EDUCATION PROVIDED BY HUNGARIAN UNIVERSITIES IN THE LIGHT OF SUSTAINABILITY AND INNOVATION FOR ECONOMIC PERFORMANCE

Ph.D. Student, Eva SZABO
Doctoral School of Economic Sciences, University of Oradea, Romania
E-mail: szaboeva2021@yahoo.com

Abstract: *In a changing world, only those who accumulate solid knowledge will be competitive in the long run. Since 2005, the number of Hungarian students has decreased by 30%. Meanwhile, the number of foreign students at Hungarian universities increased by 23.931. It is true that, due to tuition fees, those with modest incomes often cannot follow a university training program. Between 2005 and 2019, over 52% of students completed their state-funded studies. We must not forget that obtaining a university degree is just one piece of the puzzle. The real challenge is finding a well-paid job. Decreasing the number of unemployed is a necessity of the 21st century. In 2016, 1.231.453 higher education employees were registered in Hungary. Over the years, those who graduated from the Faculty of Pedagogy or the Faculty of Construction managed to quickly integrate into the field of work. We must not forget that online courses offer a fast and cheap way to develop knowledge and skills, one of them being K-MOOC.*

Keywords: *university education, K-MOOC, employment, university degree, online education.*
JEL Classification: *I23, I25.*

1. Introduction

The key objective for Hungary is to ensure the quality and increase the effectiveness of higher education. The specialized literature on university education in Hungary is extensive. In this article, I tried to present a few of them, so the reader can get an overview of the evolution and importance of education for Hungarian people.

The university tradition begins in 1367 with the foundation of the first university in Pécs by king Louis the Great of the Angevin house. Whit only two specializations, the canonical arts and law the university had ten teachers (Szögi, 1996). In the second half of the eighteenth century, rulers have recognized that it is in the state interest to ensure that citizens acquire useful and practical economic knowledge. The first school that try to meet this need was the Collegium Oeconomicum in Szenc, founded in 1763. Headed by five professors, the teaching was conducted in German, and the studied subjects were mathematics, accounting, double bookkeeping, financial literacy, public economics, and correspondence style (Antal and Baksa, 2015). In 1769, Maria Theresa set up a department for chamber sciences called Studium Politico-Camerale at the University of Nagyszombat, but from 1777 the chamber was transferred to the Faculty of Law until 1848. The studied subjects were: public administration, finance, economics, commercial law and exchange (Csizmadia, 1967). In 1846 was established József Ipartanoda, a new institution with three economic departments, but it failed to meet the developing economic needs of the Hungarian society. From 1857 the Pester Handels-Akademie (later the Budapest Academy of Commerce) try to transmit quality economic knowledge through materials such as English, French, Italian, mathematics, commercial arithmetic, commercial geography, statistics, accounting, commercial law, maritime and customs law, economics, knowledge and technology of goods (Antal and Baksa, 2015). Established in 1891, The Eastern Academy of Commerce, was established with the mission to transmit knowledge for trade with the Balkan countries and the Middle East. From 1899 the institution became an independent academy. In 1941, 87.089 was the number of university graduates, of which 75.316 was men and only 11.773 women. The Soviet educational model adopted after 1945 was characterized by a low participation rate over the years. In 1949, were registered just 93.235 degree-holders, in 83% favour of men. In 1960, were registered 163.005

degree-holders, by 1970 this number increased to 272.133 and in 1980 reached 448.094. Until 1993, Hungary had a small and elitist higher education system, nothing demonstrate this better than the number of degree-holders in 1990 was just 687.620 (Pusztai and Szabó, 2008). In 1990 were 77 Higher Education Institutions in Hungary, with 17.302 teachers.

2. Research methodology

The research in this article is a quantitative type. This involves the study of national and international specialized literature, as well as the analysis conducted by international organizations about higher education in Hungary. The approach was meant to highlight the changes after 1990 based on statistical data from the Central Statistical Office (KSH). The years 2011, 2016 were chosen for a detailed analysis, as they were census years in Hungary. The evolution of the increasing or decreasing number of university graduates over the years allows us to decide if efforts for developing a knowledge society have materialized or not.

