisation:

- resources (currency stockpiles and agricultural surplus) were inadequate to finance high industrial imports;
- the falling prices of agricultural products on the world market devalued them as a source of generating capital;

– states had an increasing need to ensure their highest possible level of independence from hostile neighbours;
– industrial development was seen as the best instrument to combat economic backwardness.

As production indices from these years suggest, these measures were effective in encouraging growth, particularly in countries with a low initial development level (*Table 1*), but locked them in outdated structures which helped preserve their backwardness (*Table 2*).

Table 1

Indices of industrial production in Central European states 1913–1939

Year	Bulgaria	Czecho-slovakia	Hungary	Poland	Romania	Yugoslavia
1913	100[1]	100	100	100	100	100
1929	179	141	112	n/a	137	140
1932	195	73[3]	84	n/a	122	116
1939	245[2]	107[4]	128[5]	95	180	190

Notes: [1] – 1915, [2] – 1937, [3] – 1933, [4] – 1937, [5] – 1938.
Source: Edited by the Author on the basis of data from Berend–Ránki, 1976.

Table 2

The branch structure of industry in Central Europe 1913–1938 (%)

Branch	Bulgaria		Hungary		Poland		Romania		Yugoslavia	
	1913	1938	1913	1938	1913	1938	1922	1938	1913	1938
Metallurgy and machinery	6	3	26	29	20	19	12	17	20	17
Chemical industry	4	2	8	9	4	8	22	21	3	8
Textiles, leather and clothing	24	22	11	21	44	16	20	26	9	26
Food industry	58	51	41	29	18	31	27	23	59	27
Other	8	22	14	12	14	26	19	13	9	22
Total	100	100	100	100	100	100	100	100	100	100

Source: Berend–Ránki, 1976, p. 463.

State programmes gathered momentum during the 1930s. It begs the question how closely the gradual increases in central control and the concept of "controlled economy" were related to the institution of central planning in post-war states. *Réti* (1993) and Kőszegfalvi (*Lux*, 2006) argue that there was a greater degree of continuity than usually assumed. Governments responded to the decline of 1929–1931 and industry's vulnerability on external markets by tightening their reins on

industrial production. The priorities of small states reflected their wish to reduce this vulnerability and lessen the effects of Depression; at the same time, they were vital for upcoming war preparations. Last but not least, the location of military production in backwards areas coincided with regional development initiatives (c.f. chapter 2.2). Réti draws attention to the lessening influence of private capital in charting the directions of industry as a *social* consequence of state involvement. Wartime economy, which he considers the logical conclusion to the process, is independent of both the world market and the desires of the citizenry of the state.

In addition to state control, we must draw attention to the role of foreign capital in industrial development. Capital import was instrumental before WW I, and remained important afterwards, especially in underdeveloped economies where it controlled 50–60% of total industrial production. The primary investors were Great Britain, the USA, France and Germany; the Czech Republic was a smaller regional player with strong interests in Yugoslavia. In the 1930s, German interests increased in conjunction with the Schacht Plan, and were gradually able to exert influence over the industrial policy of aligned countries.[1]

2.2 Spatial consequences and regional development patterns

The re-division of Central European space also repositioned its advanced and peripheral regions. Due to the hard borders, globally insignificant industrial centres (such as Miskolc in Hungary) became vital in national economies, while others (such as Košíce in Czechoslovakia) declined. The new states showed much deeper gaps in development level than the pre-war empires, and territorial integration – hindered among other reasons by weak transport connections, cultural differences and ethnical inhomogeneity – became a pressing concern for national governments, for whom these factors were closely intertwined. As *Gulyás* (2005, p. 23) remarks, *"the political elite of a state either treats a region as a milking cow, economically exploiting it, or, for some reason, strives for its development. In Central Europe, this question is further complicated by the fact that the development of a region is fundamentally influenced by its ethnical makeup. Practically, we can speak about the confluence of economic policy, regional policy and the nationality question. … In the end, the balance of development in regions*

[1] In South-eastern Europe, which included Greece and Hungary, Germany consciously opposed industrial development initiatives, preferring countries in this space to be agricultural producers (*Gulyás* 2005). A concrete example of this influence is the case of the Danube steel processing plant. The Hungarian government allocated 1 billion pengő for the project in 1938, but put the project on hold due to German demands. The steel combine was eventually built during the first Five Year Plan (*Lux* 2006).

whose population was not represented in the nationally dominant political elite, was unambiguously negative, resulting in either stagnation or decline." In short, ethnicity was a location factor, leading to preferred or dispreferred status. Ethnical preferences lead to especially strong contradictions where highly developed industrial regions with a strong minority presence were incorporated into less developed states (e.g. Upper Silesia, Southern Transylvania).

The patterns of industrial development varied from state to state. *Czechoslovakia*, whose western half was the most advanced constituent of the Austro–Hungarian Monarchy, retained its lead in Central Europe, inheriting 50% of the Monarchy's coal and steel capacities, 72% of its textile industry and 84% of its glassworking (*Berend–Ránki,* 1976). This advantage is even more impressive when we consider that the Depression had the strongest effect here (c.f. *Table 1*), and that this development level concealed significant regional inequalities showing a west-east development gradient (*Table 3*). Czechoslovakia was overindustrialised for its market possibilities, leading to a sort of internal "cannibalism" – in the 1920s, the dominant Czech elite successfully realised its interests to de-industrialise Slovakia, resulting in the loss of 250 factories and approximately 30,000 jobs (*Gulyás* 2005; for more detailed figures, see *Kazimour* 1981). Similarly, the effects of Depression were uneven, hitting harder in Slovakia and Sub-Carpathia.

Table 3

Industrialisation and urbanisation in Czechoslovakia, 1921

Region	Employment in industry and crafts (%)	Urban population (%)
Bohemia	40.55	22.30
Moravia	37.79	21.90
Silesia		15.90
Slovakia	17.43	11.10
Sub-Carpathia	10.41	11.10
Total	33,80	18.90

Source: Gulyás 2005, p. 69.

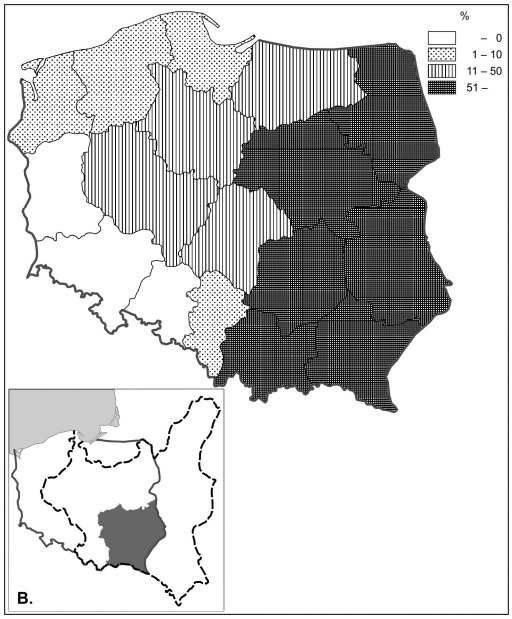
Similar differences were present in *Poland*. The independent Polish state incorporated regions from three empires whose trade relations were very weak before WW I.[2] *Lijewski* (1985) argues that the essential difference fell between the Monarchy and the Russian Empire, characterised by a lesser number of centres

[2] Of the total trade flows generated by the three zones, only 7.4% crossed borders, while 84.5% was consumed within the respective state and 8.1% was exported to the world market (*Berend – Ránki* 1976).

strongly separated from the underdeveloped countryside, and Germany, where development was more even, and every significant urban centre was also a location of modern industrial activity. In the interwar years, the inherited differences lived on, although a weak deconcentration tendency is also visible as the northern and eastern voivodeship showed rapid growth – although inadequate to genuinely change the face of the country (*Figure 1*).

Figure 1

The growth of industrial employment on the current territory of Poland, 1925–1938 (%)



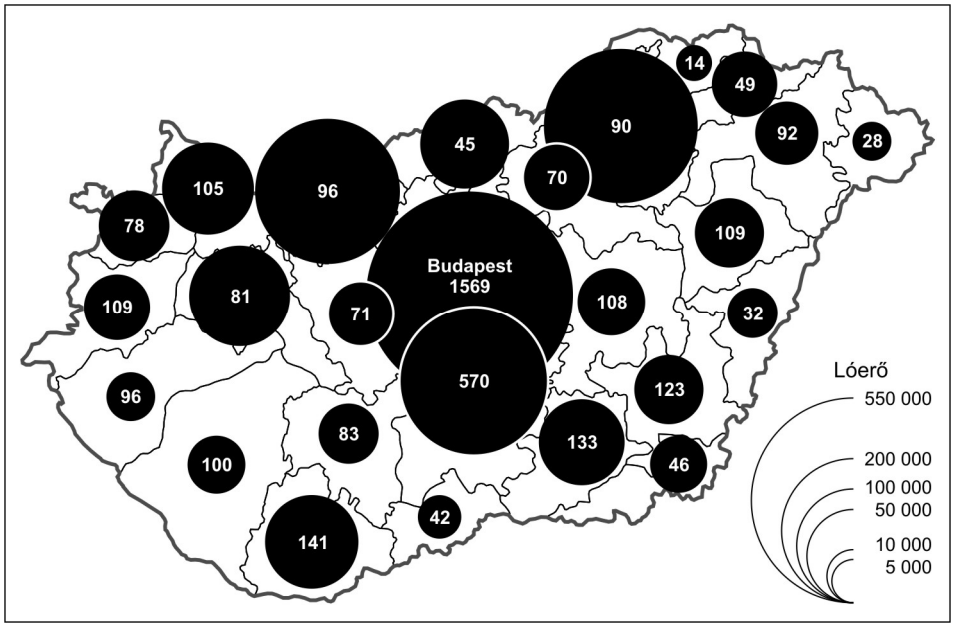
Note: Map B shows the location of the Central Industrial District within the current and interwar borders of Poland.
Source: Edited by the Author on the basis of data from Misztal 1970.

The Polish government was among the first in Europe to adopt regional planning, resulting in the 1936–1940 Kwiatkowski plan to absorb surplus labour and develop new industries (aeronautics, machine, chemical and arms industry). The investments, which were equally divided between armament and general economic improvement, affected 15% of the state's territory and concentrated 25% of national investments in 1937–1938 and 50% in 1939. The plan was not considered final, and Kwiatkowski himself advocated three more five-year plans after its completion (*Dziewoński* 1989, *Malikowski* 1994).

Hungary lost three of its large industrial regions (the Uplands to Czechoslovakia, Southern Transylvania and the Banat to Romania) in the post-war settlement, which also levied severe war reparations and resulted in the distortion of the country's regional development. Budapest was the only strong industrial region within the new borders, while others of secondary or tertiary importance (Northern Hungary, Northern Transdanubia) had to be developed as a substitute. Budapest was dominant: in 1938, 61.9% of all industrial workers and 41.9% of production was located there (also see *Figure 2*). Outside Budapest, the dominance of the "energy axis" in the northern part of the country – concentrating heavy industry and dominant until 1990 – can be observed.

Figure 2

The level of mechanisation (in horse power) and the number of industrial sites in Hungary (1938)



Source: Edited by the Author on the basis of data from Berend–Ránki, 1958.

Hungarian industry's relative backwardness increased before WW II; the success of select companies couldn't counteract the maturing of previously innovative activities; new branches were slow to emerge and remained small, especially after Germany started to force the country into the role of an agricultural supplier. The state started to play a stronger role as it was preparing for war, both through its demand for industrial goods and through establishing new production facilities.

The latter was realised in smaller, scattered units primarily in what is now Central Transdanubia. Tatai (in *Rechnitzer – Tatai* 1995) considers these to be the most important progenitors of later industrial districts, especially in the case of Székesfehérvár.

Romania was in several respects similar to Poland, sharing its weak interior cohesion and high development differences. Heavy and processing industry was especially strong in Southern Transylvania (Hunedoara, Braşov) and the Banat (Reşiţa, Timişoara, Arad), while Old Romania was characterised by the dominance of oil mining and petrochemical industry.[3] This also meant a difference in ownership – with a higher and lower share of domestic capital, respectively. Outside these spheres, industry was scattered, undercapitalised and overwhelmingly traditional in character. *Turnock* (1970) shows that spatial development patterns remained constant despite the presence of state intervention, and industry remained concentrated in a "half-moon" situated between Bucharest and Timişoara.

The states of the Balkans (*Yugoslavia*, *Bulgaria* and *Albania*) were similar in their underdevelopment. Industrial employment was low, and outside developed islands and a few exceptional regions (e.g. the Slovenian Republic, with 8% of Yugoslavia's population but 38% of its textile and metal industries), it was restricted to labour-intensive branches such as food industry and textiles. The mineral resources of the peninsula were attractive to foreign mining concessions, but these developments were insular, the raw materials usually exported for lack of domestic processing capacities. All in all, while growth was reasonably dynamic – Bulgaria's industrial output doubled between 1921 and 1929 – it was only so because of an extremely low base (*Kenessey* 1964, *Gulyás* 2005).

3 Industrial development under state socialism

3.1 Stalinism in space: ideology, development priorities and consequences

The ideology of Stalinism, whose influence became total in the second half of the 1940s, introduced a previously unknown homogeneity in economic policy just as it did in all other spheres of society. The ideology of the Stalinist state denied the possibility of local or national particulars in favour of a common goal, the development of heavy industry. Industrialisation was seen as a solution to three major needs: post-war reconstruction and rearmament, creating autonomous production capacities in lieu of western imports, and finally, demonstrating the valid-

[3] The Romanian mineral oil industry occupied the 5th–6th position in the world in this period (*Réti* 1993).

ity/superiority of the socialist ideology through the transformation of the landscape. This ideology, based on geographical nihilism and social determinism (*Hajdú* 1999) proposed that all problems were common, and implied that space and its possibilities were homogenous.

