

# Higher Education in Bulgaria and EU States – Main Indicators for Development

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**Abstract:** The signing of the Bologna declaration in 1999 is a turning point which created a new axis for the development of the higher education systems in the different European Union (EU) states by establishing a transnational cooperation for building a better-integrated, high-quality, welcoming, attractive and competitive unified European medium for higher education. Despite the obvious advancement for Bulgaria since Bologna (regarding the improved access and increasing the share of higher education graduates, improving higher education quality, modernizing the higher school management system, et al) there is still a lot to be done to overcome some noticeable differences with the other European systems for higher education. Because of this, the goal of this paper is to present the levels and dynamics of some of the main indicators for higher education in Bulgaria and in the European Union states after dividing them into three groups – involvement and participation in the higher education system, academic staff and expenditure on higher education. The gathering of data for the analysis is performed through the last publicly available data from Eurostat (for eight calendar years) and the National Statistics Institute (NSI) in Bulgaria (for ten school years). Among the more important conclusions that can be made are: the total number of students in the EU is increasing while in Bulgaria there is a lasting tendency of decreasing; the highest relative share of professors is in the age group 55-64 years in just two EU states – Bulgaria and Finland; even though public expenses for higher education in Bulgaria are trending upward, they are still far from the average European levels. The results in this current paper may be useful to the academic community, public institutions, non-government organizations, branch organizations and other interested parties.

**Keywords:** Higher Education, Higher Education Sector, Bulgaria, European Union

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## 1. Introduction

Education is a field with permanent relevance. It has been ideologized, dogmatized, politicized, discussed on multiple levels, prioritized (in world and national strategic documents) and reformed multiple times throughout the various stages of mankind's social evolution. Naturally, those development stages are not nor they can be the same for the different peoples in the world (for instance some are feeling serious deficits in sociocultural aspects in comparison to others). One of the consistencies in this current century is the education's key role in society. It has been defined as an important factor in the states' economic growth [1, 2], fighting poverty and social exclusion, warranty of protecting human and civil values [3], stabilizing one's capabilities [4], personal development [5].

The goal of this paper is through descriptive analysis to

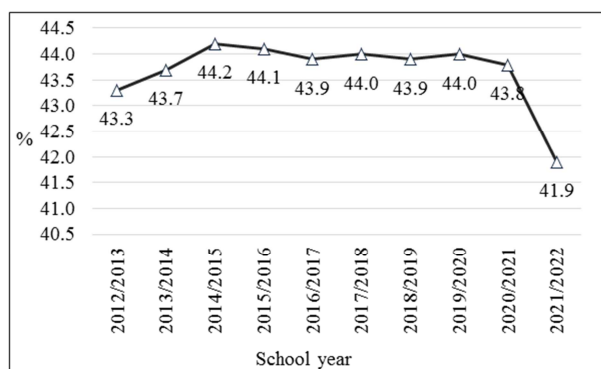
present the levels and dynamics of some of the main features of higher education in Bulgaria and the EU states in three groups: (1) entering and participating in the higher education system; (2) academic staff; (3) expenditure on higher education. A special point of emphasis is put on the monitored differences in those features between Bulgaria and the EU as an entity. The information realization of the analysis is performed through the most recent publicly available data from Eurostat (for eight calendar years) and the National Statistics Institute (NSI) in Bulgaria (for ten school years).

## 2. Entering and Participating in the Higher Education System

One of the features providing information for the degree of

participation in the higher education system (HES) is the net coefficient for enrolling the population in the education system. The coefficient is calculated as a percentage for the ratio of the number of students in the age group 19-23 regardless of their education degree to the population in the same age group.

Figure 1 shows that the share of 19- to 23-year-olds in the HES in Bulgaria for the 2021/2022 school year is 41,9% which is the lowest value of the feature for the last ten years (while being a decline of 1,4 percentage points in comparison to 2012/2013). As a whole a conclusion can be reached that the interest in higher education among the young people is permanent and the degree of participation in the HES for the last ten years has been relatively high and consistently over 40%.