3. The Hungarian educational challenges for being a knowledge-based economy

The adoption of the Higher Education Act (HEA) in 1993 starts the decentralization of higher education and the autonomy of higher education institutions. In 2000, more than 42% of men and almost 60% of women of the employed population had at least upper secondary level qualification (Lannert and Halasz, 2003, p.16). In 2001 were registered 888.345 degree-holders divided into age groups as follows: 25–29 years (116.199 persons), 30–34 years (107.237), 35–39 years (97.909), 40–44 years (105.714), 45–49 years (118.503), 50–54 years (100.583), 55–59 years (84.752), 60–64 years (50.978), 65–69 years (41.833), 70–74 years (32.945) and over 75 years (31.692). But the real compatibility of the Hungarian higher education system with the common European systems was the adoption of the Bologna process in 2005, and the application of the European credit transfer system (ECTS) (Pusztai and Szabó, 2008, p.87). Among the benefits of the process, we can mention the improvement of language skills, the orientation to practical knowledge transmission, and the preparation of the workforce for national and international economic needs.

In the territory of Hungary in 2005, were 71 higher education institutions with some 23.188 teaches, of which 8.808 were women. By 2019, the number of institutions decreased to 64, but the number of teachers increased to 23.383, of which 9.743 were women. (www.ksh.hu). The decrease in the number of institutions is not necessarily a negative sign, because the seven institutions have not disappeared but have merged with other universities, becoming even more competitive by offering quality education.

3.1. The situation of university students

The number of students enrolled in university education programs in Hungary since 2005 shows a decreasing trend until 2018. We are talking about a total of 424.161 students in 2005, the number decreases to 361.347 in 2010, in 2015 there are only 295.316 enrolled, and in 2018 their number reaches 281.461. This shows us that young people do not consider obtaining a university degree a priority. After 2018 we have an increasing trend (2019-285.110; 2020 – 287.460) which hopefully will continue. Regarding the number of women participating in university programs, we can see that since 2005 their number is higher than that of men. The number of male students over the years is under 180.000: 2005 (177.242 enrolled), 2009 (162.800), 2010 (161.767), 2013 (144.576), 2016 (131.312), 2019 (131.200), and 2020 (130.386). Until 2012 we have a relativly balanced situation of the number of students in the first and last year of study, as we can see in figure 1.

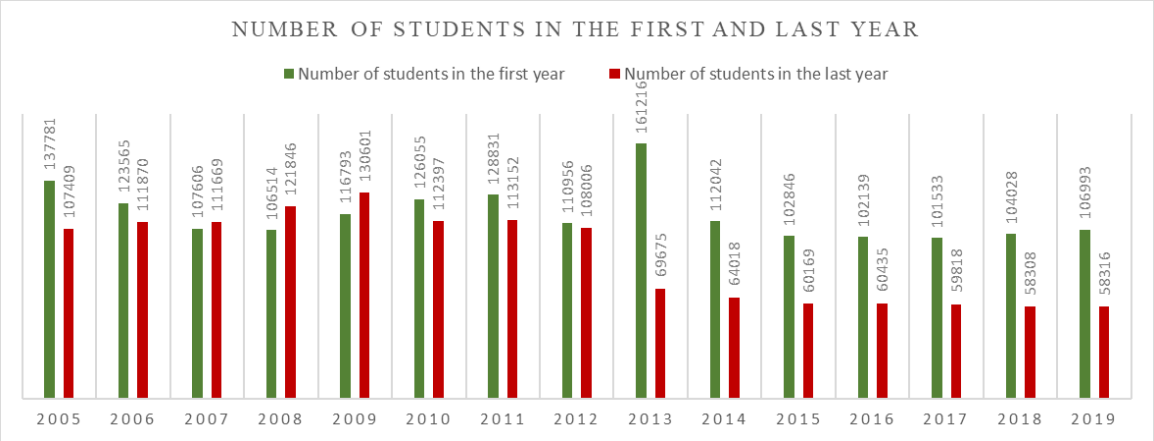

Figure no.1 Number of students in the first and last year (2005 - 2019)
Source: created by the author, based on information collected from KSH

There is a lot of debate about the size of tuition fees. (Ex: in general at Eötvös Loránd Tudományegyetem (academic year 2020/2021): bachelor's (first cycle) / year 1.000.000 Ft; master's (second cycle)/ year 800.000 Ft) (http://to.ttk.elte.hu/?q=koltsegterites). Many see this as an impediment to those who cannot afford to pay them. Since 2005, the Hungarian government has tried to secure more and more budgeted places at state universities. The number of those who studied without a fee in 2005 was 216.463, from 2006 (218.777) will decrease steadily, 2010 (209.548), 2015 (169.664), 2018 (161.676), but from 2019 (165.220) there is an increase of 3.544.

