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INNOVATION ABILITY OF KOŠICE AND PREŠOV SELF-GOVERNING REGIONS

UDK/UDC: 339.926
JEL klasifikacija/JEL classification: O18
Pregledni rad/ Review
Primljeno/Received: 26. rujna 2005./ September 26, 2005
Prihvaćeno za tisak/Accepted for publishing: 22. studenog 2005./ November 22, 2005

Summary

Since the transition to a market economy, the countries of Central and Eastern Europe (CEE countries) have suffered from severe serious economic and employment-related problems. That is valid fully for Slovakia, one of the EU candidate countries, comparing to western EU countries. After becoming member of EU, economy of Slovakia will face very strong competition with traditional market economies. Almost all macroeconomic indicators show still a big gap between economic performance of Slovakia and EU 15 countries. The European Union declares itself as the union of regions – and the gap is even more visible at a regional level, especially when considering Eastern part of Slovakia. Western part of Slovakia reaches much better results in economic performance than Eastern part of Slovakia, consisting of Košice and Prešov self-governing regions (SGR). That clearly indicates that Western part of Slovakia is evidently better prepared for entering EU and also it is much more competitive.

Key words: region, innovation ability, politic, strategy.

INTRODUCTION

There are many typical reasons for regional disparities in economic development, such as employment and unemployment – for Slovakia the essential factors are proximity to western borders, urbanisation, diversification, quality of infrastructure, entrepreneurial tradition, historic-cultural background, the educational level of the population, and also innovation potential of a particular region. In the case of Central Europe, during the

transition period, capital cities and western regions have generally been very successful, while many agricultural regions are lagging. It is expected that those regions with higher innovation ability have a higher capacity to adapt to the new circumstances and to develop successfully in the new conditions of EU.

The primary aim of sustainable local development is to improve the local economic and social infrastructure by developing own resources, and creating a high-quality supporting environment. Local development initiatives and projects include both public and private investment in the physical, technical, communication and financial infrastructure, education and training, innovation, information and marketing, and other elements that improve the capacity for economic activities. This implies assistance for the establishment or strengthening of local support institutions, such as business and technology centres, education and training institutions, etc. Such an endogenous development may be appended by external inputs, such as foreign investments fitting an area's development objectives and based on offering high-quality resources, rather than just providing cheap labour force. Central and Eastern European countries, being rapidly incorporated into the global economy, encounter the need to strengthen their technology policies at both the national and regional levels. Hence, in the long run this is the only way to become and remain competitive based on factors other than low wages.

Eastern Slovakia situation in the field of business innovation is rather dissatisfactory when comparing to Western Slovakia. The structure of spatial distribution of the biggest companies in Slovakia is fairly unequal. The professional journal Trend published TOP 200 – 200 of the biggest non-financial companies in Slovakia. The results confirmed inequality of spatial distribution of the biggest companies in Slovakia. Only 14 companies from TOP 200 are situated in Košice SGR and even 9 of them are situated in Prešov SGR. On the other hand, more than one fourth, 59 companies in TOP 200 are situated directly in Bratislava. The situation is still worse when considering TOP 20. In that selection there are 13 companies from Bratislava, 2 from Košice SGR and none from Prešov SGR. Considering that big companies traditionally are leading in innovation, first handicap of innovation ability in Prešov and Košice SGRs can be seen at the first sight. SME's have also substantial potential for regional innovation ability, but the main holders of innovation are mostly big and successful companies having enough capital for innovation financing. In such a situation, the adequate supply of innovation services located in region is necessary for SME's.

There exist an important distinction between the terms invention and innovation. Invention is the first occurrence of an idea for a new product or process. Innovation is the first commercialisation of the idea. Sometimes invention and innovation are closely linked, to the extent that it is hard to distinguish one from another (biotechnology for instance).

European Commission collects so-called innovation indicators and publishes the actual values on European Innovation Scoreboard (EIS) on Trendchart website starting from 2000. EIS is in that sense the main statistical tool on innovation developed by the European Commission. The EIS compiles a set of commented indicators under four categories:

- Human resources
- Creation of new knowledge
- Transmission and application of knowledge
- Innovation finance, outputs and markets

The Innovation scoreboard is one component of benchmarking covering European enterprise policy and competitiveness as a whole. Existing EIS data for EU regions show a

strong positive correlation between a region's innovative performance and its economic performance. Therefore a meaningful issue is to follow innovation indicators at both national and regional level. Also new EU countries results can be found on trendcharts but only at national level at present.

