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A COMPARATIVE ANALYSIS OF EU COHERENCE POLICY'S INFLUENCE ON THE INNOVATION AND COMPETITIVENESS OF CENTRAL-EASTERN EUROPEAN STATES IN THE YEARS 2004–2014

Abstract. At the turn of the new millennium, building an economy based on knowledge became the EU's main priority. Innovation, which was to be the key to the competitiveness of the EU economy, became an essential issue in the Lisbon Strategy. The determination to build an innovative system embracing local conditions was stronger during the first years of the present century. The states of Central-Eastern Europe, which had just undergone system transformations and were facing huge social and economic problems, were heading for integration with high hopes, believing that their presence on the uniform European market, especially the possibility to use coherence funds, would improve the innovation and competitiveness of their economies. The analysis included eleven states from among which eight joined the EU in the year 2004 – the Czech Republic, Estonia, Lithuania, Latvia, Poland, Slovakia, Slovenia and Hungary, two in the year 2007 – Bulgaria and Romania and one state in 2013 – Croatia. These states could expect significant European funds. Only in the years 2007–2013 the European Union assigned over 346,9 billion Euro for coherence policy. The amount of more than 175,5 billion Euro reached eleven states of Central-Eastern European states, which constituted well over a half of the full amount. The purpose of the elaboration is to compare and assess the extent to which the use of coherence policy funds contributed to the improvement of innovation and competitiveness of Central-Eastern European states. The fact that these states joined the EU at different times gives us an opportunity to observe the development of economies facing similar socio-economic problems within EU structures and at their outskirts.

Keywords: innovation, competitiveness, cohesion policy, Central-Eastern European country, European Union

JEL: O31, O32, O38, O 57, F63, M21

1. INTRODUCTION

The main aim of structural funds is to lessen differences in the economic development between EU states. This goal is particularly important for Central-Eastern European states, where all the indicators of development are below European average values. In addition, these states exhibit huge territorial disproportions.

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Innovations and R&D are among the main priorities in EU policy. In the 2007–2013 financial perspective, this objective was assigned almost 25% of all EU coherence policy budget, which is approximately 86.4 million Euro. Innovation will also be supported by framework programs in the area of research and technological progress. Since the launch of the first program in 1984, the programs have supported multidisciplinary research within EU and beyond. The last, seventh framework program for research and technological progress for the years 2007–2013, was assigned an amount of approximately 50.5 billion Euro. During the years 2007–2013 there was also a framework program for competitiveness and innovation with a budget of 3.6 billion Euro.

R&D activity has gained more importance after 2013. For the years 2014–2020 innovation development has been assigned approximately 30% of EU coherence budget. A new program supporting research and innovation under the name Horizon 2020 has been launched. The program's budget for the period of seven years amounts to 80 billion Euro.

The main purpose of this elaboration is to compare and assess the extent to which the use of coherence policy funds contributed to the improvement of innovation and competitiveness of Central-Eastern European states. The fact that these states joined the EU at different times gives us an opportunity to observe the development of economies facing similar socio-economic problems within EU structures and at their outskirts.

2. CHARACTERISTICS OF EU INTERVENTIONS IN CENTRAL-EASTERN EUROPEAN STATES

For the years 2007–2013 EU assigned the amount of 346,9 billion Euro for coherence policy. Nine Central-Eastern European states received 170.5 billion Euro, which constitutes a half of that amount. The biggest Central-Eastern European beneficiary of EU funds is Poland, which has received 67.1 billion Euro. From among the investigated EU states, Estonia has received the least funds during the whole period – 3.4 billion Euro, though Croatia, which joined the EU only in 2013, has received the smallest amount (Tab. 1).

Table 1

Allocation of funds for coherence policy during the years 2007–2013 (in Euro)

Country	Fund	Amount	Sum
1	2	3	4
Bulgaria	European Regional Development Fund	2283036165	
	European Social Fund	3205132216	
	Cohesion Fund	1185459863	6 673 628 244

