

Croatia: Mismatch priority occupations


10/2016  [European Skills Index](#), [People and Skills](#), [Matching Skills and Jobs](#), [Future Jobs](#), [Labour Market Context](#), [Croatia](#), [Mismatch priority occupations in countries](#)

Table of contents



[Summary](#)

[Shortage Occupations](#)

[Mechanical engineers \[8\]](#)

[Medical doctors \[17\]](#)

[Nursing associate professionals \[22\]](#)

[Secondary education teachers \(mathematics\) \[25\]](#)

[Other shortage occupations](#)

[Surplus Occupations](#)

[Note on the methodology](#)

[References](#)

Summary

ICT professionals belong to high shortage occupations for Croatia.

Looking at past, current and future trends (3-4 years), a number of occupations have been identified as **mismatch priority occupations for Croatia**, i.e. they are either in shortage or surplus. **Shortage occupation**: an occupation that is in short supply of workers, and for which the employers typically face difficulties finding a suitable candidate. **Surplus occupation**: an occupation for which there are plenty of suitable workers available but low demand. The employers have no problems filling such posts.

The list below is based on an assessment of the labour market of **Croatia**. The occupations presented are not given any rank. All of them present high mismatch.

The infographic features a dark blue header with the title 'Mismatch priority occupations' and 'Croatia' in large, light blue font. Below the header is a central illustration of a man in a white shirt and tie, holding a lightbulb, a megaphone, a document, and a server rack. To the left of the illustration is the text 'Shortage occupations' and to the right is 'Surplus occupations'. Below these are two columns of occupation names. At the bottom, the logo for 'SKILLS PANORAMA' is displayed with the tagline 'Inspiring your choices on skills and jobs in Europe' and a blue arrow pointing right.

Mismatch priority occupations

Croatia

Shortage occupations

- ICT Professionals
- Mechanical engineers
- Medical doctors
- Nursing associate professionals
- Secondary education teachers (mathematics)

Surplus occupations

- Political scientists
- Journalists
- Philosophers

SKILLS PANORAMA
Inspiring your choices on skills and jobs in Europe

Shortage Occupations

ICT professionals ^[1]

The use of ICT technology is spreading in many sectors of the Croatian economy, thus increasing the demand for ICT experts. External demand for several ICT products (video games, mobile-phone applications, etc.) is also strong. As a result, firms from various sectors hire ICT experts, and the number employed in the specialised sector of computer programming, consultancy and related activities has grown significantly (by 17% between 2014 and 2015). ^[2] Some employers have reported difficulties in finding ICT professionals. ^[3] Most of them are small firms specialised in computer programming,

consultancy and related activities. Others are small and medium firms operating in various sectors, from advertising and market research to publishing and travel agencies. Public administration and compulsory social insurance bodies have also reported difficulties in finding ICT professionals. The main reason for bottlenecks relates to the fact that the **demand increases faster** than the number of graduates in ICT courses. Furthermore, the number of students enrolled in ICT courses has decreased from approximately 6.6 thousand to 5.6 thousand between academic years 2011/12 and 2013/14. ^[4]

In order to mitigate the bottleneck situation regarding ICT professionals, the Croatian Employment Service (PES) has recommended that many geographical regions increase the enrolment quotas (number of available places set by universities or other higher education institutions) for students in the field of ICT. The PES has also recommended the provision of scholarships and easier access to students' boarding houses. ^[5] As Croatian universities have academic autonomy it is difficult to track whether the recommendations have been implemented. The interest in computer science study programmes is affected by the admission requirements, especially by the necessary knowledge of mathematics, which is crucial for successful study of computer sciences. ^[6] As a result the measures aiming to improve education outcomes in mathematics in primary and secondary schools may be considered. These measures are particularly relevant provided that the national results for ET2020 benchmarks in basic skills for 2013 show a rather high percentage of low achievers in mathematics (29.9%) compared with the EU average (22.1%) and the ET 2020 target (15%). ^[7]

Mechanical engineers ^[8]