This article presents selected innovation indicators for Košice and Prešov SGR and compares them with Slovakia national average and with average of EU countries. Not all indicators are available neither at national nor at regional level in Slovakia. Thus there was rather complicated problem to derive the level of regional innovation ability of those regions of Slovakia and also to compare it with EU regions.

1. INNOVATION POLICY IN SLOVAKIA

To improve innovation ability of a country or its region, an efficient innovation policy and also framework of institutions for innovation support must exist. If one defines innovation policy as "a set of policy action to raise the quantity and efficiency of innovation activities, where innovation activities refer to creation, adaptation and adoption of new or improved products, processes or services", then such a policy is still missing in Slovakia (3). Slovak government provided “innovation policy” through State policy in science and research and science and technology policy. The first important document dealing with “innovation policy” in Slovakia was document entitled as Elaboration of the Principles of the European Union´s Industrial Policy for Conditions of the SR (strategy for Slovak industry development for the 21st century). The Ministry of Economy was responsible for implementation of this document that time. Later on the Ministry of Education implemented new model for financing science and technology in the Slovak Republic. Its aim was to increase transparency in the provision of State budget funds and efficiency of their application. Slovak government approved Technology policy in industrial branches in 1999 and Ministry of Economy was responsible for its implementation. The science and technology policy designed by Ministry of Economy in 1998 and updated in 2000 was the latest document regarding this issue.

There is an institutional framework of different organisations and institutions, which are responsible for innovation in the Slovak Republic. The Ministry of Education and Ministry of Economy are the main institutions in charge of it. Apart from those main players, there are many other institutions responsible for particular goals in “innovation policy”. The most important are as follows: Slovak Academy of Sciences (SAS), The SR Government's Council for Science and Technology, Conference of Rectors, Association of Industrial Research Institutes, Agency for the Support of Science and Technology, Centre for Advancement, Science and Technology (SARC), network of 12 regional advisory and information centres (RAICs), 4 business innovation centres (BICs) and also 2 Euro Info Centres (EICs), Slovak Guarantee Bank, National Agency for Development of Small and Medium Enterprises (NADSME).

2. INNOVATION INDICATORS IN SLOVAKIA AND IN KOŠICE AND PREŠOV SGR

2.1. Macro-Economic Background

The economic stability is crucial condition for innovation development of any country or its region. Without this condition the problems of innovation ability can hardly be solved. Simultaneously, building of sustainable economical growth in terms of knowledge-based economy cannot be abstracted away from innovation.

Slovak Republic and especially two of its Eastern regions - Košice and Prešov Self governing regions suffer from low GDP production in terms of Purchased Power Standards (PPS) in EUR per capita. Slovakia reached about 45% (10.433 in PPS) of GDP than EU average (23.354 in PPS) in the year 2001. The situation was worse in both Košice and Prešov SGR. Košice SGR reached GDP per capita 9.646 and Prešov SGR only 6.287 in the same year. The results are still worse when comparing regional difference between the richest and the poorest regions in Slovakia. As can be seen from the following two tables, which represent regional GDP in EU15 and in the acceding countries in year 2001, Slovakia' s richest region Bratislava placed on the second place in producing of GDP in terms of PPS per capita while East Slovakia (consisting of Kosice and Presov SGR) belongs to ten regions with the lowest GDP production in EU25.

Regional GDP per capita in the EU in 2001[1]
(in PPS, EU15 = 100)

The ten highest			**The ten lowest**		
1	Inner London (UK)	263	1	Dytiki Ellada (EL)	53
2	Bruxelles-Capitale (BE)	217	2	Anatoliki Makedonia, Thraki (EL)	53
3	Luxembourg	194	3	Extremadura (ES)	53
4	Hamburg (DE)	171	4	Ipeiros (EL)	54
5	Île de France (FR)	165	5	Açores (PT)	56
6	Wien (AT)	152	6	Norte (PT)	57
7	Berkshire, Buckinghamshire & Oxfordshire (UK)	149	7	Centro (PT)	58
8	Oberbayern (DE)	148	8	Cornwall & Isles of Scilly (UK)	60
9	Stockholm (SE)	145	9	Ionia Nisia (EL)	60
10	Provincia Autonoma Bolzano (IT)	143	10	Dessau (DE)	60

