



Students Scientific Conference

Analysis of regional competitiveness of the Visegrad countries

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Table of contents

1. Introduction	2
2. “The triumph of the competitiveness”	2
3. About the Visegrad countries	3
4. The used databases	3
5. Methodological background of the analyzes	4
6. 1. Economy	4
6. 2. Research and development	7
6. 3. Labour Market	9
7. Other viewpoints	10
Literature	13
Annexes	14

1. Introduction

In my study I tried to analyze the regional competitiveness of the Visegrad countries through four indexes. To analyze and understand the differences we need a complex approach. I compared every region with each other and did a combined conclusion to show which areas should be developed. Starting from the results of the professional literature at first I look through the conceptual background and specific aspects of the regional competitiveness.

In addition, after regional analysis I made a short review of competitiveness of countries too. I have tried to analyze the factors which needed to do a business, next to the indicators and competitiveness factors.

2. “The triumph of the competitiveness”

Nowadays the “competitiveness” is the most used notion in the international comparative analyses.

According to the EU periodic report, the notion of the competitiveness has already clarified. (Competitiveness and cohesion: trend sin the regions (European Commission 1994). The main goal of the regional politics of the European Union is to improve the competitiveness.

The economic operators are in competition with each other and not only within the same industrial sectors. The participants’ market positions are not independent from each other within the different areas. The regions compete through the competitiveness of economic actors, living standards of the inhabitants and their satisfaction. The competitiveness of the region is consistent with growth of the regional economic which are examined in other viewpoints. Almost all of the appropriation has been elaborated the equivalent of regional economics as well.

The European Spatial Development Perspective (ESDP) requires three objectives which adopted in 1999: economic and social cohesion, preservation of natural resources and cultural heritage, competitiveness balanced of the European area as (European Commission 1999). Beyond the analyses of the practical purposes, the questions of the theoretical competitiveness were came in to view with the intensification of regional competition at the national level.

I discuss the national competitiveness at the end of my analyses also despite of the regional competitiveness is my main topic of my study so I want to say some words about it.

The competitiveness came to the front with the spread over of the globalization. According to the European Commission periodic report four factors control the global competition: technologic, international corporations, international financial markets and new international

institutions (European Commission 1999). The changing of the view is also indicated by the fact, that the countries level of development is given with different competitiveness rankings, for example the Global Competitiveness Report (World Economic Forum) and The World Competitiveness Yearbook (IMD).

There was published several study about the competitiveness. These studies mostly covered only a short term period and used different indicators so they created several scientific discussions. In addition, there isn't, in a wide range accepted framework to measure and interpret the regional competitiveness (Málovics-Ván 2008). We need further examination to reach consensus.

Although some core indicators (GDP/inhabitant, labor productivity, employment rate) are estimated perfectly but in most cases when using these indicators people do not take into consideration the direct and indirect factors of the competitiveness, the background conditions and the business environment also.

3. About the Visegrad countries

The modern market economies, our national innovation systems most important institutional participants - trying to keep their competitiveness - are making smaller-bigger regionally concentrated communitys, so called "clusters" thereby comply with our modern ages challenges.

The so called "Visegrad countries", what is a geographically coherent group of countries, were called to life in 1991 by the three President of the Republic's common declaration (Czechoslovakia, Poland, Hungary).

The biggest achievement of their common work is the CEFTA (Central European Free Trade Agreement) created in 1992, after the broke up of Czechslovakia in 1993, we call them V-4 countries. After joining to the European Union the V-4 country group makes spectacular political declarations, despite this fact it is a common opinion, that the visegrad cooperation is meaningless nowadays. The main goals of this cooperation is to coordinate the joint actions and common representation of the economical, political and diplomatic interests.

4. The used databases

About the measurement of competitiveness the question arises, what kind of database can we use to reach the defined goals? The datasets of this presentation were taken from the Eurostat internet database, furthermore from the Global Competitiveness Report by the World Economic Forum.

5. Methodological background of the analyzes

Competitiveness is affected by wide range of factors; there are lots of grouping nowadays. The question is however that which factors need to be developed to increase competitiveness. There is a theory that the high employment and high income - due to the high labour productivity - generate welfare.