The recipe was adapted from the Soviet example to Central European circumstances. *Markos* (1951) sums up the spatial goals of Stalinism in three points:

- preference for heavy industry and industrial branches manufacturing means of production over other types of industry and branches producing consumption goods;
- division of work among companies based on the duality of profiling (specialisation) and planned cooperation;
- the balanced distribution of industry in space and the industrialisation of backwards areas.

In a later work (*Markos*, 1962), he further elaborates the practical concerns of realising these goals in a real (differentiated) environment:

- industrial branches with a high need for raw resources or energy should be located in their proximity at a point where transportation costs are minimal;
- developments should primarily be undertaken in backwards regions;
- long-distance cross-transportation should be reduced by local sourcing to the greatest extent;
- the security of the state should enjoy a privilege; strategic industries should be located in the heartlands.

In practice, the development of Stalinism played out in highly variable space, and had to conform to political realities. Every other priority was subordinated to security concerns and war preparations, while spatially balanced development took a backseat. Decisions were made on the basis of *political* or *military* rationality which was *economically* irrational. The need for heavy industry to be located in the proximity of natural resources (labour was a mobile production factor in the period) resulted in the prioritisation of existing industrial agglomerations, even if a few new growth poles were created elsewhere. To cite two examples, 44.7% of new jobs in Hungarian industry were created in Budapest between 1949 and 1953 (*Kóródi–Márton*, 1968), while in Poland, three voivodeships (Katowice, Kraków and Łódz) received 54% of all industrial investments between 1951 and 1960 (*Zawadski*, 1965). Similar figures could be cited for all socialist states, especially the less developed ones. Instead of eliminating pre-war differences, Stalinism recreated and reinforced them, polarising preferred industrial regions and neglected peripheries.

On the regional level, there was a marked increase in monofunctionality. Mining areas and heavy industrial centres already saw one-sided development

before the war, but this situation was exacerbated by the decline of supplementary industries and strictly enforced production profiles. The urbanisation of early socialism was rapid, but it was accompanied by shortages of housing, communal infrastructure, services and products, which had to be supplied by the employers or workers. Hidden unemployment became a problem, especially among women who were now increasingly entering the labour market. These troubles can be traced back to the dysfunctions of development policy. Due to the inadequacy of public funds, modernisation was often partial in industrial regions, moving on to other areas after creating the barest necessities. Pockets of underdevelopment became preserved under a superficially "developed" surface. The most extreme cases of partial modernisation could be seen in some coal and steel regions, where the dysfunctions of what was at that time recognised as "extensive development" were never addressed, and which became the worst crisis areas in the post-socialist economy.

If the interwar decades were characterised by economic fragmentation, Stalinism made this situation universal and extreme. The entirety of the socialist block except Yugoslavia was isolated from the world economy, and despite the common ideological ground, states also functioned as self-sufficient autarchic entities to the greatest possible extent. Flows between the Soviet Union and its satellites (which included bilateral exchanges, war reparations and the transfer of know-how) were an exception, but multilateral trade among the smaller socialist countries was at a nadir.[4] The consequences of dual isolation on spatial development were severe, leading to even more inefficient parallel industrialisation and the exploitation of uneconomic natural resources.

How can we evaluate the effects of Stalinism on industrial development? To an extent, it was not *as* distant from global trends as sometimes suggested. The 1950s were also a period of industrialisation in Western Europe and industry was seen as a useful tool of modernising backwards peripheries such as the Italian Mezzogiorno. The difference was that in Central Europe, industrialisation took place in a highly irrational environment, where ideology (taming/remaking nature as a heroic ideal) and military needs totally repressed economic rationality. The results were often oversized, ignored real demands and were troubled by inherent dysfunctions which incurred further costs in the following decades.

3.2 Industry under consolidated state socialism

From the second half of the 1950s, it became apparent that the previous policies were unsustainable, leading to a wave of reforms across the socialist sphere. Re-

[4] The COMECON, although formally created in 1949, lacked an effective charter until 1959, and its operations were extremely restricted.

forms played out differently in different countries; we can see divergent national paths, which ranged from controlled experiments in reintroducing some market incentives as in Hungary, to staying close to the Stalinist model as in Romania. None of the reforms could go beyond the hard limits of the socialist system, as Czechoslovakia's example demonstrated. If there were victories, they would be small ones in the eyes of an outsider. We can speak not of radically *transforming* socialist development policy, but *correcting* and *supplementing* it; more modern and rational capacities were created, and older ones modernised, but all this co-existed with previously built structures until transformation. Although the defining characteristic of reforms was divergent development, there were four common elements:

- transferring some economic control from direct command to intermediate organs,
- technological change (switch from "19th century" coal-and-steel industry towards hydrocarbons, chemical industry, electronics, etc.),
- increasing cooperation and specialisation among socialist states, some decrease in their economic isolation
- the emergence of regional policy as a corrective instrument.

All of these played a role in territorial decentralisation. Lessening the control of central planning gave some power the regional level. *Bauer and Szamuely* (1979), in their comparison of socialist planning systems, conclude that industry saw a period of decentralisation which was subsequently followed by increasing central control, and that in the 1970s, the end result was the division of power among central institutions, intermediate bodies and individual companies. They propose that this arrangement, where substantial decisions were usually made on the intermediate level, was the stabilised outcome of institutional reforms in planned economies. Stabilisation also meant ossification; after the winding-down of the reform period, most planning systems remained relatively stable until transformation.

The switch to oil and gas as leading energy sources, but also less resource-intensive production, decreased the needs for resource proximity and transportation; consequently, allowed more evenly distributed industrial location. This also meant that industry could be more readily used as a tool of regional policy, located on sources of labour instead of raw resources. Instead of a small number of larger growth poles, socialist development policy was able to support multiple lesser ones: small cities or large villages. But technological change didn't restructure existing industrial regions. Instead, we can speak of "layered" industrial structures, where older, outdated and energy-hungry activities coexisted with later, more modern ones. As *Greenspan* (2007) points out, Schumpeterian creative destruction was missing from the mechanisms of the socialist economy.

Building new industry was prioritised over modernising the existing one; and when the latter received state money, it mostly went into structural preservation.

Economic cooperation and specialisation was a troublesome issue. On one hand, specialised national production profiles were recognised to be potential sources of increased efficiency. On the other hand, national interests in less developed states advocated complex autonomous industrial capacities and modernisation through mutual technology transfers. The debate soon became one about national sovereignty. In 1962, the Valev Plan, a Soviet initiative proposed the deeper integration of socialist states along the Danube River, but Romania sternly rejected its recommended agricultural and petrochemical role in the arrangement and reduced COMECON participation after 1964 (for the initial concept, see *Valev*, 1964; for further development, *Turnock*, 1986 and *Gulyás*, 2005). Production profiles were eventually realised in a significantly weaker form than initially imagined. Data collected from different sources suggests that even with all efforts, the share of intra-COMECON trade in the total only increased by 1.8% from 1960 to 1970, and "products for energy" agreements between the Soviet Union and its satellites dominated exchange *vis-à-vis* deeper integration among the smaller member states. We can instead point to the growing role of extra-block trade after 1970, with western and third world countries (*Table 4*). The dual isolation of socialist economies remained, but weaker than the freeze of the Stalinist years.

Table 4

The share of COMECON markets in the trade of socialist states, 1950–1979 (%)

State	1950	1960	1972	1979
Albania*		88.9	41.1	
Bulgaria		80.7	80.2	75.7
Czechoslovakia	55.6	63.8	71.3	67.2
GDR			71.0	65.8
Hungary			68.1	52.0
Poland	58.4	56.6	62.3	54.7
Romania	89.2	65.8	53.7	35.4
Soviet Union			64.5	51.9
All members	61.8	60.8	62.6	n/a

*Albania withdrew from the COMECON in 1961, but increased its trade with China from 7 to 36% (*Böröczfy*, 1975).

Source: Edited by the Author on the basis of data from Meisel 1974, Böröczfy 1975 and Peche 1982.

Regional policy from the 1960s was specifically an instrument aiming to address problems of inequal development (as opposed to general economic development policy, which also had an effect on space). With a few exceptions, such as Hungary, where agricultural cooperatives also played a significant role, its main tool was industrial location. Labour-intensive industries were developed in small towns and sometimes rural areas, both as a social measure and a response to decreasing labour mobility. In the process, going back to previously neglected local knowledge and light industrial traditions was not uncommon. Among Central European socialist states, Poland and Hungary used the broadest range of policy instruments (*Table 5*). It is notable that many of these tools are testament to decreasing central control and movement towards less direct intervention. Of course, regional policy remained subordinate to national planning directives, and at its most successful, it was a corrective instrument generating growth outside existing structures. In industrial regions, the effects were rather meagre. Although "one-sided development" was discussed in contemporary works (e.g. *Bartke* 1971 and *Kóródi–Kőszegfalvi*, 1971), policy only succeeded in alleviating the problems of the 1950s – gaps between urban needs and infrastructure, hidden unemployment among women and (very rarely) the reindustrialisation of smaller areas affected by mine closures.

Table 5

Regional development instruments at the end of the 1960s

Instrument	Bulgaria	Czecho-slovakia	GDR	Hungary	Poland	Yugosla-via	Soviet Union
Preferential credit conditions		X		X	X	X	
One-time investment contribution		X		X	X		
Differentiated tax and wage contributions, cost subsidies		X		X*		X	X
Differentiated public works costs and communal taxes	X			X	X		X
Differentiated land prices and land use fees				X	X	X	X
Industrial parks, infrastructural development			X				X
Differentiated pricing and tariff policies					X	X	X

*Encouraging industrial location close to labour by requiring companies to pay commuting costs (*Bartke* 1971).

Source: Edited by the Author on the basis of Kóródi – Márton 1968 and Bartke 1971.

3.3 Spatial development trajectories: convergence, divergence, convergence

As discussed in 3.1, the results of Stalinism were national homogenisation and regional polarisation. Development policies converged to the point of being nearly identical. Socialist states, separated by wide development gaps, became more similar to each other. At the same time, the difference between preferred and neglected regions was enormous. Those who were excluded from central redistribution were truly marginalised, unable even to properly reconstruct and maintain their interwar industries. Globally speaking, it was a multiplication of the same pattern; common development at enormous costs. By the mid 1950s, the unsustainability of this growth model was self-evident, requiring extensive reforms.

How did the reforms influence the spatial structure of industry? Looking at Annexes I./a and I./b, we can see that the most industrialised regions were still pre-war ones. As discussed by *Enyedi* (1978), the majority of industrial employment before WW II was concentrated into an upwards triangle bordered by lines drawn between Łódz, Erfurt and Budapest. In 1970–1971, this formation was still strongly visible, although some counties in Romania had joined them – although at severe costs. It is notable that Yugoslavia and Hungary both show a low level of industrial employment. The reasons are partly methodological: in both countries, a share of industry (some 10–15% in Hungary), was under the control of municipalities or cooperatives. Additionally, in Hungary's case, the concentration of Budapest, accounting for 34% of employment and 23% of total investments, is contrasted by a more "empty" countryside.[5]

Overall, the share of employment in industry and construction reached an average of 51% by 1970–1971. Among the examined states, the differences are not excessive: the higher figures of Czechoslovakia (55%), Romania (53%) and Poland (52%) and the lowest of Yugoslavia (47%), Albania (46%) and Hungary (46%) are relatively close; this points to convergence compared to the more polarised pre-war conditions. Outside central regions and Katowice voivodeship, Czechoslovakia, Poland and Hungary show a relatively even spatial distribution of employment, while southern and south-eastern states have higher differences.

Where the share of industrial employment reflects the contemporary situation of industrial development in socialist states, per capita investments expressed in US dollar values offer an insight into development priorities. Naturally, Annex I./b can only give a snapshot, and may be distorted by high-priority projects; nevertheless, these anomalies do not affect the big picture. Poland and Romania stand out with high investment volumes, while Bulgaria shows a lower level. In Hungary, the "energy axis" of industrialised counties is apparent, while in Romania,

[5] Outside Budapest, Sofia city (16%), Southern and Northern Moravia (14 and 15%), Katowice (20%) and Bucharest (16%) count as Central Europe's super-concentrations.

there is a strong divide between Transylvania and Old Romania. In Czechoslovakia, investments were divided between the Czech and Slovakian sides along population lines; by this time, programmes aimed at Slovakia's catch-up had already concluded.

Two decades under state socialism, even if development priorities and planning had changed over time, were not without consequences. Although industrialisation was unable to reshape the map of Central European industry like it intended to, states had become closer, even when the divergence of policies in the reform period is taken into account. The question arises if the results are specific to the socialist model, or comparable to peripheral and agrarian regions of Europe. Evidence suggests that while the Stalinist policies of the 1950s were a detour from the path taken by market economies, reforms in the 1960s lessened these differences.[6] The political retrenchment of the late 1960s halted the convergence process: over the next two decades, policy became fossilised and *again increasingly homogenous* due to political pressures, while damaged adaptation mechanisms lead to increasing differences between western and Central European economies.