[1] Eurostat

Regional GDP per capita in the Acceding Countries in 2001
(in PPS, EU15 = 100)

The ten highest			**The ten lowest**		
1	Praha (CZ)	135	1	Lubelskie (PL)	29
2	Bratislavský (SK)	102	2	Podkarpackie (PL)	29
3	Közép-Magyarország (HU)	81	3	Warminsko-Mazurskie (PL)	30
4	Cyprus	78	4	Podlaskie (PL)	31
5	Malta	69	5	Swietokrzyskie (PL)	31
6	Slovenia	68	6	Opolskie (PL)	33
7	Mazowieckie (PL)	64	7	Latvia	33
8	Jihozápad (CZ)	55	8	Eszag-Magyarorszag (HU)	34
9	Nyugat-Dunántúl (HU)	54	9	Vychodne Slovensko (SK)	34
10	Jihovýchod (CZ)	53	10	Eszag-Alföld (HU)	34

The inflation rate in the Slovak Republic is decreasing in CPI and also in terms of harmonised indices of consumer prices (HICP), which is used for inflation measuring in EU countries. This is very important especially for the innovation in manufacturing as in high inflation environment the financial investments seem to be more attractive than investing to cost reducing or new product development (3). The stable consumer prices also create suitable environment for long-term Foreign Direct Investments (FDI's) that mostly bring new technologies and production with higher value added. Growth in inflation in 2003 was caused by changes in the tax policy.

Tab. 1 CPI and HICP development in Slovakia and EU 15 From 1996 till 2002

Country	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
EU15 HICP's	2,4	1,7	1,3	1,2	1,9	2,2	2,1	2,0
Slovakia HICP's	5,8	6	6,7	10,4	12,2	7	3,3	8,5
Slovakia CPI	5,8	6,1	6,7	10,6	12,0	7,3	3,3	8,5

Source: Ministry of Finance of the Slovak Republic, Eurostat

Slovakia has still high unemployment rate. The structure of unemployment can offer an idea how much the innovation policy could reduce the unemployment. When considering new technology dissemination as one of the main innovation policy objectives, then above-mentioned dissemination can reduce (in short term) unemployment only in the range of unemployed people with new technology skills. Therefore it is very important to enlarge the group of people with such skills as much as possible.

The reduction of unemployment rate should be considered as an indirect objective of innovation policy.

Table 2.
Registered unemployment rate in Slovakia and its regions[2] (The number of unemployed persons as a share of the total active population)

	2004					
Region	**January**	**February**	**March**	**April**	**May**	**June**
Slovakia	16,60	16,51	16,01	15,25	14,47	13,91
Bratislava	4,20	4,18	4,02	3,90	3,68	3,65
Trnava	12,16	12,06	11,50	10,82	10,44	9,94
Trenčín	10,51	10,36	10,07	9,52	8,94	8,58
Nitra	20,05	19,82	18,86	17,95	16,96	16,28
Žilina	14,55	14,51	14,06	13,16	12,17	11,67
Banská Bystrica	23,46	23,33	22,77	21,85	20,85	19,86
Prešov	21,67	21,66	21,05	20,00	18,93	18,21
Košice	23,38	23,29	22,90	22,04	21,15	20,53

