

Human Development Report, Slovakia and Hungary

Regional Business Portrait of Eastern Slovakia and Northern Hungary

Working Paper

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In the frame of *Chapter 6* we give a regional business portrait of Eastern Slovakia and Northern Hungary. As several aspects (among others: key employment and human resource issues, leading barriers to expanded employment opportunities for Roma and other vulnerable groups in the region, Hungary's and Slovakia's policies vis-à-vis decentralization, issues of absorbing post-accession EU-funding) evidently overlap each other with the issues of the draft socio-economic portrait of Eastern Slovakia and Northern Hungary we will not repeat these aspects already described in *Chapter 2*. Instead, we concentrate on the remaining business aspects of Eastern Slovakia and Northern Hungary.

National business environment in Hungary and Slovakia

Although several aspects of the business environment are locally (or sub-regionally, regionally) defined, most aspects of that are dependent upon the national business environment and policies. In the following paragraphs we present the key indicators of Slovakia and Hungary from an international comparative perspective; we use external references (in most cases, European Union or Euro area average data, or in the lack of it Czech data).

In Chapter 2 we already presented the development levels and growth trends in Hungary and Slovakia. Here we only intend to underline two important factors. On the one hand, both countries have a negative external balance: the process of the real convergence is coupled with a modernization deficit; hence the domestic use is markedly higher than the overall GDP. On the other hand, in 2006-2007 Slovakia and Hungary are in different growth cycle: thanks to the sound macroeconomic policy of the preceding years, Slovakia can experience outstanding growth and consumption expansion as well as a significant improvement in labour market indicators. In the meantime, Hungary is experiencing serious slowdown in growth, even a decrease in domestic use (especially household income and consumption) and an obvious increase of the unemployment.

One aspect of long-term growth is the environmental sustainability. The ranking of the two countries give a contradictory picture: in Hungary the energy efficiency indicator is markedly better (the best in the region), however – according to the IMD World Competitiveness Report 2006 – corporate environmental responsibility and the recycling is weak. Slovakia has a significantly better position according to the latter indicator, while energy efficiency (the energy use for a GDP unit) is weaker and corporate environmental responsibility is only slightly better than in Hungary.

Labour market

Several aspects of labour are the same in the two countries: working hours are much longer than in EU-15 countries and flexible employment patterns has remained marginal. However, from the point of view of the labour supply, Slovakia has certain advantages compared with Hungary. Slovakian demographic indicators are generally better, and the Slovak population is younger and economically more active: according to OECD data about 2005, activity rate in Slovakia (69%) is close to the EU-15 average (71%), while in Hungary (61%) is markedly lower. In addition, employment rate is stagnating in Hungary since 2000, while a marked improvement is observable in Slovakia since 2003. Regarding labour productivity, the

productivity *level* is still higher in Hungary than in Slovakia but the trends reflect a decreasing gap between the two countries. According to the WIIW Handbook of Statistics (2005), the productivity improvement since 1995 was outstanding in the manufacturing of transport equipment (in both countries, but especially in Slovakia) and in the manufacturing of electrical and optical equipment (especially in Hungary). In sum, the trends in most of the labour market indicators (labour supply, activity and employment rates and the improvement of labour productivity) are more favourable in Slovakia, although productivity level and unemployment rate figures gave a somewhat better picture about Hungary.

Prices and costs

As we presented in chapter 2, price and wage levels are generally higher in Hungary than in Slovakia, although the differences between the countries have been narrowing recently. However, according to the Eurostat AMECO Database in 2005 the labour cost difference between Hungary and Slovakia was surprisingly high: 12.55 thousands EUR per persons employed in Hungary and only 7.76 thousands EUR in Slovakia (the respective Czech data is 10.87 thousands EUR). Moreover, in the period 2000-2005 the increase of labour costs in real terms was higher in Hungary (38%) than in Slovakia (23%). An interesting sectoral aspect of cost-competitiveness is that the productivity improvement in the Hungarian manufacturing sector since 1995 was able to offset the wage growth, while in Slovakia the same has been true only since 2004. Other (non-labour) costs related to the business activity (renting, electricity, gas, phone etc.) are very similar in the two countries – they are direct neighbours in most of the comparative international rankings –, nevertheless, the monthly fee of the ADSL internet access is definitely higher in Hungary.

Markets, trade and capital flows

International export and import patterns of the two countries mainly reflect their ‘small, open economy in the period of rapid real convergence’ status. According to the WTO data, a clear difference between the two countries is observable in the trade structure: since 1999, services (especially that of trade-related services) have been playing an increasing role in the Hungarian foreign trade, meanwhile in the Slovakian foreign trade the dominance of manufacturing goods (especially that of transport equipment) has been reinforced.

As in Hungary the privatisation and the liberalisation started much earlier than in Slovakia, the FDI inflow had been more significant until recently. The almost 6000 USD per capita FDI stock in Hungary is more than double of the respective Slovakian figure (2526 USD); however, we have to underline that the gap between the two countries is evidently narrowing also in this respect.

Taxation and regulation

Regarding the role of redistribution, the position of the two countries differs markedly. According to Eurostat data (2004) Slovakia (30.3%) has one of lowest overall taxation rate in the whole EU, meanwhile Hungary (39.1%) is at the EU average level and together with Slovenia, Hungary has the highest taxation rate among the new members of the EU. The structure of taxation is rather similar in the two countries: a negligible taxation of capital and wealth and a high taxation of consumption (products) are common characteristics. In the meantime, taxation in income is higher in Hungary, while the relative weight of social security charges is markedly higher in Slovakia. Corporate income taxes are low in both countries; in addition, the widespread exemption from the general rules makes the effective

corporate income tax rates even lower, especially in Hungary. On the other hand, according to the OECD Taxing Wages Database (2005), the share of wage taxes in ratio of total labour costs is the highest (50.5%) in Hungary among all EU member states. The respective Slovakian figure (38.3%) is the lowest among the new EU members and it is also below the EU-15 average (42.1%). In the meantime, the weight of mandatory social security contributions is slightly higher in Slovakia (11.73% according to the OECD Revenue Statistics 2005) than in Hungary (10.85%).

