Challenges and trends in financing Romanian higher education. Will the reform be driven by the report of the Romanian Court of Accounts?

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We review challenges and trends in reforming higher education funding in Romania, looking from a wider European context. We discuss the obstacles posed by the increased competition for students, academics, and funding, stressing that the public funding of higher education in Romania and most Central and Eastern European is significantly below the EU average. We analyze the recent report of the Romanian Court of Accounts and discuss some of its conclusions regarding higher education funding. We plea for increased public funding, with less political interventions, for funding mechanisms that stimulate performance while allowing for inclusiveness and equity, being simple, verifiable and diverse.

Keywords: Higher education funding, Formula-based funding; performance based funding, Romanian Court of Accounts

1. Introduction

The funding of the Romanian public universities has been extensively analyzed by the National Higher Education Funding Council (CNFIS) through its annual reports [1-3]. However, these reports have stirred much less public attention than the recent report of the Romanian Court of Accounts (CCR) [4] on the performance of the Romanian higher education institutions (HEI).

In synthesis, the CCR analysis reveals that after 1990, the number of tertiary students soared, Romania recording the highest rate of increase among all EU countries. However, the creation of numerous universities and study programs was not accompanied by clear definitions of quality and performance, in terms of output indicators. Despite efforts made by the Romanian Agency for Quality Assurance in Higher Education (ARACIS) the strong expansion of the tertiary education system was questionable in terms of the quality of services offered to the students. The report claims that the employability of the graduates has not been a major focus for the Romanian universities, which have been unsuccessful in aligning the competences offered to students to the needs of the labor market [5].

Furthermore, looking at the international world university rankings, the CCR Report warns that very few Romanian universities have entered those charts and only in lower positions. Out of 103 higher education institutions only 5-6 may rank between 500 and 1000 and about 10 more are between 1000 and 2000 [4], based on rankings such as those performed by US News & World Report [5], Times Higher Education [6], or QS Top Universities [7], SCIMAGO [8], and University Ranking by Academic Performance [9].

The competitiveness of Romanian higher education is also characterized by the flows of international students. Romania has negative net flows, which means that the number Romanian students leaving to study abroad is greater than the number of foreign students who choose to pursue Romanian study programs [4]. Indeed, the last UNESCO statistics indicate that more than 31109 students left compared to the 23559 foreign students who entered Romania [10].

A negative net flow also characterizes the circulation of qualified workers. Highly educated workers tend to leave the country, such that Romanian taxpayers cover the costs and western European countries benefit [4].

Imbalances are also seen in the demand and offer in the local labor market. The lack of forecasts regarding the labor force needs impedes on the fast reestablishing of labor market equilibria. Although the Law of Education of 2011 states that education grants should be allocated particularly to the fields that

ensure sustainable and competitive development of society, forcing the Ministry, as the central authority, to play an active role in drafting educational policies consistent with societal requirements, in reality, the Ministry has been content with playing a passive role. Invoking university autonomy, the Ministry has passed the demand to allocate the subsidized positions to the university senates, ignoring the provisions of the law, and disregarding the CNFIS initiatives on the subject [4].

Finally, the CCR report signals the change in legislation that was passed by the government (through the emergency ordinance number 117 of 2013), eliminating the requirement for the ranking of study programs, introduced by the Law of Education in 2011 in order to determine the performance-based supplementary funding. Contrary to the policies promoted in 2011, regarding the formula-based funding, starting with 2012 a significant amount of the institutional funding of HEIs has been awarded on a need-based approach [2] particularly to some universities. Thus, the Ministry encouraged the dependence on financial aid based on political will instead of true and thorough restructuring [4].

The CCR report ends with 12 recommendations formulated by the external public auditors, suggestions that encourage both the Ministry and the HEIs to design and implement new, paradigm changing policies for genuine restructuring of the tertiary education sector. The question is should the reform be driven by the CCR report? We attempt to answer this question in the following, approaching the topic from a wider European context. Unlike the CCR report, we stress that the public higher education sector is severely underfunded in Romania and, expanding on a previous study [11], we plea for increased public allocations, with less political interventions. We argue for funding mechanisms that stimulate performance while allowing for inclusiveness and equity, being simple, verifiable and diverse.

2. Challenges Facing Higher Education Institutions – Breaking from the Red Ocean

A recent UNESCO report [12] clearly stated that higher education has become an extremely competitive endeavor. Universities compete for status, ranking, and funding, looking for bright students, talented academics, and strategic partnerships. From this perspective, universities behave a lot like companies, trying to outperform their rivals and fighting each-other in the crowded seas, far from the peaceful "blue ocean" of Kim and Mauborgne (2005) [13].

2.1. Competition for bright students

The population decline is one of the most important challenges confronting HEIs in Central and Eastern Europe [14]. The latest demographic trends, reported in the 2012 Revision of World Population Prospects estimate population decreases in Europe for the next 30 years [15]. Forecasts indicate population declines over the next 30 years in countries like Bulgaria, -29.7%, Republic of Moldova, -28.8%, Latvia, -18.4%, Romania, -17.9%, Croatia, -15.9%, Lithuania, -15.3%, Estonia, -12.9%, Poland, -10.8%, and Hungary, -10.1% etc. Under such circumstances, universities will face a decrease in student demand.

The evolution of the number of new born babies in Romania between 1987 and 2015, displayed in Fig. 1, shows a sharp decrease after the fall of communism, due to due to a more permissive abortion legislation. The decrease in number of high school graduates has hit the higher education system after 2008, as it can be seen from Fig. 2 [3]. The most affected have been the private universities, although significant decreases are noticeable also in public HEIs as they have less tuition paying students (see Table 1) [2,3].

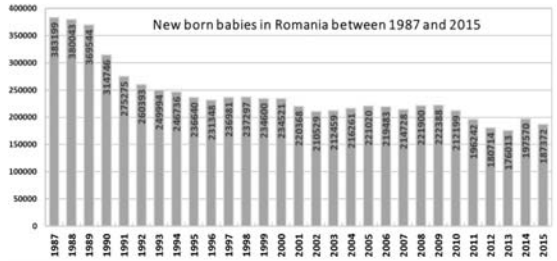


Fig. 1. Evolution of the number of new born babies in Romania between 1987 and 2015. Source: Romanian National Institute of Statistics – INS Tempo-Online.

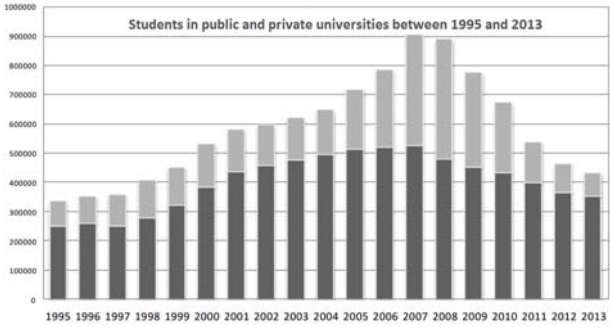


Fig. 2. Evolution of the number of students between 1995 and 2013, in public (dark grey) and private (light grey) universities. For details see Refs. [2,3]. Source: Romanian National Institute of Statistics – INS Tempo-Online.

Table 1: Number of students enrolled in higher education institutions (2007–2014). Source: CNFIS reports [2,3].

Academic year	**Total** *(public and private)*	**Public universities**	**Public universities**, *of which* *State subsidized*	*Tuition paying*	**Private universities**
2014/2015	…	448.939	*287.927*	*161.012*	…
2013/2014	540.828	461.582	*287.300*	*174.282*	79.246
2012/2013	579.552	479.976	*285.652*	*194.224*	99.676
2011/2012	661.241	520.853	*289.087*	*231.766*	140.388
2010/2011	816.228	576.290	*288.580*	*287.710*	239.938
2009/2010	938.843	616.506	*282.237*	*334.269*	322.337
2008/2009	1.035.513	624.654	*284.616*	*340.038*	410.859
2007/2008	1.029.855	650.247	*289.132*	*361.115*	379.608

In Romania, the dim forecasts suggested by the data in Fig. 1, indicating a further ~10% decrease in the next couple of years, meet a harsh reality, as the number of students has already seen a sharp decline since 2007 [2,3]. The cause of the decrease can be correlated with the less numerous cohorts that resulted after the fall of communism as well as to the more challenging high school graduation exams.

Given such circumstances, facing harsh competition for students, Romanian universities should attempt to recruit from regions with net population gain, such as Asia and Africa [15,16]. In this respect, we agree with Recommendation 4 of the CCR report [4], which demands for a coherent strategy to attract foreign students by developing study programs in foreign languages, developing better support services for these students etc.

2.2. Competition for talented academics

Another challenge for HEIs resides in the competition for talented academic, research and administrative staff. The growing divide between the tertiary education systems in rich vs. poor countries has increased in the past several decades [12]. The world class universities attract top researchers whereas for Romanian universities it is extremely challenging to compete.

The tension between the prestigious, research intensive universities and the HEIs in the Emerging Europe may grow even further as the former are more likely to attract outstanding researchers, due to higher salaries, better infrastructure and superior work conditions, greater mobility, and overall larger degree of satisfaction. The net result of these discrepancies is a brain drain of the East for a brain gain in the West.

An obvious consequence of this type of competition is a larger stress on the academic profession, leading to a decline in average qualification for the teaching staff. For instance, while it is nearly generally understood that a full university professor should hold a doctoral degree, in some countries university lecturers may hold only a master's degree [12].

In Romania attracting talented academics is a particular challenge. The enforcement of the Law of Education, with strong retirement rules led to an abrupt decline in the workforce. Moreover, due to the economic crisis for several years, the government instated restrictions on new hiring in the public sector (one employee in for seven out). These measures, together with the inconsistent and unstimulating pay of the academic staff have contributed to a decline in the number of academic staff, as shown in Table 2 [2,3]. Therefore, what the CCR report is missing is a set of recommendations regarding improved and more coherent policies regarding the human resources for HEIs.

A study of the monthly average salaries of tertiary level teachers across the world, adjusted for purchase power parity (PPP), showed, for the countries studied, ranges from 538 to 7196 US PPP Dollars [17]. An independent study [18], which includes Romania in an international comparison, indicates a monthly average of 2168 RON, equivalent, at the time, to 511 USD and 996 US PPP Dollars, for the tertiary educations sector, consistent with the country averages of 2163 RON, or about 954 US PPP Dollars [19]. The data show that the wages of the Romanian academics are far from competitive, which impedes on attracting and retaining highly qualified scholars.

Table 2. Number of academic staff in higher education institutions (2007–2014). Source: CNFIS report [2,3].

Academic year	Total	Professor	Associate Professor	Assistant Professor	Assistant Lecturer	Teaching assistant
2014/2015	22947	*4071*	*5299*	*8258*	*4923*	*396*
2013/2014	23045	*3855*	*5065*	*8278*	*5274*	*573*
2012/2013	23124	*3734*	*4748*	*8086*	*5742*	*814*
2011/2012	23593	*4232*	*4596*	*7445*	*6214*	*1106*
2010/2011	24291	*4733*	*4647*	*6755*	*6523*	*1633*
2009/2010	25374	*5023*	*4846*	*7024*	*6733*	*1748*
2008/2009	25189	*5113*	*4717*	*6725*	*6839*	*1795*
2007/2008	24788	*5046*	*4503*	*6596*	*6794*	*1849*
2006/2007	24543	*4917*	*4315*	*6547*	*6824*	*1940*

Table 3. Monthly average salaries of public higher education faculty, using U.S. PPP Dollars. Source: Ref [17].