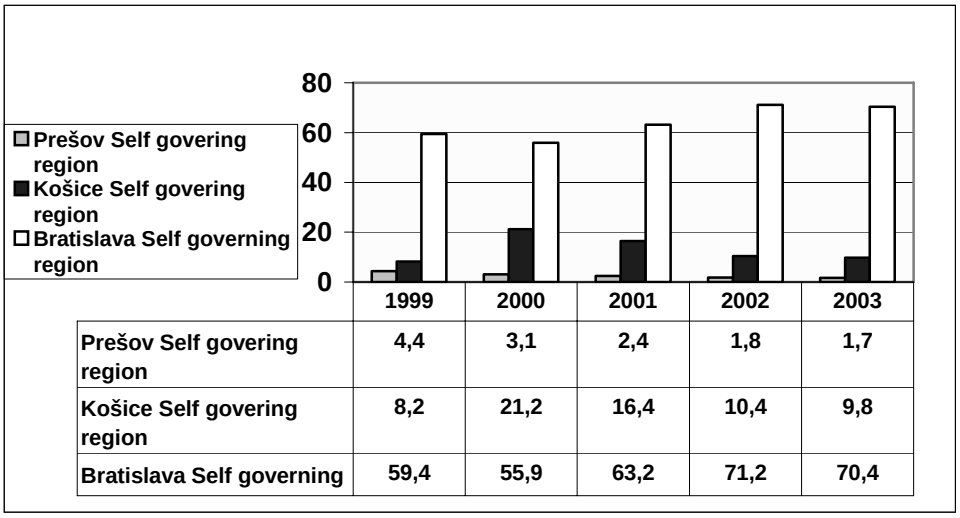
Source: Slovakia National Labour Office

2.2. FDI' s and Labour Productivity

FDI's have great importance for innovation acceleration for country as Slovakia and particularly for its regions. Situation in distribution of FDI's among Slovakia's regions is also very unequal. Most of the investments are located to Bratislava SGR. Such a situation is natural because of excentric and western location and special position of Bratislava city as the capital of the Slovak Republic. But on the other hand, the inequality between Bratislava and other regions is alarming. The labour cost in the eastern part of the country is lower then in the western part. So why investors, which are looking for cheap labour force, still prefer Bratislava? The answer is partially hidden in labour productivity. As can be seen in the Graph 1, labour productivity is lower in eastern regions than in the western regions. (FDI location factor analysis behind of scope of this article).

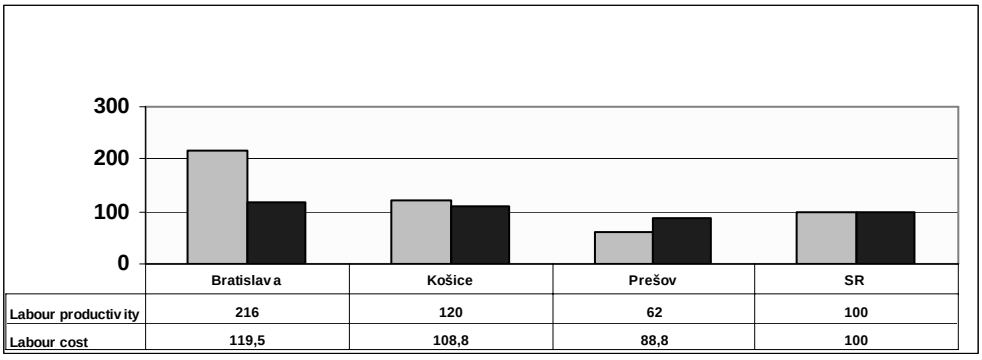
[2] Registered unemployment rate is calculated as the ratio of disposable number of the registered unemployed to the number of economically active persons

Graph 1 (4) FDI to Slovakia regions in (%) as a share of total FDI in Slovakia



	1999	2000	2001	2002	2003
Prešov Self govering region	4,4	3,1	2,4	1,8	1,7
Košice Self govering region	8,2	21,2	16,4	10,4	9,8
Bratislava Self governing	59,4	55,9	63,2	71,2	70,4

Graph 2 (5) Labour productivity and labour cost in industry in SR



	Bratislava	Košice	Prešov	SR
Labour productivity	216	120	62	100
Labour cost	119,5	108,8	88,8	100

According to FDI survey (6), FDI influence on labour productivity in a positive way. As can be seen in the Table 3, enterprises with foreign capital reach better results than the average of Slovakia in labour productivity. In some areas the results are even closer to EU labour productivity average. It means that FDI helps restructuring the Slovak economy and also helps to increase innovation ability.

Table 3.

Labour productivity

		Labour productivity	
	Area	**in thousands. Sk/empl.**	
		SR total	**of which enterprises with FDI**
1	2	3	4
15+16	Foodstuff and drinks production, Tobacco processing	1 964,5	4 727,0
17	Textiles production	531,6	380,9
18	Clothing production, fur processing	322,7	824,4
19	Leather adjustment	556,5	625,6
20	Wood and cork production, except furniture	948,4	1364,2
21	Wood pulp, paper and articles from paper production	3 344,7	3 009,5
22	Publishing, printing,	1 221,6	2 095,6
23	Production of coke, refined and oil products, and nuclear product	14 121,1	-
24	Production of chemical and chemical products	2 540,9	6 435,0
25	Production of gum and plastic products	2 016,8	6 159,8
26	Production of others non-metallic products	1 428,0	3 546,0
27	Metal production	2 745,9	3 111,1
28	Production of metallic constructions except machines	1 081,6	2 209,9
29	Machines and equipment production	998,1	996,3
30	Office machines and PCs production	943,1	-
31	Production of electric machines and devices	1 102,1	9 550,1
32	Production of radio, television and connecting devices	1 611,4	10 268,5
33	Production of medical and optical devices	1 172,8	2 167,2
34	Motor vehicle and trailers production	6 383,2	11 275,5
35	Production of other production devices	1 206,0	-
36	Furniture production	1 223,4	4 275,8
37	Production of secondary raw material	2 032,3	-
	Total	**1 783,7**	**5 099,4**