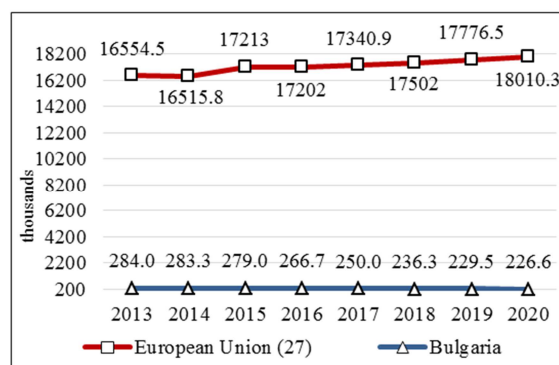
Source: [6].

**Figure 1.** Net enrolment rate of the population in the education system in Bulgaria by age group 19 – 23 years for the period 2012 – 2022.

There is a lasting and consistent tendency of the number of students in Bulgaria decreasing and for the period 2013-2020 the growth rate is between -6,3% and -0,1%. While in 2013 the

enrolled students in the country were 284 thousand, in 2021 they are 226,6 thousand (Figure 2) which is a decrease of over 20%.

The dynamics of this feature follow a different path in the EU as a whole. The number of enrolled students is gradually increasing in the analyzed period outside of 2 years where negative values of growth are registered – in 2014/2013 (-0,23%) and in 2016/2015 (-0,06%).

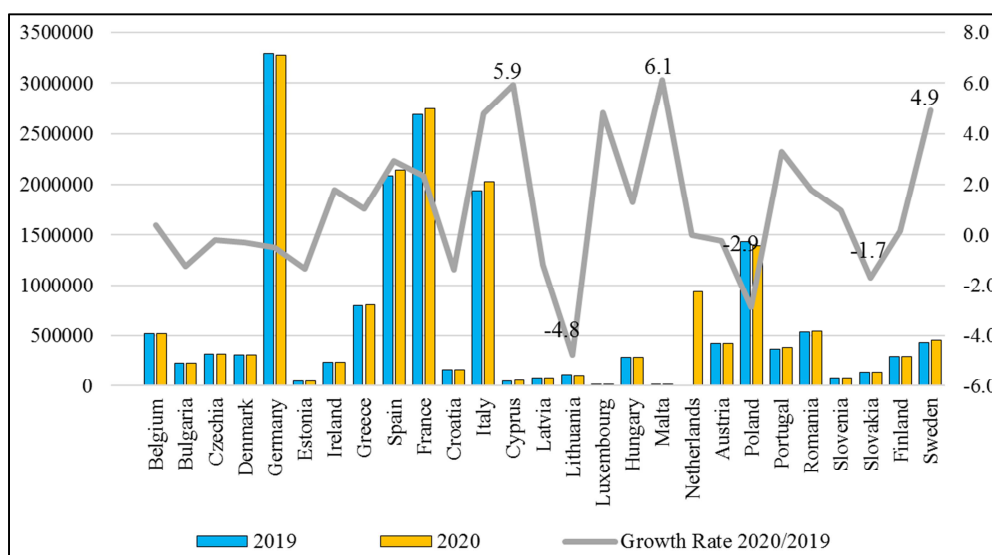


Source: [7].

**Figure 2.** Students enrolled in higher education in Bulgaria and EU (27) for the period 2013 – 2020.

The analysis for the separate EU member states shows that in 2020 the number of students in Germany (the most densely populated member) is the highest (3,3 million), followed by France (2,7 million) and Spain (2,1 million). The highest growth rate of enrolled students in 2020/2019 is in Malta (6,1%), followed by Cyprus (5,9%) and Sweden (4,9%) (Figure 3).

The largest decrease in the number of students is registered in Latvia (negative absolute growth compared to the previous year of 5313 students).



Sources: [7], own calculations.

**Figure 3.** Distribution among EU member states for enrolled students in higher education for the period 2019 – 2020.

Structurally, the numbers of enrolled female students in 2020 maintains its share of over 50% in almost every EU member state [8]. The exceptions are Greece (49,5%) and

Germany (49,2%). The share of enrolled female students in Bulgaria is around the average value for the EU (54,0%).

