THE ANALYSIS OF THE OFFER OF UNIVERSITY EDUCATION SYSTEM

Prof. Constantin ANGHELACHE PhD *(actincon@yahoo.com)*
Bucharest University of Economic Studies / „Artifex" University of Bucharest
Assoc. prof. Emilia GOGU PhD *(arina_emilia@yahoo.com)*
Bucharest University of Economic Studies
Assoc. prof. Mădălina-Gabriela ANGHEL PhD
„Artifex" University of Bucharest

Abstract

In this article, the authors have proposed to consider a period of time based on existing data system statistics, quantitative and qualitative development of the activity in the university education system in Romania.

The premise was left in such a study is that, every year, producing fewer high school graduates with a baccalaureate diploma. On the other hand, all in a certain decline is recorded growth rates drop by more and more university students. Another important element in the analysis of the university is the fact that the labor market offers fewer opportunities for employment on the profile of each program graduates of bachelor and master. The analysis is based on the fact that in Romania there are a number of institutions of higher education or 55 higher education in the state and 46 private higher education institutions (37 universities and 9 foundations[1]). Analysis was done on several criteria, namely: the number of candidates enrolled in universities accredited or provisionally approved expressing a decline from year to year. Secondly, it has pursued an analysis on key fundamental areas of undergraduate level recorded in 2016/2017 academic year or other years of prior periods. Another element of the analysis, it was the structure of graduates license key areas during the 2014/2015, 2016/2017, which showed some progress. Number of seats in the first year offered by government policies began to be increasingly more fragile occupied by candidates who wish to undertake undergraduate studies, and then the master. The authors focused on the present hierarchy state and private higher education institutions by offering seats for the first year and considered the situation according to Government Decision No 654/2016, which is consistent with the structure for the academic year 2016- 2017. An interesting element option presents candidates t o fill seats specializations year at public institutions and private institutions. Of course, there is a certain hierarchy, leaving the seats Free State (budget) and total paid-seats offered

1. Currently, in liquidation 6 university and two private foundations

so higher education institutions and the private. We used a hierarchy of main specializations based on the number of seats offered for the first year in public and private institutions for the academic year 2016-2017 to show the specific situation of the offer of seats in higher education and employment demand in these seats with entrance exams to reveal the situation in our country. To highlight more clearly what the situation is in connection to bid for seats in 2016-2017, the authors resorted to presenting EU Member hierarchy after share of population with tertiary education in total employment for the age of 15-64 years. The data we used refers to 2015 for which data were comparable for all European Union countries. An important element of it was the fact that the structure of education in Romania is slightly narrower than in other Eastern European countries. From this point of view in Romania there are only two possibilities, namely that of high school or a school of arts and crafts for secondary school graduates and for high school graduates only university or post-secondary. Germany, as an example, offers a much larger number, in both cases, reaching that offer high school graduates are nine such tracks. Then, we referred to the fact that in Romania there is a high school dropout, and to this end, we conducted a study during 2010-2015 on the degree and level of inclusion in education of the population aged 15-18 years. In Romania, enrollment rate decreased year by year, both in structure and in absolute numbers. It is clear that a significant number of people aged 15-18 left out of education. Embodying the available data were made presentations about the school population aged 17 years, from birth, who were students enrolled in education in 2014-2015 and evolution of the number of students promoted or failed the baccalaureate during 2010-2016. In the study, the authors sought to identify the causes that led to these results, much lower in terms of high school graduates who were able to obtain high school diploma. Based on the results presented, the authors attempted an expression of the number of students from the offer for high school graduates with BAC between 2017-2022. Not least was considered the correlation with the labor market and settled share level and age group of 0-24 years in the total population in 1992, 2010 and 2016. At the end of this study, the authors allow some suggestions on the basis of the causes identified in the social responsibility of universities in rural areas, which can lead to a better access to general education and university in Romania.

Key words: *university, offer, student, study program, specialization, license studies*

JEL Classification: *I21, I23*

Introduction

In this study, the authors focused on setting up the details of the offer of higher education system in Romania, from concrete resources, candidates who are high school graduates with a baccalaureate diploma. Summarizing, it started from the structure of higher education system in Romania, related to structure the number of seats for the first year on core areas. Then, the authors focused on the analysis of the number of seats on the key areas in 2016/2017 than in 2014/2015 to reveal the general trend in this direction. Analyzes focused on state and private universities ranking by number of seats offered. It went in depth, establishing a ranking of specializations by the number of seats offered, finding the remains outside the university system of a large number of graduates, especially those who have failed to promote the baccalaureate exam. The context is a statistical analysis on the system of pre-university ought to absorb those high school graduates and provide them with training to be occupied for a job. Also, the question arises as to reorganize after middle school dual training system which provides high school graduates (vocational high schools) occupy seats in economy. In this context is a comparison of the jobs offered at fairs organized nationally and fill them by candidates that were presented to them. The explanation is simple, the structure of graduates or those interested in filling a job is not the same, linked to the jobs offered. In the study, the authors focused on a number of issues regarding the structure of higher education system, uzitând recent data or academic year 2016-2017, then going to the system for higher education overall and by type of ownership. Offer university is well presented and accompanied by tables and graphs suggestive series data reveal that they themselves can draw conclusions consistent with specializations ISCED 2013. Thus, they use the NIS data in 2014 showed that the concrete situation of graduates structure and so on. In some form it was introduced and the number of seats depending on the situation of language teaching and ownership in the academic year 2016-2017. It follows that there is a significant number of students who have recourse to foreign language studies, but after graduating from these studies do not converge license, did not go to the labor market in Romania. To make sense of the authors performed the study showed a hierarchy of higher educational institutions by offering the first year of the 2016-2017 academic year, the institution and ownership. Going deep was conducted a study on hierarchy first 30 majors for students who have gone public and private institutions in the academic year 2016-2017. An interesting element in the study authors it was ranking countries by percentage of population with tertiary education in total employment in 2015. They were surveyed compared to European Union member states, resulting in the end that Romania is far away, with a rate of only 17.2% compared to the European average of 30.1% or 43.2% Norway. To understand this decline in employment authors studied

the structure of the education system in Romania compared to that existing in other developed European countries, resulting clear that slopes towards which high school graduates in Romania are only two compared states like Germany, Norway, UK, France and others that offer at least 9 to 11 tracks that can gain access to both secondary school graduates and high school graduates with a baccalaureate diploma. A very important element of the analysis it was the degree and level of education enrollment in school age population of 15-18 years. Relative data shows a steady decline since at least 2010 to 2016, both in structure and in absolute numbers. More important it is that the population in education outside this age group 15-18 years increased year by year over the same period from 2010 to 2015, reaching be 188 651 people in 2015. An important element of the analysis was to establish the level school population aged 17 years, from the age of 8 years 2013-2015. In this way the data are somewhat identical to the earlier analysis indicating that we can not yet speak of element birth but that a growing number of middle school or high school graduates remain outside national education coverage. The end of the work to materialize the purpose of analysis was focused on presenting the evolution of graduates passing and failing baccalaureate during 2010-2016. It notes that in 2016, the graduates was 97 065 people, and those who have passed the 40.763. Under these circumstances, we find another element that the number of graduates with Bachelor of Science or Bachelor of Science with decreased year by year. An analysis of the graduation rate during 2010-2016 is slightly fetishized as in 2011 and 2014 to a larger number of high school graduates total number of those who have not passed the graduation exam was higher. In 2015 and especially in 2016 the percentage is high (70.47%), but because the number of passing and failing had a lower total number of high school graduates respectively. Significant results obtained from simulation and CAD software itself shows that there are some important aspects that should be taken to try improving education at all levels in Romania. As the endpoint of the study, the authors focused on the correlation with the labor market, setting the level and share of the age group up of zero to 24 years in total in three years significant relationship (1992, 2010 and 2016). The study concludes with some proposals that would be likely to stimulate interest for the general education from Romania and, not least, the interest graduates high school with BAC diploma for university education.