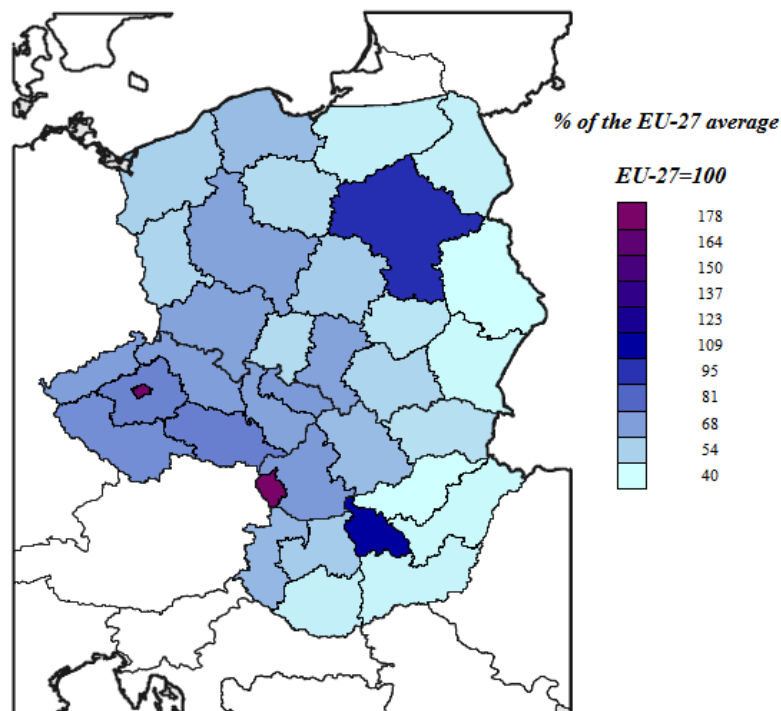
The regions subjected to examination (35) were analyzed through seven indicators of three topics.

6. Analyses

6. 1. Economy

The bigger part of investments, that is coming from abroad, is foreign direct investment. These investments together with trade established an effective mechanism to integrate the international markets. The formation of international experiences and relations, the reinforcement of investor confidence is important, thereby can be expected a significant increase in the regions GDP.

Figure 1: *Gross domestic product (GDP) per inhabitant, % of the EU-27 average, by NUTS 2 regions, 2009*

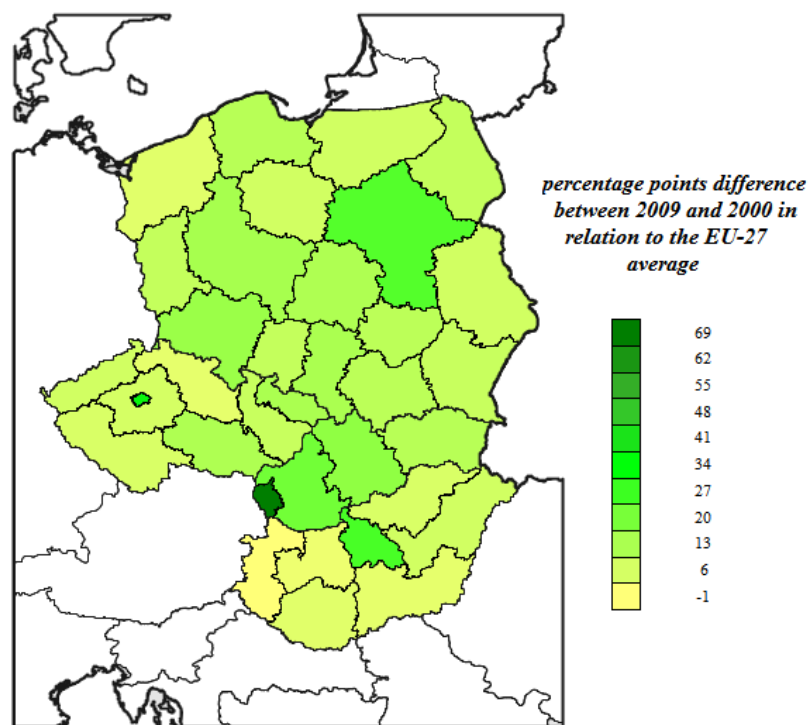


Source: Eurostat data base, own construction

In an underdeveloped region the investments coming from the more advanced regions can be the same stimulating as it were coming from abroad.

In the investigated regions, in 2009, the gross domestic product per capita based on purchase power parity is the lowest in the eastern regions, while in the city regions – Budapest, Warsaw, Praha, Bratislava – is the highest, thus reaching the highest 5 mark in these regions. This value is the 80 % in Czech Republic, 74% in Slovak Republic, 64 % in Hungary and 62% in Poland - that can not be considered the best Union average. (Data of all regions are in the annexes table 3.)

