



Gender Distribution of Enrolled Students in Institutions of a Higher Education in the Republic of Croatia

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Abstract: *One of the basic demographic distributions is the one concerning the population gender structure. Through the share of highly educated women and men, it can be revealed their position in society. Gender equality is considered through the highest value of the constitutional order of the Republic of Croatia as in accordance with Article 3 of the Constitution of the Republic of Croatia.*

Given the growth in the number of higher educational institutions in the Republic of Croatia and even greater offer of study programmes, we can put a question which gender of students enrolls in which study programme, what is also the purpose of this research paper. Following the published data of the Central Bureau of Statistics, in the paper are investigated and analysed data on enrolled students by the system of the higher institutions, by science field, the gender distribution of enrolled students on postgraduate specialist and doctoral studies in line with the field of science, and the students who graduated from higher institutions. The observed academic years are 2007 / 2008 and 2019 / 2020, respectively.

1. INTRODUCTION

Higher education is a service activity that as such offers its service on the market. This service differs from the product based on its following characteristics: indivisibility, intangibility, heterogeneity and non-storage capabilities. This is also true for a higher education service that is difficult to define due to its specific nature (Mazzarol, 1998). The difference between a service and a physical product is that the service can neither be seen nor felt before the purchase (Kotler, Keller, 2006). The goal of this paper is to analyse and determine the gender structure of enrolled students in accordance with different levels of education and types of science, based on a publication published by the Central Bureau of Statistics from the Republic of Croatia. The general opinion that prevails is that female student's study more in social studies while male students are more involved in technical studies. Also, the paper analyses the data on enrolled students by gender structure and doctoral studies. The observed academic years are 2007/2008 and 2019/2020, respectively.

2. POPULATION AND SOCIAL DEVELOPMENT

Due to the connection between demographic and social processes, demographic indicators have a broader meaning than the level and structure of population reproduction indicators. Infant mortality rates, population reproduction rates, life expectancy, aging index and other indicators have a very different numerical value in countries with different levels of development (Wertheimer-Baletić, 2005). For a long time, the economic theory has emphasized the importance of research and development, expertise and knowledge of employees and social capital as important, and also as necessary prerequisites for the existence of competitiveness and economic growth (Aghion, Howitt, 1998, p. 34).

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Important development problems, such as the formation of labour potential, the formation of a motivational system, long-term changes in the structure of supply and demand of labour and consumer goods cannot be adequately measured without a deeper demographic analysis. Over the years, the relations between economic development and population development have become much more complex; reducing the problem of population in the framework of economic development only to the problem of surplus or shortage of labour that is now largely overcome in theory and practical development policy (Wertheimer-Baletić, 2017). The Republic of Croatia is one of the countries in which the population has not been renewed for several decades, i.e., it has been declining when observing as a whole and also by means of the existence of the individual generations. When the number of elderly people increases while reducing the number of young people - increases the imbalance between functional age groups (such as young, workable and old groups), what leads to demographic unsustainability (Chesnais, 1998). In recent decades, there has been a growing awareness of the importance of the impact of a country's demographic situation and also to the many long-term adverse effects that such demographic processes impacted on the country's overall development. Specific demographic consequences come to the fore in all activities (in education, health, economy, finance and social infrastructure). Depopulation and population aging cause changes in the productive potential and productivity of labour, in the educational structure of the population and labour force, in the scope and structure of personal and public consumption and investment and savings (Wertheimer-Baletić, 2005). Josiah Child, who was one of the leading economists of the seventeenth century, saw the population as a source of wealth and advocated for population growth. According to him, the depopulation of a country always leads to a country's impoverishment. William Temple proposed awards for large families and imposing taxes on the unmarried because he believed that the strength and wealth of a country consisted in the number and wealth of its population. In contrast, Matthew Hale gave a pessimistic view where he defined that poverty, disease and wars that occur with a larger population (Wertheimer-Baletić, 1999, p. 65). Alfred Marshall argued that although in some circumstances population growth may be negative for society, this increase allows the application of different economies that have arisen from the division of labour and specialization of machines, i.e., that population growth must lead to more than proportional enjoyment of each kind (Pjanić, 1957).

Along with "literacy", education is a basic feature for the understanding of the educational structure of the population, and it has been included in the census of 1910, and again since 1948. The characteristic education involved in censuses signifies the highest finished school (Pokos, 2005).