Literature review

Algan, Cahuc and Shleifer (2013) are concerned about the practice of teaching. The paper by Anghelache and Anghel (2016), Anghelache (2008), Lilea, Biji, Vătui and Gogu (2008) describe how to apply the instruments of economic statistics, Anghelache, Isaic-Maniu, Mitruț and Voineagu (2006a),

Petrescu, Gogu, and Iucu (2015) are concerned about short-term analysis and indicators devoted to them. Barrow, Markman and Rouse (2009) analyzes the characteristics of computer assisted education. Duncan and Magnuson (2013) are concerned about investment in preschool education system component, Belfield, Nores, Barnett and Schweinhart (2006) performed a cost-benefit analysis of such a type of program. Anghelache, Isaic-Maniu, Mitruţ and Voineagu (2006) describe apply statistical indicators to quantify the phenomenon of poverty. Bettinger and Long (2010) assesses the impact of cost reduction and the teaching staff the results of learners, Hoffmann and Oreopoulos (2009) develops a similar theme, namely the relationship between teacher quality and student performance. Jackson, Rockoff and Staiger (2014) are concerned about human resources policies dedicated teachers.. Rothstein (2015 considers policies to ensure quality teaching staff. Dillon and Smith (2015) measured the impact academic correspondence between students and colleagues. Goldin and Katz (2008) show the competition between the development of the educational and technical progress. Brown, Jones, LaRusso and Aber (2010) have regard to considerations relating to increasing the quality of education. Cappelen, List, Samek and Tungodden (2016) studied the impact of early education on social preferences. Jacob şi Lefgren (2008) analyzes the subjective assessment of performance in education. Rivkin, Hanushek, and Kain (2005) addresses the issue through the teachers' academic results. Gogu and Iucu (coord., 2015) is a documentary reference on the quality of Romanian higher education system. Slavin, Lake, Chambers, Cheung and Davis (2009) are concerned about a special educational programs. Doepke and Zilibotti (2008) examines the choice of profession vis-a-vis the capitalist spirit. Dearden, Goodman, Fitzsimons and Kaplan (2008) deals with the reform of higher education funding system English. Giuliano (2007) assessing the cultural origin of life in Western Europe. Carneiro, Costas and Parey (2013) are concerned about the development of children and youth under the impact of parental education and home environment. Cunha, Heckman, Lochner and Masterov (2006) onsider interpretation of records on the lifelong skills. Heckman, Pinto and Savelyev (2013) analyzes the impact of early education on improving the results of the adult. Lemieux (2006) examines the correlation between wage inequality and increasing post-secondary education. Papay and Kraft (2015) evaluate some aspects of improving long-term teaching career.

Research methodology and data

Offer analysis of higher education system must start to source candidates who want to study in these universities. In turn, high school graduates with a baccalaureate diploma, resulting from students who attended

high school and were enrolled in baccalaureate, which promoted him. In order to obtain definite conclusions, it is necessary to analyze the whole education system in Romania to identify the dropout throughout its pathway. In this sense we present in table no. 1 the changes in the number of graduates who passed the baccalaureate in the period 2010-2016.

Table 1. The number of graduates with baccalaureate during 2010-2016

Year	Graduates promoted BAC
2010	163.545
2011	111.932
2012	104.752
2013	114.652
2014	104.229
2015	119.840
2016	97.065

Source: Calculations by https://www.edu.ro/ accessed 2014-2017

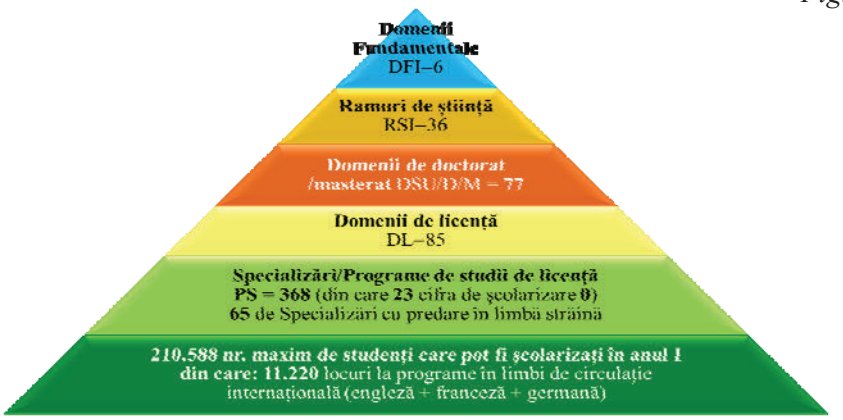
Synthetic table shows that the number of graduates who have passed the examination baccalaureate declined, reaching in 2016 to 97,065 people. There is an increase in 2013 and 2015, compared to previous year.

The structure and composition of the University education system in the academic year 2016-2017

The structure of university education system includes, in current academic year, 6 key areas, with 36 branches of science, 77 areas of master / doctorate, 85 domains license 368 programs of undergraduate studies, of which 23 with figure tuition zero in 2016, of which 65 majors with teaching in a foreign language. In the academic year 2016/2017, the maximum capacity is 210 588 school students in the first year, of which 11,200 are seats to undergraduate programs in foreign languages (English, French, German). The synthesis of the above is represented in the graphic diagram of Fig. 1.

The structure and composition of the university education system, academic year 2016/2017

Fig. 1



Source: Processing ARACIS by GD. 376/2016 and GD. 654/2016

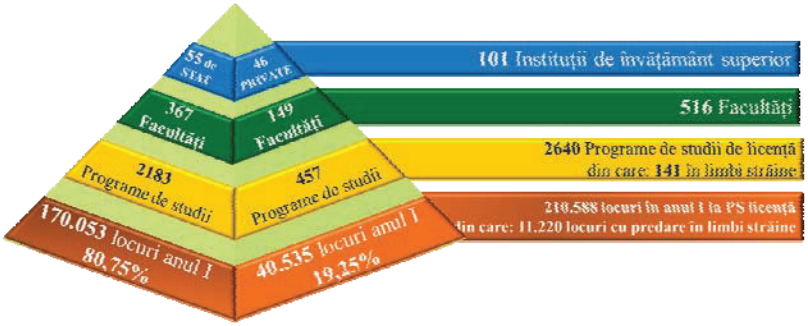
National system of undergraduate education, the total included 111 undergraduate educational institutions (some of them no longer in current assets).

Universities include 516 universities with undergraduate study programs in 2640, of which 141 teaching in languages of international circulation.

In terms of forms of ownership, the national undergraduate studies comprises 55 state universities and 46 private. Of the 367 existing universities are public universities and 149 private ones, with 2183 state study programs and 457 private universities. State universities are tuition capacity of 80.75% and 19.25% in the private. In the graphic diagram of Fig. 2 summarizes the above presented figures.

Composition higher education system overall and by type of ownership, academic year 2016/2017

Fig. 2



Source: Processing ARACIS by: GD. 376/2016 and GD. 654/2016

Offer structure university in the academic year 2016/2017

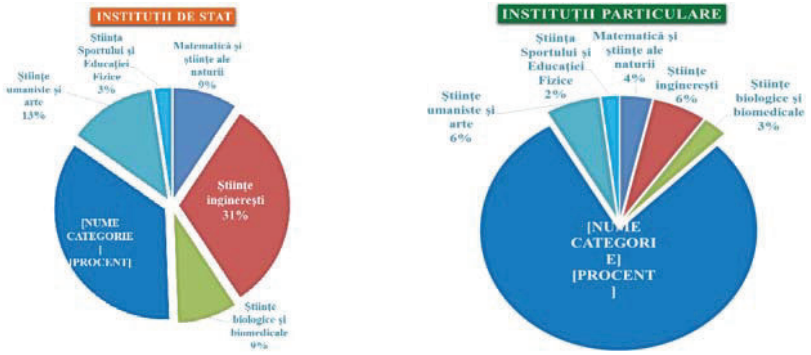
In the overall analysis for Undergraduate university offer start from schooling capacity of the national university.