Figure 2: *Change of gross domestic product (GDP) per inhabitant, % points difference between 2009 and 2000 in relation to the EU-27 average, by NUTS 2 regions*

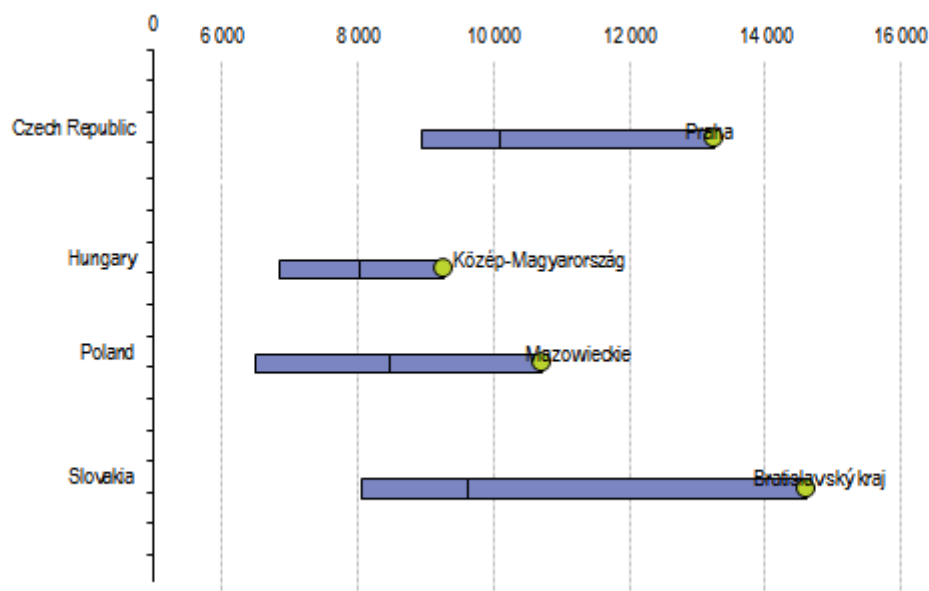


Source: Eurostat data base, own construction

If we analyse the change of gross domestic product in relation to the EU-27 average between 2000 and 2009, we can say that the highest percentage were in the Bratislava and Warsaw regions while this value was higher in Hungary (only the Nyugat-Dunántúl region deprived). The highest GDP was in Czech Republic in 2009 but this value is improved almost nothing during nine years. The progress is stagnated (except for Praha) against Poland.

This fact could be advantageous for Czech Republic, because it could mean that they had a stabil system before the EU accession (2004) against Poland where the accession were stimulating. However this finding can be relatively interpreted. (Data of all regions are in the annexes table 4.)

Figure 3: *Disposable income of private households, PPCS per inhabitant, by NUTS 2 regions, 2008*



Source: Eurostat data base

According to this diagram if we examine the maximum and minimum value of the disposable income of private households in each country in 2008 and if we bearing in mind the national average in each session, we can find out the range of highest and lowest region for each country. The black vertical line is average, the green circular market in the capital city region, the name of the region with the highest value is also included.

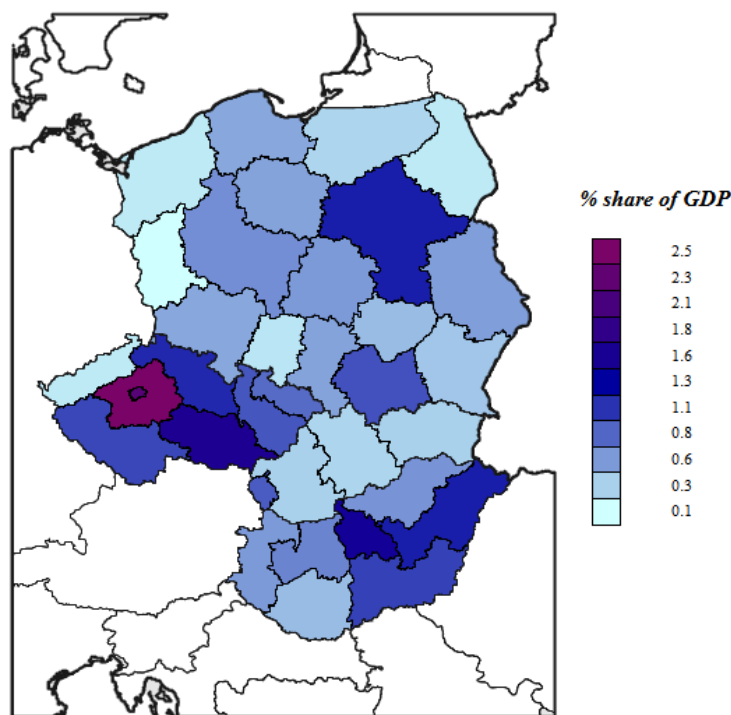
The highest average was at Czech Republic while the value in the other three country is lower (Annexes table 5). For example the max value is much more higher in Bratislava but it doesn't mean the highest average. Reason for this is that only a small percentage of the households reach the maximum income against full country's average. There is significant difference between the levels of society.