Country	Entry	Average	Top
Armenia	405	538	665
Russia	433	617	910
China	259	720	1107
Ethiopia	864	1207	1580
Kazakhstan	1037	1553	2304
Latvia	1087	1785	2654
Mexico	1336	1941	2730
Czech Republic	1655	2495	3967
Turkey	2173	2597	3898
Colombia	1965	2702	4058
Brazil	1858	3179	4550
Japan	2897	3473	4604
France	1973	3484	4775
Argentina	3151	3755	4385
Malaysia	2824	4628	7864
Nigeria	2758	4629	6229
Israel	3525	4747	6377
Norway	4491	4940	5847
Germany	4885	5141	6383
Netherlands	3472	5313	7123
Australia	3930	5713	7499
United Kingdom	4077	5943	8369
Saudi Arabia	3457	6002	8524
United States	4950	6054	7358
India	3954	6070	7433
South Africa	3927	6531	9330
Italy	3525	6955	9118
Canada	5733	7196	9485

Given the reference of the CCR to the international university rankings, where Romanian HEIs are poorly positioned, it is useful to also compare the typical wages of the academic staff in those institutions. Table 4 displays the average effective monthly salaries of higher education faculty in the U.S.A. In contrast, the salaries of top Romanian professors do not exceed the equivalent of 2000 USD, while supplemented by possible extra revenue from research grants, it may increase, in exceptional cases by up to 50%. Typically, however, the wages of Romanian professors are 10 times less than those of the US top academics. It is, therefore, obvious that more stimulating wage policies are required for attracting and retaining outstanding researchers.

Aside from the higher wages, a more balanced ratio between the salaries of the top professors and those at the entry level are also needed to encourage the young talented researchers to start academic careers. In the US the ratio between the salaries of a full professor and of an assistant professor varies around 1.65 in public HEIs and at about 1.85 in top private universities [20,21]. In the Romanian system the assistant professor typically has a wage that is half

that of a full professor, if not less. In a wider sense, the reform of the remuneration system for the entire public sector would be beneficial in solving structural problems throughout the Romanian society.

Table 4. Average effective monthly salaries of higher education professors from top ranked U.S. universities, in US Dollars [20] and the position in three of the latest world rankings: R1 - ARWU [22], R2 – USN&WR [5], R3 – THE [6].

University	R1	R2	R3	Entry
Stanford University	2	4	3	23370
University of Chicago	9	10	10	23182
Harvard University	1	1	6	22833
New York University	27	34	30	21685
Columbia University	8	9	15	21533
Yale University	11	14	12	21394
University of Pennsylvania	17	14	17	21364
Massachusetts Instit. Techn.	3	2	5	20792
Princeton University	6	13	7	20625
Northwestern University	27	25	25	20217
Duke University	31	20	20	19592
Washington University	32	34	60	19250
Rice University	84	84		19046
Vanderbilt University	53	74	87	18961
Univ. of California - L.A.	12	8	16	18929
California Instit. Techn.	7	7	1	18450
Univ. of Southern California	49	44	68	18078
Univ. of California Berkeley	4	3	13	18057
Brown University	73	99	51	17915
Cornell University	13	21	18	17827
Boston University	73	32	64	17723

Table 5. Average faculty salary in selected disciplines by academic rank. See Ref. [21]. Source: 2000-2001 Faculty Salary Survey by Discipline, Office of Planning, Budget, and Institutional Research, Oklahoma State University.

Field	Full Prof.	Assoc. Prof.	Assist. Prof.	Ratio FP/AP
Communications	73406	54126	43458	1.69
Computer science	100780	75123	66698	1.51
Education	75564	55669	45614	1.66
Engineering	103828	70207	57410	1.81
Foreign languages	67335	50005	40763	1.65
English language	73273	52026	41314	1.77
Biological sciences	78506	56951	47900	1.64
Mathematics	80990	57421	45101	1.8
Philosophy	76890	52734	40369	1.9
Chemistry	89245	58527	46726	1.91
Geology	77266	56946	47026	1.64
Physics	85998	60365	50953	1.69
Psychology	83382	74606	46263	1.8
Anthropology	74751	53745	43371	1.72
Economics	99447	67945	62635	1.59
Geography	75415	56597	43527	1.73
History	77849	53859	41491	1.88
Political science	82480	56306	45025	1.83
Sociology	78900	54793	45294	1.74
Arts	65645	50349	37530	1.75
Nursing	77652	60109	49158	1.58
Business admin.	110753	83558	83835	1.32
Accounting	110424	87610	88854	1.24
Financial mgmt.	115314	91568	86515	1.33
Average	84796	62131	51951	1.63

Table 5 shows that in the USA the salaries result from free market negotiations, which allow for differences among disciplines, making it possible to attract academics in all fields [21]. In contrast, in Romania the salary is based on a nation-wide chart without taking into account the differences between subject areas.

Other requirements for attracting and retaining academics are related to the infrastructure, the overall atmosphere in the institution and its environment. Top equipment, an organizational culture that promotes competence, efficiency and integrity and a community with a good quality of life (health care, safety, entertainment etc.) are all important factors that influence the choice. Although not included in the CCR report, such aspects need to be taken into account when devising future policies in higher education.

2.3. Competition for funding

Another challenge for many HEIs is generated by the insufficient and unpredictably fluctuating funding. In many countries, the government spending on higher education is not always keeping pace with the rising costs of higher education. Moreover, in the context of the global economic crisis, higher education institutions across Europe face demanding and complex financial circumstances. In many countries, public funding is less generous and more competitive than in the recent past. These trends are particularly important in countries where universities have been more dependent on public funding [23]. Taking inflation into account, the EUA Public Funding Observatory study, revealed that the number of countries that cut university funding is clearly larger (12 to 6) than those that increased it between 2008 and 2014. Only in four systems the level of investment remained roughly at the level of 2008. They conclude that "public funding remains in a state of flux, even in countries which are not implementing far-reaching reforms" [23].

The European Commission report on funding of education in Europe between 2000 and 2012 [24] used as main indicator of public spending the percentage of the gross domestic product (GDP) allocated for education. As it can be seen from Fig. 3, the average public spending in the EU-27 has been 5-6 % of GDP between 2000 and 2010, with countries like Denmark allocating more than 8% in education. While the public spending for education varies between 3% and ~8% of the GDP, the amounts allocated for higher education has been a significantly smaller fraction, ranging from 0.65% to 2.44% [25,26]. Romania is one of the countries that invests the least in the future generations, with less than 4% of GDP for education and about 1% in 2007 [24,25] and 0.85% in 2011 [26] assigned to higher education.

Another useful indicator of public spending on tertiary education is the annual total expenditure on tertiary educational institutions per full-time equivalent student, adjusted for purchase parity using a purchase parity standard (PPS). This indicator reflects the financial investment of a country in relation to the size of the student population and it shows in Western European countries allocations significantly higher than the EU average of 8087 PPS Euros in 2008 [25] and 8850 PPS Euros in 2011 [26] (see Fig. 4 and Fig. 5). Eastern European countries invest less than 7000 PPS Euros per student, the typical annual allocation being around 4500 PPS Euros per student.

Romania is a poor performer, with a low total allocation, of less than 3300 PPS Euros per student, per year [24,26]. National data, not adjusted for purchasing power, indicate, as shown in Table 6, that the average annual allocation per student paid to universities (without taking into account other expenditure related to higher education but going to cover various subsidies for students, such as housing, travel, governmental scholarships, etc.) has never exceeded 1650 Euros, being just slightly more than 1200 Euros in the past two years [2,3].

Romania is a peculiar example due to the almost identical funding at primary, secondary and tertiary levels. In the majority of European countries, pupil/student costs usually increase with the level of education [24]. However, this pattern does not apply consistently to all school years across all countries. For instance, in few countries, like Estonia, Italy, Latvia, Poland and Romania the cost per student is similar at most levels of education.

Given the reference of the CCR to the international university rankings, where Romanian HEIs are poorly positioned, it is useful to also compare the budgets of these institutions. While the revenues of typical Romanian universities are in the tens of millions of euros, the top universities have a much higher budget. For instance, Harvard University reports total operating costs of almost 4.5 billion USD for the fiscal year 2015 as well as assets of 44.6 billion USD [27] and about 21000 students (of which about 70% in graduate programs). Similarly, Stanford University had operating costs of 5.0 billion USD and assets of 30.4 billion USD [28] for about 16000 students (of which more than 58% in graduate studies).

For comparison, universities beyond the top 20 in

the world still have impressing revenues. For instance, University of Rochester (ranked 122 [5]) reported operating costs of 3.2 billion USD and assets of 3.4 billion USD for about 8000 students (of which 1/3 graduate) [29]. However, in contrast, University of Montana (ranked 522 [5]) had operating costs of 34 million USD and assets of 221 million USD, with about 14000 registered students (of which only 1/6 graduate).

Under these circumstances, the difference in higher education funding between Western European countries and Romania is striking. These trends have generally led to increasing austerity in universities across Central and Eastern European countries causing overcrowded lecture halls, deterioration of buildings, obsolete educational infrastructure, outdated library holdings, less support for faculty research, loss of secure faculty positions, brain drain of academic staff etc [12]. In response to these financial pressures, HEIs have been forced to search for cost cutting solutions that may jeopardize quality. Class sizes as well as teaching loads have been increased, while higher cost full-time, senior level academic staff have been substituted by lower cost part-time, entry level academics. Such trends are in contrast with the goals of increased student satisfaction, being academically problematic and heavily contested.

In an attempt to map out pathways for improving quality in teaching and learning, the European Commission has formed a High Level Group on the Modernization of Higher Education. The report has made 16 recommendations to public authorities at EU and member state level as well as to HEIs, the first being for public authorities to ensure the existence of a sustainable, well-funded framework to support the efforts of HEIs to improve the quality of teaching and learning [30].

In conclusion to this section, although the CCR report does not mention it, there is a clear need for an increased expenditure in educating our young generations. We strongly believe that increasing gradually to 6% of GDP the expenditure on education should be a national priority. Moreover, the allocations for primary, secondary and tertiary education should be differentiated, in consonance with the practice in most EU countries.