When Croatia became a full member of the EU in mid-2013, the European Single European Market was completely opened to its industrial products. As a result, the export of goods from Croatia went up and its manufacturing firms significantly increased their output. ^[9] For example, real goods export growth in the second and third quarters of 2015 was approximately 14% and 11%, respectively. Real value added growth in manufacturing was approximately 3% and 6%, respectively. According to an expert's estimation, it seems that external demand contributed to production growth in manufacturing. ^[10] In order to maintain, expand and technologically improve their stock of machinery, manufacturing firms need mechanical engineers. When the demand for mechanical engineers increased, some employers faced **recruitment challenges**. ^[11] Recruitment difficulties have been faced by some large manufacturing firms as well as some small firms engaged in engineering and technical testing, and in specialised construction activities. The main reason for bottlenecks of mechanical engineers relates to the fact that **demand increases faster than supply**. Of note is the low participation of women – the share of female students enrolled in mechanical engineering at technical and related secondary schools was only 12% from the total number of students at the beginning of the school year 2013/14. ^[12] Furthermore, about 41% of science, technology, engineering and mathematics (STEM) tertiary students repeat their first year, reportedly due to **insufficient knowledge of mathematics**. ^[13] Insufficient knowledge of mathematics may be related to the shortage of mathematics teachers (see Secondary education teachers (mathematics) below).

Mechanical engineering has repeatedly been on the list of educational fields for which an increase of the number of students enrolled in tertiary education institutions has been recommended by the PES. ^[14] The use of scholarships and the provision of easier access to students' boarding houses have

also been recommended. The recommendations have been issued on an annual basis since 2010. Of note is that the enrolment number of mechanical engineering students has gradually increased from approximately 5.7 thousand to 6.2 thousand between academic years 2011/12 and 2013/14. [15] A possible solution could be the design and implementation of measures aiming to improve education outcomes in mathematics in primary and secondary education as well as measures targeted at increasing the enrolment of female secondary students in mechanical engineering. [16]

Medical doctors [17]

Some health centres in smaller towns and regional hospitals that are far away from **large cities** with tertiary medical schools report difficulties in finding generalists and medical specialists. [18] In addition, the possibility of finding employment **abroad** at significantly higher salaries and with better working conditions, especially after Croatia became a full member of the EU, aggravated the recruitment problems regarding some medical specialists.

In order to fill vacancies for medical doctors, the Croatian Government approved an annual quota of work permits for hiring qualified foreigners from third countries. [19] The number of work permits allocated for medical doctors is quite small (8 permits in 2015). Therefore, the expected impact of the measure is rather low. The PES has recommended an increase in the number of students enrolled in the field of medicine, provision of scholarships and easier access to students' boarding houses. [20] These activities have been successful as the number of students of clinical medicine went up from approximately 5.8 thousand to 7.9 thousand between academic years 2010/11 and 2013/14. [21] A possible solution could be to increase salaries.

Nursing associate professionals [22]

The ageing of the Croatian population has brought a higher demand for nursing services. Therefore, some retirement homes, nursing homes and other nursing facilities in small towns far away from large cities with nursing schools report **difficulties in finding nurses** or technicians for general medical care. [23] In addition, after Croatia became a full member of the EU, nurses have greater opportunities to find better paid **employment abroad**.

In order to mitigate the bottleneck situation regarding nursing associate professionals, the PES has recommended for many geographical areas an increase of the number of students in nursing schools (secondary VET schools) and in higher education as well as the number of scholarships allocated to them. [24] Increasing the salaries of nursing associate professionals would also facilitate the increase in the supply of graduates.

Secondary education teachers (mathematics) [25]

As the study of mathematics is demanding and takes place in large cities with universities, some schools in smaller towns report that they have difficulties in finding mathematics teachers. [26] In addition, the **geographical mobility** of teachers is very limited because their **salaries** are relatively low. In fact, of all workers with similar level of education, teachers have the lowest wages. Therefore, they cannot afford to move and rent housing. On the other hand, students who have completed the combined study

of mathematics and informatics have opportunities to find **better paid jobs in the ICT sector**, which also reduces the supply of mathematics teachers.

