



EUROGRADUATE 2022

2nd Phase of the European Pilot Survey of Higher Education
Graduates

Country report on Croatia

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Glossary and Abbreviations

Core target group	The part of the EUROGRADUATE target group that was surveyed in all countries, namely Bachelor and Master level graduates . Details and deviations are described in section 1.2.1.
EG	EUROGRADUATE
Field of study	Categorisation of study programmes by thematic orientation. For concise visualization, this report displays 8 condensed fields (see Appendix 9.2).
HE	Higher education
Highest degree	always refers to the highest reported degree according to ISCED classification. Surveyed graduates could, and often do, have attended additional HE programmes besides the → reference degree . Countries that only surveyed essential information (see chapter 1.2.2) only surveyed follow-up, but not previous degrees.
ISCED	International Standard Classification of Education, a categorization scheme for educational degrees and thematic fields of education introduced by UNESCO. ISCED allows for international comparability and is the base for classifying degree levels, fields of study, and other educational attainments in this report and the EUROGRADUATE project.
Reference degree	Respondents in the EG 2022 survey were surveyed with focus on the degree they have attained as one of the → target cohorts , but could report on other degrees as well. “Reference degree” always refers to the graduation and degree on the basis of which a person was selected for the survey, as opposed to additional degrees.
Target cohorts	2016/17 and 2020/21 higher education graduates . EG 2022 collected data on two specific graduation cohorts (by academic year) to have clearly distinguishable groups for the comparison of the situation of graduates short- and mid-term after graduation.
Target group	Specific set of persons a study aims to provide information about. In the context of EUROGRADUATE, this entails all persons with a higher education degree obtained in the academic years 2016/17 or 2020/21 of the participating countries with the exception of PhD. Details and deviations are described in section 1.2.1.

1 Introduction

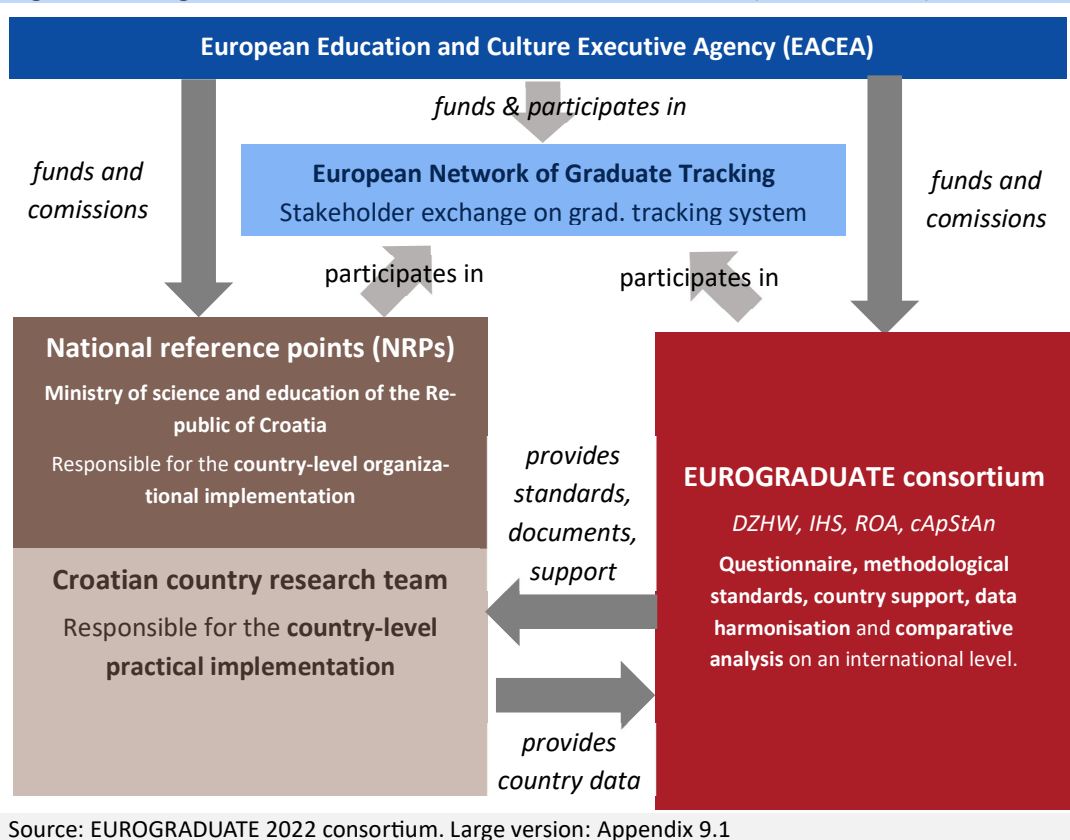
1.1 Overview on the EUROGRADUATE 2022 survey

The EUROGRADUATE 2022 survey is the second pilot of a European graduate survey. Its main objective is to provide data and analyses on the higher education outcomes that will allow:

- international comparisons as well as research at national level,
- linking graduate background, educational experience, employment, mobility and social success,
- distinguishing between different levels and areas of higher education,
- comparing short and medium-term outcomes (1 and 5 years after graduation).

Following a feasibility study and an initial pilot survey in 2018, EUROGRADUATE 2022 continues the path towards providing a coherent source of information on graduates based on structured, systematic data collection. The survey was rolled out in 17 pilot countries (following 8 pilot countries in Eurograduate 2018), applying standards and methods to produce comparable and reliable data.

Figure 1.1: Organisational context of EUROGRADUATE 2022 (small version)



Source: EUROGRADUATE 2022 consortium. Large version: Appendix 9.1

The implementation of EUROGRADUATE 2022 is commissioned and funded by the European Education and Culture Executive Agency (EACEA). National research teams are responsible for survey implementation, data cleaning and analysis on country level. The national data collections were guided by standards provided by the EUROGRADUATE 2022 consortium which laid

out the questionnaire and methodological standards and supported the country teams with the implementation of those standards to ensure analytical potential and international comparability of the resulting data. Figure 1.1 shows structures and responsibilities within the project.

From the master questionnaire provided by the EUROGRADUATE consortium, countries were able to choose between surveying one module (essential questions), two modules (adding recommended questions) or three modules (adding questions on social outcomes, sustainability, and health) Of the 18 countries contributing to EUROGRADUATE 2022,

- 10 countries surveyed the complete set of questions: **Austria, Bulgaria, Cyprus, Czech Republic, Germany, Latvia, Malta, Portugal, Slovenia, Slovakia**
- 4 countries surveyed the two-module package: **Estonia, Croatia¹, Hungary and Norway**
- 3 countries surveyed essential information only: **Greece, Italy, Romania**
- 1 country (**Ireland**) did not provide microdata, but only aggregate indicators for its HE system

Countries with a pre-existing graduate survey had the option to provide the information from their existing survey results rather than implementing the master questionnaire. This option was used by Germany and Italy.

1.2 Methodology of the EUROGRADUATE survey

1.2.1 Whom this report is about - target group definition

The EUROGRADUATE core target group entails all graduates who achieved an ISCED level 6 (Bachelor's degree or equivalent) or ISCED level 7 (Master's degree or equivalent) degree in the academic years 2016/17 and 2020/21. The target group explicitly includes international students (graduates born, raised, and/or having attended secondary school outside the survey country) and mobile graduates who left the survey country after graduation. The only persons excluded to whom these conditions can apply were graduates of exclusively employer-run higher education institution, such as military academies or study programmes provided by public administration institutions exclusively to their civil servants.

ISCED level 8 (PhD) graduates are not included in the target group. Graduates from ISCED level 5 (Short-cycle) programmes were eligible for inclusion into a country's target group if the programme they had graduated can be considered higher education. This criterion is necessary because vocational or secondary ISCED level 5 qualifications are offered in some survey countries as well. To establish a standard for all countries, ISCED level 5 graduates were to be included if their degree was offered by an institution that also offered programmes concluding with a degree at ISCED level 6 or higher.

This report was compiled based on EUROGRADUATE dataset version 3.0.0. Please note that results in other reports or publications may diverge due to having used different data versions or applied other technological or methodological approaches.

¹ Survey of the third module in Croatia was performed under special process consent asking respondents about their willingness to answer questions about political participation and social outcomes.

The **EG target group** entails all persons in the survey countries who earned a higher education degree, excluding PhD-level degrees, in any programme and institution in the academic years 2016/17 or/and 2020/21, excluding employer-run institutions.