According to the different international comparative surveys (World Economic Forum 2005-2006, IMD World Competitiveness Yearbook 2006, World Bank: Doing Business in 2006) regulation and competition characteristics are surprisingly similar in Slovakia and Hungary. The Slovak competition policy is slightly more supportive for competition, but the perceived competition intensity is somewhat higher in Hungary. Product market regulation is less complicated and FDI-incentives are somewhat stronger in Slovakia, while business management is slightly simpler in Hungary. The ratio of illegal and unreported economy is perceived rather high in both countries: much higher than in the EU-15 countries, Czech Republic and Estonia, although markedly lower than in Poland or the Southeast-European countries.

Infrastructure, ICT, innovation

The Slovakian economy had traditionally higher investment/GDP ratio than the Hungarian one; according to the Eurostat AMECO database, in 2005 the Slovak figure was 25,2% and the Hungarian only 22,8%. In addition, the general government sector was markedly more important in the Hungarian investment activity than in Slovakia. Because of the expected fiscal adjustment from the last quarter of 2006, the Hungarian investment rate will probably decrease and the share of public investment in the overall investment likely moderate. According to the IMD World Competitiveness Yearbook, quality perceptions of transport and energy infrastructure are again similar regarding Slovakia and Hungary.

Hungary has a higher ICT expenditure ratio (according to the Eurostat, 7.8% in ratio of the GDP in 2005) than Slovakia (5.8%), but PC-penetration in the corporate sector is higher in Slovakia (97%, against 96% in the EU-15 and only 88% in Hungary). Moreover, 62% of the Slovakian enterprises has a LAN (local area network), while the respective figure in Hungary is only 41% (the EU-15 average is 67%). Internet penetration in the corporate sector is also markedly higher in Slovakia: 92% (equal to the EU-15 average) compared with the Hungarian 78%. Most of the other ICT indicators (the ratio of enterprises with own websites, on-line corporate sales, PC and Internet penetration in the household sector) also position Slovakia in a better place. However, broadband Internet connections are better in Hungary and the e-governance is more expanded there.

Both countries have low R&D expenditure ratios. According to the 2004 Eurostat data, R&D expenditures in % of the GDP were 0.89 in Hungary and only 0.53 in Slovakia (respective figures in the Czech Republic is 1.27% and in the EU-15 countries 1.92%). Moreover, trends since the mid'90s reflect stagnation in Hungary and a decrease in Slovakia. The same is true for the corporate R&D expenditures; the slightly better position of Hungary is due to the stronger presence and R&D activity of large multinational corporations. However, the weakness of 'domestic' (non foreign-owned) R&D expenditure is even more conspicuous in Hungary than in Slovakia: according to the OECD MSTI database the share of foreign-owned

companies in the overall Hungarian corporate R&D expenditures is 78.5% (the respective figure in Slovakia is 12.4%). Production, technology and marketing innovation expenditures of the corporate sector are extremely low in Hungary (the lowest in the region), while the Slovak enterprises are positioned well compared with the regional average. On the other hand, according to the IMD 2006 survey, the efficiency of the corporate leadership is perceived to be outstanding in Hungarian enterprises, meanwhile worth than the regional average in Slovakia.

As a conclusion, the comparison of the national business environment of Slovakia and Hungary underlines that the two countries are similar in most aspects; they are direct neighbours of each other in most of the international business survey rankings. However, there are also certain differences, mostly in favour of Slovakia. Although Hungary started the creation of attractive business environment earlier, in 2006 Slovakia offers more promising business prospects, thanks to the more stable macroeconomic environment, markedly lower labour costs and more important corporate activity in the ICT sector.

Trends in regional business activity

Northern Hungary

The table below illustrates well the unfavourable position of Northern Hungary from a business perspective. The employment rate is markedly lower than the Hungarian average, while the unemployment is significantly higher. Entrepreneurial activity is weak, and FDI inflow is conspicuously sluggish. Hence it is not surprising that the GDP per capita as well as the gross wage level in the region is markedly lower than the Hungarian average. However, the significant gap between the GDP per capita and the wage level in favour of the latter points to serious competitiveness problems; in other words, even this rather low wage level can be considered as 'too high' compared to the economic performance of the Northern Hungary region.

Major indicators of business environment in Northern Hungary

<i>Indicator</i>	Northern Hungary	Hungary	Northern Hungary / Hungary
Area (km ²)	13429	93029	14.4%
Population (ths)	1271	10096	12.6%
Persons employed (ths)	246.4	2789.6	8.8%
Registered unemployed (ths)	85.8	400.6	21.4%
Unemployment rate	9.5	6.3	150.8%
Number of working enterprises	78661	882503	8.9%
Number of working enterprises with foreign ownership	798	26797	3.0%
GDP (HUF billion)	1357.3	16740.4	8.1%
GDP per capita (HUF ths)	1050	1648	63.7%
Gross average monthly wages	124.4	145.7	85.4%

Sources: CSO Hungary, own calculation

The Hungarian public administration system continues to be organized in counties (the regions which were created in order to absorb EU funds have remained only statistical categories without proper decision-making rights) hence most of the business data is collected, aggregated and published in county units. Thus in the following paragraphs we present the business environment separately in Borsod-Abaúj-Zemplén, Heves and Nógrád counties.