6. 2. Research and development

The R&D determine the competitiveness of corporations decisively, this could give a competitive advantage in to introduce the innovations, new technologies and new goods. The innovation may come from abroad but these can be own development of the operative companies in the region.

The regional R&D helps to increase the competitiveness of the region permanently. The main goal is to create in innovative culture which supports the simultaneous development of the research, development, education and training.

Figure 4: *R & D intensity expenditure as a % share of GDP, by NUTS 2 regions, 2009*



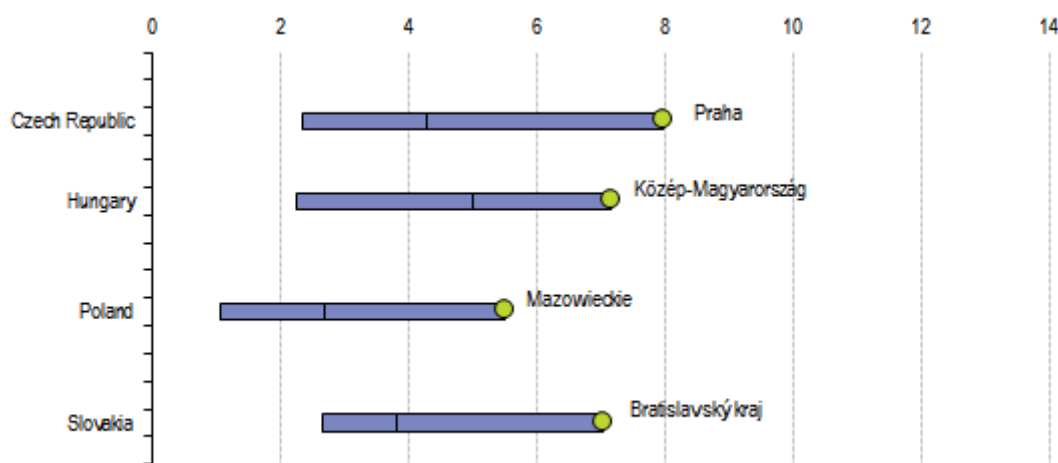
Source: Eurostat data base, own construction

First time, I examine the Research and development intensity by NUTS 2 region in 2009 (R & D expenditure as a % share of GDP), the biggest growth was in Praha, after that the Hungarian regions.

If we look at the diagram, you can see that the high GDP doesn't mean high R&D. The R&D expenditure and the share of GDP doesn't similar in each regions so we should examine each country individually.

For example, in eastern Hungary the GDP slow despite this fact the R&D is high while this value is standing remain in eastern Poland. The GDP in Slovakia is relatively high but the R&D is almost nothing except Bratislava. However, In Czech Republic both indicators are steadily high. (Data of all regions are in the annexes table 6.)