In this regard, it is significant demand on core areas as well as the two forms of property. In this sense, the six key areas in state universities first and second placed right engineering sciences (31%) and social sciences (35%), human sciences and the arts follows (13%), mathematics and natural sciences (9%), biological and biomedical sciences (9%). Sport science and physical education classes only 3% of total supply. Private universities offer undergraduate studies seats in the largest share of social sciences (law, economics) 80%. The other key areas have a reduced offer between 2% (sport science and physical education) and 6% (on par engineering sciences with humanities and arts).

The structure diagrams, Figure 3 are summarized data on the offer structure on key areas and ownership. By ownership total offer of public universities is 170 053 seats, and those deprived of 40.535 seats.

Structure university offer on key areas, license level, by forms of ownership, the academic year 2016/2017

Fig. 3



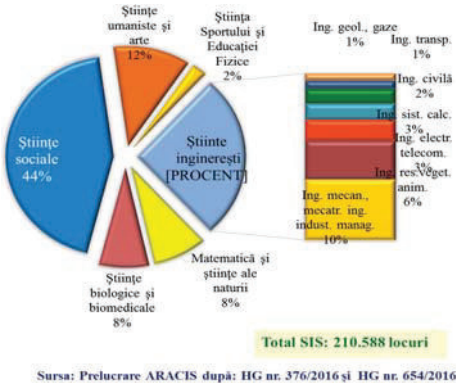
IIS State: 170 053 seats
IIS private: 40.535 seats

Source: Processing ARACIS by: GD. 376/2016 and GD. 654/2016

The structure of the core areas undergraduate university in the academic year 2016/2017 are as follows: social sciences accounted for 44% and 26% engineering, which means 70% of the core areas. Regarding science engineering they are divided into several specializations very important such as mechanical engineering 6% Telecommunications 3% Electronic Engineering 3%, civil engineering 2%, transport engineering a percentage, and geology and gas 1% . It thus appears that is quite contracted level of engineering sciences industry as the national economy and development, research and others, does not have the scope that has had many years ago.

Structure university offer on key areas, license level, academic year 2016/2017

Fig. 4



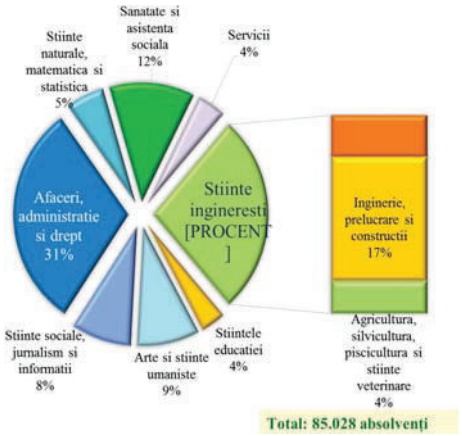
Source: ARACIS Processing by: GD. 376/2016 and GD. 654/2016

Another analysis was the structure of graduate and undergraduate specializations groups according to ISCED 2013 2014. From this point of view we see that in engineering sciences graduates accounted for 27% of the total, and of these 17% have completed specialization engineering in the processing and construction. Of course in this structural diagram of graduates license, administrative affairs and as represented 31%. It is another important aspect, namely that the total offer of seats in undergraduate education, for 210 588 seats, recorded only 85 028 graduates, which is only 40.38% recovery by graduation job offers available. In this direction, we find two explanations, the first would be that neither the occupation of seats not reached maximum bid, and in time percentage out of the system of university degree (we can say to abandon university) was about 37 %.

Next, Figure 5 shows the situation bachelor graduates by groups of specialty International Standard Classification of Education (ISCED) in 2013.

Licence graduates structure on specializations groups ISCED 2013, in 2014 year

Fig. 5



Processing ARACIS after INS tempo online, accessed March 2017

In connection with the dynamics of the number of seats offered for cycle license key areas in the academic year 2016/2017 to 20014/2015 observe certain changes in the sense that the engineering sciences, sport science and physical education as well as biological and biomedical sciences recorded increases.

On the other we find that there are some reductions in the number of seats offered. We consider here the social sciences, the number was lower by 7%, mathematics and natural sciences 4%.

The total maximum number of students that can be enrolled license decreased by 4899 jobs in the year 2016/2017 to 20014/2015 which is a reduction of 2%. The synthetic data are in Table 2.

The dynamics of the number of seats the first year license cycle fundamental domains in 2016/2017 to 2014/2015

Table 2

Code DFI	Fundamental domains (DFI)	Academic year 2014-2015			Academic year 2016-2017			Changes in 2016 to 2014	
								Abs.	%
		IIS of the state	IIS private	**Total IIS**	IIS of the state	IIS private	**Total IIS**	Total IIS	Total IIS
10	Mathematics and Natural Sciences	16382	1810	**18.192**	15857	1465	**17.322**	**-870**	***-4,8***
20	engineering Sciences	51263	2.430	**53.693**	53388	2.495	**55.883**	**2190**	***4,1***
30	Biological and Biomedical Sciences	14320	980	**15.300**	14730	1120	**15.850**	**550**	***3,6***
40	Social Sciences	62450	37515	**99.965**	60127	32075	**92.202**	**-7763**	***-7,8***
50	Humanities and arts	20940	2725	**23.665**	21834	2.555	**24.389**	**724**	***3,1***
60	Sport Science and Physical Education	3737	925	**4.662**	4117	825	**4.942**	**280**	***6,0***
Total maximum number of students that can be enrolled license		169092	46.385	**215477**	170053	40535	**210588**	**-4889**	**-2,3**

Source: Processing ARACIS by GD. 376/2016 and GD. 654/2016

Interesting is the analysis and from another point of view, namely, that the number of undergraduate programs by ownership, by duration of study, type of education in the academic year 2016/2017.

In this regard we find that the number of study programs at institutions of higher education state was 3, 4, 5 or 6 years, ie a total of 2 183 degree programs and university education, particularly all these programs was 456.

In total, the number of undergraduate programs in Romania was 2640. The structure and the number is shown below, Table no. 3 and Table no. 4.

Number of licensed programs on ownership by duration of study / type of education in the academic year 2016/2017

Table 3

Indicator	Property form	Duration of license programs studies (years)				Total
		3 years	**4 years**	**5 years**	**6 years**	
Number of study programmes	IIS of the state	1227	884	17	55	**2183**
	IIS private	358	88	2	9	**457**
TOTAL programs			**972**	**19**	**64**	**2640**

Source: Processing by GD. 376/2016 and GD. 654/2016

Number of licensed programs on property form by form of education in the academic year 2016/2017

Table 4

Indicator	Property form	Form of education			Total
		IF	IFR	ID	
Number of study programmes	IIS of the state	1960	61	162	**2183**
	IIS private	362	57	38	**457**
TOTAL programs			**118**	**200**	**2640**

Source: Processing by: GD. 376/2016 and GD. 654/2016

The number of forms of education programs in the academic year 2016/2017 was as follows: at state universities, school attendance-1660 program, extramural education or part-time - 61 distance learning programs and 162 programs totally 2183 programs.

At private universities seats education frequency was 362 programs at 57-time education, and distance learning 38, total 457 programs.