Borsod-Abaúj-Zemplén is the largest county of Hungary, representing almost 8% of the country and more than half of the Northern Hungary region. The county centre, Miskolc, is the third city of Hungary (measured in the number of inhabitants), it has 357 settlements from which 22 are urban settlements. Although the density of public roads is higher than the Hungarian average it is rather uneven (and basically explained by the peculiar settlement structure dominated by tiny villages). The construction of the M3 motorway has definitely improved the accessibility of the county; the Budapest-Miskolc InterCity plus the Miskolc-Ózd and the Miskolc- Tiszaújváros InterPici lines ensure an acceptable transport infrastructure. However, the county (as well as the entire region) absolutely lacks an international airport – the closest one is in Košice. The basic infrastructure is markedly worth than the Hungarian average; in addition, its territorial division is also uneven. Employment trends reflect a marked de-industrialisation process: the number of employed is decreasing in manufacturing and mining as well as in construction. Regarding another dimension, the number of public employees is gradually decreasing; meanwhile employment in the private sector has practically remained unchanged recently.

The heavy industry decay is the major feature of the county's economic structure: coal mining is practically non-existent meanwhile the production capacity of the previously large steel factories narrowed drastically. Instead of the former large machinery enterprises small and medium-sized enterprises play an increasing role. The two dominant large corporations (Borsodchem and TVK) are working in the chemical industry. The FDI inflow has been moderate and it concentrated in the traditional industrial sectors of the county. The most important corporations are Bosch, Delco, General Electric, Jabill, Saia Burgess, Sanmina and Shinwa in machinery sectors, Sanofi in pharmaceuticals, Borsodi Sörgyár and Nestlé in food industries.

Although Heves county is much smaller, business and human development indicators are definitely more favourable than in Borsod-Abaúj-Zemplén county. Infrastructural and human potential of the Eger-Gyöngyös-Hatvan axis generate a rather attractive business environment for FDI inflow, especially in machinery sectors. In addition to the German, UK, Swiss and Austrian investment activity, Asian (Chinese, Japanese and Korean) foreign direct investment inflow is also increasing. Industrial parks in Eger and Hatvan are especially successful in FDI attractiveness.

The rather promising business prospects of Heves county are in a sharp contrast with the strong backwardness of Nógrád county. The unemployment rate (around 18%) is largely above the national and the regional average, the extensive brown-field former industrial territories have an evidently negative impact on the FDI attractiveness. The increasing economic cooperation along the Lučenec-Salgótarján urban axis (the former historical pole of the region) is an important part of the local development plans. Machinery sectors dominates the county's economic profile, however, important FDI inflow can be observable only in the industrial parks of Rétság and Salgótarján.

Eastern Slovakia

The region of Eastern Slovakia has an unfavorable position from a business perspective. The employment rate is lower than the Slovak average, while the unemployment rate is considerably higher. The activity in the field of entrepreneurship is significantly weaker. Business statistical comparison shows markedly lower GDP per capita in Eastern Slovakia than the national average and a very disproportional geographical distribution of FDI.

Major indicators of business environment in Eastern Slovakia¹

<i>Indicator</i>	Eastern Slovakia	Slovakia	Eastern Slovakia / Slovakia
Area (km ²)	15751	49034	32.1%
Population (ths)	1557	5387.2	28.9%
Persons employed (ths)	556.1	2216	25.0%
Registered unemployed (ths)	176.7	427.5	41.3%
Unemployment rate	24.1	16.3	147.8%
Number of working enterprises	18242	83 710	21.7%
GDP (SKK billion)	259.1	1177.8	21.9%
GDP per capita (SKK ths)	166.3	223.5	74.4%
Gross average monthly wages (SKK)	14970	17 274	86.6%

Sources: Statistical Office of Slovak Republic, own calculation

Infrastructure

The road infrastructure is of great importance for the development of the economy, for the mobility of labour force and for competitiveness of the region. The length of the road network is 17809 km, whereby in the Košice region there are 2379 km of road and in the Prešov region this number amounts up to 3093 km. The total length of the road network in Eastern Slovakia is 30.7% of the total road network of the Slovak Republic. According to the statistics Eastern Slovakia has a rather dense network of roads however with a relatively low representation of motorways and highways. There are 316.2 km of motorway in Slovakia, that is less than 2% of the total length of Slovak road network. The length of highways in Eastern Slovakia is only 35.8 km, which is much less than in the neighbouring countries.

Both regional capitals (Košice and Prešov) are major transport centers. The town of Košice meets international requirements as one of the most important center of the Carpathian Euroregion. Eastern Slovakia is connected to the North-South Trans-European Motorway System. The international roads crossing the region of Eastern Slovakia are included into the E-road network in compliance with the European Agreement on Main International Arteries. Main European Artery E 50 goes between the border of Czech Republic to Slovakia -

¹ Rozvojový plan Slovensko-Východ, Prešov Region, Košice Region, 2006

Drietoma-Trenčín-Žilina-Prešov-Košice – and from Slovakia to Ukraine – Užhorod. The regional capitals – Košice and Prešov – are connected by a highway. The West-East route highway is still under construction, while in the Prešov region a highway Branisko tunell was launched. Apart from highways first class roads play also an important role in the international transport of Eastern Slovakia. The total length of first class roads in Eastern Slovakia amounts up to 990.2 km, which constitutes 30.2% of the total extent of first class roads in Slovakia (3263 km).