But why FDI's are so important for innovation in country like Slovakia and especially for regions like Košice and Prešov? The answer is trivial - financing. Innovation requires investments into new technologies and products. There are not enough enterprises in Slovakia, able to finance innovation from their own sources. They are forced to gain capital in some other way. Although the bank system in Slovakia has been improved in last years,

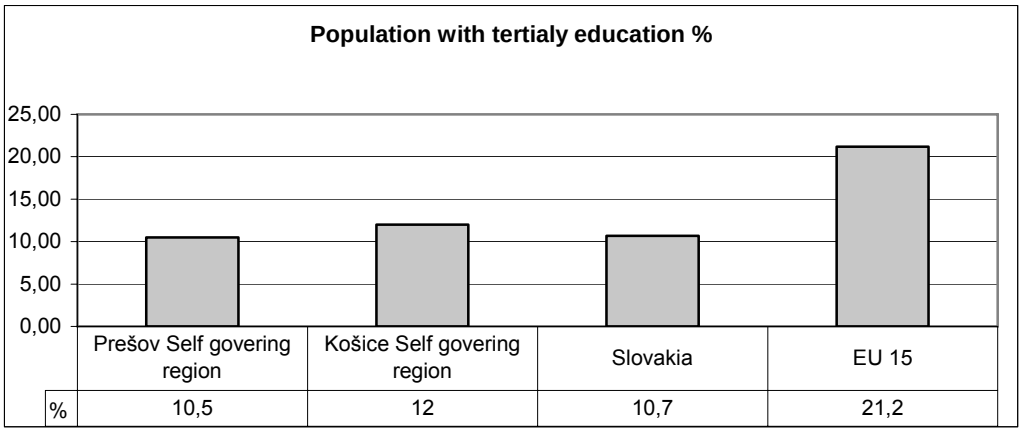
cost of capital is still high and not enough efficient. The most common way how to find financial sources for innovation in EU countries is through the stock markets. Slovakia's stock market is still underdeveloped. So, although last surveys in technology transfers hint the crowd-out effect of FDI for domestic enterprises and offers the foreign trade as better technology and knowledge transfer, Slovakia's less developed financial system must search for FDI as the best way to accelerate innovation in all regions of the country.

There is one more important issue regarding FDI - the direct link between investments and innovation. Not each investment is able to accelerate innovation. That is why innovation policy makers should try to create the best environment to attract "innovation accelerating" investments.

2.3. Human Resources

The next important indicator of innovation ability is human resources. The share of 25-64 aged populations with third-level education is 10,7 % in Slovakia which is relatively high percentage considering the income in Slovakia. This indicator determines absorption capacities of economies or the capacity to exchange and diffuse new technologies (3). Graph 3 compares the share of 25-64 aged populations with third-level Education of Slovakia, and EU.