1	2	3	4
Croatia	European Regional Development Fund	281 099 011	
	European Social Fund	424 762 900	
	Cohesion Fund	152 413 106	858 275 017
Czech Republic	European Regional Development Fund	8819022439	
	European Social Fund	13932831854	
	Cohesion Fund	3787795992	26 539 650 285
Estonia	European Regional Development Fund	1151731446	
	European Social Fund	1860211106	
	Cohesion Fund	391517329	3 403 459 881
Latvia	European Regional Development Fund	1539776553	
	European Social Fund	2407567364	
	Cohesion Fund	583103717	4 530 447 634
Lithuania	European Regional Development Fund	2305235743	
	European Social Fund	3441950353	
	Cohesion Fund	1028306727	6 775 492 823
Hungary	European Regional Development Fund	8642316217	
	European Social Fund	12638528106	
	Cohesion Fund	3626879916	24 907 724 239
Poland	European Regional Development Fund	22387151159	
	European Social Fund	34791000148	
	Cohesion Fund	10007397937	67 185 549 244
Romania	European Regional Development Fund	6522216180	
	European Social Fund	8851294343	
	Cohesion Fund	3684147618	19 057 658 141
Slovakia	European Regional Development Fund	3898738563	
	European Social Fund	6099989765	
	Cohesion Fund	1497739439	11 496 467 767
Slovenia	European Regional Development Fund	1411569858	
	European Social Fund	1933779408	
	Cohesion Fund	755699370	4 101 048 636

Source: Own elaboration on the basis of Eurostat data.

According to data from ministries responsible for implementing EU funds in Central-Eastern European states, the value of the projects accepted for implementation surpasses the available allocation[1]. For this reason, there are good

[1] The values were calculated on the basis of official data from ministries responsible for implementing structural and coherence funds.

chances of using all the available allocation, though payments to the beneficiaries and payment applications addressed to the European Commission receive the average value of 60–90% of the allocation.[2]

All the states have allocated a significant part of the funds for R&D activity as well as innovation and competitiveness (Tab. 2). Most states have prepared special programs to boost research and innovations.

Table 2

Implementation for innovation of Structural Funds and Cohesion Fund 2007–2013 for March 31, 2015

Country	Operational Programme	EU contribution	Total allocation
1	2	3	4
Bulgaria	Operational Program Development of the Competitiveness of the Bulgarian Economy	987 883 219	1 162 285 551
Croatia	Operational Program Regional Competitiveness for Croatia	187 779 594	199 865 510
Czech Republic	Operational Program Enterprises and Innovations'	3 041 312 546	3 578 014 760
	Operational Program Research and Development for Innovations'	2 070 680 884	2 436 095 160
Estonia	There is no program supporting innovations, research and competitiveness. These issues are dealt with within broader programs.	–	–
Latvia	Operational Program Entrepreneurship and Innovation	736 730 950	840 588 177
Lithuania	There is no program supporting innovations, research and competitiveness. These issues are dealt with within broader programs.	–	–
Hungary	There is no program supporting innovations, research and competitiveness. These issues are dealt with within broader programs.	–	–

[2] Own elaboration on the basis of official data from ministries responsible for implementing of the EU funds for March 31, 2015.

1	2	3	4
Poland	Operational Program Innovative economy	8 254 885 280	9 711 629 742
Romania	Operational Program Increase of Economic Competitiveness	2 554 222 109	3 011 102 426
Slovakia	Operational Program Research & Development	1 209 415 373	1 42 2 841 617
	Operational Program Competitiveness and Economic Growth	777 000 000	914 117 648
Slovenia	There is no program supporting innovations, research and competitiveness. These issues are dealt with within broader programs.	–	–

Source: Own elaboration on the basis of operational programs of Central-Eastern European states.

In the largely formalized approach to spending EU funds, one can see two models applied in Central-Eastern European states. Four states – Estonia, Lithuania, Hungary and Slovenia – have not prepared special operational programs; innovations and research are supported by programs which have broader aims to boost the development of entrepreneurship and science. Apart from the programs mentioned above, innovations have been supported within other national and regional programs. Entrepreneurs applying for support have often had to prove that their projects have an innovative character (Łączak A., Finansowanie, s. 3–13). Moreover, innovation has been one of the assessment criteria. The growth in competitiveness of countries and regions has been helped by investments in infrastructure, especially in the area of transport, science and research.

3. ANALYSIS OF SELECTED INDICATORS OF INNOVATION

Funds for innovations are rising steadily in all the investigated countries, except for Croatia, where the R&D expenditures have dropped from 1.03% to 0.81% of GDP. Estonia, Slovenia and the Czech Republic have seen the most rapid growth, to be followed by Romania, Latvia and Bulgaria. Slovenia is allocating the most funds to R&D – 2.59%; the Czech Republic, Estonia and Hungary are also assigning over 1%. Only Slovenia is above the European average (Tab. 3).

Table 3

Research and development expenditure (% of GDP)

Country\ time	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
EU (28 countries)	1.76	1.76	1.78	1.78	1.85	1.94	1.93	1.97	2.01	2.01
Bulgaria	0.48	0.45	0.45	0.44	0.46	0.51	0.59	0.55	0.62	0.65
Czech Republic	1.15	1.17	1.23	1.31	1.24	1.3	1.34	1.56	1.79	1.91
Estonia	0.85	0.92	1.12	1.07	1.26	1.4	1.58	2.34	2.16	1.74
Croatia	1.03	0.86	0.74	0.79	0.88	0.84	0.74	0.75	0.75	0.81
Latvia	0.4	0.53	0.65	0.56	0.58	0.45	0.6	0.7	0.66	0.6
Lithuania	0.75	0.75	0.79	0.8	0.79	0.83	0.78	0.9	0.9	0.95
Hungary	0.87	0.93	0.99	0.97	0.99	1.14	1.15	1.2	1.27	1.41
Poland	0.56	0.57	0.55	0.56	0.6	0.67	0.72	0.75	0.89	0.87
Romania	0.38	0.41	0.45	0.52	0.57	0.46	0.45	0.49	0.48	0.39
Slovenia	1.37	1.41	1.53	1.42	1.63	1.82	2.06	2.43	2.58	2.59
Slovakia	0.5	0.49	0.48	0.45	0.46	0.47	0.62	0.67	0.81	0.83

Source: Own elaboration on the basis of Eurostat data.

The enterprises sector's engagement is an important indicator of innovation in financing R&D. Enterprises' average participation in financing research and development has remained in EU on a virtually unchanged level since 2004. During the last decade it has oscillated between 61.66–63.68% (Tab. 4).

Table 4

Business enterprises sector expenditure on research and development (% of GDP)

Geo\time	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	2	3	4	5	6	7	8	9	10	11
EU (28 countries)	1.12	1.11	1.13	1.13	1.17	1.2	1.19	1.24	1.27	1.28
Bulgaria	0.11	0.1	0.12	0.14	0.14	0.15	0.3	0.29	0.38	0.4

1	2	3	4	5	6	7	8	9	10	11
Czech Republic	0.72	0.69	0.74	0.77	0.73	0.73	0.77	0.86	0.96	1.03
Estonia	0.33	0.42	0.5	0.5	0.54	0.62	0.79	1.48	1.24	0.83
Croatia	0.43	0.35	0.27	0.32	0.39	0.34	0.33	0.34	0.34	0.41
Latvia	0.18	0.22	0.33	0.18	0.15	0.16	0.22	0.19	0.15	0.17
Lithuania	0.16	0.15	0.22	0.23	0.19	0.2	0.23	0.24	0.24	0.24
Hungary	0.36	0.4	0.48	0.49	0.52	0.65	0.69	0.75	0.84	0.98
Poland	0.16	0.18	0.17	0.17	0.19	0.19	0.19	0.23	0.33	0.38
Romania	0.21	0.2	0.22	0.22	0.17	0.19	0.17	0.18	0.19	0.12
Slovenia	0.92	0.83	0.92	0.85	1.05	1.17	1.4	1.79	1.95	1.98
Slovakia	0.25	0.25	0.21	0.18	0.2	0.2	0.26	0.25	0.34	0.38

Source: Own elaboration on the basis of Eurostat data.

Among Central-Eastern European states, the biggest contribution to financing R&D can be observed in Slovenia – over 76%. Less than 70% of participation is also noticeable in Hungarian enterprises. Businesses in Lithuania, Latvia and Romania show the lowest value for financing R&D. In most states we have observed among enterprises a systematically rising interest in R&D investments. A drop in this respect has only occurred in the Czech Republic, Romania and Slovakia.

Innovations in enterprises are in most cases financed from own funds. Nevertheless, there is a systematic growth of participation of innovation investments supported by public funds in the total number of innovation investments. The biggest support from public funds is obtained by enterprises in Hungary. In 2012, more than 45% of enterprises' innovation investments received support there; more than 31 in Estonia and less than 25% in the Czech Republic. In the same year, public funds supported 24.9% of innovation investments in Croatia, a state then still aspiring to join the EU. The smallest support is obtained by enterprises in Latvia, Slovakia and Romania. Particularly significant growth in supporting innovation projects involved EU funds (Tab. 5).

Table 5

Support from public funds to innovation investments carried out by enterprises
(as % of all innovation investments carried out by enterprises)

Country	Year	Enterprises that received funding from the European Union	Enterprises that received funding from central government (including central government agencies or ministries)	Enterprises that received funding from local or regional authorities	Enterprises that received any public funding	Enterprises that received funding from the 7th Framework Program
Bulgaria	2012	14.4	11.0	1.5	20.3	1.5
	2010	16.1	0.5	7.9	9.9	0.9
	2008	5.0	5.7	0.5	9.5	0.7
	2006	4.4	4.9	0.6	8.1	1.1
	2004	3.9	1.4	0.5	4.9	1.2
Czech Republic	2012	17.1	13.0	2.8	24.8	3.2
	2010	24.0	2.9	12.7	16.4	5.9
	2008	8.0	8.9	4.3	17.1	3.1
	2006	6.5	10.2	2.5	16.0	3.0
	2004	4.5	10.9	2.3	15.9	3.2
Estonia	2012	14.3	22.3	1.6	31.4	3.9
	2010	24.5	1.7	17.6	11.3	2.1
	2008	5.7	8.6	1.9	13.1	0.9
	2006	3.1	7.0	0.6	9.5	0.8
	2004	1.8	8.2	0.6	9.7	0.5
Croatia	2012	3.1	21.2	5.1	24.9	0.9
	2010	29.0	5.5	25.4	2.1	0.1
	2008	1.7	24.4	5.6	27.9	0.4
	2006	1.0	17.8	3.3	20.0	0.2
	2004				–	
Latvia	2012	–	–	–	–	–
	2010	14.3	0.9	4.0	13.8	4.8
	2008	11.6	1.8	–	11.9	2.0
	2006					
	2004					

Lithuania	2012	19.2	6.6	1.9	21.1	2.4
	2010	35.8	2.8	6.3	34.0	3.7
	2008	8.5	6.2	2.3	13.4	4.2
	2006	6.7	7.4	3.4	12.9	1.9
	2004	5.4	7.5	2.1	12.7	0.6
Hungary	2012	33.8	23.3	2.1	45.6	3.5
	2010	34.4	1.0	19.5	20.6	2.1
	2008	13.0	19.0	1.3	27.5	1.0
	2006	12.6	22.9	1.4	29.8	3.1
	2004	4.3	25.5	2.6	27.3	1.9
Poland	2012	19.5	8.4	4.6	23.2	3.8
	2010	19.6	3.5	5.6	15.6	3.1
	2008	11.7	5.4	3.4	17.7	3.0
	2006		6.3	3.5	23.0	1.9
	2004	16.7	–	–	12.4	–
Romania	2012	11.1	7.0	3.5	17.5	2.1
	2010	9.3	2.2	6.1	4.0	1.4
	2008	5.4	4.8	2.9	9.7	1.9
	2006	7.9	4.5	2.9	12.2	2.2
	2004	7.3	3.2	2.3	10.8	1.1
Slovenia	2012	12.8	24.3	2.1	28.3	5.2
	2010	31.3	3.5	25.2	15.3	4.2
	2008	11.9	17.6	2.1	24.0	3.7
	2006	9.6	17.4	2.8	22.7	3.5
	2004	–	5.7	–	–	–
Slovakia	2012	13.3	3.8	1.4	16.0	4.3
	2010	15.5	0.4	4.3	12.7	1.9
	2008	10.3	5.7	0.6	14.0	1.7
	2006	9.3	4.8	3.1	14.7	1.6
	2004	5.3	5.1	3.4	12.1	0.6

Source: Own elaboration on the basis of Eurostat data.

Despite this, the support by domestic public funds has also remained significant in many states. It is in part caused by the necessity for the states to have their own contribution to projects co-financed by EU funds and in part by sustaining domestic systems of supporting innovations. The systematic growth in allocations to innovations and the emergence of a new source to support innovation – coherence funds – allow one to assume that they are bringing the desired effects; that is growth in the competitiveness of national economies.

The percentage of innovative SME in the EU displays a tendency to be rising in all Central-Eastern European states. The first cases of decrease were noted in 2012 and 2013, while in 2014 there were fewer innovative enterprises than in the year 2006 in almost all the states. Bulgaria, the Czech Republic, Slovakia and Slovenia are the exceptions. In the year 2014, the fewest innovative enterprises could be found in Poland, Romania, Bulgaria and Hungary. Estonia, the Czech Republic and Slovenia approximated the average value in this area. Generally, the percentage of innovative enterprises in 2014 is similar to that of 2006, though in most cases it is lower. On average, the participation of innovative enterprises in EU has risen by 7%, whereas in Central-Eastern Europe it has fallen by more than 7%. It can therefore be surmised that since the year 2006 there has been a growing disproportion between the Central-Eastern European states and the EU by approximately 14% (Tab. 6).

Table 6

SMEs innovating in-house as % of all SMEs

Year	EU27	BG	CZ	EE	HR	LV	LT	HU	PL	RO	SI	SK
2014	28.27	11.6	27.3	27.4	19.3	13.8	13.8	10.6	10.1	10.6	25.8	15
2013	31.8	13	27.2	33.6	25.1	14.4	15.7	11.4	11.2	10.8	–	21.8
2012	31.83	12.98	25.21	33.57	–	14.44	15.67	11.4	11.34	10.75	–	21.84
2011	30.31	17.09	29.58	33.97	–	14.44	19.39	12.6	13.76	16.66	–	14.98
2010	30.31	17.09	29.58	33.97	–	14.44	19.39	12.6	13.76	16.66	–	14.98
2008	30	15.1	28	37.1	–	–	17.7	13.2	17.2	17.9	–	17.9
2007	21.6	–	24	29.5	–	–	14.6	9.3	13.8	13.4	–	11.6
2006	–	9.4	25.2	29.8	–	15.2	22.1	17	12.5	13.9	16.3	13.1

Source: Own elaboration on the basis of Innovation Union Scoreboard 2006–2015.

In Central-Eastern European states the percentage of enterprises implementing product and process innovations is falling; a significant number of states can be observed to have noted a stable fall since 2007 despite substantial funds received within the coherence policy. The most substantial decrease has been observed in Romania and Poland. The percentage of enterprises implementing product and process innovations was lower respectively by 73.2% and 35.78%. The only states where an increase has been noted are Latvia and Slovenia. On average we can also note a decrease in the percentage of enterprises implementing product and process innovation by more than 9%. The average decrease in the Central-Eastern European states has amounted to slightly more than 70%. The decrease in this part of Europe has been higher by around 20% than that of the average decrease in the EU (Tab. 7).

Table 7

SMEs introducing product or process innovations as % of SMEs

Year	EU27	BG	CZ	EE	HR	LV	LT	HU	PL	RO	SI	SK
2014	30.6	13.6	30.9	33	21.6	15.7	16.1	12.8	13.1	5.2	32.6	17.7
2013	38.4	16.6	33	45.6	30.4	15.8	21.4	16.8	14.4	13.2	32.6	26
2012	38.44	16.59	33.01	45.56		15.78	21.39	16.78	14.36	13.17	32.61	26.02
2011	34.18	20.72	34.86	43.92		17.22	21.93	16.83	17.55	18.3	31.02	19.04
2010	34.18	20.72	34.86	43.92		17.22	21.93	16.82	17.55	18.03	31.02	19.04
2008	33.7	17.8	32	45.8		14.4	19.7	16.8	20.4	19.4	31.7	21.4
2007	33.7	17.8	32	45.8		14.4	19.7	16.8	20.4	19.4	31.7	21.4

Source: Own elaboration on the basis of Innovation Union Scoreboard 2006–2015.

At the same time, there has been an increase in the export of high-tech products in almost all of the states. Only Hungary and Lithuania have noted a decrease. However, in the case of Hungary, despite a drop in high-tech export, it is still definitely the highest among all the states and it amounts to more than 16%, while in Bulgaria – only 4%, Romania 5.6% and in Lithuania 5.8%. The Czech Republic and Estonia also display the highest values. Only Hungary is exporting more than the average, while the Czech Republic and Estonia are approximating the average value (Tab. 8).

Table 8

High-tech export as % of total export in 2007–2013

Country\time	2007	2008	2009	2010	2011	2012	2013
EU	16.1	15.4	17.1	16.1	15.4	15.7	15.3
Bulgaria	3.5	3.6	4.6	4.1	3.7	3.8	4
Croatia	6.5	6.7	7.6	7	5.8	7.2	6.9
Czech Republic	14.1	14.1	15.2	16.1	16.4	16.1	15
Estonia	7.8	7.5	6.9	10.4	14.8	14.1	14.8
Latvia	4.6	4.6	5.3	4.8	6.7	6.4	8
Lithuania	7.3	6.5	5.8	6	5.6	5.8	5.8
Hungary	21.3	20.2	22.2	21.8	20.9	17.3	16.1
Poland	3	4.3	5.7	6	5.1	6	6.7
Romania	3.5	5.4	8.2	9.8	8.8	6.3	5.6
Slovakia	5	5.2	5.9	6.6	6.6	8.2	9.5
Slovenia	4.6	5.2	5.5	5.3	5.3	5.2	5.5

Source: Eurostat data

The participation in new product turnover for enterprises and the market is falling in almost all of the states. Only Hungary and Slovakia have noted an improvement. Romania and Bulgaria have seen a three-fold decrease in turnover. In Poland, new product turnover has reached 46% of the 2004 participation. Estonia, Lithuania and Romania noted an increase of turnover participation during the two first years after joining the EU (Tab. 9).

Table 9

Ratio of turnover from products new to the enterprise and new to the market as a % of total turnover[3]

Year	EU27	BG	CZ	EE	HR	LV	LT	HU	PL	RO	SI	SK
2004	13.7	12.5	–	15.5	11.9	5.1	9.7	7	13.5	16.6	19.2	14.3
2006	13.4	10.3	13	14.7	13.7	3.4	12.4	10.5	10.1	18.5	16.7	13.3
2008	13.3	14.2	14.4	18.7	10.2	5.9	9.6	16.4	9.8	14.9	15.8	16.3
2010	12.8	7.6	10.5	15.3	12.3	3.1	6.6	13.7	8	14.3	23.3	10.6
2012	11.9 (EU-28)	4.2	10	13.4	7.8	5	5.5	9.7	6.3	5.4	19.6	10.5

Source: Eurostat data.

Taking into account industrial enterprises alone, the increase in innovative product turnover has been noted in three states – Latvia, Hungary and Slovenia; while in Romania and Poland it has been the lowest. Among all the investigated states, only Poland has noted a stable fall in innovative industrial products for enterprises and the market during all the studied years. In comparison to the EU average, Slovenia fares the best, with a value well over EU average. The Czech Republic notes a value slightly lower than the average. The average participation of new turnover for enterprises and the market in EU industrial business has fallen by 3%, while in the Central-Eastern European states the average is 24%. The states in this part of Europe are again losing approximately 20% more than the average value for EU states (Tab. 10).

[3] This indicator is defined as the ratio of turnover from products new to the enterprise and new to the market as a % of total turnover. It is based on the Community innovation survey and covers at least all enterprises with 10 or more employees. An innovation is a new or significantly improved product (good or service) introduced to the market or the introduction within an enterprise of a new or significantly improved process.

Table 10

Ratio of turnover from industry products new to the enterprise and new to the market as a % of total turnover

Year	EU27	BG	CZ	EE	HR	LV	LT	HU	PL	RO	SI	SK
2004	17.4	10.9	–	18.4	14	4.8	11.6	7.9	20	20	22.2	18.5
2006	18.8	13.9	17.3	17.2	12.4	4.4	19.1	13.1	13.1	21.9	22.2	16.7
2008	17.6	19.1	17.1	23.7	11.6	10.4	12.6	22.3	12.4	20	18.8	18.9
2010	17.5	10.7	11.9	18.2	13.8	4	5.1	18.1	11.3	21.4	29.7	14.3
2012	16.9 (EU-28)	5.5	13	16.5	9.6	7.9	6.3	12.9	9.2	5.4	25.6	14.5

Source: Eurostat data

In the area of services, all the Central-Eastern European states note a drop in the participation of innovative product turnover, except for Slovakia, where the turnover has remained on the same level. Romania, Bulgaria and Poland have seen the biggest decrease.[4] In Romania the percentage surpassed 86%, in Bulgaria 80% and in Poland 52% (Tab. 11). The average decrease in EU surpassed 16%, while in the Central-Eastern European states – as much as 51% (Piekut M., s. 115–116).

Table 11.

Ratio of turnover from services products new to the enterprise and new to the market as a % of total turnover

Year	EU27	BG	CZ	EE	HR	LV	LT	HU	PL	RO	SI	SK
2004	10.4	14.5		11.2	10.5	5.3	7.4	5.4	6.5	11.7	14.3	5.7
2006	9.1	6.3	7.9	10.4	14.7	2.7	4.7	5.8	6.6	15.3	7.9	8
2008	9.2	9.4	11.8	11.4	9.1	3.3	6.5	6.1	6.4	10.3	10.1	13.6
2010	7.3	4.7	9	10.5	10.9	2.5	8.6	5.4	4.1	6.5	12.6	5.7
2012	8.7 (EU-28)	3	6.3	8.3	6.1	3	4.6	4.4	3.1	1.6	8.6	–

Source: Eurostat data

[4] The comparative data in Slovenia concern the years 2010 and 2014.

4. INNOVATIVE POSITION OF THE CENTRAL-EASTERN EUROPEAN STATES IN THE EU

Despite the increase in the allocation of funds in innovative activity and R&D and the abundant EU funds, the Central-Eastern European states have not improved their innovative position against the old EU Fifteen. The analysis of the uniform European market displays a systematic growth in innovation. There are, however, significant differences in the pace of innovation growth between the particular states.[5] The average annual pace of innovation growth in the EU during the years 2006–2013 was 1.7%. The leader of innovation growth pace during the investigated eight years was Portugal, where the average annual innovation growth was 3.9%, and Estonia with an increase of 3.7% as well as Latvia – 3.5%. Poland, with an average growth pace of 0.9%, surpassed only Croatia, Great Britain and Sweden (Scoreboard 2014, p. 23). Almost all of the Central-Eastern European states have noted an increase in innovation surpassing that of the EU average. Lithuania can boast a 2.6% growth, Bulgaria 2.5%, Hungary 2.4% and Romania 1.9%, except for Slovakia, with an average growth of 1.5%, and the Czech Republic – 1.7% (Krajewski S., s. 110–115).

The European Commission prepares an annual report describing the level of innovation in the economies of EU states and states from outside the EU. The report was based on the comparison of 24 indicators (Scoreboard 2013, p. 71; Scoreboard 2014, p. 93) and since 2013 – 25 indicators. The final data received a value from 0 to 1, where 1 is the maximum value (Scoreboard 2014, p. 92). The average value for the EU-27 for 2013 was 0.554. Sweden was the EU innovation leader, with an indicator value of 0.750, to be followed by Denmark – 0.728, and Germany – 0.709. The least innovative states are on the other side of the spectrum. According to the European Commission, the lowest innovation indicators are observed in Bulgaria – 0.188, Latvia – 0.221 and Romania – 0.237. Poland took the fourth position from the end – 0.279. Unfortunately, the innovation indicator value for Poland has been the same since 2006. Annually, there is a slight growth or decrease in the indicator (Scoreboard 2011, pp. 4, 71). The innovative position of the Central-Eastern European states has not improved during their membership in the EU or as a result of the EU funds. All the states have kept an identical or very similar position since 2004. The most innovative economies among the Central-Eastern European states are those of Slovenia, Estonia and the Czech Republic, with the corresponding ratings of 12th, 13th and 14th positions among the 28 EU states (Tab. 12).

[5] According to EU Commission's research.

Table 12

The innovative position of EU states according to the European Commission

Country/year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2012	2014
Sweden	1	1	1	1	1	1	1	1	1	1	1
Denmark	3	3	2	2	4	3	2	2	2	2	2
Germany	4	4	3	3	2	2	3	3	3	3	3
Finland	2	2	4	4	3	4	4	4	4	4	4
Netherlands	7	8	9	9	8(7)	8	8	7	5	6	5
Luxembourg	6	6	7	7	5	5	7	8	7(6)	5	6
United Kingdom	5	5	5	5	9	9	5	5	8	8	7
Ireland	8(7)	7	8	8	10	10	10	9	10	9	8
Belgium	9(7)	9(8)	6	6	6(5)	6	6	6	6	7	9
France	10	10	10	11	11	11	11	11	11	11	10
Austria	11	11(10)	11	10	7	7(6)	9	10	9	10	11
Slovenia	12	13	12	12	13	12	12	12	13	12	12
Estonia	13(12)	12	14	16	14	14	14	14	14	13	13
Czech Republic	15(14)	15(14)	17	15	19	19	17	16	17	16	14
Cyprus	17	17	13	13	12	13	13	13	12	14	15
Italy	14	14	15	14	15	15	15	15	15	15	16
Portugal	21	23(22)	19	19	18	16	16	17	18	18	17
Malta	18	18	23	20	20	20	20	22	23	22	18
Spain	16	16	16	17	16	17	18	18	16	17	19
Hungary	20	20	20	21	21	21	21	20	21	20	20
Greece	19	19	18	18	17	18	19	19	19	19	21
Slovakia	24	22	21	22	22	22	23	23	20	21	22
Croatia	23	24(22)	22	24	23	23	22	21	22	23	23
Poland	25	25	24	23	24	24	24	24	25	25	24
Lithuania	22(21)	21	25	25	26	26	26	25	24	24	25
Latvia	27	27	27	27	27	27	28	28	26	27	26
Bulgaria	26(25)	26	28	28	28	28	27	27	28	28	27
Romania	28	28	26	26	25	25	25	26	27	26	28

Source: Own elaboration on the basis of the Innovation Union Scoreboard data for the years 2004–2014.

Hungary occupied the 20th position. The other states occupy the positions from 22 to 28. Another important indicator to assess innovation is the percentage of enterprises which run an innovative policy. The latest investigation encompassing enterprises employing more than 9 employees in the 27 member states have shown that between the years 2006 and 2008 as many as 51.5% of enterprises from the industrial and service sector ran an innovative activity (Science, 2012, p. 72). The largest numbers of innovative enterprises were noted in Germany (79.9%), Luxemburg (64.7%), Belgium (58.1%), Portugal (57.8%) and Ireland (56.5%).

Poland occupied the second last position with an indicator of 27.9%, to be followed only by Latvia (24.3%) and preceded by Hungary (28.9%), Lithuania (30.3%) and Bulgaria (30.8%) (Science, 2012, p. 72). During the years 2008–2010 the percentage of innovative enterprises in the EU rose to 52.9%, except for Slovakia and Slovenia. German enterprises have preserved a leading position with 79.3% of enterprises running an innovative activity. The next positions were occupied by Luxemburg (68.1%), Belgium (60.9%) and Portugal (60.3%). Poland continues to occupy the second last position. Innovative activity was run by 28.1% of enterprises. This was followed by Bulgaria (27.1%) and preceded by Latvia (29.9%), Romania (30.8%) and Hungary (31.1%) (Science, 2013, p.72). From among the Central-Eastern European states, the largest ratios of innovative enterprises are found in Estonia (approximately 60%), with the 11th rating position in the EU (Łączak A., Fundusze, s.745–748).

5. CONCLUSION

During the recent years, since 2004 in particular (when the Central-Eastern European states became EU member states), a lot of effort has been made to improve the innovation and competitiveness of member states' economies. During the years 2007–2013, the question of innovation and competitiveness become a priority, seen as a key to economic and social success. Most of EU funds, amounting to billions of Euros, should directly or indirectly contribute to improving competitiveness and innovation. The attempt to raise funds for research and development has been successful. The expenditures in the public sector and in enterprises have risen. This should contribute to at least a slight growth in innovation indicators. However, the participation of enterprises which have invested in innovative technology is falling. The ratio of enterprises which have introduced product and process innovations is also falling. There is a rapid fall in the turnover of new products for enterprises and for the market against turnover in total.

The biggest decrease has been observed in industrial enterprises, which in the Central-Eastern European states rated at 51% during the years 2004–2014. The turnover in new products for the market has also been falling significantly.

The decreases are significantly higher than the average of the EU, if they occurred at all in the latter case. The innovative position of the Central-Eastern European states against other European states shows no improvement.

There are a few causes of this situation. The bureaucratized procedures of programming and spending funds imposes on the states frameworks which are limiting the creation of their own model of supporting innovations. The main beneficiaries of funds aiming to boost research and development are not entrepreneurs. Moreover, microbusinesses, small and medium-size businesses are among the program beneficiaries, whereas large-scale enterprises constitute a majority in research and development. In some states, for example in Poland, most large-scale innovative projects are carried out by enterprises with foreign capital. The small participation of enterprises using EU funds for research and development is resulting in a decrease of the significance of EU funds. One may also doubt whether there is a correct identification of innovative projects in the selection process. There is a lack of clear preference for projects of high innovative potential. One should therefore thoroughly reconsider the system of supporting innovative projects in the next financial perspective 2014–2020.

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ANALIZA PORÓWNAWCZA WPŁYWU POLITYKI SPÓJNOŚCI UE NA INNOWACYJNOŚĆ I KONKURENCYJNOŚĆ PAŃSTWA EUROPY ŚRODKOWO-WSCHODNIEJ W LATACH 2004–2014

Streszczenie. U progu nowego tysiąclecia budowa gospodarki opartej na wiedzy stała się głównym priorytetem Unii Europejskiej. W Strategii Lizbońskiej istotne miejsce zajęła innowacyjność, która miała stać się kluczem do wzrostu konkurencyjności gospodarki Unii Europejskiej. W pierwszych latach obecnego stulecia wzrastała determinacja w budowaniu systemu innowacji uwzględniającego regionalne uwarunkowania. Państwa Europy Środkowo Wschodniej, które zaledwie kilka lat wcześniej przeszły transformacje ustrojową i borykały się z olbrzymimi problemami

społeczno-gospodarczymi z wielką nadzieją zmierzały w stronę integracji europejskiej ufając, że obecność na jednolitym rynku europejskim, a szczególnie korzystanie ze środków polityki spójności podniesie innowacyjność i konkurencyjność ich gospodarek. Analizą zostało objętych jedenaście państw, spośród których osiem przystąpiło do UE w 2004 roku – Czechy, Estonia, Litwa, Łotwa, Polska, Słowacja, Słowenia i Węgry, dwa w 2007 – Bułgaria i Rumunia i jedno państwo w 2013 – Chorwacja. Państwa te mogły liczyć na znaczne fundusze europejskie. Tylko w latach 2007–2013 Unia Europejska przeznaczyła na politykę spójności kwotę ponad 346,9 mld euro. Do jedenastu państw Europy Środkowo Wschodniej trafiło ponad 175,5 mld euro, co stanowiło ponad połowę tej kwoty. Celem opracowania jest porównanie i ocena jak wykorzystanie środków polityki spójności wpłynęło na wzrost innowacyjności i konkurencyjności gospodarek państw Europy Środkowo Wschodniej. Fakt, iż państwa te przystąpiły do UE w różnym terminie daje możliwość porównania jak rozwiały się gospodarki o podobnych problemach gospodarczo-społecznych wewnątrz struktur UE i na jej obrzeżach.

Słowa kluczowe: Innowacje, konkurencyjność, polityka spójności, Europa Środkowo-Wschodnia, Unia Europejska