Character of Industry

Economic development prospects of Slovakia are threatened by the regional discrepancies. Major part of foreign investments keeps flowing into Western and Central Slovakia due to strong economic and human resources, good infrastructure and relatively easy accessibility. However, Eastern Slovakia comprising 1.5 million people with strong tradition of heavy industry has also a capacity to attract investors, especially in the field of metallurgic manufacturing. Nevertheless, this FDI potential is undermined by the underdeveloped infrastructure.

The major industrial settlements are present in the urban areas of Košice and Prešov. There is a dominant position of Košice due to the steel production. The districts of Košice contribute to 32.4% of employment while 51.6% of industrial production is realized in this subregion. Contrary to Košice, in the subregion of Prešov the significant industrial employment (9453 people working in industry) is coupled with a low level of industrial production (only 6.5% of the total region). The markedly lower productivity in the Prešov region is due to the structure of production that is focused on textile and food industries.

Two other industrial poles play an important role in the region. In the western part of Eastern Slovakia the districts of Poprad and Spišská Nová Ves are oriented towards the production of machineries, chemical, plastic and textile products. The area of Spišská Nová Ves has undergone a transformation process from an industry primarily focused on mining towards the production of electrotechnical goods. Another large industrial base area is located in the districts of Humenné and Michalovce. In Humenné there is a developed chemical industry oriented towards food production. The district of Michalovce is characterized by mining, production of energy and textile manufacturing.

Foreign Direct Investment

Trends in Foreign Direct Investment

	2000	2001	2002	2003	2004	2005
Slovakia total (SKK m)	177.141	234.396	319.246	348.500	398.504	417.020
Košice Region (SKK m)	38.437	37.590	33.162	34.250	34.410	35.506
% of Slovakia total	21.70	16.04	10.39	9.83	8.63	8.51
Prešov Region (SKK m)	4 743	5 532	5 874	6 003	7029	7086
% of Slovakia total	2.7	2.4	1.9	1.7	1.8	1.7

Source: National Bank of Slovakia

Although the foreign direct investment inflow in Slovakia has more than doubled since 2000, the FDI inflow the Košice region has been idle since 2000, and compared to 2000 and 2001, the last year portfolio was even smaller. The largest investors include the Republic of Korea, Germany, the Czech Republic, Switzerland, Austria and the Netherlands. Geographically speaking, the most investment was made in the Bratislava and Žilina regions. In terms of branches of economic activities, the largest portion of FDI was put in manufacturing, wholesale and retail trade, repair of motor vehicles, motorcycles, and consumer goods, financial intermediation, and real estate business, renting, and business activities.

Largest investors in Eastern Slovakia

Regarding *machinery* industry, BSH Drives and Pumps belonging to the Bosch and Siemens network was established in Michalovce in 1993 produces electric motors. The company produces 5 million motors annually while more than 70 percentages of the motors are used in Bosch and Siemens products. Japanese concern Matsushita has established its production in Panasonic AVC Networks Slovakia that belongs to the German division of the Panasonic Network. All Panasonic DVD recorder players in Europe are produced in Krompachy. One of the largest export-oriented industrial producers is Whirlpool Slovakia, s.r.o. located in Poprad. There are several Italian companies, suppliers to Whirlpool Slovakia seated in Matejovce industrial park. Out of the total sales of the company (around 13 billion SKK) only 2 percentages are realized in Slovakia. The largest investment in the automotive industry in Eastern Slovakia has been realized by the German-American company Getrag Ford Transmissions. The total investment amounted up to 345 million EUR. The production of modern gears to automobiles has been located in the industrial park of Kechnec. Embraco-Slovakia in Spišská Nová Ves produces 5 million cooling compressors while the company employs 2400 people. Embraco-Slovakia has set a successful example of an investment of a global player in Eastern Slovakia followed by the emergence of other international suppliers (SITEM from Italy, CRW from Brasilia and Tade from Spain).

In the *chemical industry* one of the largest producers of nylon covers for food industry is the Chemosvit share company. After the privatization of the company in 1994 the majority of shares belongs to the management but several foreign partners from Italy, Finland and Israel invested in the company. The group acts as a major player in the field of local employment by more than 3200 employees. The transnational concern Rhodia has invested in the production of fiber for clothing industry and automotive industry. Whilst the company employs around 1300 people and its sales amount up to 3 billion SKK, the challenge of Asian companies has brought the profits down to zero since 2004.

Rural development in Eastern Slovakia

The lagging of Eastern Slovakia can not be solved without the serious approach to the agriculture problems. The following fields have the special binding to the rural development:

- those that use their productive capacities for food and biomass;
- those that satisfy the renewable energy and regeneration of natural sources} hydro plants, biomass burning, non-profitable organizations for the environmental protection);
- those that utilize the regional culture as the potential for tourism and recreation development (tourism facilities, pensions, hotels).

The structural changes in economy damaged the rural areas of Eastern Slovakia. It means predominantly the emigration of the inhabitants and moving for work to developed areas. The massive emigration damaged predominantly Trebisov, Michalovce, Spišská Nová Ves, Levoča, and Gelnica districts and the areas lying in the North-East of Eastern Slovakia.

The lagging and structural disadvantages of the region can be neutralized by massive and targeting support of development programs concerned on known or even unknown potentials of the region. The first of them is agriculture, its re-finding and determination of its sense and importance. Consideration of the agriculture topics must be seen in connection to the economic, social and environmental background of the region. The future of the agriculture has to be seen in connection with the new (even non-agricultural) topics as renewable energies exploitation, land protection and land preservation, etc. Despite of new knowledge there are no arguments undervaluing the agriculture significance. Just in opposite, realization of the multifunctional aspects of agriculture (with its direct impact on environment and life protection at all) the positive relation to the agriculture is necessary.

