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## **EASTERN AND CENTRAL EUROPE 2000**

■  
*Final Report*

**June 1994**

# **EASTERN AND CENTRAL EUROPE 2000**

## **FINAL REPORT**

**EUROPEAN COMMISSION  
EUROPEAN INSTITUTE FOR REGIONAL AND LOCAL DEVELOPMENT  
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## EXECUTIVE SUMMARY

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### Introduction

The scenario of development of the four Central European countries (The Czech and Slovak Republics, Hungary and Poland) presented in this report is based on realistic assumptions concerning the external and internal conditions for development. It indicates the most probable situation of these countries in the year 2005. Generally speaking, it is assumed that an 'average coincidence' of all factors influencing socio-economic development will take place. There is a possibility that certain factors may occur more favourable than assumed but then probably others may be less favourable.

Four blocs of problems are examined: economic development, socio-political processes, development of science and education and technological advancement, regional differentiation.

Four Central European countries (called also the 'Visegrad Group') occupy an area of **533,600 sq km and have the population of 64.2 million**, thus being a great population and economic potential on the European scale. Until 2005 the number of population will grow by 2.3 million, out of which almost 2 million will be located in Poland only. Hungary will lose population (decrement of almost 90 thousand). The inhabitants of Central Europe will become older. In three countries: Czech and Slovak Republics and Poland the after-working age group will grow by 8-12% (the slowest growth in Poland, the fastest in the Czech Republic) and only in Hungary this age group will decrease in number by over 15%. In Poland and Slovakia the population in the working age will grow by some 10%, thus creating additional tension to the unbalanced labour market.

### International setting for the Central European countries

The external factors represent an important constraint for the development of the Central European Countries until 2005. The Central European countries — as countries with a relatively small economic potential — will have to assume more passive than active role in shaping their economic and political relations with the outside world.

Prolonged recession and increasing trends of protection in international trade might make the situation of Central European countries more difficult. The trade restrictions practised by the EU give grounds to suppose that some EU countries are in fact opposed to a full integration of Central and Eastern European countries since they are afraid of their competition in the particularly sensitive segments of the market.

However, the **scenario presented herein assumes that Central European countries will become members of the Union before the year 2005**. But it should be made clear that the fulfilment of this assumption is not only dependent on the Visegrad group. The relations with the immediate neighbours of the four Central European countries should be considered as an important factor of their future development. In general, these relations are good, though some tensions might emerge in the future. The stability of political and economic situation in the post-soviet republics, and in Russia in particular, will be no doubt of crucial importance for the Central European countries.

Mutual relations of the four Central European countries are good, except for some tension between Hungary and Slovakia (due to the dispute over ecological and frontier problems). **The tightening of mutual cooperation gives each country better chances of its integration with the European Union and closer cooperation with NATO.**

## Economic development

The economic scenario was based on a formalised model. The basic features of this scenario are presented in the table on the next page.

The economic scenarios for all Central European countries, are strongly growth-oriented. Investment effort and replacement of old and obsolete fixed assets of low technical level by new equipment are the basic assumptions of the scenarios. The possibility of high growth rates in the long run without an appropriate level of investment were rejected. A high efficiency of the investment process seems to be indispensable if the program is to be feasible.

The scenarios assume slower growth of consumption than of the GDP. Fixed capital formation will note the highest rates of growth. Public consumption is assumed to grow in a slower pace.

The Czech Republic will demonstrate the slowest, but the most balanced path of growth. The budget deficit will be the lowest there (2.5% of GDP), as well as inflation rate (6.0) and the burden of foreign debt. Hungary, and especially Poland, will demonstrate more rapid, but also more unbalanced pattern of growth.

**Economic development, 1992-2005**

<i>categories</i>	<i>Czech Republic</i>	<i>Hungary</i>	<i>Poland</i>	<i>Slovak Republic</i>
GDP/inhabitant, 2005 (PPP, USD of 1992)	9463	8809	8510	8505
2005/1992 GDP rate of growth, yearly average	2.5	3.4	4.5	4.1
2005/1992 personal consumption rate of growth, yearly average	2.4	3.0	4.4	3.7
2005/1992 capital formation rate of growth, yearly average	3.2	6.5	8.7	4.0
share of gross capital formation in GDP, 2005	31.7	9.8	32.2	27.6
net foreign investment as% of gross capital formation, 2005	6.4	9.0	9.3	13.3
share of:				
— manufacturing	25.6	22.5	27.5	24.2
— agriculture & forestry	5.4	10.5	18.2	8.0
— services	62.5	59.0	47.8	59.0
in total employment, 2005				
% share of private sector in GDP, 2005	86.0	-	87.0	80.0
inflation rate, 2005	6.0	7.5	6.8	8.0
net foreign debt as:				
— % of GDP	6.6	21.1	10.3	16.8
— % of exports	32.2	57.7	77.0	60.0
debt service as% of exports, 2005	3.0	5.2	6.9	5.1
budget deficit as% of GDP, 2005	2.5	3.0	6.0	0.0
unemployment rate, 2005	5.0	11.7	11.6	8.0

Fast growth will necessarily lead to **structural change**, since it will not occur in all sectors of the Central European economies at the same pace. In effect, the sectoral structures would resemble in 2005 present economic structure of the western, rural lands of Ger-

many. The primary sectors will be the greatest losers and the share of agriculture and forestry in the overall employment structure will fall below 5.5% in the Czech Republic, though in Poland this sector will still keep much greater share of the total employment (18.4%). With the exception of Poland — where this share will be lower by some 10 points — services are likely to accommodate 60% of total employment.

The overall growth of the working population will amount to over 2 million during the period 1992-2005, to reach 26.6 million in 2005. **Unemployment** will still become one of the most difficult problems of the three Central European economies and it appears that this problem would not be solved in the scenario time-horizon, even if a high rate of growth is achieved. In Poland alone the number of unemployed will reach 2.4 million and the overall unemployment in the four countries will approach 3.5 million. In Poland and Hungary the unemployment rate will exceed 11.5% and only in the Czech Republic it is likely to remain on a more civilised level of 5%.

**A reduced access to the EU market may cause an important slowdown of the economic growth. Favourable economic relations with other countries appear to be of crucial importance for the assumed path of development.**

## Socio-political developments

Socio-political change is both the outcome of economic development and a condition for the ambitious growth strategy. Social attitudes toward such milestones of economic reform like privatisation, restructuring, foreign capital, greater self-responsibility and entrepreneurship, meritocratic principles of award, condition the acceptance of the economic strategy. These attitudes are — to a large extent — also shaped by the costs of economic transformation, such as unemployment, polarisation of incomes, cuts in social spendings of the state. These costs will be bore unevenly by different socio-professional strata (approximately half of the population will gain along with economic changes), which will also lead to accelerated changes in social stratification and structure.

The following table summarises the envisaged social structures in Central European countries in 2005 (in brackets: change in percentage points in comparison to 1992).

**Socio-economic social structures, 2005**

<i>Country</i>	<i>Higher professionals</i>	<i>White collar employees</i>	<i>Entrepreneurs</i>	<i>Blue collar workers</i>	<i>Farmers</i>
Czech Republic	10 (+2)	32 (-2)	16 (+8)	37 (-6)	5 (-2)
Hungary	12 (+4)	34 (-4)	12 (+5)	32 (-1)	10 (-4)
Poland	10 (+4)	31 (+4)	9 (+2)	36 (-4)	14 (-6)
Slovakia	12 (+4)	32 (-3)	13 (+8)	38 (-8)	5 (-1)

The socio-economic transformation would have to gain support in the general public. Social attitudes — nowadays predominantly egalitarian and supporting strong influence of the state -to such basic processes as privatisation, market economy and social differentiation will change. It is envisaged that the majority of inhabitants of the four countries will support the general course of reforms and that a shift from the egalitarian-regulatory sentiments inherited mainly from the previous socio-political system will be replaced by market-individualistic attitudes.

The political scene of the Visegrad countries needs refurbishing and modernisation. Some manifestations of these processes have already taken place. It may be envisaged that by the year 2005 in all countries few political parties will dominate the political stage, thus replacing still instable political setting. The trade unions will assume civilized and

democratic forms of social partnership and will refrain from purely political actions (as now happens in Poland). The political elites will become much more professional and the 'civil service' pattern will replace currently overpoliticised mechanisms of public administration.

In all Central European countries religion and church will be still important, though the number of people professing some church and practising will diminish. Religion tolerance will dominate. Public activity of the church will diminish. Poland will traditionally be the country with relatively the strongest role of the Catholic Church in public life, though this role will be much smaller than nowadays.

Along with the process of European integration the pro-European attitudes in all four countries will markedly grow. This will be also reflected in their legal systems, which will become more adequate to the legal regulations of the European Union.

## **Education, science and technology**

Sociological analysis proves that only about half of central European societies have achieved the educational level sufficient for assuming an active role in the transformation processes. Rapid development of general education is therefore one of the conditions for success of economic reforms. The process of long-term adaptation of these countries to the realities of the European Union will be supported by strong pro-educational policies which would create

favourable conditions for the full transformation and rapid development of the system of education in these countries.

This is especially important in the situation of dramatic decrease of outlays for science and R&D in all four countries brought by the first stage of transformation, which have fallen below any rational level (within the range from 0.6% of GDP in Poland to 2% in the Czech Republic, 1992). These shares are to reach 3-4% of GDP in 2005, which would enable to restore the scientific potential.

In the perspective of 2005 the science policy in each of the Central European countries will make a strategic choice between organic (i.e. equally supporting all basic disciplines) and polarised (selective) approaches. A rational philosophy in Central Europe will support the polarised approaches. For example, in Hungary the following set of disciplines is regarded as the most promising: mathematics, physics (semiconductors, certain areas of nuclear physics and cosmology); marketable research in pharmaceuticals, agribusiness and medical industry (from molecular biology to biotechnology). This is a clear example of polarised model.

The technological advancement of the Central European economies conditions their competitiveness on the world markets. Scientific development of the most promising disciplines of science should in this way support the development of the most effective, export-oriented branches of industry and services. In this light **free access to technologies is a particularly important issue for the Central European countries. It is a precondition of successful transformation and a fundamental element of a long-term economic growth.**

In the scenarios it is assumed the lion's share of the modern technological and organisational know-how will be supplied by imports (mainly from the countries of the European

Union). No results of the domestic R&D important from the macroeconomic point of view may be expected before the year 2000. Problems of an effective use of the available labour factor, optimal choice of technology and reduction of unemployment will become crucial issues in the social and economic policy. Economic policy inducing a technological change should take into account contradictory effects of the choice of the type of technology.

On the one hand it is extremely important that the countries follow the mainstream of technological development. Imports of new technologies should allow the inflow of up-to-date technological know-how, leading to an improvement of the efficiency of the economy through the increasing productivity of labour and capital. Only under such conditions the competitive position of the Central European countries may be maintained or even improved.

'Transfer sciences' play an essential role in providing an interface between the world of 'pure science' and industry. This interface was historically a weak link in the system of science in Central Europe — and especially in Poland. The situation in this field in Bohemia and Hungary is much better at least in some dimensions. The transfer sciences will have strong priorities for growth in the Central European countries.

In the conditions of limited R&D potential, the Central European countries have to search for their special market opportunities in only few industries. The most promising chances are open to the highly specialised products in short series at high unit prices, where the competition of big corporations is not very sensible. This applies to some kinds of computer equipment of ASIC type, the 'semi' or 'full-custom' integrated systems, robots for specific branches of industry, specialised chemistry products, mainly electronic chemicals. The above products are counted among those of the highest profitability ('high value added products'), which would improve the economic structure of the whole Central European industry.

The development of **education** in the broad sense (going far beyond the school system alone) is an underlying assumption for raising the receptivity of enterprises to new techniques and, by the same, for modernisation of economic and social life. Since the technological retardation of Central Europe is the most sensible, in the sphere of technical knowledge and innovative attitudes, development of universities — as educational and scientific centres — should be of the highest priority.

One may expect a radical increase in the number of university students, to the level of some 200 students per 10,000 inhabitants.

The organisational changes will allow the system of education in Central Europe to prepare the consecutive generations to live and work in the framework of highly competitive European and global societies. In this effort the self reliance option will be the main choice. In this process the multidimensional system of permanent education defined as a pattern of continuous renewal of knowledge and ability of all interested members of the labour force and the society at large will grow in importance, at some expense of the conventional system of education, starting from the kindergarten and concluding as the university. In such a way, the education system in the Central European countries will evolve towards Western patterns of the education system.

## **The regional dimension**

The polarisation effects, so visible in recent changes of economic and social structures, also manifest themselves in Central European space. The East-West division becomes more and more visible on the economic map of Central Europe.



All four countries have their unquestionable **leaders of transformation**, which have already demonstrated the highest potential for restructuring and great capability for adaptation to new conditions. The core of Central European transformation: **'the Central European boomerang'** is delimited by the following centres: Gdańsk-Poznań-Wrocław-Prague-Brno-Bratislava/Vienna-Budapest. Two southern parts of this 'boomerang' have real chances to become the truly European centres: the region of Prague and the triangle composed of Vienna-Bratislava-Budapest.

There are two major **old industrial regions**, **Postbus : Upper Silesia and Łódź**. **Upper Silesia will be the region in sharp recession for the coming years. The scale of restructuring problems of this region far exceeds the potential of the two interested countries: Poland and the Czech Republic.**

**Central Europe has its very clearly marked periphery.** It extends from the north-eastern corner of Poland to the south-eastern part of Hungary, with extension westwards to the eastern part of the Slovak-Hungarian border. These areas can not expect to receive inducement for transformation and recovery from their neighbours on the other side of the border (Lithuania, Byelorussia, Ukraine).

The regions which are the **European reservoirs of unspoiled environment** (North-East Poland and the entire border region of Poland and Slovakia) do create very promising chances for becoming the basins for tourist services and recreation on the continental scale. The shore of the Baltic Sea might also have chances for attracting tourists.

\* \* \*

Research conducted within the project 'East-Central Europe 2000' seems to have three important features. Firstly, it dealt with the **strategic choices** which face the four countries. Secondly, it touched upon **all major dimensions**: economy, socio-political developments, education, science and technology — all supplemented by a regional perspective. Finally, it adopted a **common, comparative framework**. The above three features created good chances for final success of research and made this project a unique intellectual adventure — adventure which could and should have substantial impact on policies formulated in these countries and also in major international organisations.

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## INTRODUCTION

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In order to pass through the process of accelerated and all-embracing change one should have a possibly precise outlook into the future. This outlook should also be flavoured with some optimism, since a certain dose of optimism is even necessary for mobilisation and courage, so much needed now in this part of the world under transition.

Such an outlook is being now provided in the Final Report of the international research project '**EASTERN AND CENTRAL EUROPE 2000**', financed by the DG XII of the Commission of the European Union, managed by the Institute for Human Sciences in Vienna (IHS) and coordinated by the European Institute for Regional and Local Development of the University of Warsaw (EUROREG). The project is a part of the wider programme conducted by the IHS, called 'Transformation of Higher Education Systems in Central and Eastern Europe'.

It was originally assumed that the studies would be devoted to the entire European post-communist bloc. By the decision of the Commission the scope of the project was limited to the four Central European countries — the so-called 'Visegrad group': **the Czech Republic, Hungary, Poland and Slovakia**. The year 2005 was adopted as the time-horizon for the prospective outlook into the transformation processes in these four countries.

Four multidisciplinary national teams since mid-1992 have conducted comprehensive research on the following topics:

1. *The 'methodology' of transition.*
2. *The external conditions and international setting.*
3. *Economic development.*
4. *Socio-political sphere.*
5. *Education, science and technology.*
6. *The regional and environmental dimension.*

The studies were based on thorough examination of the existing **base** for transformation (a kind of a 'photography' of the starting point of 1989) and the **dynamics of changes** which occurred during the first three years after the collapse of the communist system (using the same metaphor — a short 'film' covering 1989-1992/93). Several **assumptions** were made, and the full membership of the Central European countries in the European Union by the year 2005 was one of the most important of them. Moreover, it was assumed that the global recession will be overcome within next few years and that no major conflict will emerge in the Eastern part of the continent.

These two premises — identification of the base for transformation and assumptions on external conditions for it — have led to formulation of the **most probable developments** in the four countries during the next 10-15 years.

The programme has been implemented within 18 months — from September 1992 to January 1994. In this period of time an international team was composed, management, coordination and communication procedures established, research performed in four countries — as well as few general studies done outside them, two interim reports written and discussed during three seminars and this final report prepared.

There were no attempts to enforce one theoretical approach and one system of values for all studies undertaken, though some methodological rigidity had to be introduced in order to accomplish comparability of data. In this way the coordination was — perhaps — a bit less efficient, but the programme participants received great freedom in their research, within the boundaries commonly accepted by the entire team.

The critical reader of this report will presumably notice all its shortcomings and deficiencies. However, its holistic and comparative approach should not be disregarded. More synthetic conclusions on these aspects of our work are provided in the final chapter of the report.

This report was 'physically' written by the small team indicated on its covering page. However, in fact, this report should be considered as a final result of a collective work, as a top of a big pyramid to which several eminent scholars from all four countries contributed. Each national team, within common methodological framework, provided its own outlook into the future of its country. The whole work would be also unmanageable without the coordination effort of the national coordinators. The Annex provides a full register of all papers and background studies prepared. In this place let us only present the composition of the coordinating team of the project:

General Coordination (F4): Prof. Grzegorz Gorzelak, EUROREG, Warszawa.  
Supervising Coordination: Prof. Antoni Kukliński, EUROREG, Warszawa.  
National Coordination: The Czech Republic: Dr. Michal Illner, Czech Academy of Sciences, Prague.  
Hungary: Prof. Éva Ehrlich, Dr. Peter Tamasi, Hungarian Academy of Sciences, Budapest.  
Poland: Prof. Bohdan Jalowiecki, EUROREG, Warszawa.  
Slovakia: Dr. Lubomir Faltan, Slovak Academy of Sciences, Bratislava.

The Annex lists also all tables and figures presented in the report.

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## **Chapter 1.**

# **INTERNATIONAL SETTING OF THE CENTRAL EUROPEAN COUNTRIES**

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Four Central European countries (called also the 'Visegrad Group') occupy an area of 533,600 sq km and have the population of 64.2 million, thus being a great population and economic potential on the European scale.

In the north they are bounded by the Baltic Sea, Russia (Kaliningrad enclave) and Lithuania. In the east their neighbours are Byelorussia, Ukraine and Rumania; in the south — Croatia, and in the west Austria and Germany.

### **1.1. General problems**

The external factors represent an important constraint for the development of the Central European Countries until 2005. It is due to several reasons, the trade exchange and the inflow of foreign capital being the most important economic ones. The mutual interplay of economic and political conditions make the problem of the external factors even more complex. Moreover, Poland as a country with a relatively small economic potential will have to assume more passive than active role in shaping her economic and political relations with the outside world.

The situation in the years 1993-1995 will be determined by a general situation in the world economy. The recession which is experienced by the most developed countries leads to the increasing trends of protection of their markets in order to maintain employment threatened in the particular countries and economic blocs (EU, EFTA, NAFTA). Despite declarations supporting 'free trade', the members of the European Union, as well as the United States, in a more or less camouflaged manner, are undertaking various protectionist measures. This limits the possibilities of the trade exchange of Central European countries with the highly developed countries. The world recession is also a constraint for the level of foreign investment in Central European countries.

Since forecasts for the world economy are not too advantageous at present, the situation is not likely to improve in the coming years.

### **1.2. Integration with the European Union**

Despite numerous declarations of support for Central European countries in their attempts at integration which the European Union (EU), the hitherto practice has proved to be different. Especially, the trade restrictions practised by the EU give grounds to suppose that some EU countries are in fact opposed to a full integration of Central and Eastern European countries since they are afraid of their competition in the particularly sensitive segments of the market: agricultural and food products, textiles and steel products. Poland's situation is specially disadvantageous because it has the greatest export potentialities just in these sectors of production.

The process of integration of the Central European countries with the European Union may also be subject to constraints stemming from the slowdown of the integration process within the Union itself. The treaty of Maastricht is incomplete and does not envisage a full integration as previously planned. It also provides that there will be numerous exceptions and concessions, in the first place to Great Britain and Denmark, which, however, may be extended to include all countries. The common currency system has collapsed, though perhaps only temporarily. Besides, the forthcoming enlargement of the

community by admitting new members (Austria, Sweden and Norway) may delay the next step towards broader integration.

However, the scenario presented herein assumes that Central European countries will become members of the Union before the year 2005. But it should be made clear that the fulfilment of this assumption is not only dependent on the Visegrad group.

A separate problem is the integration of Central European countries with NATO, which aspire to become members of the Atlantic Pact since it is an important guarantee of their security. The stance of Western European countries is ambiguous. Before the dissolution of the Russian parliament and the overtaking — with the aid of the army — of the entire power in this country by Boris Yeltsin, some representatives of NATO member countries (especially Germany) made declarations encouraging the admittance of the Visegrad group to this organisation. After the developments in Moscow in October 1993, the West changed its standpoint considerably. Western countries not only ceased to make promising declarations but — on the contrary — stated clearly that Central European countries may not expect to become members of NATO in the foreseeable future. Instead, Central European countries were offered bilateral cooperation agreements with NATO. This change of attitude was certainly due to the fact that the West did not want to provoke Russia in which military circles are definitely opposed to the enlargement of the North Atlantic Treaty.

### **1.3. The neighbours**

**Germany.** This is the western neighbour of the Czech Republic and of Poland, which, irrespective of the European Union, has traditionally focused its interest on Poland's western and northern territories (Gdańsk, former East Prussia) as well as on the Czech Sudetian mountains. The north-western territory of Poland is a direct hinterland for Berlin, situated 70 km from the state frontier. Germany's interest is historical and symbolic, since today's Polish western and northern territories had formed part of the Prussian State for centuries, and later on of the German Reich. The Sudetian mountains were inhabited prior to the Second World War by a sizable German minority, which was subsequently displaced from this land. A large number of Germans come from the Polish and Czech western territories, and some of them have never renounced them. Without overestimating the tendency to revision of frontiers (by peaceful means, of course) it cannot be excluded that at some time retaliatory moods may appear, which will influence the policy of the German government regardless of its goodwill. This becomes more likely in view of the growing nationalism and neo-nazism in the Federal Republic of Germany.

Germany's interest in the Czech Republic and Poland is also of economic character, because Poland, and especially her western territories are a direct base of supplies of eastern lands of the FRG. After the completion of integration of the former GDR with West German economy, which is likely to happen in ten years, the scale of German investment in Poland and in the Czech Republic will probably increase considerably, which may stimulate the economies of these countries. It is not unlikely that the process of bringing closer Poland and the Czech Republic to the European Union will be done through preliminary integration with the German economy.

An important aspect of the Polish-German relations is the so-called 'German minority' concentrated in two southern voivodships: Opole and Katowice. Actually, what is at stake is not so much the German minority in the strict sense of the word, because the number of native Germans in Poland does not exceed several thousand, as the indigenous population inhabiting this region for centuries. Due to long-lasting and complex social, political and economic processes, its national identity is not sure — once it is Polish and some other time it is German. At present, the majority of this ethnic group, no doubt having

Slav roots, declares itself a German minority, demanding special status, schools with German as a language of instruction, as well as bilingual names of the localities and streets. Worthy of mention are also various conceptions regarding the establishment of 'Great Silesia', autonomous in relation to Poland and the Czech Republic and confederated with Germany.

This situation may give rise to a conflict, which may begin at any time and be used both by German and Polish nationalists. On the other hand, the presence of this ethnic group may be advantageous for the region by channelling German assistance and capital outlays in this area.

The Czech Republic faces serious problems with the Sudeten Germans who demand restitution of the nationalised property and the possibility of return to their former territories.

Relationships between Germany and Czech Republic, not always easy in the past, will among the most important external factor influencing perspectives of integration of the Czech Republic into the West European structures. Implied is the still not-forgotten heritage of World War II. The «German Question» and the World War II repercussion still are a tangible issue in the Czech Republic which can be easily misused as political ammunition by both the left and the right extremist.

**Austria.** It borders directly on Hungary, Slovakia and the Czech Republic, but its indirect influences also reach Poland, at least the land of the former Galicia which — prior to the First World War — was part of the monarchy of Austro-Hungarian. The role of Austria in Central Europe is of special character, stemming mainly from the affiliation of the present-day Visegrad Group to the Habsburgian monarchy.

Austrian influences find expression here and there in the present-day myth of being part of the so-called 'Mitteleuropa', whose significance is rather historical and psychological than factual.

It is specially in Hungary that we can observe the continuously strong presence of different 'Mitteleuropa' concepts among intellectuals and ideological leaders. The supporters of different forms of 'Central European' or 'Danube Valley' integration are still very visible in this country.

In the real sphere, a close geographical neighbourhood of the three large urban centres, i.e. Budapest, Vienna and Bratislava, creates possibilities of the emergence of close economic and cultural ties in this triangle. The new geopolitical situation in Central Europe creates chances not only for Hungary and Slovakia but also for Austria, whose capital city — Vienna — was deprived of a large hinterland after the fall of the Habsburgian monarchy in 1918. **At present, under utterly new circumstances and on new principles there is a chance for the rise of a new European development pole in the «Danube triangle».**

**The Baltic countries.** The cooperation of the Baltic countries has not taken a concrete shape so far, not to mention the agreements on protection of the Baltic sea and the fishing quotas. The exchange between the Visegrad Group and the Scandinavian countries and Baltic Republics is comparatively low. Besides, these countries cannot expect e.g. Swedish investment, even though Sweden has more investment abroad than in its own territory.

The Scandinavian countries, despite their powerful economic potential, have also been experiencing economic difficulties and are not interested in closer cooperation either with their nearest neighbour, i.e. Poland, and even less with more distant Central European countries. The Baltic republics are too weak to be partners for Central

Europe. As regards Poland, its old conflicts with Lithuania may destabilise the situation in the region, the more so as the increasing nationalist tendencies may be observed on both sides.

The Czechs may also be interested in closer Baltic cooperation because Szczecin is the nearest sea port for them.

**Russia.** The relations between Central Europe and Russia are encumbered with unequal rights under the so-called 'socialist camp', which was shaped after 1945 as a result of the Yalta Treaty. Among specially dramatic moments in this period were the ruthless suppression of the Hungarian uprising of 1956 by the red army, and occupation of Czechoslovakia by the Soviet troops in 1968. The Polish-Russian relations are additionally affected by a more distant past. But history is unlikely to determine the future. Despite some reluctance, there is also tradition of economic cooperation and cultural ties between Central European countries and Russia.

Despite a considerable fall of the trade turnover with Russia, it still remains an important trade partner for the Visegrad Group, and first and foremost a supplier of such strategic raw materials as oil and gas. The collapse of Russian economy, which is much deeper than in Central European countries, caused a decrease of imports from the former CMEA countries. The fall of the empire also led to declining orders for the weapons, which was exported to the former Soviet Union by Czechoslovakia and Poland in particular. The absence of the market infrastructure, galloping inflation, as well as political and social destabilisation, are also barriers to business relations with Russia. These may certainly be transitional difficulties, but it is hard to say how long they will last and what will be the result.

Various scenarios are possible assuming that the comeback to a doctrinal communism is unlikely to happen.

- 1. The scenario of dictatorship based on the army and a military and industrial complex.** It would mean stabilisation of political situation, making a certain order in the economy according to the etatist model, coupled with a certain margin of private initiative, as well as an attempt at restoration of the lost imperial status, first within the frontiers of 1939. The society will be mobilised to back up the achievement of these purposes by arousing the nationalist atmosphere of the great power. On the world scale, this solution will cause the increase of tension between Russia and the United States and Western Europe.
- 2. The democratic scenario based on the election mechanism coupled with a strong semi-authoritarian presidential government (the Yeltsin model).** In this scenario there will be a progress in building up the market infrastructure, slow privatisation of the state-owned sector, as well as attempts to establish the mutual relations with countries forming part of the 'Commonwealth of Independent Nations'. Democratisation process, especially the construction of the market-based economy will be slow but possibilities of exports to the Russian market will be gradually expanded. If this scenario of a profound restructuring of the Russian society and economy is realised, Russia's interests will focus on its domestic affairs for several decades to come.
- 3. The scenario of prolonged chaos,** under the conditions of ruthless struggle for power of the various political forces, is most dangerous since it is not certain who will come to control the codes for launching nuclear weapons. This scenario may lead to a progressing economic fall, as well as social protests and unrest, which will finally cause that power will be taken by those political forces which promise to restore order. Obviously this leads to realisation of scenario one, but in the worse economic situation than it is today. Under these circumstances, the new authorities by pursuing

provocative policy, may seek — in the eyes of their society — spectacular successes in the international arena.

The developments in Moscow in October, 1993, did not make the situation clear and the two first variants are still feasible, but the probability of the 'scenario of chaos' has decreased. The further developments depend on consolidation of quite weak democratic forces, results of the elections and the stance of the army, upon whose approval the possibility of realisation of the democratic scenario depends. The West seems to support the success of this variant by lending a univocal support to Yeltsin. Certainly, for Europe and for the World the democratic scenario is the most advantageous one, though the probability of its realisation should be estimated with great caution.

**Byelorussia.** The political image of Byelorussia has not been shaped well so far. Lack of tradition of its own statehood, close relations with Russia — not only economic and military, but also cultural and psychological — cause that the country will be in the foreseeable future strongly dependent on Russia and it may pursue only apparently sovereign policy. Domestic situation in Byelorussia will undoubtedly be shaped by Russia's situation, and the independence of Byelorussia may only be accomplished in the event of realisation of the democratic scenario.

Polish-Byelorussian relations are quite correct, and the Byelorussian minority in Poland and Polish in Byelorussia do not pose any problem.

Byelorussia is a poor country without raw materials, having limited economic potentialities and it is not among Poland's major economic partners.

**Ukraine.** The situation is different in the case of Ukraine bordering on Poland, Slovakia and Hungary. Ukraine is almost as large as all the Central European countries and it continues to be a 'nuclear power'. Like the Polish-Russian relations, the relations between Poland and Ukraine also had negative patterns in the past. The relations between Ukraine and Poland, Slovakia and Hungary are quite good, although the Ukrainian nationalists sometimes raise claims to make a correction of the frontiers. However, they do not seem likely to affect the inter-state relations.

Ukraine will probably be less susceptible than Byelorussia to Russia's integration measures, though its economic dependence on Russian raw materials supplies and on this market will not allow Ukraine to carry out entirely sovereign policy. Like in Russia, economic situation in this country is bad, and the political one uncertain.

In the event of realisation of the democratic scenario in Russia, Ukraine's independence will strengthen. But should the first scenario materialise, it would be come doubtful.

This survey of the relations between Central European countries and their eastern neighbours leads to the conclusion that these relations are extremely uncertain. In view of the complex character of these relations, foreign policies of Hungary, the Czech Republic, Poland and Slovakia need much attention and flexibility. It seems that these countries should also conduct consultations all the time on this issue and elaborate a common standpoint. Uncertain political existence of Byelorussia and Ukraine as independent states should, no doubt, make Central European countries focus their attention on Russia. The situation is certainly very delicate because they should be careful not to worsen the relations with their nearest neighbours, since such deterioration might cause much damage, especially to the interests of Poland, Slovakia and Hungary, which directly border on Ukraine, and Poland additionally on Byelorussia.

The prospects for economic cooperation and exports of the Visegrad Group to eastern markets will gradually improve unless the scenario of the prolonged chaos is realised. Central Europe is also a 'bridge' between Western Europe and Russia as well as a vast



part of the Asian continent. This geographical situation creates chances for Central European countries to draw economic profits from transit movement provided that they rebuild and modernise the railway and road network.

**Rumania.** In connection with a very unstable situation in the area of the former Yugoslavia, the importance of Rumania as a transit country to Turkey and Greece may be likely to increase. But the main barrier is the small traffic capacity and quality of existing road connections and frontier crossing points, especially between Rumania and Bulgaria. Rumania has also water connection (the Danube) for Hungary and Slovakia with the Black Sea. This might result in the need for closer cooperation, between Hungary and Rumania in particular.

However, this may be impeded by a long-standing conflict over Transylvania which was taken from Hungary and granted to Rumania by the Treaty of Versailles. In this area there also lives a numerous native Hungarian minority, which during the communist regime was discriminated. At present, too, the situation of this minority leaves much to be desired. All this causes that Hungaro-Romanian relations are rather tense, which adversely affects possibilities for cooperation between the two countries.

**Croatia, Serbia, Slovenia.** On the southern border of the Visegrad group the situation is strained and complicated. Disintegration of Yugoslavia and ethnic fighting, particularly in Voivodina, threaten Hungary, the more so as quite a numerous Hungarian minority inhabits the area. The Croatian problem is far from being solved, and the military conflict between the Croats and Serbs, backed up by Belgrade, is likely to destabilise the situation in the areas adjacent to the Hungarian border for a long time to come. Under the permanent conflict the economic cooperation with southern neighbours of the Visegrad group will face great difficulties, deepened further by the UN embargo on trade with Serbia.

The native Hungarian minorities in many countries of Eastern and Central Europe are a major concern, and will remain in the future — maybe in modified forms — an important element of the official Hungarian foreign policies. This minority is also a major factor in the Balkan policy of Hungary, e.g. towards Serbia. For example, one-sided support of Croatia could endanger the North-Serbian Hungarian minority as a Fifth Column of the enemy.

The Adriatic Sea region is of great importance for such countries as Slovakia and Hungary, since the access to the Adriatic ports permits an opening to the Mediterranean countries. Slovakia has lately signed an agreement with Slovenia upon the access to one of its ports.

#### **1.4. Intra-regional relations of the Visegrad Group**

The Central European countries have similar history; they were not independent states for a longer or shorter period, they are also connected by cultural ties and share a common past in the so-called 'socialist camp'. It is therefore natural that they established economic and political cooperation regulated by the treaty signed at Visegrad. However, the prospects for close cooperation in this quadrangle are less promising than it might stem from the initial declarations.

Firstly, these countries have very unequal economic potentials. The Czech Republic and Hungary are economically somewhat stronger as compared to Poland and Slovakia. Poland, on the other hand, is larger than all the remaining three countries taken together. This may cause that smaller countries will be afraid of the domination of the largest partner.

Secondly, there is a widespread belief, especially of the Czechs and Hungarians that the economic links should first and foremost be tightened with the West, which is regarded

as a priority by the leaders of these countries. This conviction may lead — and such examples have already been observed — to emergence of direct competition among Central European countries over political contacts with the European Union; it is not unlikely that this competition may slow down the integration with the Union of all four countries as a group and of each individual country.

Thirdly, the structure of Central European economies is similar, which is the result of labour division in the former CMEA and of the imperial interests of the former USSR, that did not let the economies of the satellite states be too complementary towards one another.

Generally, the intra-regional relations are good, except for some tension between Hungary and Slovakia. There is a dispute over ecological and frontier problems and over a continuation, if any, of the construction of the water dam on the Danube at Gabčíkovo-Nagymaros, as well as over the problem of indemnity, should the construction be discontinued. The issue is currently dealt with by the International Court of Justice in Hague. There is also some tension over the situation of a numerous Hungarian minority in Slovakia. At the same time, however, the Slovak-Hungarian border zone has been an area of intensive economic co-operation. At present, there are some 500 joint venture Slovak-Hungarian companies.

The intra-regional cooperation of the Visegrad group, despite certain difficulties mentioned above, has, however, chances of success. The tightening of this cooperation gives each country better chances of its integration with the European Union and closer cooperation with NATO, because the ability of establishing mutual cooperation may be an extra argument in their striving to achieve integration under the European Union. On the contrary, mutual competition for 'Europe's favour' and the individual race for integration with European institutions diminish these chances. On the other hand, however, conceptions are put forward to create other configurations in the area of Central Europe.



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## Chapter 2.

### SCENARIO OF ECONOMIC DEVELOPMENT UNTIL 2005

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#### Introduction

This chapter presents the summary survey of scenarios of economic development until 2005 of the so-called Central European countries (the Czech Republic, Hungary, Poland, the Slovak Republic).

In this summary no attempt was undertaken to produce independent projections of macroeconomic developments. The survey is based on the projections executed by the national teams. Since the scope of this paper is restricted to an overview only, the Readers are advised to refer also to the countries' papers where a more detailed discussion of assumptions and results can be found.

In an elaboration of economic scenarios for the Central European countries (CEC) the challenges of the coming years had to be taken under consideration. Those challenges relate to introduction of market mechanism, new for all Central and Eastern European economies, and to the loss of traditional economic security. Possibility of a successful economic development of the CEC depends on to what extent the countries will be able to respond to these challenges.

Several security preconditions should be mentioned.

1. **CEC have lost their previous stability anchor.** This anchor was created by large COM-ECON markets, sometimes direct economic support, cheap raw material sources and strong structural linkages. All these elements had obvious impact on production, productivity, R + D capacities, competitiveness and employment. In the years to come **a new anchor has to be found** in order to create medium-term stability during the painful and risky process of transformation. (The Association Agreement with the EU has only partly filled this vacuum).
2. **The abrupt trade reorientation requires open and predictable markets.** Free access to dominant markets has always been a precondition for the fast economic growth in small, open economies. Gaining access to large markets is one of the main reasons for new regionalism.
3. **Free access to technologies is a particularly important issue for countries at the medium level of development, and with good chances to join the club of the developed economies.** There is no doubt that the limited access to the Western technology has substantially contributed to a decline of the communist economic and social system in the eighties. The free access to the modern technology is a precondition of successful transformation and a fundamental element of a long-term economic growth.
4. **Economic security of the CEC largely depends on the stable and safe supply of the energy, raw materials and other vital inputs for consumption and production.** Most of the raw materials may be purchased on the world market (some countries did it long before the collapse of the COMECON). Nevertheless, the level of dependence on energy deliveries from the area of the former USSR remains strong in spite of the economic and political transformation: the energy infrastructure (oil and gas pipelines) cannot be replaced overnight. Even a gradual establishment of alternative energy networks needs time and a huge investment.
5. **The successful adjustment of the CEC economies needs a predictable medium-term supporting financial framework.** The transforming economies need a free access to

external financing, appropriate debt management policies, an inflow of private capital and a direct assistance. All these elements should secure a positive net inflow of resources into the reforming economies (at least in the next 5-8 years).

6. **Social and political security principle implies a permanent monitoring of the social costs of economic transformation** (living standard, unemployment, income polarisation).

In some cases, the Central European countries security preconditions may directly influence a situation of the EU economies. Free access to Western markets, combined with low wages and relatively skilled labour in CEC, can be seen as a major threat for interest of Western European producers. It should be, however, stressed that the long-term impact may be overwhelmingly positive for both sides. Both the EC and CEC are also interested in reducing the social risks of the transition: any social or political disturbance in Central and Eastern Europe may lead to massive migration to the neighbour European countries. Both for the mutual interests and for the efficient support to the systemic transformation, a broad cooperation, including medium-term assistance packages is urgently needed.

## 2.1. The Central European countries vis-à-vis the European Union

Some of these problems have already been discussed in chapter 1. Here we come back to them, stressing in more detail the economic aspects of their interrelations. The four Central European countries (CEC) represent a big economic and demographic potential. However, mainly because of unfavourable historical conditions, the actual level of development is much lower than in the case of the European Union countries.

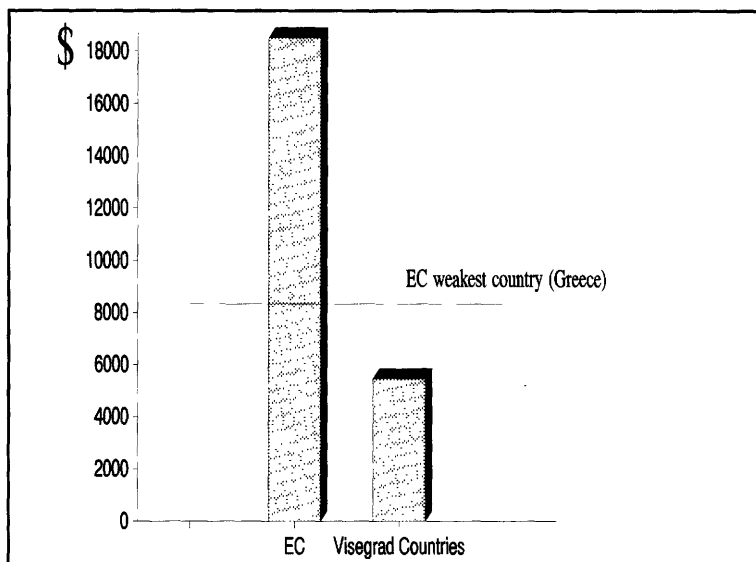
The table presented below summarizes the general geographic, demographic and economic characteristics as compared to the EC.

**Table 1. The Central European countries vis-à-vis the European Community in 1991**

Categories	European Community	Central European countries	
			Index (EC = 100)
Area (thous.square km)	2,371	534	22.5
Population (mln)	328.7	64.3	19.6
Age structure (in%):			
— below 19 years old	25.7	31.3	
— between 19 and 64	60.0	57.5	
— over 64 years old	14.3	11.1	
GDP (PPP, \$ bln)	6,088	352	5.8
GDP per capita in \$			
— according to PPP	18,518	5,468	29.5
— to exchange rates		2,410	13.0

The Central European countries represent about 1/5 of the EU area and population. The population density is similar to this one observed in the EU. The age structure is more favourable than in the EU: the Region is still relatively well developing (in spite of the continuing process of getting older).

The aggregate level of development of the Region measured by the GDP per capita is much lower than the level of the EU and shows a relative backwardness of the Region resulting mainly (but not exclusively) from unfavourable historical and social circumstances of the last half century of the command economy. While measured according to the Purchasing Power Parity (PPP), the total GDP of the CEC accounts only for less than



**Figure 1.** GDP in the Central European countries and the European Union, PPP standards.

6% of the EU GDP. The per capita GDP of the Region represents less than 30% of the EU average. The level is smaller than in the case of any of the EU countries (according to the ICP comparisons, the per capita GDP level reached \$ 8,331 for Greece and \$ 9,938 for Portugal, it means 20% and 45% more respectively than in the richest country of the Region, the Czech Republic). The economic development distance increases while measured by the GDP at current exchange rates (this measure is in our opinion less reliable).

The relatively low GDP level is only one of the problems of the Region. The economic structures also show the backwardness of the Region (see table 2).

**Table 2.** Economic structures of the Central European countries and the EC in 1992

	<i>European Community</i>	<i>Central European countries</i>
Value Added by sectors (in%):		
— agriculture & forestry	5.9	6.9
— industry & construction	30.1	52.9
— services	64.0	40.3
Employment by sectors (in%):		
— agriculture & forestry*)	2.0	24.1
— industry & construction	31.6	35.9
— services	66.4	40.0

\*) The share of employment in agriculture and forestry in the Central European countries may be overestimated due to statistical methods used.

The service sector is particularly underdeveloped in the Region both from the point of view of employment and its contribution to the GDP. The big role of the agriculture may be observed particularly in the case of the employment structure (although a presented share seems to be overestimated, mainly due to a weakness of official statistics).

The transition from planning to the market economy was accompanied by high social costs. Unemployment — a phenomenon that did not exist at all in command economies — was growing rapidly during the last years, reaching the level well above the EU average (although smaller than in the case of some EU countries). Prospects of reducing the unemployment rate are not encouraging, as the Region's economy in 1992 has stagnated (the modest GDP growth was observed only in Poland, when the other countries were still in a recession).

High inflation rates, resulting both from price adjustments after the price control was abolished and from the process of approaching world market prices of the energy and raw materials, are still observed in the Region in spite of restrictive monetary policies applied by the governments. The average Region's CPI inflation rate in 1992 was twice as high as in Greece (EC worst result) and several times higher than the EU average.

The level of inflation shows, that the economies of CEC are still far from the equilibrium level.

The role of the CEC in the world division of labour is relatively small. The share in the world trade reaches around 1% both in exports and imports (EC share is around 40%). This share was continuously shrinking during the years 1980s and 1990s.

The links with the EU have a vital importance for the Central European countries. The exports of the CEC to the EU markets accounted for about 53% of the total CEC's exports, when imports from the EU represented 47% of the total imports.

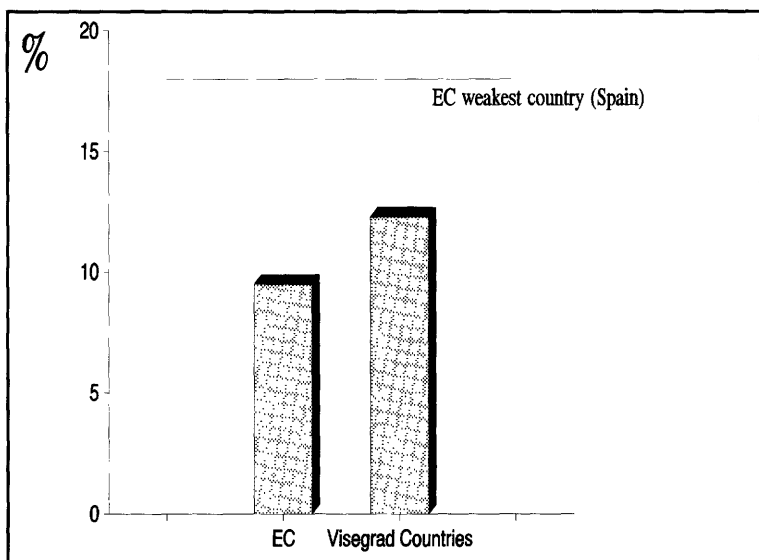


Figure 2. Unemployment rate in the Central European countries and the European Union.

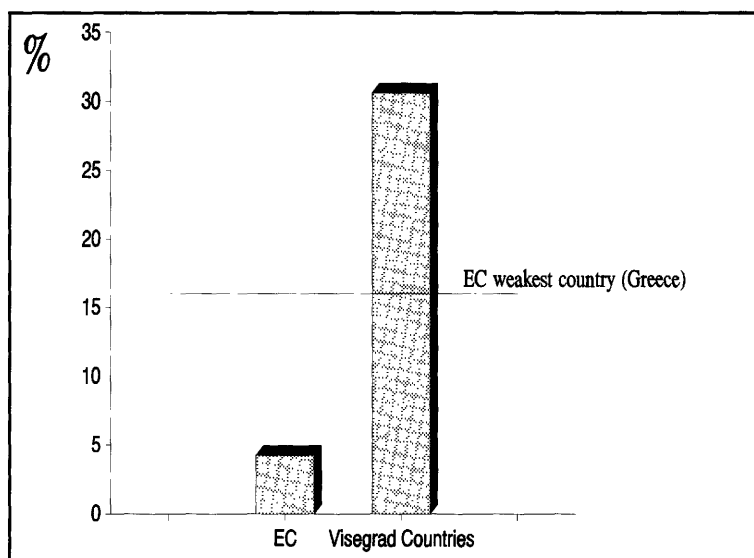


Figure 3. Inflation rate in the Central European countries and the European Union.

For the EU, the region still has a very small meaning as a trading partner. The exports to the CEC represented only 1.3% of the total EU exports, when the share of imports from the region in the total EU imports was even lower (1.2%).

The actual trade links between the CEC and the EU do not correspond to the potential intensity of the cooperation. The Central European countries may represent in the years to come an absorptive market for the EU exports of capital goods and (to a smaller degree) consumption goods, as well as for the capital investment.

## 2.2. The starting point: economic situation in 1992

The economic situation of the Central European countries (CEC) in 1992 vary both from the point of view of long-term problems that are to be solved and short-term macro-economic imbalances. However, there are important similarities in the overall economic situation and in the path of economic reforms that all the countries follow.

At the beginning of the 1990s the countries have precised their economic and social development strategies, leading to establishing of the Western-type, private ownership-based market economies and pluralistic, democratic societies. The general social consensus was worked out, that the scope of the state intervention into the economics should be drastically limited, the majority of production factors should be shifted to the private

sector, the private entrepreneurship should play a decisive role in the development and the market mechanisms should not be disturbed.

However, the specific macroeconomic policies that were introduced to balance the economy and to ease the way to the free market system were chosen differently. Various approaches were chosen, ranging from the Polish 'Big bang' approach (a drastic anti-inflationary program combined with a fast liberalisation of the economy) through less radical and more pragmatic former Czechoslovak program until the most cautious Hungarian macroeconomic policy of a 'soft landing' in capitalism. Such a choice was also due to differences in the starting point for the reforms: Poland, with its hyperinflation and huge macroeconomic imbalances was not able to choose a slower, but less risky Hungarian or Czech way. Quite different situation appeared in the privatisation approach. This time it was Czechoslovakia (and then the Czech and Slovak Republics) that was forced to choose the most radical, but also the most risky 'Big bang' (the voucher privatisation). Poland and Hungary, with their expanding rapidly private sectors and relatively well developing capital markets were able to introduce much more deliberate policies. In Hungary the application of the 'Big Bang' approach would not have been justified, since the transition was prepared in many respects and inflation was held under control.

The problems that all the countries had to face also depended on the starting point situation. However, in spite of initial opinions, a big similarity occurred in the pattern of economic problems. All the CEE economies have suffered important drop in the output level (in the state-owned sector), growing unemployment, a strong inflationary pressure. The collapse of the COMECON trade has led to a dramatic decrease of their exports to the Eastern markets.