1.2.2 What topics were surveyed? The questionnaire

The EG consortium provided a master questionnaire² based on (a) the questionnaire of the first EUROGRADUATE pilot survey 2018, enhanced and modified based on the methodological insights from the pilot,³ (b) recommendations of the European Network on Graduate Tracking, (c) current policy-relevant interests (such as the impact of Covid-19 and sustainability as a topic in study programmes) and (d) the comparability with other international surveys on education and employment. The questionnaire consisted of the following sections (in order):

- A. Education History: details on the reference HE programme (field and degree, institution, learning modes), HE access, other tertiary and non-tertiary education and training, international and work experience alongside studying.
- B. Work history: details on employment during survey and in 2018 (for 2016/17 graduates), labour market entry, job conditions and characteristics, satisfaction, education-employment match
- C. Competencies: respondents' level and required level in their job for 12 competencies (respondent-assessed)
- D. Mobility: place of residence during the reference programme, in 2018 (2016/17 graduates) and at the time of survey; reasons for mobility
- E. Personal and social background: age, sex, migration and citizenship, family background, partner- and parenthood details, general health
- F. Social outcomes: personal life, political engagement and attitudes

The questionnaire was translated, adapted, and implemented into an online survey by each national research team for the respective country. The EG consortium provided linguistic quality control to maximise cross-language comparability of the results. The national surveys were only accessible with access links individually distributed to target group respondents, preventing illegitimate responses by persons out of the target group or automated software.

1.2.3 How the data was collected – sample, representativity and field phase

Country research teams had two options for inviting eligible graduates to the survey: either to invite the whole target group (census), which was especially recommended to countries with a smaller yearly number of higher education graduates, or to draw a sample⁴ from it. In either

² The full questionnaire files, as well as the questionnaires for the previous pilot survey, are publicly available at the [EUROGRADUATE website](#).

³ Meng, C. et al. (2019): Eurograduate pilot study. Technical assessment of the pilot survey and feasibility of a full rollout. [Available online](#).

⁴ In countries where a sample was drawn, the standard procedure was a disproportionally stratified random sample which was stratified at least by study fields, cohort, and degree level (additional stratification characteristics were applied by some countries). Deviating from this, the German data is based on a clustered and stratified random sample; the Italian data is based on a census of ~90% of the Italian HE institutions engaging in regular graduate tracking for 2016/17 and a random sample out of those institutions' graduates for 2020/21.

case, the resulting responses underwent a statistical weighting procedure to account for non-response and over- and underrepresentation of certain sub-groups of graduates in the survey. This weighting adjusted for graduation year, degree level, and field of study, age, and gender; in some countries, additional weighting characteristics such as type and region of the higher education institution graduated from were also taken into account.

With regards to the sampling frame and contact information, two important details must be considered: Firstly, some countries' research teams were able to select and contact graduates based on a central register, while other countries needed to involve the separate higher education institutions to contact graduates – those generally opted for the census method (letting institutions invite all target group graduates), which was suggested to simplify coordination with the numerous institutions. Secondly, a person can hold two or more higher education degrees from the target years, especially when continuing with a Master programme after a Bachelor degree. Such cases were only identifiable when both/all such programmes were registered in the same contact database (e.g. same institution or same country with a central database). Due to the small number of persons concerned in countries that identified such cases (~1%) and the response effort, the possibility that a person replied more than once is assessed as negligible.

The core field phase took place between November 2022 and February 2023. Cyprus, Latvia, Malta, Slovenia and Germany conducted delayed and/or extended data collection ranging from the core field phase to July 2023. This needs to be considered when interpreting analyses of time-sensitive outcomes.

Crucial information on the survey methodology in the countries can be found in appendix 9.3.

1.2.4 How EUROGRADUATE was implemented in Croatia

EUROGRADUATE 2022 is the second implementation of the EUROGRADUATE survey in Croatia, as Croatia was already involved in the EUROGRADUATE pilot survey in 2018. The current project covers two cohorts: graduates of the academic year 2016/2017, five years after completing the reference degree (T+5), and graduates of the academic year 2020/2021, who were surveyed one year after graduation (T+1). Two different versions of the questionnaires were used for the project to account for the cohorts' different length of experience in the labour market. The online questionnaires were only accessible via links distributed to members of the target cohorts.

The target population of EUROGRADUATE 2022 consists of all graduates who have obtained a degree at ISCED level 6 (Bachelor level) or ISCED level 7 (Master level) in mentioned academic years. In Croatia, a very small group of ISCED level 5 (short cycle) graduates were included in the survey but subsequently excluded from the analysed dataset. Higher education institutions offering study programmes intended only for military and police employers were not included in EUROGRADUATE 2022.

The number of graduates in the two targeted cohorts was estimated based on the Croatian State Statistics annual reports (calendar years) by taking 1/4 of the previous year and 3/4 of the subsequent year in the targeted academic year for each cohort. The estimated size of the cohorts was 32.728 graduates for the 2016/2017 cohort and 33.415 for the 2020/2021 cohort.

In the absence of a national graduate register, a decentralised approach to collecting data on graduates was chosen. Contact details for the 2020/2021 cohort were collected from each higher education institution that was active in the relevant academic year. For the older cohort (2016/2017), contact data from the 2018 EUROGRADUATE pilot survey was used, and responses were collected in the same way as in the previous round of the EUROGRADUATE project. In this project, the consent forms for future invitations to tracking surveys and the preferred contact email were collected.

Both contact collections contain an unknown number of inaccurate contacts (the contacts are from the time of graduation) and/or graduates from other years. The implementation of the web questionnaire begins with a filter question in which respondents are asked whether they obtained a degree in the relevant academic years.

The first contacts with the invitation to participate in the EUROGRADUATE 2022 survey were sent by the Ministry of Science and Education, starting at the beginning of December 2022 and ending in the first week of January 2023. The invitations were followed by two reminders sent 10 days apart after the previous message.

The 2016/2017 cohort had a reduced invitation list, as some participants of the survey conducted in 2018 declined to take part in the next round of the project. Most of the respondents who declined the new round were negative about the inclusion of questions on democratic values and complained that these questions cover public opinion pooling. Members of this cohort are more likely to leave the country than the younger generation and contacts from when they left higher education are out of date four years after the survey. Invitations were sent to 71% of the older cohort's email addresses. The response rate for this cohort was 8,9% (calculated on the basis of the invitations sent). The graduates of the 2020/2021 cohort were reached in full and the response rate was 14,9%.

1.3 Higher education system and demographic profile of graduates

Croatia has a binary higher education system at the institutional level and at the level of study programmes. Higher education institutions in Croatia include universities and their constituent units (faculties, art academies and departments) and polytechnics i.e. universities of applied sciences. With the strategic approach to regional development at the beginning of 2000, a polycentric and decentralised approach to higher education was adopted by establishing a network of public and private polytechnics, colleges or universities of applied sciences (non-universities) throughout Croatia in order to provide more opportunities for higher education for the population in medium-sized towns (10.000 to 30.000 inhabitants) and in rural areas. At the same time, all major universities except the University of Zagreb have begun to disintegrate, with some of the faculties being separated into smaller universities (Dubrovnik, Zadar, Pula, Slavonski Brod). On the other hand, some smaller, mainly private professional higher education institutions have recently been closed or merged and some have been transformed from polytechnics into universities by increasing their scientific and research activities and the research performance of their teaching staff. In 2024, the Register of Higher Education Institutions of the Ministry of

Education and Science⁵ includes a total of 129 higher education institutions in the Republic of Croatia i.e. 14 universities with the total of 84 constituent units, and 31 polytechnics/universities of applied sciences.

Depending on how they are financed, higher education institutions can be public or private. Public higher education institutions are established by the Republic of Croatia, while private higher education institutions are established by private individuals, companies, regional and local communities or the church. Public higher education institutions are financed from the state budget and can also generate their own income through tuition fees and projects. Private higher education institutions are generally financed from private sources, with the exception of the Croatian Catholic University, which is a private higher education institution and is co-financed from the state budget. There are 107 public and 22 private higher education institutions in Croatia.

Consequently, full-time students enrolling for the first time in their first year of study at undergraduate (Bachelor) or graduate (Master) level at public higher education institutions do not pay tuition fees. For all subsequent years of study, full-time students at public higher education institutions are not charged tuition fees if they accumulate the prescribed number of ECTS credits per year. In contrast, tuition fees at private higher education institutions are paid entirely from students' private funds, although the opportunities to apply for scholarships are very modest. Meal allowances are available to all full-time students, regardless of their financial need or the type of institution they are enrolled at, and accommodation allowances for full-time students are merit and need-based. All full-time students can also apply for various types of state scholarships, but these only make up a small proportion of the total state budget for higher education. Part-time students, who are mostly working students, are not eligible for any state-funded student support.