There are well functioning firms producing and processing renewable raw materials from which the electricity, biogas and bio fuel metylester of rapeseed oil are produced.

Some examples:

- a. The Agrifop, a.s. Stakčín has been processing 2000-2100 tons of rapeseed oil metylester. In addition to this, nutrition oil is also produced here and distributed to the retail sales.
- b. Biomass production and processing with following energy production is performed in Agriculture Cooperative – Kapušany pri Prešove. The cooperative supported by EU funds is functioning a biogas station with the 100 kW power capacity. One half of the produced energy is utilized inside the cooperative, the rest is supplied to the public electricity distribution network.
- c. The first straw boiler with the power capacity of 600 kW was built in Turňa nad Bodvou by RADEN company. It diminished the energy dependence and gas consumption in the village.

From a longer perspective, the biomass utilization for energy production is very promising field in East Slovakia, because there are more than 100 th. hectares of land not used for agriculture production (but favourable for biomass production). There is a possibility to exploit 6,5 tons of straw (straw heat value is 15 MJ kg-1).

Ecotourism

Despite the high potential, the ecotourism implementation is lagging in East Slovakia. There is a necessity to implement the bio agriculture in the regions with appropriate climatic and natural conditions. There are only 2 farms dealing with bio products in East Slovakia what is a negligible amount in the East Slovakia region. The administration of the agricultural sector undervalued the opportunities of bio production in recent years. Even if there were some projects, the conversion projects supporting was performed without responsible results checking. It resulted to the bio-production which does not conform to the bio product norms and followed the cancelling of licences.

Principal components behind business trends in Northern Hungary

In this sub-chapter we intend to give an overall description of the Northern Hungary region from a more analytical standpoint. Using two databases (the UNDP Vulnerable Group Database and the Kopint-Datorg sub-regional database) we intend to identify the main factors of backwardness as well as we put the different sub-regions into relatively homogenous

groups (clusters). This approach is not only a descriptive scientific practice but it may serve as a starting point for the long-term forecast. In addition, thanks to the chosen method it might be generalized for other regions (both in Slovakia and Hungary).

Factors behind sub-regional differences in Hungary

According to our data analysis the differences among Hungarian sub-regions (excluding Budapest) can be explained by three main factors. The first principal component is the **general development level** of the sub-region; this factor explains the variance among the sub-regions in 32.7%. Among the observed variables behind this factor there are both substantially ‘dependent’ and ‘independent’ components. The main substantially ‘independent’ components are the average level of education (measured by the average number of classes completed), the geographical position (measured by the distance from Hegyeshalom, the Austrian border crossing point in the Budapest-Vienna main road) and the distance from the motorways. The main substantially ‘dependent’ components are the personal income tax per capita, the unemployment rate and the FDI per capita (measured with stock data, without the financial sector and the off-shore companies).

The second principal component, that explains the variance among Hungarian sub-regions in 15.1%, is the **economic and employment structure** of the sub-region. This is a classical bipolar principal component: the sub-regions in which the *service sector* is the main employer oppose the sub-regions in which the *industrial sector* is the main employer. It is noteworthy however, that agricultural employment is rather a component of the general development factor (it correlates strongly negatively with both the average level of education and the personal income tax per capita).

The third principal component, that explains the variance among Hungarian sub-regions in 12.4%, is the **entrepreneurial inclination** of the sub-region. In fact, this is another bipolar principal component: the sub-regions in which *large enterprises* dominate the employment oppose the sub-regions in which the *small enterprises*² dominate the employment. Here we have to point to the strong impact of the corporate structure on *net migration* rate as well as *unemployment of youth*: the weak role of entrepreneurship (i. e. lack of small enterprises) is reflected in negative migration balances and markedly higher unemployment rate among people under 25.

Principal components explaining the differences among Hungarian sub-regions

	Factor of general development level	Factor of economic and employment structure	Factor of entrepreneurial inclination
Main components (component values)	PIT per inhabitants (0.9) Level of education (0.83) Unemployment rate	Employment in the service sector (0.92) Employment in industrial sectors (-0.86)	Employment at small enterprises (-0.58) Unemployment of youth (0.56)

² Small enterprise, by definition, is not equal to micro enterprise. While the category of small enterprise covers employment between 10-49 persons, the category of micro enterprise covers employment below 10 persons. In substantial terms, small enterprise can be an indicator of entrepreneurial inclination; meanwhile the ratio of micro enterprises rather indicates the role of self-employment in a given sub-region.

	(-0.78) Distance from Hegyeshalom (-0.68) Agricultural employment (-0.62) FDI per capita (0.58) Distance from motorway (-0.51)		Domestic net migration rate (-0.67)
Total variance explained	32.7%	15.1%	12.4%

Source: Kopint-Datorg database, own calculation

Sub-regions in Northern Hungary

The deprivation of most sub-regions in Northern Hungary is obvious from the principal component scores: from the 28 sub-regions, only 2 (Tiszaújváros and Eger) can be considered as developed and 5 (Gyöngyös, Hatvan, Miskolc, Kazincbarcika and Rétság) as rather developed. On the other hand, 9 sub-regions are backward and another 6 of them (Encs, Szikszó, Mezőcsát, Edelény, Bodrogek and Abaúj-Hegyköz) are desperately backward, while 6 sub-regions can be considered as stagnant.