Figure 5: *Employment in high-tech sectors as a share of total employment, 2010*



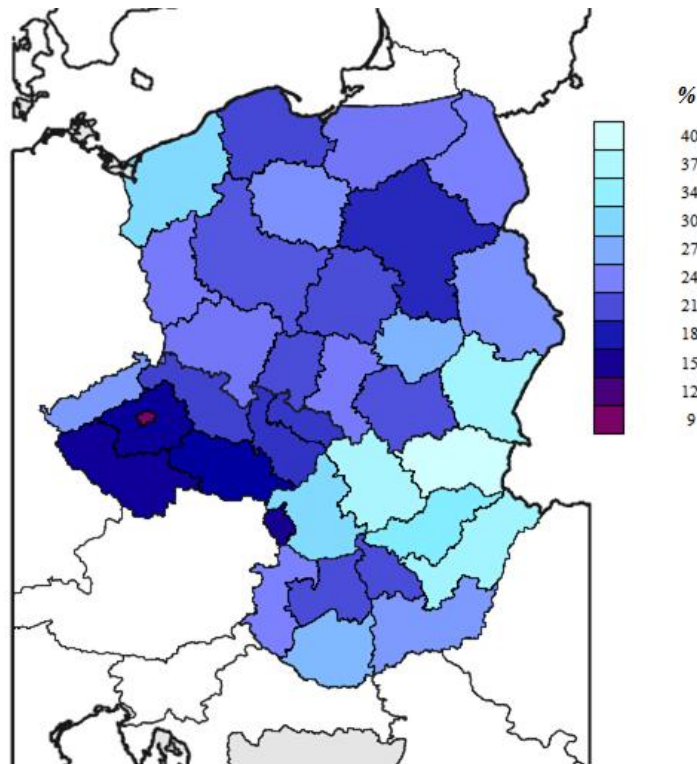
Source: Eurostat data base

The graph shows the range of the highest to lowest region for each country, the black vertical line is the average, the green circular market is the capital city, and the name of the region with the highest value is also included.

The biggest average of employment in high-tech sectors - as a share of total employment - was in Hungary in 2010 (Annexes table 7). Reason for that is that the education is standing on a high level. The maximum and minimum values are close to the Hungarian numbers - in the case of Praha the maximum is higher – but the average is stays in lower in every country.

6. 3. Labour Market

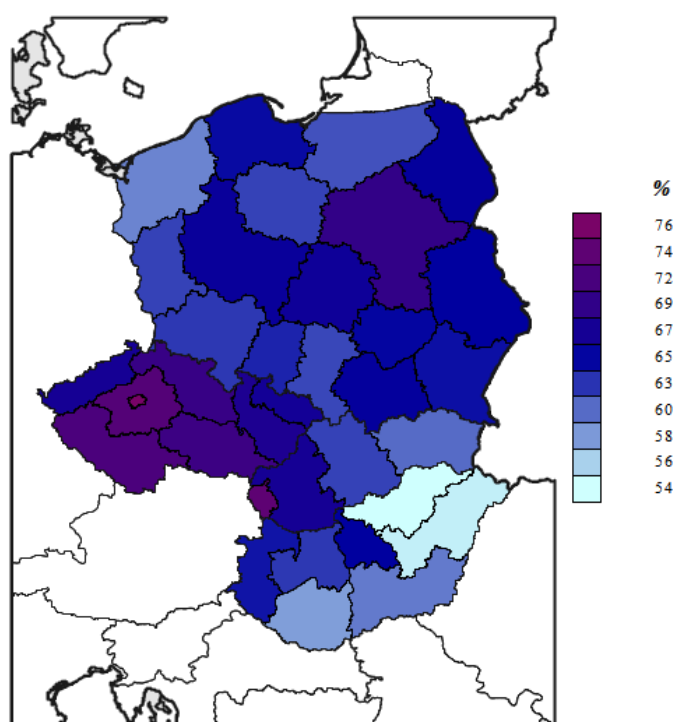
Figure 6: *Youth unemployment rate, % of persons aged 15-24 years, by NUTS 2 regions, 2010*



Source: Eurostat data base, own construction

I examined two indicators, youth unemployment rate, persons aged 15-24 years, and employment rate; persons aged 20-64 years, in 2010. The youth unemployment was high in Slovakia and eastern Hungary while the employment rate is high in Slovakia but low in case of eastern Hungary. We cannot see significant differences in other countries regions comparing the two indicators. It is worth to mention that in Czech Republic the employment is high in every age group. (Data of all regions are in the annexes table 8 and table 9.)

Figure 7: *Employment rate, % of persons aged 20-64 years, by NUTS 2 regions, 2010*



Source: Eurostat data base, own construction

7. Other viewpoints

Table 1: *Competitiveness of Visegrad countries according to 12 pillar of the WEF ranking*

	Poland		Slovak Republic		Czech Republic		Hungary	
	2010	2012	2010	2012	2010	2012	2010	2012
Institutions	4,2	4,1	3,6	3,4	3,9	3,7	3,8	3,3
Infrastructure	3,8	3,9	4,2	4,2	4,8	4,8	4,4	3,1
Macroeconomic environment	4,7	4,6	5,2	4,9	4,9	5,2	4,6	4,5
Health and primary education	6,1	6	6,1	6	6,1	5,9	5,9	5,3
Higher education and training	5	4,9	4,5	4,5	5,1	4,9	4,8	3,4
Goods market efficiency	4,4	4,4	4,3	4,4	4,6	4,5	4,2	4,1
Labor market efficiency	4,6	4,5	4,7	4,2	4,7	4,3	4,5	3,5
Financial market development	4,7	4,6	4,6	4,4	4,5	4,3	4,2	4,4
Technological readiness	4	4,7	4,5	4,5	4,5	5,1	4,4	3,3
Market size	5,1	5,1	4	4	4,5	4,5	4,3	3,2
Business sophistication	4,2	4,1	4,1	4	4,5	4,5	3,9	3,8
Innovation	3,3	3,3	3	3	3,9	3,8	3,6	2,8