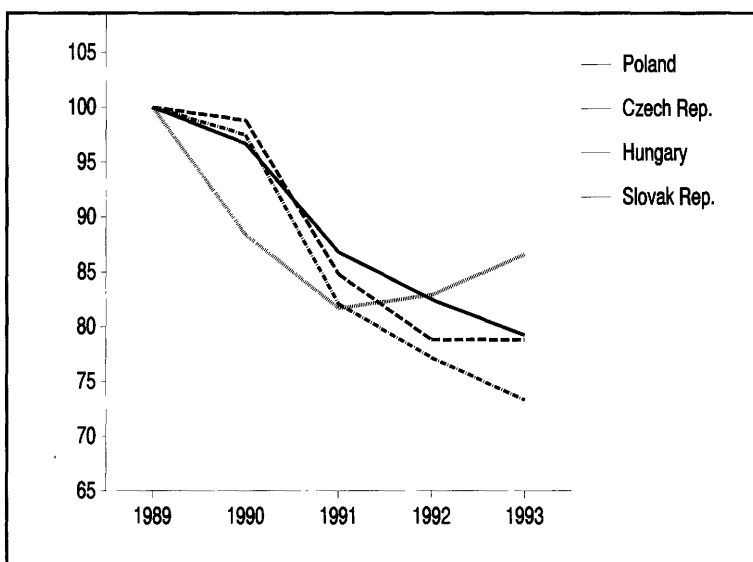


Figure 4. GDP index for Central European countries (1989=100); 1993 estimates)

Different policies were leading to similar phenomena: the economies have reached 'levels near to macroeconomic equilibrium', market mechanisms (based on free prices) started to work, links with the world market (especially with the EU) significantly strengthened, national currencies became in practice convertible (internally), a share of the private sector in the GDP has increased radically. On the second hand, significant differences can be observed in the path of the economic stabilisation and recovery. The graphs show paths of the GDP and inflation

in the four countries. Polish policies occurred to be the most successful in overcoming recession and entering the recovery period (the Polish GDP started to grow from 1992, with the Europe-highest growth rate projected for 1993).

In the same time it is the Czech macroeconomic policy that has resulted in the most efficient reduction of macroeconomic imbalances (the smaller inflation and unemployment rates).

The low unemployment rate, however, may be also explained by a relatively slow advancement of restructuring process, mainly due to a relatively low scale of the private sector



at the beginning of reforms (the privatisation in the Czech and Slovak Republics is speeded up in 1993 thanks to the voucher privatisation scheme).

From the long-term point of view, a lot of similarities may be found in the economies of the four countries. The similar situation can be observed in the case of the supply of production factors. A lion's share of the fixed capital, that was installed in the period of the central planning is out-of-date and needs modernising. In general, the productive equipment does not correspond to the modern technological standards (the situation differs among countries: the Czech Republic has the most modern machinery, when it is Poland and Hungary that are in much worse situation, mainly because

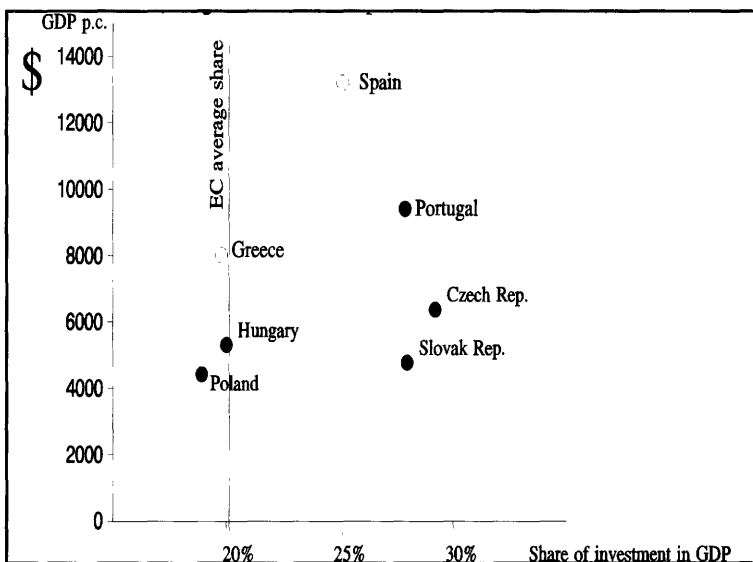


Figure 6. GDP and share of investment in 1992, CEC and countries.

of considerable slowing down of investment in the 1980s). The branch structure of the fixed capital does not correspond to the demand structure (on contrary, this is the Czech and the Slovak Republic that are in a relatively worse situation than Poland and Hungary from this point of view).

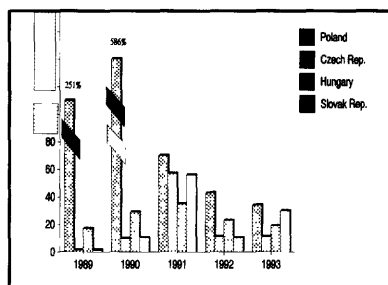


Figure 5. Central European countries, inflation rates, 1989-1992

Figure 6 shows the dynamics of the process of building up the fixed capital in CEC and in the less developed EC member countries in 1992. The share of GDP spent on the fixed capital formation was rather low both in Poland and Hungary, reaching only the EC average (similar to the Greek share). The share was much higher in the Czech and Slovak Republics (around Portugal level, above Spanish level). Nevertheless, taking into account low level of GDP in the Central European countries resulting in high needs for the new fixed capital, the share of investment in GDP is not satisfactory (the share is too low in

Hungary and Poland and in the Czech and Slovak Republics it is mainly the problem of allocation and efficiency).

The Central European countries have at their disposal relatively high supply of a good quality labour. The labour force is well educated and relatively cheap (it does not contradict the phenomenon of scarcity of various skills, mainly of an organisational and managerial character). However, some problems also appear. Table 3 gives some ratios characterising social and economic tensions connected with the labour supply in the four countries.

Table 3. Population and labour: selected characteristics in 1992

	Units	Czech Rep.	Hungary	Poland	Slovak Rep.
Unemployment rate	%	2.6	12.7	13.2	11.5
Activation rate	%	82.0	79.4	81.1	79.3
Dependency ratio	ratio	0.71	0.71	0.66	0.71
Social productivity of labour (GDP/empl.)	\$	14.717	14.005	12.641	13.116

In 1992 the four countries have substantial problems in utilizing the disposable supply of labour. The unemployment rate was high in all the countries but the Czech Republic. High unemployment partly resulted from a relatively high ratio of activation (around 80%). The dependency ratios (informing how many persons below and after the working age fall to one person in working age) are relatively high in all the countries but Poland.

The situation on the labour market is socially difficult to accept. Relatively high open unemployment, together with still existing hidden unemployment are combined with the low social productivity of labour that does not supply sufficient funds for financing the social safety net.

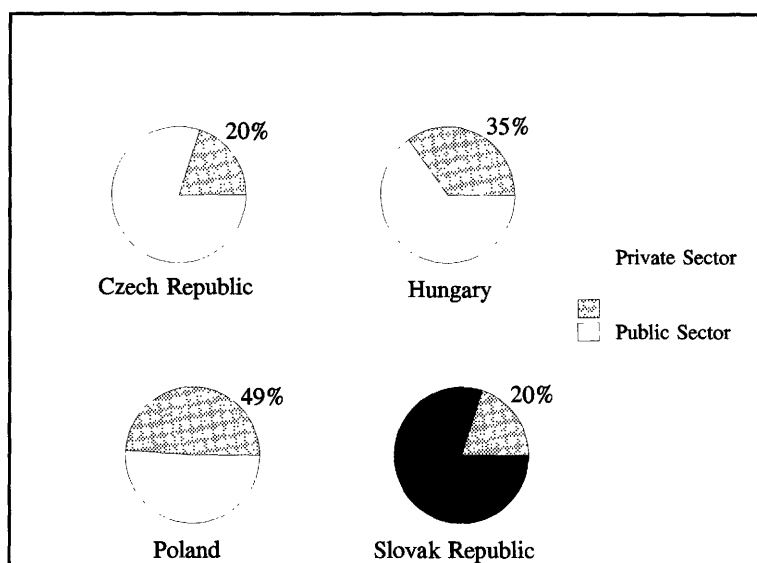


Figure 7. The share of the private sector in GDP, 1992.

Hungarian average shares of the private sector in GDP result mainly from privatising services and traditionally overwhelming share of the private sector in agriculture in Poland).

In all the Central European countries the privatisation proceeded in two steps. The first one was so called small privatisation, based on changing the ownership or establishing new businesses, mainly in trade, construction, light and food-processing industry and other services. This process was particularly successful in Hungary and Poland. The second step is aimed at the privatisation of big state owned firms. This process has not been finished yet in any of the countries. Different paths of privatisation were chosen in the Central European countries (from the general voucher Czech and Slovak schemes to more market based Hungarian approach). One should stress the role of the so called capital privatisation: either through direct sales of firms (mainly to foreign investors; Czech Republic and Hungary are particularly successful in such a type of operations) or through selling shares on the emerging stock exchanges or through public offers (the Warsaw Stock Exchange is particularly fast developing one).

Economic structures of all the Central European countries are another obstacle for efficient use of the production factors. The structures are hindered by relatively high shares of the heavy industry, mining and agriculture. The service sector is relatively underdeveloped (especially market services, as communication, business and financial services). Such a structure forces excessive use of energy and raw materials, reduces the

<sup>1</sup> The share of the private sector presented in the graph does not include the so called hidden economy, which is mainly private. According to very preliminary estimates the share of the hidden economy is relatively high in Poland and Hungary and probably much smaller in the Czech and Slovak Republics.

Efficient use of the production factors is limited by the prevailing share of the slowly adjusting public sector (figure 7).

The privatisation advancement differs in the Central European countries. In 1992 it was only Poland that has approached an average 50% participation of the private sector in GDP<sup>1</sup>. Privatisation was much less advanced in the other countries (see graph). However, the common problem of all the countries lies in the privatisation of their huge state-owned industrial firms (high Polish and

share of value added in total output and badly hurts the environment. The value added and employment structures are presented in table 4.

The transition to the market systems was accompanied in all the countries by serious problems. These problems resulted from lacking market infrastructure, shortages of managerial abilities (adjustment of behaviour of firms to the market conditions appeared to be much more difficult than it was in the case of households), problems with the mentality, social and political instability and macroeconomic imbalances inherited from the central planning. These imbalances have been leading to high inflation rates and substantial problems with financing of the social security net, sometimes referred to as the crisis of public finance system. Table 5 gives some measures of the 1992 financial policy problems. High inflation rates force elevated interest rates (the Czech and Slovak Republics are in much better situation from that point of view compared with Poland and Hungary). Budget deficits are disturbingly high in all the countries but the Czech Republic (sometimes with substantial problems of financing them).

**Table 4.** Structure of value added and of employment by branches in 1992

	<i>Czech Rep.</i>	<i>Hungary</i>	<i>Poland</i>	<i>Slovakia</i>
Total GDP	100.0	100.0	100.0	100.0
Mining & quarrying	2.8	2.7	2.4	1.6
Agriculture & forestry	5.1	8.5	6.8	6.5
Manufacturing	50.4	28.9	46.6	46.4
Construction	8.4	6.0	7.1	9.5
Services	33.3	53.9	37.1	36.0
Total Employment	100.0	100.0	100.0	100.0
Mining & quarrying	2.8	1.3	3.1	0.9
Agriculture & forestry	8.3	13.5	33.8	12.0
Manufacturing	37.9	27.2	22.3	32.4
Construction	5.3	6.0	6.2	10.0
Services	45.7	51.8	34.6	44.7

**Table 5.** Financial policy measures in 1992

	<i>Czech Rep.</i>	<i>Hungary</i>	<i>Poland</i>	<i>Slovakia</i>
Inflation rate (%)	11.1	23.0	43.0	10.0
Interest rate (1 year deposits)	8.1	20.0**	38.0	8.1
Budget deficit as% of GDP	0.2	7.0	6.1	3.3
Budget deficit as% of M2*	0.3	n/a	16.8	4.0

\* M2 (broad money) — according to national definitions.

\*\* Gross, subject to 20% income tax.

Another set of problems faced by the Central European countries result from the major change in their external relations. A collapse of the COMECON trade, and particularly of the Soviet market resulted in substantial problems for the huge part of industry. The shift towards the EU market, although spectacular (see figure 8), was not sufficient to compensate for the fall of the foreign demand in the case of many industrial branches (some of them were totally Soviet market-tailored and not able to shift towards other markets). More detailed information about shifts in the exports structure by main trading partners are presented in 6.

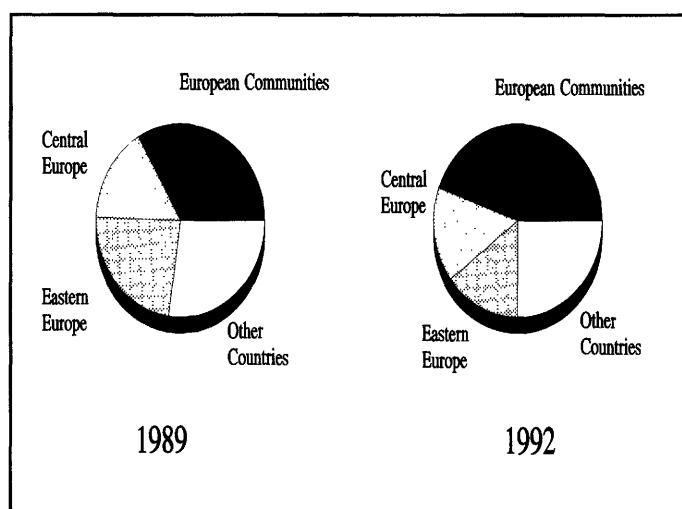


Figure 8. Exports of the Central European countries by main areas.

The Central European countries complain also of problems in access of their goods to the EU markets. In spite of the liberalisation of trade resulting from the new agreements with the European Union, the CEC find the market access rather narrow and constrained by various protectionist trade policy tools (particularly in the case of food products, metallurgy and textiles). All the countries suffered considerable deterioration of their trade balance with the EU, leading to general problems with equilibrating their balances of payments.

Table 6. Exports structure by main foreign markets

	<i>Czech Rep.</i>	<i>Hungary</i>	<i>Poland</i>	<i>Slovak Rep.</i>
Exports structure 1989 (in%)*				
European Community	26	35	38	26
Central Europe	21	15	14	21
Eastern Europe	30	22	18	30
Other	24	28	30	24
Exports structure 1992 (in%)				
European Community	42	50	48	22
Central Europe	25	6	7	54
Eastern Europe	16	14	15	12
Other	17	30	30	12

\* in 1989 Czechoslovak structure for both Czech and Slovak Republics

Another long-term challenge the Central European countries have to face is connected with the external debt burden. The characteristics of the debt problem for the four countries are presented on figure 9.

The scale of the problem vary: from the relatively good situation of the Czech Republic to substantial problems of Poland. The per capita debt ranges in 1992 from \$500-600 in the Czech and Slovak Republics to around \$1260 in Poland and Hungary. That represents from 22% of GDP in the Czech Republic (exchange rate converted; 8% if measured by the Purchasing Power Parity), to 58% in Poland (but only around 25% if measured by the PPP). This share is much more favourable for Hungary compared to Poland if measured with the current exchange rate, but almost the same if measured with the PPP. The current problems of debt servicing are the highest in Poland due to the smallest per capita exports.

The patterns of utilizing GDP are different in the CEC. The ratio of the fixed capital formation in GDP, traditionally surprisingly (and also non-efficiently) high in centrally planned economies, has fallen significantly in Poland and Hungary, but remains still high in the Czech and Slovak Republics<sup>2</sup>. The current patterns are presented in table 7.

Let us note that the relatively high share of food in the total Personal Consumption is the most striking example of a distance in final demand structures between the CEC and the EU (this share in the EU countries varies from 10 to 29% in the United Kingdom and Greece respectively).

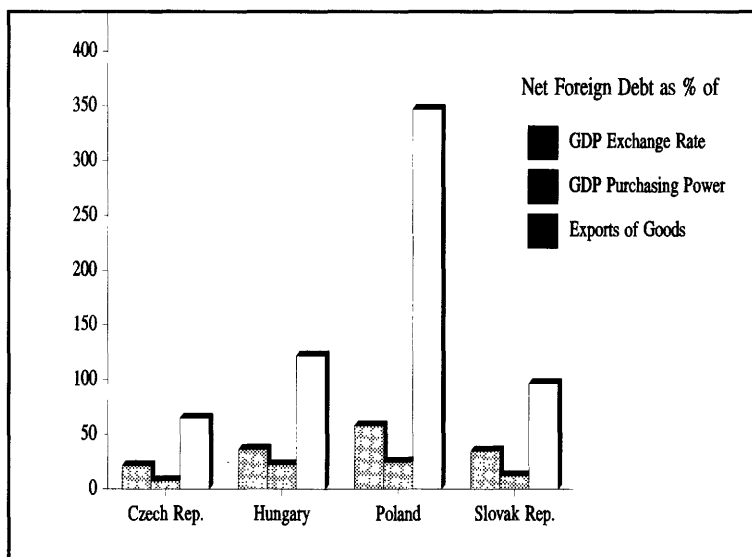


Figure 9. Net foreign debt as % of GDP and exports, 1992 (debt burden)

The aggregate measure of the development of the Central European countries — Gross Domestic Product per capita (measured with the Purchasing Power Parity) — is substantially (3 times) lower than the average GDP of the EU (see table 8). The differences within the four countries are not so big (within the brackets of 30%). Poland, the poorest country of the four in the terms of the per capita GDP, has the biggest GDP in global terms (by far higher than all the other countries together).

Table 7. Final demand pattern in 1992

	<i>Czech Rep.</i>	<i>Hungary*</i>	<i>Poland</i>	<i>Slovak Rep.</i>
Total GDP	100.0	100.0	100.0	100.0
Personal Consumption	54.5	69.2	60.3	51.1
Public Consumption	16.5	12.5	18.1	23.4
Gross Fixed Capital Formation	29.2	20.4	19.2	27.9
Net exports	4.0	-1.2	-0.3	-5.2
Change in inventories	-4.2	-0.9	2.7	2.8
Spending on food as% of expenditure	31.3	33	39.7	39

\* Methodology used for calculation of public and private consumption is different than in other countries.

Differences between the Central European countries became bigger if measured by current exchange rate converted GDP. The sequence of the countries changes with Hungary leading, and the Slovak Republic taking place of the country with the lowest GDP. Such an outcome results from significant differences in the ratio of exchange rates to the real purchasing power of domestic currencies. The ratio ranges from 60% in Hungary, to only 35-43% in the other countries. However, such differences may be only of temporary nature depending on the current situation of the countries (mainly on the balance of payments situation).

<sup>2</sup> Economic reforms which started in Hungary already in late 60-ties and in Poland in 80-ties have changed to some extent the economic system before the year 1990.

Differences in per capita Personal Consumption are even bigger than in the case of GDP. The highest level obtained in Hungary is mainly due to the highest share of the Personal Consumption in GDP; quite an opposite phenomenon may be observed in the case of Slovakia. Let us note, that some indicators (as for example the share of food in expenditures or physical indicators) clearly show the Czech Republic as a leader in the field of the Personal Consumption as well.

All the Central European countries had to face enormous problems in their transition towards the market economy. They have managed to obtain spectacular successes on this way. However, their economic situation in 1992 remained still difficult. All of them have reached (or are about to reach) the bottom of the post-communist recession. Until now, only the Polish economy has started to grow, but probably the Czech economy is also approaching the turning point. All the economies have been liberalised, and the long-term programs aimed at building the basis of the new, efficient economic system (privatisation first of all) have been started.

**Table 8.** GDP level compared to the European Community in 1992

	<i>Czech Republic</i>	<i>Hungary</i>	<i>Poland</i>	<i>Slovak Republic</i>	<i>EC average</i>
GDP per capita in \$* (Purchasing Power Parity)	6,867	5,650	5,065	5,320	18,518
Index: CEC = 100	125.6	103.3	92.6	97.3	338.7
Index: EC = 100	37.1	30.5	27.4	28.7	100.0
Personal Consumption per capita in \$ (PPP)	3,743	3,910	3,054	2,719	11,408
Index: CEC = 100	114.3	119.4	93.3	83.0	348.4
Index: EC = 100	32.8	34.3	26.8	23.8	100.0
Exchange rate as% of Purchasing Power	36.9	60.7	43.0	35.2	x

\* The numbers presented in the table are estimated by each country on the basis of the 1990 ICP comparisons; preliminary direct results of the ICP 1992 are the following: Czech Republic \$7,925, Hungary \$6,685, Poland \$4,710, Slovakia \$5,850.

## 2.3. The scenario: general assumptions

### 2.3.1. Outline of the approach and common assumptions

The scenarios of the economic development of the Central European countries summarized in this paper may be described as *optimistic* but *realistic* in the same time. It means, we assume that an 'average optimistic coincidence' of all factors influencing favourable rates of growth will take place<sup>3</sup>. There is a possibility, that certain factors may occur even more favourable than assumed (e.g. greater inflow of capital from abroad) but then probably others may be less favourable (e.g. lower increase in domestic propensity to save).

The methodology of studies for all the countries vary significantly. The tools used by the Polish team were the most formal (a set of aggregated and disaggregated models, including the Social Accounting Matrices SAM-based models). The Czech team has also used SAM for analysis; however, only a part of the Czech research was based on the model tools. The Slovak and Hungarian scenarios were worked out mainly with the use of experts' opinions. In spite of differences in constructing scenarios, all the teams have

<sup>3</sup> Such an assumption differs the scenarios presented in this paper from a standard forecast (forecasts seek for the most probable state of all the factors, in the scenarios the 'optimistic coincidence' was assumed).

used the uniform methodology to assure internal consistency of the scenarios (consistency checks that were agreed during the common workshops).

It is still difficult to say, to what extent the scenarios are coherent in the regional scale. The problem is that the levels of the 'realistic optimism' may differ among the experts and national teams. An example of such a problem may be found in assumptions concerning the ICOR (Incremental Capital Output Ratio) — the most aggregate measure of efficiency of investment process. Making the summary survey we have tried to uniform the presentation of results and to give a common interpretation of assumptions: changing important assumptions underlying national scenarios was beyond the scope of this summary<sup>4</sup>.

In spite of a relatively short period covered by the analysis (13 years) the character of the scenarios is long-term rather than medium-term. Consequently, they skip the effects of short-term fluctuations connected with the business cycle. It should be noted, that short-term fluctuations may cause much higher rates of growth in selected years than average in the scenario<sup>5</sup>. One should be also cautious about interpretation of the numbers or growth rates presented in the scenarios. A relatively high level of accuracy in presented growth rates is an outcome of using the formal model tools. One should think about the range of values rather than about a precise value (the rates of growth of 3.9% or 4.1% should be interpreted as 'the rate about 4%').

Generally speaking, the 'external factors' were assumed by all the teams as following:

1. The end of a recession in Western Europe around 1995 and a long-term 3% growth of the world trade.
2. A wider access to the EU market; successful integration into the European economy (including the future membership in the European Union).
3. Partial revival of the trade with the former Soviet republics.
4. A broad stream of the foreign capital and growing interest in direct investment in the Central European countries.
5. An unlimited access to the modern technology and know-how.
6. Reducing the debt burden (mainly for Poland; more favourable conditions of servicing and principals payments for all the countries).
7. Political stability in Europe (especially in Eastern Europe).

The list of the 'internal factors' that were assumed by the national teams is as following:

1. Successful transformation and privatisation of the economies resulting in growing economic efficiency (growing productivity of production factors).
2. Successful restructuring of the economies (not disturbed by a political instability and social tensions).
3. Growing propensity to save and to invest.
4. Improvement of managerial abilities on micro level.

<sup>4</sup> The Czech scenario was judged by us as the least optimistic, the Polish and the Slovak scenarios as the most optimistic. The Hungarian approach was moderate.

<sup>5</sup> Let us give an example: one can not exclude even 6 or 7% GDP growth in Poland in 1994 or 1995). However, so high growth rates could not be maintained in the longer period, because of imbalances between output and disposable production factors (fixed assets) that would appear. Short-term speeding up of the demand and output would be compensated then by the temporary slowing down of the economic growth. From the long-term point of view such temporary phenomena do not have big importance.

5. Improvement of efficiency of the macroeconomic policy formulation (on the governmental level).

### **2.3.2. Assumptions concerning the production factors: labour**

The supply of labour in the scenarios is determined by the demographic trends in the CEC. Apart from this, some general assumptions were made:

1. The Central European countries are well endowed with a high quality labour force. Special skills required by the market economy (marketing, trade, finance, banking, etc.) can be acquired relatively easily thanks to a solid educational structure.
2. The global demand for the high-skilled manpower will be increasing rapidly, while unskilled labour is likely to face growing employment difficulties.
3. The choice of technology by investors and the development path of the economies will result in a faster growth of the labour supply than of the demand for labour. Consequently, a relatively high level of stagnating unemployment will maintain in all the CEC (with a possible exemption of the Czech Republic).
4. In spite of a huge difference of cost of labour, the flows of the labour force between the EU and Central European countries will have marginal meaning.

A high supply of labour and its relatively low cost might be prompting a labour-intensive path of development of the national economies. However, in a long run such a phenomenon may result in standing off the world scientific and technical mainstream. Consequently, problems of an effective use of the available labour factor, optimal choice of technology and reduction of unemployment will become crucial issues in the social and economic policy.

### **2.3.3. Assumptions concerning the production factors: capital**

Unlike labour, capital is a scarce factor of production in all Central European countries. A drop in real incomes in the nineties and a low average propensity to save result in the limited domestic resources for financing investments. At the same time high interest rates, connected with high inflation, restrict the propensity to invest.

The following assumptions about the capital availability were made:

1. Increase in domestic saving in all the CEC (increased average households' propensity to save, growing number of pension funds and insurance institutions, increased propensity to invest in private companies, increased profit-earning capacity of companies in the public sector and a real growth of depreciation funds).
2. Broad inflow of the foreign capital (requiring the political and social stability, legislative support and inventiveness, clear and stable rules of game).
3. Limited possibility of the use of an existing idle fixed capital (mainly machinery and equipment; the East German example shows that only a small part of them may be efficiently utilized in the competitive market economy).

### **2.3.4. Assumptions concerning the production factors: science, technology, organisation**

Upgrading technology and improving organisation is a major task for all the CEC if their economies are to become competitive and efficient. A big part of available resources should be devoted to this task.

In the scenarios the following assumptions were made:

1. The lion's share of the modern technological and organisational know-how will be supplied by imports (mainly from the EU).



2. No results of the domestic R&D important from the macroeconomic point of view may be expected before the year 2000. However, the growing spending on R&D is necessary from the point of view of the future development.

## 2.4. The scenario: Results

### 2.4.1. Population

The population of the Central European countries will increase in the years 1992-2005 by 3.6%, i.e. by 2.3 mln persons. The situation of the four countries differs (see table 9). The highest growth of population will be observed in the Slovak Republic (by 6.8%) and in Poland (by 5.1%). The Czech population will be growing very slowly (by 0.7%) and the population of Hungary will fall (by 0.8%), see fig. 10.

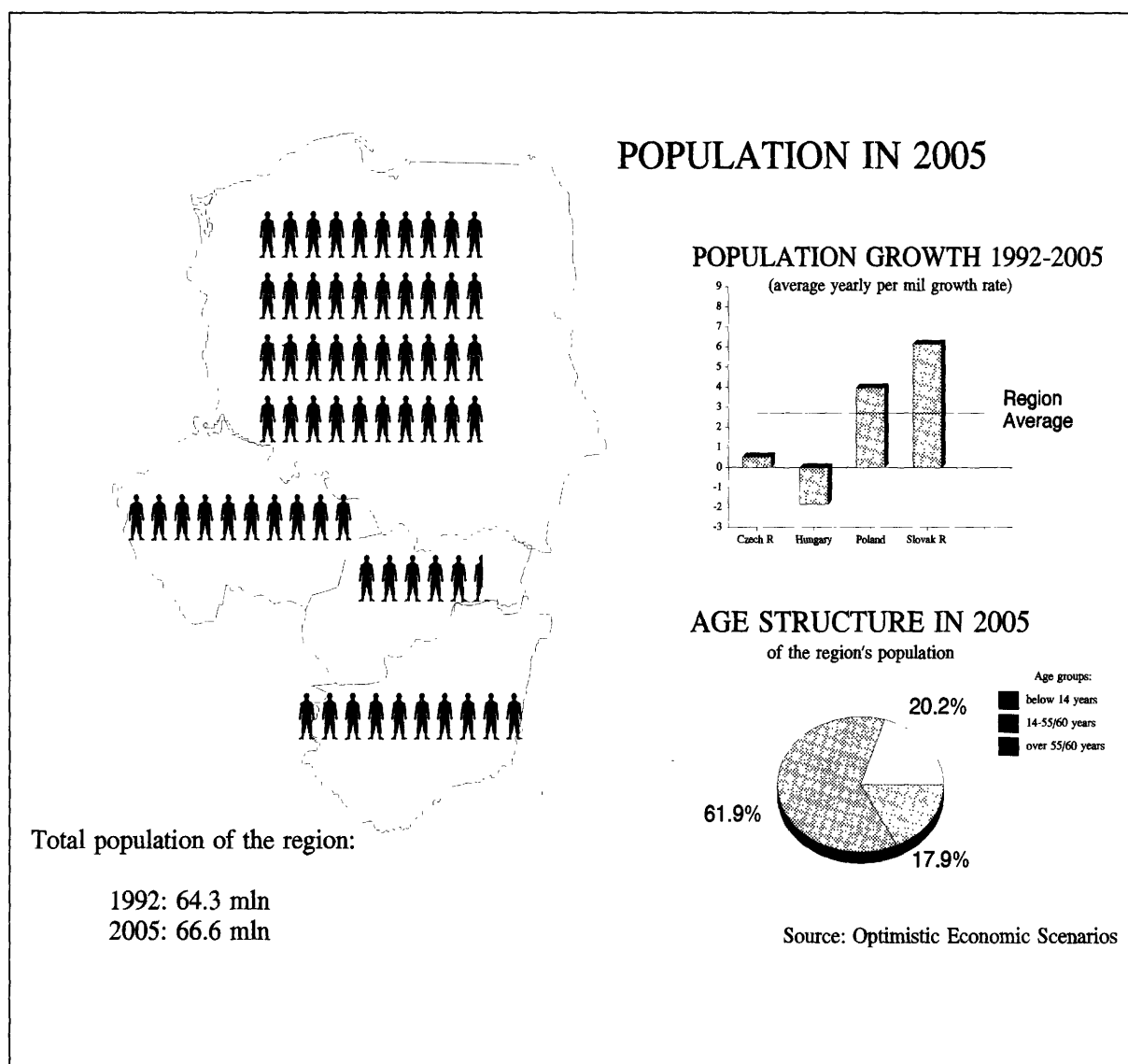


Figure 10. Population of the Central European countries, 1992-2005

In all the countries the population will be getting older (see table 10). The share of the population before working age will decrease, when the share of old persons will increase. The number of working age population will grow considerably, mainly in Poland and the Slovak Republic (together by almost 2.8 mln). Consequently, the dependency ratio (informing how many persons below and after the working age fall to one person in

working age) will decrease (especially in Poland). It does not contradict a conclusion, however, that the demographic situation will become more difficult: growing share of the old people (pensioners) will require growing social security benefits.

**Table 9.** Demographic trends in the CEC

	Population 1992				Population 2005			
	Total	Before working age	Working age	After working age	Total	Before working age	Working age	After working age
<b>Czech Republic</b>								
In million	10.315	2.166	6.034	2.115	10.387	1.870	6.149	2.368
Structure	100.0%	21%	58.5%	20.5%	100.0%	19.0%	59.2%	22.8%
<b>Hungary*</b>								
In million	10.337	2.010	6.031	2.205	10.250	1.980	6.350	1.920
Structure	100.0%	19.4%	58.3%	22.2%	100.0%	19.3%	62.0%	18.7%
<b>Poland</b>								
In million	38.365	9,553	23.057	5.755	40.323	8.647	25.474	6.203
Structure	100.0%	24.9%	60.1%	15.0%	100.0%	21.4%	63.2%	15.4%
<b>Slovakia</b>								
In million	5.300	1.288	3.095	0.917	5.659	1.253	3.398	1.008
Structure	100%	24.3%	58.4%	17.3%	100.0%	22.1%	60.0%	17.8%
	<i>Population growth 1992-2005: Index (1992 = 100)</i>				<i>Structure of population increase 1992-2005</i>			
	Total	Before working age	Working age	After working age	Total	Before working age	Working age	After working age
Czech Republic	100.7	86.3	101.9	112.0	0.072	-0.296	0.115	0.254
Hungary*	99.2	98.5	105.3	83.6	-0.087	-0.030	0.319	-0.376
Poland	105.1	90.5	110.5	107.8	1.968	-0.906	2.417	0.448
Slovakia	106.8	97.3	109.8	109.9	0.359	-0.035	0.303	0.091

\* Reckoning with an increase of the pension age.

A very high increase of the working age population (especially in Poland and Slovakia), together with an existing unemployment (registered and hidden) will result in continuous tensions on the labour market (table 10). Dealing with unemployment will be one of the most urgent (and difficult) tasks for the economic policy of the CEC. None of the national scenarios foresees a possibility of a substantial reduction of the number of unemployed persons until the year 2005. A slight decrease is expected in Poland, Hungary and Slovakia. In the Czech Republic, enjoying a very low level of unemployment in 1992, an increase of its level is expected in the year 2005.

The quality of the labour force will be growing. The higher education rate is expected to rise substantially (the specific numbers are presented only in the case of Hungary and the Czech Republic).

**Table 10.** The labour market: selected ratios

	Dependency rate		Employment (mln)		Unemployment (mln)	
	1992	2005	1992	2005	1992	2005
Czech Republic	0.71	0.69	5.064	5.429	0.135	0.278
Hungary*	0.71	0.61	4.170	4.060	0.663	0.640
Poland	0.66	0.58	13.136	14.747	2.391	2.322
Slovakia	0.71	0.66	2.150	2.400	0.280	0.226

\* Reckoning with an increase of the pension age.

## 2.4.2. Gross domestic product and the social productivity of labour

The scenarios indicate a relatively high growth rates of GDP in all the Central European countries but the Czech Republic. With an average yearly growth rate of the Central European countries reaching almost 4%, the Polish and Slovak scenarios show 4.5% and 4.1% respectively and the Hungarian scenario 3.4%. The differences among these countries are much smaller if the social productivity of labour is taken into account: the growth rate range from 3.2% in Slovakia to 3.5-3.6% in Poland and Hungary. The Czech scenario shows only a 2% growth of the social productivity of labour, leading to 2.5% growth of GDP (the roots of such an outcome are in the assumptions underlying calculation of ICOR: rate of growth of investment and rate of growth of GDP, discussed in the next paragraph).

Tables 11, 12 and 13 and the figure 11 show the main outcome of the scenarios.

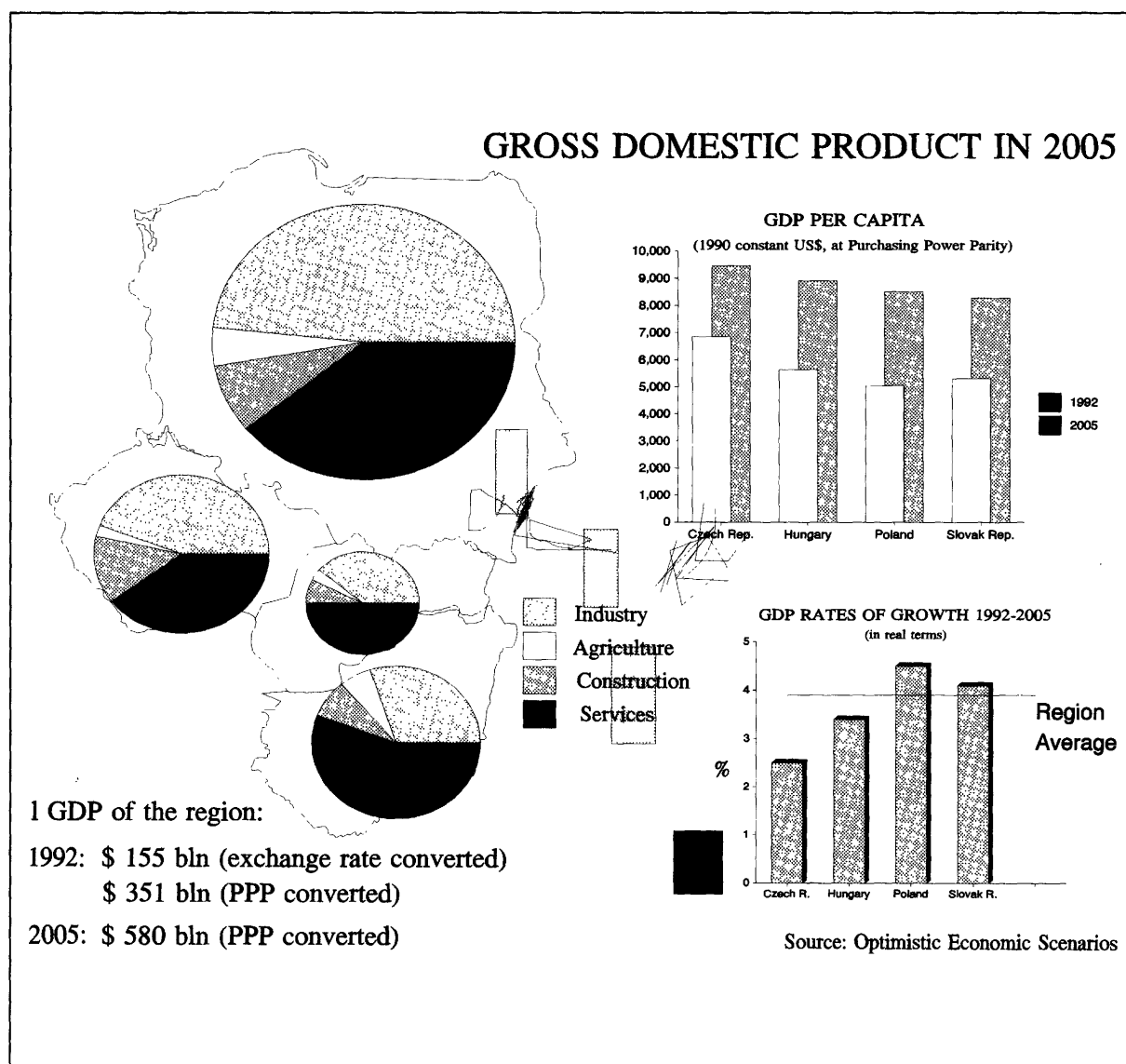


Figure 11. Gross Domestic Product in the Central European Countries, 2005

**Table 11.** Gross Domestic Product according to exchange rates and PPP

	<i>Total GDP (constant US\$ 1990, bln)</i>			<i>Per capita GDP (constant US\$ 1990)</i>		
	<i>1992</i>	<i>Purchasing Power Parity</i>		<i>1992</i>	<i>Purchasing Power Parity</i>	
		<i>Exchange rate</i>	<i>1992</i>		<i>2005</i>	<i>Exch. rate</i>
Czech Republic	26.1	70.8	98.3	2531	6867	9463
Hungary	35.4	58.4	90.3	3429	5650	8809
Poland	23.6	194.3	343.2	2180	5065	8510
Slovakia	9.9	28.2	47.6	1873	5320	8405

Per capita GDP (measured in constant 1990 US\$ according to the Purchasing Power Parity) grows significantly in all the countries. The differences among the Central European countries tend to diminish: in 1992 the highest p.c. GDP of the Czech Republic was higher by 36% than the smallest p.c. GDP of Poland. In the year 2005 the highest p.c. GDP (still the Czech one) will be only higher by 14% than the lowest p.c. GDP in Slovakia. The GDP will reach the level ranging from \$ 8,287 in Slovakia and \$ 8,510 in Poland to \$ 8,940 in Hungary and \$ 9,463 in the Czech Republic<sup>6</sup> (over 50% of the EC average p.c. GDP in 1992).

**Table 12.** Social productivity of labour, employment and unemployment

	<i>Index 2005</i>		<i>Average rate of growth</i>	
	<i>1992 = 100</i>	<i>1995 = 100</i>	<i>2005/1992</i>	<i>2005/1995</i>
<b>SOCIAL PRODUCTIVITY OF LABOUR</b>				
Czech Republic	129.4	127.3	2.0	2.4
Hungary	158.8	n/a	3.6	—
Poland	157.3	136.9	3.5	3.2
Slovakia	151.2	147.5	3.2	4.0
<b>EMPLOYMENT</b>				
Czech Republic	107.2	103.2	0.5	0.3
Hungary	95.0	n/a	-0.2	—
Poland	112.3	112.3	0.9	1.2
Slovakia <sup>1</sup>	111.6	111.1	0.8	1.1
<b>UNEMPLOYMENT RATE</b>				
	1995	2005		
Czech Republic	5.0	5.0		
Hungary	n/a	11.7		
Poland	14.1	11.6		
Slovakia	13.3	8.0		

<sup>6</sup> It means, that two poorer countries (Poland and Slovak Republic) will reach in 2005 the level of development of Greece from 1990, while two richer countries (Czech Republic and Hungary) will be still 5-10% below the level of development of Portugal in 1990 (comparison based on the results of the International Comparison Project of the UN).

**Table 13. Gross Domestic Product**

	<i>Index 2005</i>		<i>Average rate of growth</i>		<i>Structure of increase</i>	
	<i>1992 = 100</i>	<i>1995 = 100</i>	<i>2005/1992</i>	<i>2005/1995</i>	<i>1992-2005</i>	<i>1995-2005</i>
<b>Czech Republic</b>						
GDP Total	138.7	131.4	2.5	2.8	100.0	100.0
Personal Consumption	136.0	129.2	2.4	2.6	50.7	50.6
Public Consumption	114.1	133.1	1.0	2.9	6.0	14.1
Capital Formation (Gross)	150.7	142.7	3.2	3.6	38.2	39.7
Net exports	35.1	120.7	-7.7	1.9	-6.8	0.7
<b>Hungary*</b>						
GDP Total	154.6	151.6	3.4	4.3	100.0	100.0
Personal Consumption	136.0	131.8	2.4	2.8	45.4	43.1
Public Consumption	114.1	131.8	2.4	2.8	8.4	7.8
Capital Formation (Gross)	150.7	200.4	6.7	7.2	49.8	45.3
Net exports	266.7	227.9	7.8	8.6	-3.7	-3.4
<b>Poland</b>						
GDP Total	176.6	153.7	4.5	4.4	100.0	100.0
Personal Consumption	154.4	135.2	3.4	3.1	42.8	39.3
Public Consumption	147.0	139.9	3.0	3.4	11.1	12.3
Capital Formation (Gross)	295.3	243.1	8.7	9.3	49.0	54.1
Net exports	533.3	324.8	13.7	12.5	-1.7	-1.8
<b>Slovakia</b>						
GDP Total	168.7	163.8	4.1	5.1	100.0	100.0
Personal Consumption	161.1	167.8	3.7	5.3	45.4	50.6
Public Consumption	129.9	147.6	2.0	4.0	10.2	14.9
Capital Formation (Gross)	167.0	144.0	4.0	3.7	27.2	21.6
Net exports	23.0	44.9	-10.7	-23.4	5.8	2.2

\* The original scenario for Hungary was constructed for different time intervals (1993-1996 and 1997-2005) than in the other scenarios. For the sake of comparability of results, all figures based on the year 1995 were interpolated. In the original scenario for Hungary the consumption is projected as a one consolidated category with a single average rate of growth (2.4% p.a.).

All the scenarios show a significant increase of the social productivity of labour. Its level in 2005 is over 50% higher than in 1992 in all the countries but the Czech Republic (only 30% increase). In a result of such differences the three countries suffer higher unemployment rates in 2005 than the Czech Republic (the dynamics of unemployment is quite different: unemployment rates fall by around 2 per cent points in the three countries, while it increases by 2.4 points in the Czech Republic).

The average growth rates in the whole period 1992-2005 are influenced by the developments in the subperiod 1992-95. The situation of the CEC in that subperiod varies significantly among countries, as timing of the economic recovery is not the same in all the countries (in Poland the turning point was obtained in 1992, in the Czech Republic it is expected in the end of 1993, in Slovakia in 1994 and in Hungary 1997). Consequently, it is rather the growth rate in the subperiod 1995-2005 that indicates better the long-term differences in the economic dynamics of the CEC. The highest economic growth in the years 1995-2005 is foreseen in the Slovak scenario (5.1%), the Polish and Hungarian growth rates are very similar (4.4-4.3%), while the Czech growth rate is still lagging behind (2.8%).

In all four countries of the Fixed Capital Formation has more than proportional share in the increase of GDP. It absorbs about 50% of the increase in Poland and Hungary, 38% in the Czech Republic and 27% in Slovakia. Interpretation of this result should take into account the fact, that initially (in 1992) the investment ratio in Poland and Hungary was considerably smaller than in the two other countries (see figure 6).

Figure 11 illustrates additionally the share of four mine sectors of the economy: industry, agriculture, construction and services in the GDP levels of the Central European countries in the year 2005. According to national scenarios the share of the service sector in the GDP is expected to exceed one half only in the case of Hungary (56%). In Slovakia the service sector is expected to participate in originating of GDP by 50%, whereas in the Czech Republic and in Poland these shares are forecasted to be low and similar to each other (39.4% and 39.2% respectively). It should be however noticed that the 1992 prices used in the scenarios distort the structure of value added in 2005. Relatively low prices of services in all the CEC countries and especially in the Czech Republic underestimate the forecasted shares of the service sector in 2005 in the GDP.

### 2.4.3. Selected characteristics of the economic growth

The economic growth of the Central European countries in the period 1992-2005 may be characterized by a set of ratios and coefficients.

The most important characteristics of the efficiency of the economic growth is given by the Incremental Capital-Output Ratio (ICOR), see table 14. The coefficient is defined as a relation of increase of fixed capital to an increase of GDP, and informs how many units of capital are necessary to obtain an increase of GDP by 1 unit (in a given period)<sup>7</sup>.

Table 14. Incremental Capital-Output Ratio

<i>Total Gross</i>	<i>ICOR 1996-2005I</i>		<i>ICOR 1992-2005</i>	
	<i>Machinery &amp; Investment</i>	<i>Total Gross Equipment</i>	<i>Machinery &amp; Investment</i>	<i>Equipment</i>
Czech Republic	10.9	5.5	11.7	5.8
Hungary	6.3	n/a	7.2	n/a
Poland	5.8	2.7	5.5	2.5
Slovakia	5.8	3.0	6.9	3.5

\* According to authors of the Hungarian scenario the values of ICOR should rather stay within the range from 8 to 9.

The ICOR values are extremely high in the years 1992-95 for all the countries except Poland. Such a result is caused by a situation, in which a new fixed capital is installed and no aggregate economic growth is observed. Output produced by the new fixed capital crowds out the old output rather than increases a scale of production. The worst situation is observed in the scenarios for Hungary and Slovakia, much better for the Czech Republic. It is only Poland in which in the period 1992-95 the new fixed capital is used to increase the scale of production and, consequently, the aggregate output (in such a situation ICOR values are radically smaller).

In the period 1996-2005 the ICOR values are very close in Hungary, Poland and Slovakia. It is only the Czech Republic that suffers considerably higher level of the ICOR. Such an outcome results from less optimistic assumptions about the macro-economic efficiency of investment process. A partial explanation of such a phenomenon

<sup>7</sup> Formula for the ICOR is following: ICOR in period t0, t1:  $ICOR_{t0,t1} = (C_{t1} - C_{t0}) / (GDP_{t1} - GDP_{t0})$ , where:  $C_t$  – fixed capital stock in the year t,  $GDP_t$  – GDP in the year t. A simplified version of ICOR can be calculated with the use of gross fixed capital formation (investment) instead of the increase of the stock of capital. As no sufficient data on fixed capital increase may be found in the national scenarios (with the exception of Poland), were forced to use the simplified formula for calculating ICOR.

may be relatively higher spending on environmental investment in the Czech Republic than in the other countries of the region<sup>8</sup> (the scale of devastation of the environment is worse than in the other countries). The growth rates of fixed capital in construction which is almost the same as that of machinery and equipment may be another explanation.

Relatively low level of ICORs in the period 1996-2005 in all the countries except the Czech Republic assumptions about increasing economic efficiency obtained thanks to privatisation, structural changes (diminishing share of capital-intensive, non efficient branches), imports of know-how and introduction of new technologies.