Principal component values in the sub-regions of Northern Hungary

Center of the sub-region	Factor of general development level	Factor of economic and employment structure	Factor of entrepreneurial inclination
Developed sub-regions			
Tiszaújváros	1.26	-1.05	1.22
Eger	0.99	1.43	0.88
Rather developed sub-regions			
Gyöngyös	0.91	0.02	0.16
Hatvan	0.87	-1.12	0.06
Miskolc	0.74	1.65	1.10
Kazincbarcika	0.67	-0.84	2.13
Rétság	0.42	-0.87	-0.12
Stagnant sub-regions			
Salgótarján	0.21	0.27	1.21
Sátoraljaújhely	0.17	-0.14	1.94
Balassagyarmat	0.14	0.29	0.05
Mezőkövesd	0.03	0.11	0.03
Pétervására	-0.08	-1.25	0.68
Füzesabony	-0.23	0.13	-0.56
Backward sub-regions			
Ózd	-0.30	-0.45	0.90
Pásztó	-0.33	-0.86	-1.03

Szécsény	-0.37	-1.16	0.32
Bátonyterenye	-0.45	-0.85	-0.47
Bélapátfalva	-0.82	0.07	-1.31
Szerencs	-0.86	0.68	0.83
Tokaj	-0.89	1.14	-0.30
Heves	-0.90	-0.73	-0.80
Sárospatak	-0.96	0.45	0.13
Desperately backward sub-regions			
Encs	-1.22	1.09	0.33
Szikszó	-1.24	1.24	0.25
Mezőcsát	-1.33	-0.32	-0.78
Edelény	-1.44	0.77	0.08
Bodroghöz	-1.66	-0.54	-0.17
Abaúj-Hegyköz	-1.86	0.92	0.34

Source: Kopint-Datorg database, own calculation

Regarding the economic structural component, it is noteworthy that – excluding the county centres – only industrialization may imply a certain level of development in Northern Hungary. The relative prosperity of Tiszaújváros, Hatvan, Kazincbarcika and Rétság are equally related to the strong industrialization of these sub-regional centres. Moreover, there is no sub-region among the relatively developed ones of Northern Hungary where entrepreneurial inclination may imply a buoyant small enterprise sector. The dominance of large enterprises is especially conspicuous in the three rather developed sub-regions of Borsod-Abaúj-Zemplén county (Tiszaújváros, Miskolc, Kazincbarcika).

FDI attractiveness in sub-regions of Northern Hungary

In this context, it is worthy to compare the different sub-regions concerning their potential *FDI attractiveness*. For this reason we classified the Hungarian sub-regions into 7 relatively homogenous groups (clusters) and we related the per capita foreign direct investment stock to the clusters. Our results reflect a disappointing picture of the region: 20 sub-regions of Northern Hungary belong to those three clusters that have a low potential of FDI attractiveness, two sub-regions belong to the cluster that contains sub-regions of moderate FDI attractiveness and only six sub-regions have a rather strong potential of FDI attractiveness.

Not surprisingly, FDI attractiveness correlate strongly with the factor of general development. Moreover, excluding FDI from the general development factor, and putting the three principal components as independent variables into a regression where FDI per capita is the dependent variable, the explanatory strength of the general development factor is obvious ($t=7.42$, the standardized Beta coefficient is 0.5 at a 0.000 level of significance). On the other hand, the two other principal components do not have a significant impact on the FDI attractiveness. However, when we try to explain the FDI attractiveness from individual, substantially independent variables, three variables have a significant impact on FDI: the level of education (Beta=0.21), the distance from motorway (Beta=-0.19) and the share of persons employed at large enterprises (Beta=0.24).

Most sub-regions of Northern Hungary evidently lack of these components. A particular problem of the region derives from the matter of fact that the major cities of the region have a rather weak potential of FDI attractiveness. Both Miskolc and Eger are among the county centres that have only a moderate FDI attractiveness. The two major cities of Nógrád county, Salgótarján (the current centre) and Balassagyarmat (the previous centre), are in even worse position: they belong to a cluster of low FDI potential. It is somewhat surprising, even if we know that according to the general development factor both sub-regions can be considered as stagnant. The six sub-regions which belong to the clusters of strong FDI potential are the industrial centres of Northern Hungary: Tiszaújváros, Hatvan, Rétság, Gyöngyös, Kazincbarcika and – somewhat surprisingly – Sátoraljaújhely.

What are the major policy impacts of the above factor and cluster analysis as well as the regression explanation of FDI attractiveness? First, the problems of sub-regions in Northern Hungary derive mainly from the general backwardness; and some of the components of the low level of general development (e.g. geographical position, the distance from the Western borders) are unchangeable. However, certain components (e.g. the distance from motorways) have been improving recently. Nevertheless, without the improvement in the level of education, the business environment may remain rather unfavourable, as a key component of FDI attractiveness will lack. Another finding of our analysis points to the matter of fact that in Northern Hungary the relative prosperity of few regions is almost exclusively linked to the industrial large enterprise sector. Thus the revitalization of the industrial potential is unavoidable for the catch-up of the region. A third major finding is about the relative weakness of the county centres – the strengthening of Miskolc, Eger and Salgótarján is also vital for envisioning the prosperity.

Vulnerable groups in Northern Hungary

In this sub-chapter we intend to prepare a method of linking the UNDP Vulnerable Groups Database to the other data sources. Naturally we do not describe the main results of the UNDP Vulnerable Groups Survey 2004 (see Chapter 4), but we intend to identify those main factors that can serve also a base for the long-term forecast.

According to the principal component analysis, we can identify three factors. The first principal component is about the ***general deprivation (hostility) of the environment***; this factor explains the variance among households in 30.6%. Among the observed variables behind this factor there are only substantially ‘independent’ components: the threat of physical abuse, unhygienic circumstances, environment pollution, the corruption of the officials, crime and organized crime, the problems of medical care and studying opportunities, and the threat of dislodgement all can be considered as different dimensions (observed variables) indicating the deprivation and/or the hostility of the environment.

