

# Higher Education Employability in Croatia – Analysis from 2002 to 2011

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**Abstract.** *In modern society having good educational system isn't enough. Today's educational system has to provide answers for the jobs that will be present in five to ten years while taking into consideration that future jobs are drastically changing and labor market is eager for highly educated workers. Having this in mind, every country that wants to respond to current and future labor market needs has to have a good dialog among those two sectors. In this article we are focusing on the tertiary education employability in Croatia which is further supported by comparison with EU and USA data, while taking into consideration student standard and international survey results.*

**Keywords.** Higher education, Croatia, labor market, higher education financing, employability, student standard

## 1 State of higher education in Croatia

There are three types of institutions of higher education in Croatia: universities, polytechnic studies and colleges. Currently there are seven universities in Croatia (in Dubrovnik, Osijek, Pula, Rijeka, Split, Zadar and Zagreb), two private universities, fifteen polytechnic studies and one college [20]. According to Croatian Bureau of Statistics in academic year 2010/2011, 148 616 students got enrolled in higher education, which is 2,3% more than the year before. 82% of all students were attending universities (7,2% on professional studies, and 75% on university studies), 11,5% of students were attending polytechnic studies, 4,6% of students were attending colleges and 1,7% were attending art school [9].

Investments in higher education are still topic of many debates. Data on this subject is imprecise and incomplete so it is not possible to perform a precise analysis of public investments in higher education,

but it is possible to assess current situation by reviewing existing data on these investments.

In Table 1 data for years 2002 to 2007 and year 2010 is taken from Ministry of Science, Education and Sports official website, (\*) while for years 2008 and 2009 is taken from different sources. Different methodology for collecting data is the reason of difference in the amounts invested in higher education in Croatia from the state budget. Despite all our efforts we couldn't find a single source for all the years. This raises a question of methodology for collecting data, change in items that were included in the budget, etc. For that reason, thorough statistical comparison of the data is not possible. We are hoping that recent announcements from the Croatian Government about full analysis of the financial state will be publically available.

If we look at the Table 1, there is a noticeable growth in government financing of the higher education. Comparing data from the year 2002 and 2010 it is visible that the Government invested 334 400 000 € in year 2010, which is a 77% increase compared to the year 2002. According to the financial indicators, European Union investments for the higher education in the year 2005 amounted 1.16% of total GDP. The average investment for higher education in Croatia amounted 0,83 of total GDP. [2]

That said, we can conclude that despite constant growth seen in Table 1, Croatia needs to significantly raise its financing of higher education, especially when we take into consideration the fact that Croatian higher education was on a lower level of quality compared to European Union average. There is a difference between the amount of investments in the EU and those in Croatia and this represents one of the reasons for the slow development of the Croatian higher education. Due to incomplete data, it is impossible to analyze data for the year 2010 but we it can be seen that there has been an absence of growth in funding of higher education. Data about the funding for the year 2011 is still not available.

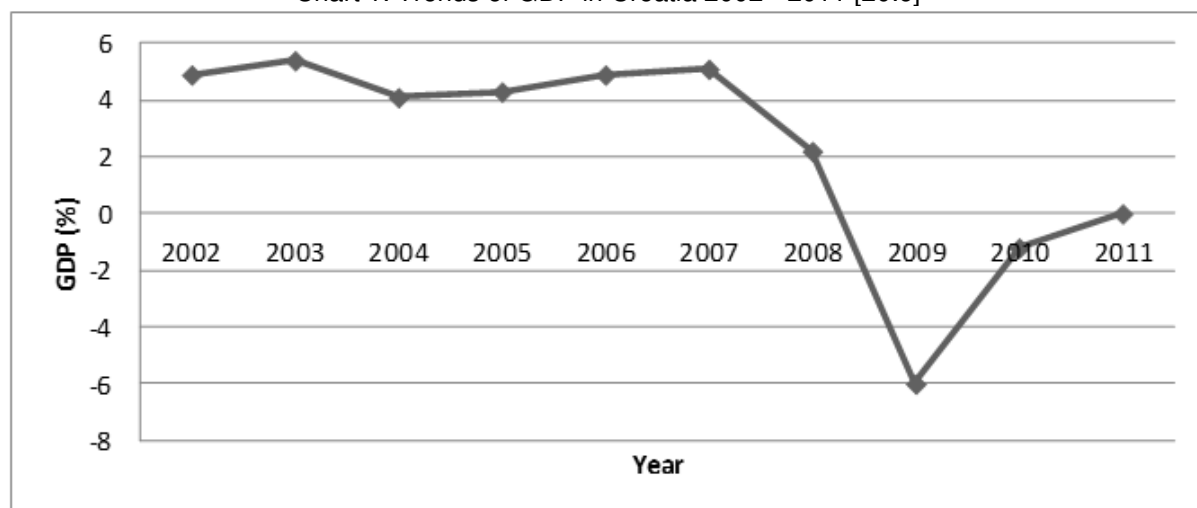
Table 1: Croatian state budget investments in higher education from 2002 until 2010 [2]