Situation number of seats in the first year after tuition, by ownership reflected in the table. 4 shows that, generally, and the private and the state are only part-time education and comprise a number of seats that unfortunately will never come to be guarantees employment jobs in the national economy, because they by how they acquired their knowledge of the curriculum, but ability to speak in foreign languages, choose to go in that direction.

Remember that private education are only 990 seats in languages. The data are concentrated in the Table. 4.

The number of first year seats after teaching language, property form, in the academic year 2016/2017

Table 5

Indicator	Teaching language	Property form		Total SIS
		IIS of the state	IIS private	
Maximum number of students that can be enrolled in the first year	Romanian	156.433	39.545	**195.978**
	English	7.925	805	**8.730**
	French	1.435	40	**1.475**
	German	1.015	0	**1.015**
	Hungarian	3.245	145	**3.390**
TOTAL license seats		**170.053**	**40.535**	**210.588**

Source: Processing by: GD. 376/2016 and GD. 654/2016

Another aspect of the analysis is the hierarchy of the universities the number of seats that they offered in the academic year 2016/2017.

In public education, the first place lies Babes-Bolyai University of Cluj-Napoca with an offer of 18 336 seats, followed by the University of Bucharest with 11 291 seats and Alexandru Ioan Cuza University with 9445 seats.

Here, the first three universities that offer a very large share of seats for those who wish to graduate university courses.

The last three seats are occupied, in order from bottom to top Constantin Brâncuşi University of Targu-Jiu 1,770 jobs, University of Medicine Iuliu Haţieganu Cluj-Napoca with 1,775 seats and the University of Medicine and Pharmacy G. D. Popa Iasi with 2,000 seats. These data are summarized in Fig. 6.

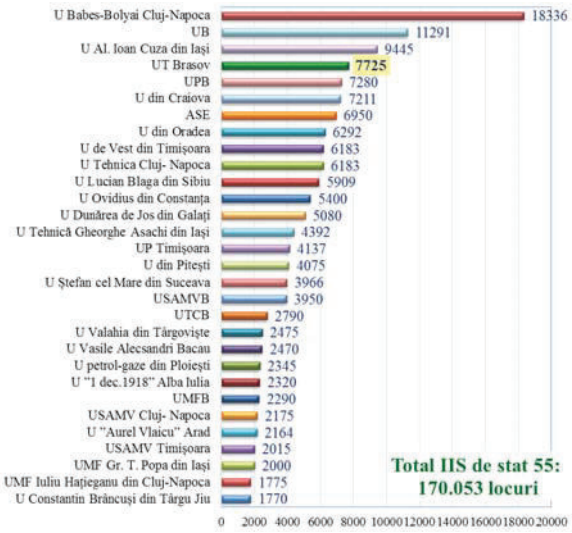
In private education, the top three in terms of offer lies Spiru Haret University in Bucharest with 7,465 seats, Dimitrie Cantemir University in Bucharest - 4,465 seats and Romanian-American University in Bucharest with 3,125 seats.

The last three seats are occupied by Pentecostal Theological Institute in Bucharest with 50 seats, the Protestant Theological Institute of Cluj-Napoca - 50 seats and the Baptist Theological Institute in Bucharest with 75 seats.

We find that in this graph, the number 7, included 38 private institutions, which together offer a total of 40 535 seats offered to students who wish to enter the first year.

The hierarchy of state higher educational institutions by offering seats in the first year, academic year 2016/2017

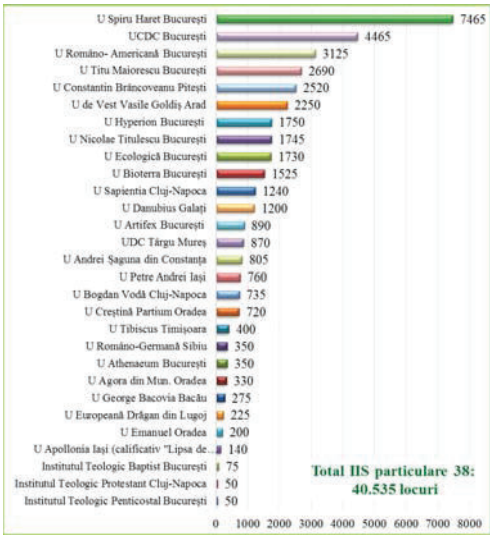
Fig. 6



Source: Processing ARACIS by GD. 654/2016

The hierarchy of private higher educational institutions by offering seats in the first year, academic year 2016/2017

Fig. 7



Source: Processing ARACIS by GD. 654/2016

Analysis hierarchy first 30 majors after seats in first-year public and private institutions in Romania, it is important to establish the primary specializations after seats offered for the first year of university institutions in Romania for the academic year 2016/2017. Of course, in this direction, taking into account the number of seats offered and labor market needs, we can determine how these deals are correlated with the market requirement. It appears that the state university of the first three seats were located Specialization Law with 6215 seats, modern language and literature with 5.621 seats, Accounting and Management Information Systems with 4485 seats. The last three seats s are specializations Agriculture with 1,345 seats, Engineering and Management in Public Alimentation and Agritourism - 1,350 seats and 1,390 seats pharmacy. Of course, provided seats are likely in close correlation with what each university found, from the ability they have to prepare specialists in the respective fields.

Hierarchy first 30 seats majors after year, in state institutions, the academic year 2016-2017

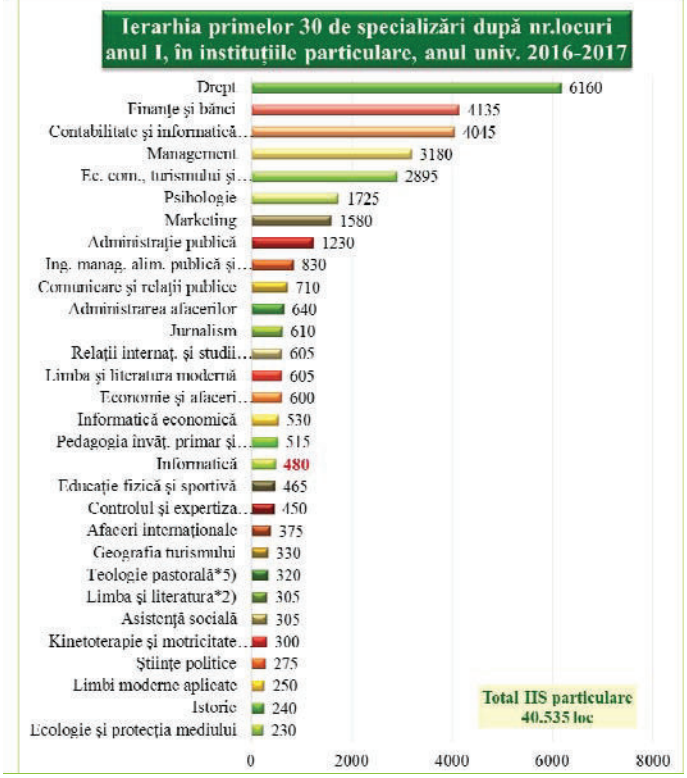
Fig. 8

Source: Processing ARACIS by GD. 654/2016

Regarding the ranking top 30 majors after seats offered in the first year of private institutions for the academic year 2016/2017 we find the following situation: Right here, a number roughly equal to that provided by state institutions, ranks first with 6,160 seats. Banking and Finance are 4.130 seats, Accounting and Management Information Systems with 4045 seats. The last three seats in private education are ranked Ecology and Environmental Protection - 230 seats History - 240 seats and Applied Modern Languages - 250 seats. Overall, the majors, particularly university offers 40 535 seats.