In 2001, the expenditures made for higher education from the state budget were 161871 million Ft. This amount increased every year until 2008, as follows: 2005 (226772 million Ft.), 2006 (234968 million Ft.), 2007 (253174 million Ft.), And in 2008 it reached 266745 million Ft. In 2009 and 2010, higher education receives less money. In 2011 there is a slight increase to 270646 million Ft. When Balog Zoltán came to lead the Ministry of Human Resources on May 14, 2012 (since May 29, 2010, this ministry incorporates the Ministry of Education and Culture) (https://njt.hu/) the amount for higher education decreased to 247517 million Ft. From 2013 begins an increase: 2013 (243645 million Ft), 2014 (257908 million Ft), 2015 (264484 million Ft), 2016 (300297 million Ft), 2017 (324778 million Ft), 2018 (339655 million Ft), 2019 (380276 million Ft).

Foreign students interest in Hungarian university programs is demonstrated by their growing number: 2005 (14.491 foreign students), 2010 (18.850), 2015 (26.155), and 2019 (38.422). In 2014, most foreign students came from Germany (2.893), Slovakia (2.120), Romania (1.992), Serbia (1.517), Brazil (1.362) and Ukraine (1.080), while in 2019 from Iran (2.024), China (2.776), Germany (3.449), Romania (2.593) and Serbia (2.209). Among the foreign students' reasons for learning in Hungary, we can mention: to know new cultures; the material plays an important role (Hungary was cheaper than another possibility); mostly because of learning and language learning; because it was close to their country; after graduation, they intend to stay in Hungary; they came with a friend. Those who come for the acquisition of a large amount of knowledge study at the Faculty of Medicine. Those who intend to stay after graduation, study at the Faculties of Economic Sciences and the majority are women (Kéri, 2016, p. 42). Medical training is traditionally the most popular among foreign students, at the universities: Semmelweis University in Budapest, the University of Debrecen, the University of Pécs, and the University of Szeged. In 2020, 15,000 scholarships were offered to students for master's and doctoral programs fully funded by the Hungarian Government.

3.2. The sustainability of education in the light of 2011, 2016 censuses

In 2011 we are talking about a total number of 1.382.398 degree-holders, most of them being part of the age group 30-34 (214.124 people). According to the field of the degree, the most popular category was Social sciences, economics, law (male 140.864; female 271.556), followed by Pedagogy (male 80.798; female 283.482), Technical, industrial and construction training (male 199.615; female 50.341), Health and social care (male 31.058; female 80.514), Agriculture and veterinary sciences (male 47.701; female 31.140), Services (male 46.263; female 30.032), Mathematics, computer science, other natural sciences (male 48.738; female 21.178), Humanities and arts (male 28.867; female 38.028), and hybrid specializations (male 4.438; female 5.003). In the Social sciences, economics, law category the division of the number of higher education graduates by age groups shows the following: 30–34 age group (81.790 graduates), 25-29 (70.254), 35–39 (60.810), 40–44 (38.793); 55–59 (27.387); 45–49 (25.730); 20–24 (23.661); 50–54 (22.907); 60–64 (22.600); 65–69 (16.146); over 75 years (13.419); 70–74 (8.923). Pedagogy is the most popular among those aged between 35-39 (47.440 persons), in contrast to those most popular among the 30-34 age group like Humanities and arts (10.304), Mathematics, computer science, other natural sciences (14.539), Agriculture and veterinary sciences (12.505), Health and social care (13.813). The majority who had a degree in Services (30.029) or Hybrid specializations (1.182) were in the age group 25-29.