**Table 15.** Various characteristics of the economic growth

	<i>Elasticities of Exports Imports with respect to GDP</i>		<i>Share of the private sector in% of GDP</i>		<i>Science and education as% of GDP</i>	
			1992	2005	1992	2005
Czech Republic	2.04	2.32	20	86	5.0	6.1
Hungary	1.03	1.62	35	n/a	n/a	n/a
Poland	1.98	2.01	49	87	4.8	6.0
Slovakia	2.02	1.78	20	80	2.0	2.2
	<i>Income polarisation coefficient</i>		<i>Saving ratio (saving as% of personal income)</i>		<i>Spending on food (as% of expenditures)</i>	
	1992	2005	1992	2005	1992	2005
Czech Republic	5.0	4.9	7.8	14.0	31.3	25.3
Hungary	4.1	4.4	14.0	12.0	33.0	26.0
Poland	3.1	4.7	9.0	15.3	39.7	27.5
Slovakia	3.3	5.6	8.2	10.6	39.0	30.1

The share of the private sector, diversified in 1992, rises in all the countries to the level of 80-90%. Extensive imports of technologies results in the elasticities of imports with respect to GDP ranging from 1.78 in Slovakia to 2.32 in the Czech Republic (elasticities of exports are of a similar scale, but lower, that reflects a general tendency of deterioration of trade balances; Slovakia is the only exemption from this rule).

Relatively high growth rates in the Central European countries are obtained thanks to the wide investment programs. Financing of these programs requires growing domestic propensity to save. The saving ratio grows to two-digit numbers<sup>9</sup> in all the countries but Hungary. The specific position of Hungary results from the fact, that the country initially has the highest domestic saving ratio and enjoys the highest ratio of participation of the foreign capital in financing fixed capital formation in the whole period 1992-2005 (18-20%). In the other countries a similar relative level is obtained only in the last years of the period.

The economic growth of the CEC, as presented in the scenarios, is not free from macro-economic tensions. Budget deficits remain considerably high (especially in Poland). The main reason for it is a gap between social needs that are to be financed by the budget and social security system and the available resources. The deficit level remains in the

<sup>8</sup> Such investment does not have direct production effects: consequently, the fixed capital grows more rapidly than output and the ICOR value increases.

<sup>9</sup> Growing saving ratio results both from growing income and from growing polarization of income. The income polarization coefficient presented in the table grows in all the countries (except Czech Republic) from around 3 in 1992 to 4-5 in 2005. In the same time expenditure structures start to be more similar to the structures of Western European countries: the share of food falls.

scenario unchanged in Poland. In Hungary the deficit considerably falls, while in the Czech Republic grows (from the very low 1992 level). According to the very optimistic Slovak scenario the budget deficit in 2005 completely disappears.

Also inflation rates are relatively high by EU standards. All the scenarios show a clear tendency of slowing down inflation (after 2000 the inflation rate stabilises on the level of 6-8%). It means, that the scenarios assume that the 4% growth rate may be realised in the long run without a risk of overheating the economy.

Finally, table 16 presents how the Central European countries deal with the foreign debt burden. The most indebted country, Poland, manages to reduce substantially the debt-GDP ratio (mainly thanks to the debt reduction agreements). The fall is much smaller in the case of Hungary. Such an outcome results from the assumption about continuous Hungarian policy of maintaining its good financial standing by avoiding debt restructuring. The debt situation of Hungary does not improve substantially, but in the same time substantial gains are obtained in the field of attracting foreign private investment.

**Table 16. Macroeconomic imbalances**

	<i>Budget deficit as % of GDP</i>		<i>Inflation rate</i>		<i>Net foreign investment as % of GFCF*</i>	
	1992	2005	1992	2005	1992	2005
Czech Republic	0.2	2.5	11.1	6.0	12.4	6.4
Hungary	7.0	3.0	23.0	7.5	20.7	9.0
Poland	6.1	6.0	43.0	6.8	4.4	9.3
Slovakia	3.3	0.0	10.0	8.0	8.3	13.3
	<i>Net foreign debt as % of GDP*</i>		<i>Net foreign debt as % of exports</i>		<i>Debt service** (as % of exports)</i>	
	1992	2005	1992	2005	1992	2005
Czech Republic	21.8	6.6	65.0	32.2	5.9	3.0
Hungary	36.7	21.1	121.8	57.4	11.0	5.2
Poland	58.1	10.3	347.1	77.0	31.2	6.9
Slovakia	35.2	16.8	55.0	60.0	8.7	5.1

\* For 1992 Gross Fixed Capital Formation (GFCF) and GDP according to current exchange rates. For 2005 both according to PPP.

\*\* Interests due (according to IMF standards).

In all the countries the debt service-to-exports ratio falls considerably. The most impressive reduction takes place in Poland (from 31% to 7%) and Hungary (from 11% to 5%). In any of the countries the debt service-to-exports ratio does not exceed 7% (in the case of the Czech Republic it is on the level of 3%).

#### **2.4.4. Final demand components**

The general observation one may make about the scenarios' results is that the investment demand and exports demand play a crucial role in development of the aggregate final demand in all CEC (see table 17).



Table 17. Growth of final demand categories

	Index 2005 (1992 = 100)	Growth rate 1992-2005	Structure		Structure of increase	As% of GDP	
			1992	2005		1992	2005
<b>GROSS FIXED CAPITAL FORMATION</b>							
<b>Czech Republic</b>							
Total	150.7	3.2	100.0	100.0	100.0	29.2	31.7
Machinery & equipment	153.4	3.3	49.6	50.5	52.2	14.5	16.0
Other investment	148.0	3.1	50.4	49.5	47.8	14.7	15.7
<b>Hungary</b>							
Total	233.3	6.7	100.0	100.0	100.0	20.4	30.8
Machinery & equipment	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Other investment	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<b>Poland</b>							
Total	295.9	8.7	100.0	100.0	100.0	19.2	32.2
Machinery & equipment	465.9	12.6	31.8	50.0	59.3	6.1	16.1
Other investment	216.7	6.1	68.2	50.0	40.7	13.1	16.1
<b>Slovak Republic</b>							
Total	167.0	4.0	100.0	100.0	100.0	27.9	27.6
Machinery & equipment	184.2	4.8	65.9	72.7	82.8	18.4	20.1
Other investment	133.7	2.3	34.1	27.3	17.2	9.5	7.5
<b>CONSUMPTION</b>							
<b>Czech Republic</b>							
Total	130.9	2.1	100.0	100.0	100.0	71.0	67.0
Personal consumption	136.0	2.4	76.7	79.7	89.4	54.5	53.4
Public consumption	114.1	1.0	23.3	20.3	10.6	16.5	13.6
<b>Hungary</b>							
Total	135.9	2.4	100.0	100.0	100.0	81.7	71.8
Personal consumption	135.8	2.4	84.7	84.6	84.4	69.2	60.8
Public consumption	136.6	2.4	15.3	15.4	15.6	12.5	11.0
<b>Poland</b>							
Total	152.7	3.3	100.0	100.0	100.0	78.4	67.8
Personal consumption	154.4	3.4	76.9	77.8	79.4	60.3	52.7
Public consumption	147.0	3.0	23.1	22.2	20.6	18.1	15.1
<b>Slovak Republic</b>							
Total	151.3	3.2	100.0	100.0	100.0	74.4	66.8
Personal consumption	161.1	3.7	68.6	73.0	81.7	51.1	48.8
Public consumption	129.9	2.0	31.4	27.0	18.3	23.4	18.0
<b>FOREIGN DEMAND</b>							
<b>Czech Republic</b>							
Net exports	35.1	-7.7	-	-	-	4.0	1.0
Exports	190.8	5.1	-	-	-	38.2	52.5
Imports	209.3	5.8	-	-	-	34.1	51.5
<b>Hungary</b>							
Net exports	265.6	7.8	-	-	-	-1.2	-2.1
Exports	200.6	5.5	-	-	-	30.2	39.1
Imports	205.1	5.6	-	-	-	31.4	41.2
<b>Poland</b>							
Net exports	545.0	13.9	-	-	-	-0.3	-0.9
Exports	303.7	8.9	-	-	-	24.5	42.1
Imports	306.5	9.0	-	-	-	24.8	43.0
<b>Slovak Republic</b>							
Net exports	23.0	-10.7	-	-	-	5.2	-0.7
Exports	203.0	5.6	-	-	-	35.3	42.5
Imports	180.0	4.6	-	-	-	40.5	43.2

The rate of growth of the fixed capital formation exceeds significantly the average GDP growth rate (only in the case of Slovakia both rates are similar). Particularly high dynamics of investment demand is foreseen for Poland (8.7% yearly) and Hungary (6.5%). The general tendency can be also observed of a faster than average growth of investment in machinery and equipment (particularly in Poland; the optimistic scenario for this country assumes a highly efficient policy of replacing the old equipment with the new one, with a maximal use of existing well developed productive structures<sup>10</sup>). The share of investment demand in GDP is initially rather high in the Czech and Slovak Republics (28-29%), but low in Poland and Hungary (19-20%). In the year 2005 the share is similar in all the countries, ranging from 28% in Slovakia to 32% in Poland.

It is also the case of the foreign demand (exports) that its growth rate significantly exceeds the average GDP growth. As it was pointed out in the point 2 of this chapter, the rate of growth of exports is roughly twice as high, as in the case of GDP (Hungary is the only exemption, mainly due to an expected very poor trade performance in the years 1993-1996). This phenomenon is due to an assumed good competitive position of the CEC, resulting from the relatively cheap and highly skilled labour, but also due to a very low initial share in the world market. The ratio of exports to GDP increases from 25-30% in 1992 (38% for the Czech Republic) to 30-52% in 2005.

In spite of the fast growth of the foreign demand, the net exports falls in all the countries but Slovakia (in the case of Slovakia, however, the initial net exports is strongly negative, and remains negative until 2000). This is due to higher growth rates of imports than exports, resulting from the massive imports of investment goods and maintaining the openness of all the CEC economies (the ratios of imports to GDP range in 2005 from 40% in Hungary and 43% in a relatively big Polish economy to over 50% in the Czech economy).

The growth of the personal consumption is more modest than in the case of investment in all the countries (ranging from 2.4% in the Czech Republic to 3.7% in Slovakia). Nevertheless, it is generally higher than in the case of the public consumption. Total consumption grows by 3-3.3% yearly (only in the Czech Republic the growth is limited to 2.1%), and its share in GDP falls in all CEC economies.

Significant changes take place in the structure of the personal consumption. They result from the average real growth of income and adopting Western consumption standards as well as from changes in the households' income distribution (see the table 18).

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<sup>10</sup> The economic scenario for Poland assumes a radical 'reforging' of the fixed capital (using Kalecki's terminology), thanks to the fast and radical privatization and selling assets by the state-owned firms to the private sector.

**Table 18. Households' consumption structure**

	<i>Index 2005</i> <i>(1992 = 100)</i>	<i>Growth rate</i> <i>1992-2005</i>	<i>Structure</i>		<i>Structure</i> <i>of increase</i>
			<i>1992</i>	<i>2005</i>	
<b>Czech Republic</b>					
Total	136.0	2.4	100.0	100.0	100.0
Food	109.9	0.7	31.3	25.3	8.6
Other goods & services	147.9	3.1	68.7	74.7	91.4
<b>Hungary</b>					
Total	146.9	3.0	100.0	100.0	100.0
Food	115.7	1.1	33.0	26.0	11.1
Other goods & services	162.2	3.8	67.0	74.0	88.9
<b>Poland</b>					
Total	154.4	3.4	100.0	100.0	100.0
Food	107.0	0.5	39.7	27.5	5.1
Other goods & services	185.6	4.9	60.3	72.5	94.9
<b>Slovakia</b>					
Total	161.1	3.7	100.0	100.0	100.0
Food	124.3	1.7	39.0	30.1	15.5
Other goods & services	184.6	4.8	61.0	69.9	84.5

As table 19 shows, the maximal compensation coefficient (characterising the level of income polarisation) increases significantly in all the CEC (growth ranging from 1.5 points in the case of Hungary to 7 points in the case of Slovakia, the country of the smallest initial value of the coefficient). In 2005 the coefficient reaches a similar level of 22-23%, and the 5th (richest) quintile group accounts for 38.9-39.5% of total income in all the countries. As the result, the saving ratio and the share of services and consumer durable in expenditures significantly grows while the share of food in total expenditures fall (from 39-40% in 1992 in Poland and Slovakia and 31-33% in Hungary and the Czech Republic to 25-30% in 2005). However the share of food in expenditures remains much higher than in the majority of the EC countries in 1990 (the highest share among all the EC countries in 1990 was observed in Greece and was equal to 29%)

It is also worth mentioning, that the significant part of investment spending in the CEC is devoted to housing. Despite it, the housing problems are not fully solved in any of the countries until 2005. The level and the share of investment in housing in 1992 was far below the EC standards).

**Table 19. Households' income distribution**

	<i>Quintile distribution (total households' income = 100)</i>					<i>Maximal</i> <i>Compensation</i> <i>Coefficient (in</i> <i>%)</i>
	<i>1st quintile</i>	<i>2nd quintile</i>	<i>3rd quintile</i>	<i>4th quintile</i>	<i>5th quintile</i>	
<b>Czech Republic</b>						
Year 1992	7.5	13.6	18.2	23.3	37.4	20.7
Year 2005	8.0	12.0	17.0	23.5	39.5	23.0
<b>Hungary</b>						
Year 1992	9.0	13.7	16.8	21.4	39.1	20.5
Year 2005	8.5	13.6	15.9	23.0	39.0	22.0
<b>Poland</b>						
Year 1992	11.3	13.8	17.0	23.0	34.9	17.9
Year 2005	8.2	12.5	16.6	23.8	38.9	22.7
<b>Slovakia</b>						
Year 1992	9.9	15.4	18.2	23.3	33.2	16.5
Year 2005	7.0	13.0	16.5	24.5	39.0	23.5

#### 2.4.5. Structural change in the CEC economies

The economic development of the Central European countries in the period 1992-2005 results in a tempestuous structural change. In our opinion, the scale of this change foreseen in the scenarios — although not enough to reach Western European economic structural patterns — seems to be even more important and promising than the projected economic growth. Tables 20 shows the changes in structures of exports.

Table 20. Exports by main trading partners (in% of total exports)

	<i>European Communities</i>		<i>Central Europe</i>		<i>Eastern Europe</i>		<i>Other countries</i>	
	1992	2005	1992	2005	1992	2005	1992	2005
Czech Republic	42	55	25	15	16	16	16	14
Hungary	50	52	6	7	14	12	30	29
Poland	48	47	7	7	15	15	30	31
Slovakia	22	45	54	31	12	13	13	11

Structural changes result both from the wider participation in the international division of labour and adjusting to the new demand patterns. The exports structure is determined by the growing economic links with the EC (the share of the EC-12 in total exports ranges from 45 to 55% in 2005). Such a geographic structure (together with the big share of the other OECD markets and more and more competitive Central European markets) will force a substantial improvement of the quality of production and a continuous search for trade niches. The domestic demand pattern strongly favours the service sector (mainly market services). Such an outcome results both from changes in consumer demand structure (in favour of tourism and travel, cultural and recreational services, housing services etc.), and from investment and intermediate demand (financial services, consulting, software, advertising, travel, communication etc.). Favourable situation will occur for construction. The engineering industry may profit from the growing demand of households for consumer durable and transport equipment, as well as from the demand of firms for machinery, under the condition it is able to compete successfully with imports. Tables 21-23 show the changes of value added and employment structures.

The changes in the value added structure are generally similar in all the CEC economies. The share of the agriculture and forestry will continuously shrink. Its value in 2005 in the Czech and Slovak Republics will be similar to EC standards (2.3-3.5%), while in Poland and Hungary will be still higher (4.5-6%). The share of manufacturing will remain relatively high in the Czech Republic and Poland (43-46%), but will be much lower in Hungary and Slovakia (28% and 34% respectively). The most striking difference between the EC economies and CEC economies will be still observed in the share of services in GDP. In spite of the rapid growth, only in the case of Hungary and Slovakia this level will be close to EU standards in 2005, while in the other countries will be significantly lower.

**Table 21.** Value added by main economic sectors

	<i>Index 2005</i> <i>(1992 = 100)</i>	<i>Growth rate</i> <i>1992-2005</i>	<i>Structure</i>		<i>Structure</i> <i>of increase</i>
			<i>1992</i>	<i>2005</i>	
<b>Czech Republic</b>					
Total GDP	138.7	2.5	100.0	100.0	100.0
Mining & quarrying	54.1	-4.6	2.8	1.1	-3.3
Agriculture & forestry	62.6	-3.5	5.1	2.3	-4.9
Manufacturing	118.9	1.3	50.4	43.2	24.6
Construction	231.2	6.7	8.4	14.0	28.5
Services	164.2	3.9	33.3	39.4	55.2
<b>Hungary</b>					
Total GDP	154.6	3.4	100.0	100.0	100.0
Mining & quarrying	85.9	-1.2	2.7	1.5	-0.7
Agriculture & forestry	109.1	0.7	8.5	6.0	1.4
Manufacturing	152.5	3.3	28.9	28.5	27.8
Construction	206.1	5.7	6.0	8.0	11.7
Services	160.6	3.7	53.9	56.0	59.8
<b>Poland</b>					
Total GDP	176.6	4.5	100.0	100.0	100.0
Mining & quarrying	147.2	3.0	2.4	2.0	1.5
Agriculture & forestry	116.9	1.2	6.8	4.5	1.5
Manufacturing	175.5	4.4	46.6	46.3	45.9
Construction	199.0	5.4	7.1	8.0	9.2
Services	186.6	4.9	37.1	39.2	41.9
<b>Slovakia</b>					
Total GDP	168.7	4.1	100.0	100.0	100.0
Mining & quarrying	52.1	-4.9	1.6	0.5	-1.1
Agriculture & forestry	93.4	-0.5	6.5	3.6	-0.6
Manufacturing	123.6	1.6	46.4	34.0	15.9
Construction	133.2	2.2	9.5	7.5	4.6
Services	254.9	7.5	36.0	54.4	81.2

**Table 22.** Labour productivity by main sectors

	<i>Index 2005</i> <i>(1992 = 100)</i>	<i>Growth rate</i> <i>1992-2005</i>	<i>Average rate</i> <i>equal to 100</i>	<i>Average productivity = 100</i>	
				<i>1992</i>	<i>2005</i>
<b>Czech Republic</b>					
Average in the economy	129.4	2.0	100.0	100.0	100.0
Mining & quarrying	117.8	1.3	63.2	100.7	91.7
Agriculture & forestry	89.7	-0.8	-41.7	61.4	42.6
Manufacturing	164.2	3.9	194.3	133.0	168.8
Construction	215.6	6.1	304.3	158.5	264.2
Services	112.0	0.9	43.7	72.8	63.0
<b>Hungary</b>					
Average in the economy	158.8	3.6	100.0	100.0	100.0
Mining & quarrying	127.0	1.9	51.3	187.5	150.0
Agriculture & forestry	209.2	5.8	161.4	43.4	57.1
Manufacturing	175.1	4.4	121.6	114.9	126.7
Construction	208.7	5.8	160.8	87.0	114.3
Services	131.1	2.1	58.2	114.9	94.9
<b>Poland</b>					
Average in the economy	157.3	3.5	100.0	100.0	100.0
Mining & quarrying	369.4	10.6	298.2	77.4	181.8
Agriculture & forestry	193.3	5.2	146.7	20.1	24.7
Manufacturing	126.7	1.8	51.9	209.0	168.4
Construction	203.5	5.6	158.4	114.5	148.1
Services	120.3	1.4	40.4	107.2	82.0
<b>Slovakia</b>					
Average in the economy	151.2	3.2	100.0	100.0	100.0
Mining & quarrying	105.0	0.4	11.7	177.8	123.5
Agriculture & forestry	125.6	1.8	54.7	54.2	45.0
Manufacturing	148.3	3.1	95.3	143.2	140.5
Construction	142.1	2.7	84.8	95.0	89.3
Services	173.1	4.3	133.5	80.5	92.2

**Table 23. Employment by main economic sectors**

	Index 2005 (1992=100)	Growth rate 1992-2005	Structure		Structure of increase
			1992	2005	
<b>Czech Republic</b>					
Total employment	107.2	0,5	100.0	100.0	100.0
Mining & quarrying	45.9	-5.8	2.8	1.2	-21.0
Agriculture & forestry	69.7	-2.7	8.3	5.4	-34.8
Manufacturing	72.4	-2.5	37.9	25.6	-145.0
Construction	107.2	0,5	5.3	5.3	5.3
Services	146.6	3.0	45.7	62.5	295.6
<b>Hungary</b>					
Total employment	97.4	-0.2	100.0	100.0	-
Mining & quarrying	67.6	-3.0	1.4	1.0	-
Agriculture & forestry	52.2	-4.9	19.6	10,5	-
Manufacturing	87.1	-1.1	25.2	22.5	-
Construction	98.8	-0.1	6.9	7.0	-
Services	122.5	1.6	46.9	59.0	-
<b>Poland</b>					
Total employment	112.3	0.9	100.0	100.0	100.0
Mining & quarrying	39.8	-6.8	3.1	1.1	-15.2
Agriculture & forestry	60.4	-3.8	33.8	18.2	-109.0
Manufacturing	138.4	2.5	22.3	27.5	69.9
Construction	97.8	-0.2	6.2	5.4	-1.1
Services	155.1	3.4	34.6	47.8	155.4
<b>Slovakia</b>					
Total employment	111.6	0.8	100.0	100.0	100.0
Mining & quarrying	49.6	-5.3	0.9	0.4	-3.9
Agriculture & forestry	74.4	-2.3	12.0	8.0	-26.5
Manufacturing	83.3	-1.4	32.4	24.2	-46.6
Construction	93.7	-0.5	10.0	8.4	-5.4
Services	147.3	3.0	44.7	59.0	182.5

Changes in the value added structure, together with the sectoral pattern of changes of the labour productivity resulting both from the growth of the fixed capital endowment per employee and from restructuring processes (especially in the primary sector), result in the changing employment structure (table 23).

The scenarios presume the transformation of the labour structures, namely that in accordance with the international trends the proportion of industrial and agricultural employees will decrease, while the labour demand of the broadly interpreted service sector will increase significantly (the only partial exemption from this rule is Poland, dealing with the major task of the massive shift of employment from agriculture: consequently, the share of industry in employment will increase).

The share of employment in agriculture will fall considerably in all the countries. In the year 2005 it will range from 5% in the Czech Republic and 8% in Slovakia (both close to EC 1990 standards) through 10% in Hungary to 18% in Poland. The high share of the agricultural employment in Poland will be maintained despite a fast process of its reduction (the share falls in the period 1992-2005 by almost 50%).

The share of mining and quarrying in total employment will shrink to about 1% in all the countries (similar level to EC 1990 standards). The share of manufacturing will fall to about 25% in all four countries.

Services share in employment will grow quickly, reaching 60% in all the countries but Poland (in Poland it will only reach 48% of total, mainly because of an excessive employment in agriculture).

Table 24 shows structural change intensity and similarity with the EC employment structure coefficients for the four countries.

**Table 24.** Structural change in the economics \*

	<i>Structural change intensity coefficient in the period 1992-2005</i>		<i>Similarity coefficient of the employment structure between the country and EC</i>	
	<i>Value added</i>	<i>Employment</i>	<i>1992</i>	<i>2005</i>
Czech Republic	88.3	83.2	80.7	96.2
Hungary	95.9	87.8	83.4	95.5
Poland	97.0	81.6	70,5	82.9
Slovakia	82.7	85.7	81.1	94.9

\* Intensity of the structural change (in a period) and a distance between 2 structures (in the same moment) are measured by a coefficient defined as  $\sum_i \min(x_i, y_i)$ , where  $x_i, y_i$  mean shares of the sector  $i$  in the first and the second structure respectively. If 2 structures are identical, or there was no structural change, the value of the coefficient is equal to 100. The smaller the value of the coefficient, the bigger the distance between 2 structures.

The coefficients show that Slovakia will witness the fastest change of the value added structure in the period 1992-2005 (Poland has the smallest change). On the contrary, Poland has the intensive structural change in employment<sup>11</sup>. The employment structures in 1992 vary significantly from the EU average in all the countries (the biggest difference in Poland). However, until the year 2005 the Czech and Slovak Republics and Hungary approach the EC 1990 structure, and Poland substantially reduces the distance (that remains still high).

<sup>11</sup> Such an outcome is possible, because of the specific pattern of the Polish employment restructuring. A radical reduction of the agricultural employment has almost no impact on the value added structure.

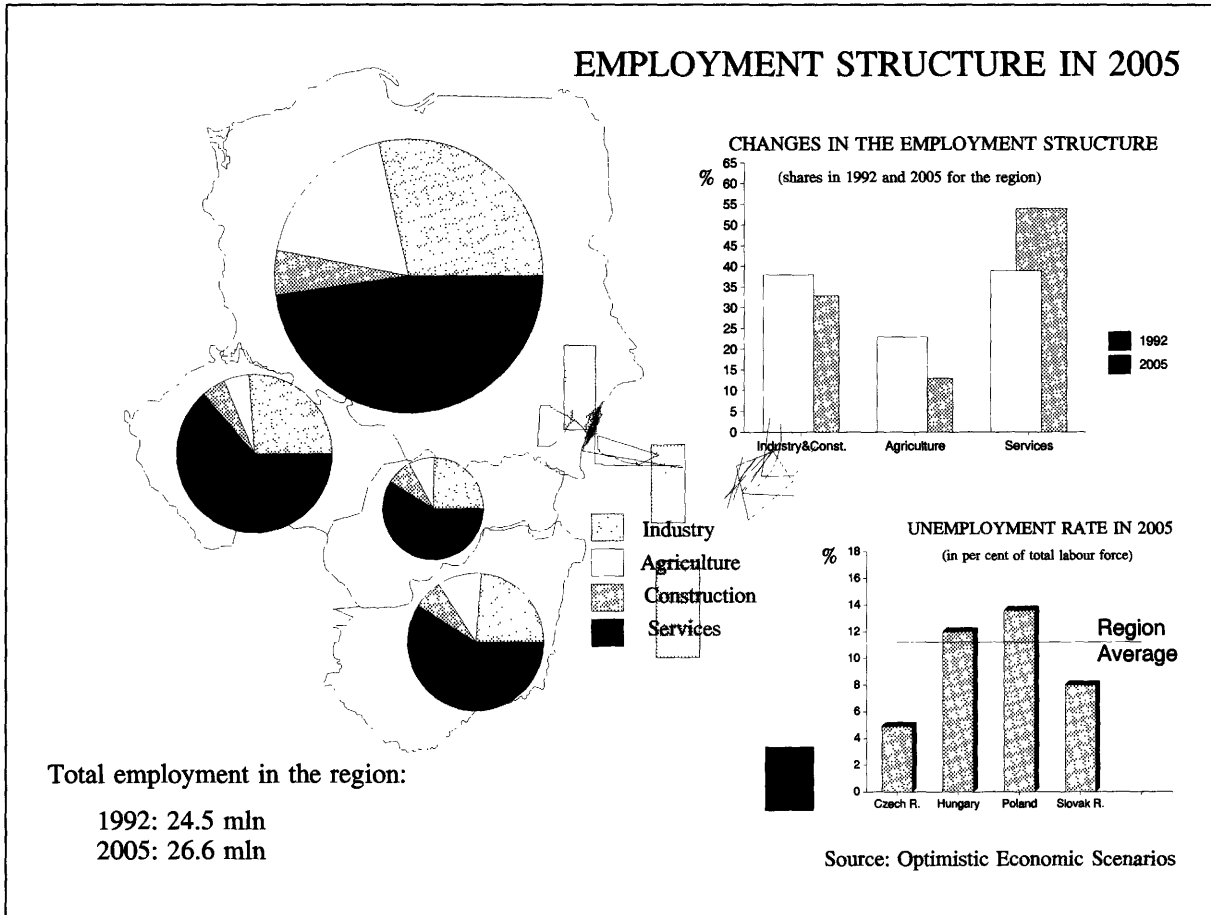


Figure 12. Employment in the Central European countries, 2005.

#### 2.4.6. Overall assessment of results

The scenarios of the economic development of the Central European countries show a considerable progress that may be obtained in all four countries until the year 2005. The following figure 13 compares the growth rates of various economic categories in all the scenarios with region's averages:



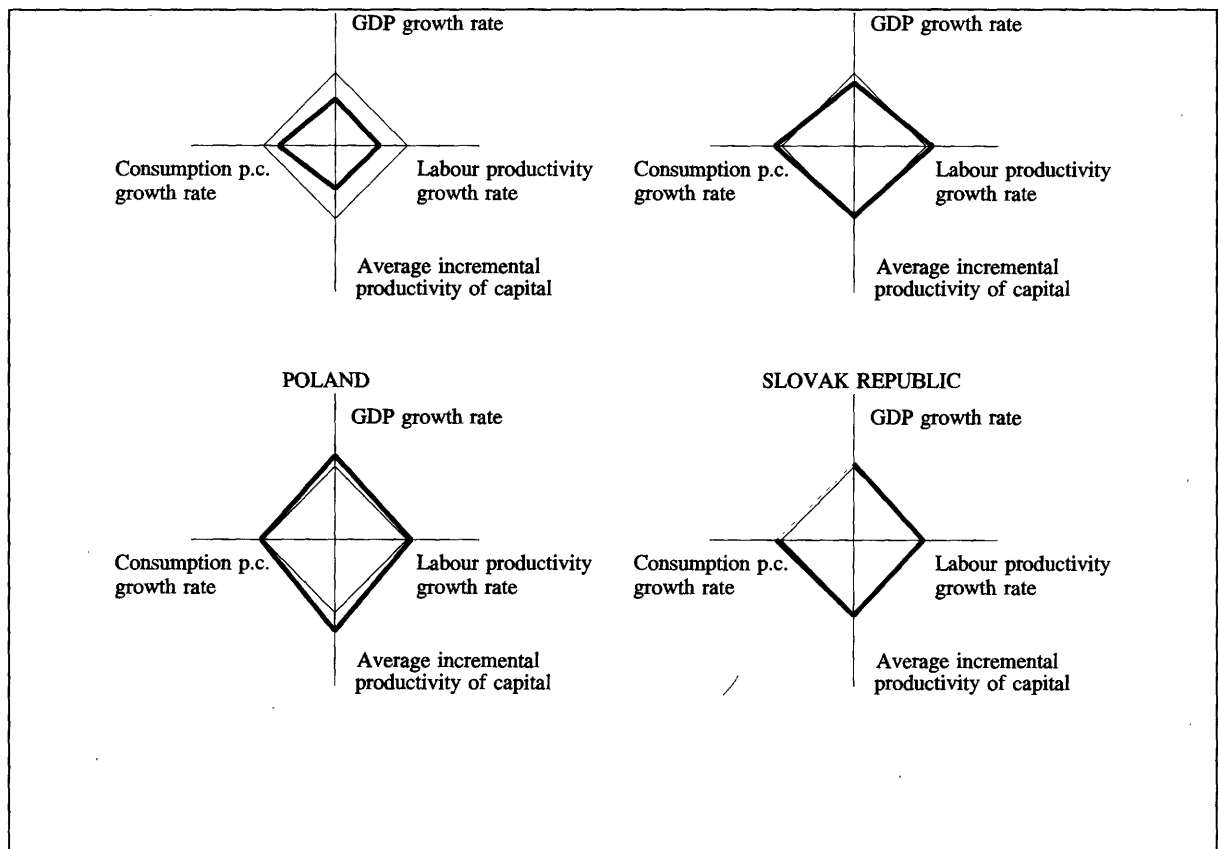


Figure 13. Economic development of the Central European economies, 1992-2005.

All the scenarios end with the similar balance between the three growth rates and the incremental productivity of capital (reciprocal of the ICOR). All the quadrangles are similar to the square. The most striking observation is generally more pessimistic pattern of the development of the Czech Republic (the area of the quadrangle much lower than the average). One may also note, that the aggregate growth characteristics (GDP growth rate and ICOR) are better than the average in Poland (the quadrangle is elongated), while the characteristics of the social efficiency of growth: consumption and labour productivity growth are better than the average in Hungary (the quadrangle is widened).

Figure 14 presents the economic situation of the Central European countries in 1992. The axes show the major imbalances that the CEC economies suffered.

The most difficult situation was this one of Poland (the biggest area of the quadrangle), the best situation was in the Czech Republic.

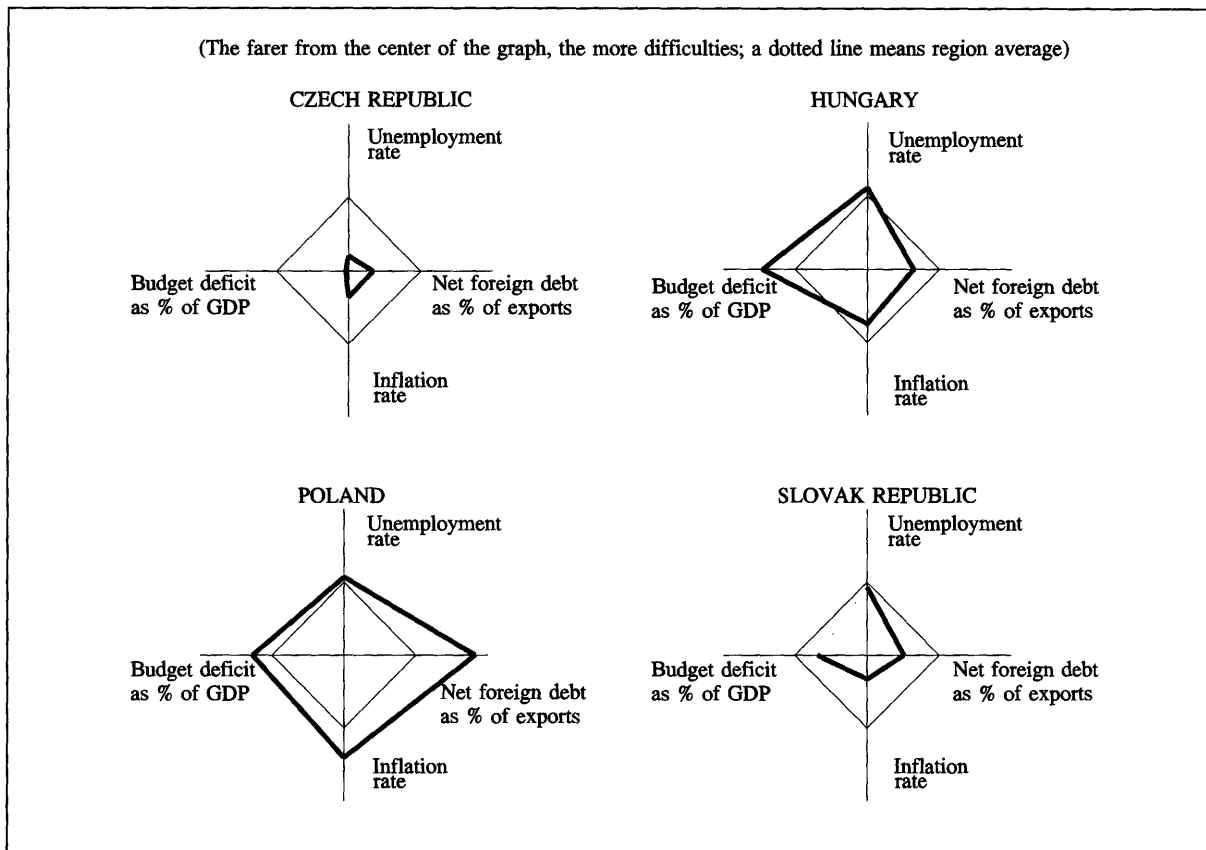


Figure 14. Major imbalances in the Central European economies, 1992.

The biggest problems of the Czech Republic were the foreign debt and inflation (both considerably below the region's average). The situation of Slovakia was worse, mainly due to the high unemployment rate and the budget deficit (the latter still below the region's average). Hungary suffered more tension than the Czech and Slovak Republics, mainly because of the highest budget deficit out of the four, high unemployment rate (also above the average), foreign debt burden and inflation (both high, but below the four country average). Finally Poland had all the indicators worse than the four country average, with especially big problem of the foreign debt and more than average inflation and the budget deficit. Only in the case of the unemployment rate the situation of Poland did not differ significantly from the four country average.

The similar figure 15 presents the situation in 2005.

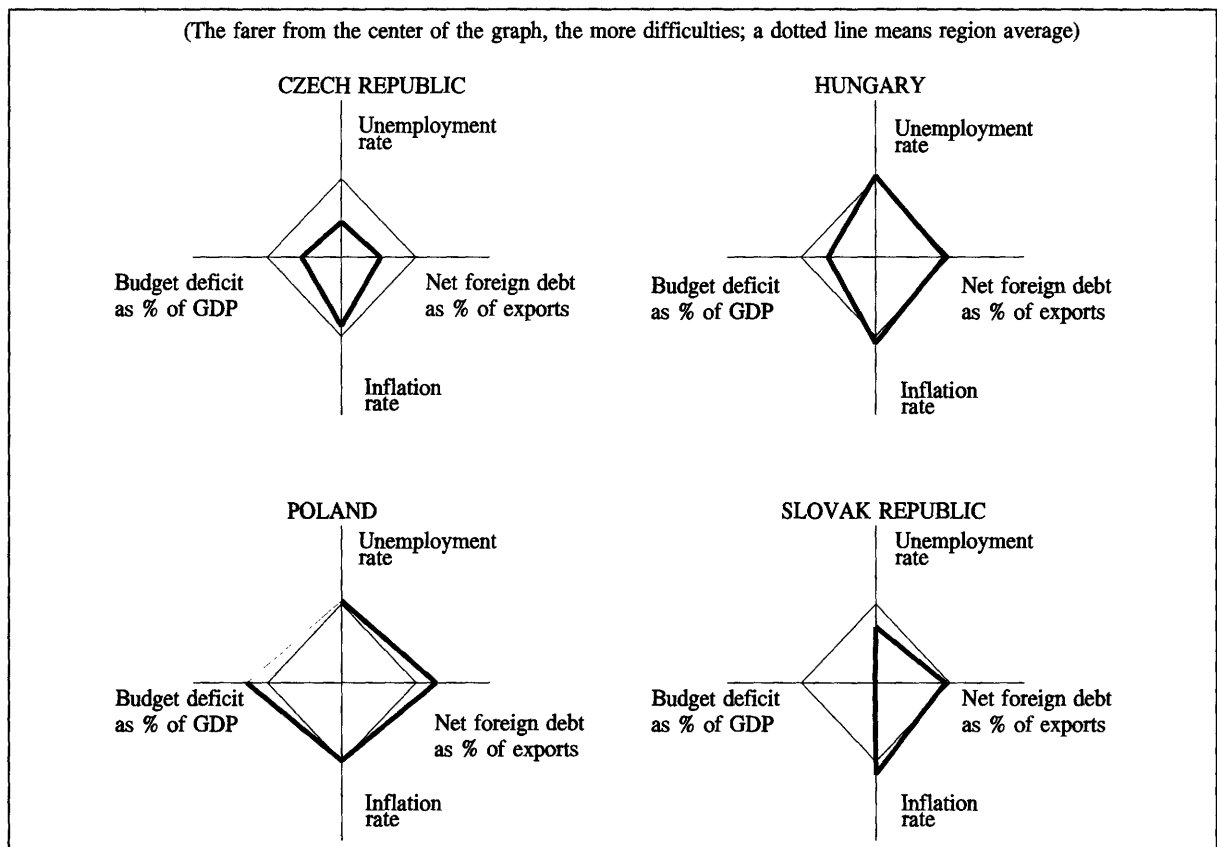


Figure 15. Major imbalances in Central European countries, 2005.

The ranking of the countries by the relative scope of macroeconomic imbalances (represented by the area of quadrangles) has not changed. However, the differences between the areas have diminished considerably, and all of them have approached the average (the shape of a square; the only exemption is Slovakia, that has obtained a better than the other countries budgetary equilibrium).

The Czech Republic still occupies the smallest area of the quadrangle. All the economic imbalances are smaller than in the other three countries. Slovakia has the debt burden and inflation indicators close to the region's average, but no budget deficit and the unemployment rate considerably smaller. Hungary has all the indicators close to the region's average, with the exemption of the smaller than average budget deficit. Poland has the biggest area and a widened shape of the quadrangle, resulting from the bigger than average budget deficit and foreign debt problems. Generally speaking, the Central European countries in the year 2005 are more resembling each other from the point of view of the major macroeconomic problems to deal with than it was in the year 1992.

It could be noted that the Czech Republic having the best situation as far as major imbalances are concerned, has at the same time the lowest indicators of economic development in the period 1992-2005.

## 2.5. Major challenges for the economic scenario

The challenges for the scenarios for all the Central European countries are manifold and often common for all four countries. It is impossible to deal with them in the framework

of this summary survey, so we will restrict ourselves to pointing them out. The most important challenges of key systemic importance are:

### **2.5.1. Availability of resources to finance ambitious investment programs**

The resources may originate from both internal and external sources. As far as internal sources are concerned there is a need to increase households' propensity to save (especially in Poland and Hungary). The basic preconditions are: stable money, low inflation, obvious incentives for savings including taxation and interest rates policy.

Another important element of the internal sources are savings of firms. An accelerated depreciation should be allowed and investment tax reliefs should be expanded. The tax system should allow for the increase of the profitability of both private and state owned firms. Public sector deficits should be reduced to avoid the crowding-out effect.

The second important source of investment funds is the foreign capital. All the measures should be undertaken to encourage the inflow of foreign investments. The basic preconditions for attracting foreign investors are: political, social and economic stability; stable rules of economic game; transparent ownership rights; systemic inventiveness (conditions not worse than in the competitor countries — including the poorest EU countries, Latin American countries and ex-Soviet countries).

Sensitivity analysis showing the importance of the problem of disposability of investment funds for the scenario was executed only for Poland (presented in the Part IV of the Polish national scenario). The general conclusion is that a lack of resources and incentives for extensive investment may be one of the most important (or simply the most important) factor that may endanger the realisation of the scenarios in all the CEC.

### **2.5.2. Foreign debt burden**

All the Central European countries must normalise their situation on international financial markets. The policies that may be applied to obtain it depend on the initial situation of the countries and may vary. However it is essential that each country works out the solution acceptable for both the country and its creditors. Lack of such an agreement may jeopardize the growth pattern presented in the scenario (compare the sensitivity analysis executed for Poland).

### **2.5.3. Access to major foreign markets**

A broad access to the EU markets is of a crucial importance for the Central European countries. Favourable trade conditions may be created in the framework of Association Agreements (Europe Agreements) with the EU. The major threat for this process may come from the excessive use of protectionist trade policy tools on both sides.

Every effort should be made to rebuild trade links with the area of the ex-USSR (the economic chaos and lack of foreign currencies in the former Soviet Republics may be a major obstacle).

The economic cooperation among the Central European countries should be encouraged as well. There is a room for a significant improvement in this field, since the current level of economic cooperation is regarded as not satisfactory.

#### **2.5.4. Appropriate choice of technology**

Economic policy inducing a technological change should take into account contradictory effects of the choice of the type of technology.

It is extremely important that the countries follow the mainstream of technological development. Imports of new technologies should allow the inflow of up-to-date technological know-how, leading to an improvement of the efficiency of the economy through the increasing productivity of labour and capital. Only under such conditions the competitive position of the Central European countries may be maintained or even improved.

On the other hand the increasing productivity of labour (a product of a capital intensive technology) may create a major danger for the policy of countervailing unemployment. The resulting social tensions might jeopardize the path of economic reforms and growth.

#### **2.5.5. Creation of the market friendly environment**

In spite of the continuous reform programs the level of development of the market infrastructure in the Central European countries still differs significantly from the developed market economies. Further efforts are needed for the development of the economic institutions such as banking and financial system, financial regulations, insurance institutions (including the system of guaranties and re-insurance), labour market regulations etc.

#### **2.5.6. Microeconomic change on the firms' level and privatisation**

Privatisation of the big state owned firms plays a major role in inducing the microeconomic change, crucial for the macroeconomic success of the transition economies. Growth of the share of the private sector (more efficient than the public sector) is a precondition for obtaining high rates of growth of GDP and of total factor productivity. The role of the State in the economy should be limited. The public sector should be reduced to a well defined level and limited to fields of a strategic importance.

#### **2.5.7. Macroeconomic imbalances**

All the Central European countries must proceed the economic policy aimed at a reduction of macroeconomic imbalances, such as: cost pushed and demand pulled inflationary pressure, balance of payments problems, budgetary problems, unemployment. It should be realised by policy makers that cumulation of economic imbalances may slow down or even stop the process of growth. As it was stated before, a persistent situation of high unemployment rates and stagnation of the real income may lead to social and political tensions.

#### **2.5.9. Restructuring the agricultural sector**

The level of development, share in the total GDP and employment, ownership structure and the way of functioning of agricultural sectors differs among the Central European countries. The Central European countries are likely to produce important surplus of food and to try to locate it on the foreign markets.

The Central European countries should work out appropriate long-term agricultural policies, first of all promoting growth of efficiency of their agriculture. The policies must take into account various constraints: budget constraint (the Central European countries can not afford high-costly subsidising systems), social constraint (the outflow of people from agriculture must be controlled to avoid the rapid growth of unemployment, especially in Poland), external constraint (the effective foreign demand for CEC produced food will be probably limited in the EU and the other OECD markets by trade policies, and in the former Soviet Republics by a lack of foreign exchange; thus obtaining the broadest possible access to foreign markets and maintaining competitiveness of the CEC agricultural products have the vital importance for the agricultural policies).

Restructuring of the agricultural sector will create one of the most difficult elements of the process of the economic integration between the EU and Central European countries. The agricultural policies should be aimed at reducing the obstacles in this process.

### **2.5.9. Long term problems of the social security financing**

Serious threat for the economic growth may be also induced by a system of financing the social needs. The existing social security systems of the CEC do not correspond to new economic conditions and must be profoundly reformed. Lack of such a reform would lead to a growing gap in social security funds and eventually to an increase of the budget deficit. The importance of the problem is enhanced by demographic processes in the region.

### **2.5.10. Central European countries vis-à-vis Maastricht**

National scenarios assume that the target of joining the European Union will be achieved by all the Central European countries. However, the Maastricht convergence criteria may be extremely difficult to meet in the horizon of the year 2005. Therefore the preferential treatment of the Central European countries by the European Union has an essential importance for fulfilment the scenario.

While evaluating membership applications of the Central European countries, the European Union should not concentrate only on their present economic situation and level of development. Several factors of a potential future importance for the Union should be taken into consideration. They include:

- the social and intellectual potential of the CEC;
- the anticipated size of the market, the likely structure of the demand favourable for West European exporting industries
- the possible high growth dynamics of the CEC;
- the special role of a bridge between the European Union and the East (former USSR area) that may be played by the Central European countries.



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## Chapter 3

### SOCIO-POLITICAL PROCESSES

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#### 3.1. Social structure

Social structure in Central European countries is largely the result of the communist past. In the early period of the communist rule, a radical agrarian reform was carried out, dispossessing landowners; the industry and then retail trade were nationalised. In this manner the government put an end to the class of big landowners as well as small-scale owners working on their own. In the 1950s a large-scale collectivisation of agriculture was undertaken, which dispossessed small farmers. The establishment of the collective farms was fully successful in Czechoslovakia and Hungary, but in Poland it ended in failure, both because of farmers' resistance and due to lack of determination of the authorities. After 1956, the Polish government utterly abandoned collectivisation in agriculture.

The 'socialist industrialisation' which caused migration of population from rural to urban areas and to industry was another factor of changes in the social structure. In Poland it contributed to emergence of a numerous stratum of peasant-workers (called in Polish bi-professionals) who continued to keep their small farms and at the same time worked in factories.

As a result of this transformation, social structure in the post-communist countries is characterised by a much higher share of hired labour than in Western countries, including the blue collar and the white collar employees, and additionally by a high share of farmers. However, there the middle class, entrepreneurs and well-paid specialists are poorly represented in the socio-professional structure.

It should also be added that structural transformation of the society after the Second World War overlapped the previously existing differences. In the Czech Republic and in Hungary there existed a strong lower middle class, but in Poland and Slovakia it was much weaker. In the two latter countries, the stratum of peasants was numerous; in Poland there was also a class of the gentry deeply rooted in the tradition of the nobility.

The results of comparative studies on social stratification show that peculiarities of social structure in Central European countries are well perceived, because the persons interviewed see their place in the society in a different way than the citizens of Western countries (see table 25).

**Table 25.** Self-ranking on the stratification axis of social position in 1991

<i>Country/ranking</i>	<i>Low</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>High</i>
Czech Republic	9.1	34.9	47.4	8.2	.5
Hungary	14.2	37.6	43.1	4.8	.2
Poland	15.3	30.6	43.7	9.1	1.3
Slovakia 5.0	42.4	47.4	4.0	1.2	
West Germany	2.8	16.4	49.8	29.0	2.0
Netherlands	1.2	6.0	43.0	47.6	2.1

*Source:* M.Tucek: Social class structure of Society in the Czech Republic.

The table shows that a considerable part of respondents, in the West and in post-communist countries alike, place themselves in the middle of the scale. The greatest differen-



ces occur on its borders. In the Central European countries much more people locate themselves on the lower levels of the scale, unlike the Western countries, where a larger number of respondents declare themselves as upper middle class and upper class. A subjective dimension of social structure is well depicted by its real, flat and peakless character.

Four years of systemic transformation gave rise to transformation of social structure: first of all, the category of entrepreneurs increased and the process of restoration of the middle class (see table 26).