Year	2002	2003	2004	2005	2006	2007	2008*	2009*	2010
Government budget investments (mil. €)	189	214	239	268	298	313	218	191	334

Social and economic picture of student life in Croatia represents one of the indicators for the condition of higher education in Croatia. Croatian students differ in many aspects from students that live and study in the European Union. For one quarter of students in EU it is common to have prior work experience in a form of a regular job, temporary job or vocational training. Croatia, along with Turkey and Romania belongs to a group of countries with the lowest amount of working experience during studies. Most of the students in Croatia did not have any prior work experience before enrolling in higher education.

[32:21] In half of the EU countries 40% of students have regular jobs during their studies. These numbers are even higher in Switzerland, Czech Republic, Denmark, Estonia and Malta where more than 50% of the students have regular jobs during their studies. [32:106] If we look at the profile of students in those countries we can see that the 80% of the students in Croatia are not older than 24 years. The same situation exists in Turkey, Lithuania, Latvia, France and Slovakia. Opposite to that, in Norway, England, Portugal, Austria, Denmark, Estonia and Ireland, every fifth student is 30 years old or older. [32:63].

Chart 1: Trends of GDP in Croatia 2002 - 2011 [20:6]



When we consider transition to higher education through three different periods: (i) between high school and higher education, (ii) between enrolling in higher education and getting a bachelor's degree, (iii) between bachelor's degree and re-entry into higher education, we can see that Croatia belongs to the group of countries where this transition takes place without any interruption. In contrast, in Norway, Turkey and Denmark, more than 50% of the students get enrolled into higher education 12 months or more after finishing high school. [32:35] 86% of students in Croatia enrolls in higher education immediately after finishing high school and continues their studies without any interruptions. [29:6] This is not unusual considering the fact that most students in Croatia do not have jobs during their education, as it is customary in the European Union. After finishing high school most of the young people in Croatia have two options, they either get enrolled into higher education, or they go to the labor market with no or almost none intention of enrolling into higher education later on. Only small percentage of young people decides to work prior to enrolling into higher

education. The reason for this is lack of connection between labor market and higher education in terms of informing the students about work possibilities after obtaining a diploma. It is also necessary to mention the problem of recognition of bachelor's degree graduates in the labor market. Employers are not informed about what they can expect from the bachelor's level nor their qualifications since they are not clearly defined. On 3rd January 2012 out of 1235 job adverts on Croatian job portal "MojPosao" only 13 of them were considering bachelor level. [29] Opposite to that there are results in the UK [22] where Bologna process works well and most of the students find a job after finishing bachelor level, while 1/3 return to higher education, usually after gaining some work experience.

According to Riddell and Song [35] higher education helps in re-employment process, as well as labor force transition from satiate to scarce work sectors. This findings are somewhat opposite to Little and Lore [22], but it is possible that the results vary due to different countries and national strategies influencing labor market. Some students enroll higher

education for their interests and do not base their future occupation merely on employability and future job opportunities. According to Duvekot [11] enjoyability is one of the factors why students choose their study.

In international comparisons the educational attainment of students' parents is often viewed as a useful proxy-indicator for the impact of socio-cultural and economic factors on access to higher education. [32:42] Students whose parents obtained higher levels of education have far more opportunities for higher education than those students whose parents only graduated high school. In Croatia around 50% of all students have at least one parent employed in tertiary jobs. [6:7] Situation is similar in the European Union, and only a few countries can classify their higher education as socially inclusive. Very important fact, other than these social and cultural factors, that can affect the choice of enrollment in higher education is the economy. Under the "cultural and social capital" we consider the educational level of parents (listed in the previous section), type of school a student has finished (gymnasium, vocational school, etc.), education level of acquaintances, and the economic determinant related to the possibility of covering the study costs. [8:181]

Table 2: Unemployment dynamics in Croatia from year 2002 to 2010

Year	Average number		
	Men	Women	Total
2002	176 754	212 987	389 741
2003	140 078	189 721	329 799
2004	129 028	180 874	309 875
2005	127 942	180 796	308 738
2006	116 519	175 097	291 616
2007	102 482	161 966	264 448
2008	89 540	147 201	236 741
2009	107 115	156 059	263 174
2010	136 805	165 620	302 425
8.2011	135 258	158 594	293 852

According to national research conducted as a part of the Eurostudent IV research study, expenses of a student in Croatia amount to 2 092 € per semester. Greatest part of this amount (1 718 €) covers living expenses, but these expenses can largely differ due to the fact that different students have different expenses. [32:8] On average, European Union students have monthly access to 426 €. Croatian average is below 200 €, and a source of student's income is usually his/her family. [32:117] 82% of the Croatian students rely on their families for money, and 28% of students are on scholarships which average on 107 € per month. [6:9]

If we compare data on public expenditure for higher education in Croatia with those in OECD countries, we see that the public funding per student in Croatia amounts to 2 669 € while the average for OECD countries is around 5 524 €, twice as much. [7]

These data clearly demonstrates the need for greater amount of public funding for higher education in order to reduce the gap between Croatian and EU average. These factors also suggest that in Croatia all students do not have equal opportunities during their studies or after obtaining a diploma. Therefore it is necessary to find the institutional measures that would reduce the social insensitivity of the system. According to Bravo, Mukhopadhyay and Todd [4] good school reform can boost enrolment into public and private schools, especially when it is focused on providing financial support (vouchers) for private schools. It is important to have publicly funded education, or at least good scholarship programs that would enable access to higher education for every student.

According to Pagés and Stampini [33] there is a difference in wage between workers who have formal and those who have informal education, with premium on the formal education side. This emphasizes the importance of formal higher education. While certificates are good way to prove competences and are more flexible regarding fast changes, it is important to maintain quality of higher education programs and access to them via public funding or scholarships.

## 2 State of labor market in Croatia

The situation in the labor market and economic trends in Croatia are burning issue for longer period of time. The world economic crisis has left a heavy, negative mark on the Croatian economy. A large number of companies recorded a drop in productivity, and have not been able to pay their debts and were forced to lay off workers. All of this caused a drop in GDP for more than 6% in 2008. [24:3]

Chart 1 is showing the movement of GDP in recent years that clearly shows that Croatian economy is not moving in the right direction. In the period from 2007 until 2009 GDP dropped from 5% to -6% which clearly shows the amount of effect the crisis had and still has on Croatia. The situation somewhat improved during the last two years but it is still far from the state in 2007.

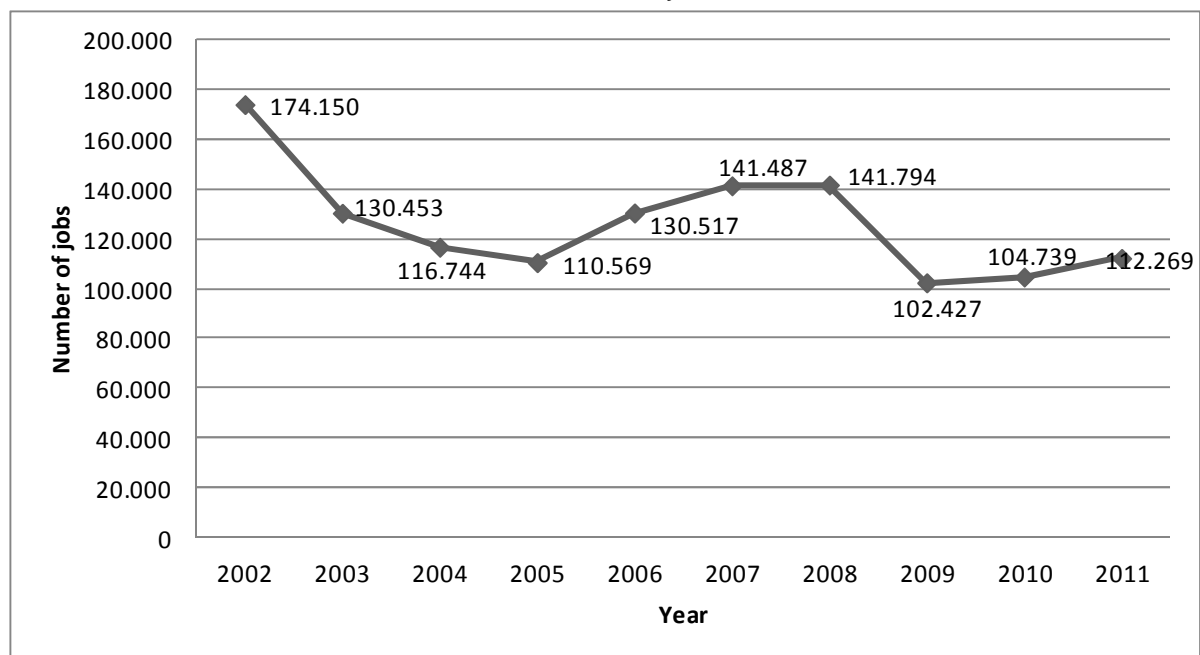
According to the Croatian Chamber of Economy, GDP recorded a zero growth rate in the first half of 2011. GDP was positively impacted by the growth in supplies and in personal consumption, while the negative impact was associated with the movement of investments in fixed capital and export of goods and services. [16:7]

World economy crisis is one of the main causes of unemployment in the last few years. Unemployment in Croatia has a cyclic movement trough the year. There is a growth in employment from February to July, and then a drop in period from August to January. [24:4] These data shows Croatia is still a country with a large amount of seasonal jobs mainly related to tourism.

According to Table 2, highest unemployment rate in the last nine years occurred in 2002. Until 2009 the situation was improving and unemployment rate was decreasing. The world economy crisis generated unemployment growth and this trend continues today. As the crisis continued, unemployment kept growing and it is again approaching the rate it had in 2005. Data for 2011 shows that the situation is not improving and future analysis are predicting further growth of unemployment. [12] Given the previously mentioned trends in unemployment, the number of reported jobs is expected. If we closely analyze Chart 2, we will notice the growth of jobs from 2005 until

2009. With the beginning of the crisis in 2009 this number suddenly dropped and then mildly increased in the next two years, mainly caused by development of the IT market. The results of IDC's research on the IT industry in Croatia, predict opening of nearly 200 new companies with approximately 6000 new jobs in the period from 2009 to 2013. [5] Information about the increasing number of jobs may be contradictory to the predictions of the number of unemployed, but we should keep in mind that these two figures should be considered along with the level of education and profession filed of the individual.

Chart 2: Total number of jobs in Croatia



## 2.1 Connection between higher education and labor market

Development and growth of the economy in each country, including Croatia, is largely dependent on human capital. High-quality education system, advanced technology and innovation represents the basis for economic development and growth. When we take into consideration current trend of globalization, investing in education, especially higher education creates grounds for permanent employability. This also contributes to the solution of the unemployment problem, which is highly present in Croatia. European Union has recognized the importance of highly educated workers that can contribute to economic growth. Creating and filling the knowledge-intensive jobs of the future requires highly skilled workers who can respond to the opportunities and demands of the modern economy. [25] Androulla Vassiliou, European Commissioner for Education, Culture, Multilingualism and Youth, said: "35% of jobs in the EU will require high-level

qualifications by 2020, so it's vital that we continue to invest properly in schools and universities. Education must remain a top priority for the EU, even in a tough economic climate." [14] Related to EU agenda 2020, Lopez [23] finds a negative trend in Spain related to over-education, which is contrary to the mentioned agenda.

Croatia needs to direct its educational politic towards creating a society of knowledge because it has a key role in economic development and it is the driving force of social change in terms of greater social inclusion. The society of knowledge offers significant benefits to the whole society, such as competitiveness and productivity, innovation and modernization. [21]

For several years now, the Chamber of Crafts in the Dubrovnik-Neretva County successfully partners with the Croatian Employment Service and vocational schools on the project "Promotion of deficient occupations". [30] The Koprivnica-Krizevci county also got involved in the program of scholarships for the deficient occupations by investing 66 489 €. [31]

Another positive example is provided by the Croatian Employment Service that conducts a program of vocational training for students in primary schools and high schools. [19] These are just some of the positive examples that are encouraging students to enter deficient professions in order to accelerate development of Croatian economy.

Problem that occurs when entering high school reflects on higher education that still has no defined program of entry quotas adjusted according to the needs of the labor market. [27] This is supported by the fact that economic and legal faculties are consistently the most wanted among the new students, regardless of the fact that their unemployment is

currently 4506 for economists and 1708 for the jurists. [18]

According to the annual report from the Croatian Employment Service the most wanted professions in 2010 were graduate medical doctors, educators, classroom teachers, professors of Croatian, foreign language teachers, and math and physics teachers. [34:18] Electrical, mechanical, and naval architecture engineers are also highly demanded. [28] Interesting to note is that there is also a demand for economists and lawyers in the market. These occupations are not considered to be deficient due to the large number of qualified professionals available on the labor market.

Table 3: Higher education graduates by field of studies in 2009 [10:30]

Field of study	Number of graduates	The percentage of graduates
Teachers and educators	1194	3,96%
Education science	199	0,66%
Art	973	3,23%
Humanities	2385	7,91%
Social Sciences	927	3,07%
Journalism and information	741	2,46%
Business and administration	8566	28,41%
Law	1773	5,88%
Biology	430	1,43%
Physics	540	1,79%
Mathematics and statistics	536	1,78%
Computing	1245	4,13%
Engineering and engineering trades	2774	9,20%
Manufacturing and producing	592	1,96%
Architecture and construction	1218	4,04%
Agriculture, forestry and fishery	746	2,47%
Veterinary	81	0,27%
Health	1817	6,03%
Social welfare services	151	0,50%
Personal services	996	3,30%
Transportation	1275	4,23%
Environment	51	0,17%
Protection services	946	3,14%
<b>Total</b>	<b>30156</b>	<b>100,00%</b>

Analysis of these data leads to the conclusion that most graduates come from the field of social sciences and humanities, and much less of them comes from the technical sciences which are most wanted on the labor market. The problem comes from a fact that the admission quotas at the universities are not adapted to the labor market needs. The highest admission quotas are on humanities, economical and legal faculties, while technical faculties have much smaller quotas even though there is a large demand for these experts in the labor market. Admission quotas in higher education are regulated by Law on Scientific Activity and Higher Education and determined individually by universities and not by the labor market. Due to the current methods of financing of Croatian higher education it is in the interest of every faculty to enroll

as many students as possible, because that will increase their income. The funding of higher education institutions in Croatia is not based on the quality of the program or the labor market needs, but purely on the number of enrolled students.

It is difficult to predict labor market demand for a longer period, but there are mechanisms that can contribute to making a better estimate. Reviewing the literature [1] [3] [4] [23] [26] we can see that most reforms are targeting only higher education, while neglecting changes on the employer side, such as making jobs more attractive to future students/workers through higher wages, benefits, job opportunities, etc. EU formed recommendations focused on employability and connectivity of higher

education and labor market that are based on employers feedback, such as: higher education needs to include more experience in courses, provide better post-graduation support, make courses more relevant to employer needs, focus on sector specific work placements, etc. [36:59] Also, they identified certain skills that employers find important when hiring highly educated persons, though those skills vary depending on the country [36]. Abreu and David [1] note that changes should be made on the government and education side, but changes that would include employers should be prevented. Although there is increasing demand for high-skilled workers, employers are not willing to pay for necessary education, nor do they change job benefits to make it more attractive to future students and that way stimulate higher enrolment rates for scarce fields.

### 3 Comparison of higher education employability in Croatia, EU and USA

To further analyze the state of employability in Croatia, we are presenting data regarding unemployment rate in Croatia, EU (27) and USA related to highly educated unemployed people.