In 2016, 1715.661 degree-holders were registered, in a proportion of 56% - 44% in favour of men as we can see in figure 2.

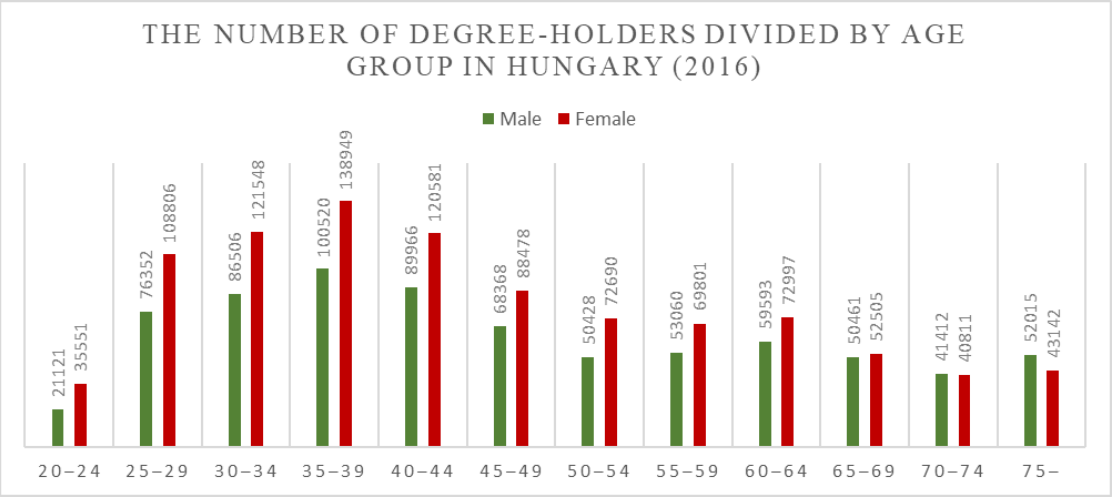

Figure no.2 The number of degree-holders divided by age group in Hungary (2016)
Source: created by the author, based on information collected from KSH

If we look at the division by age groups we will see that the first five places are occupied by the age groups 35–39 (239.469), 40–44 (210.547), 30–34 (208.054), 25–29 (185.158), 45–49 (156.846). According to the field of the degree, the most popular category was Social sciences, economics, law (male 179.645; female 338.011), followed by Pedagogy (male 83.658; female 307.409), Technical, industrial and construction training (male 252.680; female 64.235), Health and social care (male 36.515; female 97.092), Humanities and arts (male 37.18; female 52.906), Services (male 51.157; female 36.913), Agriculture and veterinary sciences (male 49.700; female 32.771), Mathematics, computer science, other natural sciences (male 52.651; female 28.855), and hybrid specializations (male 6.615; female 7.667).

4. The employment rate of the population with higher education

It is not enough to talk about the number of graduates or holders of a university degree we must be aware that the next important piece of the puzzle is finding a job. The number of employed people with tertiary education in 1990 was 534.605, a proportion of 55% - 45% in favour of men. Those who worked held a degree mostly in Technical, industrial and construction training (137.000) or in Pedagogy (133.425). In 11 years, the number of university graduates who integrate into the field of work increases by 141.220, so in 2001 we talking about 675.825 people, with 2.141 more women than men. Most of them with degrees in Pedagogy (201.977), Humanities and arts (144.301), and Technical, industrial and construction training (138.221). According to 2011 data, 994.637 was the number of employed people with higher education. In a proportion of 55% - 45% in favour of women. Predominantly those who held a degree in Pedagogy (243.840), Social sciences, economics, law (297.628), Technical, industrial and construction training (165.780) managed to find a job. Since 2011 people with a degree in Social sciences, economics, law are becoming very active in the field of work, and their number is growing day by day. In 2016 was registered 1.231.453 employed with tertiary education, most of them in Social sciences, economics, law (388.987), Pedagogy (265.159), Technical, industrial and construction training (221.861), and Health and social care 100.329). With a difference of 108.257, women (54%) compared to men (46%) were integrated into the labour field. Over the years those who graduate in Pedagogy or Technical, industrial and construction training are mostly employed.