**Table 26.** Socio-professional structure in 1992 and the prospected structure in 2005, in %

<i>Country</i>	<i>Higher professionals</i>	<i>White collar employees</i>	<i>Entrepreneurs</i>	<i>Blue collar workers</i>	<i>Farmers</i>
1992					
Czech Republic	8	34	8	43	7
Hungary	8	38	7	33	14
Poland	6	27	7	40	20
Slovakia	8	35	5	46	6
2005					
Czech Republic	10	32	16	37	5
Hungary	12	34	12	32	10
Poland	10	31	9	36	14
Slovakia	12	32	13	38	5

In all countries, despite the difference in percentage value, in the particular categories there occur similar tendencies of changes in social structure: increase in the number of entrepreneurs and of intellectuals workers, as well as decrease of the share of workers and farmers in social structure. The share of peasants, except Poland, will be similar in all countries to that of the EU.

Modernisation of the socio-professional structure will entail the following processes:

- Continuing transfer of labour from agriculture to non-agricultural occupation;
- Continuing privatisation and increase of the number of self-employed;
- Progress of tertiary education;
- Increase of employment in services, including those of high quality;
- Decrease of industrial employment and of manual and partly also of routine non-manual work.

The transformation process will entail considerable disparities in population incomes and strong social stratification. On the one hand, the gaining strata, i.e. entrepreneurs and highly qualified specialists, will become clearly distinguished; on the other hand, a number of population groups will appear which will relatively lose or benefit solely to a small extent due to transformation. The losers will chiefly include workers, especially low-qualified ones, some groups of pensioners and part of rural population. High unemployment, which will range from 10 to 20% (depending on the country), will give rise to severe social tensions.

## **3.2. Social attitudes during systemic transformation**

### **3.2.1. Factors determining socio-political attitudes**

The most important factors affecting socio-political attitudes in Central European countries in the early 1990s are as follows: 1. class and stratum position; 2. cultural tradition;

3. communist heritage, 4. group identification; 5. place of residence; 6. economic and political crisis as well as shattered hopes related to the fall of communism<sup>12</sup>.

1. The attitudes of higher staff and white collars, including managers and entrepreneurs, differ from the attitudes of blue collars with reference to major economic problems, such as: social inequalities, priorities in price regulation, worker's self-government, acceptance of the authority in the enterprise, and attitude toward state intervention in the economy.

Blue collars - more often than other social categories - are opposed to social inequalities, approve of the administrative regulation of incomes, are the supporters of participation of the employees in the management of the enterprise, and are in favour of state interventionism. Since the percentage of blue collars in social structure is very high, their attitudes are of great social importance.

2. Cultural factors determining social attitudes are the outcome of historically accumulated common experiences, the most persistent and common being the influence of religion and the related institutions and habits. Despite an all-embracing influence of modern civilisation, these differences appeared to be long-lasting and the Catholics differ from the Protestants not only in case of comparisons between countries but also within individual countries. The attitudes of adherents of a given religion result not so much from current recommendations of the Church authorities as from the character of world outlook, particularly from definite relations between God and people.

The results of current investigations show that - in general - the Catholic milieu exhibits greater tendency than the Protestants to collectivism, group unification of behaviour, greater political and moral tolerance, preference of cooperation to competition, justice to the property laws and demand for state interventionism.

This leads to the conclusion that the influence of the Catholic religion, due to seemingly uniform character of the society - in terms of the religion professed - is greater in Poland than in the Czech Republic or in Hungary, where the influence of Protestantism was much stronger.

Apart from the impact of religion on social attitudes, of importance is also the tradition of the burger's culture which was much stronger in the Czech Republic and Hungary, but much weaker in Slovakia and Poland.

3. Communism and its economic and political institutions are other factors which shaped socio-political attitudes of Central European societies. (So far, no systematic comparative studies were conducted to evaluate how communism shaped people's attitudes). It used to refer to earlier popular archetypes justice, wise authority and perfect equality of people, which enables unlimited social promotion. Besides, communist institutions created a specific system of group interests, clearly emphasising their etatist and revindication character. However, the influence of communism on social attitudes is often overestimated, since the cultural background of Central European societies, as well as the influence of traditional values preserved in the family, and in Poland the force of influence of the Catholic Church, in some way levelled the ideological pressure of the regime.

4. Another factor shaping socio-political attitudes in post-communist countries was the type of social identification through family-colleague groups, which certainly exist in any society, **but in countries which experienced communist regime, family-colleague groups, due to their protective functions against the institutions of an all-embracing state, acquired an exceptionally great influence on the life of individuals.** This indicated that

<sup>12</sup> In Czech opinion polls, age is an important independent variable.

the family-colleague groups not only satisfied basic existential needs but also constituted and continue to constitute the principal forum for political expression. Thus, these groups have come to be the basis for the structuring of the society and a strong field for social identification.

This situation resulted in the demand - learned in the course of everyday socialisation - for emotional contact in the public sphere with members of one's own group; thus, people adversely react to impersonal characters of ties indispensable in economic and political organisations. The displacement of the economic or political activity beyond the micro-group impairs its system of ties. This counteracts the establishment of associations that might be a field of different social identification than the micro-group.

The relations in micro-groups are usually informal, therefore the stress is laid on equality and consistence of views and behaviour. The groups shape people in an egalitarian way, emotionally rather than pragmatically, and react negatively to any aspects of competition.

5. The influence of the place of residence on socio-political attitudes is quite important, too. For example, the investigations conducted in Poland show that differences in town size - regardless of structural differentiation, including the type of industry, education level, or professional structure - are significantly bound up with differentiation of socio-political attitudes. There is a clear-cut division between the syndrome of attitudes of a large town, differing from those prevailing in smaller towns. In bigger cities we observe a relatively stronger feeling of alienation, political radicalism, weaker authoritarianism and lesser psychical comfort. Against this background, the attitudes of rural inhabitants are quite distinct, being characterised by equally great feeling of alienation as in a large town, high intensity of authoritarian attitudes and greater sense of psychical comfort.
6. Strong indications of pessimism, both with regard to the situation of the country and of an individual's own situation, result not only from the objective economic situation, which, for example in Poland has shown some symptoms of improvement since 1992, but first of all from shattered hopes. Instead of a radical improvement of material standards - as had been expected - the standard of living of the majority of Central European societies has considerably decreased (though to various extent in the particular countries), unemployment appeared, which was not known before, free or half-free social benefits were cut. It is, therefore, easy to understand that pessimism and frustration are gaining in strength, the latter - especially in Poland - finding its expression in attempts to protest: numerous strikes and demonstrations.

### **3.2.2. General assessment of transformation**

The investigations conducted in four countries of the Visegrad Group on the assessment of systemic transformation have brought fairly pessimistic results<sup>13</sup>. In June 1992 more than 50% Czechs and Slovaks (before the split of the federation) believed that the economic situation in their country would improve in the future. The Poles expressed almost the same economic optimism in October 1992. In June 1992 some 50% of the Hungarians did not expect economic improvement, while in October 1992, the number of the pessimists in this country rose to 60%<sup>14</sup>.

<sup>13</sup> The MACRO P.J.G. surveys conducted in June and October 1992 in Czecho-Slovakia, Hungary and Poland.

<sup>14</sup> The chapter includes information from public opinion polls in four countries. But it should be borne in mind that these data cannot be fully compared because the questions asked were not always identical. Thus, the results of the investigations are barely estimates.

In all four countries under investigation the perception of the most acute public issues was similar. The respondents pointed to the following factors endangering social equilibrium: increasing risk of unemployment, decreasing incomes and growing distrust of public opinion vis-a-vis the policy of systemic transformation.

The assessment of a new system based on the market economy and a democratic system of government has by no means been univocal, which is evidenced by the answer to the question: *'How do you evaluate the present regime as compared to the previous one'* (see table 27). In June 1992, over 50% of the Czechs and Slovaks (before the split of the federation) believed that the economic situation in their country would improve in the future. The Poles reached almost the same level of economic optimism in October 1992. In June 1992, some 50% Hungarians did not expect economic improvement, while in October 1992 the number of pessimists in this country rose to 60%.

Table 27. Evaluation of the present regime\*

Country	<i>much better</i>	<i>better</i>	<i>the same</i>	<i>worse</i>	<i>much worse</i>
Czech Republic	26	45	14	11	4
Hungary	4	28	28	31	9
Poland	18	33	26	11	12
Slovakia	8	35	22	20	15

\* The question was: 'What is the present regime like, compared with the former one?'

Source: M. Tucek: Popular Attitudes Towards the Transformation of Czech Society. According to: the International Research Dismantling of Social Safety Net (1991).

The results show that only the Czechs univocally evaluate systemic change. Only some 15% of the respondents hold that the present regime is worse than the previous one. The Poles are more sceptical, sharing this opinion in 23%. On the other hand, 35% of the Slovaks and 40% of the Hungarians state that the previous regime was better.

Also the investigations conducted by 'Eurobarometer' in 1992 in 18 countries of Eastern and Central Europe as well as in the former Soviet republics confirm sceptical feelings vis-a-vis the results of democratic and market reforms. Many citizens believe that the communist political system was better than the present variety of unstable democracy: 53% of the Hungarians and 39% of the Poles held that the previous system was better (only 34% of the interviewed Poles answered that they were more satisfied with the present democracy).

General assessment of the market economy was less negative than the evaluation of efficiency of democratic institutions. In all countries under investigation the number of people dissatisfied with democracy exceeded the number of those who were satisfied. A certain improvement in the assessment in 1992 (in comparison with 'Eurobarometer' 1991) was recorded in the Czech Republic (by 10 points) and in Poland (by 5 points). However, in Slovakia and Hungary positive perception of democracy was less frequent than in 1991.

There were also great differences in the degree of approval for the governments, their achievements and efficiency in pursuing their policies. More than two-thirds of the Hungarians disapproved of the policy of their government, and only less than 10% were ready to support the style and contents of this policy. The Poles were sceptical with regard to the achievements of H.Suchocka's liberal-Catholic coalition, but the number of supporters was slightly higher than the number of opponents in October 1992. In the autumn of the same year, the Czechs and Slovaks were most satisfied with the achievements of their government despite some anxiety in view of the split of the federation.

It should be added, however, that the sources of dissatisfaction with the ongoing transformation are twofold. On the one hand, there are opponents of capitalist transformation of the economy (retrogrades); on the other hand, there are people expressing discontent regarding the rate and compromise character of changes (radicals).

The citizens of Central Europe are afraid of their future and this feeling is shared by the majority of the respondents in four countries (see table 28).

**Table 28. Anxiety of the future\***

Country	Definitely yes				Definitely no
	1	2	3	4	5
Czech Republic	29	33	24	10	4
Hungary	57	28	13	2	0
Poland	52	35	8	4	1
Slovakia	48	31	15	5	1

\* The question was: 'Are you afraid of losing your social security? Are you uneasy about the future?'

The inhabitants of Central European countries are afraid of their social security and they are also full of anxiety about their future. The greatest pessimists are the Hungarians and then come the Poles, Slovaks and Czechs.

In all post-communist countries there is a common element - an 'enforced optimism'. In all four countries the majority of public opinion expected that their country will be the first one to catch up with Western standards. Even the most pessimistic Hungarians (only 5% declared that they were better-off thanks to transformation) thought that they would be the first among the four countries to fill in the civilisation gap and join the Western societies. In 1992 the Poles thought that Hungary and Czechoslovakia will be the first to attain the expected well-being, but in October 1992 their self-confidence grew and most of them believed that Poland will be able to win this race (Hungary was expected to be in the second place and Czechoslovakia the last one). The Hungarians continued to believe they would be in the first place and their optimism was greater in October than in June.

The enforced optimism may be interpreted as a variety of psychological adjustment to the risk of being forgotten, left to oneself or play a secondary role. Eastern Europeans inherited a bad legacy: the feeling of being dominated by stronger states and fear of isolation from the West. Even though the risk of new dependence on banks (instead of Soviet tanks) is high, many Eastern Europeans believe that catching up with Western standards of modernity is the only and best road of development. This delayed modernisation and strong tendency towards acceptance of Western culture was rightly called *die nachholende Revolution* by J.Habermas. Thus, many people who are pessimistic about the achievements of their country are inclined to express a kind of optimistic self-confidence relative to their future status under West European institutions. They may possibly feel that they must be optimistic if they want to avoid being removed to the margin and subordinated by exclusion.

### **3.2.3. Evaluation of economic transformation**

Social attitudes vis-a-vis economic transformation may be divided into two major orientations: individual-market and egalitarian-regulation. The former accepts the view that the economy and individual life history should be regulated by impersonal market-oriented mechanism to be based on competition and rivalry. Such attitudes are relatively widespread, which points to strong acceptance of capitalist economic institutions.

The latter indicates that there is demand for the regulatory role of the state in the economy, coupled with income redistribution to level social inequalities. Such attitudes clearly evidence the lack of acceptance or at least a reserve with regard to pro-capitalist economic reform.

An indication of egalitarian-regulatory-oriented attitudes may be the opinion about unemployment, as well as a postulate of direct state intervention in the economy.

In the post-communist countries there is a tendency to back up the policy of full employment and state interventionism. For example, in Slovakia only 10% of respondents are definitely opposed to state intervention in the economy, and the further 15% are moderately opposed. The sizable percentage of the respondents (41%) is in favour of mixed economy coupled with some market and socialist elements.

The Central European societies are still characterised by the egalitarian-regulation-oriented attitudes. The results of the investigations also show that a progressing differentiation of the living standards leads to considerable frustration. They also show a defensive reaction to increasing social inequalities, stemming probably from distrust of own abilities to cope with a new situation. The occurrence of inequalities does not entail inclination to achieve more than the other people, but rather the fear that one will lose in competition for a better social position. For example, in the Czech Republic some 60% of citizens hold that there should not be too great differences between the rich and the poor. A similar view is expressed by 58% of respondents in Poland.

**Table 29.** The egalitarian-regulation-oriented attitudes

<i>Categories</i>	<i>Country</i>	<i>Support</i>	
		<i>Absolute</i>	<i>More or less</i>
Implementation of policy of full employment			
	Czech Republic	55	32
	Hungary	70	-
	Poland	46	31
	Slovakia	75	-
The State should regulate the economy	Czech Republic	32	48
	Hungary	70	-
	Poland	40	34
	Slovakia	80	-

### 3.2.4. Attitudes towards private property and privatisation

The attitudes towards private property in post-communist societies is fairly ambivalent. Although the majority considers private property as the fundamental right of each man, when it comes to more concrete situations views are more diversified. For example, in the Czech Republic 87% of the persons interviewed approve of the privatisation of small manufacturing workshops, and 75% of shops and restaurants, but in the case of large factories the percentage of supporters of privatisation is hardly 24%. In Poland it is distressing from the point of view of chances for the acceptance of systemic change in Poland, that the attitude of the Polish society toward privatisation has changed since the percentage of advocates of state-owned large industrial enterprises and banks increased from 58% in 1991 to 65% in 1993.

Attitudes towards privatisation in Slovakia are much more restrained than in the Czech Republic. In Slovakia 27% of respondents are of the opinion that privatisation causes

much evil than good, whereas in the Czech Republic the relevant percentage is 12%, and in Poland 18%. On the other hand, 40% of the Slovaks and 32% of the Czechs have ambivalent attitudes towards privatisation holding that it has just as many good as bad sides. In Hungary, privatisation is backed up by some 50% of the society, in the Czech Republic by 43%, in Poland by 32%, and in Slovakia only by 17%.

The attitude towards reprivatisation is moderate, too. For example, in the Czech Republic as many as 73% of respondents hold that real estates should not be returned to the former proprietors, except for restaurants and small workshops.

### 3.2.5. Attitudes towards democracy and democratic institutions

In all post-communist countries one can observe critical assessment of the operation of democratic institutions. This does not differ from the situation in Western countries, where critical opinions about democratic institutions are widespread, too. As compared to other Central European countries, the Polish society's attitude is more critical with regard to the operation of democratic institutions (see table 30).

**Table 30.** Confidence in principal political institutions

<i>Institution</i>	<i>Country</i>	<i>Confidence</i>
President	Czech Republic	72
	Hungary	-
	Poland	29
	Slovakia-	
Government	Czech Republic	58
	Hungary	-
	Poland	28
	Slovakia	-
Parliament	Czech Republic	34
	Hungary	-
	Poland	20
	Slovakia	-

The social attitudes in Central European countries toward democratic systemic change, just as with regard to the market-based economy are fairly ambivalent. For example, in Poland the fall of the communist system did not principally affect the opinions regarding a democratic or non-democratic character of the state, because the number of the answers that Poland is a democratic country, has increased since 1984 by only 14 points. A big section of the society holds that democracy comes to be a positive system only when it gives well-being, whereas only a minority considers it as an autotelic value.

In Hungary, about 70% of respondents hold that their country has a democratic system, but the majority does not approve of the way of functioning of public institutions (80-40%) and as many as 60% are of the opinion that the professional level of the present government is lower than that of the last communist government.

In post-communist countries one may observe authoritarian tendencies. For example, in the Czech Republic as many as 59% hold that the society needs a strong government, while in Poland, 36% of the persons interviewed are of the opinion that non-democratic governments may sometimes be better and more desirable than the democratic ones. In Slovakia as many as two-thirds of those interviewed in 1992 held that they 'needed a strong man who would make order'. In the subsequent interviews, maybe due to a different way of putting a question, the percentage of the supporters of strong government

considerably decreased, but the proportion of those being in favour of negotiation increased.

However, such a distribution of opinions might suggest that a sizable section of the society in post-communist countries would be inclined to accept, or at least not to be opposed, under some circumstances, to instalment of authoritarian rule. This may be interpreted by the absence of democratic tradition and getting accustomed to the situation when the authoritarian and paternalist state takes decisions for its citizens and tries to solve their fundamental problems in a better or worse way. It is well-known that the 'fear of freedom' was described in sociological and psychological literature, i.a. by Erich Fromm, as a hypothesis explaining a relative social popularity of the various authoritarian regimes.

The increasing importance of localism, emergence of the various forms of interplay on a regional scale, and the arising cooperation of transborder regions reveals the importance of local initiative and should encourage the reform of the governmental institutions.

Local authorities are perceived slightly differently and in a more positive way than central governing bodies, the number of positive assessments being on the increase. For example, in Poland in the interviews made in summer 1992, 35% of respondents held that their locality changed to better over the previous two years. A similar question put in April 1993, received a positive answer from 41% of respondents. Young people (aged up to 24 years) perceive the improvement even more clearly. In 1992 the percentage of optimists amounted to 40% and a year later it already reached 58%.

**Table 31.** The confidence in local government

Country	confidence rate in %			
	<i>Absolute unconfidence</i>	<i>Confidence with great objections</i>	<i>Confidence with small objections</i>	<i>Absolute confidence</i>
Czech Republic	5	18	50	27
Poland	15	37	29	19
Slovakia	11	33	40	16

The data show that the overwhelming majority of the respondents expresses confidence in representatives of local government, the highest percentage of confidence being found in the Czech Republic and the lowest one in Poland.

### 3.2.6. Attitudes toward national minorities

In all Central European countries there live national minorities, but their situation varies. As compared to the number of population, the greatest percentage of national minorities is to be found in Slovakia. The largest nationalities in Slovakia are the Hungarians (10.8%) and the Gipsies (4.8%). In the remaining countries national minorities play a minor part.

In Hungary, there are also national minorities, chiefly Gypsies, Germans and Slovaks.

For example, in Poland, apart from the native Silesian population, inhabiting a compact area in Katowice and Opole voivodships, which declares its German nationality, there is also the Byelorussian minority, living in north-eastern Poland, dispersed Ukrainian and Gipsy minorities, small number of Lithuanians inhabiting several villages in Suwalki voivodship, as well as a couple of others whose number ranges from a dozen or so to several thousand people. Generally, however, national, ethnic and cultural minorities in



Poland are not numerous and the country may be regarded ethnically as quasi-homogenous.

In all post-communist countries there are cases of xenophobia and nationalism. For example, almost 40% of the Poles hold that national minorities may cause damage, while 45% is of the opinion that they are of no use whatsoever. Fifty percent of the Polish population say that they were always better for other people, for which the Poles received more damage than the good. Other investigations show that 63% of the Polish society hold that foreigners - mainly Jews and Germans - are getting rich at the cost of the Poles. About 50% of respondents feels reluctance vis-a vis Gipsies. In the Czech Republic, negative attitudes towards Gipsies are declared by 65% of respondents, towards the citizens of the Balkan countries by 31% and towards the Germans by 13%. These data do not differ from similar information coming from other countries (though in Hungary they are reported to be lower); nonetheless, they evidence the occurrence of xenophobia in Central European countries.

### 3.2.9. Attitudes toward foreign policy

The policies aimed at integration with the European Union, NATO and closer relations with the West are widely accepted by Central European societies. For example, in Poland 74% of respondents are in favour of integration with the EU, only 9% being opposed to it. In the Czech Republic, in the interview conducted in March 1993, over 90% of citizens recommended the President to tighten relations with Western Europe and the United States, 83% approved of contacts with the Visegrad Group, 80% pointed to Germany, and 74% mentioned the contacts with the former USSR countries. Thus the opening of the Czech society is great.

Slightly different opinions have been recorded in the Slovak society, where 33% says that 'you cannot find support in anybody and you must only count on yourself', while 14% is in favour of Slovakia's neutrality, 24% backs up closer contacts with the West, including the EU and NATO membership, 15% supports relations with Central European countries, and 4% is in favour for closer ties with Ukraine and Russia.

A fairly peculiar psychological situation observed in Slovakia is no doubt the result of the split of the Czecho-Slovak Federation, and the speed of the process surprised a considerable part of the Slovak society.

The simulated referendum in a research in September '92 showed that in Slovakia 40% of citizens would have voted for *the split of Czecho-Slovakia* and 36% would have voted against it. In November '92 the support for the split increased to the maximum of the 46%. Never before and never after has the split been supported by so great a minority. At the moment it was influenced not only by an upsurge of illusion, but also by a climate of non-alternativeness. New political representation went too far at that moment. Trying to stop it could have led to rampant processes.

The retrospectively simulated referendum in March '93 showed a distinct decrease in those people approving additionally the split. Only 29% of citizens would have voted for it ('if a referendum would have been hold then'), another 50% of citizens would have voted against it. This shift is a reaction to a recent experience with the reality of worsened relations, with civic complications. This shift resulted from 'an exemption from situation' too. We may suppose that in the spring of 1993 the above-mentioned 'situation trap' dwindled from the minds of the voters.

In the population there is a strong conviction that Slovakia has not been prepared for a state independence yet. An edge of the reproach is partially oriented against the Slovak political representation; and partially against the inflexibility of Czech part and its 'unwillingness for a partnership based upon equal relations.'

In Poland, for example, a positive opinion about the European integration is related, however, to important reservations: 32% of respondents express fear that it might be associated with the exploitation enabling the location of technologies harmful to health and environment in Poland. At the same time, 52% of respondents point to the advantages of the accessibility of the latest technologies and world markets.

However, the approval of closer contacts with the European Union is not uncritical and is subject to certain fluctuations under the influence of the attitude of the Community vis-a-vis Central European countries. For example, restrictions in agricultural exports from Poland and Hungary to western markets introduced in 1993, cause a decrease in the number of advocates of the policy of European integration in these countries.

### 3.2.10. Attitudes toward religion and the Church

The attitude toward religion and the Church in post-communist countries is highly differentiated. The greatest degree of attachment to religion occurs in Poland and Slovakia, while it is considerably lower in the Czech Republic and Hungary.

Table 32. Relation of respondents to religion (in %)

<i>Country</i>	<i>Believe in God</i>
Czech Republic	24
Hungary	30-50
Poland	85
Slovakia	64

In Poland, the percentage of people declaring their faith in God is highest, but the faith is certainly not tantamount to behaviour as recommended by the Church. The number of people who practised regularly in Poland in the years 1984-1985 was 42%, while the number of those who practised irregularly was less than 37%. There were 13-15% of those who participated in the most important, occasional religious practices, and 5-7% of people who did not practise at all. Seven years later, there was a conspicuous increase in the number of regularly practising people and a slight decrease in the number of those who practised irregularly. This must result from the fact that in the previous period people who held high posts in government and even in the party, hid their religious practices, because it was disapproved by the superiors. A similar situation occurs in the Czech Republic, where the number of believers rose from 17% in 1980 to 24% in 1992.

In Hungary, despite historical tradition, the political role of the Church is relatively small. It is due to the absence of a dominating religion in this country. The relationship with religion is very weak because only 11% to 15% of adults are regular church-goers.

Inasmuch as the percentage of the population declaring faith in God differs from country to country, the attitude toward the public role of the Church is more similar. In Poland, a considerable reluctance is observed vis-a-vis non-religious involvement of the Church. Only 26% of respondents hold that the authorities should consult the important decisions with the Church, and 32% approve of the opinion that the divorce law should be consis-

tent with religious dogmas. Surprisingly, only 9% of respondents hold that the Church should have the right to influence the school curricula.

In the Czech Republic the influence of religion on people's life is evaluated in a definitely positive way by 22%, and rather positively by 47% of citizens. Religious education is considered as useful by 54% of respondents. A considerable percentage of citizens is also against the restitution of the nationalised property to the Church.

However, non-religious activity of the Church is clearly disapproved by the majority of the society. These views are respected in all Central European countries except Poland, where the policy of the authorities after the fall of communism was subordinated to recommendations of the Church and its hierarchy.

### **3.3. Political developments**

#### **3.3.1. Political elites**

In the communist system there was one system of nomination and co-opting of the elites - the so-called 'nomenclature'. Thus, the oligarchic political elite was relatively homogeneous and one-dimensional. However, this system was neither coherent nor fully effective, since the problems of the governing caused a constantly recurring division into internal orientations, differentiated the sources of recruitment and ways of promotion to the particular posts in communist elites. The party apparatus did not provide sufficient base for recruitment and despite the shrinkage of its field due to the principles of ideological loyalty and personal obedience to the key central leaders, there must have appeared differences stemming from generation experiences, educational level or the play of personal ambitions.

Preservation of the monopoly of political elite in public life was particularly important for the maintenance of the position of one party. The right to exclusive initiative and decision-making of the politicians was assured by two parallel activities: making intellectual and cultural elites dependent on political elites, as well as preventing crystallisation of financial and industrial elites by reducing private property to a minimum.

The structural shortcomings of the monocentric system led to its disintegration, but an important factor, especially in Poland and partly in the Czech Republic and Hungary, was the presence of the groups of intellectual opposition, which constituted an important part of the intellectual elite, being able to act independently of the nomenclature elite. But the politicised protest of the intelligentsia did not go beyond the dissenting actions, by their very nature isolated from the popular consciousness and unknown to the overwhelming majority of the citizens of Poland and Czechoslovakia.

It was not until the large-scale workers' strikes in Poland in summer of 1980, and the fact that they were joined or even controlled by rebel dissenters that the political opposition emerged - first legal, as a trade union, and after 13 December, 1981, illegal in the form of loose conspiracy movement.

The ways of recruitment and selection of the political elite in Poland after 1989 were not shaped during 16 months of open and legal activity of the mass movement but chiefly before August 1980 and after 13 December, 1981, i.e. under the conspiracy based on mutual trust of a narrow circle of people. This fact is of extreme importance, since it

shaped the criteria of loyalty and trust of purely personal character, and even a peculiar ethos of the struggle with the common enemy. This resembled the situation after the Second World War, when power in Poland was overtaken by the elites educated during conspiracy operating before the war and during Nazi occupation. Conspirators may be efficient in destroying the system inherited but they are not prepared for the construction of the institutional framework for the new one.

The analysis of changes of composition, structure, criteria of selection and the form of government shows that political relations have been transformed in post-communist countries to a large extent. Many people, institutions and strategies of action have been changed but the quality and style of government are still incompatible with the standards of a democratic state. The qualifications of the governing elites and the level of their professional efficiency are comparatively low, and the highly skilled and stable civil service is too limited.

The patterns of recruitment and structure of the political elite are subject to three types of change:

1. Reproduction of part of the old elite is done in two ways. Some adapt themselves to a new situation and keep their position or are even promoted thanks to their organisational skills and to different political situation. This specially applies to officials of public administration, army and police officers. Others have made a conversion by turning their political or administrative position to that of a private entrepreneur. Reproduction of the old elites can be observed in all post-communist countries. For example, in the Slovak parliament out of 150 parliament members 99 had the communist past. Their experience from the activity in the previous system makes them more competent (know-how).
2. Elite circulation is the process which brings back to the political arena part of pre-communist elites, e.g. gentry, capitalists and political leaders of the years 1945-48, and in the Czech Republic and Slovakia from the period of the 'Prague Spring' of 1968. In Hungary, on the other hand, there are active participants of the 1956 developments, who later became opposition leaders. The extent of returns of these elites in Poland is not large. It can be found in diplomacy and in some fields of government and self-government; but it is far greater in the Czech Republic and Slovakia.
3. Exchange of the elites consists of the replacing of the old elites by new people - either from the old opposition or promoted from tertiary positions in administration thanks to their professional skills and competence (know-how). The political parties emerging after 1990 play an increasing role in the exchange of elites. Some of them appeared to be a strong trampoline moving high numerous, though often incompetent, groups of new politicians.

One of the characteristics of the way of recruitment in post-communist countries are personal connections within family-colleague groups; thus, the elite is entered thanks to personal acquaintance of the people who are already its members (know-whom).

After four years of systemic change the exchange of elites with clear-cut elements of reproduction of part of the old communist elites dominated. As the new political system stabilises, there will appear new natural channels of elite promotion, emerging from the rising middle class and graduating from good Polish and foreign schools.

### **3.3.2. The role of trade unions**

Trade unions in the previous system were not self-dependent and were entirely subordinated to the communist party. Their function was confined to the sphere of social problems of their members and protection of working conditions. Only sporadically did they raise revindication postulates.

The exception to this rule was the establishment in Poland in 1980 of an independent 'Solidarity' trade union. The role of 'Solidarity' in overthrowing the previous system as well as the emergence, after it was banned, of a new trade union OPZZ (All-Polish Trade Union Agreement), which played the part of a licensed opposition in the 1980s, caused that trade unions are much more important in the Polish political system than the syndical organisations in other European democratic countries. Trade unions, being a mass social organisation, substituted in the 1980s the institutions of a civic society and were a field of expression of not only employees' claims but also of social and political demands.

The situation was different in other Central European countries, where trade unions did not play any role in the overthrowing of the previous system. After the fall of communism, trade unions were reorganised in these countries. In the Czech Republic the Council of the Bohemian-Moravian Chamber of Trade Unions, having 600.000 members, was established. In this country the trade unions have developed important role as one of the actors in social bargaining. In Hungary the National Confederation of Trade Unions consists of seven head offices and concentrates some 40-60% of the employees. In Slovakia, the Confederation of Trade Unions is composed of 46 branch offices, having 1.8 million nominal members. Generally, trade unions have much less members than in the previous system, when the percentage of the employees being members of trade unions amounted to 90%.

In Poland, the 'Solidarity' Self-Dependent Trade Union, which used to have millions of members in the 1980s, ranks second at present (1.6 million members) after the All-Polish Trade Union Agreement (OPZZ). The latter comprises 112 federations organised in 24 branches and totals 4.5 million adherents.

Unlike the other countries, the influence of trade unions, particularly of the 'Solidarity', on the political life in Poland has been very high in recent years. It could be compared to the importance of the strongest political parties. First of all, the two trade unions had a notable representation in the parliament, as well as great influences in the particular parties and government structures. The dilemma of 'Solidarity' in the years 1989-1993 consisted in that it took the role of a guarantor of the systemic transformation underway by giving and denying recommendation to the successive coalition governments, and at the same time it raised claims vis-a-vis those governments.

### **3.3.3. Political scene**

The attitudes of the major political groupings with regard to fundamental development issues vary in terms of methods and rate of economic transformation, European integration and the ensuing partial abandoning of sovereignty, attitude toward communist past, and - especially in Poland - toward the role of religion and the Church in the society and state.

Although the division of the political groupings into the left and the right is often debatable, these conceptions do characterise the attitude toward economic transformation and social issues.

Regardless of ideological disputes, differences between the left and the right consist in accepting different values in economic and social spheres.

- state versus private ownership of means of production (rate and scale of privatisation),
- strong versus weak role of government in economic planning (extent of state interventionism),
- support versus protest against redistribution of income from the rich to the poor (tax policy),
- development versus limitation of government social programmes (social policy).

The systemic transformation in post-communist states has also been characterised by part of the political class as the 'comeback to Europe' and its purpose is to attain the highest civilisational standards by adapting the economy and government institutions to the situation in Western Europe. However, the opinions are quite often expressed that Central Europe does not have to come back to Europe at all because in the cultural sense it has always been part of European civilisation. There are also opinions that the 'comeback to Europe' is an unreal problem because Western Europe seeks identity by itself, as was shown by diverse attitudes of many societies toward the integration envisaged by the Maastricht Treaty. Thus, the discussion on the future of Europe focuses on two opposing conceptions:

- gradual disappearance of national states in favour of supra-national structures on the one hand, and regions and local communities on the other hand;
- union of independent states, i.e. 'Europe of motherlands'.

The political scene in all Central European countries is fairly differentiated, but its fragmentation decreased after the second elections (since the fall of communism), which were held in the Czech Republic, Slovakia and Poland.

The discussion regarding the future of Europe has been going on in the West and in the East alike. The particular political groupings also take a stand in these disputes, no matter whether their representatives have seats in parliament or whether they form the so-called 'extra-parliamentary opposition'.

**Table 33.** The scheme of the political scene of Czech Republic

<i>Name</i>	<i>Type of economy</i>	<i>Character of the state</i>	<i>European option</i>	<i>Political socio-technique</i>	<i>Support in %</i>
ODS	conservative liberal	decidedly secular	moderately European	coalition of reform-oriented right-wing groups	32
LB	state interventionism, populist	decidedly secular	decidedly anti-European	alliance of prosocialist groups	7
CSSD	moderate state interventionism	decidedly secular	decidedly European	alliance of democratic centre left groups	13
ODA	decidedly liberal	secular	moderately European	coalition of reform-oriented right-wing groups	8
KDU-CSL	social-liberal	denominational Catholic	moderately European	coalition of reform-oriented right-wing groups	4
SPR-RCS	state interventionism, populist	secular	anti-European nationalist	antidemocratic with stress on political purge	4

ODS: Civic Democratic Party; LB: Left Bloc; CSSD: Czech Social Democratic Party; ODA: Civic Democratic Alliance; KDU-CSL: Christian Democratic Union; SPR-RSC: Republican Party.

**Table 34.** The scheme of the political scene of Hungary

<i>Name</i>	<i>Type of economy</i>	<i>Character of the state</i>	<i>European option</i>	<i>Political socio-technique</i>	<i>1990 election results</i>
MDF	social market economy	secular	moderate European	cooperative structures	25
SZDSZ	social-liberal	secular	European	negotiations, clients	21
FKgP*	'farmers' utopia'	secular	partially anti-European	purge among economic elites	12
MSZP	market economy with state interventionism	secular	European	corporative structures, some negotiations	11
Fidesz	liberal	secular	European	negotiations, clients	9
KDNP	social market economy	secular with moderate role of Church	European	partly negotiations, clients, partly corporate structures	6
MIÉP**	populist	secular	anti-European	political purge	-

MDF: Hungarian Democratic Forum; SZDSZ: Alliance of Free Democrats; FKgP: Independent Small-Holder Party; MSZP: Hungarian Socialist Party; Fidesz: Federation of Young Democrats; KDNP: Christian Democratic People's Party, MIÉP: Party of Hungarian Justice and Hungarian Life.

\* exploded into 5-6 smaller factions.

\*\* emerged in 1993 from a split inside of the MDF.

Footnote: the values, size and political style of the parties are rapidly changing. The table reflects some proportions and orientations of 1992-early 1993. The parameters in the late 1993 - early 1994 might be significantly different.

**Table 35.** The scheme of the political scene of Poland

<i>Name</i>	<i>Type of economy</i>	<i>Character of the state</i>	<i>European option</i>	<i>Political socio-technique</i>	1993 election results
SLD	state interventionism	decidedly secular	moderately European	social agreement <sup>20</sup>	
PSL	state interventionism in agriculture	secular with important role of the Church	anti-European	social agreement	15
UD	social market economy	secular with moderate role of church	decidedly European	alliance of reform oriented group	11
UP	state interventionism	decidedly secular	moderately European	social agreement	7
KPN	state interventionism, populist concept	secular, with moderate role of the Church	anti-European	political purge in the economy and in public life	6
BBWR	liberal	unclear	European	alliance of reform oriented groups	5

SLD: Alliance of Democratic Left; PSL: Polish Farmers Party; UD: Democratic Union; UP: Labour Union; KPN: Confederation of Independent Poland; BBWR: Non-party Bloc in Support of Reform.

**Table 36.** The scheme of the political scene of Slovakia

<i>Name</i>	<i>Type of economy</i>	<i>Character of the state</i>	<i>European option</i>	<i>Political socio-technique</i>	1992 election results
HZD	state interventionism	ideological secular	moderately European	political purge	37
SDL	state interventionism	neutral secular	decidedly European	social agreement	15
CDM	decidedly liberal	secular with moderate role of Church	decidedly European	alliance reform-oriented groups	9
SNS	moderately liberal	ideological secular	moderately European	social agreement	8
MKDH	liberal	neutral secular	decidedly European	alliance reform-oriented groups	7

HZDS: Movement for a Democratic Slovakia; SDL: Left Democratic Party; CDM: Christian Democratic Movement; SNS: Slovak National Party; MKDH: Hungarian Christian Democratic Movement.

In Slovakia, the leftist groupings of communist origin are in power, though the programmes of some of these parties and political goals realised are similar to the Western social democracy. However, a certain peculiarity is the Polish Farmers' Party, enjoying relatively strong social support, which is an archaic class grouping, mostly representing small holders. The present-day Hungarian political scene was shaped in 1990, but it experienced major shifts ever since. The largest grouping (MDF) split up and the extreme rightist nationalist wing set up a new party: Party of Hungarian Justice and Hungarian Life. The latest polls have also shown the increasing influences of the left. In the Czech Republic, on the other hand, since the latest elections in 1992, the rightist parties are in notable majority in parliament.

No matter what perturbations and changes in political systems are likely to occur, it should be noted that the political scene of post-communist countries was shaped very rapidly and it exhibits a tendency to polarisation and emergence of the political configuration resembling the one existent in the European Union countries.



### 3.4. Legal regulations with relation to the European standards

The Central European countries lack the continuity of law, so characteristic for the stable states. Especially difficult situation existed in Poland, since in the period of formation of modern law Poland was under foreign occupation and in particular parts of the country, belonging to the three partitioning powers, various legal systems were in force: Prussian, Austrian and Russian. In the period between the wars an enormous work was performed on unification of law and on its adaptation to European standards.

The establishment of the communist regime in 1945 entailed an important divergence away from the norms valid in the civilized countries through introduction of the revolutionary 'law' based upon the class and political criteria. In connection with the takeover of the economy by the state and the introduction of central planning numerous fields of law went out of use and remained forgotten. It is now necessary not only to nullify the laws proper for the communist system, but also to elaborate new legal regulations that would set the rules of functioning of the institutions of market economy and of many domains of social life. The present section is meant to show the most important domains of law, requiring adaptation to European standards.

The legal systems inherited from the times of real socialism have to be deeply readapted to the principles of market economy and multi-party political system. The basic principle of the 'state of law' is gradually being implemented, though several tasks will still have to be fulfilled.

Tables 37-39 present the spheres of respective national law systems which will have to be fast adapted to the requirements and standards of the European Union.

**Table 37. Inadequacy of the Czech economic legislation to the standards of the European Union**

<b>The constitution</b>
The constitutionThe existing constitutional system is satisfactory as far are requirements stemming from the association of the Czech Republic to the EU are concerned. It will need adaptation in terms of future accession of the CR to EU and of its membership in the Communities. Constitutional implication of the vertical subordination towards the EU will have to be implemented.
<b>Legal regulation of domestic trade</b>
The Business Act: <ul style="list-style-type: none"> <li>— restrictions concerning possibilities to perform business activities and setting-up of foreign persons inside the country should be lifted.</li> </ul> The Commercial Code: The code reflects modern legal principles and institutions that are in force in the EU countries, though not always in optimum form. Inadequacies concern: <ul style="list-style-type: none"> <li>— conditions for operation of foreign persons in the CR, especially as far as the right to acquire, use, rent and sell real property is concerned (this is the single most outstanding inadequacy);</li> <li>— requirements for publicity of a company, its financial organisation, merger law etc.</li> <li>— legal regulation of some contractual business relations.</li> </ul>
<b>Legal regulation of foreign trade</b>
The customs Act: <ul style="list-style-type: none"> <li>— corresponds to EU principles; further liberalisation of exports and imports is envisaged.</li> </ul> Act on Economic Relations with Foreign Countries: <ul style="list-style-type: none"> <li>— is an outdated piece of legislation originating from 1980, since then mostly repealed; new Act is needed.</li> </ul> The Foreign Exchange Act: <ul style="list-style-type: none"> <li>— restricting free movement of capital, provides for certain limitation concerning foreign exchange residents and non-residents; restrictions will have to be gradually lifted, full convertibility of Czech currency should be reached.</li> </ul>

<b>Tax reform</b>
– The general concept of the tax system corresponds to modern principles; however, the reform is not complete and has to be further developed.
<b>Environmental protection</b>
– Present Czech legislation provides for relatively solid formal legal standards for environmental protection (Act on Environmental Protection, Act on Protection of Nature, Act on Wastage, Air Protection Act, Water Protection Act). The actual problem is the factual situation of environment, not the legal regulation thereof.

**Table 38.** Inadequacy of Polish legal regulations to the standards of the European Union

<b>Finances and the capital market</b>
<ul style="list-style-type: none"> <li>– Quota and subject restraints in the domain of purchase of goods and services abroad.</li> <li>– Limitation on the possibility of taking and granting credit across the border.</li> <li>– Limitation on the nature of activity of companies with foreign share.</li> <li>– Prohibition of access to Polish market for foreign insurance companies.</li> <li>– Licensing of land purchase by foreigners.</li> <li>– Lack of currency exchange.</li> <li>– Obligatory supervision of the foreign banking operations by the central bank.</li> </ul>
<b>Labour market</b>
<ul style="list-style-type: none"> <li>– Lack of protection of employee interests in case of change of ownership of a firm.</li> <li>– Lack of obligation of applying countermeasures against the causes of unemployment.</li> <li>– Lack of regulation guaranteeing equal wage for equal work for men and women.</li> <li>– Lack of regulation concerning wage negotiations in an enterprise.</li> <li>– Lack of freedom in employment of foreigners.</li> </ul>
<b>Civil rights</b>
<ul style="list-style-type: none"> <li>– Excessive repressiveness of penal law.</li> <li>– Application of the subjectively assessed category of 'social danger of and act'.</li> <li>– Communist definition of economic offence.</li> </ul>
<b>Environmental protection</b>
<ul style="list-style-type: none"> <li>– Lack of product norms on pollution of environment.</li> <li>– Excessively severe, non-realistic norms on admissible air pollution.</li> <li>– Too lax admissible levels of pollutants in liquid discharges.</li> <li>– Lack of regulation in the domain of solid waste.</li> <li>– Lack of adequate legal regulations in the domain of investment project impact on environment.</li> <li>– Lack of obligation of informing public opinion on the state of environment.</li> </ul>
<b>Territorial self-government and spatial planning</b>
<ul style="list-style-type: none"> <li>– Low share of communes in realisation of public expenditures.</li> <li>– Too high share of the subject-oriented subsidies.</li> <li>– Lack of the spatial planning system.</li> <li>– Lack of regionalisation of the country.</li> </ul>
<b>Product norms</b>
<ul style="list-style-type: none"> <li>– Lack of assessment of the degree of fitness of Polish norms to the European ones.</li> </ul>
<b>Intellectual property</b>
<ul style="list-style-type: none"> <li>– intellectual property (including software) is not sufficiently protected by the author's law.</li> </ul>

On the basis of the overview of Polish legislation, as presented here, one can notice that during the recent years a significant progress has been made in terms of adaptation of Polish law to European standards. Simultaneously, however, numerous domains still require adequate new regulation, and the scope of work to do is yet very big.

Table 39. Inadequacy of Slovak legal regulations to the standards of the European Union

<b>Human rights</b>
– the state language law
<b>Labour market</b>
– regulation of foreigners' employment, – no legal guarantee for equal wage for equal work for men and women. Finances and capital market*taking and granting foreign credits needs Central Bank's licence, – activity of foreign insurance companies is prohibited, – purchase of land for foreigners is prohibited, – lack of hard currency for private (non business) persons, – access of the Slovak capital market for foreign shares and share holders is prohibited, – Central Bank's supervision of the activity of foreign banks.
<b>Environmental protection</b>
– lack of real effective penalties for environmental pollution.
<b>Self-government</b>
– high share of state subsidies in the expenditures of self-government, – lack of self-government's own incomes caused by impossibility to install new local taxes, – the tax rate of city bonds is the same as for commercial bonds while the state bonds are taxed lower.
<b>Intellectual property</b>
– intellectual property (including software) is not sufficiently protected by the author's law.

In formal legal view, the existing legal regulation of economic relations in the Czech Republic is already comparable with legislations of advanced western states. Such regulations are, however, not yet fully coordinated with one another and are accompanied with problems typical of new, often hastily drafted and adopted legislation. Further approximation to the Community Law must take place. This will be implemented more by adaptation and/or amendments of already existing legal rules than by creating new rules and institutions.

As Slovakia is the legal successor of the CSFR, the legal environment is basically the same as in the CSFR and in the present Czech Republic. The largest part of the legal transformation was done in the years 1990-1993, so most of the legal regulations are compatible to the European standards already. However, there are some areas not yet adequate enough.

### 3.5. Scenario of socio-political change until the year 2005

The scenario of socio-political change is based on the analysis of hitherto changes accomplished in the economy, society and state of Central European countries, starting with 1989. The analysis enables the statement that **the principal element of systemic transformation, i.e. transfer to the market economy, is virtually irreversible, and the establishment of democracy as a lasting element of the state system seems highly probable.** The observation of on-going processes allows us to formulate prerequisites for further transformation of social structure and domestic political set-up in these four countries.

This certainly does not mean that the current conditioning, occurring to a lesser or greater extent, will be permanent and invariable. Whether these processes can be continued depends on both the external factors in the neighbourhood of Central European countries - in the East and in the West alike - and on internal factors, including economic

growth, social peace and political stabilisation. The appearance of positive results of systemic transformation is by no means evident and the list of risks is a long one. These risks must be presented in order to determine the likelihood of realisation of developments included in the scenario.

The scenario is based on certain value assumptions. It considers as advantageous the phenomena and processes which may facilitate and speed up transformation of post-communist societies into democratic, lay and liberal societies, comparable to western democratic standards.

### **General premises of the scenario**

The scenario is based on the analysis of data on transformation of socio-professional structure, which show the beginning of important structural transformation of Central European societies. The analysis of data concerning evolution of social attitudes in the first half of 1993 reveals that many citizens of the four countries under investigation are unable to find a place in a new situation, are dissatisfied with the hitherto course of systemic transformation, with the functioning of democratic institutions and with the results of the policy of post-communist governments. These attitudes are largely conditioned by social costs of the reform, especially decreasing living standards and loss of social security.

Regardless of discontent caused by social costs of reforms the labour market is emerging, which enforces competition and enterprise in people's behaviour, a market of highly qualified labour has emerged, stimulating the raising of qualifications, increase in the price of education, and encouraging higher labour efficiency.

Despite heritage of the communist period and remnants of acquired habits, in the past three years there have appeared clearly visible changes of attitudes of many citizens who have become:

- subjects of political life able to take part in free elections and decide about their fate;
- consumers having possibilities of making free choice on the free market of goods and services;
- due to the lifting of travel limitations, Central European countries have opened up to the world and their citizens have attained the feeling of freedom;
- due to the possibilities of operation on the market, entrepreneurship has expanded, and several million citizens have undertaken a risk on their own;
- about one-third, and in the Czech Republic even 50% of citizens approve of and support the changes underway;
- due to emergence of local self-government local social activity has been developing.

## **Modernisation of socio-professional structure**

### **CONDITIONS**

#### *Moderate economic growth:*

- decline in employment in industry,
- increase in employment in services,
- stabilisation of unemployment at a level of «10%.

#### *Restructuring of agriculture:*

- growth of productivity of farms;
- outflow of population from rural areas;
- in the Czech Republic, Hungary and Slovakia privatisation of agriculture.

#### *Pro-investment change of structure of the state budget:*

- increase of expenditures on education and higher schools.

### **SCENARIO OF CHANGES**

- Due to industrial restructuring the employment in industry will decline and there will be a development of services, both simple and those requiring the highest qualifications. In the nearest future, the number of people with secondary and university education is likely to increase, and the number of the higher personnel and of intellectual workers is likely to double by the year 2005.
- The wage system will be gradually restructured. There will be an increase in incomes of the higher personnel and intellectual workers (especially physicians, scientific workers and teachers), as well as a relative decline of workers' wages, unqualified in particular. The income of entrepreneurs will also increase. The middle class with clearly crystallised interests will slowly be shaped. As a result, polarisation of incomes will deepen and social differentiation will increase. The growth of the latter, especially high incomes of entrepreneurs and of part of the higher personnel in private enterprises and state administration, will in turn cause intensification of wage claims, and sometimes even social protests.
- Social structure of Central European countries around the year 2005 will be comparable to the present structure in the EU countries. Poland will be an exception, where the percentage of farmers will be considerably higher than it is today in western countries.