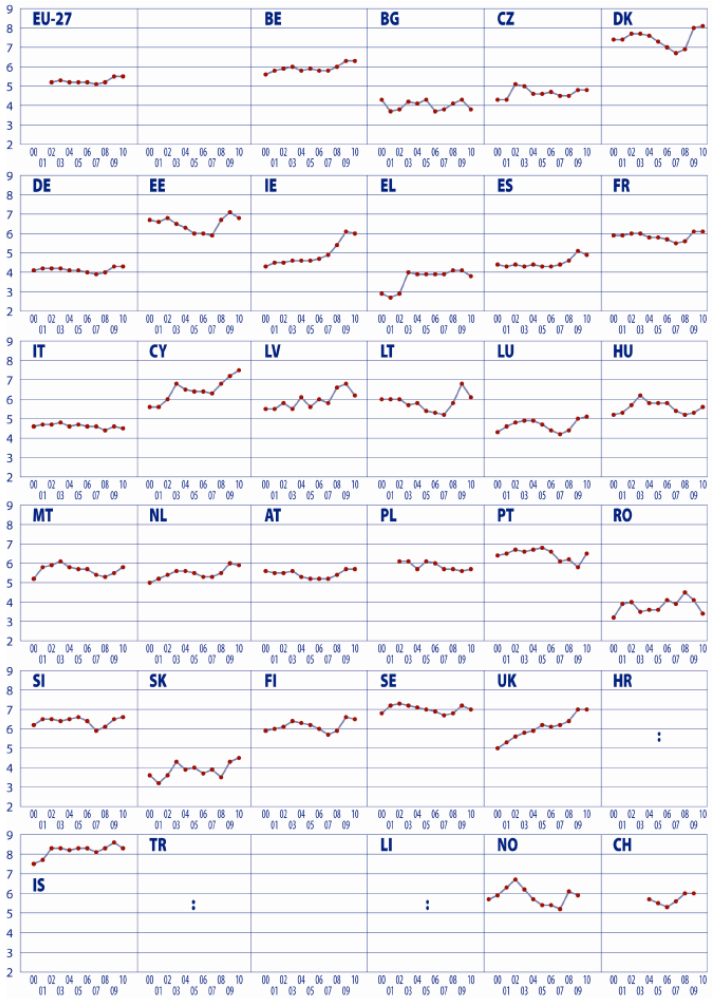


Fig. 3. Annual public spending on education as a percentage of GDP (2000-2010). From Eurydice [24], source Eurostat.

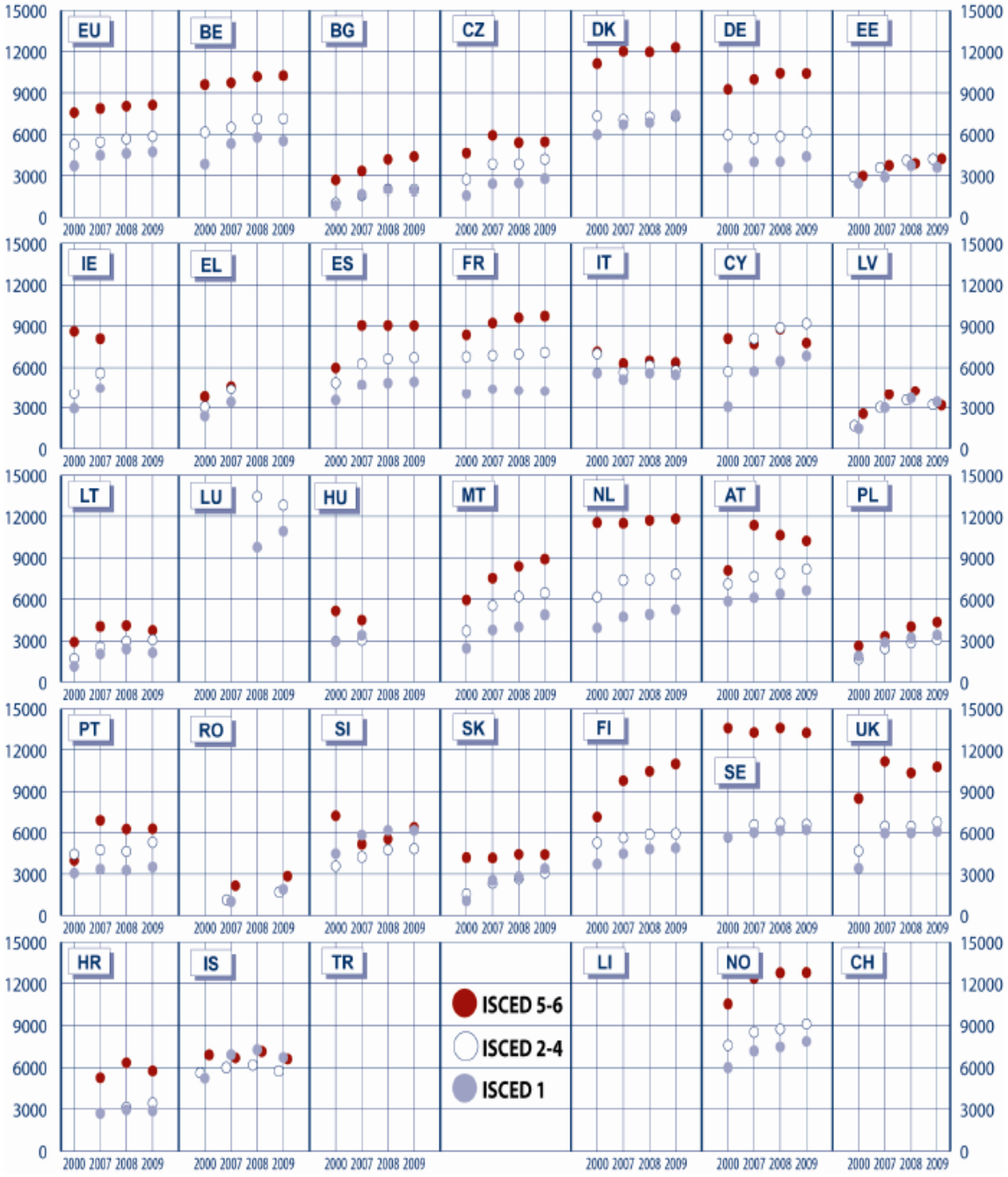
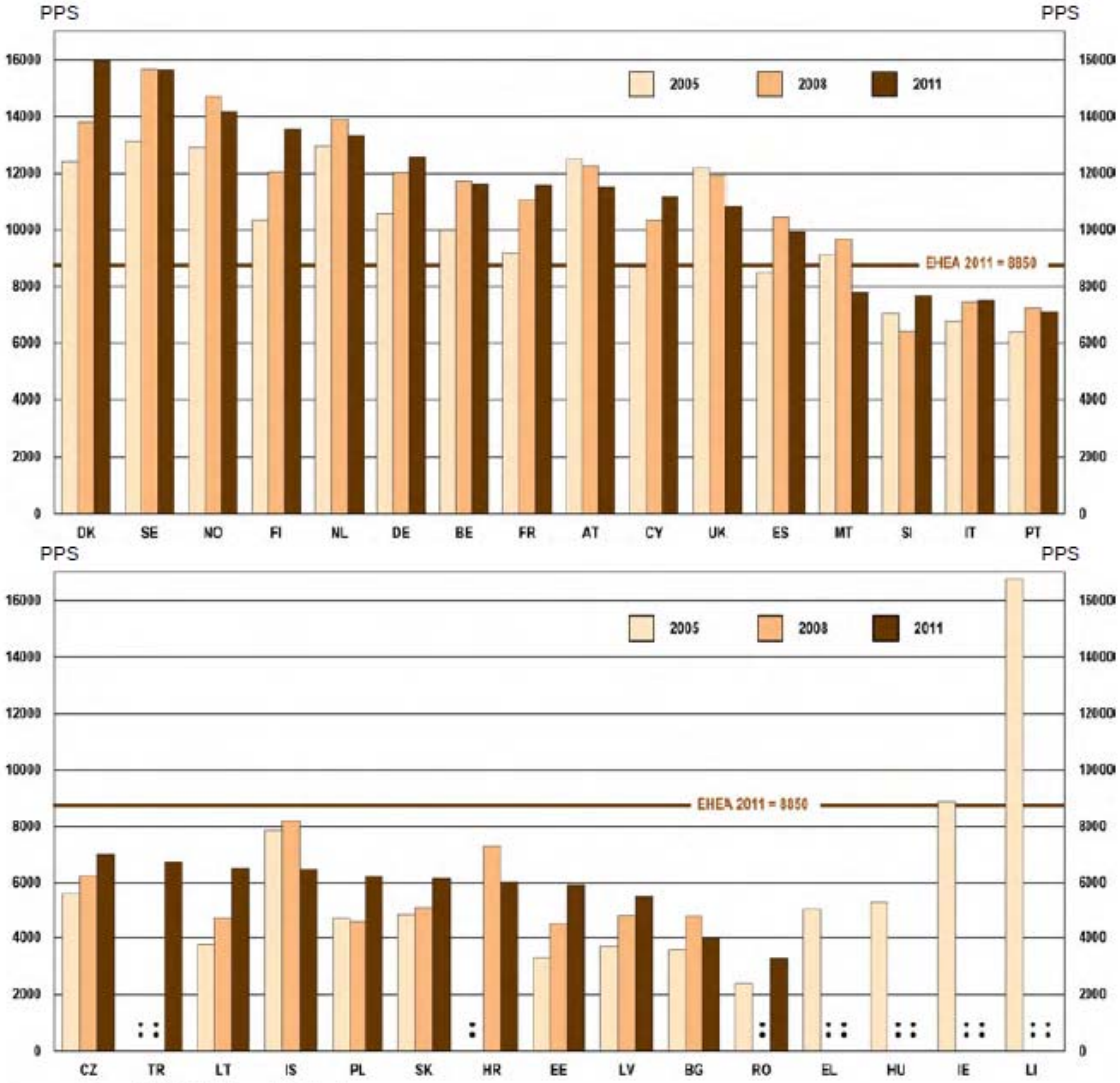


Fig. 4. Annual expenditure per student in PPS, at primary (ISCED 1), secondary (ISCED2-4), and tertiary (ISCED 5-6) level of education, based on full-time equivalents at constant prices (2000, 2007, 2008 and 2009). From Eurydice [24], source: Eurostat.

Table 6. Average annual allocations to universities per tertiary student in Romania. Source: CNFIS [2,3].

	2007	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***
Average annual allocation/student (RON)	5147	6004	5930	5828	5090	5107	5461	5503
Average annual allocation/student (EUR)	1542	1630	1399	1384	1201	1146	1,236	1,238



Source: Eurostat (UOE data collection).

	DK	SE	NO	FI	NL	DE	BE	FR	AT	CY	UK	ES	MT	SI	IT	PT
2005	12 396	13 135	12 916	10 330	12 948	10 583	9 987	9 181	12 476	8 680	12 172	8 462	9 124	7 030	6 755	6 377
2008	13 787	15 676	14 705	12 045	13 897	12 029	11 725	11 053	12 258	10 343	11 926	10 422	9 672	6 398	7 457	7 228
2011	15 987	15 660	14 172	13 541	13 309	12 579	11 599	11 565	11 504	11 161	10 832	9 909	7 792	7 669	7 515	7 089

	CZ	TR	LT	IS	PL	SK	HR	EE	LV	BG	RO	EL	HU	IE	LI
2005	5 597	:	3 757	7 849	4 732	4 875	:	3 280	3 705	3 561	2 375	5 043	5 285	8 872	16 765
2008	6 240	:	4 741	8 220	4 622	5 121	7 295	4 493	4 856	4 821	:	:	:	:	:
2011	6 995	6 712	6 533	6 478	6 221	6 147	6 024	5 929	5 506	3 998	3 255	:	:	:	:

Fig. 5. Annual expenditure on public and private tertiary education institutions, per full-time equivalent student in PPS, 2005, 2008 and 2011. From Eurydice [26], source: Eurostat.