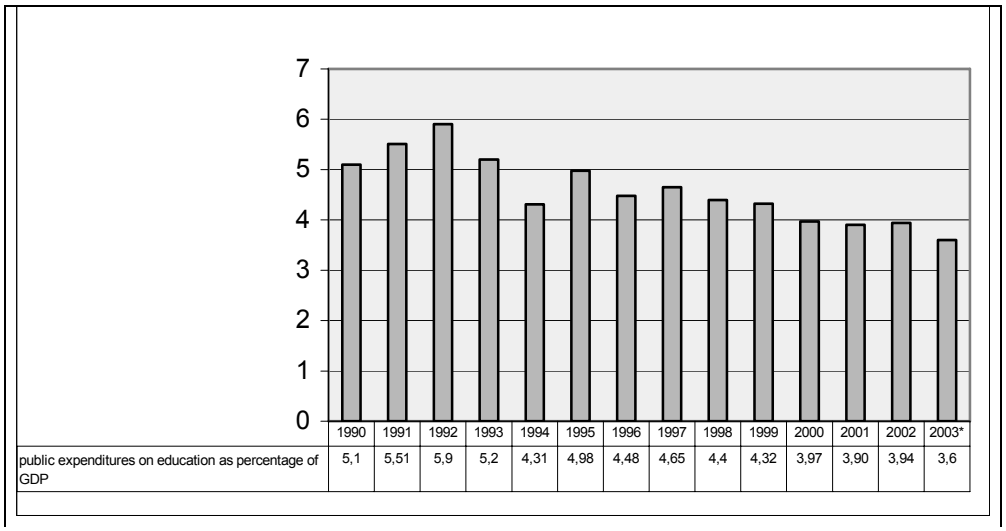
Graph 3 Population with tertiary education %



Slovak population with a third-level education is about 50% of EU level. Prešov Self governing region is nearly at the level of Slovakia average but Košice is in this indicator above the average of Slovakia. There are 3 universities with a wide scale of faculties with cca 14.500 students of which more than 2000 graduate every year in Košice. At the same time, there is one university with five faculties, and with almost 5.000 students of which more than 800 graduate every year in Prešov (8). Investigated regions are able to offer highly educated labour force in all kinds of required branches, which could be included into process of innovation improving. Although, there exist no analysis whether existing the offer of universities corresponds to regional contemporary and future innovation needs, in both quantity and quality.

In a knowledge-based economy, the availability of well-qualified human resources is a key factor for economic growth through innovation. Level of investment into education is a key indicator of government commitment but the resulting levels of quality and the skills of the active population as well as life-long learning provision are equally important. Graph 4 shows that education expenditure is gradually decreasing. This is not a positive development, considering that average expenditures on education in EU is 6% of GDP.

Graph 4 Public Expenditures on Education as Percentage of GDP



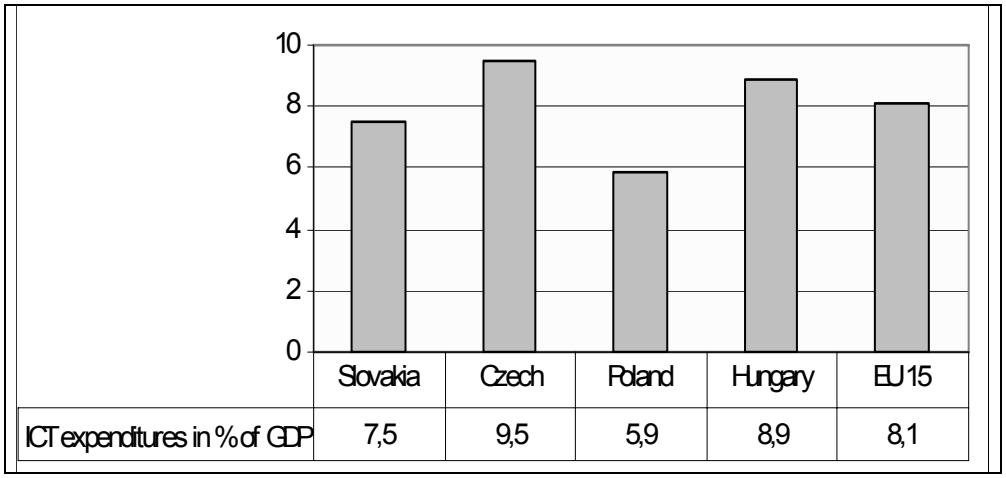
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003*
public expenditures on education as percentage of GDP	5,1	5,51	5,9	5,2	4,31	4,98	4,48	4,65	4,4	4,32	3,97	3,90	3,94	3,6

* estimate

2.4. ICT as a driver of innovation.

When talking about labour force, which is at the disposal for new technology transfer, the number of inhabitants having access to the Internet, households equipped with computers and government expenditure on ICT are important as well. Those indicators have also substantial influence on innovation ability. Regarding to ICT expenditures, the Slovak republic is near to EU average. In this indicator Slovak innovation policy is on the right way to success. The worse situation is in technology and IT skills dissemination. Only 16.8% of Slovak population had an access to Internet in 2001, while in EU for the same year, 36,1% population had access to Internet. [7]