States experienced the convergence–divergence–convergence shift of industrial development in different ways during socialism. *Czechoslovakia*, which suffered relatively little during the war, had Central Europe's most advanced industry beside the GDR. Losses in the Czech parts were primarily in human capital (war deaths and the deportation of Jews and Germans), while physical damage was higher in the Slovakian federal republic. The early reconstruction plans proposed modernisation in industrialised regions and building new industries on peripheries. However, in 1949 and 1950, these plans were scrapped in favour of a few large projects, primarily enlarging existing industrial agglomerations (especially Ostrava–Karvina, where two giant steel combines were constructed). Slovakian industrialisation focused on metallurgy in Košice and military industry in more dispersed locations.

The regional differences between Czech and Slovakian areas only began to be treated under the second Five Year Plan (1956–1960). Slovakia's industrial production in 1960 was still 10.6% below its population weight, while by 1970, the gap fell to 7.6%, and by 1979, to 3.6% (c.f. *Figure 3*). This equalisation was both politically expedient (reducing tensions between Slovakian and Czech elites)[7],

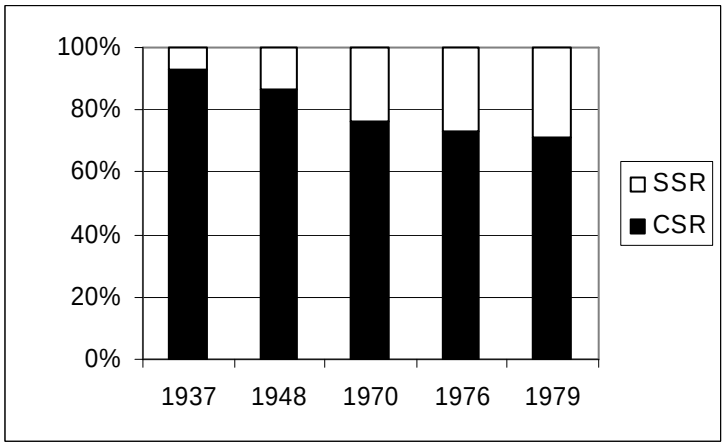
[6] My interviews with Hungarian experts active in planning during the socialist period revealed that they were familiar with Western theories of economic development, and were consciously trying to adapt them to the local economic circumstances and political realities – not always an easy thing.

[7] On the other hand, we have to remark that with respect to Slovakia's excluded Hungarian minority, development policy was discriminatory and consciously assimilationist. Economic nationalism, an unmentioned side of socialism, affected all minority groups in Central Europe. In Czechoslovakia's case, districts with a Hungarian majority received 70–75% less investments per

and economically rational by prioritising backwards regions with a labour surplus instead of advanced ones suffering from increasing shortages. In subsequent five year plans, the development of peripheries occurred through new heavy industrial units. Slovakia's specialisation in military industry remained a strong direction.

Figure 3

The distribution of industrial production between the Czech and Slovak Socialist Republics, 1937–1979



Source: Edited by the Author on the basis of data from Kazimour, 1981.

Poland's industry had to be extensively rebuilt after the war due to new borders, destruction and steep human costs.[8] The post-war years were a time of large migrations, the reconstruction of ruined cities and industrial rebuilding. Plans had to integrate new territories and compensate for lost eastern ones, and find a solution to the divide between industrialised south-western and backwards north-eastern voivodeships. In the Six Year Plan (1950–1955), this objective was mostly rhetorical. Most new investments were realised in Upper Silesia and Poland's industrial cities (Warsaw, Łódz, Wrocław, Poznan; to a lesser extent Bydgoszcz and Gdańsk–Gdynia), mostly situated in developed regions. Even new towns – Nowa Huta and Tychy – served to reinforce already developed areas.

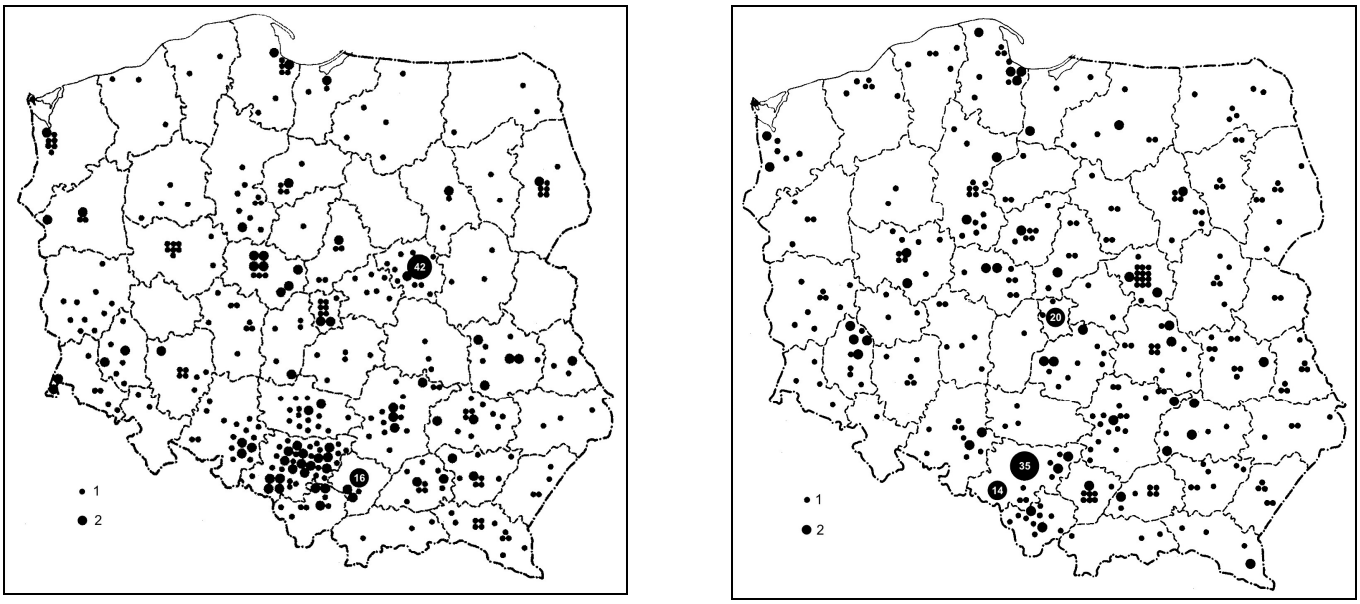
We can see the contrast between earlier and later development priorities in *Figure 4*. After 1957, Polish planning was decentralised, and in addition to central

capita than those with a Slovakian majority; industrial units in Southern Slovakia were preferably located in towns with a majority Slovakian population (*Gulyás* 2005).

[8] Jews in the textile industry of Łódz and Germans/Silesians in Upper Silesia carried a lot of the know-how which became unavailable to socialist Poland.

Figure 4

Industrial location patterns in Poland, 1945–1966 and 1966–1982



Note: 1 – Fixed capital over 100 million złoty; 2 – Fixed capital over 1 billion złoty (both in 1970 prices).
Source: Lijewski 1985, pp. 200–201.

spatial planning, voivodeships received considerable autonomy in setting their objectives. Like in Hungary, decentralised industrialisation's aim was to absorb labour surplus in small towns and agricultural areas. These investments were relatively "cheap" to realise, but became very successful in combating hidden unemployment. Larger investments also affected less developed regions: the re-development of the former Central Industrial District took place in the second half of 1950s, Płock's petrochemical facilities were built up from 1959. Most new industrial units were located in medium–sized towns with a population between 20,000 and 100,000. By the 1970s, decentralisation was running out of steam; strategic plans aiming at restructuring and the development of new agglomerations were shelved because of insufficient funds. The largest project of this later period was the construction of the massive Huta Katowice in Dąbrowa Górnicza from 1972.

In addition to war losses, *Hungary* was burdened by reparations and the uncertain ownership of its industry. German property, which included assets seized from Jewish owners, was owned and managed by the Red Army, while in strategic branches, mixed Hungarian–Soviet ownership was established ("maszov-companies"). Soviet or mixed use involved an estimated 90% of light industrial plants and a significant share of heavy industry. These capacities were eventually bought back by the state during the 1950s. The development goals of Stalinist Hungary initially included the industrialisation of the agricultural Great Plains through labour–intensive branches, but like elsewhere, these ideas were rejected in favour of a few large projects. Kőszegfalvi (*Lux,* 2006) mentions four priorities:

- a massive steel combine on the Danube and the construction of the new city Sztálinváros (now Dunaújváros), where machine industry was also located;
- coal mining for industrial purposes, including the exploitation of low–yield coalfields;
- military industry, including the militarization of several civilian factories;
- machine industry (mining and agricultural equipment).

These priorities worked against balanced spatial development; in fact, the main architect of Hungary's decentralised spatial development plan received a prison sentence for his troubles (*Germuska,* 2004). The result of Stalinist development was strong concentration; the capital received 44.7% of new jobs created between 1949 and 1953, while the Great Plains only 12.7% (*Kóródi–Márton,* 1968).

The late 1950s saw institutional reforms. Central control gradually decreased, and in the 1960s, market incentives were introduced in limited degrees. Industry was consolidated into larger corporations, leading to the formation of multi-branch companies which became dominant in the second period of the socialist economy. Multi-branch companies typically had headquarters in Budapest (sometimes in large cities), and they collectively employed 400,000 workers in

more than 600 settlements by 1978 (*Barta*, 2005). Agricultural cooperatives, which were reformed in the 1960s, also became involved in labour-intensive industrial production, especially goods which were in short supply. "Frozen" ideas of regional development were revived. Most small towns and numerous large villages gained some sort of industry, often by the resurrection of old traditions. This became essential when labour was becoming increasingly less mobile and agricultural workers left their jobs to work in industry. Still, commuting, even temporary migration was significant, often over very long distances.

The dark side of modernisation on the peripheries was its vulnerability. Branches, as well as small–town companies, were severely undercapitalised and used outdated technologies. They were very successful by the standards of the period, essentially eliminating rural unemployment, but economically fragile: most branch plants failed after 1990, while the rest were/are increasingly marginalised in global competition.

Romania's industry wasn't heavily damaged, but like Hungary, Soviet and mixed ownership became the highest among socialist states. "Sovroms" were especially significant in Romania's oil mining (36% of output, refining and reserves), but otherwise ranged from lumber to uranium extraction. The Romanian government only had a limited sovereignty in economic policy, and in fact, reconstruction and the 1951–1955 Five Year Plan were executed in parallel by state organs and Soviet military government. The former prioritised heavy industry, while the second was more interested in fuels and raw resources. The end result, as elsewhere, was the strengthening of traditional mining and industrial regions; Southern Transylvania (Braşov, renamed Oraşul Stalin between 1950 and 1960 and Hunedoara's metalworking industry were especially prominent), the Jiu valley, Reşiţa and Ploieşti. Between 1954 and 1956, the sovroms were gradually sold back to the state; at the same time, development was refocused from fuel industry to heavier emphasis on metallurgy (*Markos*, 1951; *Turnock*, 1970; *Réti*, 1993).

Instead of economic reforms, Romania embarked on nationalist Stalinism under Nicolae Ceauşescu. Rigid central planning remained in effect, and the priorities of development policy were still focused on extensive industrialisation. After its partial withdrawal from the COMECON over the Valev-plan (*Valev* 1964, *Turnock*, 1970, 1986), the country was becoming increasingly isolated, and continued the autarchic initiatives which were typical in the 1950s. In space, development was focused on the lagging Old Romanian counties; individual investments were smaller and more dispersed than previously. The aim of this initiative was a homogenous development level linked by national energy networks; however, the result was the recreation of atavistic, extremely inefficient structures which were responsible for severe environmental degradation (*Turnock*, 1986; *Hunya*, 1987).

In contrast with other socialist economies, *Yugoslavia* was fast to break with traditional Stalinism. In 1949, the Five Year Plan was modified, and in 1951,

long-term planning was effectively discontinued. Industry was reorganised on the basis of company self-management. Serbia kept its political leadership among member republics, but there was a strong attempt to economically develop others, particularly poor ones. Between 1938 and 1963, the share of Bosnia–Herzegovina, Macedonia and Montenegro increased from 8.8% to 19% in industrial production, but deep divides remained in existence.

In the 1960s, the Yugoslavian system moved towards (regional and company-level) decentralisation, and then disintegration. The 1965 reforms ceded additional power to member republics, developing a many-layered planning system with federal, republic, municipal and company levels. The development of backwards republics continued; Bosnia-Herzegovina became a hub for heavy industry. Although additional reforms between 1971 and 1975 attempted to encourage territorial cohesion by company integration and regional (primarily industrial) policy, the "southern", less developed republics fell behind in development and their growth slowed after 1965. Federal redistribution gradually became highly contested; *Mihailović* (1985) argues that Yugoslavia, instead of being successfully decentralised, became "a cohabitation of eight centralisms" linked by weakening economic ties. Last but not least, the increasing prices of metals on the world market had a deleterious effect on Yugoslavia's import-dependent heavy industry; in effect, it experienced the economic crisis of the socialist system earlier than other states.

Bulgaria's main problem was its historical underdevelopment. The establishment of the planned economy went smoothly, but the aims of industrialisation had to take the country's backwardness into account. Accordingly, the central aim wasn't metallurgy (which received 13% of funds during the Five Year Plan), but the base industries allowing the economy to move towards it (energy production had a share of 31%). Only by 1960 was there a sufficient foundation to begin the construction of the Kremikovtzi Steel Complex near Sofia City, which employed 18,000 workers by 1972 (*Palairet*, 1995). The development of Bulgaria involved high resource concentration into the capital, and to a lesser extent Dimitrovgrad, a new town near Haskovo.