The second principal component, that explains the variance among the households of the Hungarian Vulnerable Group Survey in 15.1%, is a classical factor of the ***income poverty***; the low level of income and the threat of the starvation are the main components. The third principal component, that explains the variance among the households of the Hungarian Vulnerable Group Survey in 12.4%, is a classical factor of the ***ethnic and religious tensions***; the main components are the threat of the ethnic and the religious conflicts.

**Principal components explaining the differences among vulnerable households in
Hungary**

	Factor of hostile environment (general deprivation)	Factor of income poverty	Factor of ethnic and religious tensions
Main components (component values)	Physical abuse (0.68) Unhygienic circumstances (0.65) Environment pollution (0.62) Corruption of officials (0.60) Problem of medical care (0.60) Crime (0.60) Organized crime (0.56) Residence in danger (0.54) Problem of studying opportunities (0.51)	Low level of income (0.59) Threat of starvation (0.57)	Threat of religious conflict (0.53) Threat of ethnic conflict (0.44)
Total variance explained	30.6%	10.6%	8.4%

Source: UNDP Vulnerable Groups Survey 2004, own calculation

Major factors of business development in Eastern Slovakia

As we do not have the same set of comprehensive databases about Eastern Slovakia as about Northern Hungary, for a more analytical description of business trends we use slightly different methods. First, based on the researches of the Carpathian Development Institute, we present two summary tables (economy and business environment) of a classical SWOT analysis of the region. Second, we present a factor and cluster analysis about the sub-regions of Eastern Slovakia.

SWOT Analysis of the Economy of Eastern Slovakia³

Strength	Weaknesses
<ul style="list-style-type: none"> - qualified labour force - long tradition of industrial production - continuous trend of increasing labour productivity 	<ul style="list-style-type: none"> - high level of import demand - not-diversified export structure - high level of low value added production

³ Based on Integrovaná štúdia podmienok ďalšieho rozvoja regionu Slovensko-Východ, Rozvoj priemyselnej infraštruktúry regionu, Carpathian Development Institute, 2006

<ul style="list-style-type: none"> - available supply of capacities in all branches of economy - wide variety of industrial production - available natural resources of national value - available building capacities for industrial parks, housing and infrastructure 	<ul style="list-style-type: none"> - low level of production with competitive quality - high level of undercapitalization in majority of industrial producers and correlated backwardness of technological base - limited investment possibilities in economic utilization of natural resources - low level of research base and its absence in key sectors of future economic development - low level of economic utilization of available capacities in tourism - not sufficient transport infrastructure
Opportunities	Threats
<ul style="list-style-type: none"> - increase in incoming FDI - development of ICT and research - positive effects of EU enlargement - possibility of industrial production in Ukraine and Russia - direct transport access to Eastern European markets - utilization of incoming funds from EU - utilization of geothermal spa and energy capacities 	<ul style="list-style-type: none"> - not finished highway and infrastructure networks - not sufficient level of finances needed for the development and reconstruction of infrastructure - negative effects of restructuring of industry on labour markets

Business environment of Eastern Slovakia

Index of regional business environment in the regions of Slovakia

Region	Index of regional business environment
Bratislava	147,57
Trnava	90,74
Trenčín	77,80
Nitra	78,85
Žilina	77,28
Banská Bystrica	72,18
Prešov	71,24
Košice	73,76

Source: Integrovaná štúdia podmienok ďalšieho rozvoja regionu Slovensko-Východ, Konkurenciaschopnosť regionu Východ-Slovensko, Carpathian Development Institute, 2006

SWOT Analysis of Business Environment in Eastern Slovakia⁴

⁴ Integrovaná štúdia podmienok ďalšieho rozvoja regionu Slovensko-Východ, Konkurenciaschopnosť regionu Východ-Slovensko, Carpathian Development Institute, 2006

Strengths	Weaknesses
<ul style="list-style-type: none"> - implemented economic reforms in Slovakia - partial extinction of legislative and administrative barriers for starting a new business - low costs related to starting a new business - fiscal decentralization to local governments - better access to loans 	<ul style="list-style-type: none"> - not sufficient knowledge of new entrepreneurs - general problems with corruption, clientalism and law enforcement - unsatisfactory information system on SMEs receiving resources for development - not sufficient quality of control mechanisms on monitoring the effectiveness of funds for the development of SMEs - insufficient transparency of procurements - frequent change of legislation - outflow of highly qualified labour
Opportunities	Threats
<ul style="list-style-type: none"> - establishment of an optimal structure of consulting, advisory, training institutions for the development of entrepreneurship - integration of training programs, innovative and ecological methods into the curricula of high schools and universities - enhancing the quality of the functioning of chambers of commerce and regional associations of enterprises - cooperation with banks on building development programs - creation of one-stop-shops for starting entrepreneurs - development of conditions for starting enterprises in incubator houses and industrial parks - cooperation of Košice and Prešov regional self-governments - utilization of EU funds from the financial perspective for the period between 2007-2013 - supporting cross-border cooperation, strategic partnerships between entrepreneurs 	<ul style="list-style-type: none"> - insufficient own financial resources for approved projects - insufficient level of coordination between regional and local governments in Eastern Slovakia - inadequate preparation for the utilization of EU funds