Graph 5 ICT expenditures in % of GDP in 2003

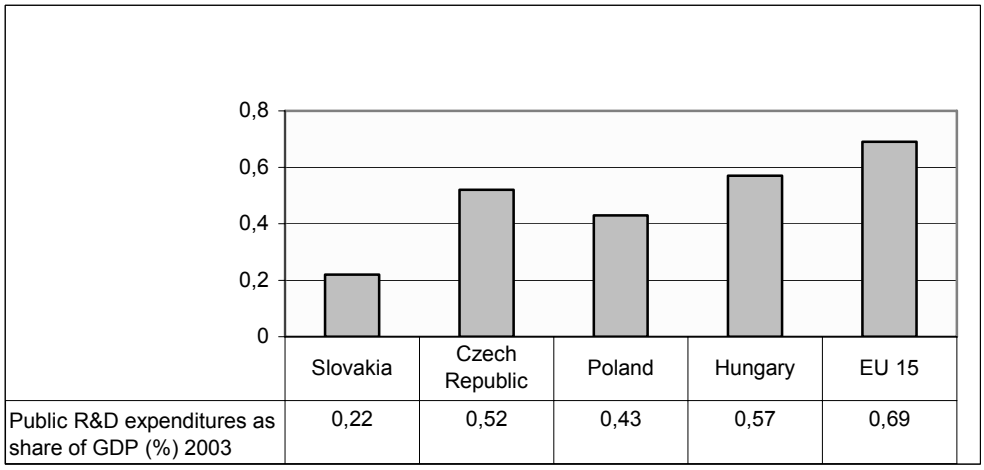


Source: European innovation scoreboard (Eurostat)

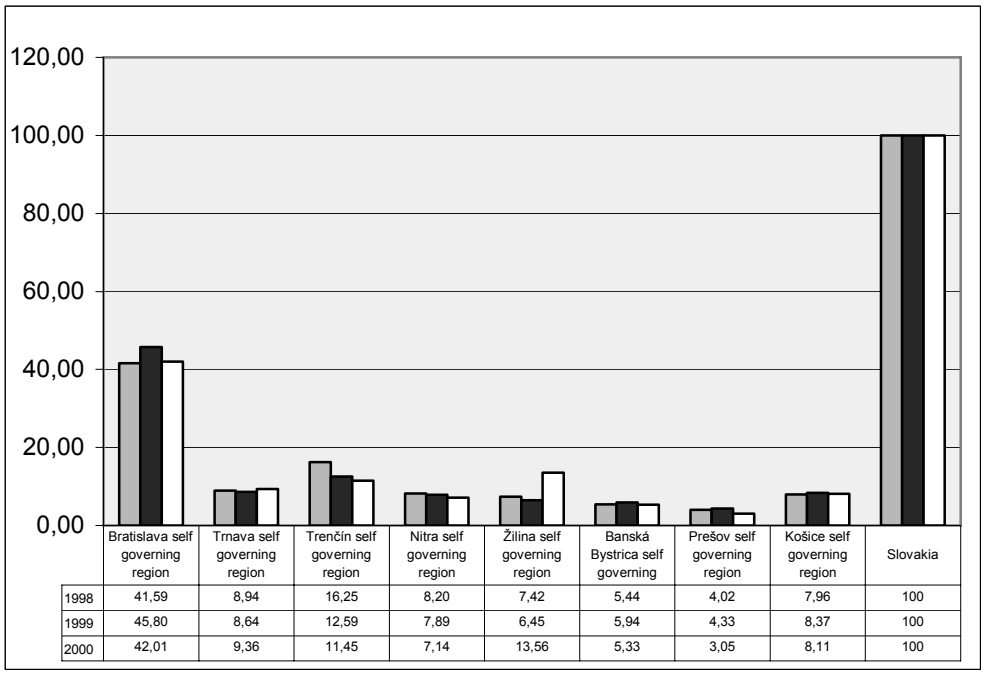
2.5. Research and Development (R&D)

Public expenditures on research and development are the last considered factor of innovation ability of a country and its regions. As can be seen from the Graph 6, Public R&D expenditures are on a very low level, and reach less than 32% of R&D's expenditures of EU 15. When considering, that R&D are unconceivable for innovation potential of the regions, then inequality of distribution of R&D expenditures to the regions of Slovakia shows where is the deep disadvantage of Eastern Slovakia in the light of innovation ability.