The Croatian Employment service has recommended in several geographical areas to increase the number of students in mathematics, the number of scholarships allocated for them as well as an easier access to students' boarding houses. [27] The increase in the number of mathematics teachers may contribute to the improvement of education outcomes in mathematics in secondary schools, and thus to increase the number of candidates for ICT and engineering related tertiary study programmes.

Other shortage occupations

Other shortage occupation refer to occupations which require the acquisition of a VET qualification. As Croatia became a member state of the EU, its role in international transportation has become much more pronounced. **Higher demand** for transportation services has turned into higher demand for *heavy truck drivers*. [28] As a consequence, some haulage firms have reported that they have had difficulties in finding experienced truck drivers. [29] Moreover, due to low demand for construction services in general and the fact that the occupations of *bricklayers and carpenters* [30] are **not attractive** to young people [31] (e.g. young people are not interested to have a career in these physically demanding occupations) some employers in the construction sector face problems of finding new workers to replace those who retire. [32] Furthermore, there is evidence that the tourism sector in Croatia (concerning, in particular, the coastal area) is experiencing growing **recruitment problems**. According to data on job vacancies published by the Croatian PES [33] as well as by the major private web portal for job searches "Moj posao" [34], the demand is largest for *cooks, bartenders, waiters, resort desk clerks (hotel receptionists), then for cleaners, kitchen helpers and other helpers*. The demand is also high for *low-to-middle managers* (housekeeping supervisors in hotels and other resorts). Due to the **seasonal work** and limited employment possibilities out of season, young people are not willing to enrol in educational programmes for these occupations. [35]

As the employers are looking for heavy truck drivers with work experience, the Croatian Government has approved an annual quota of work permits for hiring qualified foreigners from third countries. [36] As the number of work permits allocated for truck drivers is small (20 permits in 2015), the expected impact of the measure is rather low. The PES has recommended increasing the number of students enrolled in schools for truck drivers and the number of scholarships for them. [37] An increase in the number of scholarships was recommended also for students in schools for bricklayers and carpenters. As a result some regional and local governments have introduced such targeted scholarships. [38] The scholarships can be used as a means to attract young people to these occupations. Offering higher wages would also help. Similar recommendations have been made also in relation to waiters and cooks. The PES also provides training courses for unemployed persons willing to become truck drivers, bricklayers or carpenters. However, the courses are organised by few regional/local offices and for a very small number of participants.

Surplus Occupations

Most tertiary level occupations in Croatia are in surplus.^[39] These occupations include political scientists^[40], journalists^[41] and philosophers^[42]. The main reason for surpluses relates to higher supply than the demand, which results in a relative low outflow from unemployment to employment.^[43] For example, although there is a large number of political parties and NGOs in Croatia that deal with political issues, and, in addition, political scientists can teach the course Politics and Economy in upper secondary education, demand is significantly lower than supply. Similarly, despite a growing number of internet sites providing news and commentary, the supply of journalists is still much higher than the demand. Finally, demand for teachers of philosophy and logic in upper secondary education is far too low to absorb the number of philosophy graduates from universities.

The Croatian PES has recommended a decrease in the number of students enrolled in the field of political science, journalism and philosophy.^[44] This may relate to the fact that the total number of students in political science decreased from approximately 1.5 thousand to 1.3 thousand between academic years 2011/12 and 2013/14.^[45] For the same period a decrease is observed also in the total number of students in philosophy– from approximately 1.2 thousand to 862.^[46]

The provision of career guidance to students is a possible solution in dealing with surplus occupations. As a part of an EU funded project, the PES has established eleven so-called [CISOK Centres](#), which provide information and career guidance free of charge to a large number of end-users, including pupils, students, parents, unemployed or employed persons, employers and teachers.^[47] One of the main objectives of the CISOK centres is to enable end-users to choose appropriate education and/or employment through vocational guidance and thus contribute to community development and the development of the economy on national and local level.