3. POPULATION'S GENDER STRUCTURE

For the analysis of the population structure, the following components mostly often stand out: biological (population by age and sex), economic, socio-professional, educational, national, religious and cultural-ethnic (Friganović, 1990). The structure of the population by sex and age is a biological structure which does not mean that it is situated outside of the influence of socio-economic factors. The age-gender structure is important for the current and economic development of a country. This structure is the basis of the physiological division of labour that occurs primarily in the family, and together with the size of the population and its density sets the demographic framework for the expansion of the social division of labour. The importance of the age-sex structure of the population is also apparent in the fact that the structures of the population are categorised according to various economic and social characteristics (such as activities, occupation, education) are researched simultaneously according to gender and age. The gender structure of the population indicates the numerical amount between the male and female population when observed in the total population.

Demographic data show that the structure of the population by gender varies from country to country. The structure of the population classified by gender is the result of long-term effects of factors, such as: birth rate, mortality, migration (selective with regard to gender) and other external factors that are included. The impact of this structure on economic trends is reflected through its impact on the volume of the labour force, because the structure of the working age population classified by gender affects labour supply. The fact is that the level of economic activity of women is everywhere below the level of activity of the male population due to the biological and traditional role of women seen as mothers and housewives (Wertheimer-Baletić, 1999). The biological structure of the population is also important for the future movement of the population because it depends on changes in the age-sex structure (Glamuzina, Glamuzina, 1996). As one of the measures for expressing the numerical ratio of female and male population is the femininity coefficient, which indicates the number of women per thousand of men (Friganović, 1990). In the Republic of Croatia in accordance with the 2001 census, women represent a slightly smaller share in the total higher and highly educated population (in total, 49,0% share of women with higher education and 50,4% of women with the completed university). Significant differences between women and men are visible in completed master's and doctoral degrees in which women hold smaller shares i.e., 41,0% of women have a master's degree, and less than a third of them have a doctorate (Pokos, 2005).

4. METHODOLOGY AND RESULTS OF A RESEARCH ON THE GENDER STRUCTURE OF STUDENTS ENROLLED IN HIGHER EDUCATION INSTITUTIONS

The research conducted in 2020 on the segmentation of the higher education market (Marjanović, Učeta, 2021), proved that differences are existing in the motivation factors when choosing a higher education institution and the course of study. However, male and female students are equally motivated within the decision-making process if the ratio of specific benefits, such as material and professional, financial, social and personal and institutional benefits are observed. The results indicate that men and women generally agree in the context of material and professional benefits.

For the purposes of this survey, a secondary survey was also conducted by analysing published data issued by the Central Bureau of Statistics from the Republic of Croatia, in the article named "Women and Men in Croatia in 2021". The main goal of the research is aimed at identifying differences in the gender structure of students enrolled in higher education institutions in the Republic of Croatia. The observed academic years were 2007/2008 and 2019/2020, respectively.

In accordance with the set theoretical-methodological approach and the title of the observed issue, it is possible to set hypotheses:

H₁: A larger number of female students enrolls in social science colleges, and a larger number of male students enrolls in technical colleges.

H₂: More male students are enrolled in doctoral studies.

In the higher education institutions in the Republic of Croatia in the academic year 2019/2020, a total of 156.325 students were enrolled of which 57,2% were women and 42,8% were men. A total of 6.605 students were enrolled in schools of professional higher education (of which 41,7% were women and 58,3% were men), 23.496 students were enrolled in polytechnics (of which 47,4% were women and 52,6% were men), and to the vocational college's studies 18.022 students (of which 54,5% were women and 45,5% were men), and at colleges - university studies were enrolled 105.572 students (of which 60,6% were women and 39,4% were men) and at art academies total of 2.630 students (of which were 64,4% women and 35,6% were men).

In accordance with the fields of science at higher education institutions in the Republic of Croatia, in the academic year 2019/2021 year was enrolled as follows:

- on natural sciences: 6.225 students (of which 64,7% were women and 35,3% were men)
- on technical sciences: 40.938 students (of which 27,8% were women and 72,2% were men)
- on biomedicine and health: 17.999 students (of which 74.1% were women and 25,9% were men)
- on biotechnical sciences: 7.418 students (of which 62,9% were women and 37,1% were men)
- on social sciences: 67.905 students (of which 66,2% were women and 33,8% were men)
- on the humanities: 10.418 students (of which 71,4% were women and 28,6% were men)
- on the art studies: 2.892 students (of which 61,6% were women and 38,4 % were men)
- enrolled on interdisciplinary fields of science: 2.530 students (of which 71,9% were women and 28,1% were men).