The types and levels of study programmes include university study programmes and professional study programmes. University study programmes qualify students for the development and application of academic and professional skills and lead to a continuation of academic education. Professional studies primarily focus on the labour market and an immediate participation in the workforce.

In addition, there are two types of university study programmes that do not fall within the Bologna degree structure, namely university integrated study programmes and university specialist study programmes. University integrated study programmes were mainly established before the academic year 2005/2006 (i.e. before the Bologna Process), but some were also established afterwards and have been renewed, renamed and/or redefined and described with ECTS credits. The existence of integrated/long study programmes is often justified by Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications, which sets out the qualification requirements for certain professions (medicine, dentistry, veterinary medicine, pharmacy and architecture), including the duration of training. Apart from regulatory reasons, some integrated programmes were established because most students wanted to continue their studies directly after the first cycle

⁵ http://mzos.hr/dbApp/pregled.aspx?offset=0&appName=ustanove_VU; accessed 4 May 2024

for various reasons (EACEA. Eurydice, 2020). There are currently 73 integrated study programmes with a relatively high proportion of students (10-19,9%)⁶. They exist in most study fields and their number is increasing.

University specialist study programmes were introduced with the Bologna reform as a type of advanced Master's degree. The tuition fees for students on these programmes are not subsidised by the state budget. There are 321 university specialist study programmes, mainly in the field of medicine (45%), but also in other fields.

University study programmes are implemented at universities and professional study programmes are organised and run at polytechnics and universities. Originally, with the introduction of the binary system in Croatia, a distinction was to be made between professional and university higher education, with the former being organised at non-universities and the latter exclusively at universities. However, following a ruling by the Croatian Constitutional Court, it was concluded that it violated the institutional autonomy of universities if they were not allowed to offer professionally oriented study programmes. This led to a blurring of the distinction between professional and university programmes, while the public perceived professional study programmes as a lower level of qualification. According to the Register of study programmes of the Ministry of Education and Science⁷, there are a total of 1.822 study programmes, including 1.484 university study programmes and 338 professional study programmes. Compared to the 2018 EG report, the total number of degree programmes has increased by an average of 30% over the last four years. This can be explained by the introduction of new degree programmes in new disciplines, but also by the division of existing study programmes into narrower specialisations.

In the last 15 years, a significant decline in the total number of students can be observed, which is mainly due to the demographic decline of the Croatian population. In 2022, there is a total of 154.689 students, most of whom study at universities (83,4%), mainly at the 4 large universities (Zagreb, Split, Rijeka and Osijek) with 69,3% of all students. Non-university higher education institutions account for 16,6% of all students, of which 10,3% are at public and 6,3% at private institutions.

There is a gender imbalance among the graduate population with a predominance of female graduates (58%) over male graduates (40%)⁸. The overrepresentation of women in the higher education system is a long-standing phenomenon that may be related to the fact that men have more opportunities on the labour market after completing secondary vocational education. In contrast to this overrepresentation in higher education, previous studies on a sample of graduates from professional higher education institutions have found slightly better employment opportunities for male graduates (Rimac & Ogresta, 2018). The gender distribution in the academic fields shows that women predominate in the lower-paid professions (education, humanities, social sciences and services).

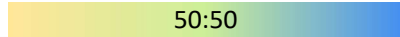
⁶ Draft Bologna Implementation Report (2024) accessed 4 May 2024 at: <https://www.ehea.info>

⁷ <https://hko.srce.hr/usp/index>; accessed 4 May 2024

⁸ Two percent of students declare themselves as other or not-binary.

Figure 1.2: HE institutions (2020) and graduates in EG countries (2017 and 2020)

	HE institution 2020				HE graduates					
	Univer- sities	Non- Univ.	Total	Share Univ.	ISCED 5		ISCED 6		ISCED 7	
					2017	2020	2017	2020	2017*	2020
AT	38	35	73	52%			28.592	33.758	26.537	27.945
BG	45	7	52	87%			29.671	25.099	23.412	21.002
CY	8	18	26	31%	705	892	3.003	3.625	4.744	7.678
CZ	28	32	60	47%			37.568	33.066	33.171	28.957
DE	171	201	372	46%			260.117	243.857	211.719	205.382
EE	7	11	18	39%			5.502	5.522	3.327	3.874
GR	24	23	47	51%			47.952	56.565	20.569	22.950
HR	11	29	40	28%	20	7	18.039	17.942	14.997	15.358
HU*	27	25	52	52%	2.835	2.644	38.068	37.624*	20.705	20.891*
IE	18	4	22	82%	9.493	12.390	40.703	43.905	18.878	23.750
IT	92	116	208	44%			211.265	266.450	164.645	179.895
LV	6	35	41	15%	2.550	2.932	7.267	6.656	4.154	4.352
MT	1	6	7	14%	371	319	2.178	3.030	1.196	1.363
NO	18	16	34	53%	658	775	52.781	56.097	18.175	18.531
PT	37	55	92	40%	3.593	5.073	48.325	55.272	24.940	28.027
RO	52	38	90	58%			28.830	7.766	15.025	4.703
SI*	5	47	52	10%			8.901	8.405	5.149	4.678
SK	18	13	31	58%			22.267	17.304	23.944	18.038

More Non-Univ. institutions  50:50 more Univ.-type institutions

Source: European tertiary education register (ETER). HU: Most recent referenced year is 2019 (used for 2020 value); SI: HE graduates numbers from EUROSTAT (ETER data only available for 2016 and earlier).

The most popular fields of study in Croatia are: ICT and engineering (26%), business and law (21%) and services (13%). It is more or less to be expected that services, which includes tourism as a growing sector in the economy of Croatia, take a significant share. Interest in health and medicine is somewhat lower than expected, which is due to complaints about the public healthcare system, which we will discuss later in this report.

The share of international students in the overall student population is still very low. There is less than 3% of students from abroad and they come mainly from Bosnia and Herzegovina. However, migration background of students is relatively high compared to most other countries (around 25%), mainly due to the wars following the break-up of Yugoslavia, which led to an exodus of the population in the 1990s. In the course of these movements, many ethnic Croats from Bosnia and Herzegovina moved to Croatia, as did Bosnians from parts of Bosnia and Herzegovina that were severely damaged by the war.

The proportion of graduates with parents with academic background in Croatia has fallen from 30% in the 2016/2017 cohort to 27% in the current cohort (2020/2021). The “positive trend” has its origins in decreasing competition for access to higher education due to shrinking of young generations. With same number of available places in higher education, demographic fall of young generation overcome typical rise of education of subsequent parents’ generations through previous decades.

Figure 1.3: Sociodemographic characteristics of EG country samples (weighted):

Cells: % of all graduates in the column-indicated category within the respective country. **Gender:** f=fe-male, nb/o=non-binary/other – remaining up to 100: male; **Age:** in years, only bottom and top age group; **Migration BG:** 1st generation (not born in survey country) an 2nd generation (born in survey country, at least one parent born abroad) migration background. **Parent with HE:** at least 1 par-ent/guardian with an HE degree; **HEI type Univ:** Reference programme from university **Fields of study:** see Appendix 8.2.