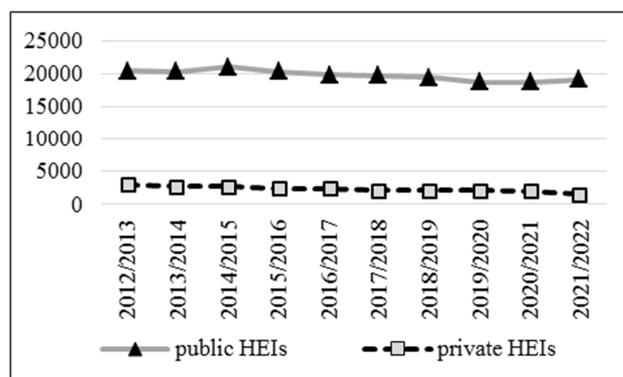
### 3. Academic Staff

The number of professors in the Higher Education Institutions (HEIs) in Bulgaria for the last ten years has been decreasing (with the exception of 2014/2015 with a positive growth rate of 3,2%) and in 2021/2022 it is a little over 20 thousand. Structurally, the distribution of professors according to ownership type of the HEIs shows that the majority are employed by state higher schools rather than private ones (Figure 4).

The development of the academic staff numbers in the state higher schools follows a decreasing tendency (with the exception of school years 2014/2015 and 2021/2022). The average annual decrease is nearly 304 professors. For the private higher schools the same tendency is observed even though it is less pronounced – the decrease in the number of professors is a little over 170 professors on average annually.

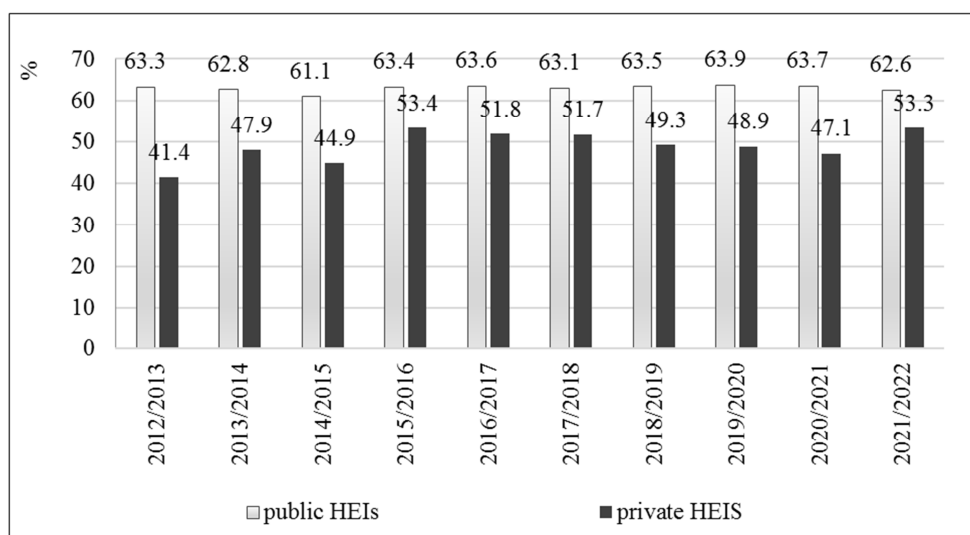
The share of the academic staff on main labor contract in Bulgaria remains without significant change. For the state

HEIs it comes to an average of 63,1% and for the private – to an average of 49% (Figure 5).



Source: [9].

**Figure 4.** Academic staff in Bulgaria by type of HEI for the period 2012 – 2022.



Sources: [10], own calculations.

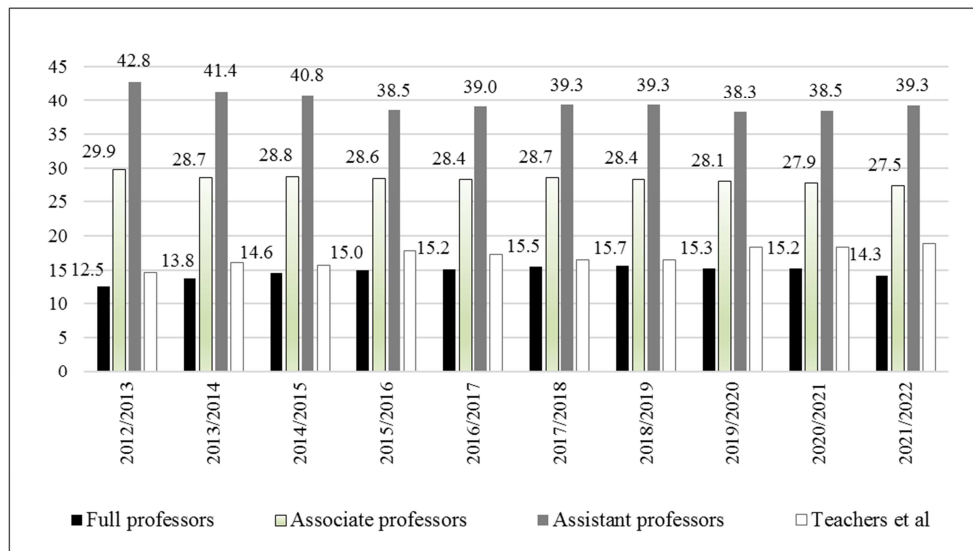
**Figure 5.** Relative share of academic staff in Bulgaria under labor contract for the period 2012 – 2022.

Over the last ten years there have been more significant changes taking place in the structure of the academic staff in regards to academic position. The ratio “full professor: associate professor: assistant professor” from 1:2,39:3,42 in 2012/2013 became 1:1,92:2,75 in 2021/2022. The most likely circumstances for such differences can be sought in at least two directions. In the first place it is the available legal possibility for the HEIs to be able autonomously to determine in their regulations what this ratio is. This means that each higher school decides on its own what the career development will be for their habilitated and non-habilitated staff under non-defined state regulation mechanisms for putting the professors from different HEIs on equal grounds. In the second place, the lack of consistent criteria which the candidates for academic positions need to meet until the new Law for development of the academic staff in the Republic of Bulgaria was adopted in 2018. In effect the changes in this law

can be considered as an attempt at equalizing which despite its controversial moments still fits the saying of “a bad law is better than no law at all”. But the problem of the most appropriate ratio of full professors to associate professors to assistant professors is still open.

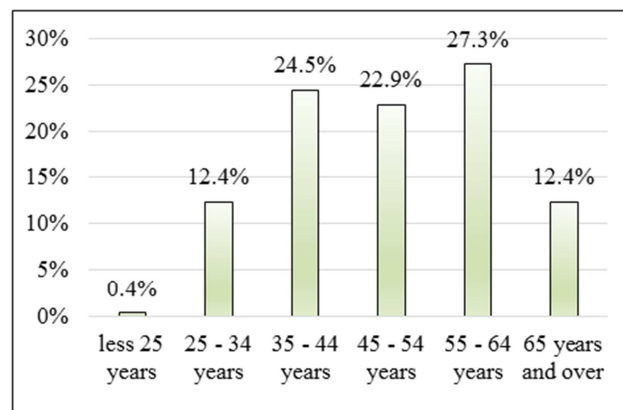
In the 2021/2022 school year there has been an increase in the relative share of full professors (by 1,8 percentage points) and simultaneously a decrease in the share of associate professors (by 2,4 percentage points) and assistant professors (by 3,5 percentage points) compared to 2012/2013 r. (Figure 6).

Out of all available data from Eurostat for 2020 it becomes obvious that the share of young professors (25 – 34 years old) coincides with the share in the academic staff of the age group “65 years or above” coming up to 12,4% (Figure 7). In 2013 it is equal to 14% and until 2016 shows a tendency of decrease before remaining unchanged for the next four years.