## **Transformation of consciousness**

### **CONDITIONS**

#### *Higher share of the middle class.*

#### *Increase in education level of society.*

#### *Rationalisation of the system of wages.*

### **SCENARIO OF CHANGES**

- Changes in social structure and positive effects of systemic transformation, which will soon become visible in the society, will lead to improvement in social feelings and

encourage changes in the attitudes from revindication to enterprising. The force of influence of nationalist slogans and anti-European moods will be decreasing; xenophobia will be disappearing, and customs will be changing.

- The position of the Catholic Church, in all Central European countries except Poland and - to some extent - Slovakia, is similar to that in western Europe. However, in Poland and Slovakia alike, the role of the Church will be decreasing and the secularisation will proceed. In some areas, where religion is associated with ethnic affinity, the Church may become a destabilising factor.
- Due to democratisation of the society, the extent of the authoritarian attitudes will be decreasing in favour of open attitudes. Slowly, the 'open' and democratic procedures of solution of conflicts will be strengthened in social consciousness. Social conflicts will increasingly be settled by way of negotiation, anarchy in public life will be restricted, and anarchist groups will come to be an insignificant margin.

### **Stabilisation of political scene**

#### **CONDITIONS**

*Changes in social structure.*

*Limitation of extent of revindication attitudes.*

*Decreasing authoritarian attitudes.*

*Democratisation of state structures.*

#### **SCENARIO OF CHANGES**

- Changes in social structure and transformation of consciousness will be reflected in the structure of political scene. Groupings rooted in the communist set-up, as well as populist and nationalist parties will gradually disappear. Parties open to Europe, reflecting principal social interests, will be growing in importance. The role of trade unions, especially great in Poland, along with privatisation and restructuring of the economy, will be gradually decreasing, as was the case in western countries.
- The background of the parties will shape various groups of pressure: organisation of entrepreneurs in industry, banking, insurance; civilised trade unions, taking care of working conditions as well as workers' wages, profits of enterprises, and maintenance of jobs. In some countries, for example in the Czech Republic and Hungary a new model of cooperation among various groups of interests ('Soziale Partnerschaft'), patterned after Germany and Austria, may appear.
- The structures of state administration will considerably strengthen, and the clear-cut division of competence between government and self-government administration will follow. In at least some of Central European countries, especially in Poland, regional structures will be established.
- The structures of territorial self-government will strengthen and the trust in local authorities, as well as the conviction that the undertaking of the activity is needed to improve one's own situation without waiting for the assistance of the state, will continue to grow.
- New social movements will emerge, e.g. ecological movements and various ad-hoc associations.

- The role of trade unions, both in Poland and in other post-communist countries will gradually decrease, along with privatisation and restructuring of the economy, just as was the case in western countries. Trade unions are largely based on big enterprises operating in heavy industry and large-scale production plants. As the importance of mining, metallurgy, engineering industry etc. decreases, and as the employment in services increases, the trade union base will shrink and so will their social and political importance. Chances of establishing trade unions - as western experiences show - in the new sectors of the economy, such as tourism, banking, services, administration, as well as in factories and privatised sectors, where professional skills are decisive, are very small. In Poland, the 'Solidarity' myth has been exhausted and the particular claims of the unions representing selfish professional interests meet with increasing reluctance in the society. This is confirmed by the results of the latest elections in which 'Solidarity' gained less than 5%, much less than it might have been expected considering the nominal number of its members.
- The democratic play will result in a well-ordered political scene and a consolidation of parties and groupings having similar views and referring to those groups of voters which are not marked by incompatible conflicts of interests. The similar political formations on the left and on the right will enter pre-election alliances and then permanent agreements, which, by the year 2000, will lead to the formation of a strong social democratic party on the left and a conservative party on the right, in some national- and/or Catholic-oriented countries. The political map will also encompass centrist liberal-democratic groupings. Under such a set-up, which will manage most of the political scene, it will be comparatively easy to form a stable majority government by the two dominating political parties.

#### **External threats**

- World and European recession, trade restrictions of the European Union and the USA, weak inflow of foreign capital and investment.
- Instability, or even long-lasting chaos in Russia and other republics of the former USSR limiting exports to this area and increasing the inflow of emigrants.
- State of permanent destabilisation in the Balkan Peninsula stemming from economic and political situation, as well as from ethnic conflicts.

#### **Internal threats**

- One of the major factors endangering modernisation of social structure may be difficulties in restructuring traditional and inefficient sectors of industry, and in Poland the increasing influence of the farmers' lobby which is striving to protect traditional agriculture by way of customs barriers and subsidies. The influence of the farmers' lobby may impede rural transformation and delay modernisation of the entire economy and society.
- A real danger to modernisation process may be the educational barrier, which will result in difficulties in the proper training of highly qualified personnel for the economy and public administration. On the other hand, however, development may be hampered by the excess of highly qualified personnel, which will not find appropriate jobs. This may cause discontent and increasing social frustration.

- There is also a danger that our social structure will not become congruent with the general trends in the EU countries but may resemble that of the southern part of it (Greece, Spain). Social structure and economic structure in this period could not become independent from each other. There is a real danger of the dualisation of our societies (like in all other dependent societies): small, or bigger islands of modernisation or westernisation + third world (Latin-American type of underdevelopment). Generally, besides the West-European scenario, the Latin American variant in all the other spheres is probable. In the middle class and the elite, the formation of confrontative fronts between the national-economic interest-minded Elites and the Compradors becomes more and more important.
- Economic stagnancy, growth of social disparities, and deterioration of the living standards of a big section of the society may lead to increasing social discontent, which might be used by populist left and right political groupings organising the actions of protest and destabilising the state. Under these circumstances, the authoritarian solutions might be sought. Taking into account that in all societies there are authoritarian attitudes, it may be expected that a vast part of the society might accept authoritarianism provided that it could stabilise and improve - at least temporarily - the standard of living. One of the two varieties of authoritarianism may occur: either the populist authoritarianism of conservative and nostalgic character, or the authoritarianism of a strong government striving to ensure great economic growth (Taiwanese-Korean type strong government state version). The increasing social discontent may lead to the 'search for the guilty', which may be expressed in growing nationalism and xenophobia. This may lead to strong anti-European tendencies and attempts at isolation.
- The left and/or populist rule may severely impede the process of reform, thus questioning hitherto achievements. The programmes of some parties operating in Central European countries postulate direct state interventionism, including e.g. price control, protectionism, debt clearing and subsidies for unremunerative state enterprises and inefficient agricultural sector, free issue of money and cheap credit to counteract recession, as well as excessive social expenditures. Such projects may waste hitherto achievements, cause hyperinflation and ruin the economy.
- Another serious danger is the lack of mutual cooperation inside the Visegrad Group, both political and economic, as well as the absence of a common standpoint vis-a-vis the European Union and NATO. The tendencies of the 'individual race to Europe' may cause severe damage to all Central European countries.

Should many of the above-mentioned disadvantageous circumstances occur, it may happen that Central European countries are not to take the road to a liberal market economy and a parliamentary mass democracy. Very possibly other modernisation models and patterns will shape the region.





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## Chapter 4

### SCIENCE, TECHNOLOGY AND EDUCATION

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#### 4.1. Introductory remarks

By 'Science, Technology and Education' we understand both the institutions of science, technology and education (e.g. universities, schools, research and scientific institutes, etc.), and activities performed by these institutions, as well as activities in science and technology (mainly in research and development — R&D) carried out by other institutions (e.g. industrial enterprises, public administration, etc).

As in other chapters of this report, the presentation of possible future developments will be preceded by a description of the starting point, i.e. the outcomes of political and economic conditions in the post-war period under which the science, technology and education were developed and shaped, as well as by an analysis of the impact of the processes transformation after 1989.

This report deals with all countries concerned and tries to point out both to common characteristics of all of them, and to specificity of individual countries. Given some incompatibility and incompleteness of statistical data concerning science, technology and education in particular countries and differences in approaches to this issue in national reports, it was impossible or useless to present exact figures for the Central European region as a whole. Instead, with regard to this region we confine our attention to some general qualitative problems and tendencies. We supply statistical data when examining situation in individual countries.

#### 4.2. The heritage from the 'old regime'

Many characteristics of the present state and of possible chances and challenges in the years to come for science, technology and education in Central Europe, result from the heritage of the past post-war period. The shape and development of the science, technology and education in Central European, as in other socialist countries, were highly influenced by the ideological, political and economic factors. It should be stressed, however, that the influence of those factors was not uniform in all analyzed countries and it also evolved over time. Only in the first period of the communist ideology and political system (late 1940s and early 1950s), the situation in socialist countries was fairly the same. Since the mid-1950s (especially since 1956) the situation started to change, and it changed in considerably different directions and in different pace, so that in the 1970s and 1980s little was left from the original uniformity.

As far as the role of the **ideological factor** is concerned, it consisted in priorities given to these actions and activities (in the field of science, technology and education) which were considered favourable for the marxist-communist idea, while neglecting, hindering or stopping the other actions or activities considered neutral or contradictory to the ruling ideology. There were several practical consequences of such a situation:

1. A high priority was given to **elementary education**. This priority resulted from the treatment of the education (in particular, extension of the elementary education to the whole society) as a goal and measure of social justice and social progress. This goal

was broadly supported by the entire society. Illiteracy was virtually eliminated almost immediately after World War Two. Free and obligatory school education, which was based on uniform (for a given country) system of public schools, was extended to all children. The policy of raising educational level of the society was supported by several measures, e.g. low prices of books, etc. Due to this policy **the countries of Central Europe now represent a higher level of basic education than other countries of similar (and even higher) level of economic development**, including some countries of the European Union.

2. The ideology with regard to the **university (higher) education** was quite ambivalent. On the one hand higher education was considered as an important factor of economic and technical modernisation and thus as an instrument in the competition of socialism with capitalism. Moreover, large access of all social strata to higher education was regarded as an important goal and achievement of socialism. On the other hand, however, the university education was considered, to some extent, as a 'luxury good', which led to imposing some limits on the share of employees with higher education. As a result, limits were introduced on the number of students in most (if not in all) university-level schools and a system of selection of candidates based on meritocratic, but also on socio-political criteria, was introduced. Consequently, the number of university students and graduates in the Central European countries rose and was higher (in relative terms) than in the pre-war period, but it remained lower than in the most developed Western countries.

The average level of university education in the socialist countries was probably comparable to Western Europe or America.

3. The ideological factor imposed some specific attitudes and approaches to science. Generally speaking, it divided science into 'ideologically irrelevant' (technical, exact, biological sciences) and 'ideologically relevant' sciences (mainly human and social sciences, including economics). 'Ideologically irrelevant' sciences were given a large margin of independence while 'ideologically relevant' sciences were demanded to serve the ruling ideology<sup>15</sup>.

The ideological principle in social sciences was introduced with mixed success in particular Central European countries. In Poland since 1956 and in Hungary somewhat later the ideological control over sciences was dramatically reduced and a *modus vivendi* among scientific community and authorities was established, according to which the authorities resigned ideological demands from scientists and at the same time were free to neglect material needs of scientists. Czechoslovakia was less lucky than Poland and Hungary in this respect. Intellectuals were the main victims of the tough 'normalisation' process, which was introduced after the 'Prague spring' of 1968 and this regime in social sciences collapsed as late as in the 1980s.

4. Due to the belief that specialistic technical skills are the most useful (productive) for the economic development, the specialised, vocational education was preferred to general education and technical education was preferred to education in social and human sciences. This resulted in relatively high (in comparison with the Western countries) shares of pupils in vocational schools and students in technical universities. There were, however, considerable differences in this respect. Czechoslovakia went more far in this direction than Poland and Hungary. In Poland this tendency was more felt at the level of secondary than university education.

<sup>15</sup> There were also some attempts to distinguish between 'progressive' and 'reactionary' sciences. For instance cybernetics was (especially in the Soviet Union until the 1960s) classified as 'bourgeois' discipline of science.

5. The ideological factor also shaped the international contacts and cooperation in the field of science and technology. Cooperation with the Soviet Union and other socialist countries were of the highest priority, which led to isolating the domestic sciences from contacts with the West. As in the case of political control over science, the control over international contacts of science in Poland and Hungary gradually faded which resulted in growing networks of cooperation with western partners, so that for instance in the 1980s contacts with western partners were much more intense than those with other socialist countries. In Czechoslovakia where the ideological-political grip on international contacts of scientists and researcher remained until the collapse of the old regime.

The **political factors** influencing science, technology and education in the Central European countries can be divided into internal and external (international) ones. The internal political factors manifested themselves in the importance attributed to science and technology (and their individual elements) in the economic strategy by national authorities.

The differences became visible in the early 1970s. All Central European countries tried to accelerate their economic growth through increased efficiency and productivity. For the Czechoslovak authorities technical modernisation of the economy based mostly on domestic research and development was the main instrument in this policy. This allowed avoiding incurring external debts and at the same time avoiding institutional reforms which would undermine the communist system. Such a policy was pursued, with little changes, until 1989. Relatively favourable conditions for expansion, mainly quantitative, of the national research and development basis, were the main result of this strategy.

Polish authorities in the early 1970 also tried to modernise the technical basis of the economy, but their attempts were more rapid and relied mostly on transfer of western technology (equipment and licences) financed by credits. This strategy left the national research and technology basis only the role of helping the economy absorb imported technology. It also collapsed in the late 1970s because of the debt crisis and turned out to be a trap in which Poland has been caught until now. Although the strategy of importing technology was abandoned, the permanent economic difficulties in the 1980s made it impossible to dedicate substantial resources for the domestic research and development.

Since the economic reform of 1968 in Hungary much greater than in Poland or Czechoslovakia attention was given to strictly economic (institutions, interests) mechanisms of economic growth and to the transfer of western technology via foreign investment (in the 1980s). Consequently, less emphasis was put on development of the domestic technologies and relatively favourable conditions were created for economic and social sciences which were to help introducing the economic reform.

The external political factors were related to the political, military and economic division of the world into the East (Warsaw Pact, CMEA) and the West (EEC, NATO) and to the fact that the three analyzed countries belonged to the Eastern block. This resulted above all in the isolation from the main world sources of the high technology. The COCOM sanctions against socialist countries were of special importance.

The 'moonlight economy' which was in operation in the socialist countries left its clear mark on the structures of science, education and technology in these countries. The influences of the economic factor were the following:

1. The economic socialist system was hostile for big innovations. State enterprises were by no means forced to invent and to introduce new products or to reduce costs by implementing new technologies. Big innovations were contrary to the bureaucratic system of administrative economy. Therefore real innovations had to be invented outside the sphere of enterprises (e.g. in the R&D centres) and inflicted upon enterprises through the system of central planning. Consequently, if the economy had to create and implement innovations, separate innovation-making centres had to be created and the intensity of introducing innovations into the economy depended on the R&D efficiency of innovation centres and on the executive efficiency of respective authorities in breaking the indifference of the bureaucratic machine of central planning and resistance of enterprises against (big) innovations.
2. At the same time the economic system was quite effective in inventing and implementing small innovations, which — however — were often useless or even harmful. Permanent shortages, insecurity of deliveries of materials and equipment as well as the system of 'planning of innovations' forced managers and engineers to continuing 'innovations' consisting in material substitution, inventing and producing tools (that otherwise were already produced in higher quality by specialistic producers), etc. With all its deficiencies, this system forced managers and engineers to well master technological process of their factories and to be open-minded in solving unexpected technological problems.
3. Economic incentives to innovate, like desire for financial success or fear of bankruptcy, were very weak or non-existent. Such a situation frustrated and demoralised R&D staffs making, in general, R&D centres another bureaucratic institutions with all their characteristics (overemployment, inertia, simulating work, etc.).
4. Permanent shortage of foreign currencies forced the socialist countries to invent and develop products and technologies that otherwise could be bought or transferred with foreign investment, which was another argument for developing extensive R&D base. This was especially true for such countries as Czechoslovakia which, as mentioned earlier, attached great attention to technological modernisation and were strongly separated from the West.
5. The aforementioned shortages characteristic for the socialist economy applied also and foremost to labour. Factory vocational schools played an important role in the education system. These schools 'tied' students to the factory and in this way secured labour in the conditions of a supply-restricted labour market.

The **institutional system** of science and technology in the Central European countries was established in the late 1940s and the early 1950s. The main element of this system were:

1. The Academies of Sciences.
2. Universities (many of them professionally specialised).
3. Research institutes of central state organisations (such as planning commission, ministries etc.).
4. Autonomous R&D institutes, laboratories etc.
5. R&D departments, laboratories, construction offices or working places in enterprises or their associations

6. Various governmental bodies (boards, councils, commissions, etc) which assisted the authorities in pursuing policy in science, technology and education.

Some elements of the above system, e.g. academies of sciences, did exist before introduction of the communist system, but they were different from the point of view of their internal organisation and the role in the whole system of science, education and technology.

All those institutions were directly or indirectly financed from the state budget.

A very important place in the institutional system of science and technology was taken by the Academy of Sciences. Soviet-type academies of sciences were introduced throughout the socialist countries and replaced the scientific academies which had existed in these countries even since the 19th century. Academies were composed by a number of institutes, committees, commissions, etc. of different degrees of dependence on the leadership of the academy. The aim of the academy was to carry out research in fundamental (theoretical) sciences and to supply its knowledge to universities and institutions carrying out applied sciences. The academy had no students and had no direct contact with teaching students. Only in Poland the domination of the academy has been not so evident and the universities have retained a great deal in fundamental sciences, so that one can speak of a balance between the academy and universities in this country.

Apart from 'proper' universities, a large number of specialised professional universities: technical, agricultural, medical, economic, etc. universities (or 'academies') were set up. In these schools research work was of secondary importance to teaching. A slightly different situation has been, again, in Poland, where university professors have had lesser teaching obligations than their colleagues from other (ex-) socialist countries and could dedicate more attention to research<sup>16</sup>.

Applied sciences, research and development were carried out mostly by autonomous research institutes, institutes of branch ministries and R&D departments or laboratories of enterprises. A special role in this respect was played by institutes related to the army or ministry of internal affairs.

The above described institutional system of science, technology and education, despite changes in subjects of research and in the degree of independence of scientific work, survived until the end of the 'old regime'.

### **4.3. General tendencies of transformation**

The political and economic transformation started in 1989 brought important change the system of science, technology and education in all countries under analysis.

#### **4.3.1. General processes**

1. Due to the overall recession and the necessity to fight inflation and to balance the state budget, substantial cuts in the state budget were introduced in all Central

<sup>16</sup> Poland was unique in its institutional setting of higher education also in one other aspect. The Catholic University of Lublin, a university absolutely independent from the state, existed there even in the hardest times of the communist regime.

European countries. These cuts seemed to affect in the greatest manner the system of science, technology and education. In result, both the outlays for science and R&D and also employment in this sphere have declined considerably in all Central European countries since 1989 (employment by half, outlays — in real terms — even by two thirds). This processes affected mostly in-house research units of enterprises and autonomous research institutes. Many R&D institutes were liquidated, many survived and are struggling for existence by reducing staff and switching to another activities like renting or selling their property, running commercial activity, servicing, producing, etc.

2. Financial strain, instability and uncertainty in state-owned firms, which brought about financial squeeze of those firms, shortening of the time horizon of their activity and, consequently, cuts in spending on research and technology. Relationships between the enterprise sector and the technology and R&D have changed deeply. On the one hand the demand for old-type domestic research is dramatically decreasing in favour of imported technology, goods and equipment, on the other hand the imported technology (also due to foreign investment) quite often raises the technological level of enterprises and there are signs of emergence of a new kind of demand — for product development (designing, reliability, quality control, etc.) aimed at a very concrete market rather than for large-scale research.
3. A great part of formerly commissioned technical development projects were motivated not by the former (pseudo)market demands, but by the existence of development funds stimulated by state administration. With that inducement by the state gone or diminished, some of the commissioned projects were also dropped for lack of real market stimuli.
4. Short-sightedness of the private sector. The emerging and growing domestic private business has been too poor, impatient and reluctant to spend money on R&D activities which do not bring immediate profits. As a result, the still growing part of the economy spends very little on R&D.
5. Internationalisation of the Central European economies and substantial real appreciation (higher inflation rate than exchange rate devaluation) of their currencies, as well as inflow of foreign capital made purchasing or transferring of ready foreign technologies or products cheaper and quicker than producing them home.
6. Buy-outs of Central European firms by foreign capital often led to closing down local R&D centres and laboratories and limiting such activities only to the headquarters of the international companies. The foreign actors appearing in Central Europe are usually interested only in marketing and, especially if they produce for non-East European markets as well, in a reliable and cheap operation of their technologies which have been tested elsewhere. They simply import required management and technology packages. Of course, introduction of them into the Central European enterprises may often lead to a relative process innovations. This is but rarely a substitute for product development, most of which was halted at domestic enterprises.
7. Collapse of the 'Eastern block' and of exports to the (former) Soviet Union. This affected also exports of technically (relatively) more sophisticated goods, including those of military industry.
8. Differentiated performance of various branches on the Western markets. Generally speaking, technologically less advanced goods (as steel, textiles, wood, glass, fertilizers, etc.) turned out to be more successful on foreign markets than the high-tech

branches (e.g. electronics), which could not compete with more technologically advanced Western goods.

9. Appearance of attractive job opportunities for highly qualified, energetic and mobile people, both home and abroad. This resulted in massive 'brain flight' from science to other occupations, mostly in private firms, especially foreign ones, banks, consultancy, etc. as well abroad. The selective outflow from or insufficient inflow to science, research and universities resulted in deformations of the age and qualification structures of the employees. Universities and institutes are lacking first of all young assistants and highly skilled professionals. Many of those who remained carry out an extra activity outside of the university or institute, to the detriment of the quality of their teaching or research activity.
10. New job opportunities and emergence of new economic sectors (banking, consultancies, foreign companies etc.) raised the attractiveness and prestige of higher education, especially of economics, law, management, western languages (English, German) etc.
11. Disappearance of labour shortage and appearance of unemployment, which created the need of increasing the number of students and thus introduced some relieve to the labour market troubled by increasing unemployment. In result, the number of university students starts to grow. Universities have adapted their curriculae to the new economic conditions by updating the material and limiting the overload and excessive specialisation of education. Despite the financial stress, the equipment of universities with computer and telecommunication facilities has grown considerably. At the same time a process of differentiation of universities (division into 'stronger' and 'weaker') is progressing.
12. Liberalisation of commercial activity in education. It brought about emergence of private and non-state owned schools of all levels and types of education. The education system is becoming more flexible; apart from state schools there are now private and other non-state schools (including joint ventures with foreign partners); besides regular schools (primary, secondary, universities) there is a growing number of all kinds of courses, post-graduate studies, distance education courses etc.
13. Changes in the institutional and financial systems of science and R&D. A Western-style system of grants and institutions managing grants has been introduced supplementing and partially replacing the old forms of financing and old institutions. In particular, the position of the Academies of Sciences was questioned and in all Central European countries there were attempts leading even to liquidation of these institutions — however nowhere successful. On the contrary, academies of sciences along with the research institutes of governmental agencies were generally protected from dramatic shocks which were applied to other scientific and R&D institutions.

The above described tendencies and phenomena concern all the Central European countries. There were also country-specific processes, for instance those related to the division of the Czecho-Slovak federation into two independent states. In particular, the Slovak science and R&D were influenced in a special way. Not surprisingly, being an integral part of the Czechoslovak R&D system in the last decades, it was characterised by the same features and tendencies as the Czech R&D sector. The share of expenditure on R&D in the GDP was probably even higher than in the Czech Republic, since Slovakia used to be a net beneficiary of inter-republican financial transfers and could afford to develop some activities on account of those transfers.



Several phenomena affecting science, R&D and education will be presented in more detail below.

#### **4.3.2. Financial situation**

By the end of the 1990s Poland spent the smallest percentage of its GDP for the R&D while Czechoslovakia spent the most. It seems also, that, roughly speaking, proportions between the individual countries in this respect have remained unchanged. It means a considerable deterioration in comparison with the highly developed western economies. Depending on the source of information, the GDP share for R&D by the end of the 1980 ranged from 1.0-1.5% to 3-4%, while now it ranges from 0.6-0.8% (in Poland) to about 2% (in the Czech Republic).

In Poland in 1989 the share of outlays on R&D in the GDP accounted for 1.0%. In 1990 it rose to 1.3% (despite an absolute reduction in outlays on R&D, which was, however lesser than the decline in the GDP). In 1991 this share fell to 0.9% (which meant a sharp reduction in outlays given that the GDP fell again) and in 1992 to 0.8% (against the background of stagnating GDP) and in 1993 to 0.6%. For 1994 a figure equal to 0.58% of the GDP has been proposed in the state budget.

In Hungary the share of expenditures on R&D in the GDP shows a downward tendency. Whereas in 1988 R&D allocations accounted for 2.92% of domestically utilized national income, in 1990 they represented only 1.68% and in 1991 as little as 1.18%.

It is interesting to note that the figure for the share of the R&D outlays in the GDP for Poland (about 1.0% at the beginning of the 1990s) was considerably lower than that for Hungary (about 2%) and especially Czechoslovakia (about 3%). At the beginning of the transformation processes Poland was in the worst economic situation. Polish government, preoccupied with current problems, paid little attention to the financing of R&D as to an investment in the long-term development, and the enterprises, freed from the central planning and control and squeezed by current financial needs, neither wanted nor could afford to spend for R&D.

Czechoslovakia was in the opposite position: its financial (both external and internal) stance was good, the central planning was strong and the authorities attributed the domestic R&D a crucial role in the economic development of the country (as an alternative to undesirable economic and political reforms). Consequently, Czechoslovakia wanted and could afford to spend much more on S&T than Poland did. Hungary was in the middle: its economic situation was better than that of Poland and (slightly) worse than that of Czechoslovakia and relied more (than Czechoslovakia) on economic reforms and transfer of foreign capital and technology, rather than on results of the domestic S&T. In 1992 the Czech Republic spent 2.3% of its GDP on R&D. In any case, it means a considerable contraction of resources available to R&D.

The structure of financing sources of R&D is also highly instructive for the situation in Poland. The main role in this regard is played by central state institutions, especially by the KBN (Committee for Scientific Research — an institution established a few years ago, replacing a previous institutions, whose aim is to guide and finance scientific research, both in basic and applied sciences). The predecessor of the KBN in 1989 financed 63% of all R&D outlays, in 1981 the KBN financed as much as 72% of outlays (despite the absolute decline in outlays). This raise in the share of the central institutions in financing R&D was due to a dramatic drop in the R&D outlays by firms. According to the same estimates, the share of KBN in R&D financing in 1992 fell to 59% which

would imply that the economy, which in that time revealed some signs of recovery, resumed to finance the R&D.

In Hungary in 1986 17.1% of the R&D funds came from the state budget, 2.2% from separate state funds (National Scientific Research Fund, etc), and 0.9% from foreign sources. The overwhelming part (79.9%) of the resources available to the R&D system was received from enterprises (directly commissioned projects) or from the Technical Development Fund (centrally managed and fed by a special kind of tax). In 1991 the share of the state budget increased to 33.7%, the enterprise provided 40.3% of resources; 15.8% came from the contributions of the Technical Development Fund. The ratio of budgetary funds to the total resources of the R&D system was much lower than in most of the socialist countries. (It should be remembered, however, that a considerable part of the contribution of enterprises to the R&D was imposed to them by a law, so, in fact, this contribution represented another form of state support of the R&D and should be added to the state budgetary funds).

In Slovakia the share of expenditure on R&D in GDP fell down from 4.4% in 1989 to 2.22% in 1992. The decline in financing was even greater than the decline in the employment. Thus, in spite of the decline in the number of personnel by some 50%, the volume of expenditures per one worker of the R&D declined (at constant prices) by about 25% — from 166 thousand crown to 121 thousand crown.

The dramatic cuts in inputs have operated not simply to close sources of funds, to wind up certain types of R&D institutions or to reduce them to a nominal existence, but also to fundamentally remould possibilities for the survival of the entire system and its actual and even future prospects.

Owing to the collapse in 1991 of the enterprise R&D sphere, the ratio of experimental development within the system is very low compared with international pattern (representing 40% of R&D inputs in 1991). This process is accompanied by some negative trends that came into play in the second half of the 1980s (like decreasing staff of assistants, negative shifts in specific costs per researcher failing to compensate even for the rate of inflation, drastic fall in research-oriented investments), and persisted with increasing momentum in the early 1990s as well.

Yet, despite the deepening crisis, there was no appreciable decrease in the number of the (known) research and development centres. While work was probably halted in some laboratories, these try to retain the sign-boards or name-plates of the affected units. For the moment, it is difficult to judge the type of organisational possibilities, physical facilities and intellectual capacities at hand for a restart expansion. Also, there are no reliable data on the attitude of research centres managements and external organisational structures sustaining research. There are centres where formal maintenance of R&D units (non-removal of sign-boards) really suggests longer-term policy considerations. Elsewhere this phenomenon is simply a sign of organisational inertia. Lastly, in a third group of centres, this is associated with motives of taxation, non-profit operation, and insurance policy or tactical considerations.

The nominal loss, by no means, should be treated as a real loss, because a large portion of the old R&D sector was simply idle or highly ineffective, or has turned to be useless in the new political and military situation and in the condition of open economies.

### 4.3.3. Employment

It is difficult to measure total manpower active in science and R&D in Central Europe, since statistics produced by particular countries are hardly comparable. However, one may estimate that total employment in science, R&D and university-level education in the four countries amounted in 1992 to some 350,000 persons (almost 200,000 in Poland, 64,000 in the Czech Republic, over 50,000 in Hungary and 30,000 in Slovakia). This figure embraces all those who are statistically recorded as economically active in respective sectors of economy. The number of 'scientists' or 'researchers' is by some two-thirds smaller and can be estimated as 120,000 persons in all four countries.

These figures are much smaller than before the transformation processes. It can be estimated that some 150,000 employees left this sector since 1985 (i.e. total employment in science and R&D in mid-eighties could have been estimated to half a million) and that the loss of scientists amounted to some 35,000 people. As the data presented below will prove, the deepest losses occurred in the Czech Republic and Slovakia, which lost more than 50% of their initial human potential in science and R&D. Poland was exceptional in this respect that its truly scientific human potential remained stable throughout last 10 years, which was due to some growth of academic staff at the universities.

Changes in the research potential in Poland are presented in the following table 40:

Table 40. Employment in science and R&D in Poland, 1985-1992

<i>Institution</i>	<i>Years</i>	<i>Employment</i>	
		<i>total</i>	<i>in research*</i>
Institutions of the R&D sector of which:	1985	107,700	18,289
	1988	105,261	17,431
	1990	87,356	15,088
	1992	68,627	12,514
Academy of Sciences	1985	10,785	4,203
	1988	11,393	4,538
	1990	10,960	4,388
	1992	9,202	4,020
R&D institutes and centres, auxiliary units	1985	96,915	14,086
	1988	93,868	12,893
	1990	76,666	10,700
	1992	59,066	8,494
Universities and equivalent schools	1985		46,143
	1988		
	1990		50,048
	1992	130,114	50,688
Total	1985		64,432
	1988		65,136
	1990		
	1992	198,741	63,202

\* so-called 'scientific workers', i.e. employed on scientific positions

As it can be seen above, the most dramatic decline of employment took place in R&D institutes and centres (outside the Academy of Sciences) which lost altogether more than 40% of their personnel between 1985-1992. A considerable shrinking of employment occurred also in institutions serving S&T — by about 30%, while the Academy of Sciences lost only slightly more than 10% of its staff. The bulk of the decline took place after 1988, or during the 'explosion' of the transformation process, but it started much earlier.

A spectacular drop in the R&D employment took place in industrial R&D, especially when comparing data for the 1990s with those for 1980. This employment in 1985

amounted to 102.7 thousand people; in 1990 it was reduced to 82.8 thousand, and by the end of 1992 — to 65.1 thousand. It should be remembered that such an abrupt decrease of the industrial R&D employment not necessarily meant an equivalent net loss of R&D potential.

Massive outflow of scientists to other professions was a characteristic phenomenon for the science and higher education in Poland, but also in other central European countries. The brain-flight to foreign countries and to other occupations in Poland is one of the greatest danger for Polish science. If there were no internal and external brain drain the employment level in science in 1991 could have been higher by some 25% than it actually was. It is hard to state, though, whether we are dealing here with the decrease of Polish scientific potential by 1/4, since one would have to be sure that all those who left science had been rationally employed in science before.

The losses of Polish science due to internal brain flight are much higher than those due to migrations. The latter decreases the human potential of Polish science by some 10%, while the search for better paid jobs within Poland caused the outflow of some 15% of scientists.

Regardless of the high relevance of the figures on the outflow of scientists, it should be remembered that a considerable part of the scientific personnel was redundant and that there are no evidence that those who left science belonged to the best. Consequently, the net loss of the Polish science resulting from the outflow was much smaller.

The changes in Hungarian research potential during the recent years is presented in the following tables 41 ad 42.

**Table 41.** Employment in R&D in Hungary, 1986-1991

<i>Number of employees</i>	1986	1987	1988	1989	1990 <sup>1</sup>	1991 <sup>1</sup>
R&D institutes	19,704	19,708	19,180	18,274	15,536	12,951
Research institutes at the universities	22,120	22,179	22,530	22,370	22,787	22,607
Research institutes in companies	30,900	28,720	26,180	23,271	17,134	12,013
Other research institutes	5,039	4,822	4,625	4,354	4,266	3,647
Total	77,735	75,429	72,515	68,243	59,723	51,218

**Table 42.** Research personnel in Hungary, 1986-1991

<i>Number of researchers and high level professionals</i>	1986	1987	1988	1989	1990	1991
R&D institutes	7,501	7,494	7,387	7,234	6,267	5,385
Research institutes at the universities	13,814	13,701	13,991	13,957	14,044	14,192
Research institutes in companies	13,108	12,448	11,157	10,058	7,442	5,027
Other research institutes	2,936	2,810	2,733	2,587	2,503	2,159
Total	37,359	36,453	35,268	33,836	30,256	26,763

As can be seen, the employment in the R&D sector in Hungary, despite some differences in dynamics, reveals the same tendencies as in Poland: declining numbers of both total employment and employment of scientific workers (researchers and high-level professionals). The most spectacular fall occurred in research units of companies which lost in

1991 more than one half (about 60%) of their 1980 staff. As in the case of Poland, the downward tendency did not take place in universities, which are more independent from current economic trends.

By 1991 the capacities of the R&D declined sharply in absolute terms, though this decline was only slightly felt in intellectual output. The staff strength of the R&D sector was 59,700 in 1990 and 51,200 in 1991. The reduced staff was 29,397, of which 14,471 were scientific researchers and developers. Since 1989 there has been a sharp fall in the size of the enterprise and applied research and development sphere. Therefore, despite all reductions in the HAS (Hungarian Academy of Sciences), the weight of HAS research network within the total staff strength is increasing somewhat. For data on dynamics of employment in the R&D sectors in the Czech Republic see the following table 43:

**Table 43.** Employment in R&D in the Czech Republic, 1985-1992 (in thousands)

<i>Year</i>	<i>Total employment</i>	<i>Scientists in R&amp;D</i>
1985	135.0	17.8
1988	140.4	20.3
1990	105.9	15.7
1991	76.5	14.9
1992	64.0	–

The above figures are really impressive. They suggest that in the years 1988-1991 the Czech Republic lost almost one half of its R&D employment. The loss of scientists was much smaller which imply a deformation in the researcher-supporting staff and in the age groups (outflow of the younger people) proportions. If compared the year 1992 with 1988, the loss was even greater it accounted more than 50% of total work force. The available data do not allow to examine the most recent trends of R&D in individual branches of the economy. Nevertheless the above data for 1989 and 1990 also significant (see table 44).

**Table 44.** Employment in R&D organisations in the Czech Republic in selected branches (in thousands)

<i>Branches</i>	<i>1989</i>	<i>1990</i>
Total R&D	137.9	105.9
industry	85.3	62.1
construction	4.3	3.3
agriculture	9.6	6.6
transport, communications	3.9	3.5
health service	5.5	4.1

As can be seen, the sharpest drop occurred in agriculture and industry and the mildest in transport and communications.

The dynamics of the employment in the R&D sector in Slovakia is presented in table 45.

**Table 45.** Employment in the R&D sector in Slovakia, 1988-1992

<i>Categories</i>	<i>1988</i>	<i>1989</i>	<i>1990</i>	<i>1991</i>	<i>1992</i>
Total employment	63,251	58,815	51,641	40,085	30,284
of which active in research	35,558	35,535	27,745	21,404	16,286
of which with university education	22,201	21,301	15,550	12,576	10,681
of which with degree in science	3,816	3,797	3,652	3,224	2,803

The drop of the R&D employment was substantial. The R&D sector by the end of 1992 lost more than one half of its total employment in 1988. The reduction in the staff with science degree was significantly lower — it amounted to slightly more than one quarter (the same tendency was observable in the Czech Republic). As a result, the share of personnel with scientific degree increased from 10.7% in 1988 to 15.1%. This tendency, as in the Czech case, probably implies transformation in the age structure and in the research-supporting staff proportions of the R&D staff (similarly as in other Central European countries, the young assistants and technicians more frequently leave research institutes for more attractive jobs).

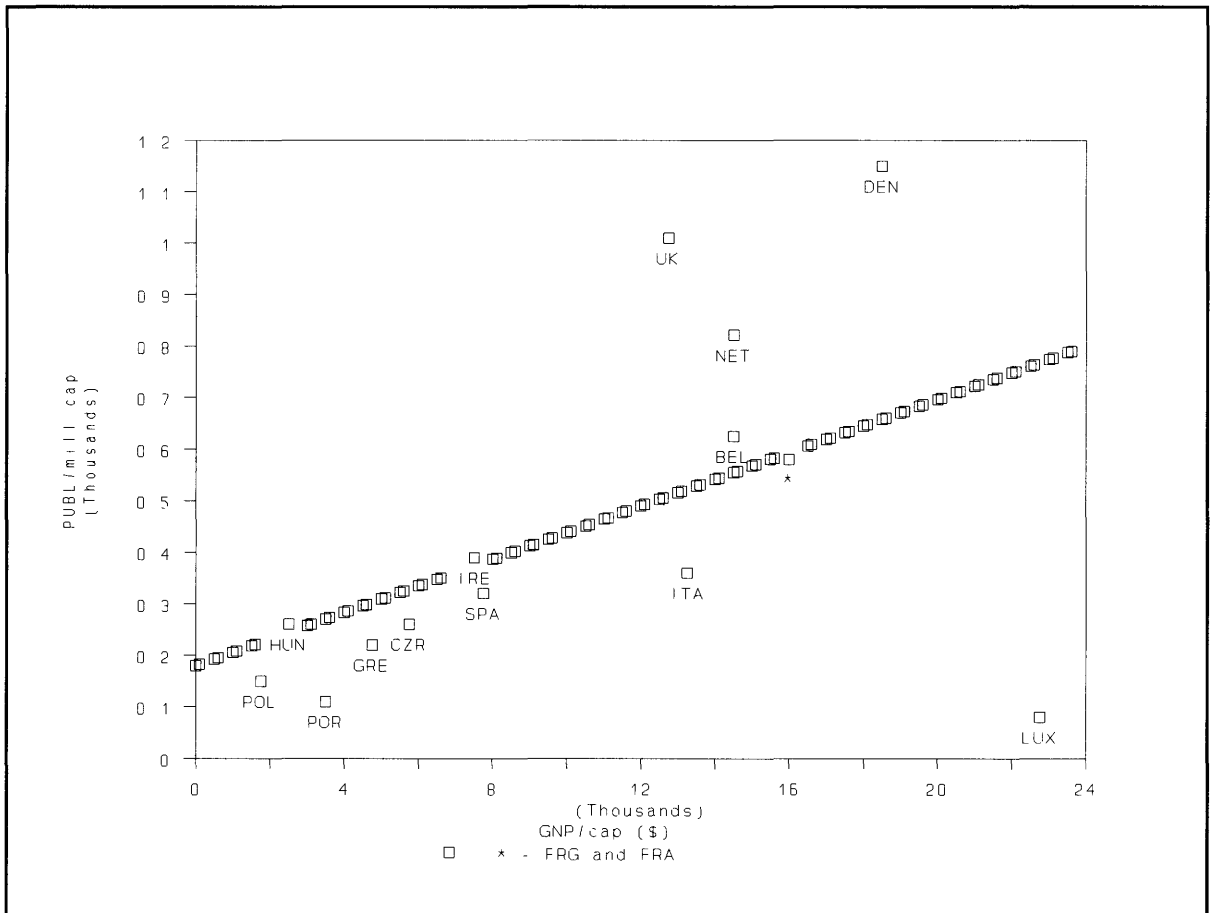
#### **4.3.4. The ‘scientific product’**

As the scientometric analysis demonstrates, the publication numbers over a longer time period (1981-1992) indicate the general capabilities of the science sector in the countries of Central Europe. There is a clear relationship between the GDP per capita and the number of scientific publications (quoted in the international databases) related to the number of population (see fig. 16). In this light the output of scientific research delivered by the academic and R&D sectors in the Central European countries has to be seen in due proportions — as the output of countries on a medium level of development.

In the 1981 ranking according to the total number of publications related to the number of population Poland was 15th, Czechoslovakia 18th, while Hungary — 23rd. By 1992 Poland dropped down to 18th place, Czechoslovakia to 21st, while Hungary — to 28th. It should be remembered, though, that in the ranking according to the dynamics of growth of the number of publications Poland was 41st (increase of 128%), Czechoslovakia 42nd (increase of 120%), and Hungary 44th (increase of 110%), while the increase observed for the leader of this ranking, South Korea, was 1078%. The average increase of the data base, which can be taken as the measure of the general increase of the number of publications, was 140%.

During the entire period 1981-1992 Poland ranked 17th in the world in terms of the number of publications, Czechoslovakia 21st, and Hungary 26th. Then, the total number of citations gave Poland 21st place, Hungary 25th, and Czechoslovakia — 26th, ahead of Greece (31st) and Portugal (40th), but behind Spain (17th), Belgium (15th) and The Netherlands (7th).

The ranks of Poland according to the numbers of publications in particular fields range from 11th in chemistry to 35th in clinical medicine, with 14th in engineering sciences, material sciences and mathematics, and 16th in informatics and interdisciplinary research. This means that a far reaching specialisation of research is possible, which might be a desired direction in conditions of very limited outlays on research.



**Figure 16.** Relation between GDP/inhabitant and number of scientific publication per 1 million population.

The above figures demonstrate the results which the decrease of funding and drops of employment in science and R&D in the Central European countries had on the research results. In opposition to the world tendencies, since the mid-eighties there has been a steady decrease of the numbers of publications in the Central European countries, which lasted until 1991. This entailed the shrinking of the share of these countries in the respective world totals. The changes which have then been observed after 1991 are in agreement with the changes observed in the EC countries, though with the two-year delay and with lesser intensity, which indicates the impact of the overall financial and organisational difficulties on the functioning of science and R&D sector in Central Europe.

The decrease in technical sciences and in Poland occurred in 1989 was especially deep. Most probably it stopped only in 1992, with the relative magnitude of the decrease reaching 40%.

Research results in particular countries have different structure. In comparison to the general international tendencies, the Central European countries are very well balanced in their experimental and theoretical approaches. However, they do leave applications seemingly far apart. A high share of applied research is observed in Hungary and of fundamental research in Poland (see fig. 17). A divergence of the growth trends of individual fields of technical sciences, as observed in the Czech Republic and Poland after 1989, indicates that previously existing strong connections resulting from the socialist international division of labour still persist.

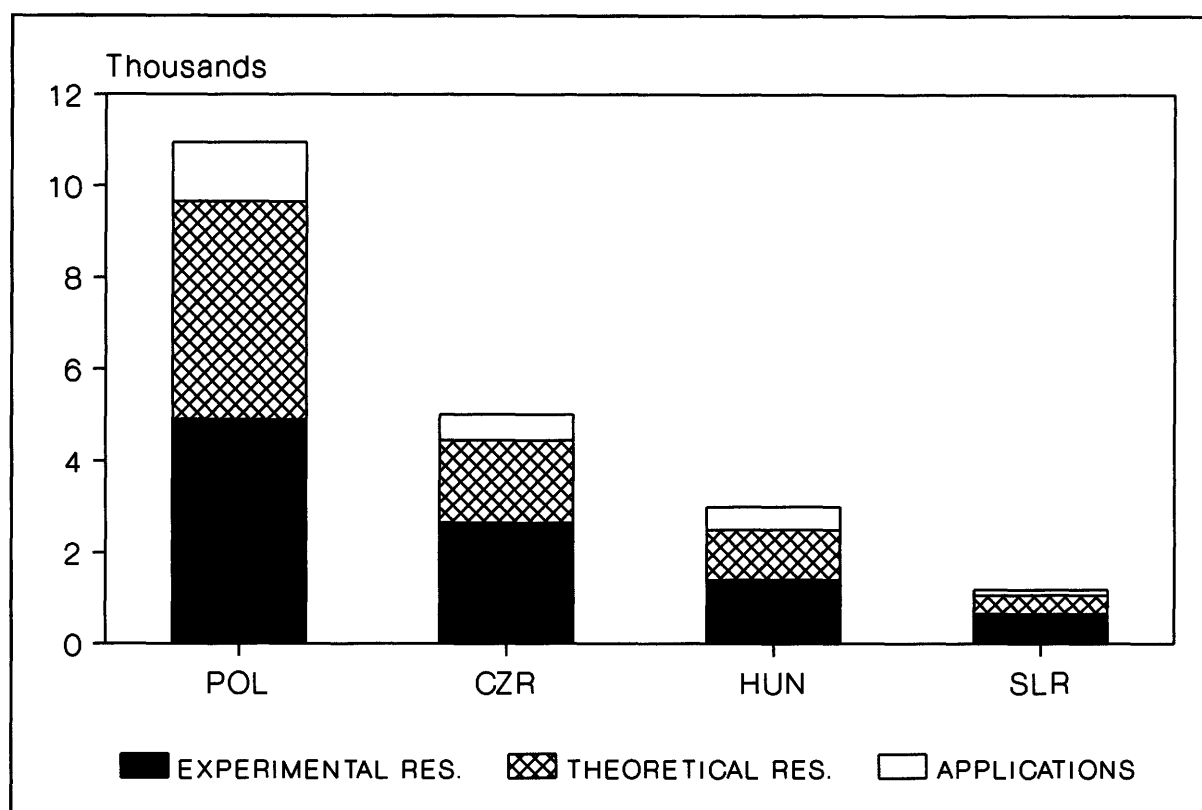


Figure 17. Scientific publications in the CEC and their structures by type of research.

R&D output may be also measured by patent activity. The following table 46 presents data for Poland:

Table 46. Polish patent activity in 1980-1992

Year	Patents applied for	Patents granted
1980	6,198	5,736
1985	5,124	3,479
1988	6,280	2,796
1990	4,106	3,242
1991	3,393	3,418
1992	2,896	3,443

As can be seen, the downward tendency in the Polish patent activity was most evident in the case of the number of patents applied by residents. It fell in 1992 by more than 50% relative to 1988, and the downward trend since 1988 was clear. A different picture is given by the numbers of patents granted to residents: since 1989 it shows even an upward trend. It is not clear if it is attributable to delays in granting patents or to more rigorous criteria of granting patents. If the latter is true, it would mean a streamlining of the R&D activity by getting rid of fictive 'innovation' activity for statistic and planning-bureaucratic purposes.

#### 4.3.5. Institutional restructuring

Science and R&D sectors in Central Europe are undergoing not only quantitative changes, but also institutional transformation. The transformation process is just getting off the ground. The format of public and non-profit institutions in R&D is becoming to be legalised. Industrial research institutes have been partly transformed into joint-stock companies. In terms of workforce, some three quarters of R&D capacities are still bound



up with direct state forms of property, slightly less than the rest has some forms of state participation and only small margin is private (mostly joint ventures with foreign participation).

In comparison with other institutional forms, the autonomous R&D institutes are undergoing biggest cutbacks. Many centres tend to scale down their operations or try to cope with their problems by switching over to other activities — consultancy, certification, development, servicing or production. Three quarters of all research institutes extend their development and production capacities and about one half of them have changed their research programmes. They reduce their staff, but staff reductions are also (and mostly) caused by voluntary outflow of employees because of low salaries in research institutions in comparison with greater pay offered by the private sector. Tendencies in the in-house factory R&D units are similar to those in autonomous R&D institutes, although not so intense.

With the exception of Hungary in the sector of mission-oriented state (ministerial) research the cutbacks in funding and workforce are not so radical and the main ministries have succeeded in keeping alive a network of research centres even with reduced funding. In Hungary all such institutions but subordinated to the ministry of agriculture, have ceased to exist.

The academies of sciences are also undergoing a process of streamlining and transformation and are subjects of discussions concerning its future. It seems, however, that a rationalistic solution of preserving the research capacities of the Academies will prevail, since the losses which would be created by the opposite decision would be enormous.