Graph 6 Public R&D expenditures as share of GDP 2003



Graph 7 Expenditures on Research and Development by Regions: SR=100



	Bratislava self governing region	Trnava self governing region	Trenčín self governing region	Nitra self governing region	Žilina self governing region	Banská Bystrica self governing	Prešov self governing region	Košice self governing region	Slovakia
1998	41,59	8,94	16,25	8,20	7,42	5,44	4,02	7,96	100
1999	45,80	8,64	12,59	7,89	6,45	5,94	4,33	8,37	100
2000	42,01	9,36	11,45	7,14	13,56	5,33	3,05	8,11	100

3. CONCLUSION

As can be seen from above, Košice and Prešov SGR are far from being enough innovative. Their innovation potential is still low. The situation is particularly more optimistic at the national level, but still low when comparing to EU 15 countries. To improve the situation, effective innovation policy with a framework of corresponding institutions must be first established, based on regional innovation strategy. The other problem is, that there are not enough data to follow innovation indicators at national level, not talking about regional level. Data, which are available, especially at regional level, are not reliable and up to date. That is why the innovation policy should ensure also easy access to all actual data, which are needed to innovation indicators determination, also at regional level.

Innovation policy at national level is very important for improving innovation ability of the country, and it can be considered as basic document to do so. But there are some specific differences among regions, also within the so small country as Slovakia is. The existence and realisation of regional innovation strategy (RIS), which reflects the individuality of a particular region is an inevitable basis for future development.

REFERENCES

[1] Trend Top, November 2003, page 47,48.
[2] Borrás S.: The Innovation Policy Of The European Union - From Government to Governance, pp 272. Edward Elgar Publishing, 2003.
[3] Innovation policy profile: Slovakia – Final report March 2003
[4] Innovation policy in 7 candidates countries: The challenges - Bulgaria, Latvia, Lithuania, Malta, Romania, Slovakia and Turkey. Luxembourg: Directorate-General for Enterprise, Office for Official Publication of the European Communities.
[5] World Bank Survey: Slovak Republic, page 138-139, stats 1999
[6] Country overview of inward FDI as a mechanism of productivity growth, part 1. page 13-15
[7] Mališová Z: E-learning a E-inklúzia, 12 pp, E-learn 2003 seminar, Žilina
[8] Morgan, K: The Learning Region: Institutions, Innovation and Regional Renewal. Regional Studies, Vol. 31.5, pp. 491- 503, 1997.
[9] Tuszyński K.: Innovation Benchmarking in National Development Plans of the Visegrad Countries. Conference Regional Policy of Innovation, Rzeszow, 2003.

Abbreviations:

EU – Europe Union
SGR- Self-Governing Region
SME' s – Small and Medium Enterprises
EIS – European Innovation Scoreboard
RIS – Regional Innovation Strategy
PPS – Purchased Power Standards
CPI – Consumer Price Index
FDI – Foreign Direct Investments
ICT – Information and Communication technologies
HICP - Harmonised Indices of Consumer Prices

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SPOSOBNOST PROMJENA SAMOUPRAVNIH REGIJA KOŠICA I PREŠOVA

Sažetak

Nakon što Slovačka postane članica EU, njeno će se gospodarstvo suočiti sa veoma jakom konkurencijom tradicionalnih tržišnih ekonomija. Gotovo svi makroekonomski pokazatelji još uvijek ukazuju na veliki jaz između gospodarstava Slovačke i 15 zemalja članica EU. Europska Unija se izjašnjava kao zajednica regija – pa je stoga jaz vidljiviji na nivou regija, pogotovo kad se uzme u obzir istočni dio Slovačke. Zapadni dio Slovačke postiže mnogo bolje rezultate u gospodarskim aktivnostima nego istočni dio Slovačke, koji se sastoji od dvije samoupravne regije, Košice i Prešov. Ovo jasno pokazuje da je zapadni dio Slovačke očito više spreman na ulazak u EU, a isto je tako i konkurentniji. Ovaj rad pokazuje neke odabrane pokazatelje za promjenu samoupravnih regija Košice i Prešova i uspoređuje ih sa nacionalnim prosjekom Slovačke i prosjekom zemalja EU.

Ključne riječi: regija, sposobnost promjena, politika, strategija.

JEL classification: O18