Note: the values show the score from 1 to 7

Source: WEF

According to the twelve pillar of competitiveness in the Visegrad countries in 2010 and 2012 the highest value was in Poland, Slovak Republic and Czech Republic (except for the financial market development in Czech Republic) in 2012. I marked this score with yellow. These scores have been published in the Global Competitiveness Report (2012-2013) by WEF and they rank them between one (the worst) and seven score.

These factors deteriorated in average in every country for two years. The biggest deterioration was in Hungary, I marked this score with blue. In my opinion, this value can change to an improving tendency and it's just a "momentary status" that we can solve with EU help. The results of the analysis of the WEF ranking are also a confirmation of the three examined indicators.

Table 2: *The most problematic factors in Visegrad-countries for doing business*

	CZ	PL	HU	SK
Tax regulations	9,2	20,4	11,7	5,5
Inefficient government bureaucracy	15,1	13,4	10,5	21
Respective labor regulations	7,6	13,6	2,8	6,4
Tax rates	8,4	11,5	12,2	5,6
Inadequate supply of infrastructure	2,4	8,2	2,3	8,7
Access to financing	8,1	10,3	13,7	3,5
Inadequately educated workforce	4	3,2	3,4	5,2
Poor work ethic in national labor force	5,5	2,8	4,8	2,5
Inflation	0,8	2,7	4,3	1,6
Corruption	19,1	2,6	9,8	19,1
Poor public health	0,6	1,3	2,4	0,4
Foreign currency regulations	0,6	0,4	1,9	0,5
Government instability/coups	2,4	1,1	1,2	0,9
Crime and theft	6,2	0,5	1	1,1

Note: the values show the percentage of responses

Source: WEF report, own created

If we want to know where we can do business easily and where could be successful we can examine this factors in the Visegrad countries. It is important to investigate from different views, indicators, and factors.

From the list of 15 factors respondents were asked to select the five most problematic for doing business in these country and to rank them between one (most problematic) and five. The numbers in the figure show the responses weighted according to their rankings. From this figure we can see the biggest received ranks; I marked these scores with yellow. These

are in average the tax regulations, access to financing, inefficient government bureaucracy, tax rates, respective labour regulations and the corruption.

In average, the highest factors are the poor public health, foreign currency regulation, crime and theft and the government instability. I marked this score with blue. This means that these factors don't represent any hazards for doing business. In conclusion, we can say that in average the policy factors the most dangerous factors in every country.

All in all, this form of the examination is also tried to assess that which factors are needed to improve.

8. Conclusion

I investigated a general and comprehensive picture about the position of the Visegrad countries through three indicators, first in a short theoretical look through.

As a background information it is important to mention, that significant differences appear in regard of competitiveness between the old and the new, in other words, between the countries that grant access to the European Union in 2004 and after. This way clearly emerges the differences between the eastern and western regions, which can be explained with the low labour productivity of the newly joined countries regions.

In the case of the examined four countries regions almost the same values appeared from the examined indicators. The best values are only provided by the Czech Republic through the examined indicators. In the eastern regions in the other three country you can clearly see the underdevelopment compared to the other regions.

The results of my research could be the basics of the success, provided by the economic, social and environmental developments resources.

Such a kind of analysis could provide useful results for the decision makers in the future.