	Gender		Age (survey)		Migra-tion BG	Parent with HE	HEI type: Univ.	Field of study (reference programme)							
	f	NB/O	< 25	35+				EDU TT	ART HUM	SOC JOU	BUS LAW	NAT MAT	HEA LTH	ICT ENG	OTH
Cohort 2016/17:															
AT	59	1,6	0,0	18	74	31	53	21	4,4	13	28	7	5	22	0,5
BG	62	0,8	0,2	29	n.a.	49	86	10	8	9	40	3,3	8	17	4,3
CY	65	0,3	0,5	36	n.a.	42	93	31	8	9	27	1,8	8	12	2,1
CZ	60	1,6	0,0	16	n.a.	44	95	12	9	13	20	6	11	20	9
DE	41	0,9	0,0	12	17	43	60	4,4	12	7	24	11	10	26	5
EE	62	1,4	0,1	25	n.a.	60	79	7	13	6	23	6	13	22	9
GR	59	1,5	0,1	35	n.a.	3,6	100	10	13	10	22	8	10	22	4,7
HR	58	2,0	0,0	15	24	30	79	4,0	9	8	30	5	9	24	12
HU	58	0,0	0,0	19	11	52	98	11	10	11	24	5	8	21	9
IT	58	0,0	0,0	0,0	n.a.	31	100	7	11	15	20	8	16	18	4,2
LV	64	0,0	0,0	15	n.a.	32	99	6	10	10	30	2,5	15	18	8
MT	59	0,0	0,0	18	n.a.	33	87	8	19	6	24	4,8	19	17	1,5
NO	62	1,0	0,0	0,0	23	61	64	6	2,7	13	29	2,0	32	12	3,6
PT	57	1,3	0,0	19	21	31	64	5	10	11	23	6	16	19	9
RO	57	1,3	0,0	14	n.a.	41	100	6	11	11	20	7	10	32	2,7
SI	67	1,0	0,1	21	n.a.	30	0,0	14	9	16	16	9	13	17	6
SK	58	0,0	0,0	14	n.a.	35	85	9	2,3	13	35	3,7	11	20	5
Cohort 2020/21:															
AT	60	2,2	0,0	38	28	38	56	19	4,0	7	34	6	9	21	0,5
BG	60	1,6	0,0	38	n.a.	46	80	17	4,8	6	30	2,3	13	24	3,1
CY	65	1,0	0,0	34	n.a.	52	89	27	6,9	10	33	2,6	10	6	3,5
CZ	58	1,1	0,0	41	n.a.	45	92	12	7,9	10	21	4,9	10	25	9
DE	49	1,4	0,0	38	23	47	57	6	7,4	11	22	9	5	27	3,2
EE	62	1,0	0,0	37	n.a.	60	82	9	11,8	8	25	4,7	13	23	6
GR	62	1,5	0,0	37	n.a.	3,5	100	9	13,8	15	19	8	13	16	6
HR	58	1,5	0,0	41	25	27	80	6	9,3	9	21	6	10	26	13
HU	58	0,0	0,0	42	14	54	98	13	9,0	11	22	3,4	9	22	9
IT	57	0,0	0,0	43	n.a.	32	100	6	13,9	17	18	8	12	18	6
LV	65	0,0	0,0	35	n.a.	34	100	8	10,2	9	28	3,1	14	16	11
MT	57	0,0	0,0	43	n.a.	27	56	16	7,3	7	38	1,8	16	10	4,6
NO	72	0,8	0,0	27	19	62	63	6	4,1	12	29	2,0	34	8	4,9
PT	61	1,5	0,0	38	26	35	65	4,3	11,8	13	24	6	16	17	8
RO	61	1,1	0,0	38	n.a.	43	100	6	7,7	12	27	3,6	8	30	7
SI	64	1,8	0,0	34	n.a.	41	0,0	15	11,8	13	19	10	7	19	6
SK	63	0,0	0,0	37	n.a.	40	83	13	3,2	10	25	2,3	20	19	8

SOURCE: Eurograduate Survey 2022. Percentages per column category within country in %.

2 The Education Experience

2.1 Modes of teaching and learning

Empirical research shows that employers have high expectations of graduates' generic skills, while graduates feel that they lack the soft skills to find employment and manage their careers (Andrews & Higson, 2008). Higher education institutions are responding to these expectations by integrating generic skills into study programmes and exploring innovative approaches to learning and teaching that place students at the centre of the learning and teaching process (Fallows & Steven, 2000; Pittenger et al., 2004; Renton & McGonigle, 2023). Innovative approaches usually mean a move away from traditional forms such as lectures, where the teacher is at the centre of the process, and towards engaging and student-centred teaching and learning practises where the teacher is perceived as a facilitator of learning rather than a custodian of knowledge and provider of information (Kember, 1997). Previous research has shown that students favour a stimulating learning environment in which they are more engaged and perform better (Ahmad et al., 2015).

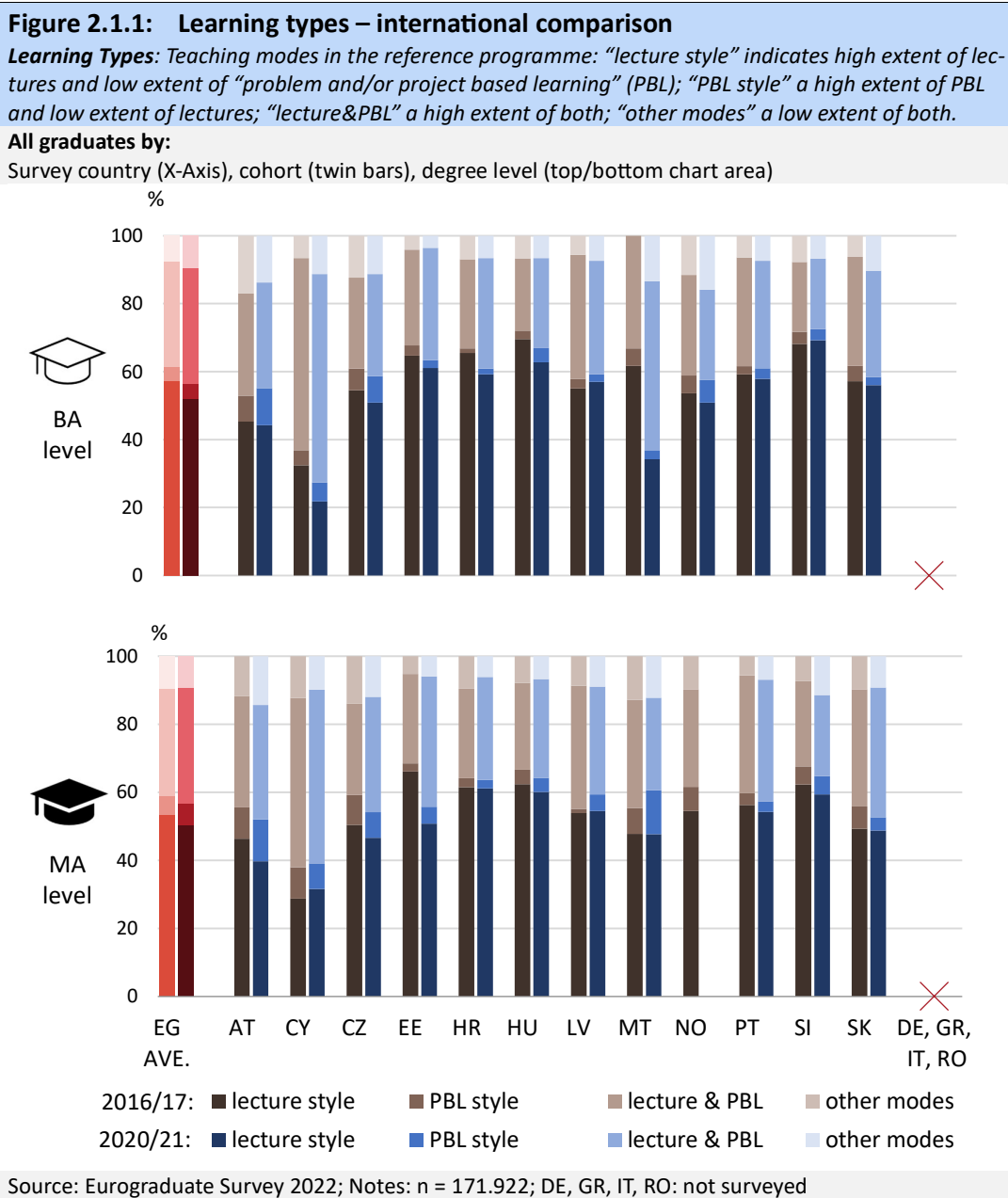
The analysis conducted on the data from the Eurograduate pilot survey in 2018 shows that activating forms of learning combined with traditional lectures have a positive impact on respondents' perceptions that their study programmes prepare them to start to work, the development of social skills and advanced literacy skills, while the purely problem-based learning style has the most impact on the development of entrepreneurial skills, advanced numeracy skills and advanced ICT skills (Tecilazić et al., 2024). Moreover, a balanced approach between activating learning environments and traditional, lecture-based approaches is needed to prepare students for different outcomes and therefore highlights the importance of activating learning and teaching approaches for the development of graduates' generic skills and readiness to enter the labour market after graduation (Meng et al., 2020).

This section focuses on the modes of learning and teaching applied during the studies. The EUROGRADUATE 2022 questionnaire examined the extent of different modes of teaching and learning during the reference programmes, namely:

- Lectures
- Group assignments
- Participation in research projects
- Internships/work placements (as a formal part of the study programme)
- Project and/or problem-based learning
- Written assignments
- Oral presentations by students
- Self-study
- Inter-disciplinary learning activities
- Exposure to entrepreneurial activities

Graduates were asked to rate the extent of each teaching and learning mode using a 5-point scale. Based on this rating, the reference programmes were classified under the four types of

learning environments defined by Christoph Meng (Meng et al., 2020): (1) lecture style, (2) problem and/or project-based learning style, (3) lecture & problem and/or project based learning and (4) other modes.