3. Formula-based Funding of Higher Education - The Role of the Divine Intervention

Despite the clear recommendations of the European Commission, the national authorities of some Central and Eastern European countries are not responding with appropriate policies [30]. Even in developed countries, such as the UK, the top leaders of the HEIs express discontent. In fact, about 70% of the vice-chancellors feel very strongly that government policies and interventions represent the greatest risks and constraints to their success, voicing complaints related to the 'unfettered' marketization of the HE system without apparent concern for its impact on universities [31].

In Romania, government policies are also under scrutiny, especially by the newly formed *Universitaria* consortium of top research-oriented universities. They voice concern with the tendency to disregard performance related criteria in funding of HEIs.

As shown in an early Eurydice report [34], the main public funding mechanisms in Europe is centered on a *funding formula* (see Fig. 6). Almost all European countries use funding formulas to calculate the public grants to HEIs for teaching and/or ongoing operational activity and, in certain cases, research. Exceptions were Germany (in certain *lands*), Ireland (institutes of technology), Cyprus, Luxembourg and Malta [34].

	BE fr	BE de	BE nl	BG	CZ	DK	DE	EE	IE	EL	ES	FR	IT	CY	LV	LT	LU
Budget negotiation with the funding body based on a budget estimate submitted by the institution		●		●					●	●				●			●
Budget established by the funding body based on past costs						●				●			●				
Funding formula	●	●	●	●	●	●	⊗	●	●	●	⊗	●	●		●	●	
Performance contracts based on strategic objectives			●		●	●				●		●					●
Contracts based on a predetermined number of graduates by field of study								●							●		
Funding for specific research projects, awarded in the framework of competitive bidding procedures	●	●	●	●	●	●		●	●	●		●	●		●		:

	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK-ENG/ WLS/NIR	UK-SCT	IS	LI	NO
Budget negotiation with the funding body based on a budget estimate submitted by the institution		●				●		●								
Budget established by the funding body based on past costs					●									●		●
Funding formula	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●
Performance contracts based on strategic objectives				●		●	●		●	●				●		
Contracts based on a predetermined number of graduates by field of study																
Funding for specific research projects, awarded in the framework of competitive bidding procedures	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● Mechanism applied ⊗ Variable depending on the regional authority : Data not available

Fig. 6. Overview of the main mechanisms for direct public funding, public and government-dependent private higher education, 2006/2007. From Eurydice [43], source: Eurostat.

Funding formulas are so widely employed because they are regarded as a way to increase the transparency of public funding. They avoid excessive political pressures on HEIs, such as those mentioned for Romania, in the previous section. In most cases, funding formulas make use of some input criteria, which measure the volume of institutional activity [32]. Institutional activities may be estimated according to the volume of resources: number of students registered, number of staff members, staff salaries, buildings, etc. Funding formulas may also include some performance criteria, related to the outputs of an institution over a certain previous period.

Approximately half of the countries use performance indicators which focus on student success rates, in determining the amount of funding for teaching and operations. The most common performance indicators for teaching activities focus on student success rates that are measured through the number of graduates [36]. Other indicators are qualification of the academic staff, quality of the infrastructure, and the results of institutional evaluation/ranking [43].

In Romania, formula-based funding has been applied since 1999, although it was received with discontent and criticism. By 1998, the financial requests from the universities, driven by increased demand from students, were so high that the Ministry of education could no longer satisfy them. Moreover, there was little control over the budget estimations made by the universities, which had no incentives to curb their costs. The national authorities were forced to change the policies and, starting with 1999, CNFIS, introduced a new funding mechanisms, using a formula based mainly on the number of students, but taking into account differences in costs between various fields of study as well as between various types of degree programs. The HEIs faced a major challenge adjusting to the new system, but over the

years the formula based mechanism was gradually accepted, as it brought some order into chaos. The formula-based approach has seen various modifications over the year but is still in place today, despite some strong criticism.

Worth mentioning is an analysis of the difference between the total funding and the formula based funding, revealing the allocations made in a less transparent way by the Ministry of education. If before 2009 the amounts allocated without using a computation formula were limited, amounting for less than 1.5% of the institutional funding, a new leadership at the Ministry with a different vision, decreased the weight of the top slice to less than 0.27%. In 2012, however, after a government change, the funding allocated without using a computation formula peaked at approximately 9.6% of total funding of higher education (Fig. 7). Those policies were continued, but to a reduced extent in 2013 and 2014, with about 4.5% and 3.5% allocated without a formula [2]. Most of that difference went to regional public universities [2], which claimed financial difficulties and asked for help from the Ministry, being confronted with predictable decrease in tuition-paying students. In the absence of transparent discussions and clear recovery programs with concrete measures to restructure such overstaffed HEI, representatives of top research universities, students, and various scholars have complained about the chronic underfunding of the Romanian higher education system and about the inefficiency of the current system in supporting excellence in teaching and research. Leaving too much room to 'divine intervention' the current system does not seem to encourage, powerfully enough, either research performance or managerial competence [11].

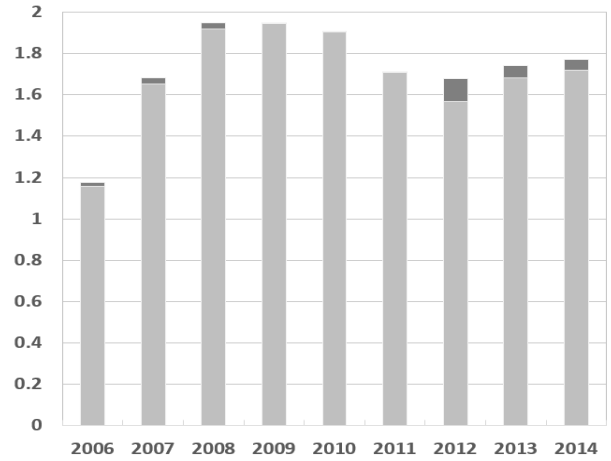


Fig. 7. Funding with (light grey) and without (dark grey) a formula in Romanian higher education (in billion RON). Source: CNFIS [2].

In twelve countries, all or part of the direct public funding for HEIs is awarded in accordance with a performance contract signed by the representatives of the Ministry of education, on one side, and of the university, on the other. In addition to the allocation of a budget, these contracts are based on the principle of defining strategic objectives for a particular HEI. They may also represent an instrument for measuring whether institutions actually do achieve their objectives.

According to the Eurydice report [43], Romania also is considered to use performance contracts. Although an institutional contract is signed by the officials of the Ministry of education and the rector of the university, it is not negotiated and does not contain performance indicators; such indicators are considered in the funding formula, instead.

Under these circumstances, Recommendation 7 of the CCR report, asking the Ministry to perform an analysis of the causes for which several universities had to resort to financial support in the last few years and to identify solutions for their restructuring, is more than welcome. The Ministry should establish some targets that all universities should meet for an efficient use of budgetary resources, following the existing examples of good practice at European level [23]. In fact, CNFIS volunteered to support the Ministry in both tasks, having expertise in determining costs and suggesting recovery strategies as well as in drafting new institutional contracts, with European quality standards and indicators.

4. Accounting for Diversity in Higher Education Systems - A Modern Story of the Procrustean Bed

According to an ancient Greek legend, Procrustes was a bandit who forced people to fit the size of his bed by either stretching them or cutting off their legs [33]. Ever since, procrustean means fitting different sizes or properties to an arbitrary standard. Despite the two millennia that have passed, the legend is still relevant, particularly when thinking of designing new higher education funding policies.

Performance based funding mechanisms [34-36] use various indicators to identify and reward outstanding teaching and research accomplishments. However, applying the same criteria to all universities may not provide the correct picture.

In Romania, the university evaluation exercise of 2011 resulted into a Ministry Decision, which classified all Romanian HEIs, public and private, into three categories. Thus, HEIs are research intensive, focused on education and research, and centered on

education. According to the Law of Education, the evaluation exercise was supposed to be repeated every year and the ranking updated consequently. However, the legislation was changed in 2013 and the need for a performance-based ranking discontinued. In 2016 the Ministry indorsed a proposal from CNFIS to award the supplementary performance-based funding after a ranking of the study programs, using some quality indicators related to teaching and learning, scientific research, international dimension and regional focus and social equity.

In parallel to the study program ranking, which is slightly biased in favor of research performance, the national agency for quality assurance in the higher education sector, ARACIS, evaluates the study programs based on various criteria, including some research indicators.

One major drawback of these policies is that, although much emphasis is put on recognizing the existence of a variety of HEIs, with different mission statements, they use the same evaluation criteria for all universities. Such a procrustean approach fails so judge the HEIs in terms of their true mission and to allow for diversity.

We therefore believe that ARACIS ought to fine-tune more carefully the evaluation mechanism and design diverse criteria for universities in different categories. As a university centered on education may consistently perform poorly in research when compared with top research intensive institutions, the authorities could think of new benchmarks, comparing universities in the same category among themselves and with others from neighboring countries. A top Romanian university should compare its performance with corresponding HEIs from other Eastern and Central European countries instead of competing only at a national level.

One direct consequence of the policies initiated in 2011 was that research intensive universities have received more grants as subsidies for master's and doctoral students and more money per student, due to the better performance. In the meantime, these universities received the same number of subsidized positions for bachelor's programs, again with supplementary funds due to the position in the hierarchy. Such policies have put the other universities under heavy financial pressure, while the top research intensive HEIs had few incentives to improve their performance.

Table 7 displays the total number of students and the percentages of students enrolled in bachelor's, master's and doctoral programs in Romanian public universities in 2013 [3]. It can be seen that the top research intensive universities have more than two thirds of their student population in undergraduate programs. The universities that have the chances to climb in the international rankings cannot do so as they are forced to focus on bachelor's programs for survival reasons. A change in funding policies and in the way the subsidized positions are allocated to universities is needed to correct such trends.

To strengthen their advanced research activities top universities ought to focus their efforts on master's and, particularly, doctoral students, leaving room for institutions centered on education to spend more time and dedication on teaching and training undergraduate students. Consequently, the performance of each HEI ought to be measured against its mission, with different, carefully tailored criteria and indicators for each category.

Without being very direct in establishing responsibilities, the CCR report lists in Recommendation 8 some new indicators that are relevant to the quality standards that CNFIS should promote. However, the higher responsibility rests with ARACIS and Recommendation 1 is important in changing the paradigm in defining the performance of HEI and measuring the competences acquired by the graduates during tertiary education.

It might be useful to get some inspiration from the U-Multirank exercise, which aims to rank higher education institutions around the world, by comparing the performances of universities in five broad dimensions of university activity: i) teaching and learning, ii) research, iii) knowledge transfer, iv) international orientation and v) regional engagement [37,38].

5. Trends in Higher Education - The New Sheriff in Town

In Romania, so far, the institutions playing a key role in devising the policies in higher education have been, along with the Ministry, ARACIS, CNFIS and CNATDCU (the National Council for Attesting University Titles, Diplomas and Certificates). The first is an independent quality assurance agency, whereas the next two are consulting councils appointed by the Minister of Education, with role in funding higher education (CNFIS) and in establishing the national performance criteria for promotion of the academic and research staff (CNATDCU). In the previous sections we mentioned on various occasions the role played by ARACIS and CNFIS in reforming Romanian tertiary education. Before moving on to discussing the role of a new and unusual actor, we briefly mention one of the measures drafted by CNATDCU that stirred passionate debates in the summer of 2011.