Hierarchy first 30 majors as number of seats in the first year in private institutions, academic year 2016-2017

Fig. 9

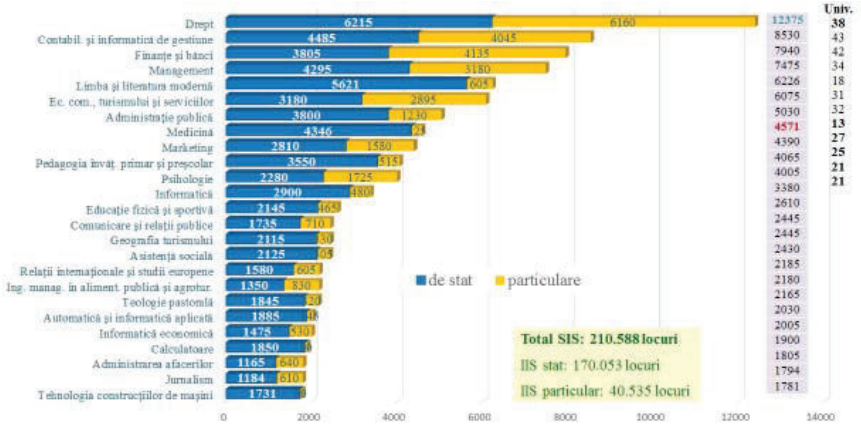


Source: Processing ARACIS by GD. 654/2016

In Fig. 10 am focused first 25 majors of the total 368 seats offered majors after the first year, by type of ownership in the academic year 2016/2017. We find that, in principle, in this hierarchy comprising the following structure of the first three seats, which is somewhat identical. Right - private and state total - 12 375 seats offered by 38 universities. No. 2 is Accounting and Management Information Systems with 8530 seats offered by 43 public and private universities. 3rd Finance and Banking with 7940 seats offered by 42 public and private universities. The last three seats are occupied by Building Technology and Machinery - 1,781 seats Journalism - 1,794 seats and Business Administration - 1,850 seats. I mentioned the number of universities involved in offering these seats because they are insignificant compared to the total of the first three. In Fig. 10 am plotted both ownership structure and the specialization programs and specializations that are in the Top 25.

Top 25 of 368 specializations by the number of seats in the first year, by ownership, academic year 2016/2017

Fig. 10



Source: Processing ARACIS by GD. 654/2016

We are tempted to consider how the population has tertiary education and is found in the total workforce aged 15 to 64 years. I took our years comparable, for which we have data from all 28 Member States of the European Union, which we presented in Figure No. 11.

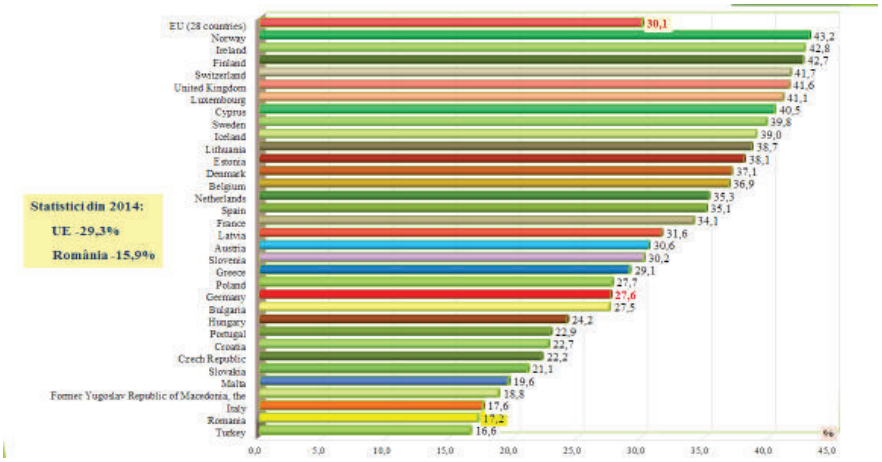
Average population with tertiary education in total EU-28 was 30.1%. The first places are occupied Norway 43.2%, Ireland 42.8% and Finland by 42.7%. Coincidentally or not, the last three places are occupied by Turkey with 16.6%, Romania 17.2% and surprisingly, Italy 17.6%.

The data analyzed are taken by Eurostat showed that the situation of countries in this regard, classified is. Compared to 2014, we find that the EU share has increased from 29.3% to 31%, ie an increase of 1.7% and in Romania increased from 15.9% to 17.2% ie 1 ,3%.

We note that Romania is still far away from that is the university education system in Romania, to cover these gaps with the States which are better placed. The causes may be different, but appropriate to deal with them now.

EU Member hierarchy after share of population with tertiary education (ISCED 5-8), in the total labor force (15-64), 2015%

Fig. 11

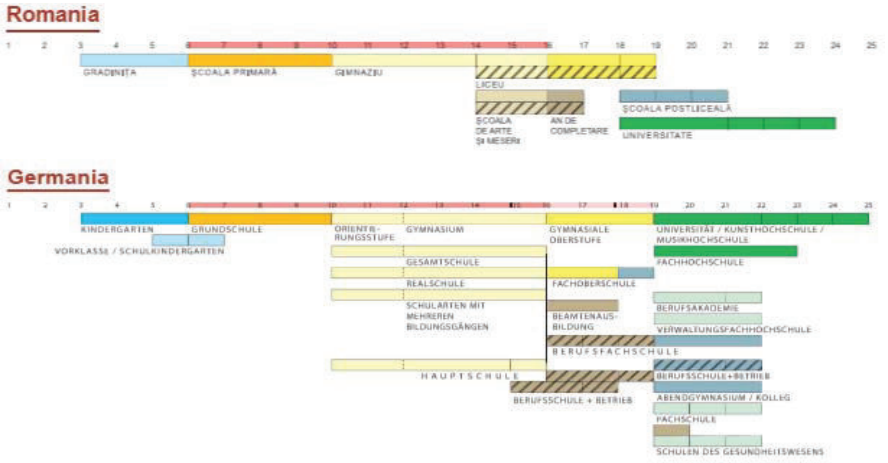


Source: Presentation by: http://appsso.eurostat.ec.europa.eu/ accessed January 2017

Trying to explain the structure of higher education in Romania, I left the tracks that you can have general school graduates, high school or other jobs and then high school graduates with baccalaureate for the future. From this point of view, according to data from Figure 12 that Romania attaches high school graduates only two tracks, namely school, college or university. Compared with Germany, we find that we are very far, given that in this country there are at least nine tracks. Other countries that are at the pinnacle of university offers as a large number of tracks for graduates of secondary and elementary school and then high school - with or without baccalaureate baccalaureate - they offer, which is superior to Romania opportunities. That is why the reintroduction of dual education will create an additional track. Regarding the possibility that secondary school graduates can go to high technical profile covering a range of professions and being closer to the job offer that presents Romania.

The structure of the education system in Romania and Germany

Fig. 12



Sursa: http://eacea.ec.europa.eu/education/eurydice

Based on that we ordered and made some calculations that the degree and level of inclusion in education of the population in the age group 15-18 years developed negatively every year from 2010 to 2015. Thus, if in 2010 the share of these persons included in education represent 86.2% of the total population in 2015 reached 78.2% and the trend is downwards. Important seems, the population outside the education aged 15-18. Thus, in 2010, 123 483 people were included in educational work in 2015 their number reached 188 651 people. This shows an alarming development which should somehow be stopped, that decline does not increase. Because the number of people remaining outside the education system identify people without occupation, people somewhat slightly unprepared, not tell them semi-literate. (Table no. 6)

The degree and level of coverage in education of school age population 15-18 years

Table 6

Indicator	2010	2011	2012	2013	2014	2015
Rate of enrollment in education to the school age population 15-18 years	*86,2%*	*84,2%*	*82,2%*	*81,4%*	*80,1 %*	*78,2 %*
Resident population aged 15-18 years	894.806	886.498	878.432	872.230	863.591	865.371
Population aged 15-18 included in education	771.323	746.431	722.071	709.995	691.736	676.720
Population aged 15-18 outside education	123.483	140.067	156.361	162.235	171.855	188.651

Source: Calculations by: http://statistici.insse.ro/shop INS Tempo Online accessed February 2017

Another analysis according to the data in Fig. 13, was focused on determining the level of the school population aged 17 years at birth, which in 2013-2015 were included or not in a form of education

In Fig. 13 I felt in 2013, 2014 and 2015 the number of people who were born within that brings the age of 17 years, ie 1995-2004, 1996-2005, 1997-2006. Under Fig. 13, we presented for the years considered, the number of live births which I took then plotting and school population of eight years taken as this graphic.