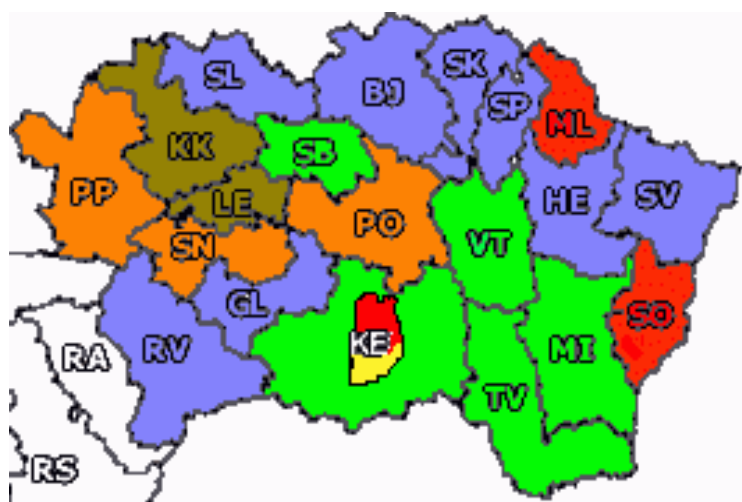
Factor Analysis and Clustering of the sub-regions in Eastern Slovakia

Based on the municipality database of the Statistical Office of the Slovak Republic, we present the main findings of Gazda (2006). According to the principal component analysis, we

can identify three major factors explaining the differences among sub-regions in Eastern Slovakia. The first principal component is the factor of *modern entrepreneurship*; this factor explains the variance among the sub-regions in 27.4%. In fact, this principal component represents rather the lack of modern entrepreneurship as it correlates negatively with the number of SME units, while it correlates positively with the total area of the district and the utilization of agricultural land. However, it is noteworthy that this factor correlates negatively with the development of social infrastructure (per capita number of sport, cultural and health institutions). The second principal component, that explains the variance among sub-regions of Eastern Slovakia in 18.0%, is about the *demographic potential* of the sub-region. The value of this factor correlates positively with the birth rate and the population growth. The third principal component, that explains the variance among sub-regions of Eastern Slovakia in 13.4%, is about the level of the *technical infrastructure* of the sub-region. The value of this factor correlates positively with the development of public water mains and the public sewerage system.

According to these factors, the sub-regions of Eastern Slovakia can be put into five different clusters. *Košice* (except *Košice-okolie*) in itself forms the first cluster with strong negative values of the ‘lack of modern entrepreneurship’ component (yellow cluster in the map). *Prešov*, *Spišská Nová Ves* and *Poprad* (with orange color in the map) form the second cluster: these sub-regions also register a negative value in the ‘lack of entrepreneurship’ component and they traditionally have a good industrial infrastructure.

Clusters of sub-regions in Eastern Slovakia



Source: Gazda (2006)

In fact, all other sub-regions of Eastern Slovakia can be considered as backward ones. Sabinov, Košice-okolie, Trebišov and Michalovce form the “green” cluster – in these sub-regions the high birth rate and the population growth are the specific features (strong positive value in the second principal component). The “blue” cluster is constituted by Bardejov, Snina, Rožňava, Stará Ľubovňa, Gelnica, Humenné, Stropkov and Svidník. These sub-regions are characterized by the lack of SMEs as well as the high value of the agriculture land utilization. In addition, these sub-regions have typically a low birth rates and a decreasing population. It is noteworthy that most of the sub-regions belonging to this cluster create a

continuous area along the borders with Poland. These areas are characterized by bad accessibility and bad conditions for agricultural production (compared to the “green” area). Finally, Kezmarok and Levoca (“brown” cluster) were both established by the districts reorganization in 1996 and they are characterized by a large share of Roma population and high unemployment.

Concluding Remarks

1. The comparison of the national business environment of Slovakia and Hungary underlines that the two countries are similar in most aspects; they are direct neighbours of each other in most of the international business survey rankings. However, there are also certain differences, mostly in favour of Slovakia. Although Hungary started the creation of attractive business environment earlier, in 2006 Slovakia already offered more promising business prospects, thanks to the more stable macroeconomic environment, markedly lower labour costs and more important corporate activity in the ICT sector.

2. Compared to the national average, both Northern Hungary and Eastern Slovakia are in a definitely unfavorable position: high unemployment rate, weak entrepreneurial activity and a sluggish FDI inflow are among the key factors of the backwardness. From a business environment perspective it is noteworthy that even the relatively low wage levels are coupled with serious competitiveness problems as the regional wage level can be considered as ‘too high’ compared to the regional economic performance.

3. The analytical description of the business environment clearly reveals that most of the sub-regions in Eastern Slovakia and Northern Hungary are backward; there are only few exceptions: Tiszaújváros, Eger, Gyöngyös, Hatvan, Miskolc, Kazincbarcika and Rétság in Northern Hungary, Košice, Prešov, Spišská Nová Ves and Poprad in Eastern Slovakia. An additional problem is that the regional and county centers (Košice, Prešov and Miskolc, Eger, Salgótarján) can offer a markedly less favorable business environment than other major cities in the two countries.

4. It seems that the revitalization of industrial potential is unavoidable for the catch-up of the two regions. Recent efforts of improving the transport accessibility (especially in Northern Hungary) will likely increase the FDI inflow in the short run. However, the improvement of the level of education and the inclusion of the Roma by minimizing the ethnic character of the poverty in several sub-regions are key elements of long-term prosperity, also from a business perspective.

5. In this context, UNDP projects can generate an important value-added in the region by supporting mainly educational programs, as well as by encouraging the practically non-existent corporate social responsibility projects, especially in the field of education. Promoting CSR projects may also improve another key deficiency of the two regions: the lack of entrepreneurship. Another focus of UNDP projects can be related to the environmental sustainability that may improve the potential of bio-agricultural production and ecotourism.

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