In general, the predominant learning environment in Croatia is the traditional lecture style, as is the case in almost all other European countries participating in the Eurograduate survey. However, 65.5 % of BA-level respondents graduated in 2016/17 stated that they had studied in a lecture-style study programme, and only 1,4 % described their study programme as purely problem and/or project-based. Compared to BA-level graduates from the same cohort in other countries, this is still the lowest proportion of graduates who perceived their learning environment as problem and/or project-based. This can be explained by a general approach that higher education institutions took to design the Bachelor’s programmes when the Bologna three-cycle

structure was first introduced (2005). At that time, it was assumed that Bachelor's study programmes would provide students with the basic knowledge, foundations and introduction into a discipline, with the expectation that they would continue their studies at Master level. At the time, there was less awareness of the employability of Bachelor level graduates, and the focus was more on securing sustainable funding and retaining students in institutions after the completion of the first cycle. This has resulted in very low mobility between and within institutions in the country. Given the aim to emphasise theoretical knowledge at Bachelor level, it is not surprising that lectures have been traditionally predominant mode of teaching and learning in Bachelor level programmes.

However, the responses of graduates from the recent BA-level cohort (2020/21) suggest that the dominance of lecture-style study programmes at BA- level may have decreased in Croatia. The results show that 59,3% of BA-level graduates have completed a lecture-based programme compared to 65,5% in 2016/17, and 32,5% have experienced a mixed lecture and problem and/or project-based learning environment, compared to 26,2% of respondents in the previous cohort (2016/17). This is the result of an expansion of professional higher education in Croatia and a general development of new and innovative pedagogical approaches in higher education.

The data show that in Croatia, as in other countries, the problem and/or project-based learning style is more prevalent at Master level than at BA level. Although the overall proportion of respondents who obtained a Master's degree in 2016/17 and studied in a problem-based and/or project-based learning environment is still very low (2.7%), it is twice as high as for BA-level graduates in the same academic year. Compared to other countries, however, the proportion of graduates who have experienced activating learning and teaching modes is still among the lowest in Croatia which is a sign of system reluctant to change. In contrast to BA-level graduates, the proportion of MA-level graduates who have experienced more problem-based and/or project-based style of learning environments is slightly lower among respondents who graduated in 2020/21 than among those who graduated in 2016/17. The situation is similar in six other countries, while in five countries a different trend can be observed, and the use of pure activating learning and teaching approaches has increased significantly.

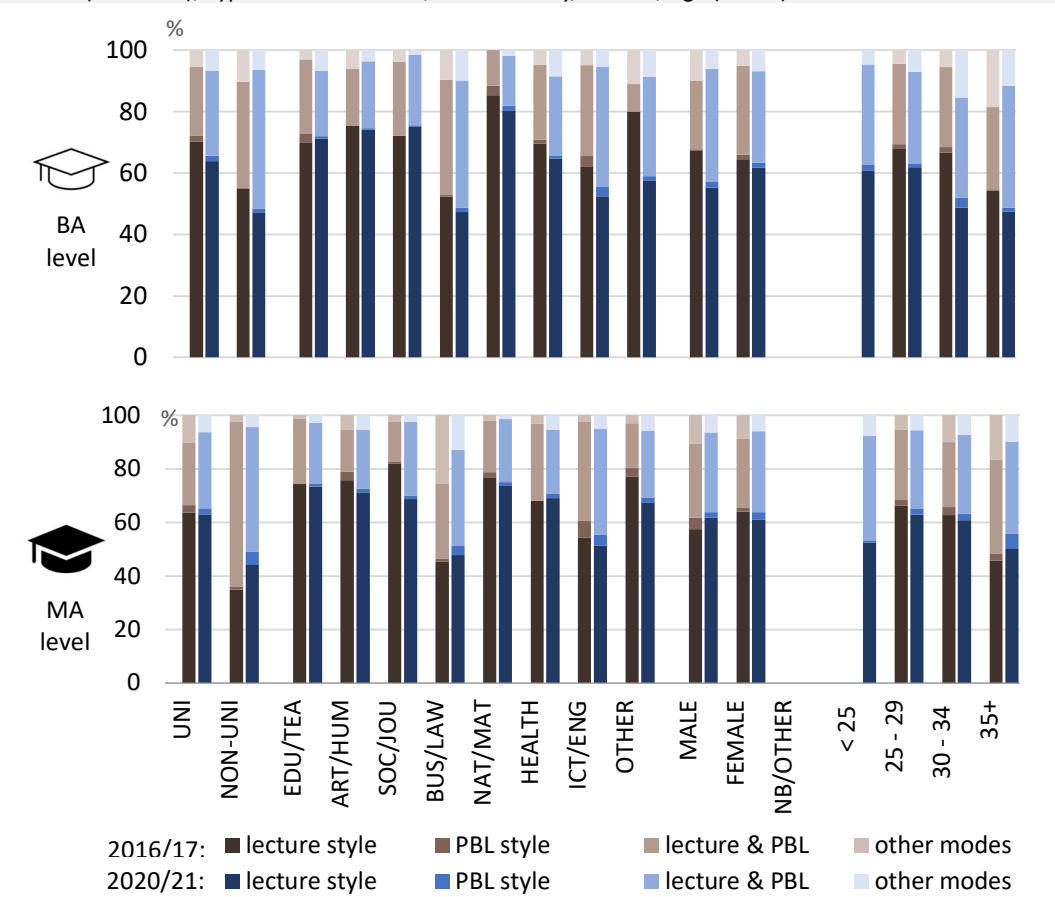
However, from 2016/17 to 2020/21, according to the survey results, there has been a stable increase in the proportion of graduates who have studied on study programmes with a mixed lecture & problem-based and/or project-based learning environment, at BA-level (26.2% in 2016/17; 32.5% in 2020/21) and at Master level (26.3% in 2016/17; 30.2% in 2020/21). This could lead to the conclusion that the important role of activating learning environments has been recognised in Croatia and that, in general higher education institutions are trying to find a balance between two approaches.

Fig 2.1.2: Learning types for Croatia

Learning Type: Teaching modes in the reference programme: “lecture style” indicates high extent of lectures and low extent of “problem and/or project based learning” (PBL); “PBL style” a high extent of PBL and low extent of lectures; “lecture&PBL” a high extent of both; “other modes” a low extent of both.

All target group graduates of Croatia by:

Cohort (twin bars); Type of HE institution, Field of study, Gender, Age (X-Axis)



Source: Eurograduate Survey 2022; Notes: n = 7.028.

A detailed and a little bit more informative picture of the learning and teaching environment at higher education institutions in Croatia, broken down by type of institution, field of study, gender, and age of graduates gives some more detailed information about the learning and teaching environments at the higher education institutions in Croatia. Again, it is evident that the traditional lecture style in the BA-level and MA-level study programmes at the universities was the predominant learning environment for both cohorts. This dominance of lecture-style programmes at universities trace deeply rooted style of teaching in traditional universities in various academic disciplines. On contrary, recently established non-university professionally oriented higher education institutions (mostly founded after the introduction of Bologna the three-cycle structure in 2005) have attempted to attract students with more innovative approaches.

There is a significant difference between the types of institutions. According to respondents, lecture-based programmes are mainly represented at universities and BA level. Although the

trend from 2016/17 to 2020/21 is declining, around 2/3 of BA graduates at universities in both cohorts still described their study programme as lecture-based. In contrast, a significantly lower proportion of BA graduates from non-universities, namely 54,9% in 2016/17 and 47,2% in 2020/21, had a lecture-style learning environment. These results are to be expected as BA programmes are generally designed to introduce students to the discipline, particularly at universities, whereas study programmes at non-universities are professionally oriented and focus on developing skills needed in the labour market. In the labour market, graduates are often expected to have transversal (generic) skills that can be transferred to other disciplines, e.g. communication skills, problem solving, teamwork, etc. There are examples from research that show that activating modes of learning and teaching contribute in particular to the development of generic skills.

In the 2016/17 cohort, the proportion of MA-level university graduates who experienced a lecture-style learning environment is twice as high (63,6%) as the proportion of MA-level graduates in the same cohort who graduated from a non-university institutions (34,9%). While almost the same proportion is observed for universities in 2020/21, the proportion of MA-level graduates describing their programme as lecture-based increases from 34,9% in 2016/17 to 44,1% in 2020/21 for non-universities. While the trends generally show a decline in lectures as the most important form of learning and teaching, MA-level graduates from non-universities are an exception. This is the result of a controversial debate in the academic community that began with the introduction of the Croatian Qualifications Framework (CROQF), which was adopted by law in 2013 and initially placed university Master's degrees on the same level as non-university Master's degrees (CROQF 7 / EQF 7), which contradicted the general perception of these two qualifications. The universities' argument was primarily based on the fact that professionally oriented study programmes at Master level do not have a sufficient academic component to be considered at the same level as university Master's degrees. After two rounds before the Constitutional Court, a solution was found in 2021 that places both degrees at the same level and distinguishes them according to their type (CROQF 7.1 sv; CROQF 7.1 st / EQF 7). As a result, a stronger scientific dimension had to be included in the professional Master's degrees (CROQF 7.1.st), which was accompanied by an increased use of classroom lectures.