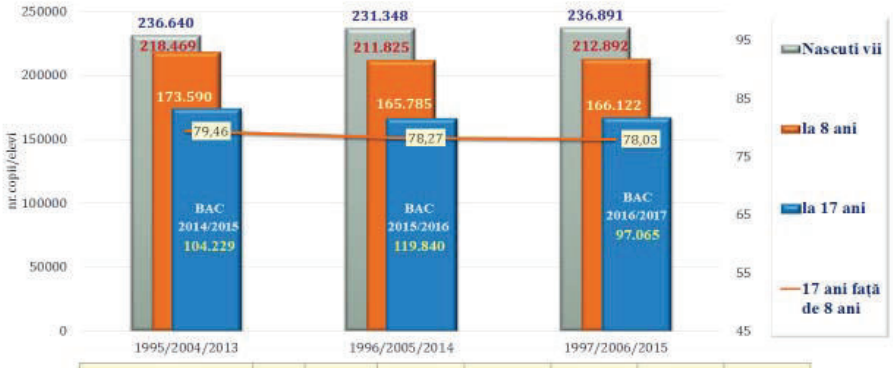
What we see? The number of live births in the period under review remained somewhat constant, so it can not be reduced.

The number of live births and the age of eight years represents 85% of persons treated. Further, the percentage of people who attended was 75% of the total, and the population reached the age of 17 years and included in high school was 65%. The share of people who were high school to the number of persons aged 8 years was 55%.

And last but not least, we find that high school graduates with baccalaureate exam were on average in the three years, 45%. Here, then, that this trend by age is, is a great loss in people who remain unemployed in mainstream education to secondary school level.

Level of school age population 17 years from birth to 8 years (as students) from 2013-2015

Fig. 13



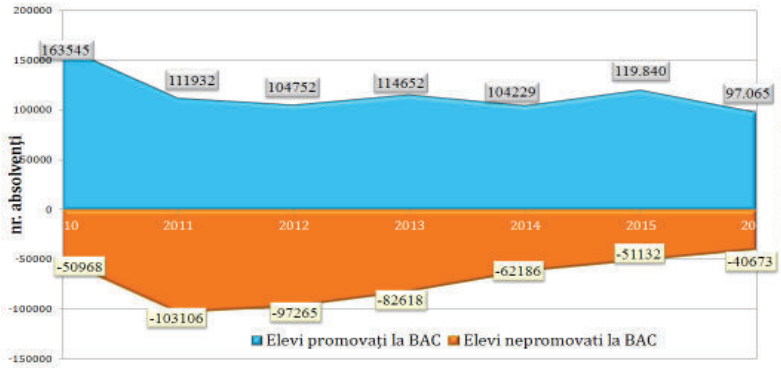
Născuți în anul	1998	1999	2000	2001	2002	2003	2004
Născuți vii	237297	234600	234521	220368	210529	212459	216261
Populația școlară de 8 ani	210302	209330	200458	194618	193194	193244	197530

Source: Calculations by: http://statistici.insse.ro/shop INS Tempo Online accessed February 2017

We will present the evolution of graduates passing and failing baccalaureate during 2010-2016. In Fig. 14, the graph shows three dates.

Evolution graduates passing and failing baccalaureate during 2010-2016

Fig. 14



Anul	Rata de promovabilitate %
2010	76,24
2011	52,05
2012	51,85
2013	58,12
2014	62,63
2015	70,09
2016	70,47

Source: Calculations by https://www.edu.ro/ accessed 2014-2017

All people who were able to enter higher education followed a slightly downward trend, with two inflections in the years 2013 and 2015.

In the year 2016 the total number of high school graduates was 97 065 with BAC and graduates who have passed the baccalaureate 40.673.

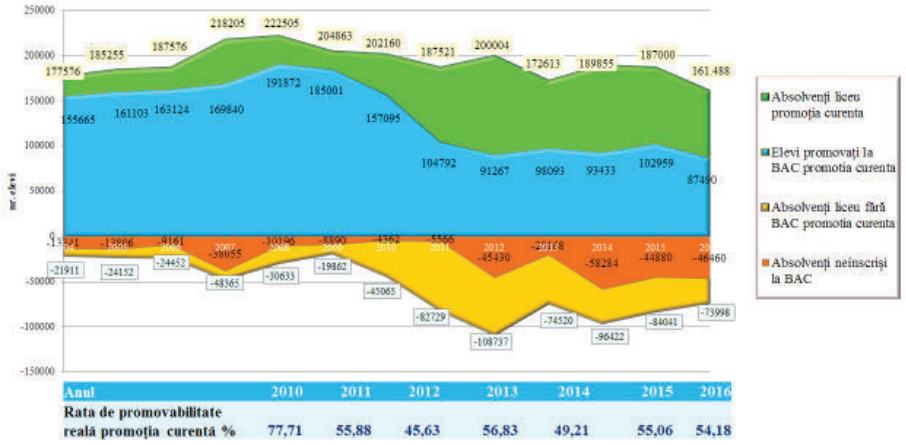
Separately, we presented the structure, the percentage recorded in the baccalaureate pass rate. It appears that in 2011, in 2012 the percentage was very low and then increased slightly in the years 2014, 2015 and 2016.

The evolution of these data is influenced by the different number of those enrolled in high school courses that have reached the stage of graduation by weight between those who have passed the qualifying baccalaureate total population reached this level.

We then took on a broader analysis of the evolution of the current class graduates with passing and failing baccalaureate, but in a longer period, 2004-2016. The data are presented in Fig. 15.

The evolution of the current class graduates passing and failing baccalaureate during 2004-2016

Fig. 15



Anul	2010	2011	2012	2013	2014	2015	2016
Rata de promovabilitate reală promoţia curentă %	77,71	55,88	45,63	56,83	49,21	55,06	54,18

Source: Calculations by https://www.edu.ro/ accessed 2014-2017

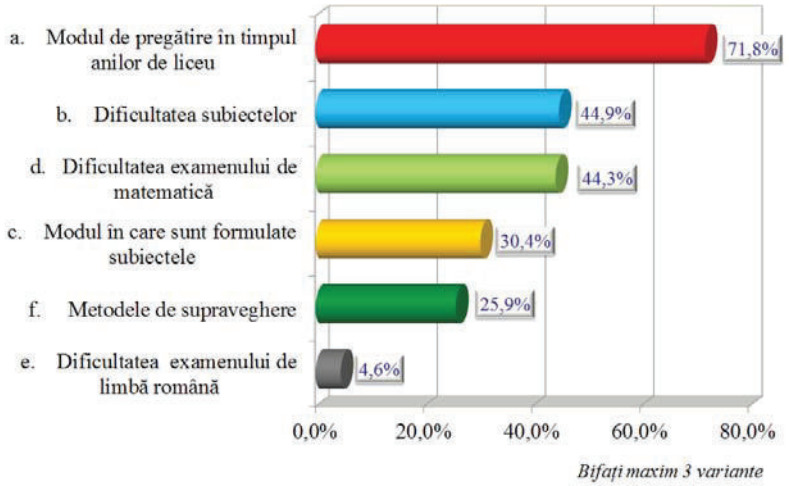
We find the same trend, the number of graduates from the class of the current decreases, the number of students who pass the baccalaureate decreased and the number of graduates with BAC also decreases. The number of high school graduates who were enrolled in baccalaureate increase due to the fact that in many schools to have a degree of promotion may enhance teachers recommend students with poor preparation to not longer subscribe to BAC.