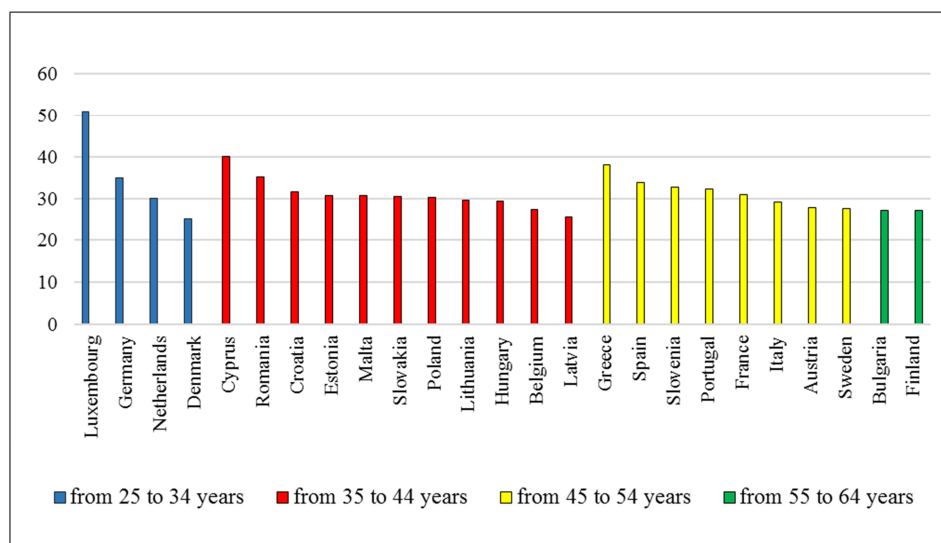
Sources: [11], own calculations.

**Figure 6.** Relative share of the academic staff in Bulgaria by academic position for 2012 – 2022.



Sources: [12], own calculations.

**Figure 7.** Relative share of the academic staff in Bulgaria based on age groups in 2020.



Sources: [12], own calculations.

**Figure 8.** Distribution of EU states by highest relative share of academic staff in age groups in 2020.

The comparison of EU states according to highest relative share of the hired academic staff by age groups in 2020 is of particular interest (Figure 8). Based on this measure, four groups of states stand out. The first group includes Luxembourg, Netherlands, Germany and Denmark. In these four countries the highest relative share is in the age group of 25-34-year-old professors. Among them Luxembourg makes a particular impression where 50,9% of the entire academic staff is in this age group.

In the second group with the highest relative share of professors in the age group 35-44 years there are the most EU states. They are Cyprus, Romania, Croatia, Estonia, Malta, Slovakia, Poland, Lithuania, Hungary, Latvia and Belgium. In the third group with a dominant share of the academic staff between 45-54 years there are eight states – Greece, Spain, Slovenia, Portugal, France, Italy, Sweden and Austria. With the highest relative share of professors in the age group 55-64 years (fourth group) there are just two states – Bulgaria and Finland. At the same time in relation to the share of the age group “65 years or over” which is an indicator of the presence of an aging academic staff there are significant differences between the separate EU member states. In 2020 it varies from 0,5 to 15,6%. Bulgaria comes in third place after Latvia (15,6%) and Slovakia (12,5%) which have the highest values for this measure. Therefore a conclusion can be made that

among the priority directions for developing the higher education system in Bulgaria hiring young professors should be encouraged in order to overcome the contrasting differences with the most EU states in that regard.

The share of the female professors in the EU (27) for the period 2013 – 2020 increases gradually in a relative sense and surpasses 43% in 2020 (an increase of 2,26% compared with 2013). The dynamics of this measure in Bulgaria follow this main tendency but stand out with a higher value in 202 with it being over 50% (an increase of 2,32% compared with 2013) [13].

#### 4. Expenditure on Higher Education

A main feature for which the NSI published official statistical data is public and private expenditure on education in Bulgaria with the calculations being done according to Eurostat’s methodology (UOE – financial tables) for providing internationally comparable data. Table 1 makes it obvious that the expenditures on higher education as an absolute value increase gradually for the period 2010 – 2019 but maintain their relative share of nearly 32% of all education expenses. Their compound annual growth rate (CAGR) for 2010 – 2019 comes up to 6,10%.