A more detailed analysis of the data compared the results for eight study fields, separately for each cohort and for BA-level and MA-level graduates. The data shows that lecture-style study programmes at BA level are particularly prevalent in the Natural Sciences (including Mathematics), where 85,4% of 2016/17 graduates and 80,3% of 2020/21 graduates consider their study programme to be predominantly lecture-based. In contrast, the proportion of BA level graduates who report a traditional, lecture-based learning environment is lowest in the study fields of Business, Administration and Law. This group of study programmes include study programmes in the field of Business and Administration at non-university institutions, which are professionally oriented and clearly more focused on skills development. The same applies to both cohorts, albeit with slightly different proportions: 52,3% of BA-level graduates in 2016/17 and 47,2% in 2020/21 stated that their study programme was predominantly lecture-based.

A similar, but not identical, pattern can be observed among MA-level graduates. The proportion of graduates with predominantly lecture-based learning environments is still high for those graduating in Natural Sciences (including Mathematics) in 2016/17 (76,9%) and 2020/21

(73,7%), but an even higher proportion can be observed in Social Sciences and Journalism but only in the cohort 2016/17 with 81,9% of MA-level graduates reporting predominantly lecture-based learning experience during their studies. The later cohort of MA-level graduates report a significant shift in the approach to learning and teaching in the Social Sciences and Journalism programmes, with only 68,8% of graduates (compared to 81,9% in the first cohort) perceiving their study programme as predominantly lecture-based. Although there is an increase in problem-based and/or project-based learning in Social Sciences and Journalism from 0,8% in 2016/17 to 1,2% in 2020/21, this development in pedagogical approach is still moderate as there is a more significant increase in the use of a combined lecture and problem-based and/or project-based learning environment in this field of study from 2016/17 (14,9%) to 2020/21 (27,6%). The highest proportion of MA-level graduates who stated that they had experienced a learning environment that combines lecture-based and problem-based and/or project-based learning can be found in the Technology and Engineering study field: 36,8% of graduates in 2016/17 and 39,6% of graduates in 2020/21 support this statement.

These results suggest that different study fields favour different learning and teaching approaches, so the proportion of skills and knowledge and the profile of study programme play a role in designing the appropriate didactic approach.

Looking at the gender specifics, a learning and teaching environment that combines lecture-based and problem-based and/or project-based learning at BA level is reported slightly more frequently by female graduates (28,9%) than by male graduates (22,5%) in 2016/17, while the results are reversed in 2020/21, so that a higher proportion of male (36,9%) than female (29,7%) graduates perceive their learning environment as lecture and problem-based and/or project-based. The situation is different with regard to the learning experiences between the genders in the MA-level study programmes, where there are no major differences between male and female graduates in terms of the relationship between lectures and problem-based and/or project-based learning methods. Any differences in gender proportions should be interpreted with much caution as the proportions of men and women in different study fields change over time as the share of men increases in most propulsive professions.

If we compare the perception of learning environments between graduates of different age, we can observe a decline in the proportion of graduates in predominantly lecture-based study programmes from younger to more mature generations at BA level for both cohorts and at MA-level only for the cohort 2016/17. This can be explained by the fact that more mature students are more likely to study part-time in order to combine their studies with work and are therefore more likely to choose non-traditional ways of studying with more practical work or a project-based approach rather than the traditional lecture-based style of learning.

2.2 Experience abroad as part of the study programme

There is a lot of research exploring positive attributes of study abroad on knowledge and skills development. International learning experience has an impact on the development of intercultural competence (Lee & Song, 2019), personal and educational growth (Adele, 2021), language skills, as well as disciplinary knowledge (Berg et al., 2009).

A study on the data from the Eurograduate pilot survey (Tecilazić, 2023) has shown that graduates in Croatia experience some negative effects of study period abroad on their early career outcomes. For example, BA-level graduates from non-universities are 36,5% less likely to find an employment that matches their qualification level if they spent a study period abroad than those that stayed on campus. Moreover, a negative effect of study period abroad on graduates' earnings may be observed for all graduates except for MA-level university graduates.

The Eurograduate survey provides data on international learning experiences and covers different types of study abroad experiences. In the questionnaire, graduates were asked about their participation in international experiences as part of their study programme. Those who affirmed having such experiences were prompted to specify the nature of their involvement by selecting from a list of applicable options, including:

- Study abroad
- Internship or work placement
- Language course
- Summer school, workshop or a similar activity
- Other experience

Overall, the data show that the proportion of graduates with study experience abroad as part of study programme in Croatia is below average compared to other countries for almost all types of experience abroad. This data supports the findings of the Eurograduate Pilot Survey 2018 according to which the proportion of graduates in Croatia who have experience of credit mobility (study period abroad for which ECTS credits are awarded) is low compared to other countries (Rimac et al., 2020). Moreover, these results are consistent with the latest administrative data. According to data collected by Eurostat and UOE, the overall outward credit mobility rate of students in Croatia is only 2,8%.

According to the Eurostudent VI Report for Croatia, additional financial costs not covered by the Erasmus mobility grant are the biggest obstacle for students in Croatia to spend a study period abroad. Other reasons include separation from close friends and relatives, recognition of the study period abroad or insufficient information from the institution (Rimac et al., 2019). Students who study abroad usually have to extend their studies, because even if the learning outcomes and ECTS points accumulated during study periods abroad are acknowledged by the institution and thus included in the Diploma Supplement, they are often not recognised as a substitute for the academic requirements at the home institution. These conclusions are supported by the analysis of the Agency for Mobility and EU Programmes (Croatian Agency for Erasmus+) from 2022, according to which about 1/3 of students did not have their credits accumulated abroad fully recognised, so that after returning to their home institution, they had to take additional courses or exams for all or some courses that had already been assessed at the receiving

institution. Students therefore, in such cases, have to postpone their graduation and entry into the labour market, which in turn leads to additional living costs and discourages students from applying to study abroad in the first place.


Table 2.1: Proportion of BA-level graduates with different types of experience abroad

Experience abroad: Stay outside of the survey country during the reference study programme (multiple stays per respondent possible - up to 5 could be reported), shares of all respondents.

ISCED-6 (Bachelor level) graduates by:

Survey country (rows), type of experience abroad (columns) cohort (subcolumns)

Type	study abroad		internship/work		language course		summer school, workshop		other stay abroad	
	2016/17	2020/21	2016/17	2020/21	2016/17	2020/21	2016/17	2020/21	2016/17	2020/21
EG AVE.	10,4%	7,8%	5,5%	3,2%	1,0%	1,0%	2,5%	1,7%	0,5%	0,3%
AT	17,7%	11,8%	9,8%	5,2%	2,0%	1,4%	4,2%	3,2%	0,2%	0,2%
CY	10,4%	9,4%	8,8%	7,9%	1,2%	2,1%	1,7%	2,8%	0,0%	0,4%
CZ	8,9%	8,4%	3,6%	2,6%	1,7%	2,2%	3,9%	2,1%	0,6%	0,6%
EE	8,9%	8,5%	6,7%	4,9%	1,0%	1,5%	2,3%	3,0%	0,3%	0,0%
HR	5,6%	2,9%	4,8%	2,0%	0,4%	0,3%	1,9%	1,1%	0,0%	0,0%
HU	6,4%	5,4%	3,4%	2,3%	0,4%	0,5%	1,2%	1,4%	0,0%	0,1%
IT*	5,5%	6,9%	1,5%	0,6%	0,0%	0,0%	0,0%	0,0%	2,0%	0,9%
LV	15,4%	15,3%	8,4%	5,6%	1,5%	1,5%	7,2%	3,0%	1,0%	1,5%
MT	17,8%	9,2%	6,8%	3,1%	1,8%	2,3%	1,3%	0,0%	0,0%	0,0%
NO	12,3%	8,3%	5,1%	1,3%	0,5%	0,2%	1,7%	1,3%	0,3%	0,2%
PT	10,5%	6,7%	4,5%	1,6%	0,3%	0,4%	2,1%	0,8%	0,0%	0,1%
RO	9,6%	2,2%	7,7%	3,6%	0,3%	0,4%	4,6%	2,8%	0,0%	0,0%
SI	11,9%	7,6%	3,8%	1,6%	1,1%	1,2%	2,8%	1,5%	1,8%	0,4%
SK	5,0%	6,9%	2,8%	3,2%	1,3%	0,1%	0,8%	0,8%	0,3%	0,1%

lowest (0,0%)  highest (17,8%)

Source: EUROGRADUATE 2022 survey. N= 171.922. IT: Limited comparability.