The process of transformation of scientific and R&D systems in Central Europe is, to a large extent, chaotic and spontaneous. Only very recently in some countries (for example in 1993 in Poland) clear priorities for the scientific polity have been formulated. In fact, the situation of particular institutes and other research centres could have been the direct result of current performance of a given set of industrial enterprises and/or the resistance of staff to periodical severe cuts of financing. Many good research teams have been disintegrated and many other still face this danger.

On the other hand, a clear polarisation effect has manifested itself also in science and research. Several institutes have been able to justify their existence by contracting orders for research wither from domestic or foreign sources. Such institutions could expand both in material equipment but also in human capacities. In many cases they have overtaken both employees and assets of collapsing institutes and centres. This process has been, however, much too weak and the market principles of performance and competition have not entered into science and research of the Central European countries with a sufficient force.

## **4.4. Technology**

### **4.4.1. Innovations**

The ability to create and absorb innovations is the greatest challenge for the Central European countries at the turn of the XX and XXI century.

In the discussion of this problem it should be observed that the understanding of innovation itself has changed from a single event to a complex of social mechanisms and phenomena which are involved in new production technologies and patterns<sup>17</sup>. In the long historical experience of the Central European countries those complex social mechanisms have never functioned too well and the difference between the innovative civilisation of Western Europe and the *grosso modo* imitative<sup>18</sup> civilisation of Central and Eastern Europe was more or less visible in the differentiated historical conditions.

Naturally, there were many exceptions in relation to this tentative observation but these exceptions are probably not changing the general historical landscape in this field. Especially important is the heavy legacy of the communistic past when the whole economic, social and political climate did positive inducements for complex mechanisms that underline new production processes and the production of new products. In this context, both the generally negative and, in some fields, positive role of the Warsaw Pact and COMECON should be mentioned.

In the conditions of the new order — innovation is the key to the technological and economic future of the Central European countries.

#### **4.4.2. Industrial technologies**

In this area the situation is less clear than in the field of research and education, and the developments in individual countries are much less comparable and hardly can be expressed in quantitative terms. Nevertheless, some tendencies and facts are discernible. One of them is the differentiated situation in each country from the point of view of the state of industrial technology: beside the rather obsolete technologies of most industries and plants, there are considerable enclaves of high-technology and quality. Some of them have been created and are maintained by foreign investments, whose role in all countries is growing role (though it is still rather marginal).

Their influence on the general technological level and domestic industrial R&D is not uniform. On the one hand there is a tendency (that seems to be dominant) of treating Central European countries by foreign investors as only markets of their products or/and as suppliers of cheap labour, raw-materials, etc. This implies, among other things, neglecting (or closing down) of R&D units in these countries. On the other hand, however, new technologies and equipment transferred due to foreign investment raise the technological level of the firms concerned; there are also some cases of retaining or even strengthening of R&D activity of Central European companies after buying them by Western firms.

The industries of the Central European countries are being subordinated to divergent influences and tendencies.

In **Poland** they are characterised by a number of negative phenomena, like growing depreciation of fixed assets, low productivity and efficiency etc. The industrial structures are obsolete and retarded in comparison with the technologically advanced world by some 20-30 years. According to estimated high-tech firms produce only 3.5% of the total industrial output — in more advanced countries this share reaches 20%.

However, some significant positive elements could have been recently seen in Poland. There are some industrial branches, or more exactly, some industrial firms which are at

<sup>17</sup> OECD-TEP, *op. cit.*, p. 16.

<sup>18</sup> This is a far-going generalisation which should be tested empirically.

the disposal of modern and new technologies and equipment, have skilled and innovative managers and engineers. Unfortunately, quite often they are 'frozen' in sectors hit by the recession, like military industry, but even there they can manage to produce goods of high quality for civilian purposes, e.g. helicopters, sport and training planes, etc. Some producers of durable consumer goods (vacuum cleaners, kitchen utensils etc.) have managed to raise their output and locate it mostly in the highly competitive Western European and American markets. Some export under their own names and labels, but even a greater number of producers export their goods to renown Western firms which only add their labels and resell them as their own. Producers of some traditional for Polish industry products, like ships or building machines, have retained or regained their positions in the domestic and foreign markets due to the high quality of their products.

There are also some other positive tendencies. A greater care for quality and efficiency, in both private or state-owned firms, becomes a more popular attitude of the workers. The enterprises are undertaking production of high-tech goods (like computers, high-quality TV-sets, etc), mostly in production of details for foreign firms or in assembling, but with a growing share of the final output being produced locally. As it was mentioned earlier, there are signs, though questionable, of a renewed interest of (large state-owned) firms in R&D. Unquestionable is the fact that the Polish recovery of industrial output in 1992 and 1993 was accompanied by a decrease of energy consumption, which may also become the case in other Central European countries. Although it is probably mostly owing to a better utilisation of energy and exploitation of the existing equipment and changes in the branch structure of the industry rather than to modernisation of the industrial equipment, it, still, implies an improvement of the technical factor in the Polish industry.

R&D activities conducted in the **Hungarian** industrial enterprise was adversely affected by the new economic situation of Hungary. From the outset, the economic crisis of the 1990s hit hardest the range of Hungarian large enterprises which were — by reason partly of special prestige consumption, partly of producing for the Eastern (mainly Soviet) markets — the largest customers of the R&D sector. The collapse and often the liquidation of these enterprises are the root cause of the fall in demand for R&D.

A rather large proportion of the former industrial R&D capacities was tied up in engineering and import substitution of technology and equipment, either military or non-procurable for reasons of foreign currency. Almost all such functions came automatically to an end.

The widening channels of technology transfer have automatically downgraded Hungarian technological research, which has no base for instruments or machine-building. The far-flung concepts formulated during the years following the systemic change seem not to have quite come up to expectations: it was not possible to save the Hungarian industrial R&D capacity, employing as it did a large pool of staff, by contracting jobs abroad on a continuing basis.

It should be underlined, however, that in spite of all problems, some research units of enterprises have survived, although reduced in staff. Some of them were re-founded as private ventures and continue their research activity adapting themselves to needs.

Research units of some privatised big companies were main trained (e.g. in the case of Tungsram, which is 100% foreign property now) or in some rare cases even developed. This latter case happened with the Hungarian pharmaceutical company Chinoin-Sanofi, the majority owners of which are French and American companies.

From the point of view of technologies, **Czech** industry represents mixed characteristics. On the one hand it is known for high levels of skills and technical culture of the workers and engineers (despite 'demoralisation' during decades of easy access to East-European markets and lack of international competition), considerable material assets accumulated in various branches of industry and a good innovation (patent) activity. On the other hand the new economic situation uncovers some weaknesses of the Czech industry, like insufficient increase in labour productivity (a significant drop in the output was accompanied by lack of employment retrenchment), shifts towards less technologically advanced branches (which proved to be more successful in competitive Western markets than the high-tech sector), declining industrial R&D activity (as mentioned earlier).

The current situation in the Czech Republic's industry is characterised by a substantial drop in overall output and heavily underutilised production capacities. The extent of these indicators, however, tends to differ from one branch and sector to another. It can be said that less technologically demanding branches (such as power generation and fuels, metallurgy, food processing, paper making and cellulose manufacture) have succeeded in adjusting themselves better to the new conditions while technologically more demanding branches (engineering, electrical engineering, electronics and communications technology) are in the grips of a profound crisis. Branches of the chemical industry, and especially those in the petrochemical sector, have managed to sustain a certain amount of dynamic. Reallocation mechanisms have so far been working more towards mobilising available technological resources (using the existing production facilities, reorganisation of enterprises and separation of good quality productions from sub-standard ones, utilising the possibility of providing subcontracting services to foreign customers) rather than their restructuring (narrowing down production programmes, investments, technology imports). The collapse of some technology based industrial branches, such as electronics, can however be regarded as a correction of a strategy, which proceeded from autarchic and no longer has any justification in a small country like the Czech Republic and in an open economy. The same reasons are applicable to the traditional technological branches, such as engineering, specialised chemistry and metallurgy, which are also currently faced with the necessity of narrowing down their production range and making use of broader opportunities offered by cooperative options in production. In a global perspective, the ongoing changes may be described as a strengthening traditional production structures (glass, ceramics, textile and clothing industries) and as a take-off of selective changes in technology based production areas, which could create reliable technological links towards industrialised countries.

The influence of foreign investments seem to be heading to technologically less demanding branches:

- tobacco industry, glass-making, production of non-alcoholic drinks — 504 million USD
- car manufacturing and production of transport technology — 423 million USD
- food industry — 190 million USD
- banking — 178 million USD
- chemical industry — 111 million USD.

Up to now foreign capital participation in technology based industrial branches has been negligible and is applied within the framework of existing production programmes of enterprises. In other words, foreign capital investments strengthen the otherwise dominating tendencies of the branch structure of Czech industries.

Despite the adverse tendencies described above, there are also some promising elements, as a growing interest of the Czech research community in selling research findings abroad, active international exchange of technological findings, etc.

**Slovak** industries are characterised by the greatest shares of the 'heavy' branches of industry (metallurgy, petrochemicals, military industry), by huge factories, high dependence on links with the former Soviet Union (as suppliers of raw materials and customer of processed goods), considerable underutilisation of production capacities (especially after the collapse of exports to the former Soviet Union and other Eastern European countries) and their inadequacy in the new economic condition.

Slovak industry is, to a large extent, a result of the forced socialist industrialisation of the post-war years characterised by low level of technology (when compared with Western European countries) expressed, e.g. in high energy-, labour-, environment-consumption, etc. It created, at the same time, a large number of highly skilled workers and engineers.

Apart from material problems, Slovak industry, as well as other sectors, have also some institutional and organisational deficiencies resulting from the division of the Czecho-Slovak federation, e.g. an insufficient network of industry serving centres (quality testing, certificating, etc) which were mostly located in the Czech Republic.

When compared to Hungary or the Czech Republic, Slovakia is less penetrated by the foreign capital, which may create less favourable conditions for technological advancement of this country.

## **4.5. Education**

The education systems in the Central European countries consist of three levels: primary, secondary and higher (university), which are supplemented by various forms of short-term or irregular education.

Attending primary schools is obligatory and almost all children (98-99%) in the age of 7-14 years attend schools. The ratio for the age group of 15-19 years, corresponding the age of secondary schools, is in the range of 80%. Secondary school education still retains vocational education bias, characteristic for the socialist countries.

For example, in Poland pupils of general, 4-year secondary schools constitute only 25% of the total number of youths attending secondary schools; 34% attend 4 to 5-year vocational secondary schools and as many as 41% attend 3-year vocations schools which do not give a secondary school certificate. The latter schools mostly prepare future workers for a given enterprise and are very often owned by the enterprise concerned. This type of schools is undergoing a crisis resulting from financial problems and restructuring efforts of enterprises (since spending on the factory school is usually one of the first to be cut) and from the changed labour market (firms no longer feel they must run a school to have new workers). Graduates from this type of school are among the major victims of the unemployment: they are less prepared than their colleagues from secondary grammar school to attend university in order to avoid unemployment (absence of the secondary school certificate eliminates such an option) or to take advantage of the new job opportunities.

In all countries the relative number of university students is much lower than in highly developed Western countries. The number of university students per 10,000 inhabitants is within the range of 100-125, while in the Western countries it usually exceeds 200. The percentage of youngsters who continue education after completing secondary school is also small in and amounts to about 15%. Very small, in comparison with the Western countries, is also the student/teacher ratio which is of range of 5.5-8.5, compared with more than 15 for Western countries.

In 1992 there were some 800,000 persons enrolled in the university-level academic establishments in all four countries. This number is by far unsatisfactory.

In recent years in all countries a growing interest in higher education system for subjects related to the new economic situation (e.g. economics, management, law, etc) is observed.

The education systems are undergoing deep transformation, both with regard to subject of teaching and organisation of education institutions. For instance, apart from the dominant public schools in all countries the number of private and non-public schools at all levels of education grows.

In three Central European countries the structure of university-level (higher) education offered by respective academic institutions is biased towards the domination of technical education. Poland is the only example of more balanced proportions.

In the academic year 1992/93, all higher schools in **Poland** had 496 thousand students, including 25% studying the humanities, 23% technical sciences, 12% economics, 10% mathematical and natural sciences, 9% medicine, 9% law, and 5% agricultural science. The remainder studies comprise physical education (4%), artistic and theological (2% each) and other (1%).

Very significant is the evolution of the number of university students and teachers in recent years. It is presented in the following table 47.

**Table 47.** The dynamics of human potential at the higher schools in Poland, 1980-1993

<i>Academic year</i>	<i>Number of students</i>	<i>Number of teachers</i>	<i>Student/teacher ratio</i>	<i>Students per 10,000 inh.</i>
1980/81	453,700	54,681	8.30	127.1
1981/82	426,500	54,691	7.80	118.1
1982/83	396,600	56,429	7.03	09.0
1983/84	369,600	55,887	6.61	107.7
1985/86	340,700	57,280	5.95	91.3
1989/90	374,000	60,333	6.20	98.4
1990/91	403,800	64,454	6.24	105.7
1991/92	428,200	63,176	6.78	111.8
1992/93	495,700	63,076	7.86	122.0

The table demonstrates some clear tendencies: until the mid-1980 it was a tendency of decrease in the number of students, in the student/teacher ratio and in the number of students per 10 thousand inhabitants index, with the number of teachers remaining fairly stable. Since the late 1980s just the opposite tendency is under way. The latter tendency confirms an earlier in this paper expressed opinion on the changing role of higher educa-

tion in the present economic conditions in general, and in the labour market in particular.

Generally speaking, the system of higher education in **Hungary** is characterised, among other things, by a relatively low number of students, a very low student-teacher ratio, pragmatic attitudes of students to higher education (as a means for obtaining skills necessary for professional career rather than for obtaining a set of knowledge) and the consequent high interest of students in faculties related to business and management. A two-level organisational system implemented in line with Western (Anglo-Saxon) model, responds to these needs.

The student population of Hungarian higher education was very instable during the post-war period. It began to soar in the 1950s, when the enrolment rates were much higher — to double their level — than in the West European market economies of similar level of economic development. Admission rates were then reduced sharply already in 1954, which moved the country down in the European ranking of student numbers. The early 1960s saw another drastic leap in many faculties and institutions. The growth rate of the student population for Hungary was the highest in Eastern Europe, which brought the country to the tenth place in the European ranking. From the mid-1970s the number of students was stagnant in day-time courses and came falling in evening and correspondent courses. By the 1980s Hungary had become a laggard of Europe, keeping ahead only of Rumania and Albania, in terms of per capita day time students. By the 1990s the gap had become so marked that to reduce it, namely to increase student numbers came to be one of the major goals of the system of higher education: in 1985-89 the number of students per 10 000 amounted to 99, on average. It should be stressed that this low number is largely due to demographic characteristic of the Hungarian population (small numbers of population in younger age-groups).

Hungarian higher education occupied a more favourable position as regards the ratio of diploma holders to the population, which placed the country within the average European standards. Precisely for this reason, the conceptions about the role and direction of increasing the student population need to be studied more thoroughly, albeit, as Hungarian experts maintain, their trends certainly deserve support.

In accordance with the sectoral pattern in the state socialist model of higher education, it was only up to the 1970s that the system was characterised by technical and agricultural education with preponderant student populations. From the 1980s teacher's training was the largest sector of higher education in Hungary. Real research-university doctoral programmes integrated into training were launched in the 1990s. On an experimental basis, a kind of two-level training was also introduced already in the 1960s, and it became a prevalent element of higher education in many fields from the turn of the 1980s and 1990s.

In the two-level training, the first (BA) level allows to achieve the professional training (imparting packages of skill simplified in comparison with previous full training) and is then widened by the second level by adding theoretical subject, broader personality development and some professional elements, to lead to the MA degree. In the next decade this model is intended by the state education policy to become a general feature of the entire domain of higher education.

As regards the student-teacher ratio, it is currently very favourable (low) at Hungarian universities: it is about half of that in the higher education in European industrialised countries. And this particularity was not inherited from the rigidly planned system of higher education of the 1950s, but is rather a result of the faster growth in the number

of teachers than that of students. In 1971 the number of students was 86,311 and the number of teachers — 10,312, while in 1981 respectively: 101,166 and 13,890 and in 1991: 107,079 and 17,477. The student-teacher ratio was 11.4 in 1961, 8.4 in 1971, 7.4 in 1981 and 4.8 in 1991.

The preferences of current students are primarily oriented towards professional training in a narrow sense (similar strain can be also seen in other Central European countries). The students enrol to the universities or colleges upon their expectation to obtain/provide qualification for some gainful occupation as soon as possible. In this connection, such faculties as commerce, business administration management, attract really considerable interest among students, as they offer highly favourable employment opportunities for graduates. At the same time many faculties, especially in technical and natural sciences, face problems of insufficient numbers of students.

The 'socialist' education system in the **Czech Republic** (as in Slovakia) was characterised by probably the strongest orientation towards technical training (at the secondary and university levels) and was strongly ideology-influenced. In the academic year (1991/92) the vocational apprentice centres concentrated 52.% of all secondary school students. General secondary schools educated 20% and secondary vocational 27% of the total number of pupils in the secondary schools. Since the transformation the domination of technical orientation on both secondary and university levels is being diminished.

These are few university students per 10,000 population — the ratio amounts to 108. There are 23 higher education institutions: 8 (classical) universities, 6 technical universities, 1 veterinary university, 1 economic university and 7 other universities; the number of students is 112,000.

The sector of university education witnessed a quantitative upsurge during the 1950s. Its growth rate slowed down in the subsequent decades and the universities kept producing university-trained graduates at a level of 100 to 120 per 10,000 inhabitants. Also the share of admissions to universities in the 18 to 19 age group was kept a level of 15 to 16 per cent and is now declining. The branch structure by number of students in the university sector reflects a predominate, however declining, share of technical branches (35 per cent), a prevailing and growing share of social sciences including economics (41.4%), a decreasing share of agricultural, forestry and veterinary disciplines (8.0%) and medical and pharmaceutical branches (9.6%).

No connection between research and education at the universities and separation of university research from activities of the Academy of Sciences are considered as the most important shortcoming of the higher education system in the Czech Republic.

The education system in **Slovakia** does not differ much from that in the Czech Republic, and has a lot in common with that in Hungary and Poland. It is also organised in a three level structure. Until recently it was characterised by a strong orientation towards vocational and technical training. The number of university students is rather low and amounts to 121 per 10 thousand inhabitants (64.3 thousand in absolute terms). The ratio of university students to the population in the age of 18-19 years is also low — it was 14.8 in 1988. There are altogether 17 universities in Slovakia, of which 6 classical universities, 4 technical universities, 3 medical faculties, 1 economic university and 3 other universities. The number of university teachers in 1992 was 9,351, which makes the student/teacher ratio of 6.88.

The Slovak higher education system is characterised by clear orientation towards the primary and secondary sectors of the national economy. In 1992 the share of students



in 'engineering' represented 28.1% of the total number of students, transport and communication 7.3%, agriculture, forestry & fishery — 7.1%, while social & behavioural sciences — only 2.8%.

The structure of university education by the type of the school also changes. In the years 1989/1990 — 1992/1993 the absolute number of students of classical universities increased from 16,679 to 23,393 and their share from 33.9% to 42.1%; in the economic university from 5,168 to 6,632 (respectively: 10.5% and 11.9%); the number of students of technical universities decreased from 22,471 to 20,778 and their share from 45.8% to 37.4%; of agriculture and forestry universities from 4,342 to 4,083 (8.8% and 7.3%). These data confirm a clear tendency towards reducing the technical orientation of the Slovak higher education, which responds to requirements of the new economic system.

Apart from 'regular' full-time studies there are also other forms like bachelor and post-graduate forms. In the 1992 they represented 5.6% of the total number of students.

## **4.6. Science, technology and education in Central Europe: prospects and policy recommendations**

### **4.6.1. Introduction**

The period of 1989-1993 was a unique historical opportunity to organise a highly efficient transformation of the STE system in Central Europe. The performance of all actors involved in these processes was very far from highest quality standards and was almost totality dominated by short-term thinking and approaches. Nobody was able to design and implement the long-term strategic thinking and comprehensive policies in the field of science, technology and higher education<sup>19</sup>.

The new governmental structures were not able to develop long-term sciences and industrial policies. The biggest achievements of those governments is the development of new legislation being an important vehicle of the institutional change — mainly at the national level. But even in this legislation we can find many traces of solutions designed not in the service of excellence — but under the populist pressures to accommodate the interest of the average student and the average professor.

The international organisations produced a huge volume of partial small- and medium-scale activities. Those activities have generated many positive effects. However, absence of a general strategy implementing the comprehensive grand design is clearly visible.

Naturally, all activities in the field of sciences, technology and education were performed in the general global climate of the strong overestimation of the automatic blessing of the market forces and the strong underestimation of the well known mechanisms of guided change and long-term strategic approaches including strategic planning. In results of that climate and those only partially efficient transformation activities the system of STE has, in 1993, the following features:

<sup>19</sup> We share the value judgement expressed in TERC: 'As far as the problem of school's self-government is concerned, the majority of responders in all four countries believe that too much power was transferred to collective bodies (senates, departmental faculty councils and institutes' scientific councils). Directors', rectors' and deans' executive power are too limited.' S. Amsterdamski — TERC — 5 Perceptions of Dilemmas. Summary of a Qualitative study — Transformation of the National Higher Education and Research Systems of Central Europe. Institute for Human Sciences, Vienna 1993, p. 22.

1. It is the system representing a 'cohabitation' of the elements of the new and old order. The new systemic solutions encounter large fields and islands of old institutional patterns and the general level of coherency of the system is relatively low. The new finality of the system is rather accepted — at least in verbal terms. In the field of motivations the role of old mentality is still very important. The dilemma — excellence versus mediocrity — has not been solved in a general way as yet.
2. The system is functioning in the conditions of financial restrictions and difficulties — generating the shrinkage effect in many fields. However, some successes in the creation of new financial foundations should be noticed.
3. The system is a bleeding patient of the external and internal brain drain which can eliminate some strategic links the most advanced fields of research and teaching.
4. The system has an already pathologic biological structure being dominated by old and older generations. The deficiency of young dynamic scientists is a growing phenomenon.

This diagnosis means not that the system has lost its power of survival and transformation. It only means that the balance of transformation for the years 1989-1993 is not especially successful due to both subjective and objective factors.

In 2005 the Central European countries will have a new system of science, technology and education which would be adapted to the realities of united and integrated Europe. This system will fully accept the motivations and finalities prevailing in the European Union. This is the *genus proximum* of the new system.

At the same time, the *differentia specifica*, associated with the national identity, will be kept alive — as a contribution to the positive diversity of the science, education and culture of United Europe.

All actors involved in this process of real and full transformation will develop comprehensive long-term strategies with a proper definition of goals means and instruments to accomplish the historical task of the creation of a coherent new system.

#### 4.6.2. Education systems

The societies of the Central European countries represent a relatively high level of general and professional education. It is well that, in most cases, the persons endowed with higher level of education and professional skills represent a much more positive attitude towards the new reality in the Central European countries than those representing lower levels of education and professional competence. Therefore, in the scenario a process of long-term adaptation of these countries to the realities of the European Union will be supported by strong pro-educational policies which would create favourable conditions for the full transformation and rapid development of the system of education in these countries.

The passive attitude to tolerate the processes of shrinkage and deterioration of the systems of education will be recognised as highly negative from the point of view of the development potential of the Central European countries. These countries will meet the challenge to create a new system of education in which the **principle of excellence** is the fundamental criterion of performance. The system of education will prepare the con-

secutive generations to live and work in the framework of highly competitive European and global societies. In this effort the self reliance option will be the main choice.

There are two elements in this framework. The conventional system of education, starting from the kindergarten and concluding as the university, and the multidimensional system of permanent education defined as a pattern of continuous renewal of knowledge and ability of all interested members of the labour force and the society at large. It is assumed that both systems of conventional and permanent education will have very high development priorities.

The justification of this approach is related not only to the classical argument for the development of national culture and identity but also to the necessity of continuous improvement of the general conditions for the growth of technological knowledge and know-how of the society — as the environment for pro-innovative motivations and activities.

The system of education in the Central European countries will be developed mainly via the application of endogenous mechanisms and resources. In particular, continuation of reduction of the inherited preponderance of specialistic professional teaching in technical subjects in favour of general education (at secondary school level) and economic, legal and humanities (at university level). In such a way, the education system in the Central European countries will evolve towards Western patterns of the education system.

One may expect a radical increase in the number of university students, to the level of some 200 students per 10,000 inhabitants. It will be a result of lifting of the previous limits on the number of students determined by the needs of the production sector for labour force as well as a result of attempts of the authorities to use universities as 'containers' of youth unemployment, at least during the few next years.

One should also expect further evolution of the organisational structure of the educational system towards more flexibility and diversity (more short-lasting forms of permanent professional education, more organisational forms of schools and universities, etc). In this respect, commercialisation of the educational system will be one of crucial problems. The role of the private sector (private schools) will be a subject of political debate and will probably be different in different countries and will change over time following changes in the strength of leftist and rightist political forces.

Especially in the field of the promotion of special schemes for the education of globally-minded elites — with highest levels of knowledge, skills and competence — it is envisaged to find solutions related to some extent, to exogenous sources and patterns of cooperation.

Two solutions will be applied in this context:

1. To create different institutions for the elite education inside the Central European countries. These institutions, following the already existing modest beginnings, will rely — to some extent — on external financial and human resources.
2. The 'Go Away solution' (to Western Europe and America) — following the example of the dynamic east Asian countries which sent more than 150 000 students to America alone in the academic year 1991/92<sup>20</sup>.

<sup>20</sup> James M. Montgomery, East Europeans, Too, Should Go Away to School, I.H.T., December 8, 1993.

It is argued that Central and Eastern Europe will follow the 'go-away' example of other countries — like that of the 'Asian tigers', naturally on a much smaller scale — in order to create some additional injections of growth-oriented and globally-minded young elite into the society and economy.

These process will allow for much broader participation of the societies in political and cultural life of all four Central European countries, for advancement of the technological level of their economies, as well as for much broader internationalisation of these societies.

#### 4.6.3. Science, R&D and economic transformation

The sector of R&D until the year 2005 in the Central European countries will be shaped by the following developments and factors:

- completion of the critical phase of transformation towards a market economy:
  - resumption of the economic growth,
  - continuation of the privatisation process,
  - continuation of the internationalisation of national economies;
- economic and R&D policy of the governments.

The critical phase of the economic transformation in Central Europe, which started in 1989, is now coming to its point of completion. This phase has been characterised by a dramatic process of adaptation of the economy to new rules of the game, which, not accidentally coincided with a radical switch of exports from the former USSR and other Eastern markets to the West. Generally speaking, this process of transformation consisted in reducing those capacities which turned out to be useless in the new economic and political system (regardless whether the process was spontaneous or controlled) and in creating institutional foundations for functioning of the new, market mechanism. The reduction of redundant capacities affected, among other things, the R&D sector. Now it seems that all Central European countries have reached the final stage of the most critical phase of their transformation towards market economy, though deep and painful reforms are still to be introduced. Although considerable parts of national economies, especially heavy industries and mining, are still protected from the blows of the market and — with the exception of Poland — more than 50% of GDP is generated by the state sector, a radical change in the functioning of the economy and in the behaviour of economic agents (producers and consumers) has occurred. The most spectacular evidence and source of this change are developments at the macroeconomic level — the transition from an 'economy of shortages' to an economy of market equilibrium.

The completion of the critical phase of the economic transformation means, first of all, an end of the reducing of abundant capacities, including those in R&D, caused by the transformation. Of course, it does not mean that other possible mechanisms of shrinkage (e.g. international competition, economic recession independent from the transformation, etc) will not have worked. However, given the importance of the impact of the transformation on economic performances in the last years, elimination of this particular mechanism of reduction of capacities will be a significant relief for the economies of the Central European countries.

The critical phase of the economic transformation should be completed in the period of 1-2 years. It means that **in the following 1-2 years the process of reducing the scientific and R&D capacities will decelerate or stop.**

As a far-reaching result of economic development, the share of 2.5-3% of the GDP directed to science and R&D will be restored in all Central European countries.

In the conditions of limited R&D potential, the Central European countries have to search for their special market opportunities in only few industries. The most promising chances are open to the highly specialised products in short series at high unit prices, where the competition of big corporations is not very sensible. This applies to some kinds of computer equipment of ASIC type, the 'semi' or 'full-custom' integrated systems, robots for specific branches of industry, specialised chemistry products, mainly electronic chemicals. The above products are counted among those of the highest profitability ('high value added products'), which would improve the economic structure of the whole Central European industry.

#### **4.6.4. Science of the Central European countries on the global scene**

The natural, technical, social and human sciences of the Central European countries have a long and, in some fields, successful tradition to be seen and recognised on the global scene.

The performance of the communistic past has a mixed record of negative and positive experiences. In the field of natural and technical sciences, the support of the state for the international scientific activities was relatively strong. In the field of social sciences and humanities, a valid difference between the positive experience of Poland and Hungary and the negative experience of Czechoslovakia should be noticed.

The change of the system in 1989-1993 has not created a quantitative and qualitative improvement in the ranking of the Central European countries science on the global scene. On the contrary, the internal financial difficulties and brain drain have somehow diminished the competitive edge of these countries. This change, however, is not deeply dramatic and they still have a relatively good ranking even in comparison with the countries of the European Union, and especially of the four countries of its periphery (Spain, Portugal, Ireland and Greece)<sup>21</sup>.

In the perspective of 2005, the science policy in each of the Central European countries will make a strategic choice between organic and polarised approaches. In the organic approach, science is seen as an internally balanced organism where all parts should be developed harmoniously. In the polarised approach, strong preferences for selected disciplines or fields are chosen, inter alia from the point of view of the location on the global scene. A rational and semi-darwinistic philosophy in Central Europe will support the polarised approaches. The strong feeling of national identity and culture shifts the attention to more organic approaches.

For example, in Hungary the following set of disciplines is regarded as the most promising: mathematics, physics (semiconductors, certain areas of nuclear physics and cosmology); marketable research in pharmaceuticals, agribusiness and medical industry (from molecular biology to biotechnology). This is a clear example of polarised model.

This is difficult strategic choice for the Central European countries not mentioned explicitly in the background materials and studies. However in implicit terms, the Central

<sup>21</sup> This is demonstrated empirically by an already presented in this chapter scientometric study prepared by J. Vlachy within the programme 'East-Central Europe 2000'.

European countries are inclined to choose the polarised approach modified in some fields by a compromise in favour of 'organic' consideration.

The Central European countries will promote comprehensive evaluations in this field — with some reliance on the advice of the international organisations and especially of the European Union and OECD. It is still an open question if it is possible to develop for this purpose a *sui generis* cost-benefit analysis of the presence of a field from a small country on the global scene.

#### **4.6.5. The special role of transfer sciences**

The Central European countries, as rather small countries which will not be able to compete with the technological and scientific superpowers. Absorption and adaptation of innovations coming from abroad will definitely be the more rationalistic solution than return to autarchic attitudes of the past.

'Transfer sciences' play an essential role in providing an interface between the world of 'pure science' and industry<sup>22</sup>. This interface was historically a weak link in the system of science in Central Europe — and especially in Poland. The situation in this field in Bohemia and Hungary is much better at least in some dimensions.

The transfer sciences will have strong priorities for growth in the Central European countries.

This is a specially difficult domain integrating the deep knowledge of pure sciences and a comprehensive understanding of the problems generated by the technological, social and economic development. It is therefore assumed that a new generation of globally minded 'transfer scientists' will be educated for and in Central Europe. The transfer sciences will be much more efficient in the implementation of their academic and pragmatic functions than the conventional applied sciences.

In the Central European countries this interface between the world of pure science and industry will rationally be promoted by integrated science and industrial policies.

#### **4.6.6. Innovation as the key of the technological future**

The Central European countries will — in the next decade — supply positive answers to two questions:

1. Is it possible for the Central European countries to create in some fields globally valid technological innovations?
2. Is it possible for the Central European countries to absorb innovations created by the leading powers?

The answers to these two questions cannot be left only to the 'lottery of the market' - even if the market mechanisms are very important also in this field.

The answers to these two questions will be supplied via the development of pro-innovative strategies and policies deeply rooted in the broad framework of spontaneous

<sup>22</sup> OECD: TEP — Technology and the Economy — Key Relationship. Paris 1992, p. 37.

and guided change of the society and economy, both inside and outside the respective Central European countries. In the next paragraphs we will look at the activities of the main actors of this great process.

A comprehensive network of pro-innovative strategies and policies for the next decade will be development in and for the Central European countries. These strategies and policies can emerge in a process of consecutive approximations — as the results of interaction and cooperation of five actors:

- the academic and R&D Communities,
- the national business communities,
- the governmental institutions at the national and regional level,
- the transnational corporations,
- the international organisations with a special role of DG XII.

The **academic and research communities** will get a strong financial and institutional support from all the remaining actors involved in this process. These communities will accept the principle that the cherished idea of the autonomy of the corporation should not diminish the eternal search for excellence and the pragmatic search for effective management of human and capital resources. The autonomy of the academic communities will be seen rather as an instrumental than final value.

The gerontocratic strata of the academic communities will finally see the mortal danger incorporated in the negative change of the biological structure of the community.

These communities will promote:

- the internalisation of pro-innovative approaches and motivations by the academic community itself,
- the pro-innovative activities of the governmental and business communities,
- the development of pro-innovative attitudes of the society of large.

In the development of pro-innovative strategies and policies in the Central European countries the role of the **national business communities** is very important. The growing maturity and wealth of the business community in the Central European countries will create the **pull-effect** in the field of innovation.

At the present stage of development this pull-effect is rather weak. The general conditions of economic activity and especially the inefficient systems of credit and taxes are creating a negative climate for the process of innovation absorption by the business community. Therefore not only the change of the attitude of the business community but also the deep change in the institutional environment has to take place.

In the Central European countries, the **governmental institutions** at the national and regional levels will assume the leading role in the design of pro-innovative strategies and policies.

It is wrong to assume that these strategies and policies will create one more field of classical sectoral approaches. The difficulty and challenge of pro-innovative strategies and policies is to answer the question: how to introduce the spirit of innovation into all governmental strategies and policies (science and education policies, industrial policies, tax and income policies, credit policies etc.)?

Three types of governmental policies towards R&D can be distinguished:

- liberal (non-interventionist),
- indirectly (semi) interventionist,
- interventionist.

If the first type policy is adopted in the Central European countries, one can hardly expect a quick overcoming the present downward tendency and a considerable increase in the R&D activity. This scenario would mean a reduction of the size of the R&D sector in relation to the production sector and stronger dependence of R&D on the production sector.

The indirect interventionist policy (i.e. direct interventionism towards selected production sectors liberal approach to the R&D sector) would result in creation net gainers which would be able to spend more on R&D. The final result would be, however, very difficult to predict and it would depend on detailed modalities of such a policy subjected to political considerations and conflicts. So, it is not obvious this policy would be more favourable for the domestic R&D.

The interventionist policy relies on direct care of the state taken of some R&D institutions. Merits and shortcomings of such a policy are obvious: on the one hand assured survival and development of the selected institutes or fields of research, on the other hand possibility of isolation of research in the protected fields from real needs of the economy and thus presenting a net burden for the state budget. Given budget difficulties of the post-socialist countries, there is little room for pursuing this policy. Nevertheless, a certain room does exist. If this possibility is exploited carefully, one may expect a recovery of the domestic R&D keeping pace with the general economic recovery.

But the most important challenge is offered by the policy towards the **foreign direct investments**. One can expect an increase in foreign investments, which will probably bring about divergent effects with respect to R&D and technology. On the one hand they will create favourable conditions for transfer of modern (though not the most modern) technologies and equipment. On the other hand, it is very probable that foreign companies will not be interested in developing or maintaining R&D units in their Central European branches, except those carrying out a very limited scope of activities strictly related to marketing of their goods in local markets. The most probable division of labour within multinationals operating in Central Europe will consist in maintaining of general management and R&D in countries of origin while leaving to Central European branches or subsidiaries functions of labour- or raw-material intensive productions designed for exports or assembly and/or marketing of goods for local markets. In such a situation foreign capital hardly can be a promoter of R&D in Central Europe. It doesn't exclude, of course, exceptions from this rule. It should also be added that the attitudes of foreign firms towards their Central European activities can be influenced by government policies of the countries of the region.

The pro-innovative strategies and policies will also have a strong regional dimension following the experiences of such countries as France and Germany.

It is well known that the **transnational corporations** (TNCs) are a dominating actor on the global scene of the creation and diffusion of innovation. For the Central European countries there are three questions in this field:

- to what extent the TNCs will keep alive the existing R and D capacities in the enterprises bought or controlled in the Central European countries?



- to what extent the TNCs will create new R and D capacities in Central European countries?
- to what extent the general policies of TNCs will help to build up a pro-innovative climate in the Central European countries?

It is very difficult to supply an answer to these questions. The Central European countries will learn — in a painful process — to adapt to the conditions created by the TNCs.

The **international organisations** and especially the DG XII of the Commission, have an immense experience in the design and promotion of pro-innovative strategies and policies. This experience will — on a large scale — be applied in the Central European countries. The activity of DG XII will have a catalytic role to accelerate and rationalise the performance of all actors involved in the creation of pro-innovative strategies and policies in and for the Central European countries.

It is assumed that the Central European countries will try to overcome the present vacuum in the field of pro-innovative policies. One of the important goals in this domain is the creation of the efficient national systems of innovation.

The starting point to create the national system of innovation is much stronger in the Czech Republic and Hungary than in Poland and Slovakia. However, all four Central European countries have a long way to go to create a comprehensive set of institutions and approaches which will function as an efficient national innovation system.

#### **4.6.7. The Central European countries and the new belt of innovation in Europe**

It is worth while to look at pro-innovative policies in the Central European countries in a broader geographic perspective of a new innovation belt incorporated by a geometrical figure closed by the linking **Florence — Szeged — Warsaw — Kaliningrad — Stockholm — Oslo — Hamburg — Nürnberg — Florence** (see fig. 18).

This belt has a very great innovation potential which will, in the future produce a Third Space of special concentration of innovative activities similar to the Blue Banana and the Croissant. The Central European countries are vitally interested in the creation of this Third Space. This can be a self-fulfilling positive prophecy — if all industries and countries located in this belt demonstrate sufficient wisdom, effort and good will to promote the development of multi-dimensional innovation-related networks which will create 'virtuous circles' of knowledge accumulated at the local, regional, national and international levels.

This belt is:

- linking Baltic and Mediterranean Europe, Western and Central Europe,
- an area of intensive integration of regions located on both sides of the former Iron Curtain,
- an area of strong interaction of German, Scandinavian, Slavik and Romanistic cultures — spirits and behaviour patterns.

One cannot rule out that the regional patterns of Central European Transformation, as discussed in chapter 5, will be reinforced by the more general favourite regions setting in Europe, presented in figure 18.

In this way we enter into this part of the report which is devoted to the spatial patterns of transformation in Central Europe.

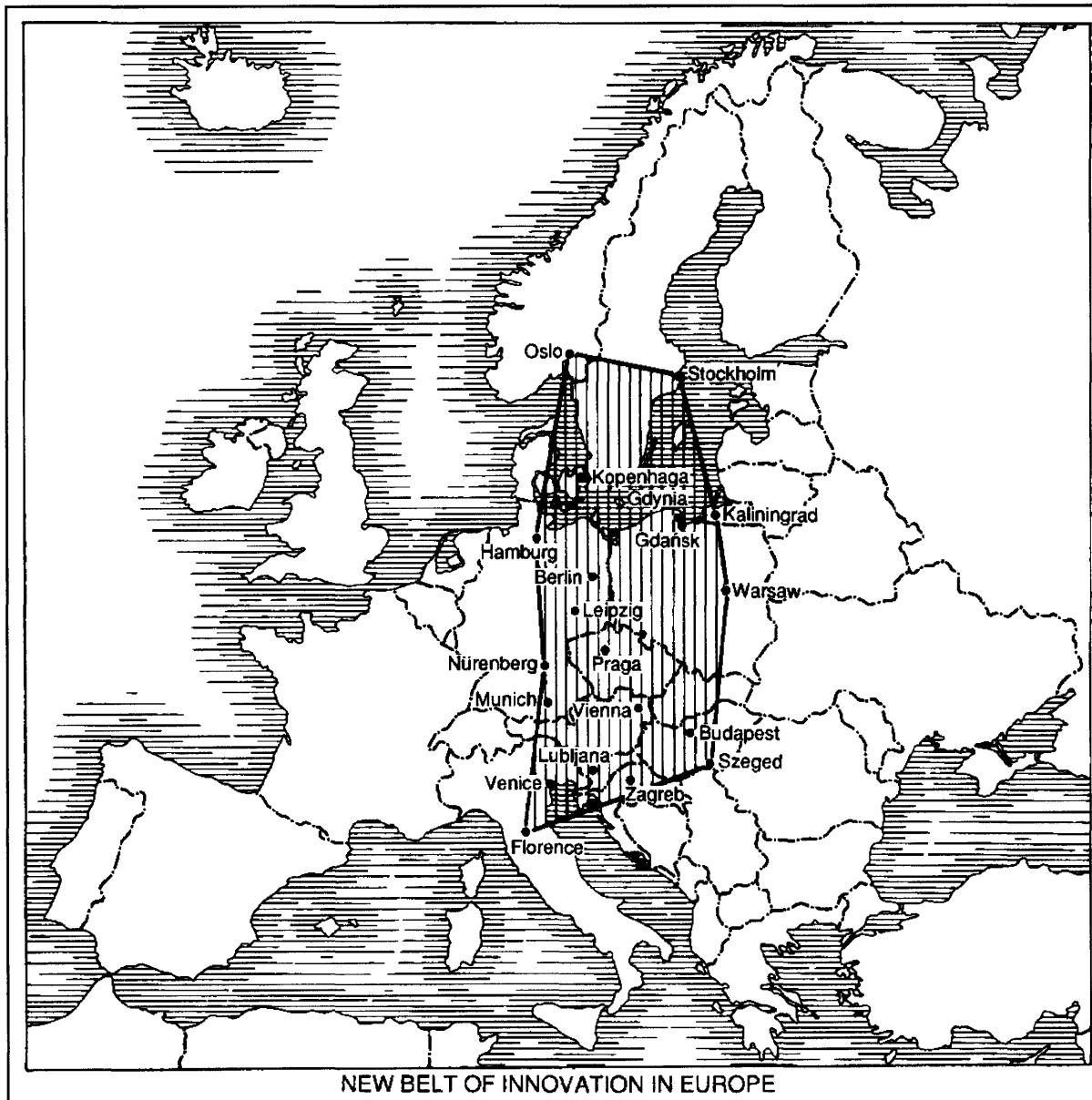


Figure 18. New innovation belt in Europe.



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## Chapter 5

# REGIONAL PATTERNS OF CENTRAL EUROPEAN TRANSFORMATION, 1990-2005

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### Introduction

The processes and phenomena presented in this report so far do exist in concrete, physical space. They are **located** in this space.

The **space** is itself differentiated physically, but also socially and economically. This differentiation is the product of history — but also of the last few years. The most important analytical question which should be posed in relation to the spatial outcomes of present transformation process and future spatial patterns of Central European development is the following: **do the new factors of development follow the traditional spatial patterns of particular countries or do they — and will they — change these patterns?** In other words — is the economic geography of the Central European countries going to change dramatically in result of the systemic transformation, or is it going to remain, in principle, only slightly modified?

This question is derived from a reflection on the interplay between long, secular trends and current, short-term processes. In other words, this question can be formulated in the following way: **does the shift from 'real socialism' to capitalism change dramatically the spatial heritage of the Central European countries?** Before we examine this question, we should pay some attention to this heritage, which is done in the next section.

The second basic question refers to the **policy principles and measures**. What type of actions should be undertaken and on what decision-making level in order to incorporate the regions/spatial dimension into the general processes of transformation and development? In particular, **what type of regional structure: polarised and efficiency-oriented or more equalised** is the structure advisable for the Central European countries, also taking into account their possible integration with the European Union?

This part of the report discusses these two main questions.

### 5.1. The heritage

#### 5.1.1. The long tradition

The boundaries of Czechoslovakia and Hungary which exist to-day (or, in the Czechoslovak case have existed till recently) were shaped after the World War One. These two countries emerged out of the Austro-Hungarian Empire. Hungary lost two-thirds of its pre-war territory. The full and formal split of Czechoslovakia into two independent countries came into being on January 1, 1993, as the result of political game and to much lesser extent as a result of the will of population. It has had and will have important influence on these two newly emerged countries.

Poland reemerged on the map of Europe as an independent country also at the end of World War One, after 123 years of absence on this map. World War Two resulted in a major shift of Polish boundaries westwards.

All four countries of Central Europe throughout their entire history have been located on the **European economic periphery**. The Czech Republic is most closed to one of the two main European economic axes: the 'old' northern one, extending from London to Rome (the 'European banana'). All of them are far away from the new Mediterranean axis, extending from Milan to Barcelona.

Only the Czech lands have experienced an advanced level of capitalist industrialisation. In Poland, Hungary and Slovakia the main wave of industrialisation came along with the socialist system after World War Two, which perhaps was mostly pronounced in Slovakia.

The present spatial structure of Central Europe is a joint product of two processes: long historical trends in building the pattern of the settlement system and the 19th century industrialisation introduced by the (delayed in the periphery) industrial revolution. These two factors have constituted the general spatial organisation of the economies and societies of Central Europe.

### **5.1.2. The socialist heritage**

The socialist industrialisation reshaped the social and economic space of Central Europe to a much lesser extent than the socialist system changed social stratification and social attitudes in this part of Europe. In fact, the general spatial patterns have not been changed in qualitative terms. Paradoxically, one may even say that the socialist industrialisation reinforced traditional spatial patterns.

However, several new phenomena emerged in the socio-economic space of Central Europe after World War Two. Six main dimensions of these spatial change could be distinguished:

- introduction of 'big' (also of heavy) industry into great cities, which resulted in deep changes of their economic and social structures and limiting the development of their service functions;
- creation of several new industrial centres, which based on extraction of raw materials (coal, lignite, copper, sulphur, iron, uranium) and/or on metallurgy and energy production;
- accelerated industrialisation of traditionally rural areas, in many cases coupled with growth of mining and heavy industries, which resulted in growth of middle-sized towns and created new socio-occupational structure in these areas (great share of so-called 'bi-professionals' and widely spread commuting to work, since the urban system could not fulfil all requirements of the industrial complex);
- collectivisation of agriculture, which changed the settlement system in rural areas and created big state-owned or collective farms, in this way liquidating the traditional, family-run farming (Poland was the only exception in this process, though agriculture in western and northern parts of Poland was collectivised in 50 per cent);
- the 'fetish of industrialisation' left limited resources for other economic sectors. This resulted in relative underdevelopment of infrastructure. Especially, roads and telecommunication were hit most severely. Only railroads, essential for transporting

mass products of mining, heavy industries and agriculture, were developed relatively better;

- dramatic deterioration of the quality of natural environment due to extremely simplistic attitudes to development and total neglect of other targets of development but quantitative growth.

In result, the Central European countries were not able to overcome the traditional pattern of spatial-functional relationships between urbanisation, industrialisation and the level of living, which was possible in more mature economies. Towns were the centres of industry and offered much higher level of living. Industry still remained the main source of incomes, of social advancement and economic development. **The entire economies of the socialist countries — and especially their regional economies — were clearly industry-driven**, and this industry was entirely subordinated to the paradigm of the second technological revolution. Only the Czech lands, owing to their older traditions of industrial civilisation, demonstrated some more mature spatial patterns.

In spite of accelerated industrialisation the traditional division of all four countries to their **more developed western and less developed eastern parts** has still persisted and is still clearly visible. To some extent, only Hungary was the only exception to this pattern since this country used to be divided into more developed North and less developed South. However, the most recent changes introduced the general East-West pattern also in Hungary, since the Danube divides more progressive western part from lagging behind eastern. In all four countries several areas are still on a low level of development, being poorly equipped with infrastructure, predominantly rural, with labour force having lower level of education.

It was hoped at the beginning of the socialist industrialisation that these regional differences will cease to exist. This did not happen, which was due to two main reasons:

- industrialisation carried out on the less developed areas was too limited both in magnitude and in the level of diversification of industrial structure to produce a basis for self-sustained regional development of these areas;
- in fact, a great part (in Poland: the main part) of industrialisation effort was concentrated in traditional industrial centres, which led to overconcentration of industrial production in many of them and did not allow for alleviating the regional inequalities.

In result, several territories of the four countries can be labelled as truly '**old industrial areas**'. They present all features of 'industrial backwardness': monofunctional production structure; biased structure of skills and educational profiles of the labour force; high levels of pollution; deteriorating urban substance.

The socialist politics and the socialist economies were the closed systems. The relative **underdevelopment of the border areas** was the direct spatial outcome of this feature of the socialist reality. The number of border crossings has been small. International transportation routes were underdeveloped. Trans-border cooperation was almost non-existing or — during the last years of the socialist rule — assumed a one-direction pattern (from the West to the East: from Germany to Poland and the Czech Republic, from Austria to Hungary). Traditional ties between regions and cities were almost entirely broken (Vienna-Bratislava, the two cities connected in the past by tramway and then almost totally separated by the state border, are the most pronounced example of this phenomenon).