5. K-MOOC – online education in Hungarian style

In 2006 was started the Hungarian innovative project called K-MOOC (Carpathian Basin Online Education Center/ Kárpát-Medencei Online Oktatási Centrum). Primarly the project objectiv was to disseminate hungarian courses in the Carpathian Basin. The program participants are mostly universities and colleges in Hungary and a few institutions abroad as we can see in table no.1.

Tabel no. 1. Institutions of the K-MOOC network

Higher education institutions of the K-MOOC network in Hungary	Higher education institutions of the K-MOOC network across the border
Budapest University of Technology	Sapienta Hungarian University of Transylvania, Romania
Corvinus University of Budapest	Selye János University, Slovakia
University of Szeged	Babes-Bolyai University, Romania
University of Debrecen	Partium Christian University, Romania
University of Pécs	University of Novi Sad, Faculty of Hungarian Language Teacher Training, Serbia
University of Miskolc	Constantinople University of Nitra, Faculty of Central European Studies, Slovakia
St. Stephen University	Comenius University, Slovakia
Pázmány Péter Chatolic University	Technical College of Subotica, Serbia
Óbuda University	Hungarian Scientific Society of Vojvodina, Serbia
Eszterházy Károly University	Strossmayer University, Croatia
University of Kaposvár	Danubius University, Slovakia
Pallasz Athéné University	MÜTF Education Center, Romania
University of Dunaújváros	Târgu Mureş University of Arts, Romania
King Sigismund College	
University of Nyíregyháza	

Gábor Dénes College
Reformed Theological University of Debrecen
Apor Vilmos Catholic College
Sárospatak Reformed Theological Academy
Kodolányi János College
Bhaktivedanta College of Theology
Wekerle Sándor College of Business

Sursa: created by the author, based on information collected from K-MOOK main page

Being a recognized online education and a promoter of lifelong learning, the platform courses respect the credit recognition system based on the 46 articles of the Regulations for the Study and Examination of the University of Óbuda (www.kmooc.uni-obuda.hu). The courses are divided into five categories: Social science, Economy, Art history, IT, and Technical sciences. In the Social Sciences category, there are 13 courses to which 2-5 credits are assigned depending on the complexity. The most popular in 2020 were Digital Pedagogy (2 credits), Individual and Group Problem Solving Techniques (3 credits) and TeachUP (2 credits). In the Economics category, there is only one course called e-Business, the economics of the information society with 4 credits. The category Art History with the three courses: Cultural history of jazz I, Cultural history of jazz II and History of the Art in 2020 failed to attract a large number of participants. Eight courses are offered in the IT category: Data structures and algorithms (5 credits), Application development based on Drupal (2 credits), ASP.NET Core web application development with Orchard Core CMS (2 credits), HTML5 (2 credits), Control technology (4 credits), Java microservice project (3 credits), Computer Networks (3 credits), and Content Management in the Cloud: Orchard CMS (2 credits).

These courses in 2020 have been very successful due to the transfer of educational life in the digital world. Accessed mainly by students and teachers from rural areas, they have a well-developed plan. They are ideal for acquiring knowledge in a simple, practical and fast way.

6. Conclusions

The number of university students is declining from 2005 (424.161) to 2018 (281.461). Between 2005-2019, the presence of women is higher than that of men, which shows that they give more importance to a university degree than men. High tuition fees represent a problem for many people with low income. In 2005 only 216.463 students studied free of charge, and their number in 2019 reached 165.220. Foreign students number grew over the years: 2005 (14.491), 2010 (18.850), 2015 (26.155), and 2019 (38.422), most of them came from Germany and Romania. Based on data provided by the 2011 census, most of the degree-holders (1.382.398) was part of the age group 30-34 (214.124). In 2016, 1715.661 degree-holders were registered, in a proportion of 56% - 44% in favour of men. The biggest fear of the Hungarian universities is that their education structure not suitable for labour market demands. Between 2005-2016 those who graduate in Pedagogy or Technical, industrial and construction training was mostly employed. The Hungarian innovative project called K-MOOC, with online courses in five categories, from 2016 contributes to the assimilation of quality knowledge for sustainability.

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