In the later period, the Bulgarian planning system was especially volatile, with multiple waves of reform and retrenchment. Briefly, the country experimented with Soviet-style regional government (abolishing sectoral in favour of complex regional plans and disbanding eight central ministries; competences were delegated to the executive committees of thirty districts), but this radical redesign was gradually diluted and the practice discontinued. The next reform wave was based on market incentives and organisational consolidation[9], while in 1974, ministerial control was re-established and industry organised on the principle of "national",

[9] In 1971, the totality of Bulgarian industry fell under the aegis of 66 "state economic organisations" (*Bauer–Szamuely*, 1979).

later "spatial-productive" complexes (*Bauer–Szamuely*, 1979; *Najdenova–Popov*, 1984). During all this institutional chaos, Bulgaria strengthened its heavy industry, although it was costly and extremely inefficient. The situation was more favourable in electronics assembly and machine industry.[10] Industry was spatially concentrated in production, with Sofia province and Sofia City accounting for 50%, but balanced in employment, where the aforementioned areas weighed in at 15.6% in 1985.

Albanian industry was characterised by extreme backwardness through the period, as well as increasing political and economic isolation. In the 1950s, a combination of Stalinism and self-management based on Yugoslavia's example dominated; later, the country imported all of its technologies from China, only to break these ties as well in the mid 1970s.

4 Industrial development beyond transformation

4.1 Crisis and decline after the fall of socialism

With the collapse of the socialist system and the dissolution of COMECON markets, Central Europe's industrial regions had to reposition themselves in the framework of the global economy. They needed to compete on Western European, global, and increasingly on domestic markets, while also having to face the economic and social consequences of impeded (postponed) industrial restructuring (*Audretsch* et al. 2000). Although the resulting depression was sometimes seen as a system-specific problem, reflected in the popular image of post-socialist states as *"economic deserts plagued by general decay"* (*Domański*, 2004b, p. 377), its *symptoms* and underlying *causes* were similar to the experiences of western Old Industrial Regions (OIRs). Market loss, plant closures, social disintegration and environmental strain were not inherently (post-)socialist problems, nor were the immediate causes: outdated products and the failure of regions to adapt to new circumstances. These aspects of industrial depression were thoroughly dissected in regional studies and other disciplines. If we talk about differences, we may not find them in the general features of depression, but rather three factors which had made it more severe.

The first of these is the *dysfunctional spatial consequences of socialist economic policy* (discussed in detail in chapter 3.1). Extensive industrialisation was

[10] In the late 1980s, the Kremikovtzi Steel Complex required its ore and coke to be imported, took 15% of Bulgaria's energy consumption, was its largest polluter and generated only 1% of its production value. In turn, electronics' share in production value was a full 12%; together with machine building, it provided 55% of Bulgaria's export value in 1982 (*Hunya*, 1987; *Curtis*, 1992).

able to create new industrial centres in Central Europe, but didn't have the ability to build complex regional economies. The resulting urban centres were strongly monofunctional, characterised by a small number of large employers and a lack of economic alternatives. Modernised peripheral areas, sometimes the location of new cities, were in an even more disadvantaged situation, since their modernisation was very one-sided. Policy didn't justify the creation of small and medium enterprises. Some of them survived into the planned economy where they had pre-war traditions, but in heavy industrial regions, these traditions were often weak or nonexistent. All in all, the result was a strong culture of dependence, surpassing western examples. In many cases, the reliance on large companies extended to municipal services (heating, infrastructure, etc.) and public institutions due to inadequate urbanisation. When companies no longer had the money to fund them, their burden fell on the shoulders of cash-strapped local authorities who already had to deal with economic disintegration. Finally, "layered industrialisation", the practice of leaving outdated Stalinist and even pre-war factories in place lead to the worst crises in Central Europe – often the total collapse of the local economy.

The second factor is *damaged adaptation mechanisms*, a consequence of dual economic isolation. In the international context, this meant the isolation of socialist states from the world economy. External market impulses such as the oil shocks or post-industrial development were too weak to have an impact on decisions until it was too late. On the national level, the survival of non-market rationality was another force working against adaptation. Even in states where adaptive measures were taken, they were belated and marginal, focusing on cosmetic issues instead of general problems. This attitude can be clearly identified as institutional sclerosis as described by *Boschma–Lambooy* (1999) and *Steiner* (2003) – but, unlike in market economies, there were no political or economic corrective mechanisms which would eventually result in reforms (*Greenspan* 2007). Risk-avoidance and postponement became the usual policy response to identified problems. Finally, on the sub-national level, we can again draw attention to dependence: much more importantly than simple lobbying power, large industrial units were so strongly linked to local and regional economies that their collapse would have meant social catastrophe – something that would have been politically and morally unacceptable. On the other hand, inaction offered no remedy, and lead to the further worsening of problems.

The third factor is *the new conditions of systematic change*. These conditions once again acted against effective crisis management. The institutional instability of societies in transition made traditional planning methods untenable, while a radical approach, fusing planning, decisionmaking and execution (*Faragó,* 2004), was unavailable due to a lack of political and monetary capital. Therefore, the typical reaction of democratic governments was to use their resources to prevent the immediate collapse of industrial companies, and social measures to lessen the impact of unemployment in crisis regions. This step is consistent with early policy

responses made in the EEC (*Ex post evaluation of 1994–99 Objective 2 programmes*, 2003), although less effective because of low funds. Anti-industrial sentiment, often coupled with environmentalist concerns, was a less significant, but responsible factor for the weakness or non-existence of coherent restructuring attempts. This is a problematic issue. *Herrschel* (2007, p. 443) points out that *"existing structures and associated social status and organisation were suddenly rendered 'historic' and lost their economic rationales. This included in particular the old industrial areas with their focus on monostructure depending on heavy industry and extractive work (coal mining)."* However, this is only one side of the equation: we have to draw attention to the power of surviving institutional legacies which continued to influence industrial (re)development. Know-how, social capital, management (in)competencies and other path-dependent factors survived well into post-socialism, even if they were "reimagined" to fit into the conceptual framework of the market economy.

As a result of the above, the crisis of industrial regions in Central Europe was wider and more severe than in the west, with more restricted and less effective public involvement. Instead of *active*, policy-driven structural change, the process was overwhelmingly *passive* and market-driven, resulting in rapid de-industrialisation. This is both a positive and a negative phenomenon: it can be seen as a natural move to a modern, more service-driven economy, but it also involves deskilling, the loss of export potential, etc. While the common interpretation of "de-industrialisation" suggests modernisation, in Central Europe's crisis areas, another form, the loss of industry with no replacement is also possible.[11] The higher share of tertiary activities can be interpreted as an outcome of successful restructuring, but also a *sustenance economy* where services are dominant only for a lack of alternatives, and entrepreneurship is a simple survival mechanism.[12] The level of de-industrialisation varies from region to region and country to country; as a generalisation, we can say that it was more severe in south-eastern than north-western post-socialist states (*Table 6*). As discussed later in the paper, industry and de-industrialisation has a different significance for central, intermediate and peripheral regions, which show different ways of integrating into the global economy.

[11] "When economists talk of 'de-industrialisation', they normally mean the shift from industry to services which is characteristic of the most advanced economies. ... In Kosovo, de-industrialisation refers to a very different phenomenon. It means the collapse of industry and a return to the pre-industrial past." (De-industrialisation and its consequences. A Kosovo story. 2002, p. 5) For further discussion of industrial collapse, see Lux 2007.

[12] Szalavetz (2003, p. 180), referring back to Rosenstein–Rodan and Hirschman, warns of a low level equilibrium trap, which can be "thought of as a massive coordination failure: several investments do not occur simply because other complementary investments are not made, and similarly, these latter investments are not forthcoming simply because the former are missing."

Table 6

De-industrialisation in Central Europe, 1990–1991 to 2003–2004

Country	Industrial employment in 1991	Industrial employment in 2004	Industrial employment in 2004 (1991=100)
Albania	242,500	127,000	52
Bulgaria	1,785,000	967,900	54
Croatia	694,700	469,000	68
Czech Republic	1,958,900	1,844,400	94
Hungary	1,349,400	906,300	67
Macedonia	260,000	190,400	73
Poland	5,483,100	3,509,900	64
Romania	4,512,000	2,173,700	48
Serbia and Montenegro	1,307,100	650,500	50
Slovakia	848,900	846,000	100
Slovenia	429,300	342,700	80

Source: Edited by the Author on the basis of national statistical yearbooks.

4.2 Transition processes and the dual economy

Seventeen years after systematic change, it is possible to see the main trends which have reshaped the industrial structure of Central European states during their integration into global networks. The integration process takes place over decades, and with the passage of time, the special characteristics of post-socialism lessen while common European problems gain their place.

It is arguable that the strongest force which continues to mould industry is the *investment preferences of transnational corporations*. Capital investment at the beginning of the 1990s was mostly in the form of acquiring privatised assets, while later, greenfield projects took their place. Companies owned by foreign interests surpass local ones in capitalisation, export potential and productivity, giving them a significant power to influence economic growth. The result is a *dual economy* (*Barta*, 2005; *Domański*, 2003), where there are strong, long-term differences between the efficiency of foreign and domestic industrial companies. Duality has both sectoral and spatial consequences. Transnational corporations show a preference towards manufacturing (especially machine industry and chemicals), leading to stronger modernisation in these branches. At the same time, their location choices are influential in spatial differentiation, leading to increasing differences between preferred and neglected regions. Privatisation *reinforces* previous differences, while greenfield investments create *new ones*.

Spatial differentiation occurs on national and subnational levels. Economic regulations, political/legal stability and investment incentives were decisive in national differences during the 1990s and continue to be relevant, if less influential today. On the subnational level, the most relevant factor was at first the accessibility of western markets. Western border areas with good road connections benefited, and previously existing west-east development gradients became steeper. However, there are signs that simple accessibility has become less important over the years, while the importance of skilled labour is on the rise.

Today, industry plays a role all over Central Europe, but this role is not the same everywhere. Its growth or decline means different things for different locations: for example, a manufacturing plant producing machinery would not be as valuable for the economic prosperity of a national capital as of a declining industrial region – or a rural periphery struggling with high unemployment. When we examine industry's significance in our economies, we have to discriminate on the basis of space, and consider the questions of development and modernisation in the regional context. Naturally, all regions have specific problems and opportunities, but it is possible to generalise: in my opinion, a *threefold pattern* is visible on the map of Central European industry, representing distinct regional types developing along different trajectories.

Central regions (national capitals) were major manufacturing hubs in the socialist period, preferred by economic development policy. During transformation, several of their companies closed down, and their place was taken by services. This change was relatively rapid, and although unemployment was significant for a few years, most employees could find new jobs in the service sector. The most innovative service activities, especially business services, are strongly concentrated in central regions (for the example of banking, see *Gál* 2005), as are administrative/political functions. The development of central regions has been mostly tertiary, and in their chase, tertiarisation and de-industrialisation are associated with successful transition. As a note of caution, it has to be remembered that this doesn't mean development lacks an industrial component, and central regions managed to retain their presence in the highest value added branches such as pharmaceuticals, precision machinery and optics. Higher education and R&D are also located in large urban centres, including capitals. Finally, even when manufacturing is found in intermediate regions, corporate headquarters or branch offices are often maintained elsewhere – out of country or in capital cities.

Industry continues to be a strong dynamising force in *intermediate regions* (that is, regions with an average urbanisation level, but without the problems of peripheries). They can benefit from service-based growth, but all available evidence suggests that this in itself is insufficient for prosperity, and a mixture of industrial and tertiary activities is optimal. Western border regions are typically mentioned as winners of transition; the growth of automotive and machine industry in the Vienna–Győr–Bratislava trans-border area is just one example (*Grosz*

2006). On the other hand, they are not the only ones to belong to the category. Old Industrial Regions which have been successful in their adaptation by diversification into new industries or the innovative restructuring of their traditional branches start to become very strong contenders even if they do not benefit from an ideal geographic position. Their main strength is an established industrial milieu, with skilled workforce, technical education and supporting institutions.[13] The role of these factors is becoming more and more important as pools of skilled labour are depleted across Central Europe and competition for employees in the previously preferred western border areas drives up wages. Labour shortage – which is a radically different situation from the beginning of the 1990s, when it was in abundant supply – also results in the re-evaluation of competitive advantages which were taken for granted before. Today, unionised, more costly labour is much less of a disincentive than mainstream economists predicted – and it could be argued that it is actually a contributing factor to long-term success.

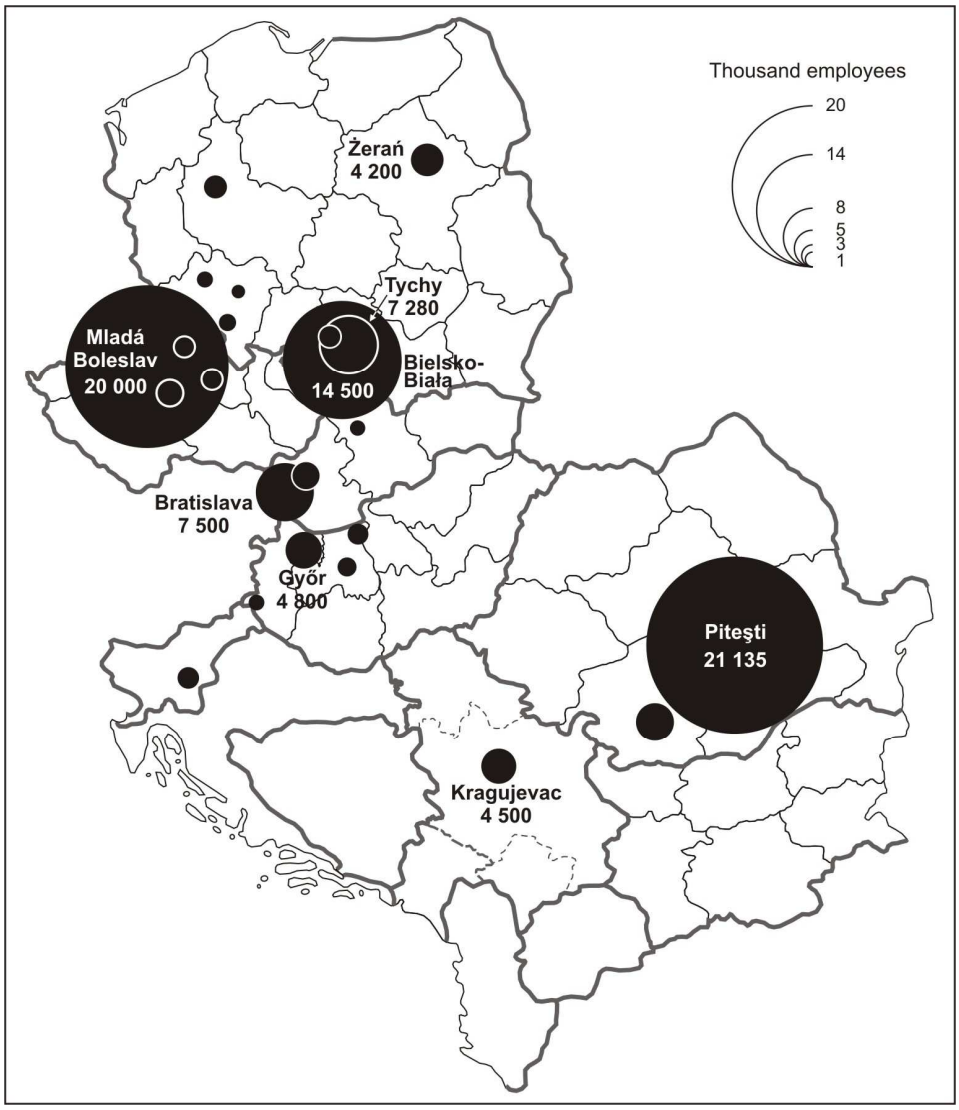
Traditional and new peripheral regions are still coping with inherited and new backwardness. They were either under-industrialised, or their previous capacities were eroded so strongly that they can be considered lost. Most of the former are rural and/or eastern border areas, whose traditional light and food industries suffered during transition, and are losing further ground to global competitors. Some Old Industrial Regions have also fallen into this trap with the downgrading of their human capital. It is a common observation that industrial depression leads to a decrease in skills thanks to emigration and the adverse social consequences of long-term unemployment. The result may be low level stabilisation as a peripheral region, instead of catch-up to intermediate ones. Their main problem today is no longer the lack of potential investors, but rather the fact that they can't offer enough skilled workers to make investments worthwhile. Peripheral regions need the intervention of regional policy to re-industrialise, but these measures must be accompanied by social regeneration – first and foremost to reduce inactivity. On the other hand, contrary to usual expectations, not all peripheral industries are suffering. In certain branches and regions where cost advantages are still significant, we can see the re-emergence of traditional light industry, increasingly serving the needs of international supplier networks.[14] Their challenge is whether their advantages remain sustainable in the face of global competition, and whether they will be able to diversify into higher value added activities or even new branches before their cost advantages are eroded.

[13] Upper Silesia is probably the best example in this respect; for the role of human capital, see *Geisle –Szczepańsk–Cymbrowski,* 2005; for the role of institutional networks and policy, see *Lux,* 2008 and *Klasik–Heffner,* 2001.

[14] For example, textile companies in Eastern Slovakia, Hungary and Bulgaria have experienced new growth, and even become intermediaries between western and post-Soviet states (*Kalantaridis–Slava–Sochka,* 2003; *Smith* et al. 2005).

Figure 5

The distribution of automotive industry in Central Europe (2003, number of employees)



Source: Edited by the Author on the basis of data from Worral–Donnelly–Morris, 2003.

The spatial structure created by the ongoing differentiation process is characterised by a mixture of continuities and new phenomena. The location preferences of transnational corporations have played a role in modifying the picture of previous decades: some traditional industrial regions have lost in significance, while others emerged as new competitors. At the beginning of transformation, it was often prognosed that radical changes would take place, and the map of industry would be completely redrawn. But evidence suggests that these predictions did not come true. Continuities play a larger role than anticipated, as *Figure 5* demonstrates through the example of automotive industry. Even allowing for differences in labour and capital intensive forms of production, it is apparent that manufacturing centres are almost always located in locales with strong industrial traditions, and the largest production facilities are all old ones – by far outstripping greenfield projects. This continuity is either manifested in the survival and transformation of traditional corporations, or the adaptation and evolution of industrial millieus. New plants are located in old regions, even OIRs, as the successful transformation of Central Transdanubia or Upper Silesia demonstrates. Based on my interviews with decisionmakers and entrepreneurs in one Polish and two Hungarian OIRs, the single most important source of growth potential is *the availability of skilled labour*. The relative abundance at the beginning of the 1990s no longer exists as tertiarisation proceeded and deskilling took place. Secondary education, and strong technical universities were instrumental in replacing losses, and where they didn't succeed – which was unfortunately the case in both Hungarian examples – the scarcity of skilled professionals became the main impediment before FDI inflows.

Do the development processes in Central European industry point towards convergence towards the European core, or the re-constitution of pre-war peripheral positions? It was often feared that the dual industrial structure of transition societies would result in deskilling and disembeddedness, or "desert cathedrals". *Pavlínek–Smith* (1998), recounting arguments from Dunning, Grabher, Lipietz and Smith, pointed out that "defensive structural change" – focusing on low or medium technology activities, the lack of innovative products and relying on labour cost as the most important competitive advantage – would lead to the preservation of core-periphery arrangements. It follows, then, that even in re-industrialised regions where FDI inflows are strong, catch-up is an illusion, and modernisation relative, as the resulting structures will be just as crisis-vulnerable as socialist ones.

This concern is not altogether unrealistic, and has to remain a cautionary note to decisionmakers and regional scientists. Central European industry could at the moment be described as *semi-peripheral* – not purely relying on cheap, unskilled labour, but still very distant from the optimal level of high value added activities. However, I consider semi-peripheral industry better than the alternative. Semi-peripheral industry can play a positive role in regional development, if it keeps

the economy active, provides employment and maintains industrial millieus – or, it *stabilises*. In the case of peripheries, old and new, the effect is even more beneficial as a *generator of growth* and a chance to escape disadvantageous situations. Economic policy must be able to distinguish between these two roles, since they do not fulfil the same function. For peripheral regions, the positive outcome is regeneration, reintegration and social improvement. For intermediate regions, it is a stepping stone towards higher embeddedness and endogenous growth.

What can states and regions do to favourably influence their industrial development? First, they have to recognise how different regions require different solutions. But they also have to acknowledge their limitations. The main tool of public policy today is no longer the creation of new industrial centres – neither political realities, nor public funds allow this form of intervention. Instead, policy should provide assistance in institution-building and preparing the ground for investments which will come from the private sector if the appropriate conditions are present. To be efficient, this requires a degree of administrative decentralisation, especially in the realm of economic policy. So far, only Poland has genuinely moved towards decentralisation among post-socialist states, and it appears that the results were positive. It remains to be seen if others will follow the example.

4.3 Spatial development in a transforming world

How did Central European regions experience change during transformation? Annex II./a shows that by 1990–1991, the degree of de-industrialisation had already been significant across Central Europe. In all states except Romania, strong tertiarisation took place. Two decades before, only central regions and regions with large cities over approximately 250.000 inhabitants were affected by this trend; now, it spread everywhere. South-eastern states now had a higher share of industrial employment than north-western ones.[15] But on the national level, traditional divides and spatial structures survived: it can be seen in the differences between the Czech and Slovakian Republics, Hungary's "energy axis" in the northern counties, or Romania's divide between Transylvania and Old Romanian areas. Overall, the concentration of industrial employment decreased when we compare it to previous decades: regions where employment was previously highly concentrated lost share (but remained significant), while under-industrialised ones gained some.

Regional investment statistics (Annex II./b), which offer an insight into processes of change, show an opposite process: instead of *deconcentration*, the pre-

[15] This was as much an outcome of belated development as the continuation of early socialist growth policies – especially in Romania.

vailing trend was strong *concentration* into industrialised regions and decline in peripheral ones. Unfortunately, there wasn't enough data to construct a good comparative map about per capita investment levels in Central Europe, as figures were sometimes given in percentiles instead of national currency, and strong inflation during the early transition period would have made the results suspect in any case. Therefore, the annex shows the *share of industrial investments* in the total – which can shed some light on national trends, but doesn't enable a good global comparison.[16] Although investment volumes were falling everywhere, their contraction in Poland is the most visible, showing a sharp contrast between the south-western industrial heartlands and rural peripheries. Hungary's situation was similar, although decline was smaller early on due to successful policies encouraging foreign investment. North-western counties close to the border were the major winners of the process, along with the capital; Old Industrial Regions outside the previous area and rural peripheries its losers. In Romania, industrial investments were still the most significant, and showed concentration in mining and heavy industrial centres.

Based on these two dimensions, we can conclude that in the early transition period, the spatial structure of industry reached a tipping point. *Before* 1990, Central European countries made relatively successful efforts to industrialise backwards areas, either as a form of regional policy (especially in Hungary and Poland) or a general drive (as in Romania). *After* 1990, peripheries had to face changed circumstances. Their products were often outdated, and there was little hope for investments to remedy this situation as social considerations had to take a backseat. To borrow *Gorzelak's* (1998) regional typology, while negative discontinuity was the threat for Old Industrial Regions, peripheral regions faced the threat of negative continuity, or conserving former disadvantageous positions.

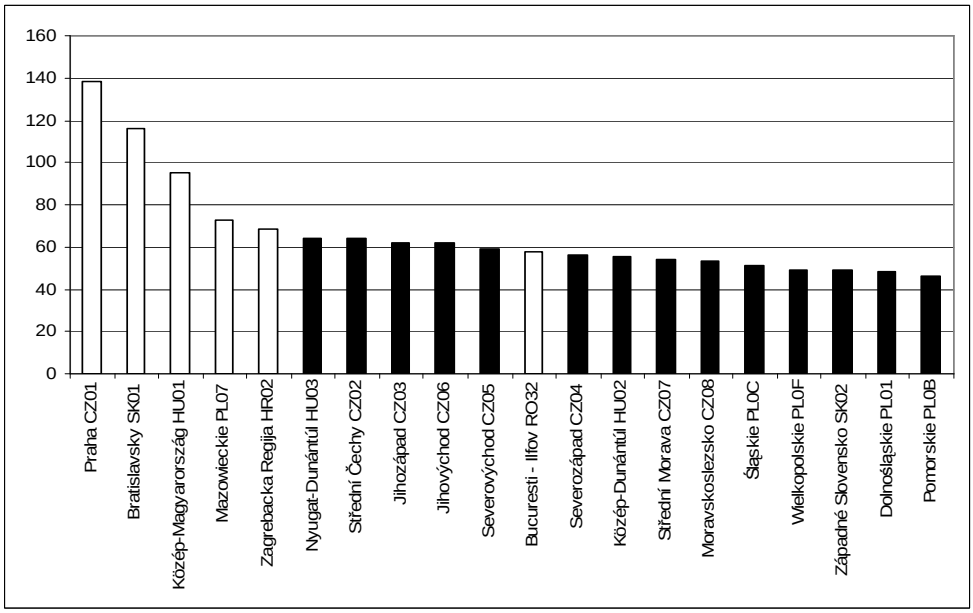
Annexes III./a–1–2 and III./b show the transformed industrial landscape of Central Europe at the time of EU accession. What stands out is the continuing deindustrialisation of post-socialist countries. The degree of this process was such that two separate maps had to be constructed – one using the scales for 1990–1991, and a separate one where interior differences would be more visible. In employment, only one Polish region, Upper Silesia, exceeded 35% in industrial employment; from all regions mapped, one half did not reach this level. Only three regions exceeded 50%: fifteen years before, one quarter of the total did, and in 1970, almost one half. The diverse role of industry is evident from Annex III./a-2. The most developed central regions show the lowest levels of industrial employment – but so do eastern peripheries. Troubled regions can be found among those where the ratio is highest – but also others which grow dynamically. Development level cannot be simply linked to sectoral composition; we must look

[16] Data for Yugoslavia was available, but I decided to exclude it on grounds of appearing grossly inaccurate.

into distinct region types to correctly appraise the value of industry in our transforming societies. Comparisons of industrialisation and GDP rankings verify this conclusion: the first spots are taken by service-driven regions, but they are immediately followed by intermediate industrial regions with strong positions in manufacturing (*Figure 6*). Even four significant Old Industrial Regions – Közép-Dunántúl, Moravskoslezsko, Śląskie and Pomorskie – have made it to the list. The continued significance of industry is also seen when we consider sub-national patterns. Even with de-industrialisation, traditional divides and development gradients survive: the southwest–northeast division of Poland, the "energy axis" of Hungary, the continued importance of former industrial centres in Romania, etc.

Figure 6

The top 20 Central European regions ranked by per capita GDP (2004, PPP, % of EU-27 average)



Note: White columns indicate service-based central regions; black columns indicate intermediate regions, whose growth is primarily based on manufacturing.
Source: Edited by the Author on the basis of data from Eurostat.

Investments statistics, seen in Annex III./b, show wide differences. In Bulgaria, masked by low overall levels, there is a more than twofold difference between the south-western capital region and the northern central one. Although regional statistics couldn't be found, reports regarding industry in Romania suggest that similar polarisation takes place. In Poland, western border areas and the capital are the primary targets, as are in Hungary: however, while the latter saw an overall higher investment level, its distribution within the country was less equal. Northern Hungary had the single highest investment ratio per employee in Central Europe, while Southern Transdanubia fell into the lowest bracket.

As in previous periods, the effects of industrial transformation are highly variable in different countries. The *Czech Republic* inherited Czechoslovakia's more advanced industries; this, coupled with fast macroeconomic stabilisation, eased adjustment. The government proposed wide-encompassing sectoral programmes, fast privatisation, support for small and medium entrepreneurships and the reorganisation of problem companies to ease transformational recession. Czechoslovakian industry struggled with four spatial problems: dependence on coal and steel in Moravia and Western Bohemia, monofunctional cities, areas whose economy was dominated by large-scale industry, and underdeveloped, peripheral industrial regions (*Myant,* 1995). From these problems, the first was especially significant in the Czech Republic. The Ostrava-Karvina industrial agglomeration was affected by mine closures and the decline of metallurgy; the policy responses involved innovative restructuring, economic diversification as well as institution-building. The weakness of administrative decentralisation hurt Ostrava's adjustment; its transformation was much less impressive than neighbouring Upper Silesia's (*Nesporova,* 1998; *Sucháček,* 2005).

The Czech Republic's overall de-industrialisation was minimal, although there was some movement in space towards smaller settlements. New investments show concentration into the central region; foreign capital found it advantageous to exploit existing networks and traditions. Between 1990 and 2000, 47.6% of all FDI flowed into Prague and a further 11.9% to Central Bohemia. State investment policy, through the CzechInvest agency, had an alleviative effect: from the funds it attracted, only 2.5% and 18.8% went to these areas, while Ústí nad Labem and Olmütz reached 30.9% and 12.1%, respectively (*Young* 2004).

Slovakia, although it had a similar level of industrial employment as its Czech counterpart, had a more troubled inheritance in post-socialism. Sectoral problems (e.g. the overpresence of military industry) were compounded by regional ones: the eastern part of the country struggled with surfacing hidden unemployment and peripherality. Until the late 1990s, foreign investments were meagre, and they were overwhelmingly concentrated in the west, while in the east, old companies dominated. A strong gradient became visible (*Table 7*). Embeddedness was lower than in the Czech Republic, with less advanced supply relations; companies mainly manufactured low value-added products.

Table 7

The uneven distribution of industry in Slovakia (2000, %)

Region	Market	Value Added	Productivity by VA (SK=100)	Employment
Bratislava	31.9	24.0	195.0	12.3
Western Slovakia	27.0	38.2	101.0	38.0
Central Slovakia	19.4	20.3	80.0	25.4
Eastern Slovakia	21.7	17.5	72.0	24.3
Total	100.0	100.0	100.0	100.0

Source: Sectoral Operational Programme Industry and Services [of Slovakia] 2003, pp. 7–8.

In the late 1990s and early 2000s, reforms were passed to encourage new investments. Industrial parks were a successful measure to increase foreign interest; although investments there are still spatially uneven, parks in the east successfully attracted large investors, often in traditional branches (e.g. US Steel Košíce and chemicals producer Chemko). The brownfield form is also more popular: three of Slovakia's five brownfield-based industrial parks are in the Eastern Slovakian region (*www.sario.sk*). Industry has gained a pivotal role in post-accession development policy. In the 2007–2013 strategies, the emphasis is on industrial support structures and productive infrastructure.

Poland faced the return of old problems. Development gaps widened in the industrial-agrarian, urban-rural and western-eastern relations (*Blazyca* 2001). The most serious crisis emerged in Upper Silesia (then composed of three voivodeships), where almost 44% of industrial employees worked in the declining coal and steel sector. Although it was believed that the region would face protracted decay, innovative restructuring in traditional branches, diversification into new industries (especially automotive industry) and exploiting the urban functions of the Katowice agglomeration proved more successful than anticipated. A crucial factor was the institution-building of the local elite, whose bottom-up activity made Upper Silesia the test-bed of Polish regional policy. Successful measures, such as the regional contract between the government and regional administration, and the creation of Special Economic Zones were adopted elsewhere in the country, although in other regions, different solutions were sometimes more fruitful (e.g. endogenous growth in Łódz vs. the investment-driven path of Silesia).

Foreign investments showed a preference for large urban agglomerations, particularly the Mazowieckie, Upper Silesian and Wielkopolskie regions (20.7%, 17.3% and 11.9% of the national investment volume between 1990 and 2000). Domański's studies demonstrate an urban-rural dichotomy of preference for capital- and labour-intensive manufacturing. Road accessibility and skilled labour

were the leading location advantages, but in recent years, services provided by local governments and local market access have gained in importance. Among advantages, there is a demonstrable movement from costs to markets and special skills, and supplier networks are on the rise (*Domański*, 2003, 2004). The spatial development priorities of the state encourage endogenous growth in advanced regions and raising activity on the peripheries.

Hungary's total industrial production fell the least in Central Europe from 1989 to 1993, but this masked an ongoing differentiation process: deep recession in certain branches (60% production decline in machine industry and metallurgy, 36% in mining and 33% in chemicals) and dynamic growth in others which saw foreign investments immediately after systematic change. The spatial outcome was favourable for the central region and the Vienna-Budapest axis,[17] but meant depression for Northern Hungary and some parts of Southern Transdanubia, where mining and other crisis industries were concentrated. The harshest decline, however, was in peripheral industry. In the collapse of multi-branch companies, their rural branches were the first to be cut loose; at the same time, agricultural cooperatives were dismantled and their industrial activities mostly disappeared.

In the second phase of transition, the duality of industry increased. Hungary had an early advantage due to legal reforms and other factors including tax benefits and political-economic stability. However, the modernising influence of FDI gradually started to decrease after the mid–1990s, while its regional embeddedness (e.g. supplier relations) were still weak, and it overwhelmingly favoured Central Hungary, (65% in 2000) Central and Estern Transdanubia (15% combined) while the remaining four regions collectively had only 20%. It is increasingly evident that new sources of competitiveness need to be found. *Szanyi* (2003) proposes the re-evaluation of public policy along the following lines:

- skilled, healthy workforce (involving reforms in healthcare and education),
- national leading products and their promotion,
- support for capital accumulation in domestic entrepreneurships,
- infrastructure and communication networks,
- the mobilisation of underutilised regional resources.

Support for local production systems (supply relations, clusters, industrial parks) and regional innovation, as well as administrative decentralisation are required to break from low added-value activities. Unfortunately, the documents of development policy still treat industry as a sort of taboo, or are oblivious of its significance beyond generic support for encouraging investments. Centralist re-

[17] In Budapest, extensive de-industrialisation took place. Other than short-term social costs, the most important challenge was how to handle brownfield areas left behind by collapsed giants (for a thorough examination, see *Barta* et al 2006).

flexes on the part of the national government, as well as local provincialism, play an adverse role.

Post-socialism, or more accurately post-Stalinism in *Romania* lead to an especially severe transformational recession. Its overdeveloped but outdated energy sector and heavy industry were even more anachronistic on the world market than other socialist economies. The result was drastic contraction: 52% fall in industrial employment until 2004, and decline from 46.2 to 25.2 in GDP share. In addition to tertiarisation, post-traditional ruralisation, population movement from urban to rural areas, and industry to agriculture became visible (*Maniu–Kallai–Popa,* 2001). Although depression was ubiquitous, the Hunedoara area and the Jiu valley stand out as especially problematic. A 1997 World Bank programme gave support for mine closures and diversification, but while its social components were executed, local development was feeble and the repatriation of miners also failed (*Ianos–Popescu,* 1989; *Haney–Shkaratan,* 2003). Emergence from the crisis only really started after 2000, since Romania wasn't attractive to foreign investors. The regional concentration of FDI was high, primarily going into the Bucharest agglomeration and the western region (especially Timişoara). In recent years, there has been a slight evening out, particularly with the growth of major urban areas, but the capital's share remains at a high level.

Among the former Yugoslav republics, *Slovenia*'s industrial transition was the smoothest; inheriting the federation's most modern branches, serious decline was confined into the heavy industrial Maribor and Podravska areas. We can point to a traditional presence on western markets going back to the 1970s, and effective public policy as additional helpful factors. A 1999 industrial development concept, recognising the threats of semi-peripheral growth, recommended focusing on high value-added, innovative industrial branches. A national development plan was completed in 2001, before EU accession; this, and later documents were still dedicated to structural change.

Post-socialist states in *South-Eastern Europe,* including former Yugoslav republics, Bulgaria and Albania, share many similarities in their industrial transformation, most prominently stronger state control and the destructive de-industrialisation mentioned in chapter 4.1, although Romania and to a lesser extent Croatia have been successful in joining Central European development trajectories. Continuing state ownership is semi-successful in warding off industrial collapse, but at the cost of considerable hidden unemployment and postponed adjustment. Decline in traditional branches wasn't counteracted by alternatives; the dilemma of these states is if, and how the remaining industry can serve as a basis for reindustrialisation and new growth. It is not evident whether creative destruction or a more careful approach would be better, but these questions may mean the difference between catching up and staying on the periphery.

5 Conclusion

Central Europe's industrial transformations in the 20th century and at the turn of the new millennium demonstrate the dual presence of continuities and change. On one hand, while all periods discussed in this paper had their particulars and volatile political rearrangements, the institutional sphere was a lot more path-dependent. Central planning in the late 1940s was not foreign to states which had experimented with tightened controls in the interwar years and wartime economy; likewise, the reform period of socialism could build on concepts elaborated, but not realised (and often vigorously attacked) during Stalinism. Finally, the reactions of governments immediately after systematic change inherited numerous reflexes from the planners of later socialism. Of course, none of this should be construed as a denial of substantial changes; rather, an argument for seeing industrial development as a more organic, gradual process. Three closely correlated dimensions in this process appear significant.

The first dimension is *state control*. State control was extended in response to perceived market failures after World War One, and became total in the wartime economy. Central Europe's modernisation and catch up attempts also played a role: it was commonly accepted that closing development gaps would require public direction and support. These beliefs were synthesised in the totalitarian ideologies of the 1940s and 1950s; however, they were plagued by horrid dysfunctions which were only acceptable as long as all other considerations were subordinated to military and political (ideological) dictates. Homogenised industrial policy had to be relaxed; this in turn lead to divergent national models attempting to reform central planning, primarily in the area of regulations. By this time, however, socialism was "done" as most of its major projects had concluded, and adjustments, including regional policy experiments, were only minor. Symptoms of crisis did not initiate an adaptation process, and conservation prevailed. By 1990, Central European economies were struggling with postponed industrial crisis. Lacking the resources and political capital for effective restructuring, state control had to be reduced – accordingly, the location patterns of private entities, predominantly from the west, became the strongest force of change on the industrial landscape. Although direct intervention is currently untenable, states can still influence development, primarily in institution-building, physical infrastructure and facilitating the settlement of innovative industrial branches.

The second dimension is *economic development*, which runs parallel with state control. In the interwar years, development trajectories were divergent despite some common elements: they progressed differently in Czechoslovakia, Central Europe's only advanced state; in Poland and Hungary which had a medium development level, and in the more peripheral others. The gradual economic isolation of Central Europe, war and socialist ideology homogenised this diverse field through uniform recipes which denied national particulars as much as regional or

local ones. The 1960s reforms, although they didn't break the socialist paradigm, represented interior divergence and external convergence (growing differences between socialist states but slightly decreasing differences when compared to market economies). In contrast, the situation was the opposite in the 1970s and 1980s: economic and political retrenchment, which lead to interior homogeneity, but a departure from world trends. It is a cautionary note that transformation proved how illusionary this separation was: after 1990, Central European economies had to return to the global mainstream one way or another. The question is how this takes place: will they reduce their development deficit and join the European core, or be increasingly marginalised?

The final dimension, *spatial development*, may be interpreted within individual countries, but also for the sum of Central European space. Spatial differentiation is a natural by-product of economic and social processes, and in semi-peripheral Central Europe, there were always strong contrasts between developed and backwards areas. Until the end of the 20th century, one of the most important differentiating forces was the uneven distribution of industry. Differences between urban industrialised regions and small-town or rural peripheries were strong in the interwar period, while under Stalinism, preference for a few growth poles and conscious discrimination against everything else exacerbated them. At the same time, even preferred areas were characterised by one-sided development and *urbanisation shortages* (a different matter from *under-urbanisation*, a "normal" characteristic of Central European space). Adjustments and regional policy experiments in the 1960s and 1970s were also mainly industrial, although they were more of a social measure and maybe represented a different ideology than "mainstream socialism" – labour-intensive production, resurrecting local traditions, etc. The value of industry was questioned after 1990, both as a consequence of economic failure in socialism's showcase regions, but also in light of post-industrial development. However, while tertiarisation is universal in all regions, its significance is not. Only central regions could succeed based on a predominantly service-based economy (and they maintained footholds in the most innovative industrial branches), while in intermediate and peripheral ones, hopes to this effect proved largely illusory. In some cases, tertiarisation is simply an outcome of economic collapse, a return to pre-modern conditions. Public policy has yet to accurately evaluate the continuing significance of industry in regional development. Strategies created by individual regions contain industrial elements, but national concepts often neglect them outside general statements. It appears that concepts prepared for the 2007–2013 programming period show improvement in this respect, but how they will eventually play out is still to be seen.

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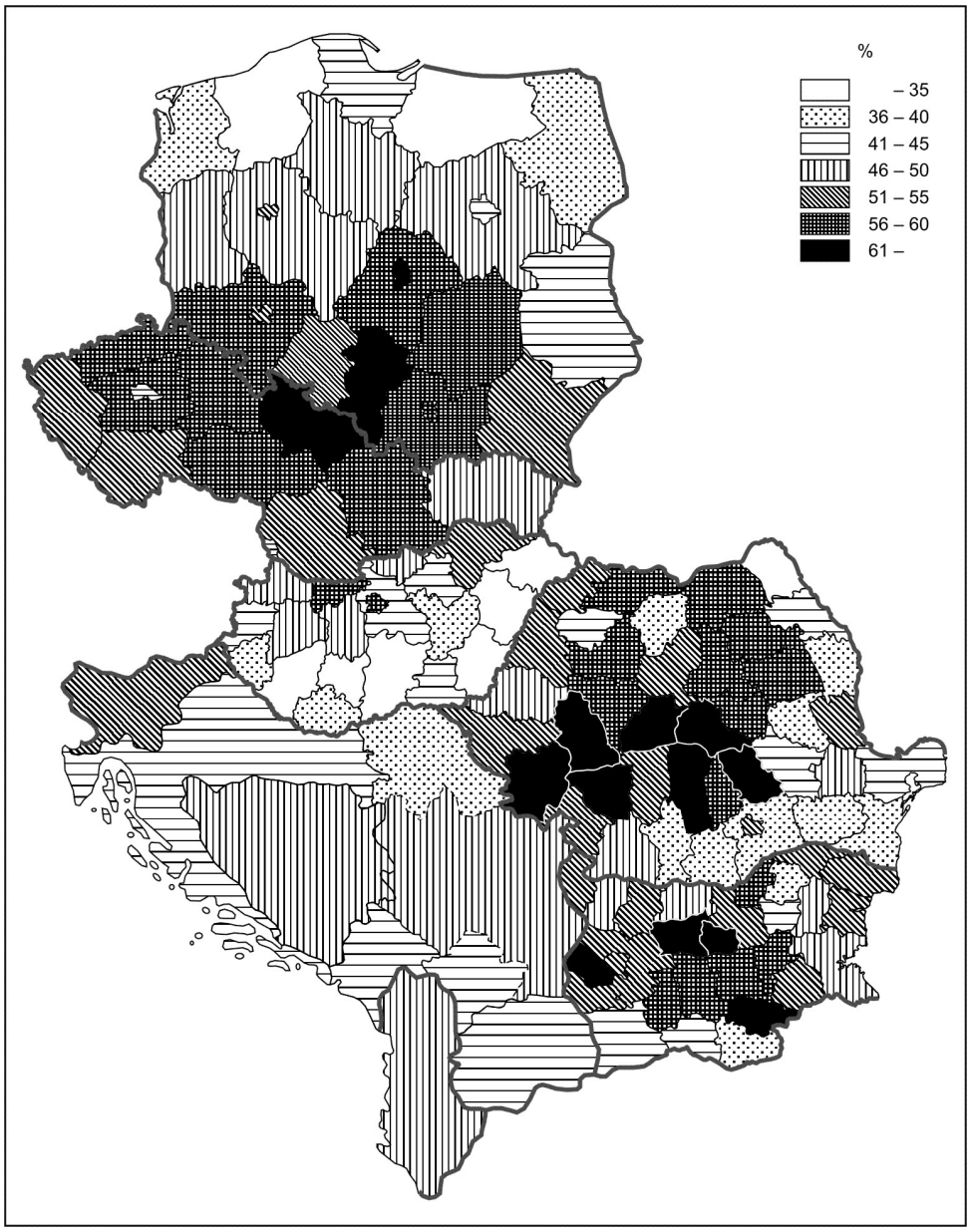
Annex I./a

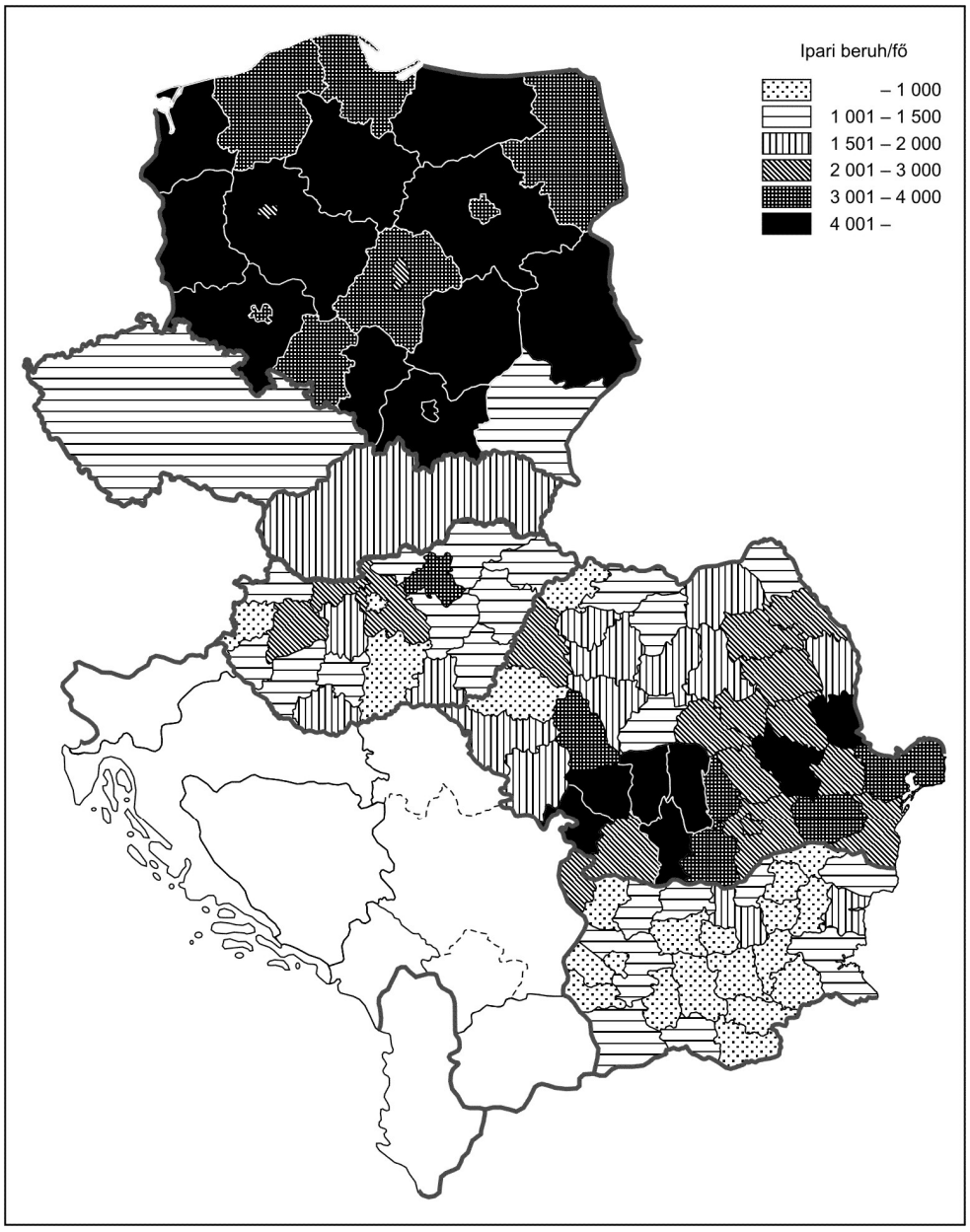
Industrial employment as a share of the total (1970–1971, %)



Source: Author's construction based on national statistical yearbooks

Annex I./b

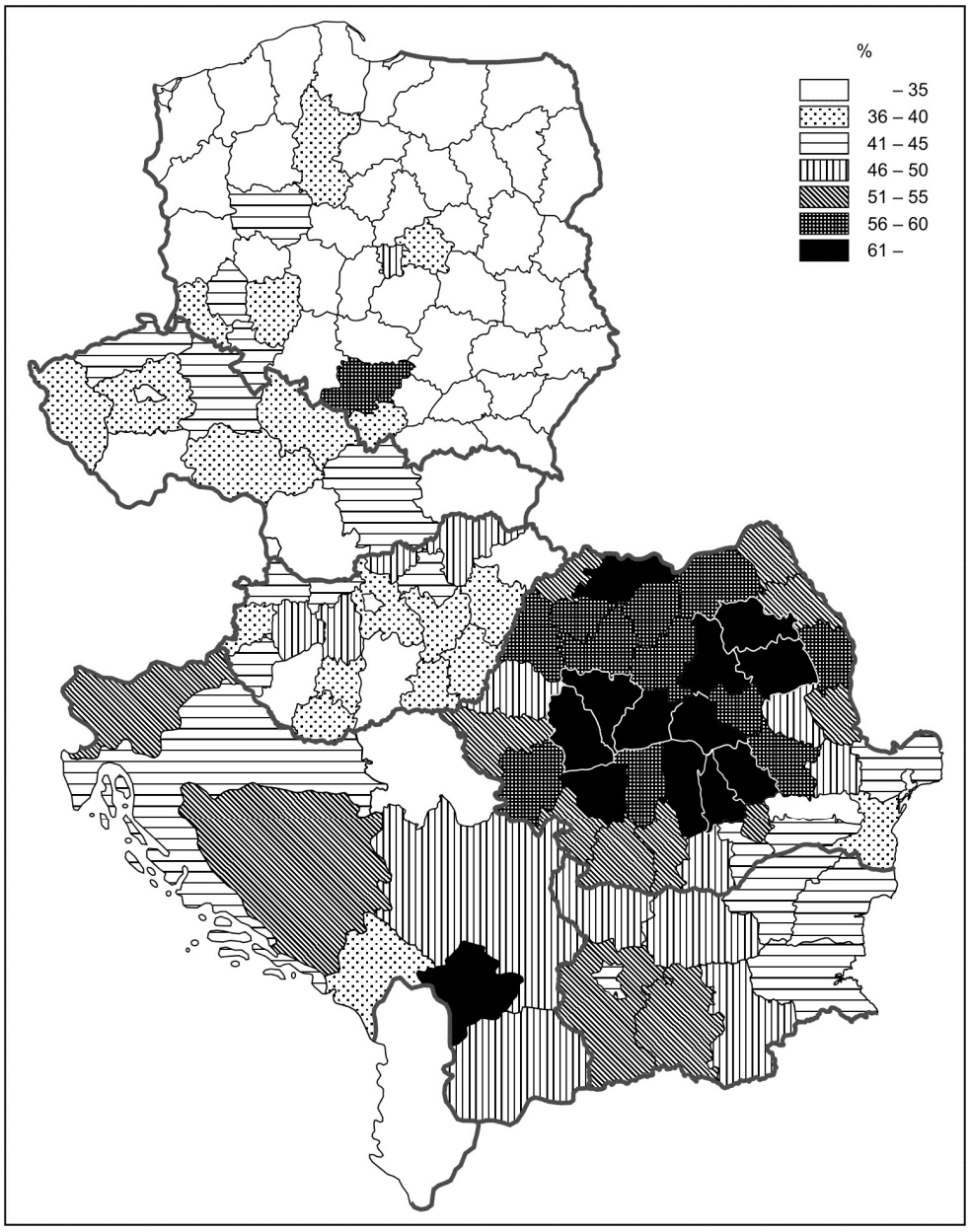
The level of industrial investments per employee (1970–1971, USD)



Source: Author's construction based on national statistical yearbooks

Annex II./a

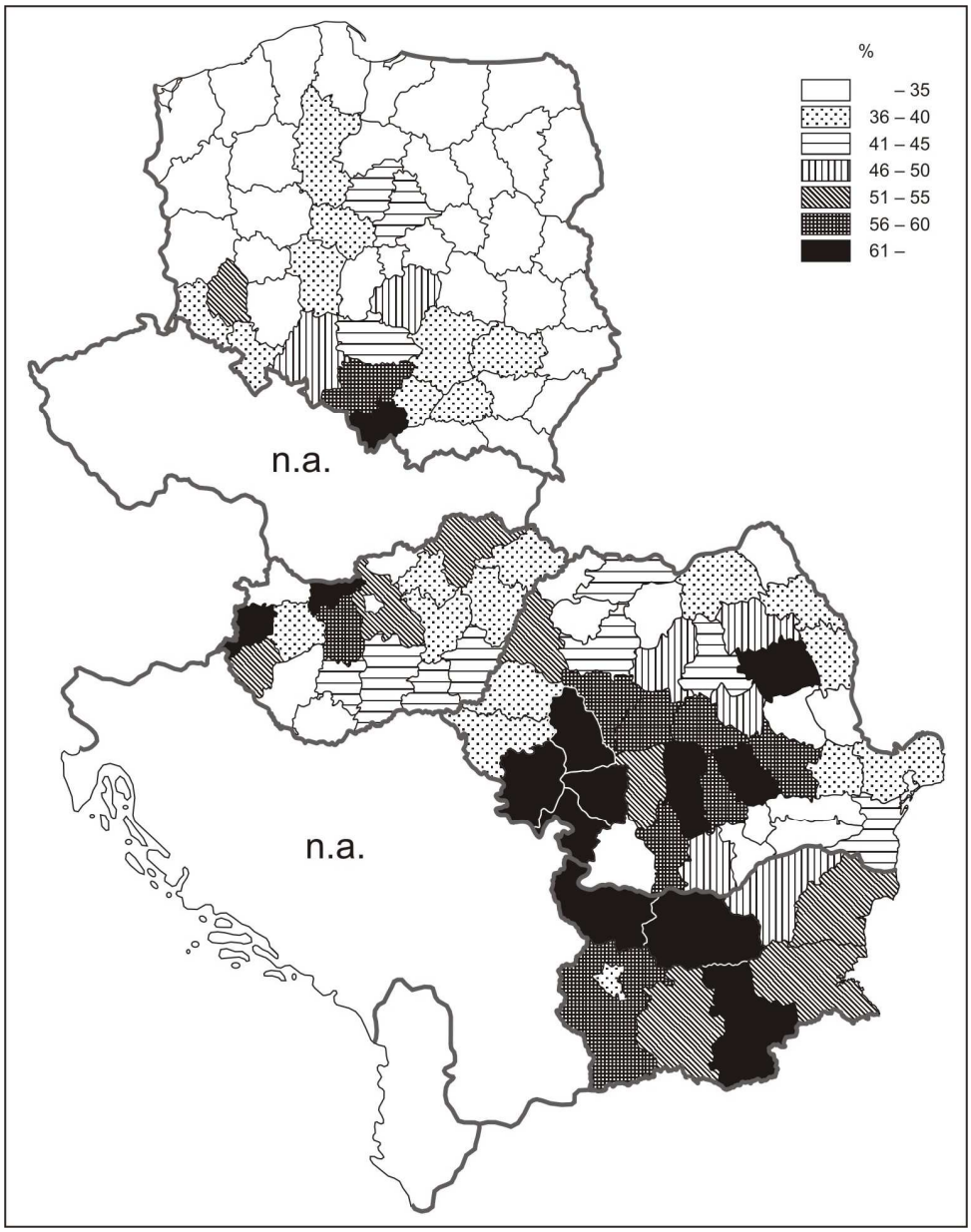
Industrial employment as a share of the total (1990–1991, %)



Source: Author's construction based on national statistical yearbooks.

Annex II./b

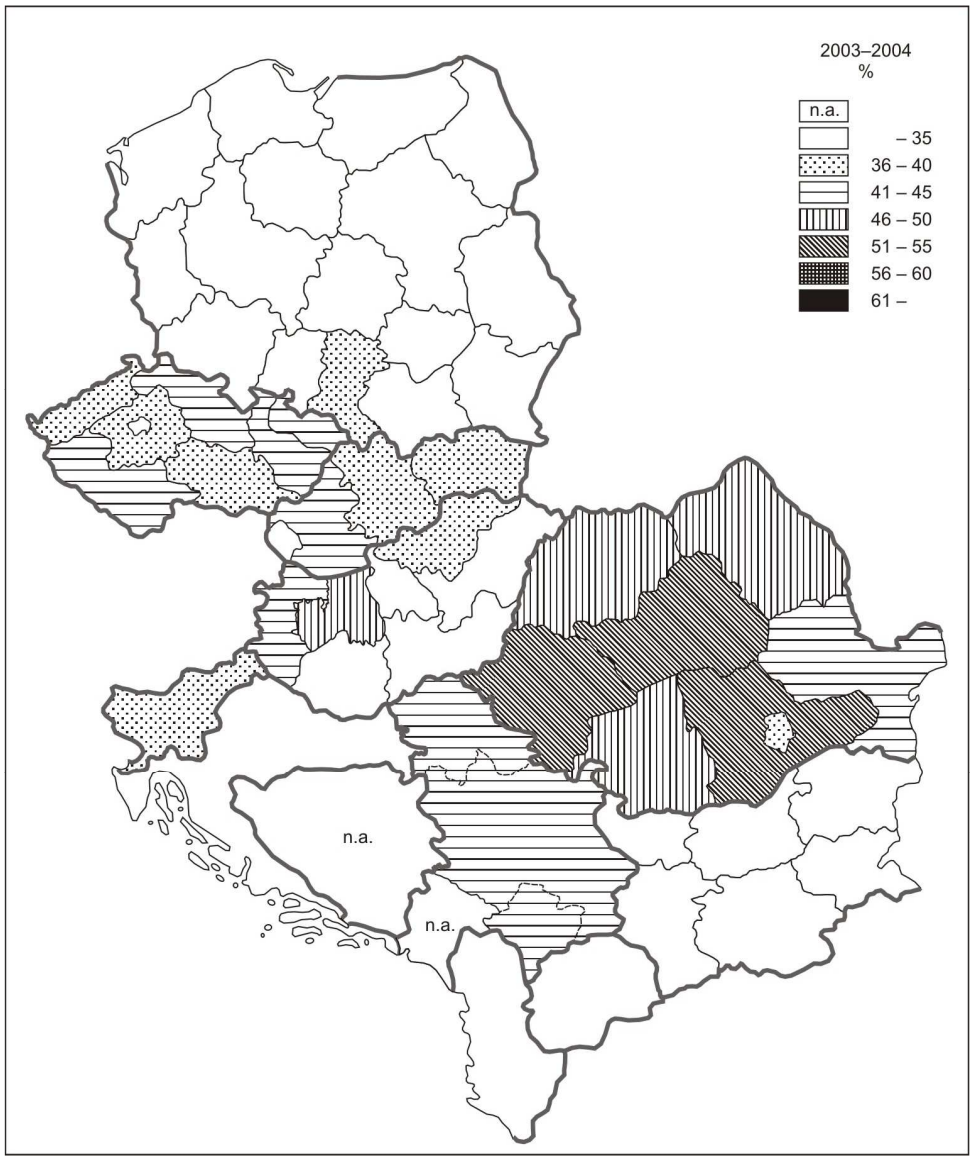
Industrial investment as a share of the total (1990–1991, %)



Source: Author's construction based on national statistical yearbooks

Annex III./a-1

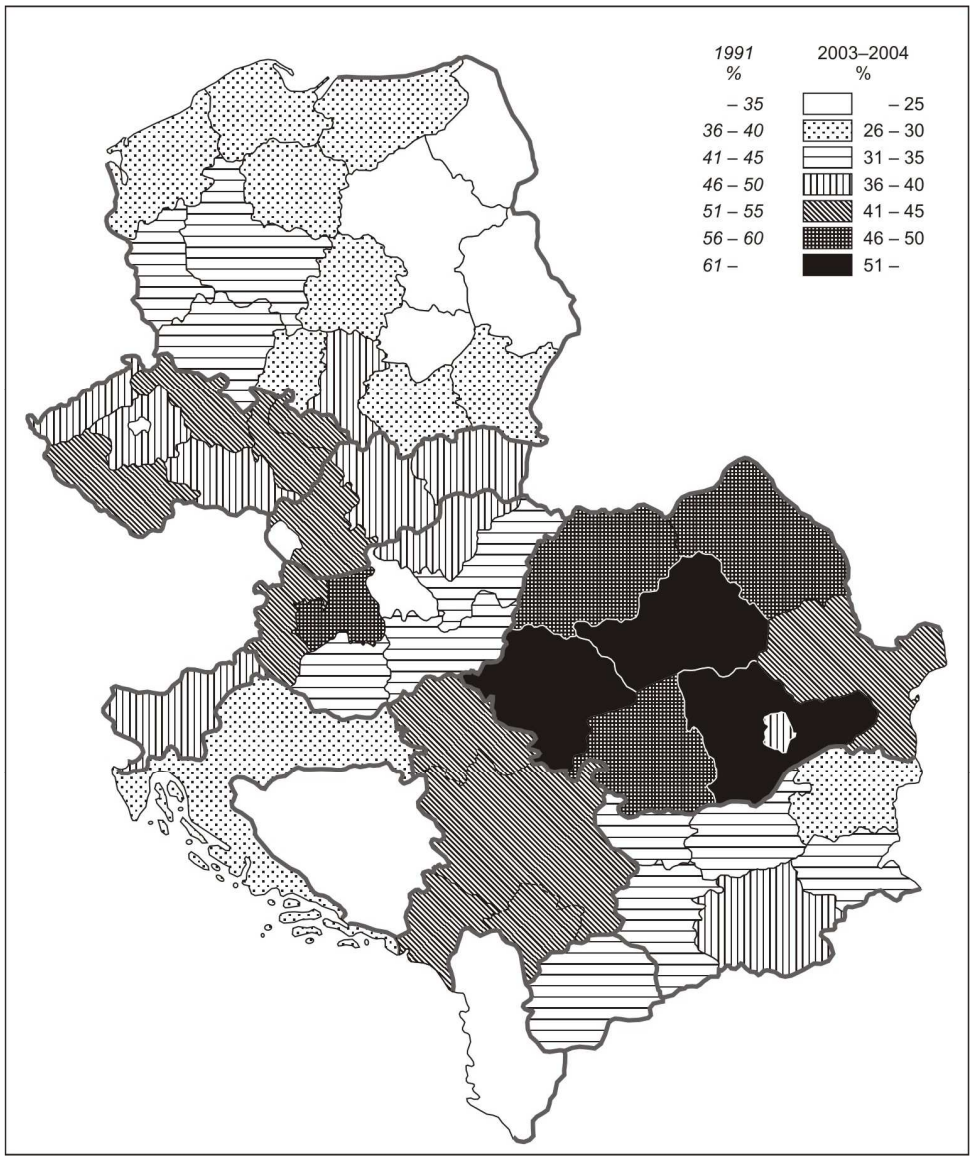
Industrial employment as a share of the total (2003–2004, %)



Source: Author's construction based on national statistical yearbooks.

Annex III./a-2

Industrial employment as a share of the total, adjusted range (2003–2004, %)



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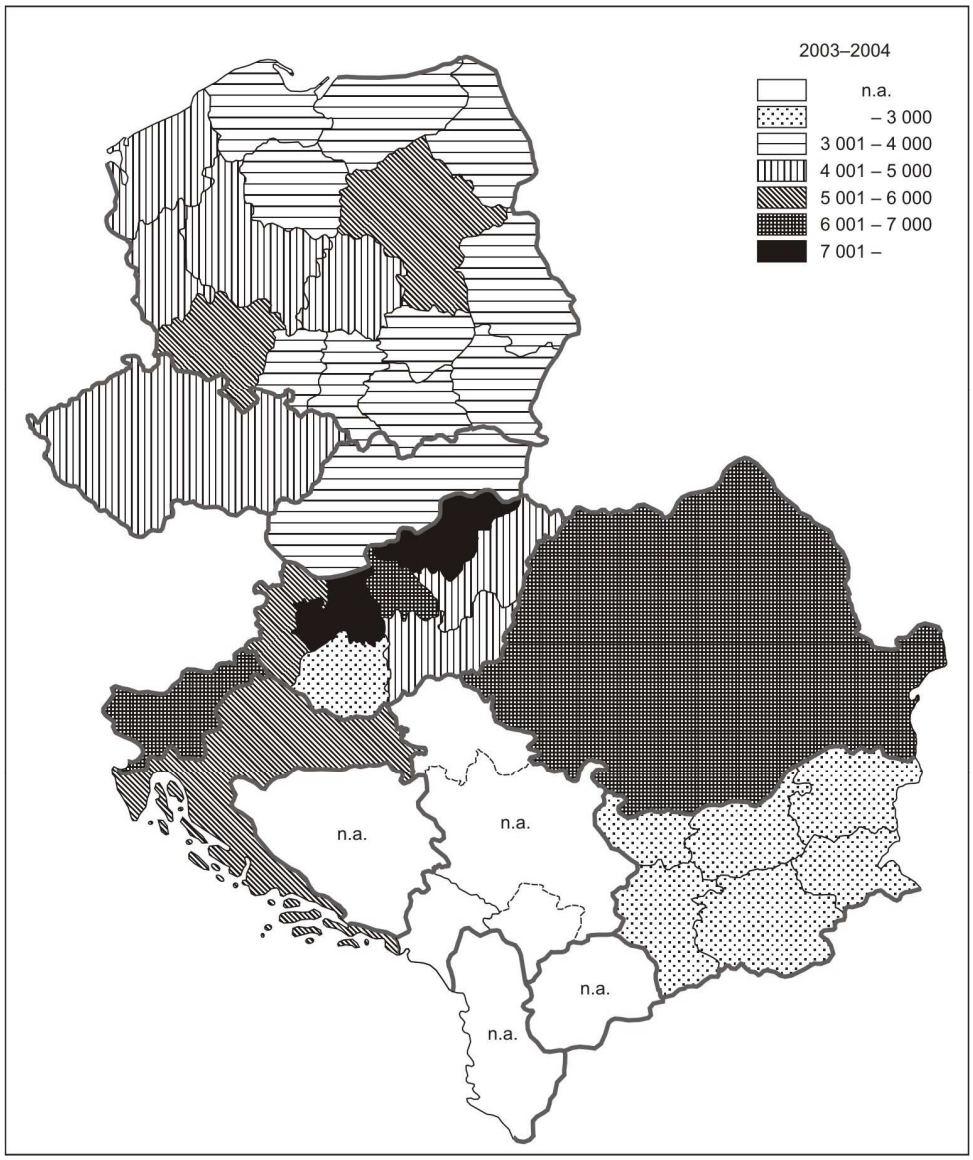
Annex III./b

The level of industrial investments per employee (2003–2004, USD)



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