Table 4: Unemployment rate – bachelor's degree and higher in USA, EU (27) and Croatia

Year	USA	EU	Cro	Cro:USA(%)	Cro:EU(%)
2002	2,9	4,3	8,7	300	202
2003	3,0	4,6	6,6	220	143
2004	2,7	4,7	7,0	259	149
2005	2,3	4,5	5,6	243	124
2006	2,0	4,1	5,1	255	124
2007	2,0	3,6	5,3	265	147
2008	2,6	3,5	4,1	158	117
2009	4,6	4,5	4,7	102	104
2010	4,7	4,9	7,4	157	151
2011	4,3	5,0	8,0	186	160

In columns "USA", "EU" and "Cro" Table 4 shows unemployment rate for people who have bachelor's degree or higher level of education in USA, EU (27 countries) and Croatia. Data used to create this table was taken from Eurostat [13] and United States Department of Labor, Bureau of Labor Statistics [37]. Fifth and sixth column are showing difference in unemployment rate between Croatia and USA and Croatia and EU, presented as percentage. It can be seen that USA has already started to recover from economical crisis, and its partial data for 2012 state even lower unemployment rate for highly educated people of 4,1%. [37] EU has slowed unemployment rate increase which significantly increased in 2008 and 2009. On the other hand, Croatia still has increase of the unemployment rate,

and although increase is not as significant as it was in 2010, it is still rising. When looking at final results for 2011, it can be seen that Croatia has almost two times higher unemployment rate than USA, and 1,6 times higher than EU (27). This numbers are alarming indicator for Croatian government. Taking into consideration the cost of higher education as well as time and resources needed to create highly educated workforce, Croatia needs to create better strategies related to human resource management, especially considering current unemployment rate presented in Table 4.

### 4 Conclusion

Highly educated labor force is increasingly becoming a prerequisite for economic progress. Therefore, the competitiveness of the national economy is reflected by the competitiveness of the labor force, which depends on the educational system. The educational system needs to provide measures to stimulate creation of highly educated professionals that will use their competences for creating new job opportunities which could reduce the structural unemployment that followed Croatia since declaring its independence. According to Garcia-Aracil and Van der Velden "match between individual human capital competencies and the characteristics of the job does matter." [15] Competences are one of the main goals of higher education, and according to EU agenda 2020 45% of the jobs will require highly educated working force by that year.

Social and economic indicators of students' life in Croatia are different, and for that matter lower, than the European average, and social insensitivity of the system does not provide equal opportunities to all students hoping to gain higher education degrees. Croatian government is trying to enable access to higher education for every student by financing first year of study, as well as later years if students meet required criteria.

Croatian educational system has poorly defined quotas that do not follow demand of the labor market and future jobs. The above discrepancy between higher education and the labor market is noticeable in excess of economists and lawyers and the lack of doctors, engineers and professors. Lack on technical science professionals is present in the EU countries too. Employability is highly researched topic, especially in European Higher Education Area (EHEA). Alarming data for Croatia can be seen in constant drop of its labor force which has steadily dropped from 1 813 000 in 2002 to 1 725 000 in 2011. [10] To make matters worse, number of highly educated persons in Croatia has steadily risen from 20700 in 2008 to its current state of 33515 in 2012. [10] Positive change is noticeable in the analysis of the number of highly educated persons who are entering the unemployment sector (20312 in 2012)

compared to the number of them who found a job and left unemployment office (21473 in 2012). [10]

A task that is put in front of Croatia and its educational system is not easy. Lack of quality plans, employability strategies and analyses make it hard to predict labor market demands over a longer period of time. This makes the job even harder for the policy makers (ie. ministries). It is necessary to develop a strategy that will connect and coordinate educational system and labor market current and future needs, as this is the only way to achieve knowledge based society and working economy system.

The following research should be focused on mechanisms for monitoring the labor market needs in order to achieve a tighter connection of higher education, economic sector and labor market. EU findings and guidelines related to higher education employability can be of help to Croatian policy makers. It is important to explore and adapt educational strategies of other European Union countries that had similar historical development and made a visible progress during the years.

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