Acknowledgement

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Database:

Eurostat:

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/publication?p_product_code=KS-HA-12-001

Annexes

Table 3: Gross domestic product (GDP) per inhabitant, in purchasing power standard (PPS), by NUTS 2 regions, 2009

SK01	Bratislavský kraj	178	PL11	Lódzkie	55
CZ01	Praha	175	HU21	Közép-Dunántúl	54
HU10	Közép-Magyarország	109	PL42	Zachodniopomorskie	53
PL12	Mazowieckie	97	PL21	Małopolskie	52
CZ06	Jihovýchod	75	PL43	Lubuskie	52
CZ02	Střední Čechy	74	PL61	Kujawsko-Pomorskie	51
CZ03	Jihozápad	71	PL52	Opolskie	50
CZ08	Moravskoslezsko	68	SK04	Východné Slovensko	49
SK02	Západné Slovensko	68	PL33	Świętokrzyskie	47
CZ04	Severozápad	67	HU23	Dél-Dunántúl	45
CZ05	Severovýchod	67	PL34	Podlaskie	45
CZ07	Střední Morava	66	PL62	Warmińsko-Mazurskie	45
PL51	Dolnośląskie	66	HU33	Dél-Alföld	43
PL22	Śląskie	65	HU32	Észak-Alföld	42
PL41	Wielkopolskie	65	PL32	Podkarpackie	42
HU22	Nyugat-Dunántúl	60	PL31	Lubelskie	41
PL63	Pomorskie	59	HU31	Észak-Magyarország	40
SK03	Stredné Slovensko	58			

Source: Eurostat data base

Table 4: Change of gross domestic product (GDP) per inhabitant, in purchasing power standard (PPS) in relation to the EU-27 average, by NUTS 2 regions, 2000-2009

SK01	Bratislavský kraj	69	CZ07	Střední Morava	8
CZ01	Praha	36	PL32	Podkarpackie	8
HU10	Közép-Magyarország	26	CZ04	Severozápad	7
PL12	Mazowieckie	24	HU32	Észak-Alföld	7
SK02	Západné Slovensko	21	PL31	Lubelskie	7
SK03	Stredné Slovensko	17	PL61	Kujawsko-Pomorskie	7
PL51	Dolnoslaskie	16	PL62	Warminsko-Mazurskie	7
PL41	Wielkopolskie	14	CZ02	Střední Čechy	6
CZ08	Moravskoslezsko	13	CZ03	Jihozápad	5
PL22	Slaskie	13	HU31	Észak-Magyarország	5
CZ06	Jihovýchod	12	HU23	Dél-Dunántúl	4
PL11	Lódzkie	12	PL42	Zachodniopomorskie	4
PL63	Pomorskie	11	CZ05	Severovýchod	3
SK04	Východné Slovensko	11	HU33	Dél-Alföld	3
PL21	Malopolskie	10	HU21	Közép-Dunántúl	2
PL33	Swietokrzyskie	10	HU22	Nyugat-Dunántúl	-1
PL34	Podlaskie	9			
PL43	Lubuskie	9			
PL52	Opolskie	9			

Source: Eurostat data base

Table 5: Disposable income of private households, by NUTS 2 regions, 2008

Region_min	Min_label	Min. value	Region_max	Max_label	Max. value	Country	National average	Capital region	Lowest region	National average	Highest region
CZ04	Severozápad	8 931	CZ01	Praha	13 242	Czech Republic	10 084	13 242	8 931	1 153	3 158
HU32	Észak-Alföld	6 834	HU10	Közép-Magyarország	9 252	Hungary	8 030	9 252	6 834	1 196	1 223
PL32	Podkarpackie	6 501	PL12	Mazowieckie	10 700	Poland	8 458	10 700	6 501	1 957	2 242
SK04	Východné Slovensko	8 055	SK01	Bratislavský kraj	14 616	Slovakia	9 609	14 616	8 055	1 554	5 007

Source: Eurostat data base

Table 6: R & D intensity expenditure as a % share of GDP , by NUTS 2 regions, 2009

CZ02	Strední Cechy	2,54	PL31	Lubelskie	0,58
CZ01	Praha	2,21	PL61	Kujawsko-Pomorskie	0,56
CZ06	Jihovýchod	1,63	PL22	Slaskie	0,55
HU10	Közép-Magyarország	1,53	PL51	Dolnoslaskie	0,53
PL12	Mazowieckie	1,19	PL63	Pomorskie	0,52
HU32	Észak-Alföld	1,18	HU23	Dél-Dunántúl	0,43
CZ05	Severovýchod	1,13	PL33	Swietokrzyskie	0,42
HU33	Dél-Alföld	1,01	PL32	Podkarpackie	0,37
CZ03	Jihozápad	1,00	SK02	Západné Slovensko	0,34
PL21	Malopolskie	0,93	SK04	Východné Slovensko	0,33
CZ07	Střední Morava	0,91	PL62	Warminsko-Mazurskie	0,31
SK01	Bratislavský kraj	0,89	SK03	Stredné Slovensko	0,31
CZ08	Moravskoslezsko	0,83	PL52	Opolskie	0,23
HU21	Közép-Dunántúl	0,70	CZ04	Severozápad	0,22
PL41	Wielkopolskie	0,66	PL42	Zachodniopomorskie	0,22
HU31	Észak-Magyarország	0,63	PL34	Podlaskie	0,21
PL11	Lódzkie	0,60	PL43	Lubuskie	0,10
HU22	Nyugat-Dunántúl	0,59			