In the Republic of Croatia, the postgraduate specialist studies in the academic year of 2007/2008 were enrolled 2.232 students, of which 61,7% were women and 38,3% were men, while in the academic year 2019/2020, 1429 students were enrolled, of which 66,3% were women and 33,7% were men, respectively.

To the postgraduate doctoral studies in the Republic of Croatia in the academic year 2007/2008, 3.052 students were enrolled, of which 50,8% were women and 49,2% were men, while in the academic year 2019/2020, 3.873 students were enrolled, of which 54,9% were women and 45,1% were men, respectively.

In accordance with the fields of science at postgraduate doctoral studies in the Republic of Croatia, in the academic year 2019/2021 was enrolled:

- on natural sciences: 660 students (of which 61,4% were women and 38,6% were men)
- on technical sciences: 801 students (of which 30,5% were women and 69,5% were men)
- on biomedicine and health: 812 students (of which 64,8% were women and 35,2% were men)
- on biotechnical sciences: 214 students (of which 63,6% were women and 36,4% were men)
- on social sciences: 751 students (of which 58,7% were women and 41,3% were men)
- on humanities: 395 students (of which 53,7% were women and 46,3% were men)
- on interdisciplinary fields of science: 240 students (of which 67,1% were women and 32,9% were men).

In Table 1 are shown the number of students who graduated from higher education institutions, distributed by their age and gender.

Table 1. Students who graduated from higher education institutions

Year	In total	% Women	% Men
1960	3 488	31,8	68,2
1970	8 509	46,1	53,9
1980	13 955	44,6	55,4
1990	9 706	53,7	46,3
2000	13 510	55,6	44,4
2010	32 378	60,8	39,2
2019	33 704	60,2	39,8

Source: Central Bureau of Statistics of the Republic of Croatia, chapter “Women and Men in the Republic of Croatia in 2021”, p. 31.

The number of graduate students in the Republic of Croatia has been growing over decades. In 1960, there was indicated more than twice the number of graduated male students, but over the years that number dropped and finally the number of female and male graduates have been equalized, but since 1990 the number of graduated male students has declined. According to the data, it is visible that in 2019 the number of graduated female students is higher by 20,4% than the male students.

In 2019, graduated a total of 33.704 students, of which 60,2% were women and 39,8% were men. In accordance with the forms of higher education institutions in the Republic of Croatia, in 2019 the students graduated from:

- schools of professional higher education: 1.562 students (of which 44,2% were women and 55,8% were men)
- polytechnics: 5.073 students (of which 54,6% were women and 45,4% were men)
- faculties: 26.368 students (of which 62,7% were women and 37,3% were men)
- art academies: 701 students (of which 65,8% were women and 34,

5. CONCLUSION

In line with the many demographics and economic theorists, a country's economic development also depends on the educational structure of its population. The gender structure of the population is part of the biological structure. The analysis of data on the gender structure of students at higher education institutions in the Republic of Croatia has led to the conclusion that higher education institutions in the academic year 2019/2020 were enrolled more female than male students. The largest number of enrolled female students take place on faculties - university studies and art academies, while the largest number of male students are enrolled on colleges and polytechnics. According to the field of science, most female students are enrolled at higher education institutions of social sciences, while male students are enrolled on higher education institutions of technical sciences; 50,3% of the total number of enrolled female students and 34,3 % of the total number of male students enrolled in higher education institutions (thus H_1 hypotheses has been confirmed: *A larger number of female students enrolls in higher social education institutions, and a larger number of male students enrolls in higher technical sciences educational institutions*). In the Republic of Croatia, more female than male students are enrolled on postgraduate specialist studies, and this difference has increased over the years. More women than men are also enrolled on postgraduate doctoral studies in the Republic of Croatia, consequently rejecting the H_2 hypothesis that stated: *More male students are enrolled in doctoral studies*.

During the recent decades, there has also been an increase in the number of women graduating from higher education institutions when compared to men. In 2019, the number of female students who graduated was higher by 20,4% when compared to the male students. Most women and men graduated from colleges- university studies, but this percentage is higher for women than for men. From all of the above said, it can be seen an increase in the number of women enrolled at higher education institutions in the Republic of Croatia, especially in doctoral studies. The reason for the aforementioned is the change in the women's lifestyle of today than it was the matter in the past.

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