CNATDCU took the measure to raise the promotion standards, which was clearly necessary, in order to stimulate the university scholars to accept and align with internationally recognized standards. The new policy was badly needed, as Romania had been accepted into the European Union in January 2007, but was still using some criteria that emerged from the days of the "wild-wild-west" period that followed the collapse of the communist regime. However, the standards where applied abruptly, with no effort to communicate and explain the measures, with no time for adjustment, and using unfamiliar indicators (such as the article influence score as opposed to the impact factor). The situation was complicated even further by the economic crisis, which prompted the government to take another unpopular measure: freezing hiring into public institutions. With no warning, many scholars saw that their lifetime achievements were no longer valuable under the new regulation. For many, the new standards were set so discouragingly high, that they lost any hope to be promoted in the foreseeable future. The lesson of the story is that good policies require not just visionary ideas but also public support, in order to be successfully implemented. Otherwise, good reforms can go wrong, prompting the next government to take measures that are against clear international trends and, ironically, collecting popular approval for doing so [11].

Table 7. Total number of students and the percentages of students enrolled in bachelor's, master's and doctoral programs as well as the % of total subsidized positions in the Romanian public universities in 2013. Source: CNFIS [3].

University	Total	% Bachelor's	% Master's	% Doctoral	% Subsidized
Univ. "Babes-Bolyai" Cluj-Napoca	36391	74.4	22.3	3.3	62.6
Univ. din Bucuresti	30487	68.1	25.8	6.1	69.7
Univ. "Al.I. Cuza" din Iasi	26200	71.6	25.0	3.5	64.9
Univ. de Vest din Timisoara	15727	68.8	27.8	3.3	55.8
Univ. "Politehnica" din Bucuresti	25382	65.7	28.4	5.9	89.4
Univ. Tehnica din Cluj-Napoca	19687	73.7	21.9	4.4	81.0
Univ. Tehnica "Gheorghe Asachi" din Iasi	14758	71.7	25.2	3.1	90.2
Univ. "Politehnica" din Timisoara	12756	71.8	24.5	3.7	83.5
Univ. Tehnica de Constructii Bucuresti	7549	73.8	22.1	4.1	75.3
Univ. din Craiova	20088	75.1	22.9	1.9	64.6
Univ. "Transilvania" din Brasov	19985	78.4	19.1	2.5	59.0
Univ. "Lucian Blaga" din Sibiu	16884	73.7	23.4	2.9	48.0
Univ. "Ovidius" din Constanta	16533	79.4	17.5	3.1	36.7
Univ. din Oradea	15788	79.5	18.4	2.1	48.5
Univ. "Dunarea de Jos" din Galati	13102	79.2	19.2	1.6	68.5
Univ. din Pitesti	10365	74.2	24.9	1.0	36.7
Univ. "Stefan cel Mare" din Suceava	9334	74.0	23.4	2.6	47.5
Univ. "Petrol-Gaze" din Ploiesti	8027	82.7	15.9	1.4	45.2
Univ. "Aurel Vlaicu" din Arad	7432	74.2	25.4	0.4	31.5
Univ. "Valahia" din Târgoviste	6966	75.9	19.1	5.0	61.3
Univ. Maritima din Constanta	5368	92.8	6.6	0.6	14.0
Univ. "Vasile Alecsandri" din Bacau	4860	79.7	19.7	0.6	53.3
Univ. "1 Dec. 1918" din Alba Iulia	4231	77.7	20.0	2.3	54.3
Univ. din Petrosani	3987	74.6	22.2	3.2	63.4
Univ. "C. Brâncusi" din Târgu Jiu	3904	80.0	19.8	0.2	39.2
Univ. "P. Maior" din Târgu Mures	3373	82.9	16.3	0.8	57.8
Univ. "E. Murgu" din Resita	2391	67.1	32.1	0.8	60.7
ASE Bucuresti	23678	61.9	35.0	3.1	51.6
SNSPA Bucuresti	6266	52.3	42.8	4.9	50.9
Univ. de Arhitectura si Urbanism Bucuresti	3291	87.3	4.7	7.9	50.4
UMF Bucuresti	11133	84.2	0.9	14.9	46.1
UMF Cluj-Napoca	6436	90.7	3.7	5.7	54.4
UMF Timisoara	6399	93.0	1.3	5.7	51.2
UMF Iasi	8935	93.3	2.9	3.8	44.5
UMF Târgu Mures	5103	92.1	3.4	4.5	53.6
UMF Craiova	3858	89.3	2.0	8.7	58.0

University	Total	% Bachelor's	% Master's	% Doctoral	% Subsidized
USAMV Bucuresti	11997	86.2	11.7	2.1	43.9
USAMV Cluj-Napoca	6043	79.4	15.9	4.7	75.4
USAMV Timisoara	5394	79.5	17.1	3.4	60.0
USAMV Iasi	4415	79.6	16.0	4.4	70.4
Univ. de Arte "G. Enescu" din Iasi	1467	68.2	21.9	9.8	86.4
Univ. Nationala de Arte din Bucuresti	1338	67.8	23.9	8.3	73.6
Academia de Muzica "G. Dima" din Cluj-Napoca	1057	81.6	14.6	3.9	71.8
Univ. de Arta si Design din Cluj-Napoca	994	69.9	21.5	8.6	69.1
Univ. Nationala de Muzica din Bucuresti	852	69.7	19.6	10.7	89.0
Univ. Nationala de Arta Teatrala si Cinematografica "IL Caragiale" din Bucuresti	830	59.9	23.7	16.4	84.5
Univ. de Arte din Târgu Mures	377	66.8	25.2	8.0	82.5
UNEFS Bucuresti	1321	70.9	18.9	10.1	65.6

The new sheriff in town, however, seems to be an outsider that only recently entered the field, the dreaded Romanian Court of Accounts. The report prepared by the CCR this year [4] is quite critical for the authorities and the universities and the recommendations are very provocative.

In essence, the report urges the Ministry and the HEIs to be more effective and efficient in performing the mission of preparing the young generation for the challenging needs of the workforce of the future. Recommendation 1 notes that Romania lacks a system of evaluating the competences acquired during higher education and advises the authorities to enroll in the OECD Program for the International Assessment of Adult Competencies (PIAAC) [39]. OECD is a leading organization, deeply involved in devising solutions to ensure that people of all ages can develop the skills to work productively and satisfyingly in the jobs of tomorrow. As the accession to the OECD has been a major objective of Romanian foreign policy since 2004, the CCR's recommendation comes timely.

Recommendation 2 appeals to the Ministry to request that al HEIs create databases regarding the labor market insertion of graduates and that these databases are integrated at national level. Efforts in this direction have already been made by UEFISCDI (Executive Agency for Higher Education, Research, Development and Innovation Funding) and its partners in the SAPM (Students, Graduates, Labor Market) project [40], which builds a platform compatible with REI, the Integrated Educational Register [41]. This way, Recommendation 2 goes together with Recommendation 9, which urges the Ministry to pass regulation that forces universities to introduce data regarding their students in the RMU (Unique Enrollment Register) platform, which is part of REI. Both recommendations are welcome in the effort to bring more precision, clarity and transparency in the system.

The creation of databases is important as the Romania is missing from the European statistics, as shown in Fig. 8 as well as in Fig. 9. The completion rate shows the share of students who enter and complete their studies (graduate) in tertiary type A programs (ISCED 5A), expressed as a percentage of all entrants [26]. The entry and graduation rates are the ratio between the number of new entrants and graduates respectively, of a particular age, and the population size of the same age. While completion rates are available for only 17 EHEA systems, entry rates for programs at the ISCED 5A level are available in 32 systems and graduation rates in 26 systems [26]. Romania had a relatively high entry rate in 2011 but no data available regarding completion and graduation rates.

Equally welcome is Recommendation 3, asking for diverse forecast analyses regarding the societal needs. Such forecasts should become a standard instrument for educational planning, to mitigate the discrepancies that arise between demand and supply of highly qualified labor. The Ministry is mandated by law to allocate study grants particularly to the fields that ensure sustainable and competitive development of society. Now, through Recommendation 6, the CCR is calling on the central authority to play an active role in drafting educational policies consistent with societal requirements and to allocate public resources based on such studies. The two proposals go together, 3 being a prerequisite of 6.

Table 7 displays the total number of students and the percentages of students receiving subsidized positions [3]. It can be seen that some universities depend strongly on government support, with over 70% of their student population receiving subsides. Such HEIs, particularly those with values around 90% have no real incentives to restructure and adjust to the new societal needs, being guaranteed a dependable source of income. The other universities, particularly those with less than 50% subsidized position are

forced to compete in a market with unfair competition, attempting to change their educational offers to meet the demand from the students.

Table 8 displays the number of subsidized positions and the additional subsidized positions for students of Romanian origin from the diaspora. Some of these students also receive study grants to cover some of the living expenses. The criteria used by the Ministry to allocate the number of subsidized positions are not obvious. Obvious are, however, the disparities.

Unsurprisingly, the universities that received financial support from the Ministry (from the reserve fund for special situations, as shown in Fig. 7) received, in most cases, generous subsidized positions for Romanian students from diaspora, particularly those that also come with study grants. The decision of the Ministry to support universities facing financial difficulties was natural, considering the regional development needs of the country. However, the Ministry ought to insure that the competing environment of higher education is also fair.

The Ministry ought to reconsider the way it allocates the number of subsidized positions to universities. These subsidies should be offered based on societal needs, to make up for the market imperfections. Priority should be given to the fields where despite the need there is an insufficient demand from the high-school graduates.

We strongly agree with Recommendation 4, which advises the ministry and the universities to attract foreign students by developing study programs in foreign languages, developing better support services for these students etc. In section 2.1, in the context of declining domestic student populations we discussed the need for Romanian universities to recruit from regions with net population gain, such as Asia and Africa. Here we just remark that Romania does not have a strategy for internationalization yet (see Ref. [26]) and note that UEFISCDI has led the effort to draft such a strategy.

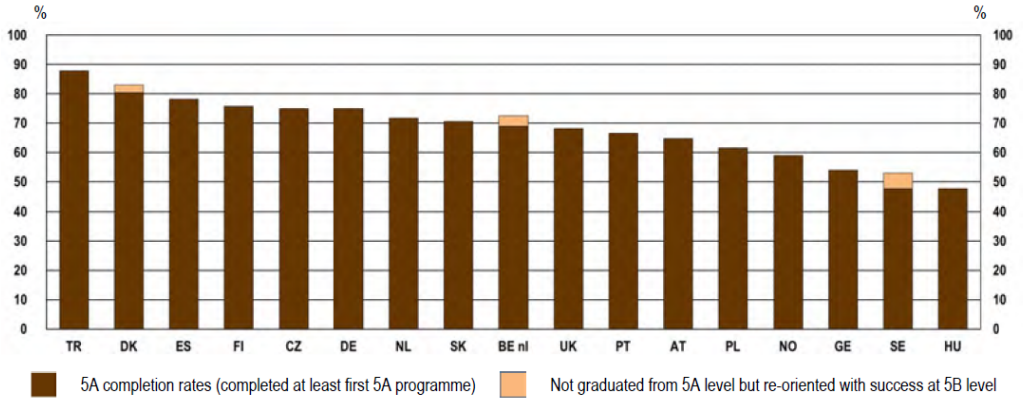
Recommendation 7 urges the Ministry to analyze the universities that in recent years systematically asked for financial support in order to identify solutions for their recovery. Additionally, Recommendation 8 indicates new quality indicators to be used in funding universities based on their performance. On these topics, we discussed, at the end of section 3, the possible role CNFIS could play in supporting the Ministry in determining costs and suggesting recovery strategies as well as in drafting new institutional contracts, with European quality indicators.

Recommendations 11 and 12 are rather standard, being related to somewhat vague suggestions coming from typical textbooks on general management.

Table 8. Total number of students and the number of subsidized positions (nsp) for bachelor's, master's and doctoral programs in Romanian public universities in 2013. For the students from diaspora (dia), the Romanian government offers subsidized positions, such that the students do not have to pay tuition, as well as some study grants (gra). Source: CNFIS [3] and Ministry of Education Ordinances 3894, 3895 and 4184 of 2013.

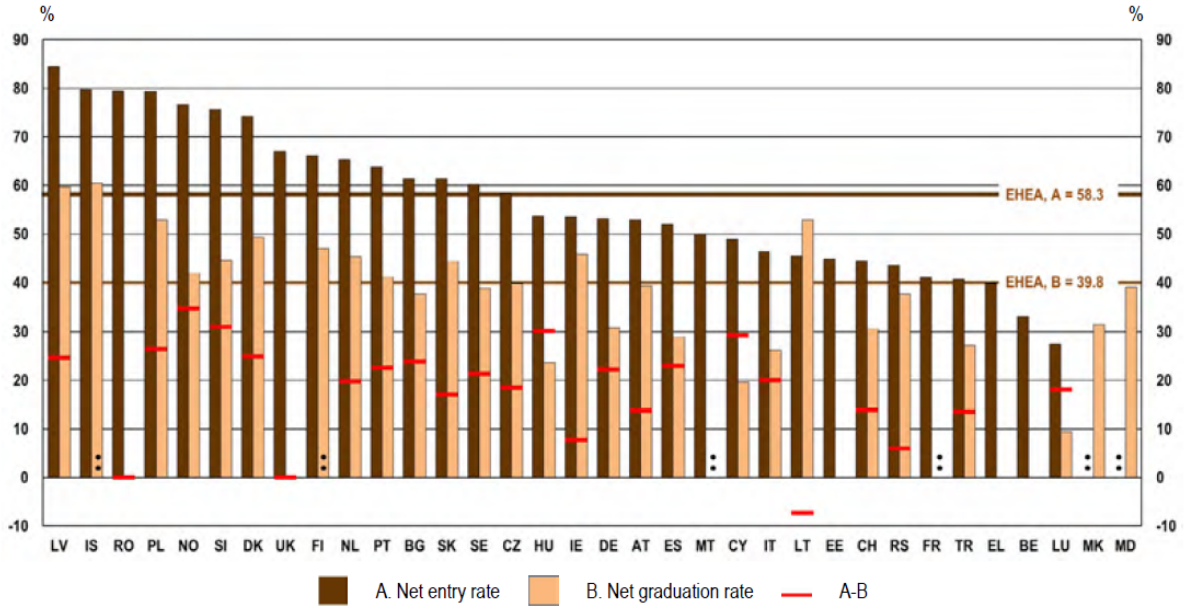
		Bachelor's			Master's			Doctoral		
University	Total	nsp	nsp dia	gra dia	nsp	nsp dia	gra dia	nsp	nsp dia	gra dia
Univ. "Babes-Bolyai" Cluj-Napoca	36391	4870	81	0	3450	20	0	310	14	3
Univ. din Bucuresti	30487	4400	80	14	3450	15	0	340	10	3
Univ. "Al.I. Cuza" din Iasi	26200	3450	240	0	2300	20	0	210	11	2
Univ. de Vest din Timisoara	15727	2000	135	84	1100	35	10	65	11	1
Univ. "Politehnica" din Bucuresti	25382	4750	103	8	3500	20	0	340	15	4
Univ. Tehnica din Cluj-Napoca	19687	3200	142	6	1970	20	0	210	3	2
Univ. Tehnica "Gheorghe Asachi" din Iasi	14758	2950	170	9	1750	20	0	100	11	3
Univ. "Politehnica" din Timisoara	12756	2200	58	24	1600	20	0	80	6	0
Univ. Tehnica de Constructii Bucuresti	7549	1270	55	53	800	20	10	45	4	2
Univ. din Craiova	20088	2880	160	120	1620	35	14	45	12	3
Univ. "Transilvania" din Brasov	19985	2750	70	40	1250	30	5	50	8	3
Univ. "Lucian Blaga" din Sibiu	16884	1620	100	35	900	34	4	30	4	1
Univ. "Ovidius" din Constanta	16533	1340	80	51	620	16	4	25	5	1
Univ. din Oradea	15788	1550	60	15	700	20	5	15	0	0
Univ. "Dunarea de Jos" din Galati	13102	1800	370	183	770	35	10	45	7	2
Univ. din Pitesti	10365	775	65	52	400	25	10	10	2	2
Univ. "Stefan cel Mare" din Suceava	9334	1020	153	130	400	35	10	25	10	3
Univ. "Petrol-Gaze" din Ploiesti	8027	870	50	49	300	25	10	10	0	0
Univ. "Aurel Vlaicu" din Arad	7432	500	12	12	200	3	3	10	0	0
Univ. "Valahia" din Târgoviste	6966	895	62	52	400	20	5	15	2	1

		Bachelor's			Master's			Doctoral		
University	Total	nsp	nsp dia	gra dia	nsp	nsp dia	gra dia	nsp	nsp dia	gra dia
Univ. Maritima din Constanta	5368	120	15	15	100	0	0	10	0	0
Univ. "Vasile Alecsandri" din Bacau	4860	525	150	130	300	30	10	10	0	0
Univ. "1 Dec. 1918" din Alba Iulia	4231	560	60	60	180	35	10	13	4	3
Univ. din Petrosani	3987	625	112	102	150	35	10	10	0	0
Univ. "C. Brâncusi" din Târgu Jiu	3904	350	21	21	100	20	5	4	0	0
Univ. "P. Maior" din Târgu Mures	3373	425	35	25	200	20	10	6	1	1
Univ. "E. Murgu" din Resita	2391	370	102	82	200	25	10	6	2	2
ASE Bucuresti	23678	2700	112	15	1750	22	0	110	11	3
SNSPA Bucuresti	6266	600	36	12	700	3	0	50	2	0
Univ. Arhitectura si Urbanism Bucuresti	3291	280	12	3	80	3	0	15	1	0
UMF Bucuresti	11133	850	32	2	20	0	0	95	0	0
UMF Cluj-Napoca	6436	600	6	0	60	0	0	70	0	0
UMF Timisoara	6399	580	32	0	35	0	0	25	0	0
UMF Iasi	8935	710	25	1	110	0	0	70	0	0
UMF Târgu Mures	5103	440	45	5	60	0	0	26	0	0
UMF Craiova	3858	350	33	2	45	0	0	20	0	0
USAMV Bucuresti	11997	950	40	14	600	14	4	50	4	2
USAMV Cluj-Napoca	6043	855	40	2	375	5	0	75	2	0
USAMV Timisoara	5394	630	29	20	320	10	2	30	0	0
USAMV Iasi	4415	500	30	15	360	15	2	40	0	0
Univ. de Arte "G. Enescu" din Iasi	1467	289	25	6	140	5	0	20	2	0
Univ. Nationala de Arte din Bucuresti	1338	205	10	2	151	5	0	15	0	0
Academia de Muzica "G. Dima" Cluj-Napoca	1057	160	4	2	72	3	0	15	0	0
Univ. de Arta si Design din Cluj-Napoca	994	150	15	2	90	5	0	15	3	1
Univ. Nationala de Muzica din Bucuresti	852	160	10	2	80	2	0	15	0	0
Univ. Nationala de Arta Teatrala si Cinematografica "IL Caragiale" Bucuresti	830	154	6	2	85	1	0	15	2	2
Univ. de Arte din Târgu Mures	377	84	2	1	42	2	0	4	0	0
UNEFS Bucuresti	1321	180	30	20	120	5	0	14	1	0



	TR	DK	ES	FI	CZ	DE	NL	SK	BEnl	UK	PT	AT	PL	NO	GE	SE	HU
Completion rate	88	80	78	76	75	75	72	71	69	68	67	65	62	59	54	48	48
Re-oriented		3			:				4			:		:	:	5	
Method	TC	TC	CS	TC	TC	TC	CS	CS	TC	CS	CS	CS	CS	TC	:	TC	CS
Year for new entrants	2007-08	2000-01	2008-09	2000	2001	2002	2003-04	2006-09	2007-08	2007-08	2006-10	2006-08	2006-09	1999-2000	..	2002-03	2006-07/ 2009-10

Fig. 8. Completion rates in tertiary type A programs (%), 2011. From Eurydice [26], source: OECD [42].



	LV	IS	RO	PL	NO	SI	DK	UK	FI	NL	PT	BG	SK	SE	CZ	HU	IE
Net entry rate (A)	84.5	79.7	79.4	79.4	76.7	75.6	74.2	67.1	66.0	65.3	63.8	61.5	61.5	60.3	58.3	53.7	53.6
Net graduation rate (B)	59.7	60.4	:	52.9	41.9	44.5	49.3	:	47.1	45.4	41.2	37.6	44.4	38.8	39.8	23.6	45.8
A-B	24.8	19.3	:	26.4	34.8	31.1	24.9	:	19.0	19.9	22.6	23.9	17.1	21.4	18.5	30.1	7.8
	DE	**AT**	**ES**	**MT**	**CY**	**IT**	**LT**	**EE**	**CH**	**RS**	**FR**	**TR**	**EL**	**BE**	**LU**	**MK**	**MD**
Net entry rate	53.2	52.9	52.0	49.9	48.9	46.3	45.5	44.8	44.4	43.6	41.0	40.7	39.8	33.2	27.5	:	:
Net graduation rate	30.9	39.2	29.0	:	19.7	26.2	52.8	:	30.6	37.6	:	27.2	:	:	9.4	31.5	39.0
A-B	22.3	13.7	23.0	:	29.2	20.1	-7.3	:	13.9	6.0	:	13.5	:	:	18.2	:	:

Fig. 9. Net entry and net graduation rates in tertiary type A programs (%), 2011. EHEA is the EHEA median. The median values are calculated based on all 26 systems for which both entry and graduation rates are available and hence the difference between the two can be computed. From Eurydice [26], source: Eurostat.

We have intentionally left Recommendations 5 and 10 for the end of our discussion as they are more controversial. For instance, in Recommendation 10 universities are strongly suggested to search for alternative funding sources, to supplement their revenues.

Although many European national policies are now encouraging HEIs to diversify their revenue stream, direct public funding continues to represent a substantial share of the higher education budget [34]. In 2003, within the 27 Member States of the European Union, 79.9 % of the funding for HEIs was coming from public sources. In some Central and Eastern European countries, this proportion was below 70 %: Poland (69 %), Lithuania (61.8 %), Bulgaria (55.2 %) and Latvia (44.9 %) [34].

In Romania, the situation varies widely from a university to another. A comparison of two HEI, a research intensive university (Babeş-Bolyai University of Cluj-Napoca) and a second tier university focused on education and research (Ovidius University of Constanţa) showed [11] a share of the total budget covered by tuition and fees paid by the students of about 25% and more than 45%, for the two institutions, respectively. Moreover, at Ovidius, if the complementary funding and the research grants are taken away, more than 60% of the income comes from student tuition and fees, indicating a much higher vulnerability on changes in student numbers.

CCR's suggestions for alternative funding include the lifelong/adult training, partnerships with economic agents, economic exploitation of scientific research results, consulting services in the areas of expertise, participation in international research programs, European funds aimed at achieving institutional development objectives etc. All these suggestions are valid but tend to work in mature societies, with strong ties between the industrial sector and the universities, which, unfortunately, is not the case for Romania.

Recommendations 5 is the most intriguing, as it asks the Ministry to explore the possibility of eliminating the dual type of financing (with and without tuition and fees) by sharing grants, insuring

co-funding from various sources, such as the state budget, the contribution of universities, the student copayment. The measure is the least explained in the report and the claims that the method could counteract the decrease in enrollment and allow for the formulation of financing policy in line with economic and social interests of the state, are left unsubstantiated.

The expansion of student numbers has presented a major problem for systems where the tradition has been to provide access to free education [12]. For many Eastern European countries this model has become unsustainable, placing pressure on governments to question and rethink the 'social contract' between higher education and society at large. In Europe, parents and/or students are increasingly responsible for tuition and other fees [43]. There is great variation in the numbers of students paying fees in publically funded HEIs across Europe. Some Nordic countries and, more recently, Germany, apply a 'no fee' regime for all students.

The situation at European level is reflected in Fig. 10 [26], in the majority of countries, at least some students being required to pay fees in public higher education institutions. In 16 education systems, all home students have to pay fees. No tuition is charged domestic students in seven systems: in three Nordic countries (Finland, Norway and Sweden), Cyprus, Greece, Turkey, the United Kingdom (Scotland) and, recently, in Germany.

Fig. 11 presents the most common amount of yearly fees in the first and second cycle as percentages of GDP per capita (2013 value) for countries where data were available [26]. As the figure shows, where there is a difference between the cycles, typically second cycle students pay more fees than first cycle students.

At the other end of the scale, there are systems where all first cycle students pay fees [43]. In the USA a recent study [44] indicated a shifting responsibility of paying for a public university degree. The shares covered by the federal government, the state and the family changed from 7%, 60% and 33%, respectively, in 1970, to 16%, 34%, and 50%, respectively in 2012 [44,45]. An analysis of the distribution of revenue per full-time equivalent student reveals the fact that the decrease in the state share was covered by the increase in the family share, as shown in Fig. 12 [45]. To compensate for the decline in state subsidies, tuition and fees were increased to surpass both state and federal contributions as a source of revenue for public universities. The consequence has been that the revenues from tuition and fees now average more than one-half of the core education expenditures of HEIs [45].

Romanian students pay relatively low taxes, in line with the low subsidies received from the government per full-time student [26].

In conclusion to this section, we note that the CCR has become a key player in the game of higher education reform, as it has a high authority over the Ministry of Education and the tertiary education institutions. While most of the recommendations made are well supported by facts and good international practice, still a couple are more controversial and less sustained by the common knowledge in the field. Under these circumstances, a few of the policies indicated by the "new sheriff" have to be scrutinized to insure that no harm is done with good intentions. It should also be mentioned that the CCR report does not mention the financing solutions based on student loans, although the Law of Education has opened the way for such funding alternatives.

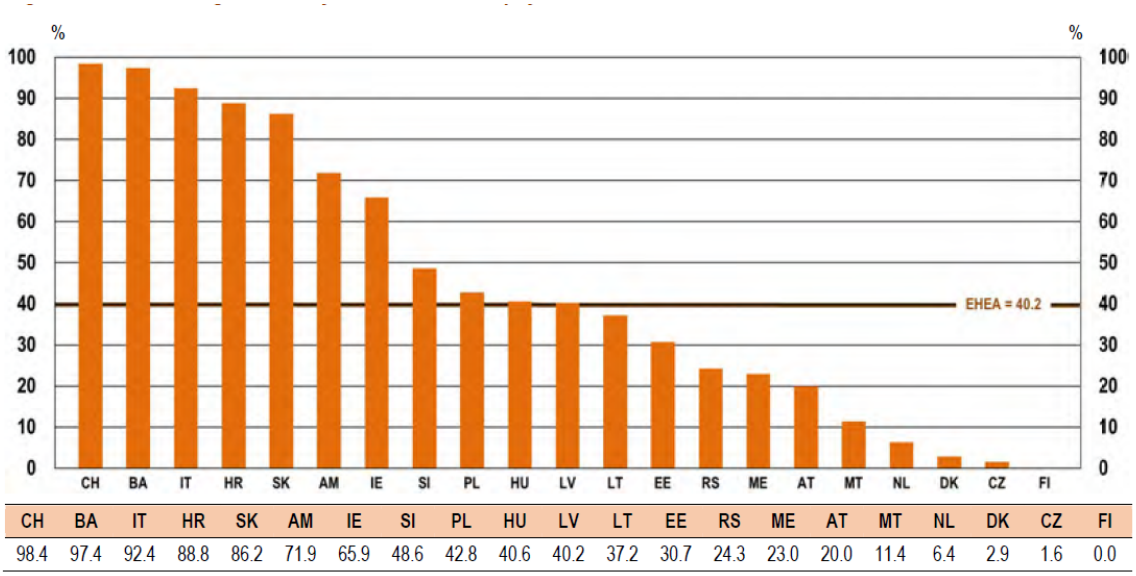
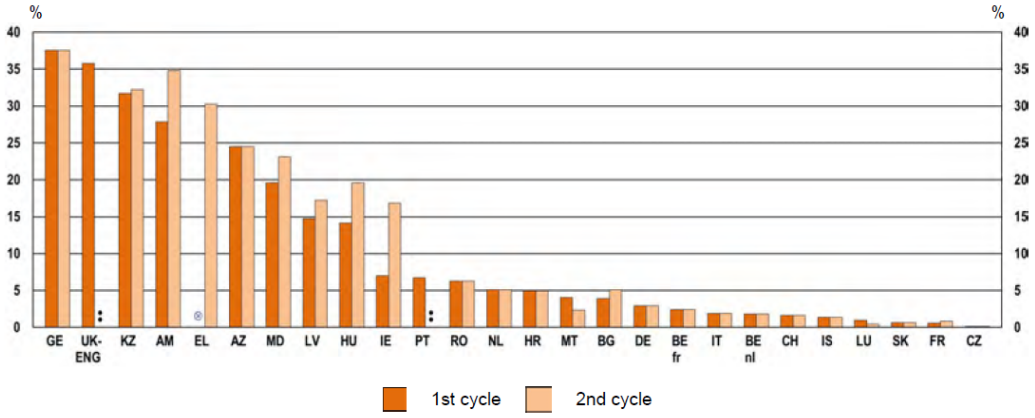


Fig. 10. Percentage of first cycle students who pay fees, 2013/14. From Eurydice [26], source: Eurostudent.



	GE	UK-ENG	KZ	AM	EL	AZ	MD	LV	HU	IE	PT	RO	NL
1st cycle	37.6	35.8	31.7	27.9	no fees	24.5	19.6	14.8	14.1	7.0	6.7	6.3	5.1
2nd cycle	37.6	:	32.3	34.8	30.3	24.5	23.2	17.2	19.6	16.8	:	6.3	5.1
	HR	MT	BG	DE	BE fr	IT	BE nl	CH	IS	LU	SK	FR	CZ
1st cycle	5.0	4.1	3.9	2.9	2.4	1.9	1.8	1.6	1.4	1.0	0.6	0.6	0.1
2nd cycle	5.0	2.3	5.1	2.9	2.4	1.9	1.8	1.6	1.4	0.5	0.6	0.8	0.1

Fig. 11. Most common amount of yearly fees for full-time students as a percentage of GDP per capita, 2013/14. From Eurydice [26], source: BFUG questionnaire and World Bank.

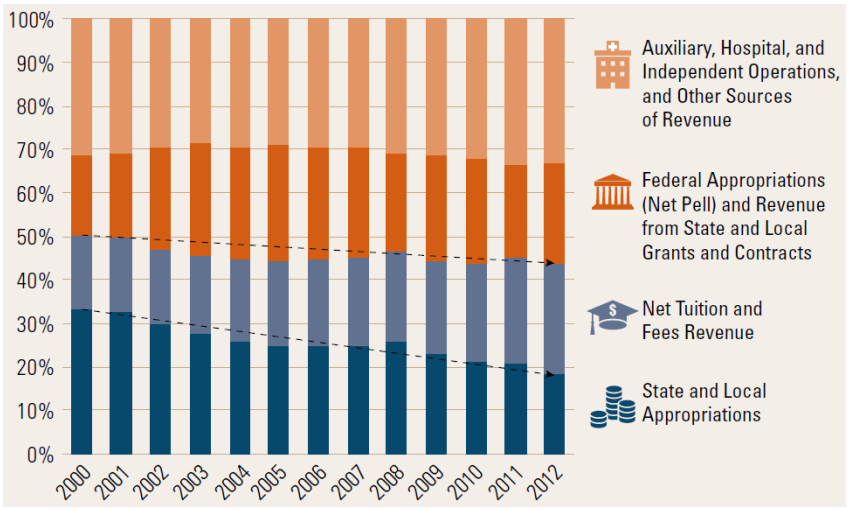


Fig. 12. Distribution of revenue per full-time equivalent student (2000-2012). From [45], source: NCES [46,21].

6. Autonomy of Higher Education Institutions - The Seven Samurai

The memorable 1954 movie of Akira Kurosawa, follows the story of a village of farmers that hire seven masterless samurai to help them defend themselves [47]. While in the middle ages Japanese farmers were fighting for their families and homes, presently, universities strive for autonomy [11].

European HEIs are legally autonomous, in the sense that the national legislation defines institutional governance structures entitled to take decisions for the entire organization [34]. However, autonomy and accountability go hand in hand, with clear rules on the extent of the freedom to decide on academic and financial issues. In some countries accountability means only the obligation to perform financial audits, to report on the performance indicators, to prepare annual reports, transmit information for databases, publish internal evaluation results etc. In others, there are strict rules regarding authorization for hiring, public announcements of open positions, minimal criteria for promotion in various positions etc [11].

In Romania, HEIs have to comply with strict

quality assurance regulations set forth by the national agency, ARACIS. Moreover, hiring is restricted by formal approval by the ministry of education for both academic and administrative staff. There have been cases when less than half of the positions opened for hiring by financially well balanced universities were approved by the Ministry, with negative consequences on their optimal operation, Ovidius University of Constanța being an example.

In the majority of European countries, there is a clear tendency towards deregulation and more autonomy for HEIs regarding institutional policies and, in particular, the management of institutional budgets. However, the situation is still very diverse across Europe. In some countries, the block grant can be spent with wide autonomy, in others it is divided between the categories of expenditure depending on the internal governance of the institution concerned but pending approval from the supervisory body, and, finally, in others the block grants have to be spent in strict compliance with the budget headings submitted to and accepted by the funding authority [34].

Note that the information presented for Romania in the Eurydice report [34] is not entirely accurate. The Romanian HEIs have to draft a budget before the beginning of the financial year and receive a preliminary approval from the ministry of education. After signing the institutional contract and the budget is approved changes between budget headings are difficult, requiring special authorization from the ministry of education. Moreover, the financial and accounting rules set by the ministry of finance are very strict, with penalties if the budget is not respected (in case of higher expenses or lower revenue) [11].

One of the most concerning problem for Romanian HEI is the very limited ability to carry forward unspent funds from one year to the next. This lack of flexibility impedes on the capability of an institution to define strategies in the medium or long term and enables the financing of multi-annual projects, and even allows investments to be made in order to generate income. Different countries have different policies regarding this aspect, yet again the information in the Eurydice report [34] is not entirely accurate.

Under such circumstances, Romanian universities have to voice more clearly their concerns, defend their rights and struggle for increased autonomy. As the National Rector's Council has proved to be, at times, too politicized, universities have searched for other solutions. One such alternative is the recent formation of the *Universitaria* consortium consisting of six top research oriented HEIs. Very likely, the universities from the education and research category will also join forces as well as those centered on education. Moreover, private HEIs have certain common interests that may determine them to associate.

Romanian universities are not alone in their endeavor for more autonomy. Some expert bodies played the role of the samurai. All the National Research Council (CNCS) members resigned in block on April 12, 2013, after failed attempts to prevent major research budget cuts, in an effort to insure a rhythmic calendar of competitions and to preserve the evaluation criteria already harmonized with our western counterparts. Numerous CNATDCU members were dismissed in June 29, 2012, after they announced that the doctoral thesis of the prime minister in office was copied from previous publications of other authors without proper reference. CNFIS, has continuously supported measures that increased university autonomy, funding transparency and institutional performance. The mandate of only few of the CNFIS members was renewed in 2015.

Under these circumstances, we are reminded that the key to success and long term sustainable development is a mature civil society. Universities and the higher education community as an entity have important roles to play in protecting the future of the Romanian university system. Some measures worth considering are briefly discussed in the following.

Autonomy. Universities need more autonomy, along with more accountability, particularly in dealing with financial issues. The ability to carry forward unspent funds to the next year is crucial for many HEIs, which need to use without the hindrance of lengthy and bureaucratic special approvals from the Ministry the money they save. Moreover, more flexibility in making decision regarding the destination of the funds, in accordance with their strategic development plans is required.

Increased autonomy in hiring is also important. The restrictions introduced by the need of an approval from the Ministry of Education for new openings for academic and administrative or non-teaching positions should be removed and replaced with measures that also increase the accountability of the managerial team of the HEI.

Coherence. The higher education system needs more coherence, in the sense that the policies and the agendas of the Ministry and the other authorities in education and research as well as of the advisory committees should be aligned. In particular, CNATDCU, CNFIS, CNCS, and ARACIS, should agree on using in a consistent and predictable manner, a common set of standards and indicators, where appropriate. For instance, the methodology used in 2016 for allocating public funds to HEIs will gather crucial information regarding the degree the Romanian academics meet the promotion criteria to

become associate and full professor. Based on this information, CNATDCU could reconsider the criteria in order to insure some kind of homogeneity across the different fields, in the sense that it should be almost equally difficult to reach to a professorship position in areas of scientific endeavor. With such a large sample of data the statistical analyses become relevant, such that drawing the cut line for promotion should not be a problem anymore.

Alignment to international standards. Along with coherence we also need a better alignment with European practices in tertiary education. For instance, ARACIS and ANC (the National Authority for Qualifications) ought to line up their agendas and evaluation criteria and indicators, particularly in applying the latest international standards set by ISCED 2013 regarding the nomenclature of the fields of study. Adopting international standards will mean increasing the employability of the graduates and the flexibility of faculties in cutting costs with more common courses.

At the moment, Romania is among the laggards in terms of developing national qualifications frameworks according to the 11 steps defined by the EHEA qualifications frameworks working group [26]. The steps performed so far are 1-6, including the adoption of legislation; the present stage being 7, implementation of the national quality framework, with agreement on the roles and responsibilities of higher education institutions, the quality assurance agency and other bodies [26].

The picture regarding the extent to which ECTS credits are linked to learning outcomes is regarded as rather positive at EU level [26], with 22 higher educational systems estimating that higher education institutions have linked all parts of programs to learning outcomes while another 19 estimate that 50-99 % of their institutions have done so. However, Romania is among the exceptions, the implementation of linking credits with learning outcomes still lagging behind compared to the other EU countries [26]. Even worse, in terms of adoption of the Lisbon Recognition Convention in national legislation, by 2015 Romania had not made progress, being, along with Greece among the last countries in the EU in this respect [26].

At European level, the employer involvement has become a feature of quality assurance in many systems [26]. However, although 25 countries state that there is a formal requirement for involvement of employers – whether in governance bodies, external review teams or both, in Romania employer involvement is not a clear requirement. The labor market concerns may be in some cases reflected in the quality assurance system but the practice has not become a standard.

Reduction of the bureaucratic burden. The Ministry, the national authorities and the consultative councils all require annual reports and various other types of information from the universities. Reducing, simplifying and automating the reporting, ensuring compatibility between the data provided to more than one beneficiary (for instance the Ministry and the National Institute for Statistics, INS) are all desirable goals. Other bureaucratic procedures that could be simplified regard the Ministry of Education and its procedures for the recognition of studies and admissions of international students. National authorities could release some of the burden for student and work visa procedures, for employment of foreign scholars etc.

5. Conclusions

We reviewed some challenges and trends in reforming higher education funding in Romania, looking from a wider European perspective and placing in context the 2016 report of the Romanian Court of Accounts, CCR.

In essence, the CCR report urges the Ministry and the HEIs to be more effective and efficient in performing the mission of preparing the workforce of tomorrow. Recommendation 1 advises the Romanian authorities to enroll in the OECD Program for the International Assessment of Adult Competencies (PIAAC). Recommendation 2 appeals to the Ministry to request that al HEIs create databases regarding the labor market insertion of graduates and that these databases are integrated at national level. It goes together with Recommendation 9, which requires that universities introduce student information in the RMU platform bringing more precision, clarity and transparency in the system. Recommendation 3 asks for diverse forecast analyses regarding the societal needs, being complemented by Recommendation 6, calling on the Ministry to play an active role in allocating public resources based on such studies.

Recommendation 4 advises the ministry and the universities to attract foreign students by creating study programs in foreign languages, developing better support services for these students etc. In support of this demand, we suggested that it would be beneficial if Romania developed and implemented a strategy for internationalization. Recommendation 7 urges the Ministry to analyze the universities that in recent years systematically asked for financial support in order to identify solutions for their recovery. Additionally, Recommendation 8 indicates new quality indicators to be used in funding universities based on their performance. We advocated that

CNFIS could support the Ministry in determining costs and suggesting recovery strategies for defaulting HEIs as well as in drafting new institutional contracts, with European quality indicators. Recommendations 11 and 12 are rather standard, being related to somewhat vague suggestions coming from typical textbooks on general management.

On the other hand, Recommendations 5 and 10 are more controversial, the former asking universities to search for alternative funding sources, to supplement their revenues. CCR's suggestions for alternative funding are valid but tend to work in mature societies with strong partnerships between industry and the universities, which has yet to happen in Romania. Recommendations 5 is the most intriguing, as it asks the Ministry to explore the possibility of eliminating the dual type of financing (with and without tuition and fees) by sharing grants, insuring co-funding from various sources, such as the state budget, the contribution of universities, the student copayment. The measure is the least explained in the report and the claims that the method could counteract the decrease in enrollment and allow for the formulation of financing policy in line with economic and social interests of the state, are left unsubstantiated.

With the 2016 report the CCR has become a key player in the reform of higher education, most recommendations being well supported by facts and good international practice. Still a couple of these demands are more controversial and less sustained by the common knowledge in the field.

We end with a few suggestions that we believe are important for increasing the effectiveness and efficiency of HEIs, in addition to the recommendations of the CCR. First, the greatest challenge for many HEIs is generated by the insufficient and unpredictably fluctuating funding. Although the CCR report does not mention the severe underfunding of tertiary education, there is a clear need for an increased expenditure in educating our young generations. We strongly support both the gradual increase to 6% of GDP of the expenditure on education and the differentiated allocations for primary, secondary and tertiary education. We plea for increased public funding, with less political interventions, for funding mechanisms that stimulate performance while allowing for inclusiveness and equity, being simple, verifiable and diverse. We emphasized that the allocation of subsidized position to HEIs should be based both on societal needs and insure an environment of fair competition for all players.

Second, universities need more autonomy, along with more accountability, particularly in dealing with financial issues, such as the ability to carry forward unspent funds as well as more flexibility in making decision regarding the destination of the funds. Increased autonomy in hiring is also important.

Third, we argued that the higher education system needs more coherence between the actions of the Ministry, the authorities in education and research and the advisory councils as well as a better alignment with European practices in tertiary education. In particular it is important to apply the ISCED 2013 nomenclature of the fields of study to increase the employability of the graduates and the flexibility of faculties in cutting costs and lower the bureaucratic burden of accreditation. Other bureaucratic procedures that could be simplified regard the recognition of studies and admissions of international students but also for issuing student and work visa procedures, work permits for foreign scholars etc.

Forth, the competition for attracting and retaining talented academics is also challenging. The unstimulating and inconsistent pay of the academic staff have contributed to a decline in the attractiveness of the academic career. What the CCR report is missing is a set of recommendations concerning improved and more coherent policies regarding the human resources for HEIs, particularly related to wages and promotion standards. The reform of the remuneration system for the entire public sector would be beneficial in solving structural problems throughout the Romanian society. Other requirements for attracting and retaining academics are related to the infrastructure, the overall atmosphere in the institution and the quality of life in the community. Not contained within the CCR report, such aspects need to be taken into account when devising future policies in higher education.

Fifth, the effective and efficient use of resources demanded by the CCR requires the community to consider more careful the possibility for mergers of HEIs.

To build the critical mass of expertise and infrastructure as well as to save money through the common use of resources, establishing consortia and carrying out mergers may very well be the solution. The legislation passed in 2004 and 2011 to encourage HEIs to associate or merge failed to stimulate the process, as, so far, we have witnessed only one fusion by absorption.

As a final note, given the referral in the CCR report to international rankings of universities, we feel compelled to state that while competition has always been a driving force in academe, stimulating excellence, it can also contribute to a decline in academic spirit and traditional values. In this context, competing with HEI in the West may be frustrating

for the universities in Central and Eastern European countries, which still have a significant handicap to overcome. If for some universities the way to catch up with the competitors may be by building the critical mass through establishing consortia and carrying out mergers [35], for others mission diversification and finding the right niche, may be the appropriate solution. In either case, Romanian universities have a lot to learn from the *Blue Ocean Strategy* of Kim and Mauborgne, as success may come not by battling gigantic competitors, but rather by creating ″blue oceans″ of uncontested market space.

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