Source: Eurostat data base

Table 7: Employment in high-tech sectors as a share of total employment, 2010

Region_min	Min_label	Min. value	Region_max	Max_label	Max. value	Country	National average	Capital region	Lowest region	National average	Highest region
CZ04	Severozápad	8 931	CZ01	Praha	13 242	Czech Republic	10 084	13 242	8 931	1 153	3 158
HU32	Észak-Alföld	6 834	HU10	Közép-Magyarország	9 252	Hungary	8 030	9 252	6 834	1 196	1 223
PL32	Podkarpackie	6 501	PL12	Mazowieckie	10 700	Poland	8 458	10 700	6 501	1 957	2 242
SK04	Východné Slovensko	8 055	SK01	Bratislavský kraj	14 616	Slovakia	9 609	14 616	8 055	1 554	5 007

Source: Eurostat data base

Table 8: Youth unemployment rate, persons aged 15-24 years, by NUTS 2 regions, 2010

SK04	Východné Slovensko	39,7	PL62	Warminsko-Mazurskie	23,9
SK03	Stredné Slovensko	36,2	PL51	Dolnoslaskie	23,7
PL32	Podkarpackie	35,3	PL41	Wielkopolskie	21,9
HU32	Észak-Alföld	35,2	PL21	Malopolskie	21,5
HU31	Észak-Magyarország	32,1	PL52	Opolskie	21,4
PL42	Zachodniopomorskie	31,0	HU21	Közép-Dunántúl	21,3
SK02	Západné Slovensko	30,8	HU10	Közép-Magyarország	21,2
HU23	Dél-Dunántúl	28,4	PL11	Lódzkie	21,2
PL33	Swietokrzyskie	28,0	PL63	Pomorskie	21,0
CZ04	Severozápad	26,4	CZ05	Severovýchod	20,8
HU33	Dél-Alföld	26,3	CZ08	Moravskoslezsko	20,0
PL31	Lubelskie	26,0	CZ07	Strední Morava	19,9
PL61	Kujawsko-Pomorskie	25,5	PL12	Mazowieckie	19,1
PL34	Podlaskie	24,4	CZ06	Jihovýchod	16,6
HU22	Nyugat-Dunántúl	24,3	CZ02	Strední Cechy	16,0
PL43	Lubuskie	24,2	CZ03	Jihozápad	15,6
PL22	Slaskie	24,0	SK01	Bratislavský kraj	15,2
			CZ01	Praha	8,8

Source: Eurostat data base

Table 9: Employment rate, persons aged 20-64 years, by NUTS 2 regions, 2010 (%)

CZ01	Praha	76,0
SK01	Bratislavský kraj	73,6
CZ02	Střední Čechy	72,8
CZ03	Jihozápad	71,9
CZ06	Jihovýchod	70,5
CZ05	Severovýchod	70,0
PL12	Mazowieckie	69,6
CZ07	Střední Morava	67,7
CZ04	Severozápad	66,9
SK02	Západné Slovensko	66,9
CZ08	Moravskoslezsko	66,7
PL11	Łódzkie	66,2
PL41	Wielkopolskie	65,9
PL34	Podlaskie	65,5
PL21	Małopolskie	65,3
HU10	Közép-Magyarország	65,0
PL31	Lubelskie	65,0
PL33	Świętokrzyskie	64,8
PL63	Pomorskie	64,5
PL32	Podkarpackie	64,3

HU22	Nyugat-Dunántúl	64,1
PL52	Opolskie	63,5
PL51	Dolnośląskie	62,6
HU21	Közép-Dunántúl	62,5
PL43	Lubuskie	62,1
SK03	Stredné Slovensko	62,1
PL61	Kujawsko-Pomorskie	62,0
PL22	Śląskie	61,9
PL62	Warmińsko-Mazurskie	61,4
SK04	Východné Slovensko	60,3
HU33	Dél-Alföld	59,5
PL42	Zachodniopomorskie	59,2
HU23	Dél-Dunántúl	58,1
HU32	Észak-Alföld	54,4
HU31	Észak-Magyarország	53,7

Source: Eurostat data base