The Central European countries enter the challenging phase of transformation with strongly polarised regional structure and deep spatial inequalities, overindustrialised cities, underdeveloped infrastructure, polluted environment. Several new processes emerged during the first three-four years of this transformation, thus giving first indications of the direction in which the development of different types of regions might proceed in the future. The following sections will examine the results of the first phase of restructuring and will attempt to provide a picture of regional structures of Central Europe in the year 2005. Regional policies will also be discussed.

## 5.2. Territory and territorial organisation

Three out of four countries of Central Europe are of similar size, Poland itself is by 50% bigger than all three taken together. Table 48 presents basic data on their territories and their administrative organisation.

Table 48. Territories and administrative structures in Central Europe

Countries	Total area, 1,000 km <sup>2</sup>	Number and status of administrative units		
		regional	county/district	local
Czech Republic	78.9	– 8 (1 urban) governmental abolished in 1991	75 (3 urban) governmental	6,237 self-governmental
Hungary	93.0	6 Representatives of the Republic	19 governmental/ indirectly self-governmental 20 towns of county status	2,915 rural, 156 towns, self-governmental
Poland	312.7	49 governmental/ indirectly self-governmental	267 purely governmental	2,459
Slovakia	49.0	5 (2 urban) abolished in 1991	38 governmental	? self-governmental

As it can be seen from the above table, the territorial organisation of the four states differs considerably. Polish regions (*voivodships*) are similar in size to Hungarian counties (*megye*) and both these units are bigger than Czech and Slovak districts. In all countries the government controls the tier(s) of territorial division above the local level<sup>23</sup>.

The self-governmental municipality seems to be the strongest in Poland both in terms of area and population — only 27 Polish communes have less than 2,500 inhabitants. In Hungary one third of municipalities have population smaller than 500 inhabitants. In the Czech Republic some 80% of municipalities have less than 1,000 population.

There are also differences in powers and competencies of local governments. Polish municipalities seem to be the strongest economic and legal entities.

<sup>23</sup> These differences create some analytical problems. Only Hungarian and Polish administrative regions are comparable in size. Both Czech and Slovak districts are much smaller (and much more numerous) and the former regions (*kraje*) bigger than the Hungarian counties and Polish voivodships. For clarity and synthetic presentation the bigger Czech and Slovak units were used in all graphic presentations in this report.

In all countries the capital cities have a decentralised power structure. Warsaw is divided into 7 districts, each of them having a status of a 'normal' commune (though the biggest of them, Mokotów, inhabited by over 350,000 people, has more population than several voivodships). The central Warsaw authority is relatively weak and managing the whole city is difficult and partly inefficient. Similar situation exists in Budapest, which is composed of 22 districts and the central city authority has exactly the same status as any of the city districts.

**The prospected reforms of the territorial divisions of all four countries seem to be following in the same direction. The discussions conducted in every country lead to the conclusion that regions of the first order should be strengthened. Polish reform will probably result in creation of 12-14 such regions, though a figure of 25 is also mentioned. It cannot be excluded that the 6 Hungarian regions hosting the Representatives of the Republic will be assigned some powers (though it is much more probable that the new regional system will be based on the centuries' long tradition of 19 counties). Also in the Czech Republic it is claimed that a regional level, abolished in 1991, should be re-introduced.**

### **5.3. Factors of the regional potential for transformation**

Together with the beginning of transformation from the socialist to capitalist system the Central European countries became exposed to Western, capitalist factors and patterns of development. The socialist patterns of regional development, such as massive industrial investment, heavily subsidised housing, voluntary arrangement of space and a stigma of 'non-productivity' attached to infrastructure, have gone. Instead, the regions, in order to meet the challenges of international and domestic markets, have to demonstrate good natural and social environment, highly skilled labour force, efficient production structures, ability to innovate and rich equipment with modern infrastructure.

The heritage of history, coupled with natural endowment of particular areas, have put particular regions of Central Europe in very different positions at the start for transformation. Only some of them appeared to be able to participate in creation of new economic and social structures. These are the **leaders of transformation**. On the other pole there is a group of regions which would not be able to successfully compete in the new international and national setting. In this way the **polarisation effect** has already manifested itself also in the regional dimension of Central Europe, as in other — economic and social — dimensions.

The balance-sheet of regional potential for new conditions should therefore include the following items:

- a) settlement system;
- b) quality of environment;
- c) the quantitative and qualitative features of the labour market;
- d) equipment with R&D centres;
- e) equipment with infrastructure;
- f) accessibility from international centres of innovation and capital.



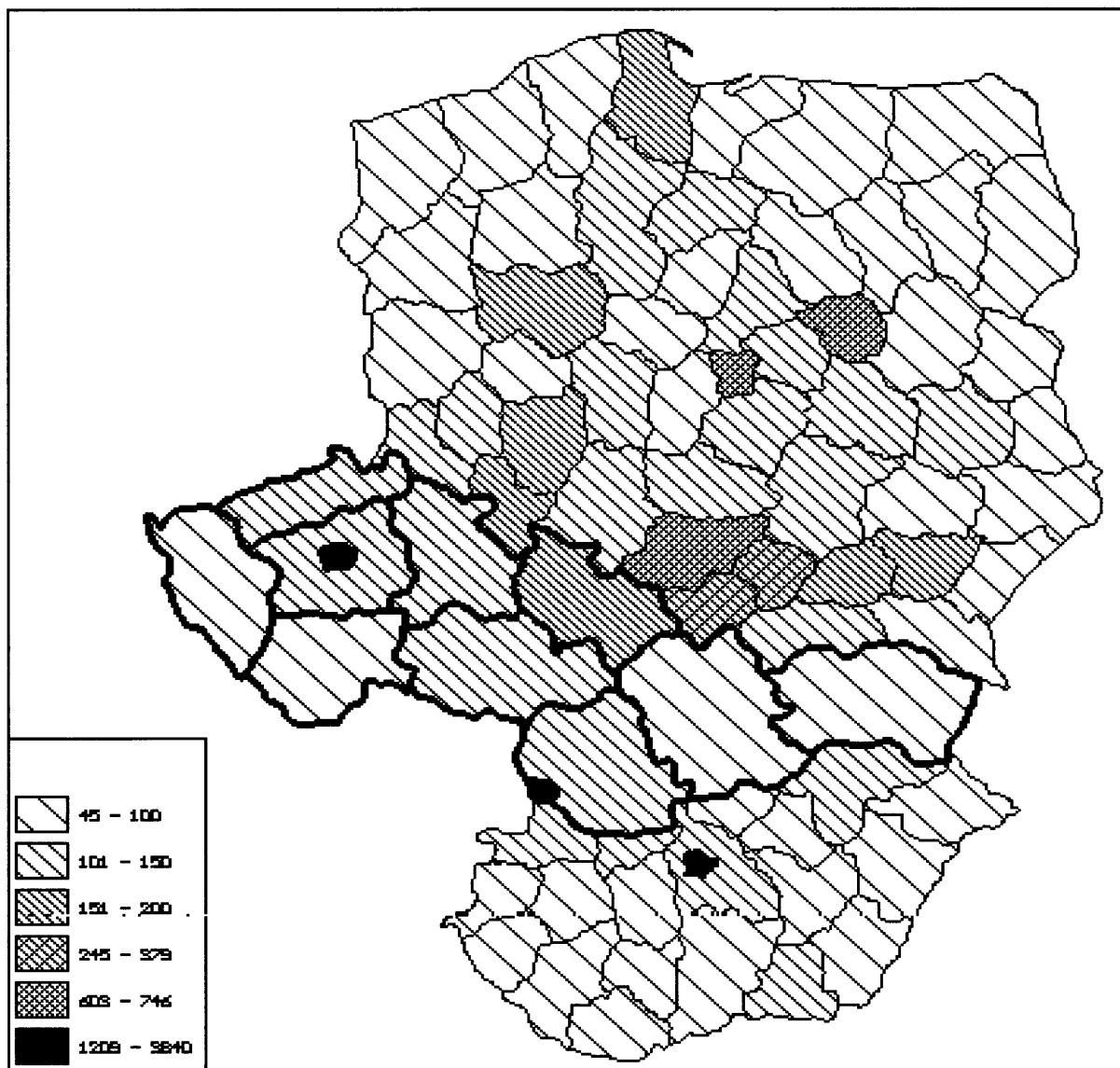


Figure 19. Regional differentiation of the density of population in Central Europe.

### 5.3.1. Demography and the settlement system

Demographic processes are the least dynamic ones. Only in times of massive migrations the spatial structures of population change rapidly. All Central European countries have already gone through this period in the 1950s and the 1960s along with the process of accelerated industrialisation and the stabilisation of the regional distribution of population has been achieved.

Central Europe has a medium density of population, equal to 120 persons per 1 square kilometre. The Czech Republic is the mostly densely populated country (130 persons/km<sup>2</sup>), then comes Poland (122), Hungary (111) and Slovakia (108). Figure 19 presents the regional differentiation of density of population.

All four countries present very similar level of urbanisation. 56.1% of Slovak, 62% of Hungarian and Polish population live in towns. In Poland the share of population living in towns of over 10,000 inhabitants equals 56.7% and for the Czech Republic 55.7%.

The four Central European countries have reached the **stage of stability of their demographic and settlement systems**, though a constant, slow increase of urban population can be observed.

The pace of changes of the spatial structure of settlement has declined considerably in all four countries after the first stage of the socialist industrialisation. The massive shift from the rural areas to towns ended somewhere in the sixties, though in Slovakia it was prolonged to the seventies. This slow down of internal migrations was coupled with dropping natural increase. In result, during the 1980s the regional dynamics of demographic processes was much lower than before.

During the 1980s the western territories of the **Czech Republic** have been losing population at the rate of -4 to -2 per cent in a decade. The highest increase of the number of inhabitants, up to 10% during the decade of the 1980s, was noted in the eastern and south-western parts of the country (though the highest increase, of more than 10%, took place in the northern district of Česka Lípa, the site of the uranium mine).

In **Hungary**, since the beginning of the 1980s the total number of population was dropping fast, at the rate of -1.7 to -1.9 per cent yearly. The north-eastern parts of the country noted the biggest growth of the number of population (Heves, Hajdú-Bihar, Szabolcs-Szamtár-Bereg) — these are the regions with the youngest population. Demographic growth is also noted in some central (Fejér) and south-western (Somogy) counties. The general tendency of migrations from the East to the West is therefore natural and visible.

In **Poland** the highest demographic growth occurs in two groups of regions: south-eastern, with high share of rural population and northern and western part of the country, with younger population. Both these two factors are responsible for traditionally high natural increase due to high rate of births. There have been two regions which begun to lose population: Łódź and Walbrzych — the two regions of especially heavy restructuring problems. The decade of the 1980s brought a deep decline (by 50%) of the traditionally high internal migrations, to some 500,000 yearly. Even in Upper Silesia, which traditionally accommodated the highest numbers of newcomers, the positive migration balance became very small (it dropped from 27,000 in 1980 to mere 2,000 in 1992).

In **Slovakia** the fastest demographic growth takes place in the northern and eastern regions. Towns still gain in population, which does not seem to be the case in other three countries (for example, during the 1980s Poprad increased its number of inhabitants by 39%, Banská Bystrica by 32%, Prešov by 28%). Only few districts in the South lose population.

The pattern of persisting **decrease of domestic migrations** in all four countries reflects the decrease of real incomes and shortage of new housing. It leads to petrification of the regional structure of job opportunities. It is a kind of a vicious circle: no 'working' labour market may be created without sufficient supply of new housing and propensity to migrate, which leads to slower economic growth even in the regions which could develop faster and which could accommodate new labour force from areas experiencing structural massive unemployment. Housing thus appears to be the crucial factor of possible increase of internal migrations and in this way of achieving adaptation of the spatial structure of the labour force to the spatially differentiated dynamics of economic development.

The **international migrations** have not changed the basic settlement patterns of the four countries. It should also be expected that immigration from the East and outmigration

to the West will not pose dramatic problems for Central Europe. At the moment only few Polish regions lose population for Germany, but the scale of registered outmigration does not exceed some 30 thousand people yearly.

The four countries present strongly **differentiated patterns of their settlement systems** (see fig. 20). Poland has the most balanced settlement pattern and Hungary could be placed on the opposite pole.

In **Poland** the population is spread more or less evenly across its territory with one but important exception for the Upper Silesia. The Katowice voivodship (2.0% of the country's area) is inhabited by 10% of the total population of Poland. The biggest town in Poland, Warszawa, has 1.7 mln inhabitants and its entire metropolitan region some 2.6 million. Polish urban system strictly follows the rank-size rule, with 5 other big cities having population above half a million (Łódź: 845,000; Gdańsk-Gdynia-Sopot: 764,000; Kraków: 751,000; Poznań: 590,000; Wrocław: 644,000). The greatest agglomeration of Poland, the Upper Silesia, concentrates some 4 million people.

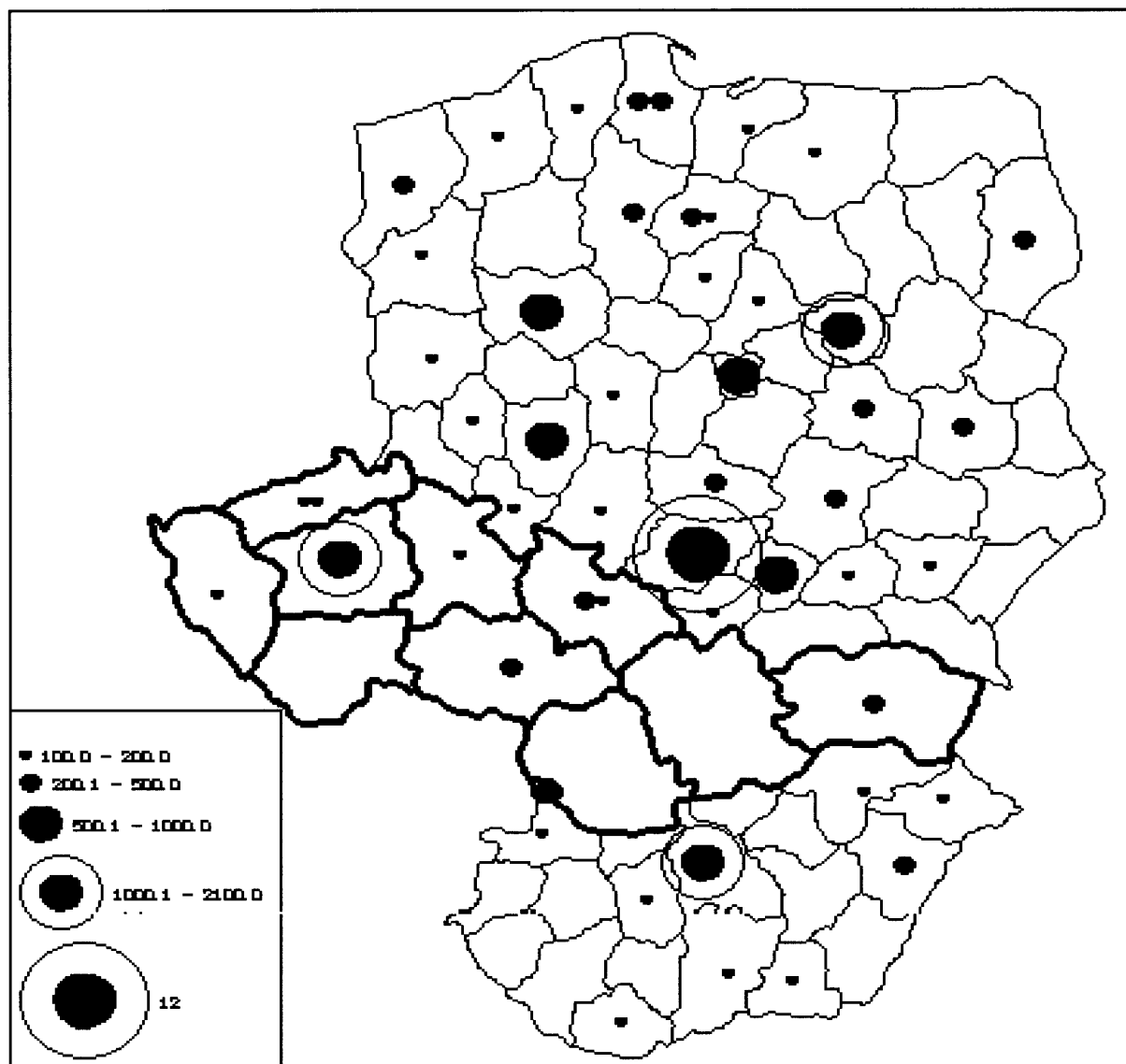


Figure 20. The biggest urban centres in Central Europe.

**Hungary** is a clear example of a country dominated by one big urban agglomeration. Its capital, Budapest, inhabited by 2 mln people, concentrates 20 per cent of the entire population of the country. No other town can compete with the role of the Hungarian capital — the next biggest towns with population over 150 thousand are the following: Debrecen (216.1 th.), Miskolc (196.4 th.), Szeged (177.7 th.), Pécs (170.5 th.).

The settlement patterns of the **Czech and Slovak Republics** is somewhat between the Polish and Hungarian structures. The two capitals — Prague and Bratislava — concentrate 11.8% and 8.3% of the overall population of these two new republics (their number of inhabitants is 1,215 and 441.5 thousand, respectively). In the Czech Republic, as in Hungary, the capital is by far the biggest city — the population of the next town in the rank, Brno, is equal to 350,000. In the Slovak Republic only Košice have reached the size of a bigger town, with the population of 234.8 thousand. The towns occupying next positions (Nitra, Prešov, Banská Bystrica, Žilina) all have population within the range of 80-90 thousand. In Slovakia there are only 10 towns with population over 50,000 (in Poland there are 90 such towns, in Hungary 17 and in the Czech Republic 32).

**The regional structures of population and the settlement systems will not change considerably in the coming years. The demographic processes described above will persist also in the future.**

However, the problem of **depopulating regions** which emerged recently will be even more acute for some areas. This will be the case in the Czech Republic (especially in Northwest Bohemia, but also in Northeast Bohemia) and in Hungary (West of the country, though in-migration may ease this problem there). In Poland some rural, north-eastern areas may face demographic problems due to distorted sex balance (shortage of young women, who emigrated to towns).

The **capitals** of the four Central European countries will assume the role of open, European cities. There are good chances that at least two of them — Budapest and Prague — will be able to joint the second-order European metropolises and play the role of the gateway to Central Europe.

**Prague**, with its 1.3 mln inhabitants in the year 2005, will regain its position as an international cultural and educational centre. This process has already started — in 1993 Prague hosted some 35,000 of foreigners, mostly young people who enjoy its rich cultural heritage, experimental spirit and intellectual atmosphere.

**Budapest** is very likely to become the commercial and financial centre of Central Europe. The development of business and financial services has been especially fast in this city after 1989. Budapest concentrates some 50-80% of the national scientific and cultural potential, which places this city among the best equipped with R&D base in the European metropolises of the second order.

These two cities: Prague and Budapest will have to solve their problems with worn down housing stock in their central areas and obsolete urban infrastructure. The central districts of these towns will change their structure dramatically — from occupational functions to general business and cultural services. In the case of Prague the potential conflict between historic heritage and new service functions must be solved in favour of the historic urban structure, which is of unique, world-wide character.

**Warsaw**, located on the straight route from Paris and Berlin to Moscow and Kiev, seems to have the best position for becoming the gateway to the East and a meeting-point between the East and the West. Being a relatively modern city (rebuilt almost completely

after the World War Two) Warsaw lacks the atmosphere of tradition and the flavour of history. On the other hand, however, it offers several excellent opportunities for locating new top quality services (hotels, banks, offices) in the very centre of the city. Creation of the CBD is still possible without major costs of demolishing old structures. Relatively modern manufacturing and presence of several high-quality R&D establishments is another important asset of Warsaw.

**Bratislava** seems to remain in the shadow of Vienna. This, however, may become one of the strongest assets of this city. Transfer of capital, contacts and know-how may be the most natural outcome of the proximity between the two towns.

### **5.3.2. Natural environment**

Central Europe is no doubt 'the basin of dirt' of the entire continent. Only southern part of former GDR and some coal mining and heavy industry centres in the former Soviet Union may enter into this negative competition with the four Central European countries.

Emissions of many pollutants — like particulate matter, sulphur dioxide, untreated sewage, etc. — reached their peak levels in the 1980s, and have been declining now. Still, if compared with GDP, these emissions are remarkably higher than in Western Europe (see table 49). Furthermore, the 'environmental performance' gap between East and West has increased during the last couple of years. This was a combined effect of two trends: slower decline of pollution levels and negative GDP growth rates in Central Europe.

Much of the East-West difference in this respect can be explained in terms of excessive energy use characteristic for the world of centrally planned economies of Central Europe belonged to. This is, however, only a part of the story, and the environmental failure of communist regimes in Europe has to be seen in a much broader perspective.

The impact of the relatively high aggregate pollution levels is further amplified by their highly uneven spatial distribution. As a result, a number of areas throughout Central Europe have been suffering from particularly high pollution doses (see fig. 21).

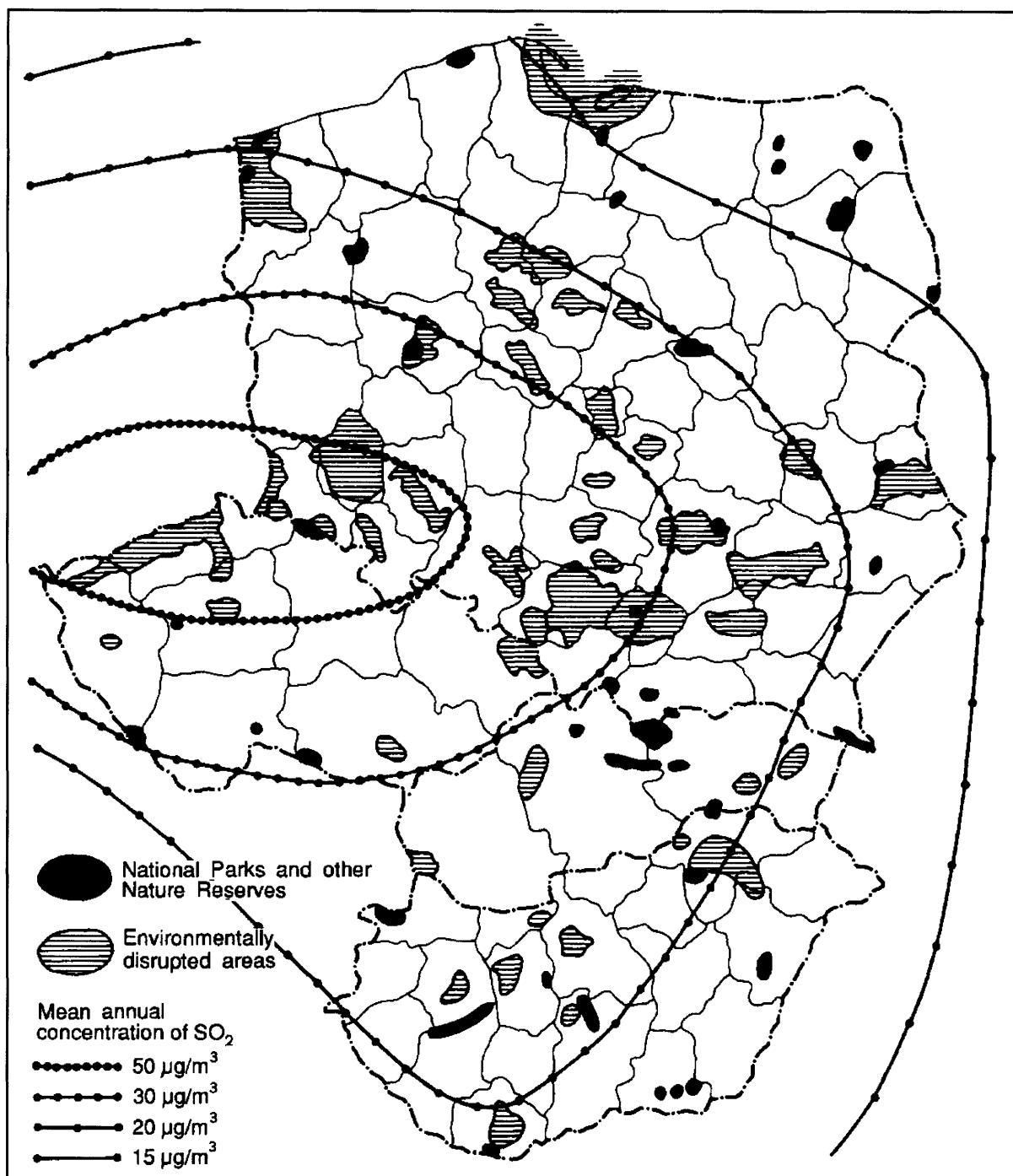


Figure 21. Natural environment of Central Europe

In Poland, 27 'hot spots' were officially recognized in 1983 and — as 'areas of ecological hazard' - given special status in some policy decisions. Of the 27, two areas are on the very top: the Legnica-Głogów Copper Basin, and the Katowice-Rybnik Coal Basin. It is geographically linked to the Czech Ostrava region.

Two other areas in the Czech Republic are also identified as heavily disrupted ones. These are: North Bohemia — where many power plants are concentrated — and Prague. The high level of industrial development combined with the reliance on coal deposits of poor quality are responsible for extremely high energy consumption and CO<sub>2</sub> emissions (4 tonnes per inhabitant per year — the highest in Europe). A number of pollutants emitted in the process of burning fossil fuels pose a direct threat to the environment and

public health. Additionally, the country is affected by its nuclear industry. Chemicals used in processing the locally extracted uranium ore represent a serious risk for ground water contamination. The Temelín nuclear power plant has been the object of concern for its unsolved safety system.

The extent of environmental disruption in Slovakia is rather low if measured by Polish or Czech standards. 16 areas — scattered around the country — are listed as those suffering from adverse environmental impacts. One has to observe, however, that this category includes also relatively unpolluted areas, like the Poprad Valley adjacent to the southern slope of the Tatra Mountains, which is simply affected by tourism. There are two areas which have been identified as heavily disrupted. One is the Upper Nitra River Valley where the disruption is caused by coal mining activities coupled with the development of heavy industries (chemicals, building materials and power generation). The other one is the East Slovak Range affected by the emissions from the local power plants, as well as chemical, timber and paper and pulp industries. In addition, both biggest towns — Bratislava and Košice — are considered serious problem areas too.

In Hungary most of the hot spots are located along the 'industrial axis' of the country that goes from south-west to north-east and includes Pécs with its vicinity in the south. It also includes several 'new socialist' towns, as Ajka, Inota, Varpalota, Dorog, Dunaujváros, Látatlan, Ozd, and Százhalombatta and big cities as Budapest and Miskolc. In 1990 twelve cities from this region declared themselves as the dirtiest ones in the country. They aim at developing a programme to improve their disastrous environmental quality. Unfortunately, such initiatives have proved to be rather ineffective due to the economic recession which is very deep in these regions. The other hot spot areas are linked to the high level of hydrocarbon and lead concentrations along busy roads, particularly in Budapest.

Table 49. Pollution levels in Central Europe in 1991

	Dust	SO <sub>2</sub>	Untreated sewage
	<i>per unit of G D P</i>		
	<i>kg/1000\$</i>	<i>kg/1000\$</i>	<i>m<sup>3</sup>/1000\$</i>
The Czech Republic <sup>a</sup>	30	50	
Hungary	4	29	13
Poland	11	24	14
Slovakia <sup>a</sup>	21	41	55
The European Community	0.8	3	0.8 <sup>b</sup>

<sup>a</sup> Gross Material Product (which is typically lower than GDP).

<sup>b</sup> Only the Federal Republic of Germany, 1987.

There is no question about the generally declining pollution levels since the late 1980s. In Poland, they decreased by more than 30% between 1988 and 1992. Likewise, in Slovakia particulate matter emissions decreased by 43%, SO<sub>2</sub> emissions — by 38%. Some other pollutants (e.g. carbon monoxide) started to decline after 1989, yet other (e.g. nitrogen oxides and hydrocarbons) — after 1990. In the Czech Republic, a moderate decline in particulate matter emissions has continued since 1980 but the process was intensified after 1989. Between 1989 and 1991 emissions of particulates decreased by 12%, SO<sub>2</sub> — by 11%, and nitrogen oxides by 20%. In Hungary, the emission of particulate matter declined by 42%, SO<sub>2</sub> by 34% and NO<sub>x</sub> by 17% between 1988 and 1991.

It should be observed that as a rule, these rates are higher than the decline in GDP, and thus cannot be seen merely as a result of lower production. Consequently, **this**

downward-sloping trend is likely to be sustained also at the time of economic recovery now under way. Of course, the question remains about the pace of this process.

The most striking feature of the last period is **the increase in the share of expenditures aimed at air protection**. This share almost quadrupled in Slovakia between 1988 and 1991, doubled in Poland, and more than doubled in Hungary between 1988 and 1992. Three factors may influence this pattern. *First*, water protection programmes — as those which typically do not require a very high level of technological sophistication — have been implemented since long ago and as a result, towards the end of the 1980s, water quality could be considered not as bad as the air quality. *Second*, transboundary air-borne pollutants attracted much more international attention than the water-borne ones. *Third*, CE governments might have recognized that public health is at greater risk because of the air pollution exposure than because of the water pollution one.

A declining trend in the Hungarian environmental investment until 1991 was the combined effect of inflation and of an approximately constant nominal level of expenditures. The latter can be interpreted as resulting from the lack of any new regulation to stimulate more abatement effort.

Although the environmental problems in Central Europe are enormous, they are not irreparable and hopeless. Further, **certain regions of Central Europe still enjoy a high degree of ecological soundness and biodiversity**.

In **Poland** about 8.5% of the area of the country remains relatively unscathed by development. Forests and farms operating within sustainable and ecologically acceptable principles include about 19% of the Polish territory. Hence, over a fourth of Poland represents an asset that many areas of Europe no longer have. Poland's biological diversity is high, particularly with respect to forest and bog communities. In the last 400 years, the Polish vertebrate fauna has lost 15 species (2.5%), including 3 mammals, 11 birds and 1 fish species. At the same time, the Polish flora has lost 31 species of vascular plants. Sad as they are, these figures, however, turn out to be much less alarming than in other, more developed, European countries in the same biogeographical zone.

The ecological value of Poland's natural capital has been internationally recognized. All of its 17 national parks are on the IUCN list, as they meet all the criteria for this highest degree of protection. Three of them have been included by UNESCO in a network of biosphere reserves representing typical, well preserved examples of the world's ecosystems. One of them — the Białowieża National Park (whose natural extension in Byelorussia has also enjoyed the status of a national park) has been declared an object of exceptional importance to the World Heritage, as the last remaining area of characteristic Central European lowland primeval forest. Also a number of smaller objects, 'nature reserves', were found to be of international importance, some of them being protected under the Ramsar Convention on wetland ecosystems.

All three of the **Czech** national parks are, in fact, international ones as their management is coordinated with the corresponding units across the country's boundary: Krkonoše with Poland, Sumava with Germany, and Podyjí with Austria. Two of the 27 landscape parks — Trebonsko and Krivoklátsko — have been included in the UNESCO network of biosphere reserves. At least ten others can be considered as areas of international importance because of their flora and geology.

**Slovakia** is particularly abundant with areas of unique ecological value enjoying the status of protected sites. Its 5 national parks cover almost 5% of the country's area. In addition, 16 protected landscape zones were established on the 13% of the area. These two



categories together with their buffering zones comprise as much as 27% of the Slovak territory. There is also a large number of smaller sites under protection. More than 90% protected areas represent mountain ecosystems. 5 sites are registered under the Ramsar Convention. Several others are planned to be included in the World Heritage list.

**Hungary** also has a number of ecologically valuable areas of international importance. As many as 13 sites are protected under the Ramsar Convention. There are also 5 objects listed as biosphere reserves. One of these, Fertő Lake, is planned to become an international park (with Austria).

Quite paradoxically, the natural capital which survived several decades of the communist mismanagement is now under the serious threat of a new sort of development. Even though the logic of market economies is likely to lead to a more efficient resource use, at the same time, it exposes these resources to new pressures resulting from their opening up to large scale international tourism and international real estate markets. The Sumava National Park is reported to experience the tourism pressure which increased rapidly after the collapse of the previous political system. Similar problems are observed in many areas of western and northern Poland, which attract the German tourists most.

Immense as they are, environmental problems in Central Europe are neither unique nor irreparable. The awareness of this fact is by far not universal, but the Central European countries have indeed good prospects to recover from the current predicament which very much resembles that of Western Europe and the United States in the 1960s. **It is not unrealistic to expect that they will be able to eliminate most of severe environmental risks for human health by the end of the decade. At the same time, it is unlikely that they will succeed in decontaminating all of the 'hot spots', as some of them — sealed off from the public — will have to wait for immediate risks to be addressed first and for recultivation technologies to become realistically available.**

To a large extent, Central Europe can replicate the OECD experience, where the recovery was accomplished after two decades of steady investing in abatement equipment and structural adjustments following environmental regulation and growing energy prices. This process, however, can be either accelerated by well-conceived integrated economic and environmental policies or delayed if economic reforms drag and environmental requirements are perceived as constraints on the continued growth of old industries. **Thus the success of the environmental recovery process crucially depends on the success of economic reforms.**

### **5.3.3. Economic restructuring and the labour market**

Changes on the **labour markets** have become one of the most strongly pronounced effect of economic transformation in Central Europe. They can be treated, to some extent, as an **indicator of the transformation processes**, since the numbers and types of lost and newly created jobs precisely reflects more general economic processes.

This is true for both sides of the transformation processes. The overall recession manifested itself with different strength in particular economic sectors — those hit most severely lost the greatest number of jobs. In result, the regions in which these sectors used to play dominant role, noted greatest redundancies and were struck by unemployment problems. Some sectors which experienced recovery or have gone through a milder recession were able to defend their jobs.

In three countries: Hungary, Poland and Slovakia unemployment became one of the most pronounced outcome of transformation. In the Czech Republic this phenomenon virtually does not exist yet, since the restructuring process has been delayed in this country due to adopted strategy of economic transformation. To some extent the 'Czech pattern' may be applied to Polish Upper Silesia, where, due to socio-political reasons, restructuring has been delayed and unemployment did not manifest itself in the same strength as if it had happened in case of restructuring similar to other industries and regions.

Figure 22 presents the regional distribution of unemployment in the four countries.

There have been different reasons for emergence of massive unemployment in Central Europe. Losing the 'rouble markets' of the former COMECON countries was one of the most important, especially in case of one-company towns. This was the case of South-Eastern Poland, North-Western Hungary, eastern part of the Eastern Bohemia region in the Czech Republic). Restructuring of industry which lost competition with more effective Western supplies was another reason for the collapse of several manufacturing industries, sometimes advanced technologically. Restructuring of agriculture is another cause of unemployment. Since it occurs in predominantly rural areas which do not offer other job opportunities, this factor causes the most grave structural unemployment.

It is commonly accepted that unemployment in the **Czech Republic** is an almost certain future phenomenon. At the moment only in the North Moravia region unemployment (in the entire region approaching 5%) is considered as a serious problem (caused by difficulties of textile and electric industries). The situation in this region may worsen dramatically, due to expected restructuring of heavy industries concentrated there (metallurgy, coal mining, heavy engineering, located in Ostrava, Karviná and Frýdek-Místek districts, though the spin-offs of the envisaged restructuring may also strike the neighbouring districts of Nový Ičín and Opava). East to this region the rural, low population density districts of Šumperk and Bruntál districts may also develop massive unemployment along the marketing and sales problems of textile industry. Unemployment may also rise in the nearby Vsetín district due to choked electrical industry.

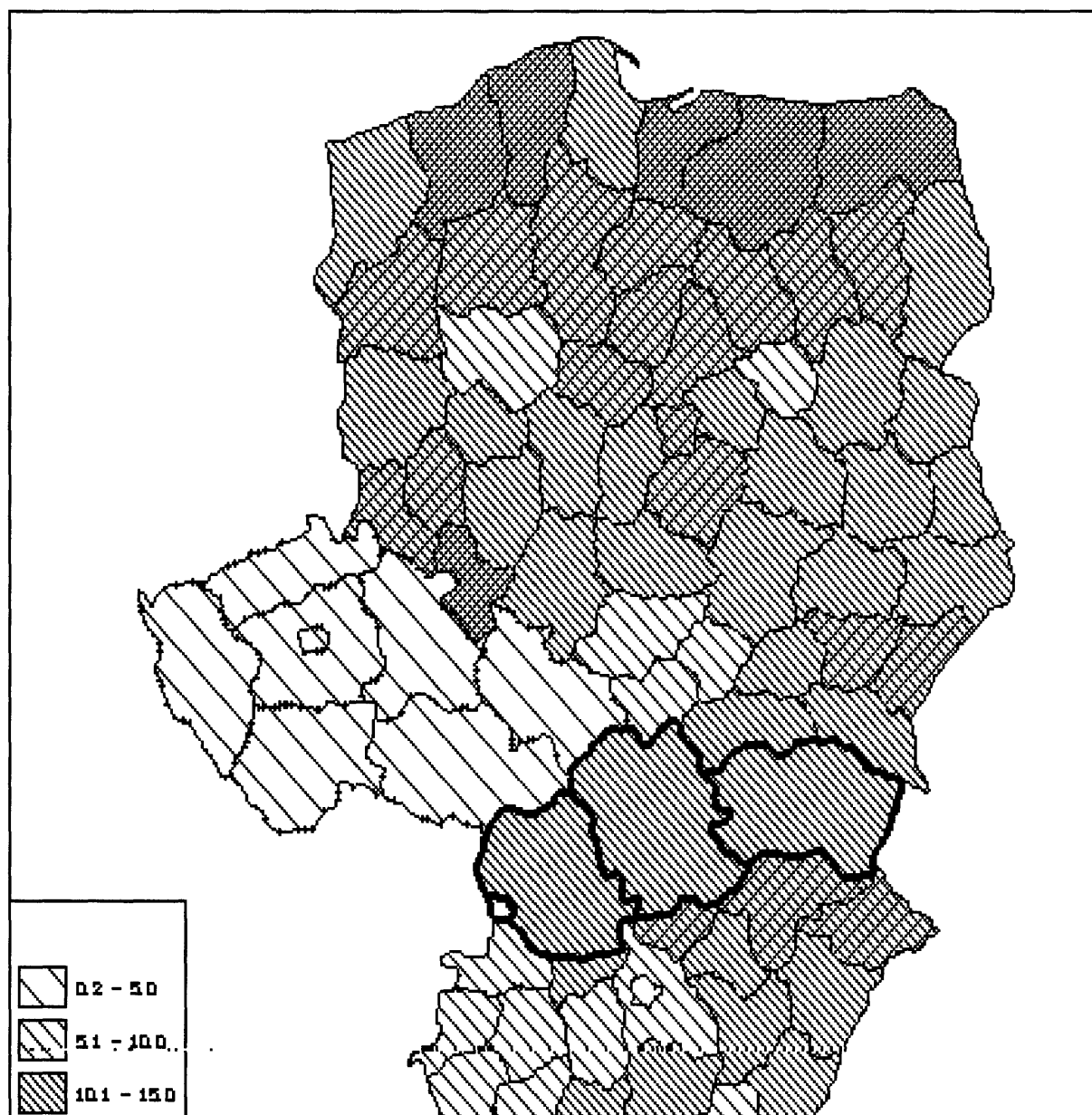


Figure 22. Unemployment rates in regions of Central Europe, 1992.

Also in the Northern Bohemia unemployment problem is around the corner, due to approaching restructuring of its main industries: coal mining (though more efficient than in Ostrava), chemical, engineering. There are also several other districts with unemployment problems, scattered around the country, like the Příbram district south of Prague, the site of uranium mining and processing and the town of Kladno, where the steel plant is at the edge of collapsing. Restructuring of agriculture may hit in the future the South Bohemia region.

In **Hungary** a clear division into three parts of the country can be seen: Budapest, with the lowest rates of unemployment (ca 5%); the western part, with unemployment of around 10% and the east, where the rate may exceed 20%. Such a distribution of unemployment follows the reactions of particular regional economies to the restructuring processes. Problems of the mining and metallurgy sectors are concentrated in the North (Borsod-Abúj-Zemplén county), centre (near Székesfehérván, south-west of Budapest) and it is expected in the South near Pécs. The collapse of socialised agriculture was the main factor of job losses in the backward East.

In **Poland** all regions lost jobs during 1989-1991. In the northern and western voivodships this loss amounted to some 15% of the number of working in 1989 due to the collapse of state farms. Unemployment rates exceed 20% there. The South-East of the country, the concentration of the company-towns with industries oriented previously to the Soviet markets created severe unemployment in this part of the country. Big urban centres, like Warsaw, Poznań, Kraków and Gdańsk, due to their diversified economic structures, could defend their labour markets from massive unemployment. This was not the case with Łódź, where collapse of textile industry cause unemployment reaching 18%. Also the south-western region of Walbrzych is the typical example of old industrial region (coal mining and textiles) where unemployment is one of the highest in the country.

In **Slovakia** the industrial restructuring seems to be deepest and the most painful among the four countries, thus leading to the mostly pronounced difficulties on the labour market. A pattern of 'internal colonisation' which was adopted within the former Czechoslovakia left now the Slovak part with heavy and military industries (especially in Central Slovakia) which do not find demand for their products. In several districts unemployment rates exceed 20%. This is the case of the belt of the most peripheral, border regions of the southern and eastern part of country, though high unemployment exists also in some northern districts (in this last case losing the jobs in Northern Moravia; now the part of the Czech Republic, added to the difficulties on the local labour markets). Only Bratislava and Košice can defend their labour markets, though expected problems with Iron Works in Košice may worsen this situation soon.

In all four countries some part of jobs lost in the state-owned sectors was regained due to the development of the **private sector**. The development of privately-owned firms was not evenly distributed regionally. In all four countries the biggest urban centres concentrated the fastest development of the private sector, mostly in trade, business services and manufacturing. In the eastern parts privatisation was much slower. Agriculture seems to be the economic sector mostly resistant to privatisation, which adds to the problems of local and regional labour markets of peripheral, agricultural regions in all countries.

There are three major dimensions of the regional profiles of the **educational level of labour force** (see fig. 23).

- the 'big city' dimension,
- -the rural dimension,
- the industrial dimension.

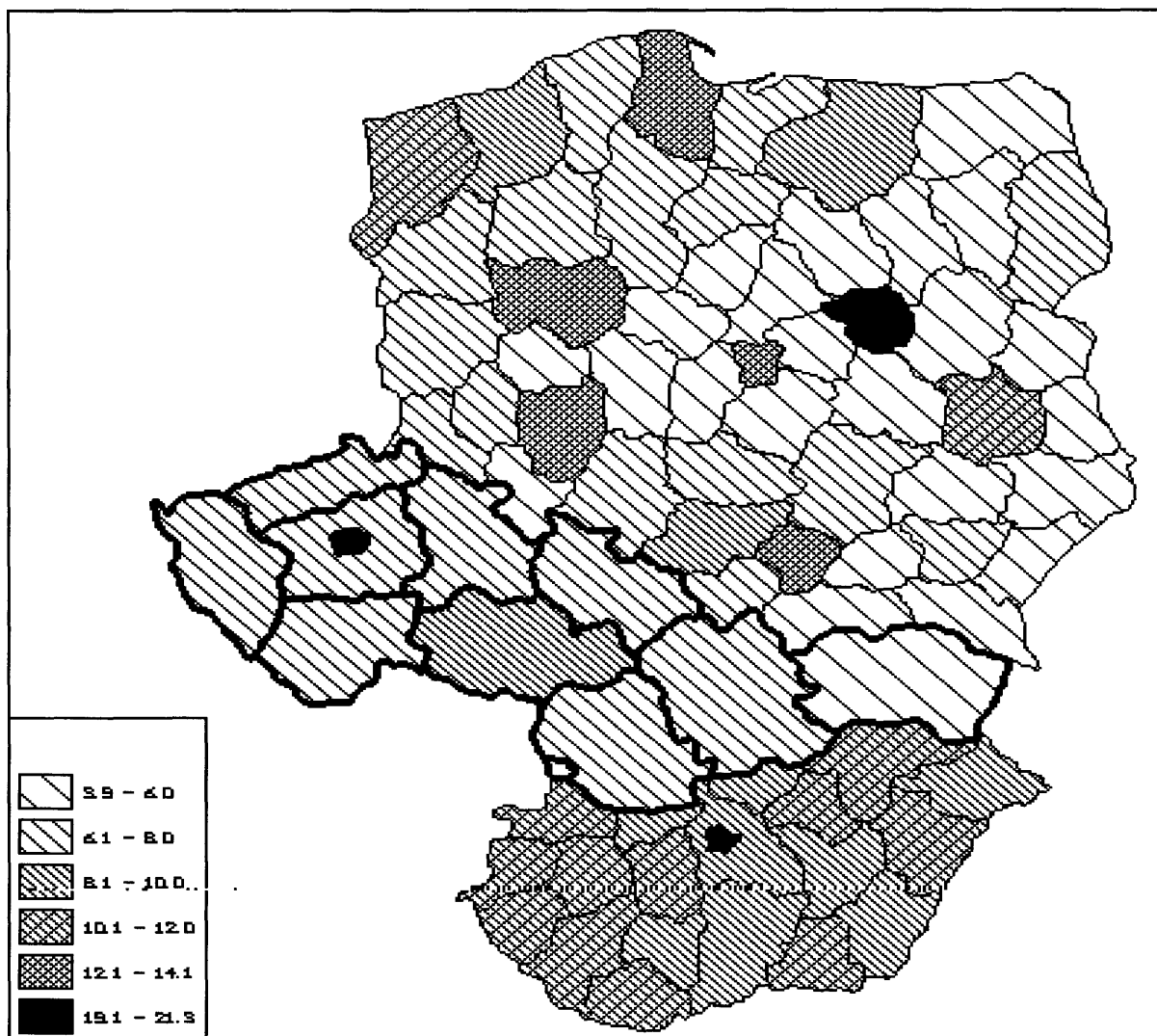


Figure 23. Per cent with university-level education in economically active, 1882.

All big towns of the four countries fall into the first group. These regions are characterised by high shares of labour force with university and secondary levels of education and relatively low levels the workers with semi-secondary vocational training. The shares of university graduates in population aged over 25 years in Warsaw and in Prague approaches 20% and in Budapest it exceeds 20% (47% of all Hungarian college and university graduates work in the capital).

In rural, peripheral regions this share may be as small as 4% (in Polish and Slovak eastern regions). In Hungary the lowest rates of university education do not fall below 9% and in the Czech Republic below 6%.

The educational level of the labour force in industrial centres is, on average, not low. However, the educational structure has been subordinated to the requirements of (mostly heavy and mining) industry. In result, in such regions the university education is biased toward engineering and the semi-skilled workers constitute the main group of the labour force. General secondary schooling and humanities are strongly underrepresented, which hampers the possibilities for economic and social restructuring of such regions.

Statistical data prove for Poland that there is a negative relationship between chances of being unemployed and the educational level. Only 2.4% of unemployed have university

level education, while as much as 37% have the semi-secondary vocational skills. Similar situation does also exist in other Central European countries.

**The future situation of the regional labour markets in Central European countries will be both the factor and result of restructuring and transformation. The polarisation effect will be clearly pronounced during the next decade. The big urban centres, already presenting the highest educational level of the labour force, will tend to offer more educational opportunities. The backward rural areas will be left behind and thus their development opportunities will be further hampered.**

#### **5.3.4. Science and higher education centres**

Central European cities have rich and long cultural and educational traditions. The Prague, Kraków and Pécs universities, all dating from the second half of the 15th century, are among the oldest in Europe. All four nations contributed their representatives to the world heritage of science and arts.

The regional differentiation of the scientific and academic potential is mostly pronounced in **Hungary**. **Budapest** hosts 70% of all employed in Hungarian R&D, 44% of university and college students, 70% of all PCs working in the country. 41 academic establishments operate in Budapest. It provides more than half of Hungarian patents (two-thirds of those registered abroad). Other academic centres in Hungary are of relatively smaller importance (for example only one spatially spread institute - the Centre for Regional Studies - has its headquarters outside Budapest, in Pécs).

**Warsaw** has 26 schools of the university level (out of 127 existing in Poland) where almost 70,000 take their classes. Out of 7,500 professors working in Polish universities and equivalent schools, 20% of them work in Warsaw 18% of all Polish students conduct their studies in Warsaw. All university-level schools operating in Warsaw are placed high in all rankings of Polish establishments of university education. One-third of all newly nominated professors, habilitated doctors and doctors work in Warsaw. Warsaw hosts all decision-making bodies responsible for Polish science and academic life. It is the location of the headquarters of the Polish Academy of Sciences and vast majority of its committees. In Warsaw there are also located many institutes subordinated to particular ministries. Other main Polish academic are the following: Kraków (50,000 students, 9,300 employed in science), Wrocław (36,000 and 5,200, respectively), Poznań (35,000 and 6,200), Katowice (32,700 and 12,700) and Łódź, Lublin, Gdańsk, Szczecin.

**Prague** hosts 5 out of 13 **Czech** academic institutions and most institutes of the Czech Academy of Sciences. Universities are also located Brno (3 universities, several institutes), Plzeň (one university, few institutes), České Budějovice (one college, few institutes), Ústí nad Labem (one college, few institutes of applied research), Olomunc (one university with tradition), Ostrava (2 universities, several institutes of applied research).