Comparing the data between two cohorts shows a clear decline in experience abroad in 2020/21 compared to 2016/17, which can be explained with the effects of Covid-19 and the associated restrictions of physical cross border mobilities.

BA-level graduates in Croatia are among those who have had the fewest study-related experiences abroad during their reference study programme compared to BA-level graduates in other countries. Only a small proportion of all BA-level graduates in Croatia (5,6 %) compared to an average of 10,4 % in 2016/17 and 2,9 % compared to an average of 7,8 % in 2020/21 stated that they had completed a study period abroad, and only 4,8%, compared to an average of 9,8%, in 2016/17 and 2,0%, compared to an average of 3,2%, in 2020/21 stated that they had completed an internship or study-related work experience abroad during their studies. To better understand the reasons for these low mobility figures, it is important to know that Croatia does not have a long tradition of participating in mobility programmes compared to other EU countries. Erasmus+ is by far the most frequently used European programme to support student mobility and it was gradually introduced in Croatia with the first pilot mobilities only in 2009.

The situation is not much different for other types of learning experiences abroad, e.g. language courses, where the proportion of graduates who attended language courses during the studies was 0,4% in 2016/17 and 0,3% in 2020/21, compared to an average of 1,0% in both years, or summer schools, where 1,9% of BA-level graduates from the same cohort spent a summer learning abroad and 1,1% in 2020/21, compared to an average of 2,5% and 1,7% respectively.

Table 2.2: Shares of MA-level graduates with different types of experience abroad
Experience abroad: Stay outside of the survey country during the reference study programme (multiple stays abroad per respondent possible - up to 5 could be reported), displayed as shares of all respondents.
ISCED-7 (Master level) graduates by:
 Survey country (rows), type of experience abroad (columns) cohort (subcolumns)

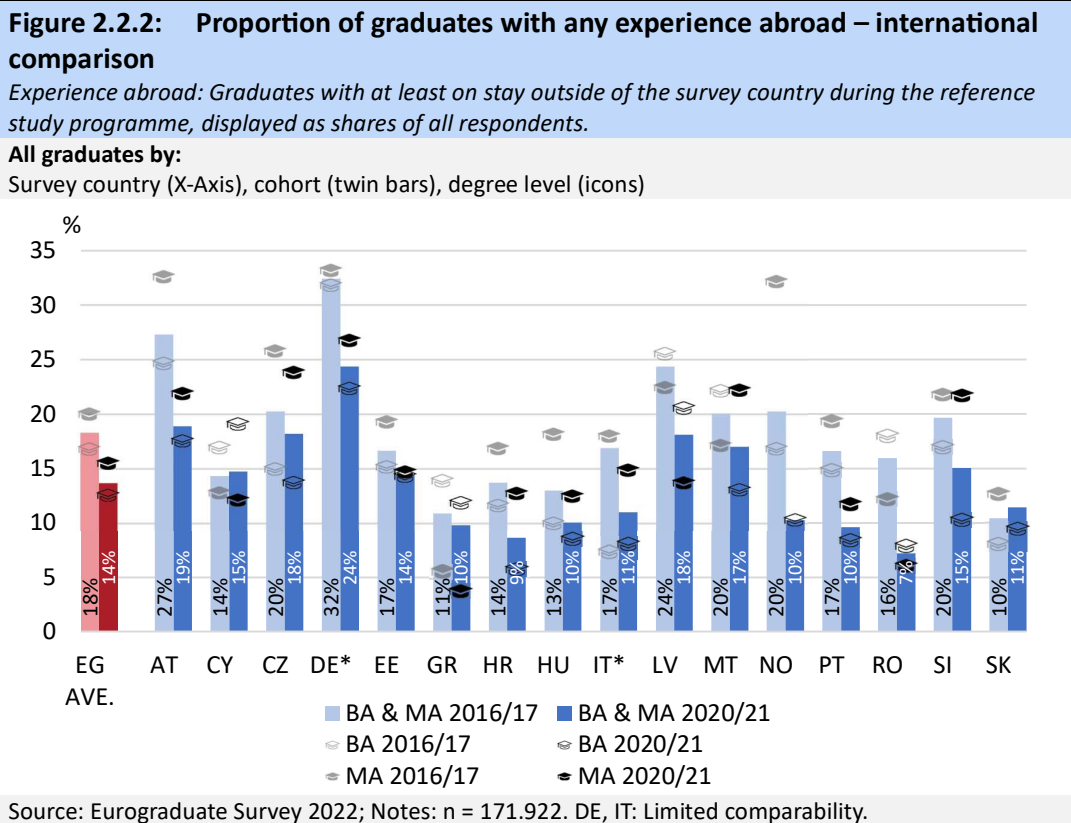
Type	study abroad		internship/work		language course		summer school, workshop		other stay abroad	
	2016/17	2020/21	2016/17	2020/21	2016/17	2020/21	2016/17	2020/21	2016/17	2020/21
EG AVE.	13,0%	9,6%	7,8%	5,5%	1,1%	0,9%	4,5%	3,4%	0,8%	0,4%
AT	23,4%	13,9%	14,1%	8,9%	2,3%	2,6%	7,9%	4,9%	0,3%	0,2%
CY	8,4%	6,7%	6,1%	5,0%	1,5%	1,6%	1,9%	3,6%	0,0%	0,0%
CZ	17,2%	15,2%	10,3%	8,4%	2,4%	1,8%	5,6%	4,7%	0,7%	0,8%
EE	10,6%	7,9%	8,2%	5,8%	1,8%	0,8%	6,0%	4,2%	0,2%	0,2%
HR	9,8%	6,5%	6,1%	5,2%	1,5%	0,9%	4,7%	3,0%	0,3%	0,1%
HU	8,7%	8,3%	9,6%	3,7%	0,6%	0,4%	4,0%	2,3%	0,0%	0,2%
IT*	15,5%	12,9%	3,9%	3,3%	0,0%	0,0%	0,0%	0,0%	3,1%	1,0%
LV	12,2%	5,8%	10,5%	6,0%	0,7%	0,5%	8,8%	3,6%	0,0%	0,0%
MT	11,0%	16,4%	6,3%	3,1%	0,0%	0,0%	2,9%	7,6%	0,0%	0,0%
NO	26,8%		5,4%		1,3%		8,7%		2,4%	
PT	10,9%	7,3%	9,5%	4,6%	0,7%	0,6%	3,7%	1,2%	0,3%	0,3%
RO	7,6%	1,2%	4,5%	4,0%	1,0%	0,3%	1,5%	1,5%	0,0%	0,0%
SI	10,5%	13,5%	9,6%	8,0%	1,3%	1,4%	6,2%	5,2%	4,3%	2,6%
SK	9,0%	8,8%	5,4%	5,9%	0,4%	0,3%	1,6%	2,0%	0,0%	0,0%

lowest (0,0%)  highest (26,8%)

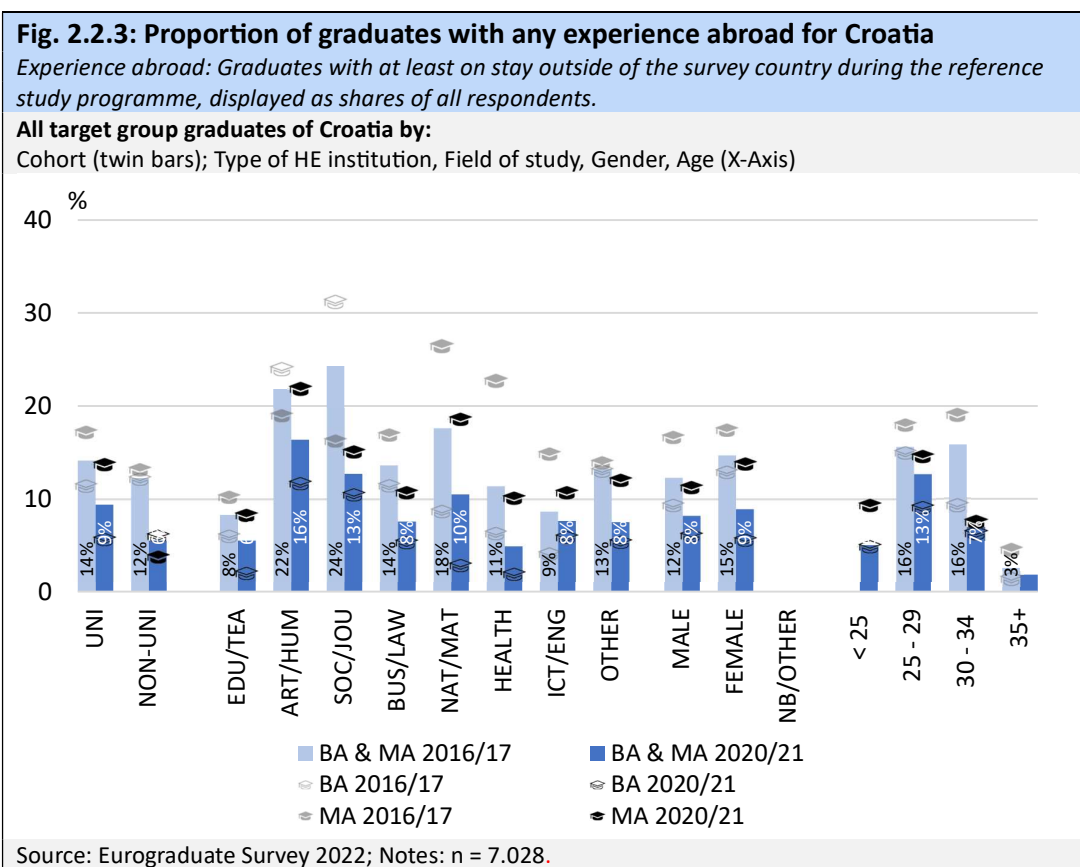
Source: EUROGRADUATE 2022 survey. N=171.922. Norway: Master t+1 not surveyed. IT: Limited comparability.