Note on the methodology

The list has been compiled by Cedefop in the first half of 2016 combining quantitative and qualitative methods. In particular, a list of mismatch occupations was formulated following quantitative analysis of labour market indicators. Country experts were then asked to build on and scrutinise this list. Their expert assessment and knowledge of the country's labour market has provided rich insights about the reasons behind the skills shortages or surpluses at occupational level. These are also accompanied by measures and policies that aim to tackle such mismatches. Country's stakeholders have also been included in validating the final list of occupations.

Find here more [data](#) and [information](#) about Croatia.

References

[1] Software and applications developers and analysts (ISCO 251); Database and network professionals (ISCO 252).

- [2] Croatian Bureau of Statistics (DZS): [Persons in paid employment by activities](http://www.dzs.hr/Hrv_Eng/publication/2015/09-02-01_11_2015.htm), November 2015. www.dzs.hr/Hrv_Eng/publication/2015/09-02-01_11_2015.htm
- [3] Croatian Employment Service (PES): [Employer Survey 2015](http://www.hzz.hr/UserDocImages/Anketa_poslodavaca_2015_HZZ.pdf). www.hzz.hr/UserDocImages/Anketa_poslodavaca_2015_HZZ.pdf
- [4] Agency for Higher Education (AZVO), [Statistics, Number of students by fields of study for academic year 2008/09 to 2013/14](http://www.azvo.hr/en/higher-education/statistics?id=1122:number-of-students-by-fields-of-study-for-academic-year-2008-09-to-2012-13&catid=442). www.azvo.hr/en/higher-education/statistics?id=1122:number-of-students-by-fields-of-study-for-academic-year-2008-09-to-2012-13&catid=442
- [5] PES (2015): [Recommendations for Educational Enrolment Policy](http://www.hzz.hr/UserDocImages/preporuke_15.pdf) /Preporuke za obrazovnu upisnu politiku i politiku stipendiranja. www.hzz.hr/UserDocImages/preporuke_15.pdf
- [6] Results of a survey on Croatian high school graduates' interest in computer science, information-communication technologies, business computing and mathematics study programmes are available [here](http://www.azvo.hr/hr/azvo-vijesti/67-newsa/1094-ashe-presented-the-results-of-a-survey-on-croatian-high-school-graduates-interest-in-computer-science-information-communication-technologies-business-computing-and-mathematics-study-programmes). www.azvo.hr/hr/azvo-vijesti/67-newsa/1094-ashe-presented-the-results-of-a-survey-on-croatian-high-school-graduates-interest-in-computer-science-information-communication-technologies-business-computing-and-mathematics-study-programmes
- [7] [Education and Training 2020 national report — Croatia \(2014\)](http://ec.europa.eu/education/tools/docs/2014/monitor2014-hr_en.pdf). ec.europa.eu/education/tools/docs/2014/monitor2014-hr_en.pdf
- [8] ISCO 2144.
- [9] DZS, [Quarterly gross domestic product estimate, third quarter of 2015](http://www.dzs.hr/Hrv_Eng/publication/2015/12-01-01_03_2015.htm) (ESA 2010). www.dzs.hr/Hrv_Eng/publication/2015/12-01-01_03_2015.htm
- [10] Based on a stakeholder interview
- [11] Croatian Employment Service (PES): Employer Survey 2015.
- [12] Croatian Bureau of Statistics (2014): [Upper Secondary schools and students' boarding homes](http://www.dzs.hr/Hrv_Eng/publication/2014/SI-1521.pdf) available at www.dzs.hr/Hrv_Eng/publication/2014/SI-1521.pdf End of 2012/2013 and beginning of 2013/14 school year; Croatian Bureau of Statistics (2013): [Upper Secondary schools and students' boarding homes](http://www.dzs.hr/Hrv_Eng/publication/2013/SI-1497.pdf), End of 2011/2012 and beginning of 2012/13 school year. www.dzs.hr/Hrv_Eng/publication/2013/SI-1497.pdf
- [13] [Education and Training 2020 national report questionnaire — Croatia \(2014\)](http://ec.europa.eu/education/tools/docs/2014/monitor2014-hr_en.pdf). ec.europa.eu/education/tools/docs/2014/monitor2014-hr_en.pdf
- [14] PES (2015): Recommendations for Educational Enrolment Policy.
- [15] Agency for Higher Education (AZVO), [Statistics, Number of students by fields of study for academic year 2008/09 to 2013/14](http://www.azvo.hr/en/higher-education/statistics?id=1122:number-of-students-by-fields-of-study-for-academic-year-2008-09-to-2012-13&catid=442). www.azvo.hr/en/higher-education/statistics?id=1122:number-of-students-by-fields-of-study-for-academic-year-2008-09-to-2012-13&catid=442