In **Slovakia** over 55,000 students take their classes in 14 universities and high schools operate in 10 locations. Obviously, Bratislava with its 5 universities and 24 faculties, is national leader, hosting half of all Slovak students. Košice come second with 3 universities and almost 10,000 students. Nitra is the last centres to accommodate two universities, with over 5,000 students.

For the overall spatial pattern of academic centres in Central Europe see figure 24. The position of the traditional academic and scientific centres will not deteriorate also in the future. This strong position is also manifested in international contacts of the most renowned academic establishments of Central Europe. It can be expected that the growth of outlays directed to higher education and science will be located in the already best and biggest centres, since they do offer best promises of using these resources in the most efficient way. However, the increase of outlays spent on primary and secondary education should lead to more even regional distribution of basic educational opportunities and evening of the quality of teaching.

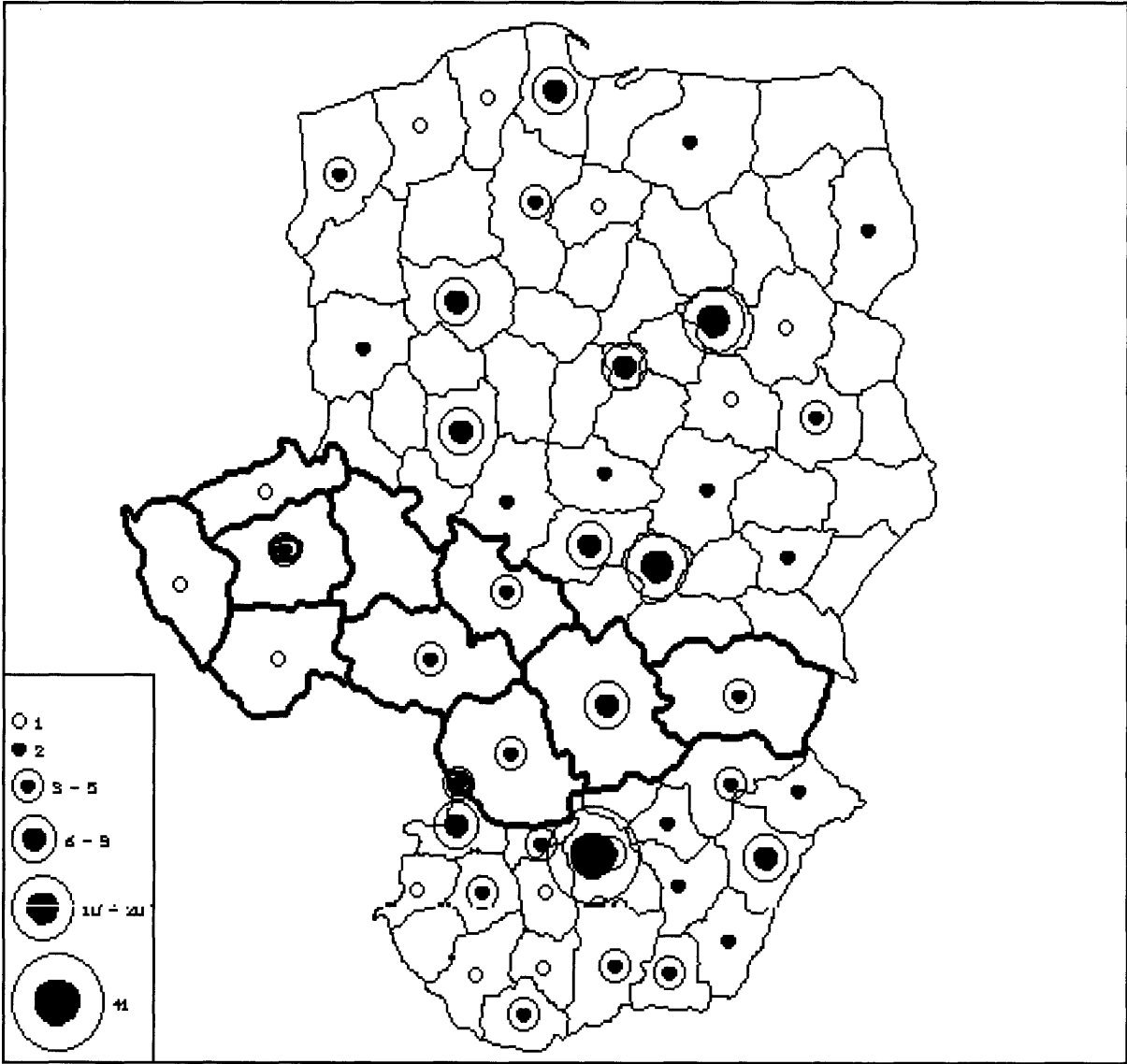


Figure 24. University centres in Central Europe.

Emergence of professional training and retraining services will be the most pronounced phenomenon in the educational systems of the four countries. It can be expected that the old, industrial regions will be the targets of these activities, since they need diversification of skills more than improvement of basic qualifications.

### **5.3.5. Central European regions in the new international setting**

The Central European economies used to have two important features: these were the economies mainly oriented to the Eastern and Central European markets and these were the closed economies. Both these factors changed dramatically in 1989-1990. The impact of shifting the commercial contacts from the East to the West has been already covered in this report. The role of opening the Central European countries to the world and the changes in their neighbours will play an important role for regional development, too.

The western and eastern borders of the four countries separate territorial systems on dramatically different levels of development and civilisational advancement. Eastern parts of Germany already to-day are much more developed than neighbouring Polish and Czech regions and this difference will grow in time along with proceeding levelling out the intra-German discrepancies. The same applies to Austria and western regions of Hungary and southern regions of the Czech Republic and south-western of Slovakia. By the same manner, Polish, Slovak and Hungarian eastern regions — even taking into account their relative underdevelopment — are much more advanced and better equipped with infrastructure than their neighbours in the East. To some extent a more balanced situation exists between Hungary and Rumania and Slovenia.

The consequences of these two imbalances will create unequal chance for the eastern and western border regions of the four countries.

It can be prospected that the negative impact of isolation of the western border regions will be overcome in effect of collaboration with the more developed western neighbours. The sole geographical location of the 'western belt' may create its greatest potential. This is a region located centrally in Europe and the closest to the Western centres of economic activity. It is also the natural 'border market' for Austrians and Germans, who take advantage of price difference and increase the demand for basic commodities and services. It is estimated, for example, that the German buyers leave some 4 bln DM yearly in western Polish regions, similarly, since several years the Austrians have taken advantage of cheaper goods and especially services in Hungary. This might also be the chance for the citizens of Central Europe, who seek products more advanced technically, still cheaper in Germany.

Moreover, this is the region which has transport advantages for investors from Germany who seek cheaper labour and financial incentives for their production. The greatest agglomeration in Central Europe — Berlin — is just 70 kms from the Polish border and its positive (in economic terms) influence can be already noticed in the form of investment and other commercial contacts. The same applies to Bratislava and to the western regions of Hungary and the Czech Republic. The Western border belts of Hungary, the Czech Republic and Poland have already attracted attention of foreign (mostly German) investors and in several respects manifests its capabilities in the new economic system. Such a development of manufacturing and service sectors may give jobs to currently unemployed. The proximity of the German market will, no doubt, be a positive factor.

Finally, mutual proximity encourages common programmes and projects, institution-building (like the international university in Frankfurt/am Oder-Slubice, the Central European University in Prague and Budapest etc.). All parties may thus gain from multicultural contacts through a relatively open frontier.

However, further transfrontier cooperation in a situation of deep asymmetry of economic potentials may create both chances and dangers for the relatively less developed (in comparison with their neighbours) western border regions of Central Europe. The scenario



of exploitation cannot be ruled out. This exploitation may assume the form of using cheaper labour force for processing and manufacturing products sold under the German or Austrian name; in massive inflow of German capital, which could lead to moving the decision-making centres outside the country and even lead to political repercussions; in the process of deepening already existing asymmetry on the two sides of the common border; finally, the danger of incorporating Polish and Czech western border regions into the economic system of German — as the most distant periphery of this system — cannot be totally neglected.

The border regions on the East are in a totally different position. The asymmetry between the areas located on the two sides of the frontier has the opposite direction: Polish, Hungarian and Slovak territories, as backward as they are, are still better developed than the regions of Ukraine, Byelorussia and Lithuania. However, the low level of development does not allow for too great optimism in projecting their future.

In general, the Eastern Wall always used to be the most backward part of the three countries. One may say, however, that the location factor — at least as it appears now — puts the Eastern territories in worse conditions than other parts of these three countries.

Until now, the transformation process had more negative than positive sides for the entire Eastern Wall. Privatisation processes were slow and — in general — limited to trade. Involvement of foreign capital was minimal (see next section). The rate of unemployment outside agriculture and in some parts of the region also the average rate of unemployment are higher than the national averages and job opportunities are low. The broken ties with the former Soviet market and shrinking demand of the military complex by far are the most important causes of this especially deep recession. According to any analyses, there are no greater chances that the commercial cooperation with the East will ever come back to its previous shape. The Eastern Wall must therefore seek other ways of revitalising its economy.

The proximity of the border could be considered as one of the development factors. However, until now this influence is relatively weak and consists, mostly, on the development of the 'grey' economy. Poland and Hungary are the attractive markets for the small businessmen from the former Soviet republics. These countries also offer better employment chances and living standard than the homeland. To some extent this inflow of cheap goods may jeopardise local manufacturing and local labour markets.

However, this procedure may have some positive multiplier effects on the economy of the eastern border regions of the three countries. Local consumers save on their basic spendings. Several small businesses make their living on this illegal or semi-legal trade. Some services emerge oriented towards the visitors from the East. Primary accumulation of capital may be the result of these operations, which may be important for these relatively poor regions.

The cultural dimension of exchange of people, ideas and information is of even greater importance than on the western borders of Central Europe. Hostilities, which have their roots in history, have had smaller chances to be eliminated, since the 'frontiers of friendships' between the former socialist countries (especially these with the former Soviet Union) were the most sealed ones. New contacts may thus allow better mutual learning of national and regional cultures, in this way introducing the spirit of cooperation and true friendship.

In any case, it has to be openly stated that Hungarian, Polish and Slovak eastern border regions do have much smaller chances of economic and cultural advancement than the

Western border belt. Both the starting position and the character of their neighbours put the East on much more difficult grounds. In the horizon of next 10-15 years (and presumably even longer) the Central European Eastern Wall will still be the least developed part of the three countries, no matter what kind of regional or other policies will be formulated and implemented.

The same applies also to the eastern regions of the Czech Republic, for which their Slovak neighbours do not create many opportunities and chances for gains stemming from trans-border cooperation. Similar pattern may also be found in the south-eastern regions of Hungary, neighbouring Rumania.

Mutual cooperation of the Polish, Czech, Slovak and Hungarian regions is an open question. Until now, after 1989 more problems have emerged than were solved. The chance of the most promising cases for cooperation, like the Polish-Czech town of Cieszyn divided by the national border, have been utilised on a much lower level than it happen in another similar town: Slubice/Frankfurt am Oder, divided by the Polish-German border. The Gabčíkovo-Nagymaros case (the dam on the Danube, which is strongly favoured by the Slovaks and strongly opposed by the Hungarians) should not become the model of trans-border relation for the Central European border regions.

### **5.3.6. Foreign investment**

It is obvious that there is deep regional differentiation of foreign investment in Central Europe. Two types of regions are highly preferred by investors: big urban centres with good international (air) transport and telecommunication facilities, which — at the same time — may offer good living conditions and the regions bordering Germany and Austria. International capital locates itself in the urban centres, the German capital concentrates in the Western part of Poland and the Czech Republic. Relations between Austria and western part of Hungary have had already long tradition.

The eastern parts of the four countries, to a large extent, have been omitted by foreign capital. Hungary may be the sole exception of this rule, though much more was invested in Budapest and in the west than in the eastern part of this country.

The regional differentiation of the involvement of foreign capital in Central Europe is presented on fig. 25.

Spatial distribution of enterprises with foreign capital share over the territory of the former **Czecho-Slovakia** (the data available come from 1991-1992) features certain regularity. In Czecho-Slovakia one could notice a very distinct division between two federal republics. At the end of 1991 80% of enterprises with a share of foreign capital were located within the Czech republic. Similarly, the volume of capital was very unevenly distributed, namely 74.3% of total capital was located in the Czech Republic, while only 25.7% — in Slovakia. The data for 1992 indicated that these differences grew: 92.3% of the total foreign capital invested in Czecho-Slovakia in this year was located in Bohemia, and only 7.7% — in Slovakia. In Slovakia a greater number of enterprises with foreign capital was concentrated only in Bratislava, this fact being caused by more difficult conditions encountered by foreign investors in this republic. Majority of German capital is concentrated in three regions: in Central Bohemia (most of it), in Prague and in Bratislava. It also seems interesting to note that at the beginning of 1992 German capital constituted 92.1% of foreign capital invested in Central Bohemia, 44.1% in Prague and 66.1% in Bratislava.

In **Hungary** the enterprises with foreign capital are present in all regions and the spatial distribution of these enterprises in Hungary is the most homogeneous of all four countries. The greatest number of enterprises with foreign capital and the greatest foreign capital value could be observed in Budapest and in Pécs. Budapest concentrates the highest volume of foreign capital among all administrative units in Central Europe. Fejér and Borsod-Abúj-Zemplén also attract foreign investment. The least value of foreign capital was invested in Tolna, Heves, Nógrád and Jász-Nagykun-Szolnok districts.

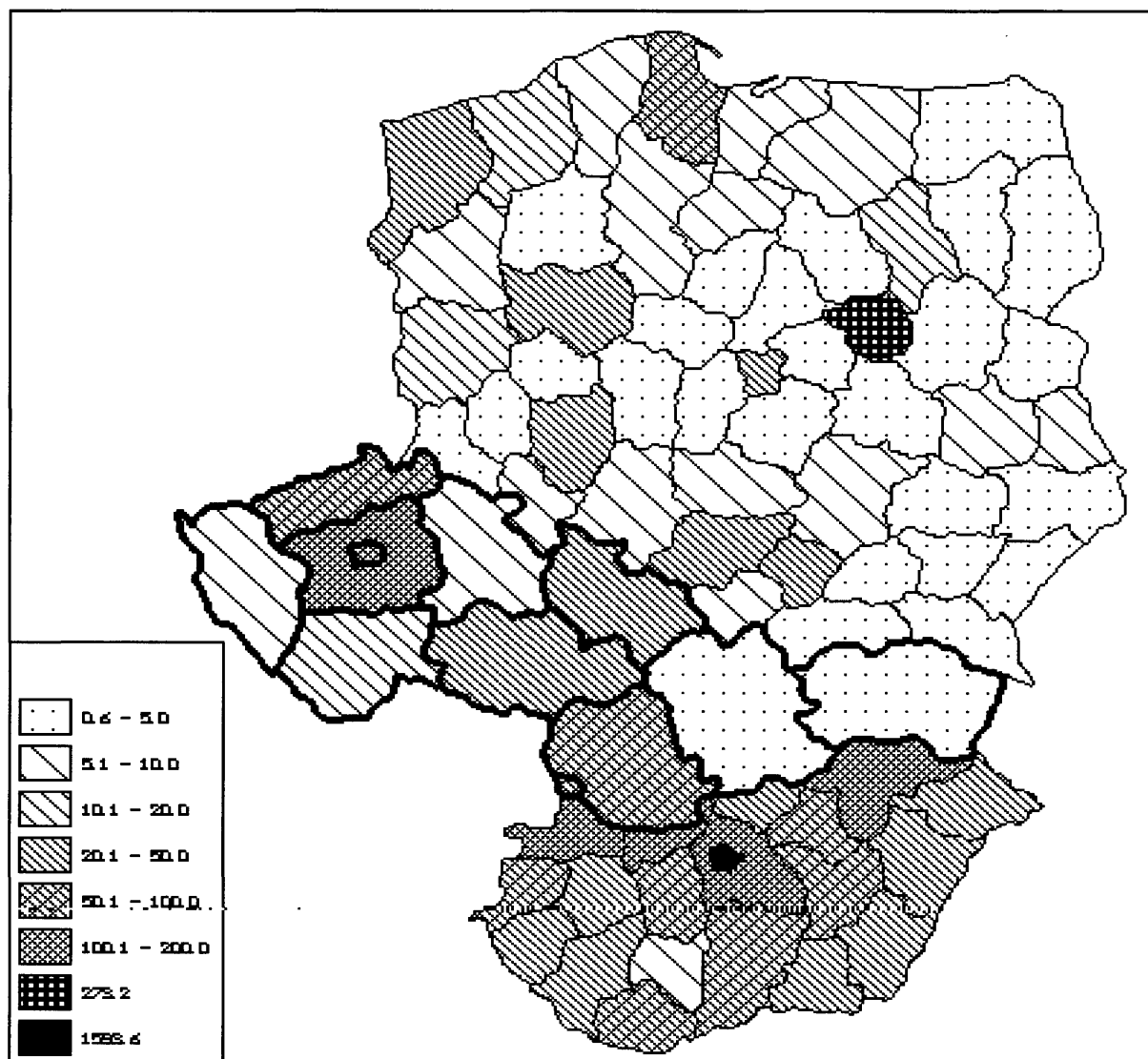


Figure 25. Foreign capital invested in regions of Central Europe.

In **Poland** foreign firms were established as early as in 1977 in six provinces of Poland, i.e. in Warsaw, Siedlce, Bielsko-Biala, Kraków, Czestochowa and Walbrzych voivodships. With time, more and more firms with foreign capital were installing themselves in large voivodship centres. This process continues until today. The greatest numbers of enterprises with foreign capital are located in Warsaw and, generally speaking, in the voivodships of Western and North-western Poland. Among these voivodships we should especially mention Łódź, Gdańsk, Szczecin, Poznań, Wrocław, Katowice and Kraków voivodships. The Western Belt attracts attention of German capital. Recently there has been a visible growth of the numbers of joint venture companies in

some voivodships of eastern Poland, e.g. in Lublin and in Kielce voivodships. There is, however, still a group of voivodships in which the number of economic undertakings with a share of foreign investments is minimal. These are the eastern regions: Ostrolęka, Lomża, Tarnobrzeg, Zamość, Przemyśl and Krosno.

A comparison among Budapest, Prague and Warsaw with respect to the number of enterprises and the volume of foreign capital involved is presented in table 50.

**Table 50.** Capitals as centres of location of foreign capital

<i>Capitals</i>	<i>Number of firms with foreign capital in a given country = 100%</i>	<i>Total foreign capital in a given country = 100%</i>
Budapest	31.12.1991 56.0%	31.12.1991 57.5%
Prague	5.10.1991 49.0%	31.12.1991 45.4% (without firms with 100% foreign share)
Warsaw	31.12.1991 32.6%	5.10.1991 39.4% (declared capital)

As it can be seen, among the capitals of the three states considered it is Budapest that concentrates to the highest degree the firms with foreign capital and the volume of capital itself. The relatively lower concentration of foreign investments in Warsaw is due to existence in Poland of other large agglomerations, where investors locate their undertakings equally willingly.

For all countries the inflow of foreign capital is regarded as one of the most important factor of transformation and development. Even in a greater extent this is true for the regional economies. **It should not be expected that the already established locational patterns of foreign investment in Central Europe should change dramatically in the near future. The eastern, backward regions will offer much less location advantages than better developed core and capital cities. In this way the foreign capital will become additional factor of regional polarisation in Central Europe.**

### 5.3.7. Transport ties with Europe

Transport connections establish the 'spatial skeleton' of a given economic system. Transport infrastructure lines create a king of a web, constructed on the main nodes — the urban centres which concentrate economic, political and cultural activities. These nodes and the areas adjacent to the main connecting lines have the greatest chances for constant and fast development.

New international setting creates also new challenges for particular regions of the Central European countries and — especially — for their major communication and transport lines.

Mutual economic relations between these countries decreased considerably. In 1992 Czecho-Slovakia participated in 4-5% and Hungary in less that 1% of Polish foreign trade. Poland's exports to Czecho-Slovakia declined by less then 20 per cent, and to Hungary by about one-third. Moreover, the structure of Polish exports to the other three Central European countries deteriorated towards growth of share of unprocessed products (raw materials), at the expense of machinery and manufactured good. All four

countries turned to the West and the importance of the Eastern markets declined sharply. It may be expected that this is a temporary decline and that mutual cooperation will redevelop on new principles and with different structure. On the other hand, possible future development of trade between the West and the reformed former Soviet republics makes the Visegrad group an important transitory territory on the East-West connection. In this light, the East-West transportation connections seem to gain in importance, which will call for accelerated development of modern transport infrastructure, especially of roads and fast train.

Central European countries have relatively well developed rail connections and poorer roads. However, even the rails need modernisation and improvement of speed and safety standards. The same applies to loading/unloading facilities of the main rail harbours.

The prospected changes in the transportation networks will be subordinated to two main principles: incorporation of Central Europe into wider European network and improvement of quality. Highways and fast trains are the most important developments, already planned in all four countries (see fig. 26). Construction of highways from Nuremberg to Prague and extending the German motorway from Berlin to Warsaw is of the highest priority. Moreover, in Hungary the pattern of subordination of the transportation network to Budapest is considered as the main task of developing national transport infrastructure.

The border crossing are one of the most severe barriers in further development of international contacts, both in commodity and passenger transport.

The international airports in Prague, Budapest and Warsaw should be considered as most important gateways to Central Europe and transit points further to the East. Their current standard seems to suffice the demand during next ten years, though a construction of a new passenger and cargo airport north of Warsaw should be undertaken. No other airports may compete with these three (Bratislava will retain its national character).

The **border crossings** are one part only of the entire system of international flows of people and goods entering, leaving or crossing the country. These flows concentrate within the corridors, in which roads, railways and waterways are located.

The main corridors are, in fact, concentrated in the already mentioned 'core of Central Europe'. This phenomenon will reinforce the polarisation effect in regional development of the four countries. **The general spatial pattern of Central Europe will be strengthened by the planned network of transport corridors, since the multiplier effects induced by flows of goods and people along these corridors will be concentrated in these particular areas.**

### **5.3.8. The regional patterns of transformation: Summary**

The general regional picture of the outcomes of the first stage of transformation in Central Europe is pretty clear. The regions which have traditionally been mostly urbanised and mostly industrialised and which have been well equipped with infrastructure appeared to be the less vulnerable to the costs and negative sides of transformation. They were able to proceed with privatisation in the fastest pace, to attract new (also foreign) investment, to defend their position on the (changing) economic map of the country. In result, the traditional industrial-urban-infrastructure complex, which has shaped the regional structure of Central Europe has not vanished and even has been reinforced, also

by dynamically developing new types of economic activities, like business and financial services and also by the 'grey economy'.

**The strong became stronger, the weak are weaker.** The polarisation effects, so visible in recent changes of economic and social structures, also manifest themselves in Central European space. It is almost sure that the growth of spatial differences will also take place in the future, since particular regions have developed — in the course of their history — differentiated potential for transformation and adaptation to new economic conditions. Only some regions of Central Europe will take advantage of new economic mechanism and internationalisation of their societies and economies. For several others these new conditions lead to decline of their regional economies and create difficulties they will not be able to overcome during the coming decade.

#### **5.4. The regional potential for transformation, 1990-2005**

Summing up earlier remarks on economic, social and technological aspects of regional development of Central European countries, we may present the regional diversification of their transformation along the following major dimensions of spatial differentiation, shaping the regions' ability to adapt to new economic conditions:

1. **Diversification of economic structure.** This dimension includes also the level and differentiation of skills of the workforce, the modernity of the fixed assets. In brief, the more diversified the economic structure, the more qualified population and higher level of technological advancement.
2. **Overall level of socio-economic development.** This dimension 'operates' on two levels: it discriminates rural areas (less developed) from towns and eastern part of the countries (less developed) from the western parts. It also captures the 'regional spirit' of entrepreneurship and the scale of job opportunities.
3. **Distance to sources of capital and innovation.** Several factors are of importance here: proximity to an international airport, proximity to the western border (i.e. to the German and Austrian capital), proximity to a big urban centre. 'The capital' is not restricted to 'foreign capital' only, but also to domestic sources of finance, though the role of inflow of capital from abroad (and of new technologies) is of crucial importance for overall development of Central European economies.

There are, of course, several other, already mentioned dimensions shaping the regional ability to transformation, like the agricultural structure, the density of 'company towns' with collapsing industries, vulnerability to decline of eastern markets, ethnic tensions, quality of environment etc. However, when looking into the chances of particular regions for their emergence form (often accidental) economic difficulties and their potential role in transforming the Central European economies, the above three dimensions seem to be of primary importance.

All four countries have their unquestionable **leaders of transformation**, which have already demonstrated the highest potential for restructuring and great capability for adaptation to new conditions. These are their greatest agglomerations: **Prague and Brno in the Czech Republic; Bratislava and to a lesser extent Košice in Slovakia; Budapest and the Balaton region in Hungary; Warsaw, Poznań, Wrocław, Gdańsk and Kraków in Poland.**

However, some of these nodes are not surrounded by innovative and progressive hinterland. Warsaw is a kind of an island within relatively poorly developed central part of Poland. Kraków borders on the west with one of the most difficult (if not the most difficult) regional case in Europe and on the east with Polish south-eastern periphery. Košice is a relatively small urban centre in a backward Eastern Slovakia.

On the other hand, the space between the remaining nodes is filled in by the regions which are in fact the core areas of all four Central European countries. These regions since centuries have concentrated the main bulk of development and innovation. They have also proved to be natural candidates to become the final winners of transformation.

We have sketched in this way the core of Central Europe: **‘the Central European boomerang’ delimited by the following centres: Gdańsk-Poznań-Wrocław-Prague-Brno-Bratislava/Vienna-Budapest.** Two southern parts of this ‘boomerang’ have real chances to become the truly European centres: the region of Prague and the triangle composed of Vienna-Bratislava-Budapest. The Slovak-Hungarian part of this triangle already attracts important foreign capital flowing into to Central Europe and the location advantages of this region have been evaluated as extremely favourable even on the whole-continental scale (see figure 26).

Further extension of the Prague region westwards is very probable, since the construction of motorways connecting Prague with Southern Germany and Berlin will bring multiplier effects and will create favourable conditions for economic expansion. It will allow for full integration of Prague into the system of European metropolises.

Warsaw is located peripherally to this core of Central Europe. However, as an over 2 million agglomeration and a capital of an almost 40 million nation, it will retain its role as an European city of the second order. It is quite probable that if the restructuring of Łódź agglomeration is successful (and there are good chances for it, since Łódź, besides its industry, presents also rich potential as an academic and medical centre) a core area will be created by these two agglomerations. The same applies to the extension of the Poznań agglomeration westwards, along the international route Paris-Moscow (the existing expressway already attracts many services and other economic activities).

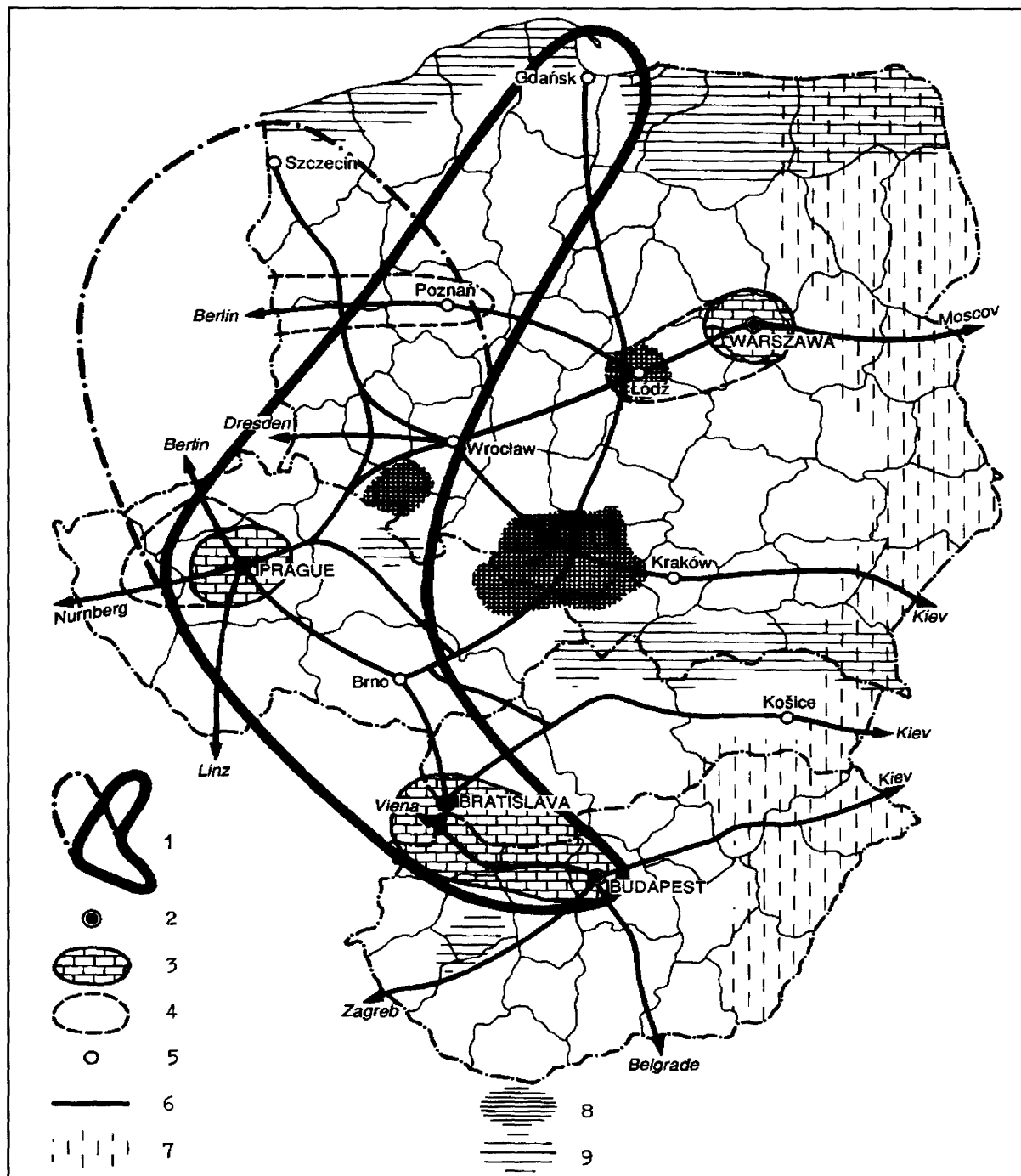


Figure 26. The Central European 'BOOMERANG' — a concentration of transformation processes.

1: present and potential Central European axes; 2: major centres of transformation; 3: cores of transformation; 4: potential cores of transformation; 5: centres of transformation; 6: main existing or projected highways; 7: Central European 'Eastern Wall'; 8: old industrial regions; 9: regions with tourist potential.

The southern part of the 'Central European Boomerang' seems to be more integrated internally and externally with wider Europe. The northern part, from Poznań to Gdańsk, lacks sufficient infrastructure and transportation connections (there are no motorways planned to connect Gdańsk with Poznań). It is therefore very likely that the present shape of 'the boomerang', which expresses current core of the higher level of development and prospected dynamics of economic activity, will be changed and pulled westwards by the growing role of **Berlin** which is very likely to soon assume the role of the European metropolis of the first order (together with London and Paris). The 'boomerang' will then become 'a foot', embracing Berlin and Szczecin instead of extend-



ing itself north to Gdańsk. The traditional transport connections from the Czech Republic to the Baltic Sea through the Szczecin-Świnoujście harbour and the planned highway from Szczecin to Budapest might add new factors to this shape of the area with accelerated development. Successful integration of the former Eastern Germany into the wide German economic-spatial system will no doubt create more favourable grounds for this process.

There are two 'black holes' in the socio-economic space of Central Europe: the Silesia and the Łódź region. Both of them are the typical old industrial regions.

**Łódź is a typical 'great city' region**, which demonstrates all advantages of an urban agglomeration. It concentrates well educated labour force and scientific and academic institutions and demonstrates mixed performance during the transformation processes: total collapse of traditional textile industries, but at the same time the privatisation processes are relatively fast, involvement of foreign capital visible and services developing rapidly. If the restructuring of industry proceeds well, Łódź has good chances for becoming, however under the shadow of Warsaw, an important growth pole of Central Europe.

**Upper Silesia**, composed of the Polish Katowice voivodship and the Czech Ostrava-Karvina basin, constitutes the biggest regional problem in Europe. In Poland the Katowice region used to provide more than 20% of the national industrial production.

Both parts of Upper Silesia (Czech and Polish) are on the edge of massive restructuring and dramatic increase of unemployment. Coal-mining, the most important branch in the regional economy, will undergo deep structural changes. Heavy and chemical industries, being at the moment in decline, are the other dominating sectors of Upper Silesia and will produce massive unemployment in the nearest future. For example, the Polish programme of coal mining restructuring envisaged closing down of 14-17 coal mines and reduction of employment in this economic sector by 170,000 people. 5 steel mills in the region are to be closed in the same time-horizon, which will lead to dismissal of further 30,000 workers. Further reductions of employment will take place in factories cooperating with those which are to be liquidated.

However, **until now the true restructuring process seems to have not started yet in the region**. Production of coal in the Polish part dropped by more than 30%, while employment in this branch has declined by less than 15% (together with energy production). Polish coal becomes more expensive than the one on the world markets, but its production is still relatively high.

Upper Silesia will be the region in sharp recession for the coming years. Once the real restructuring starts, several leading industries will have to note deep decline of their output which would not be able to be compensated by the growth of progressive branches. The negative rate of growth seems to be the fate of this region for the next decade.

**The more postponed the adjustment of employment in the region will be, the more massive reductions will have to be made and higher social costs will be paid.**

**Moreover, it is not likely that the two economies striving with recession and transformation costs will be able to solve the Silesian problem solely by themselves. The Silesia is the region of European importance and will have to be considered as such by the international economic community. Otherwise Europe will not get rid of the 'black' economic, social and ecological spot on its map.**

Central Europe has its very clearly marked **periphery**. It extends from the north-eastern corner of Poland to the south-eastern part of Hungary, with extension westwards to the eastern part of the Slovak-Hungarian border. These are the least developed, relatively sparsely populated rural areas with poorly developed urban system and infrastructure. These areas are crossed by main transportation routes going in the East-West direction and no major artery exists nor is envisaged which would connect them in the North-South direction. All of these regions are poorly integrated with the centres of their respective national systems. Transformation processes are slow there, the level of education low and they do not attract the attention of foreign investors (the Hungarian regions could be the only example).

What is even more important from the prospective point of view, these areas can not expect to receive inducement for transformation and recovery from their neighbours on the other side of the border (Lithuania, Byelorussia, Ukraine). Even if the scenario of chaos and permanent recession in these post-Soviet republics is ruled out, there are no serious chances that the trans-border cooperation could create any important impulses for growth and modernisation. Moreover, since the economic power of the **Central European Eastern Wall** is very limited, there is no indigenous capital which could take advantage of the existence of the market behind the eastern border. These opportunities, if taken at all, will be the benefit of the more prosperous core regions of Central Europe and of the West. **It is therefore very likely that the Eastern Wall will become the 'dead end' of Central Europe.**

There are few more regions which demonstrate promising chances for development and which could be more visible even in the European scale. These are the regions which are the **European reservoirs of unspoiled environment**. North-East of Poland and the entire border region of Poland and Slovakia do create very promising chances for becoming the basins for tourist services and recreation on the continental scale, providing however that these functions will not damage the purest nature in Europe since conflicts between tourist services and environmental functions are possible. The shore of the Baltic Sea might also have chances for attracting tourists. The same applies to the tourist-recreational and spa centres with long traditions, like the West Bohemia spa triangle of Karlovy Vary-Marianske Lázně-Františkovy Lázně, the North-Western spa region of Poland in the Walbrzych voivodship (Polanica-Kudowa-Duszniki) and the Balaton Lake region in Hungary.

The majority of these areas lack sufficient tourist infrastructure, if not in quantitative terms then for sure in qualitative. Development and upgrading of this infrastructure so that it could meet the requirements of the more demanding customers is the crucial condition for these regions if their chances are not to be missed. More intensified cooperation between Poland and Slovakia seems also to become the condition for development of their tourist border regions.

Besides these more general regional patterns of Central Europe, there are several cases of micro-regions which will pose specific developmental problems. The mostly pronounced will be the restructuring processes of some raw-material extraction and processing centres. These are the regions deeply endangered by low profitability of production (uranium, lignite, copper, sulphur, heavy metallurgy) and by environmental hazards. Their production will have to decrease and this will lead to the emergence of very concentrated in space social and economic depressions.

## 5.5. Regional policies

During the beginning of the transformation period a **comprehensive regional policy has not been formulated in any of the Central European countries and the regional aspects of any social or economic policies (as weak as they are) are still almost non-existing.** In fact, the governments of all four countries have left the 'regional problems' to the so-called 'market forces', letting the new economic maps of their countries to be reshaped by the sectoral processes.

It seems that — at least in Hungary and Poland — the employment/unemployment policies became the only tools of the governments which have had some spatial/regional dimension. However, the natural doctrine adopted by the governmental agencies responsible for this policy is one-sided. It is oriented towards 'assisting the poor and the weak' and any assistance for 'the good and the strong' (which becomes a more and more pronounced doctrine of modern regional policies) is not present in activities of these agencies. It therefore appears that **employment policy** is the only one which uses special areas on which some economic instruments are used.

**There are some policies of regions.** However, in all four countries the regions are weak and small. Moreover, their competencies are limited. Therefore the regional development cannot be left to the regions themselves and the need for coordinated and comprehensive regional policy becomes the necessity of the day in all Central European countries.

The most important question for those formulating the principles of regional policies in Central Europe is the following: to what extent the regional policies should struggle with the **polarisation effect**, so clearly visible during the first stage of transformation? Can the countries needing rapid modernisation and growth (which is a basic precondition of any restructuring) spend resources on alleviating (growing) regional differences, or should they concentrate on promoting development, investment, inflow of capital, which — necessarily — would be concentrated only in some regions and places?

In this way we come back to the old dilemma: *equity versus efficiency*. This choice has to be reexamined in the situation of dramatic challenges of the economic future of the four countries. The dilemma: **which regions should be assisted by the state — the strong or the weak?** is not an artificial question. It does also not seem to be an obsolete question in Central Europe at least, though the answers in favour of the weak had been provided in the West long ago. But the Central European countries — are in a markedly different situation. Regional policies must be congruent with the general course of reforms, in which the efficiency principle should play the crucial role.

There are not too many examples of purely 'efficiency-oriented' regional policies in the Western countries. In fact, in none of them the strong regions are directly supported. Instead, the Western states focus their attention on the regions needing assistance and help. The same applies to the regional policies of the Commission of the European Union.

The state may support the strong regions indirectly by creating favourable conditions for the industries which 'naturally' locate in such places. These are the strong regions which take care of themselves, conducting their own development policies and competing on the world investment markets. But if this is to be fulfilled, the regions must be capable of conducting own development policies, they must constitute an economic entity being able to shape their own ways and methods of development. That is why the reform of

the territorial organisation of all four countries should be introduced and should result in creating fewer strong regional units. The question of their constitutional empowerment is not the most important one. One may imagine 'governmental' regions having own budgets and conducting own development policies with a high degree of freedom, or self-governmental regions with greater autonomy. The Central European countries have different traditions in this respect and the choices should not be uniform.

#### 5.5.1. For prospective regional policy

During the entire period of transformation all proposals for regional state policies have been based on **defensive assumptions**, oriented towards reacting to processes and phenomena that already emerged (like unemployment or industrial decline). In practice it meant that only the so-called '*problem regions*' or '*crisis regions*' drew the attention of those formulating state regional policies.

However, due to the acute shortage of resources these attempts have been totally unsuccessful. Moreover, there are justified opinions that concentrating on the regions which have just entered the painful process of restructuring — therefore in which negative processes prevail — leads to petrification of old regional structures and countervails the restructuring process as such.

Any **prospective approach** to the processes that will take place has not been frequent enough. Thus the existing assumptions of regional policies have not been directed towards facilitating reforming the national economy, but have been rooted in past doctrines of supporting the places facing current difficulties and problems.

#### 5.5.2. For integrated regional policy

There is an urgent need of creating an **integrated approach to sectoral and regional aspects of the national economy**. Traditionally, both systems (sectoral and territorial) used to be considered and 'planned' separately, which left regional policies weak and ineffective, constantly losing to preferences of most powerful economic sectors and branches. If the Central European transformation is to be successful, this integration should become one of the main principles for any policies and actions undertaken on economic and social scenes.

There may be several suggestions for the regional aspects of the sectoral policies suitable for Central Europe. They should be oriented towards different goals in particular areas. **The main focus should be laid on the crucial problems of particular regions**, such as promotion of new technologies in the greatest scientific centres, creation of new employment in regions lagging behind, reconversion of obsolete industries in the old industrial regions, etc. **It has to become obvious to all decision-makers in these countries that no sectoral policy can be conducted without its regional aspects — and vice versa — any regional policy should be filled with concrete economic and social content.**

#### 5.5.3. For internationally oriented regional policies

The geography of Europe is changing fast. The position of particular countries in this continental division of labour has ceased to be stable, as it used to be since the World War Two. The position of Central Europe has been changed dramatically, too, what was discussed in this report.

It is perhaps the only part of the strategic thinking in spatial terms which is strongly present in all four countries. All programmes for construction of new transportation lines and several prospects for future development of particular regions do take into account the new and dynamic international environment. This line of thinking should be further developed.

#### **5.5.4. For regionally targeted regional policies**

As already stated in this report, there are several regions in Central Europe which are on the edge of social, economic and environmental catastrophe (and in some respects this catastrophe has already taken place). **These regions cannot be left to themselves.** The states must take its responsibility for introducing, encouraging institutionally, politically and financially the programmes of regional reconstruction.

Upper Silesia is the first on such a list. The complexity of its social, economic and environmental problems (to which ethnic and cultural should also be added) far exceeds the potential of this region itself to solve them. This problem calls, first of all, for strong cooperation between Czech and Polish governments, but also needs to be noticed in Europe.

Regional intervention should assume the form of long-ranging infrastructural programmes with focus on changing the qualifications structures of the labour force and improving the environment.

There should be no opposition between the efficiency orientation of regional policy and direct involvement in some regions. The regions mentioned above demonstrate high developmental potential which is deeply shadowed by the negative consequences of the general systemic change. It may be easily argued, on the basis of evidence collected in this report, that assisting these regions in their industrial and environmental reconversion efforts may effectively stimulate their potential which now has been covered by the avalanche of collapsing industries, unemployment, social deprivation, pollution.

The new regions will be able to create their own institutions which would supplement the state policies targeted to the problem regions. These institutions will be particularly active in training and retraining activities and in creating favourable economic environment for new investments and developments. International cooperation of regions will be further decentralised.

#### **5.5.5. For environment-sensitive policies**

Recovery programmes prepared by the Central European governments vary with respect to their comprehensiveness and alertness to the risk of lacking realism. Yet, it is reassuring that in most cases the awareness of the value of the inherited natural capital at stake has been growing. Thus one can expect that environmental policy will become more proactive and less oriented towards technical (*ex post*) solutions to specific technical problems. This process cannot be taken for granted though. It depends on how professionally environmental protection will be integrated into economic policies. It cannot be ruled out that the decline in pollution will be reversed once economies firmly take off while environmental authorities are still unable to implement an effective policy to protect the environment which does not entail excessive costs.

Achieving cost-effectiveness in environmental expenditure and integration with other areas of government activities are those aspects which require substantial improvement. Marketable permit pilot projects pave the way for a broader understanding of the need to minimize abatement costs. At the same time there are a number of areas where policy integration is sought without any major successes as yet mainly because of the division of responsibility between various governmental bodies.

With stationary (mostly industrial and municipal) sources of pollution step-by-step brought under increasingly effective control, the environmental problems in Central Europe will start to resemble those of developed market economies. The policy will have to focus on non-point sources of air and water pollution, including car exhaust gases. Also with living standards increased, pressure to develop undeveloped areas will increase, thus intensifying conflicts over land use and nature protection. This calls for a more proactive approach on the part of the government to incorporate environmental concerns into every aspect of its policies, including agriculture, transportation, and household consumption patterns. As more and more activities are affected by environmental protection measures, cost-effectiveness considerations need to attract more attention.

The importance of a clear division of environmental responsibilities between various levels of government, private sector, and households should be emphasized. Based on that financial responsibilities can be assigned and a system for financing environmental protection activities can be improved.

**The final choices of the type of regional policy and the new territorial organisation of the four countries will be of purely political nature — but the obvious fact that the regional policy is a part of politics has to be finally acknowledged.**

**This choice will also have its direct impact on the regional structure of Central Europe in the coming years. Not all regions will be the winners, but these which will be able to take full advantage of new conditions will support the all four countries in their efforts to transform themselves into modern states, integrated with Europe.**



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## CONCLUSIONS

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The work has been completed. Three questions may now be asked:

1. How useful this work has been, for whom, and when its usefulness will be the greatest?
2. How good the results are?
3. What next?

These questions are, obviously, mutually interdependent. Bad work can be useful only for our enemy, since wrong result provide incorrect information. We are not a position of evaluating our job, though several deficiencies of the results have nor escaped from our attention. It was too late of impossible at all to correct them all.

Moreover, only the future may verify or falsify the validity of the programme results. Any prospective type of endeavour brings risks from the side of a fast changing reality. These risks are especially great in such an part of the world, as Central and Eastern Europe, which still undergoes and will undergo deep changes.

The results of the project may, however, be regarded as a set of statements, based on sound knowledge collected by a wide array of respective specialists from several countries, who all have followed the three methodological lines:

1. Our studies looked into the future and their authors tried to free their minds from crying and pushing present-day reality. The **strategic perspective adopted** was therefore oriented towards goals and means, it took into account the starting point, but it was **imaginative**. In this way, the entire programme 'Central and Eastern Europe 2000' is, in the intension of all authors involved, a contribution to the development of the art of long-term strategic thinking on and in the Central European countries. It is assumed that have a strong demonstration effect creating inducements and initiatives in the field of diagnostic and prognostic thinking.
2. The studies embraced four spheres of development: economics, socio-political processes, developments in science, technology and education and the regional aspects of all three sphere mentioned before. We have attempted to pursue the **holistic approach** in social sciences, knowing how difficult this may be. In this way these studies are conducted in an interdisciplinary manner, which breaks with the traditional 'branch' oriented research and analyses.
3. The studies were conducted in a **comparative way for the four countries** treated equally, researched by their national specialists and often refereed to as 'a Region'. The wider international setting was also taken into account, where necessary. This means, that a new **spatial entity** emerged in the field of the European studies: the Visegrad group. Our programme proves that both the very existence of this group and devotion of attention for studying it are positive new element of the post-socialist period. The studies are of therefore of a fully international character, which creates grounds for more integrated cooperation between the economies, societies and political elites of the four countries.



It may be therefore hoped that the four national reports and the final report, which has been made available to the international scientific community and to the public, will be met with critical, but still positive reaction. It may be also hoped that the results of the project will add new dimensions to the methodology of studies on the post-socialist transformation and will bring new, concrete knowledge about Central Europe.

It may be also assumed that the conclusion of the Project is new beginning of an intellectual and pragmatic process which will keep the momentum created by the decision of the European Union and Institute of Human Sciences to establish and to sponsor the Project — Central and Eastern Europe 2000.

There are two possible ways of continuing the prospective reflection on the future of this part of the continent: broadening the studies to embrace other Central and eastern European countries (the post-Soviet republics, the Balkan states) or to go into depth of some of the topics touched upon in the present project. If the first approach is to be applied, the 'research pattern' is almost ready and needs only small refinements. Such a project would provide a more general outlook into mutual interrelations between the West — the Centre and the East of Europe, thus covering the entire socio-economic European space. It would also allow for better integration of the research communities of the Eastern and Southern European countries to become more integrated with the international scientific community.

The 'in depth' approach would be based on the experiences of the international group of researchers who have already been active in the current project. It would allow for providing a more detailed and precise picture of several phenomena and processes which could have been studied here only in a general way. To limit ourselves to the regional problems only, at least two topics seem to be worth undertaking:

- the regions of Central Europe 2005;
- the regional and local environment for innovation in Central Europe.

The first proposal would aim at explanation of main factors of regional dynamics of transformation in Central Europe. In particular, the regional leaders of transformation will be identified, as well as regions to which transformation process will pose major challenges. The role of international, national, regional and local factors in economic and socio-political restructuring will be examined. The project would result in formulation of the foundations for regional policies which would be performed in the Central European countries during their adaptation process, before they become the EC members. It would also examine possible influence of the EU enlargement on the regional policies of the Union.

The identification of local and regional factors responsible for innovation and technological progress in Central Europe (i.e. in four countries: the Czech and Slovak Republics, Hungary, Poland) would be the main goal of the second project.

In particular, the research should relate to the following issues: diagnosis of the regional differences in dynamics technological progress and innovation in Central Europe; identification and systematisation of factors responsible for creation of the regional/local environment for innovation in Central Europe; policy recommendations for policy-makers of the central, regional and local levels.

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