**Table 1.** Expenditure on higher education in Bulgaria for the period 2010 – 2019.

Features	2010	2011	2012	2013	2014
Public and private expenditure on education (thousand lev)	3103888	3206265	3200843	3472828	3759602
Public and private expenditure on HE (thousand lev)	921491	988693	993766	1066602	1218261
Relative share of expenditure on HE	29,69%	30,84%	31,05%	30,71%	32,40%
Expenditure on HE for 1 student (lev)	3,21	3,47	3,49	3,76	4,30
Features	2015	2016	2017	2018	2019
Public and private expenditure on education (thousand lev)	3704137	3838787	4282069	4606257	5213121
Public and private expenditure on HE (thousand lev)	1200020	1205264	1417553	1445892	1570386
Relative share of expenditure on HE	32,40%	31,40%	33,10%	31,39%	30,12%
Expenditure on HE for 1 student (lev)	4,30	4,52	5,67	6,12	6,54

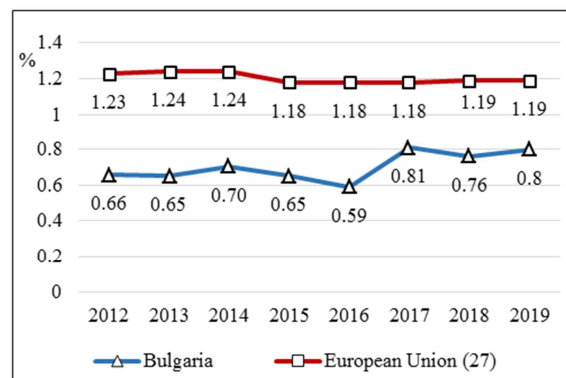
Sources: [14, 15], own calculations.

A positive sign is the increase of expenditure for one student over the last five years of the period under review. In 2019 this feature hits its highest value (the increase in a relative sense is over 50% compared to 2010) but this is probably due to the already registered decrease in the number of students and not so much to an increase in the cost of education.

Another main feature reflecting the financing from the HES is public expenditure for higher education as a share of the gross domestic product (GDP) by Eurostat. The data available which can be used to make comparisons among all states is for the period 2012 – 2019. In the first year of the period the share of expenses for higher education as a total for EU states comes up to 1,23% (Figure 9). From 2015 the feature shows a tendency to decrease, remaining unchanged for the next three years before reaching its lowest value of 1,18% on an annual base. In 2018 the share increases to 1,19% and remains constant until 2019.

In 2012 – 2019 the feature in Bulgaria has values between

0,59 and 0,81%. In 2017 there is an upward tendency of public expenditure for HE but “it is not accompanied by an adequate reform in this sector” [17].



Source: [16].

**Figure 9.** Public expenditure for higher education as a share of the GDP in Bulgaria and the EU (27) for the period 2012 – 2019.

EU member states which in the first year of the researched period have the highest relative share of expenses for higher education (over 1,60%) are Sweden, Austria, Netherlands and Malta. With an above average share for EU (27) are Belgium, Germany, Ireland, France, Latvia, Lithuania and Slovenia (over 1,23%). States with expenses around 1% of their GDP are Czechia, Estonia, Spain, Cyprus and Poland, followed by states with expenses below 1% – Bulgaria, Greece, Italy, Luxembourg, Hungary and Romania. For Denmark, Croatia, Portugal, Slovakia and Finland data is not available. In 2019 there is a universal decrease in the measure with it being over 2% only in Denmark (2,31%). With a relative share of around and over 1,60% are Belgium (an increase of 0,10 percentage points compared to 2012), Netherlands (decrease of 0,09 percentage points compared to 2012), Austria (decrease of 0,33 percentage points compared to 2012), Finland and Sweden (decrease of 0,23 percentage points compared to 2012).

For more detailed description of the financing of higher education more features can be examined other than public expenditure for HE such as share of GDP. Such are for instance GDP per person, growth rate in the expenses for education and GDP growth rate [18].

## 5. Conclusion

The analysis of the chosen features for the development of higher education shows that despite a significant improvement in Bulgaria in multiple areas, financing and the academic staff age structure are still problem areas and demand adequate actions for their improvement in the future. Therefore the future research can pay more attention to the possible solutions for additional financing of the state higher schools including through financing from European funds and programs, closer cooperation with the business and the realization of public-private partnership, et al. The identified second problem area, namely the imperfect age structure of the academic staff in Bulgaria needs urgent reaction from the state in regards to stimulating the inclusion of young professors in the higher education system. There is political will in that direction which was stated through the newly adopted Strategy for the development of higher education in the Republic of Bulgaria for the period 2021-2030. Nevertheless, institutional will is also needed from the state higher schools for improving their internal selection mechanisms, development and motivation of young university professors.

## Funding

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