- [16] Education and Training Monitor 2015. ec.europa.eu/education/tools/docs/2015/monitor15-country-sheets_en.pdf
- [17] ISCO 221.
- [18] Croatian Employment Service (PES): Employer Survey 2015.
- [19] Decision on the annual quota permits for foreigners for the calendar year 2015 adopted by the Croatian government at its session on December 17, 2014
- http://narodne-novine.nn.hr/clanci/sluzbeni/2014_12_151_2835.html
- [20] PES (2015): Recommendations for Educational Enrolment Policy.
- [21] Agency for Higher Education (AZVO), Statistics, Number of students by fields of study for academic year 2008/09 to 2013/14. www.azvo.hr/en/higher-education/statistics?id=1122:number-of-students-by-fields-of-study-for-academic-year-2008-09-to-2012-13&catid=442
- [22] ISCO 322.
- [23] Croatian Employment Service (PES): Employer Survey 2015.
- [24] PES (2015): Recommendations for Educational Enrolment Policy.
- [25] ISCO 233.
- [26] Croatian Employment Service (PES): Employer Survey 2015.
- [27] PES (2015): Recommendations for Educational Enrolment Policy.
- [28] ISCO 8332.
- [29] Croatian Employment Service (PES): Employer Survey 2015.
- [30] Bricklayers (ISCO 7112); Carpenters (ISCO 7115).
- [31] Glas Slavonie. www.glas-slavonije.hr/233559/3/Ne-zele-u-zidare-i-tesare-iako-su-ta-zanimanja-trazena
- [32] Croatian Employment Service (PES): Employer Survey 2015.
- [33] https://burzarada.hzz.hr/Posloprimac_RadnaMjesta.aspx
- [34] <http://www.moj-posao.net/Pretraga-Poslova/?keyword=&area=&category=25>

[35] European Commission (2014). [Mapping and analysing vacancies in the EU labour markets](#) Prepared by Rambøll and Seor Erasmus School of Economics. www.ec.europa.eu/social/BlobServlet?docId=12625&langId=

[36] [Decision on the annual quota permits for foreigners for the calendar year 2015](#) adopted by the Croatian government at its session on December 17, 2014. narodne-novine.nn.hr/clanci/sluzbeni/2014_12_151_2835.html

[37] PES (2015): Recommendations for Educational Enrolment Policy.

[38] <http://www.glas-slavonije.hr/233559/3/Ne-zele-u-zidare-i-tesare-iako-su-ta-zanimanja-trazena>

[39] Based on a feedback by a national stakeholder.

[40] ISCO 2633.

[41] ISCO 2642.

[42] ISCO 2633.

[43] PES: Yearbook 2014. www.hzz.hr/UserDocsImages/HZZ_Godisnjak_2014.pdf

[44] PES (2015): Recommendations for Educational Enrolment Policy.

[45] AZVO: Number of students by fields of study for academic year 2008/09 to 2013/14.

[46] AZVO: Number of students by fields of study for academic year 2008/09 to 2013/14.

[47] http://euroguidancezagreb2014.com/docs/Plenary_Zecirevic.pdf

Enter your email address

© CEDEFOP 2019

POWERED BY:

