



COMPARATIVE ANALYSIS OF THE INDEXES FOR DEVELOPMENT OF HIGHER EDUCATION AND SCIENCE IN BULGARIA

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ABSTRACT

PURPOSE: to analyze some important indicators, characterized for higher education and science in Bulgaria. These results will show on our Ministry of education, youth and Science the reached results what he must do for its improving. **METHODS:** static calculating of the relative part in the period 2003-2008 (2009) for some important indicators. **RESULTS:** It is showed a lot of data about newly accepted students, higher education institutions in groups and forms of ownership, scientific works according to scientific ranks and titles, expenditure on scientific research and development according to their kind and sectors in BGL., direct foreign investments in the different sector activity, capacity of the institutions for higher education, determined by National Evaluation and Accreditation Agency for the next professional directions: 3.7. “Administration and management”, 3.8 “Economy” and 3.9 “Tourism”. **CONCLUSION AND PROPOSALS:** it is given the necessity from new strategic conception for development of higher education and Scientific institutes and to make national system for evaluation and accreditation.

Key words: education, indicators, university, scientific workers, staff in university, capacity, bachelor, master, investment.

INTRODUCTION

The system for management of higher education and science needs some essential changes that result in the following: reassessment of the legislative documentation that represent the environment of the institutions of higher education; improvement of the activities concerning the external evaluation of the education quality carried out by the National Agency for evaluation and accreditation in accordance with the international requirements; continuous internal evaluation of the quality through the university systems for evaluation and quality support by

applying different forms of checks; professional evaluation of the quality of education by means of professional organizations diplomas classification as for instance the Bulgarian Industrial Association and other organizations who employ the higher education professionals, universities rating classification, etc.

The main mechanism for better efficiency is the financing. Through the process of distribution of the financial resources and investment in human resources, we can expect that the government funds can fulfill its priority for science and education development in the country.

The comparison of some indexes achieved by education and science in the country with those abroad, as well as the comparison of the indexes in the universities in Bulgaria themselves, gives the chance to make some conclusions concerning the development of this sector of the economy.

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METHODS

The quota for university students per 10 000 persons are respectively: for the year of 2005-32, 2006-30, 2007-29, 2008-28 (1). This correlation abroad is respectively for Austria - 30, Denmark- 31, Finland - 44, France - 36, Italy - 31, the Netherlands- 32, Portugal- 33, Great Britain - 31. At the same time the proportion of the expenses spent on state government, education and other services and activities related to non- government organizations² as part of the GDP is even smaller. In continuation during the years this percentage is 2005-14, 2006-13, 34, 2007-13,12 и 2008-12,08, the expenses for education as part of the GDP is 3,1%. For the a/m countries this percentage is 4,5-5,9%, and in the USA and Canada it is respectively CAИ и Канада 6-7,5% and more than 7,5%. In the more distant past (1999) according to information provided by Trends in Europe and

North America for 1999, Statistical Yearbook of the Economic Commission for Europe, published by United Nations, New York and Canada, it was established that the expenses for one university student, calculated in dollars are: in Switzerland – 15850, the USA – 15510, Sweden – 12820, Austria – 8720, Canada – 11300, the Netherlands – 8540, Denmark – 8500, Germany – 8380, Great Britain – 7600, Ireland – 7600, Belgium – 6390, Finland – 6080, France– 6010, the Czech Republic – 5320, Hungary – 5100, Italy– 4850, Spain – 4030, Turkey – 3460, Greece – 2670, Bulgaria– 296 BGL. (2006), 285 BGL. (2007) и 382 BGL. (2008). This data confirms the insignificant expenses spent by the state for education and science.

At the same time the number of the newly - accepted students for the period 2003-2008 (2) is in continuous increase (**Table 1**)

Table 1. Newly accepted students (Bulgarian nationals, in groups of higher education institutions and forms of education)

Groups of higher education institutions and forms of education	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
Total, thus including	42790	46906	47963	488758	56412
Universities and specialized higher education institutions	37253	39946	39274	39169	46686
Colleges	5537	6960	8689	9589	9726
Full- time education, thus including	31941	35480	36243	37218	40693
Universities and specialized higher education institutions	27827	30514	30689	31089	36258
Colleges	4114	4966	5554	6129	4435
Part- time education, thus including	9902	10984	11268	10918	14726
Universities and specialized higher education institutions	8479	8990	8133	7654	9706
Colleges	1423	1994	3135	3264	5020
Distant education, thus including	947	442	452	622	993
Universities and specialized higher education institutions	947	442	452	426	722
Colleges	-	-	-	196	271

The number of the higher education institutions is on the increase (**Table 2**), but the number of colleges in the structure of the universities and the specialized higher education institutions decreases.

The full-time students (2) in the framework of the total number of students are as following during the years: 65, 04% (2004), 65, 06% (2005), 64, 63% (2006), 63, 77% (2007) and

64, 28% (2008). These relative proportions clearly indicate the permanent tendency of change in the number of the full- time students. The number of the part- time students grows as well. There is a significant increase in the number of part-time students in the colleges. This tendency shows the students' intention to improve their qualification not losing touch with their work.

Table 2. Higher education institutions in groups and forms of ownership

Groups of higher education institutions	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
Total	51	53	53	53	53
Universities and specialized higher education institutions	42	43	43	43	43
Colleges in the structure of universities and specialized higher education institutions	41	40	40	36	31
Independent colleges	9	10	10	10	10
State higher education institutions	37	37	37	37	37
Universities and specialized higher education institutions	35	36	36	36	36
Colleges in the structure of universities and specialized higher education institutions	41	40	40	40	36
Independent colleges	2	1	1	1	1
Private higher education institutions	14	16	16	16	16
Universities and specialized higher education institutions	7	7	7	7	7
Independent colleges	7	9	9	9	9

The number of the people who have higher education degree continues to grow. The change in the number of higher education graduates in 2008 in comparison with 2005 is 19,33%.

The number of scientific workers and research scholars is on continuous decrease throughout the years (3). This tendency has been examined in the years and according to the scientific ranks and titles for the period 2002-2007 (**Table 3**).

Table 3. Scientific workers according to the scientific ranks and titles

Scientific titles and ranks	2002	2003	2004	2005	2007
Total	21592	21604	21154	20874	20829
Academicians	17	39	41	39	35
Corresponding members	32	13	53	52	45
Professors	1315	1315	1194	1192	1298
Associate professors	4793	4888	4918	5005	5205
Senior scientific associates	2839	2836	2755	2700	2686
Senior lecturers and lecturers	1406	1480	1308	1266	1257
Assistants	7588	7582	7597	7482	7238
Scientific associates	3602	3451	3288	3138	3065
PhD-s of science	1439	1416	1345	1308	1391
PhD-s	10147	10174	10143	10163	10540

There is a decrease in the number of the senior scientific associates, senior lecturers and lecturers, assistants, scientific associates. These categories are young scientific workers who reproduce the academics staff in the higher educations institutions and institutes.

Consequently, this tendency mustn't continue because the universities can end up with insufficient academic research staff. The number of academicians and professors is on increase. The number of the PhD and PhD of science associates remains relatively the same.

As the payment of the academic staff (lecturers and especially scientific associates in the Bulgarian Academy of Science) is extremely low and this index is considered as a basis in the calculation of the sector of education, it results that only 1,4 % of the GDP is being spent on higher education and the expenses on science are even smaller- 0,2 % of the GDP.

The expenses foreseen for scientific research and development are also insignificant. Their share (1) as part of the GDP is as following in percentage during the years: 2003 – 0, 50; 2004 – 0,50; 2005 – 0,49; 2006 – 0,48; 2007 – 0,48. If we follow the expenditure for scientific research and development in kinds and sectors for 2007(5) (**Table 4**):

Table 4. Expenditure on scientific research and development for 2007 according to their kind and the sectors in BGL.

	Total	Sectors			
		Institutions	Statal	Higher education	Non-commercial organizations
Total	273047	85065	159622	26388	1972
Current expenses	244841	68726	151584	22596	1935
Expenditure on long- lasting assets	28206	16339	8038	3792	37
Relative share of the expenditure for long-lasting assets in comparison with the total activities and the kinds of sectors	10,43%	19,20%	5,04%	2,38%	1,88%

The above data confirms the insignificant expenditure, spent on long- lasting activities in the higher education. It is only 2, 38 %.

The tendency in the investments is even much worse (thus including direct foreign investment) in the higher education. The analysis reveals a lower portion of investment related to the GDP. For the country in general this share is approximately 11- 12 %.

For the education this proportion is only 0,6 %. The foreseen investments are only for maintenance of the existing technical equipment for education and for the accomplishment of scientific activity by the lecturers at the universities.

The same tendency exists in the investments that are being given for science. Their share as part of the GDP of the country is approximately only 0,02-0,04%. This tendency continues and even worsens. These recourses are absolutely insufficient because it is absolutely necessary that the technical equipment and computers be maintained, new

products to be bought and new device to be bought if a development of science is searched.

Comparing the data for assets expenditure, spent on education according to the structure of their use, we establish that it is mainly used for repair of the existing technical equipment at the universities and at the Bulgarian Academy of Science.

The flow of direct foreign investments in Bulgaria is insignificant. Comparing their share according to the other economic activities (4), we establish their continuous decrease since 2006 compared to 2008 (**Table 5**).

The data in **Table 5** show decrease in the foreign investments for 2008. The lower share of investment is being given for education and fishing. The relative share of foreign investments in education through out the years is 2006 – 0,0002%, 2007 – 0,0095% and 2008 – 0,0065%.The lack of foreign financial resources and resources from the state budget given for education and science makes the fulfillment of this economic activity extremely difficult. Thus also makes impossible the improvement of the competitiveness of higher education and science.

Table 5. Direct foreign investments in the different sector of economic activity and during the years in millions of euro

Economic activities	2006	2007	2008
Total	6158,4	8487,9	6163,0
Rural, forestal and hunting economy	27,8	75,2	51,5
Fishing economy	0	0,2	0,7
Extracting manufacturing	21,4	5,3	7,6
Remaking manufacture	1064,7	906,2	810,9
Manufacture and distribution of electricity, gas and water	352,4	332,5	176,2
Construction	501,0	797,4	465,0
Trade and repairment of vehicles, personal and household belongings	964,5	1237,4	796,9
Hotels and restaurants	103,2	163,7	53,0
Transports, storing and telecommunications	447,7	89,3	214,1
Financial mediation	799,4	2112,5	1485,9
Real estate activities and business services	1778,0	2505,1	1900,3
Education	0,1	0,8	0,4
Healthcare and social activities	0,8	4,6	1,1
Other activities serving the society and the individuals	65,3	89,9	30,9
Non- classified	32,2	167,7	169,0

Tables 6, 7, 8 below examine the distribution of students in 2009 according to the degrees of bachelor and master in the three professional directions 3.7, 3.8 и 3.9. This data also

determines the finance of the higher education according to the foreseen number of students and their possibilities for assets expenditure.

Table 6. Capacity of the institutions for higher education, determined by the National Evaluation and Accreditation Agency, for professional direction 3.7. **Administration and management**

Institution for higher education	Professional bachelor	Bachelor	Master	Total
Sofia University „St. Kliment Ohridski”		960	240	1200
University of Plovdiv «Paisii Hilendarski»		800p	480p	1280p
South-west university «Neofit Rilski»-Blagoevgrad		560	240	800
Konstantin Preslavsky University of Shumen				
University of Veliko Tarnovo «St. St. Kiril and Metodiy»		550	500	1050
University «Prof.Asen Zlatarov»-Burgas	690	250p	50p	300p
Technical University – Sofia		400	360	760
University of national and world economy– Sofia		2400	1200	3600
New Bulgarian University–Sofia		400p	160p	560p
Burgas Free University		500	100	600
Varna Free University «Chernorizets Hrabar»		2400p	400p	2800p
University of Economy– Varna		1000	300	1300
Technical University– Gabrovo		400	90	490
University of Forestry– Sofia		480	240	720
University of chemical technology and metallurgy– Sofia		-	120з	120з
International business school of higher education – Botevgrad		2000		2000
National military university «V. Levski»-Veliko Tarnovo		470p	130p	600p
Academy of Economics «D.A.Tsenov»-Svishtov	240p	580	480	1300
European college of economy and administration –Plovdiv	1800	-	-	1800
Agricultural university – Plovdiv	500	-	-	500
College of economy and administration	350	-	-	350

International college «Albena»	300	-	-	300
College of telecommunications and post-Sofia	540	-	-	540
College of management, trade and marketing-Sofia	1200	-	-	1200
Academy of the Ministry of Interior		480	160	640
American University- Blagoevgrad		400p	160p	560p
Total	5620	15030	5410	26060

Table 7. Capacity of the institutions for higher education, by the National Evaluation and Accreditation Agency, for professional direction 3.8. „Economy”

Institution for higher education	Bachelor	Master	Total
Sofia Univeristy „St. Kliment Ohridski”	320p	150	470
University of Plovdiv «Paisii Hilendarski»	1393	895	2288
South- west university «Neofit Rilski»-Blagoevgrad	960	120	1080
Konstantin Preslavsky University of Shumen	320	68	388
University of Russe	1000	135	1135
University of Veliko Tarnovo «St.St. Kiril and Metodiy”	2000	600	2600
University «Prof.Asen Zlatarov»-Burgas	200	-	200
Tracian University- Stara Zagora	360	45	405
Technical University of Sofia			
University of national and world economy-Sofia	12000	4500	16500
New Bulgarian University-Sofia	600	300	900
Burgas Free University	2800	210	3010
Varna Free University «Chernorizets Hrabar»	8400	750	9150
University of Economy- Varna	8400	750	9150
Technical University- Gabrovo	120	-	120
International business school of higher education - Botevgrad	2000	180	2180
Academy of Economics «D.A.Tsenov»-Svishtov	6000	3000	9000
Agricultural university - Plovdiv	270	140	410
Todor Kableshev University of Transport-Sofia	480	195	675
European college of economy and administration -Plovdiv	1800	-	1800
Agricultural College - Plovdiv	600	-	600
College of economy and administration	300	-	300
International college «Albena»			
College of management, trade and marketing-Sofia	1200	-	1200
Academy of the Ministry of Interior			
American University- Blagoevgrad	800	-	800
Total	52323	12038	64361

Table 8. Capacity of the institutions for higher education, by the National Evaluation and Accreditation Agency, for professional direction 3.9. „Tourism”

Institution for higher education	Professional Bachelor	Bachelor	Master	Total
Sofia Univeristy „St. Kliment Ohridski”		280	135	415
University of Plovdiv «Paisii Hilendarski»		240	60	300
South- west university «Neofit Rilski»-Blagoevgrad		640	90	730
Konstantin Preslavsky University of Shumen		400	-	400
University «Prof.Asen Zlatarov»-Burgas		320	30	350
New Bulgarian University-Sofia			75	75
University of Economy- Varna	660			660
Agricultural university - Plovdiv		240	45	285
University of food technology- Plovdiv		240	60	300
	660	2360	495	3515

The above data shows the purposefulness of some institutions for higher education towards the different professional directions. Some of the universities have only one or two professional directions. Only six universities and three colleges have the three professional directions 3.7, 3.8, 3.9.

The number of students in professional direction "Public Administration" is altogether 26 060 and the most significant number in it is this of the students bachelor degree- 71, 16 %. The students in master degree and in professional bachelor degree are approximately the same number.

The biggest in number are the students from professional direction 3.8. "Economy". Their number is 64361. The part of the students in bachelor degree is also significant. They make 81, 30 % in total. Students in master degree are 18, 70 %.

The number of students in professional direction 3.9. is relatively small in comparison with the other professional directions. Their number is 3515. The part of the students in bachelor degree and master degree are respectively 67,14% and 14,08%, and the students professional bachelor are 18,78%.

Comparing the number of students in general divided in the three professional directions, we establish that students in bachelor degree are the most significant part (74,22%), followed by students in master degree (19,11%) and professional bachelor (6,67%).

The correlation of the students in professional directions and university degrees are the following for educational qualification **bachelor** degree:

- 3.7. Administration and management– 21,56%;
- 3.8 Economy – 75,06%;
- 3.9 Tourism– 3,38% .

For educational qualification degree «**master**»

- 3.7. Administration and management – 30,16%;
- 3.8 Economy– 67,09%;
- 3.9 Tourism– 2,75% .

For professional bachelor:

- 3.7 Administration and management– 89,49 %;
- 3.8 Economy– 0 %;
- 3.9 Tourism–10,51 % .

These relative correlations indicate the tendency for predominance of students in bachelor degree in the professional direction 3.8. but there in this professional direction there is a lack of students in the educational qualification "professional bachelor" degree.

These tendencies make necessary the intervention of the Ministry of Education, Youth and Science and the National Evaluation and Accreditation Agency in connection with the needs of the economy to increase or lessen the capacity of these professional directions which are connected with the development of the country in perspective. These changes must be made based on detailed research and not considering the formal indications. The capacity must take into consideration the academic staff, available at the institutions for higher education as well as the regional development of the country and the necessity for a certain kind of specialists.

CONCLUSION AND PROPOSALS

The analysis of some of the main indexes for the development of the sector of education shows the need for development and fulfillment of a new strategy. A wide range of professionals must take part in its elaboration and application. The implementation of such a policy is essential for the quality improvement of such education with view of achievement of international standards. The conception for quality improvement must be based on: 1) development of such legislative instruments which guarantee the autonomy of the institutions for higher education and the achievement of the necessary standards; 2) development of instruments for evaluation by means of the national system for evaluation and accreditation. These instruments must include such standards that are in accordance with the criteria of the international institutions for evaluation and accreditation; 3) creation of proper economic instruments through diversification of the mechanisms for distribution and creation of resources by binding the state subsidies with the results from the "external evaluation", use of the "normative expenses" per student for determination of the amount of grants for the institutions for higher education and implementation of an equal cover of the expenses for all the students (6).

In our opinion there is a lack of a consistent strategic conception. The strategic approaches

are being applied under the conditions of highly controversial principles.

The strategic approaches have been applied under the conditions of controversial principals and consequently the expected results will not be achieved. The analysis of the legislative environment, the non- observance of the proportion between students and academic staff and the determination of the capacity in certain professional direction according to the educational qualification degree in the institutions for higher education shows that the changes are neither based on the basis of certain principles, nor on the basis of the public interest. The incessant changes in the legislative basis create an atmosphere of uncertainty and lack of conformity with the needs of the labor market and the civil society.

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