Explanations can be given in promoting the baccalaureate could be summarized survey that I made on a sample of 1015 respondents. The first is how to prepare unsatisfactory high school years - 71.8%. The second issue is the difficulty subjects - 44.95% of respondents then difficult math - 44.3%. In fact, it appears that most of those who have earned a baccalaureate had problems

with math exam. Perhaps, in accordance with the regulations for obtaining her baccalaureate and this can obtain their baccalaureate exam sessions following. Other causes that led poor results, remember and how topics are formulated, supervision models or in a lesser extent, the difficulty Romanian language examination (4.6%). This last question consider it insignificant and rather based on the total preparation inappropriate candidates. It also noted that during high school, those who are situated in rural areas have the worst results, influenced on the one hand the quality of teachers, and on the other hand, low interest of high school students in the study and their willingness to after high school, most content to obtain a bachelor's 8th grade, then do not continue.

How do you explain poor results in simulation / BAC?

Fig. 16



Source: Survey sample 1015 respondents class XI-XII Bucharest „Open Day" 2015

If we were to analyze the profile we have students fresh graduates BAC and how they are turning to high school have set the following: more than 80% of high school graduates enroll in college immediately after high school. However, only 35% know perfectly well from class XI to the faculty or specialization will score. A significant number, 60% of those who choose to attend university decide just when promoting baccalaureate and is guided by the offer which seems more convenient, in the opinion of some colleagues opting already the size of fees charged public or private universities. Important is also another factor, namely that of the total of enrolled freshmen promotes only 75%, so there is a loss in the first year of 25%.

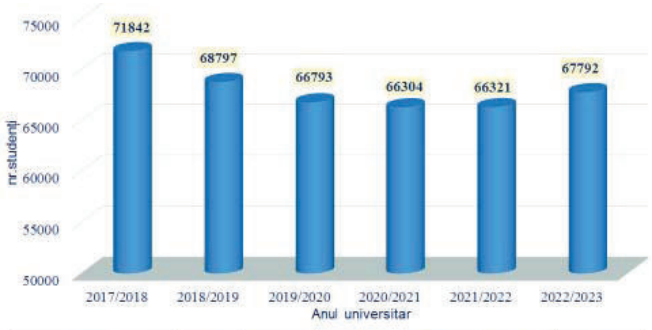
Profile new student - graduate of BAC

Fig. 17

To give relevance mentioned new student profile and estimating the number of graduate students during 2017-2022. From Figure 18 it follows that from 2017 to 2022 the number will be low. Thus, in the academic year 2017/2018 will meet 71.848 eager to attend high school, reaching 66 321 in 2021/2022 only interested in the offer which present higher education institutions in Romania. This is a delicate signal, and may have reverb on how universities manage to cover the offers they have. Perhaps the revaluation process performed by ARACIS and decisions taken by the Ministry of National Education will meet and a gradual reduction in the number of seats that can offer all universities together or separately. You may disappear some majors, programs that are not yet attractive and increase the number of those specializations that are more attractive.

Estimating the number of students - fresh high school graduates BAC 2017-2022 period

Fig. 18



Născuți în anul	1999	2000	2001	2002	2003	2004
Născuți vii	234600	234521	220368	210529	212459	216261
Populația școlară la 8 ani	209330	200458	194618	193194	193244	197530

Source: Calculations by: http://statistici.insse.ro/shop INS Tempo Online accessed February 2017

One last point that we had in mind was to try a correlation of the number of university graduates in the labor market and we discussed three issues: Romania's population, the population aged 0-24 years and the share of population aged 0-24 years with studies in total. Fig. 19 is relevant and gives precise indications on these developments. We find that Romania's population will decrease from 23.14316 million people in 1992-19760314 inhabitants in 2016. The population aged 0-24 years s reduced the absolute numbers of 9,318,243 people 1992-5227716 people in 2016. their share in the total population is reduced from 40.3% in 1992 to 26.5% in 2016. the data are summarized in Figure number 19.

The correlation with the labor market
The level and the age group share 0-24 years in total population in 1992, 2010 and 2016

Fig. 19

Source: Calculations by: http://statistici.insse.ro/shop INS Tempo Online accessed March 2017

Conclusion

This article leads to some clear conclusions. First, there is a permanent decline of employment of persons aged education, starting right from kindergarten in the total school population. Of course the main objective being the assessment system offering higher education for high school graduates, a wide space of this work was awarded this analysis. Based on hierarchies of higher education institutions, the number of seats offered, ownership or after undergraduate study programs that have each institution, resulting in a

complex situation. First, there are institutions of higher education system that have programs that are available for a limited number of candidates, probably due to the mismatch in the labor market, or lack guidance for graduates. Studying the hierarchy main specialization, the number of seats offered by institutions of higher education and the number of seats occupied during the academic year 2016-2017 there is some significant issues. First, some programs such as the Law for example, has the largest number of seats offered, and the largest number of seats occupied, although the structure of graduates who go into employment percentage is lower. There can be no explanation in that activity programs of Law graduates can achieve on their own, without registering as employees with an employment contract. We have not done and this study because we did not have the data necessary to issue a specific hypothesis based on a quantified indicator. From studying the distribution of students by state universities and private resulted in a downward trend in the number of students admitted in both systems, a stronger private system, probably due to lack of financial resources, but mostly due to negative appeal labor market. Analyzing the current situation in the educational system offer secondary or high school graduates with baccalaureate was established that a small number of tracks of interest, for example, for high school graduates only two post-secondary school or undergraduate studies. Compared with the existing situation in other EU countries with developed education system in general and the undergraduate in particular that offer continuing education in Romania is reduced. In Germany, Norway, France, UK After graduation between 9:11 track that graduates can follow. That offer education in universities for high school graduates with a baccalaureate degree, there is discrepancy between offer and demand for seats. Thus, in 2016 the total high school graduates were enrolled in baccalaureate, 97 065 passed the exam, and 40 673 did not pass the threshold. The figure relative to 70.47% of those enrolled in high school who did not pass easily fetishized because that year was recorded the lowest number of registered baccalaureate. Another conclusion of the poor results obtained baccalaureate might constitute, in an order determined based on a survey sample of 1015 respondents from class XI and XII, the following situation: how to prepare during her high school years would be 71 8% of respondents concerned mentioned. This is based on the quality of education can, programs often tailored to the high schools of the region. Another significant number of respondents, the percentage of 44.9% placed 2nd difficulty topics. Of course, I could not do a thorough analysis, but probably difficult issues appears stronger as long as there are different types of books or topics for baccalaureate, which are taken from the so-called „real life" and not syllabi of the subjects examined evaluated. An important issue

is the difficulty enough math, exact science, you must move all graduates, no longer mean training or real or humanistic orientation. We believe that those who have inclination for human studies, math reveals as percentage of 44.3% is not difficult, but devastating. Respondents also discussed how issues are raised as a key issue especially if we are talking high schools in rural areas, which probably curricula, training of baccalaureate were different. The last two cases, with smaller percentages refer to the methods for monitoring 25.9%, or difficulty in Romanian language examination. The latter may in any case an essential factor for loss of opportunity to license exam. Based on the survey (sample analyzed) results the following are worthy of consideration when looking at what needs to be done to increase interest for university graduates. 80% of graduates Ferry, enroll in college immediately after high school, most having a professional orientation accurate to take them where they have skills that would give them better chances, most often comes down the respective costs. Only 35% of those who finished eleventh grade to know exactly what faculty / specialty will enroll and 60% of them only decide when they took the ferry site and is guided by the proposals, suggestions of fellow system tax and more of them. The entire system of higher education in Romania, only 75%, the maximum rate promotes year, and then gradually reduce this percentage up to 60-65%, the rest being the ones who abandon university courses or removed based results very weak, or unable to continue the payment of fees in this system. From the above, that should be taken some measures which can influence increasing the attractiveness of higher education. First there is the lowest number of high school graduates who enroll in baccalaureate or promote, from rural areas. They show real weaknesses in terms of preparedness and psychology have good results to urge them for university studies. Another part of them, lack of financial resources and could turn to higher education. They think that social, psychological, educational pedagogy, preparation mathematics, Romanian, Informatics in the countryside, could improve the training. The second suggestion that we have identified is to impose a practice mode required in rural areas at the level of institutions that have programs „Pedagogy education and preschool" (25 universities), Social Work (21 universities); Public administration (32 universities). This practice does not exist and universities in a very small number are turning to high schools in the province to practice „open doors" to practice discussions with the teachers and future graduates of classes X, XI, XII. The third measure which we consider necessary as an adjustment to university offer specializations in the field of innovative technology, environmental protection, sustainable economy creative gross value added, so some deals that did not even request to be merged. In terms of universities with limited profile will probably be the way

to resolving consorţională. These are the conclusions reached by the authors, based on data surveyed.

References

1. Algan, Y., Cahuc, P., and Shleifer, A. (2013). „Teaching Practice and Social Capital", *American Economic Journal: Applied Economics*, 5(3), 189–210
2. Anghelache, C. and M.G. Anghel (2016). *Bazele statisticii economice. Concepte teoretice și studii de caz*, Editura Economică, București
3. Anghelache, C. (2008). *Tratat de statistică teoretică și economică*, Editura Economică, București
4. Anghelache, C., Isaic-Maniu, A., Mitruț, C. and Voineagu, V. (2006). "Utilizarea indicatorilor statistici pe termen scurt în analize curente", Simpozionul științific național *Economia României în perspectiva aderării la Uniunea Europeană*, Editura Artifex, 23-30
5. Anghelache, C., Isaic-Maniu, A., Mitruț, C. and Voineagu, V. (2006). "Sistemul de indicatori utilizați în măsurarea sărăciei", *Revista Economie Teoretică și Aplicată*, nr. 8
6. Barrow, L., Markman, L. and Rouse, C.E. (2009). "Technology's Edge: The Educational Benefits of Computer-Aided Instruction". *American Economic Journal: Economic Policy*, 1(1), 52-74
7. Belfield, C. R., Nores, M., Barnett, W. S. and Schweinhart, L. (2006). "The High/Scope Perry Preschool Program: Cost-benefit analysis using data from the age-40 followup". *Journal of Human Resources*, 41 (1), 162–190
8. Bettinger, E. P. and Long, B. T. (2010). "Does cheaper mean better? The impact of using adjunct instructors on student outcomes". *The Review of Economics and Statistics*, 92(3), 598-613
9. Brown, J., Jones, S., LaRusso, M., and Aber, L. (2010). "Improving classroom quality: Teacher influences and experimental impacts of the 4rs program". *Journal of Educational Psychology*, 102(1), 153
10. Cappelen, A., List, J., Samek A. and Tungodden, B. (2016). "The effect of early education on social preferences", National Bureau of Economic Research, Cambridge, Working Paper No. 22898
11. Carneiro, P., Costas, M., and Parey, M. (2013). "Maternal Education, Home Environments, and the Development of Children and Adolescents". *Journal of the European Economic Association*, 11 (S1), 123–160
12. Cunha, F., Heckman, J.J., Lochner, L. and Masterov, D.V. (2006). "Interpreting the evidence on life cycle skill formation", Handbook of the Economics of Education, 1, 697–812
13. Dearden, L., Goodman, A. Fitzsimons, E. and Kaplan, G. (2008). "Higher Education Funding Reforms in England: the Distributional Effects and the Shifting Balance of Costs". *Economic Journal*, 118, 100–125
14. Duncan, G.J. and Magnuson, K. (2013). "Investing in preschool programs". *Journal of Economic Perspectives,* 27 (2), 109–132
15. Dillon, .W., and Smith, J.A. (2015). "The Consequences of Academic Match between Students and Colleges." IZA Discussion Paper 9080, Institute for the Study of Labor, Bonn
16. Doepke, M. And Zilibotti. F. (2008). "Occupational Choice and the Spirit of

Capitalism", *The Quarterly Journal of Economics*, 123(2), 747–793
17. Giuliano, P. (2007). "Living Arrangements in Western Europe: Does Cultural Origin Matter?", *Journal of the European Economic Association*, 5(5): 927-952
18. Gogu, E., Iucu, R. (coordonatori) (2015). "Barometrul Calității Sistemului de Învățământ Superior", Editor: Agenția Română de Asigurare a Calității în Învățământul Superior, București
19. Goldin, C. D., and Katz, L. F. (2008). *The race between education and technology*. Harvard University Press
20. Heckman, J., Pinto, R. and Savelyev, P. (2013). "Understanding the Mechanisms Through Which an Influential Early Childhood Program Boosted Adult Outcomes". *American Economic Review*, 103 (6), 2052–2086
21. Hoffmann, F. and Oreopoulos, P. (2009). "Professor qualities and student achievement". The *Review of Economics and Statistics*, 91(1), 83-92
22. Jackson, C.K., Rockoff, J.E., and Staiger, D.O. (2014). "Teacher Effects and Teacher-Related Policies". *Annual Review of Economics*, 6, 801-825
23. Jacob, B.A. and Lefgren, L. (2008). Can principals identify effective teachers? Evidence on subjective performance evaluation in education. *Journal of labor Economics*, 26(1), 101-136
24. Lemieux, T. (2006). "Postsecondary Education and Increasing Wage Inequality." American Economic Review 96 (2), 195-99
25. Lilea, E., Biji, E.M, Vătui, M., Gogu, E. (2008). "Statistică", Pro Universitaria, București
26. Papay, J.. and Kraft, M. (2015). "Productivity returns to experience in the teacher labor market: Methodological challenges and new evidence on long-term career improvement". *Journal of Public Economics*, 130: 105-119
27. Petrescu I., Gogu E., Iucu Bumbu R., Mureșan M. etc [2015]. - *Barometrul Calității Sistemului de Învățământ Superior-2015* manual bilingv română – engleză, ARACIS București, decembrie, 2015, 400 pag
28. Rivkin, S. G., Hanushek, E. A. and Kain, J. F. (2005). "Teachers, schools, and academic achievement". *Econometrica*, 73(2), 417-458
29. Rothstein, J. (2015). "Teacher Quality Policy When Supply Matters". *American Economic Review*. 105(1), January 2015: 100-130
30. Slavin, R., Lake, C., Chambers, B., Cheung, A., and Davis, S. (2009). "Effective reading programs for the elementary grades: A best-evidence synthesis". *Review of Educational Research*, 79(4), 1397–1466
31. *** Anuarul Statistic al României, edițiile 2014, 2015, 2016
32. *** Institutul Național de Statistică, Buletin statistic lunar din perioada 2010-2016
33. *** ARACIS - *Nivelul si dinamica ofertei universitare în anul universitar 2014/2015 și 2015/2016* http://www.aracis.ro
34. ***HG nr. 654/2016 pentru modificarea și completarea nr. HG nr. 376/2016, privind aprobarea Nomenclatorului domeniilor și al specializărilor/programelor de studii universitare și a structurii instituțiilor de învățământ superior pentru anul universitar 2016-2017.