The data for MA-level graduates in Croatia is slightly more encouraging, but the proportion of mobile students is still below average for almost all types of learning experiences abroad. The proportion of MA-level graduates with learning experience abroad is 9,8% for the cohort graduating in 2016/17 and 6,5% for the cohort graduating in 2020/21, half as high as it is in countries with the highest proportion of mobile students graduating in 2016/17 such as Norway (26,8%) or Austria (23,4%). The data for internships, language courses and summer schools bring MA-level graduates in Croatia closer to the average: 6,1% of graduates from 2016/17 completed an internship or work-related experience abroad and 5,2% of graduates from 2020/21, 1,5% of MA-level graduates from 2016/17 attended a language course abroad and 0,9% graduates from 2020/21 whereas 4,7% of MA-level graduates from 2016/17 attended a summer school abroad and 3,0% of graduates from 2020/21. These results are in line with the Eurograduate pilot survey results according to which a higher share of MA-level graduates spend a study period

abroad than BA-level graduates (Rimac et al., 2020) which is expected because it is often that more mature students are encouraged to spend study periods abroad.



The proportion of graduates with at least one stay outside Croatia during the studies at the reference study programme in the cohort 2016/17 is 13,7%, i.e. 11,6% of BA-level graduates and 16,8% of MA-level graduates, while the share of those with at least one learning experience abroad in the cohort 2020/21 is 8,6%, i.e. 5,8% of BA-level graduates and 12,7% of MA-level graduates. This is consistent with the analysis presented in this section and shows that graduates in Croatia, along with those in Greece, Romania and Slovakia, are at the bottom of the list of those who have gained international experience as part of their studies in the reference study programme.



A more detailed picture of international experience as part of study programme, broken down by type of institution, field of study, gender and age of graduates, shows that graduates of the 2016/17 graduating cohort (14,1%) and the 2020/21 graduating cohort (9,4%) who studied at universities gained more experience abroad than graduates of the 2016/17 cohort (12,3%) and the 2020/21 cohort (5,6%) who completed their studies at non-universities. This is due to the considerable costs associated with studying abroad and the limited financial resources available to students from families with a lower socio-economic background. Often, only those who have significant financial support from their families or their own income can afford international educational experiences, as holding down a job while studying presents a challenge in terms of travelling opportunities. It can therefore be assumed that university graduates are more likely to be able to afford learning experiences abroad. These findings are consistent with previous research in Croatia, which shows that people from families with higher socio-economic backgrounds are more likely to choose to study at university, while those from less privileged backgrounds often opt for vocational secondary education and pursue professional studies (Farnell et al., 2014; Jokić & Ristić Dedić, 2014; Matković et al., 2010; Rimac & Baranović, 1991). Consequently, individuals from the latter group may have fewer opportunities to pursue international study experiences due to financial constraints.

However, a more in-depth look into the data show that this applies only to MA-level graduates that gain more international learning experience if they study at universities. Data show that in the 2016/17 cohort, 17,1% of MA-level university graduates compared to 13,1% MA-level graduates from non-universities and in the 2020/21 cohort 13,7% of MA-level university graduates

compared to 3,8% MA-level non-universities graduates have gained learning experience abroad during their studies. In contrast, BA-level students from non-universities in Croatia are slightly more mobile than university BA-level students.

Looking at the differences between the fields of study, it can be observed that the graduates with the most international experience of those graduating in 2016/17 were graduates in the Social Sciences and Journalism (24,3%) and those with the least international experience were graduates in Education and Teachers Training (8,3%). Teacher training in Croatia is a regulated profession in a dominantly occupational labour market in Croatia which means that specific type of a degree and specific skills are required by the job seekers (Matković, 2011). Therefore, it is not surprising that students are not interested in gaining international experience during their studies. In contrast, the graduates with the most international experience in 2020/21 are those in the field of Language, Arts and Humanities (16,4%) and those with the least international experience are graduates in the field of Health (4,9%). The latter can be explained by the impact of Covid-19 specifically on students in healthcare. A closer look at the differences between study fields and level of study reveals that Covid-19 has affected more BA-level students in healthcare than MA-level students in the same field. Only at BA level did graduates in the field of Health, who are predominantly nurses, have the least experience abroad in 2020/21 (1,9%), while the proportion of graduates with international experience at MA-level in the field of Health, in the same year was 10,1%.

As far as the differences between the genders are concerned, it can be seen that female graduates generally have more learning experience abroad during their studies than male graduates, except for BA-level graduates in 2020/21, where the proportion of graduates with international experience was higher among men (6,1%) than among women (5,5%). This can also be explained by the fact that students enrolled in the nursing study programme, which proved to be the least mobile in 2020/21, tend to be female.

The analysis of age differences shows that the highest proportion of graduates with experience abroad during their studies is found in the age group of 25 to 29-year-olds at the time of graduation. This applies to both cohorts: 15,6% of this age group in the first cohort (2016/17) and 12,7% in the second cohort (2020/21) gained experience abroad during their studies, whereas the group of mature students aged 35 and over has the lowest proportion of people with experience abroad, namely 2,5% in the 2016/17 cohort and 1,8% in the 2020/21 cohort. This finding is not surprising and proves the fact that more mature students, that are usually working students and/or students with family obligations, are less mobile than those from younger age groups.

2.3 Labour market experience during studying

Previous studies have shown that study-related work experience or internships have a positive impact on graduates' academic and labour market outcomes (CEDEFOP, 2021). Work-integrated learning as an approach that integrates practical work experience into the curriculum can help to improve students' development of generic competences (Freudenberg et al., 2011), which are often seen as crucial for early career development as well as for managing long-term careers and ensuring lifelong employability. Specific experiences during studies, such as internships,

have an impact on early career outcomes (Wolniak & Engberg, 2019). In a study examining the ability of graduates to meet the demands of employers, the authors show that internships provide a valuable learning opportunity where theoretical skills can be applied in a real work environment (Andrews & Higson, 2008). Various studies have investigated how work-integrated learning prepares students for unpredictable and complex work environments (Russell et al., 2015) and how experiential learning through work placements improves the employability of graduates (Helyer & Lee, 2014).

Recognising the importance of practical experience during studies, higher education institutions are developing different forms of learning activities that combine academic learning with the development of practical skills. Study-related labour market experiences during studies refer to different models of work-based learning in which students complete structured work placements in the real world of work relevant to their field of study. This enables students to apply academic knowledge to real-life situations in the workplace. These experiences are important because they prepare students for the world of work, increase their perception of their own competences and thus their self-confidence. They also help to build social networks with potential employers, which can later be utilised when looking for their first job after graduation.

The Eurograduate pilot study identified a positive impact of a work-based learning environment that provides the foundation for entry into employment and the development of various transversal skills (Meng et al., 2020; Rimac et al., 2020). Studies on the data from the Eurograduate pilot survey in Croatia (Tecilazić, 2021, 2023) shows that for BA-level graduates who graduated from non-university institutions in 2016/17, there is a significant and positive effect of the internship they completed during their studies on their income level one year after graduation. For graduates of the Master's programme who graduated from a university in the same year, an internship during their studies shortens the time they need to find their first job.

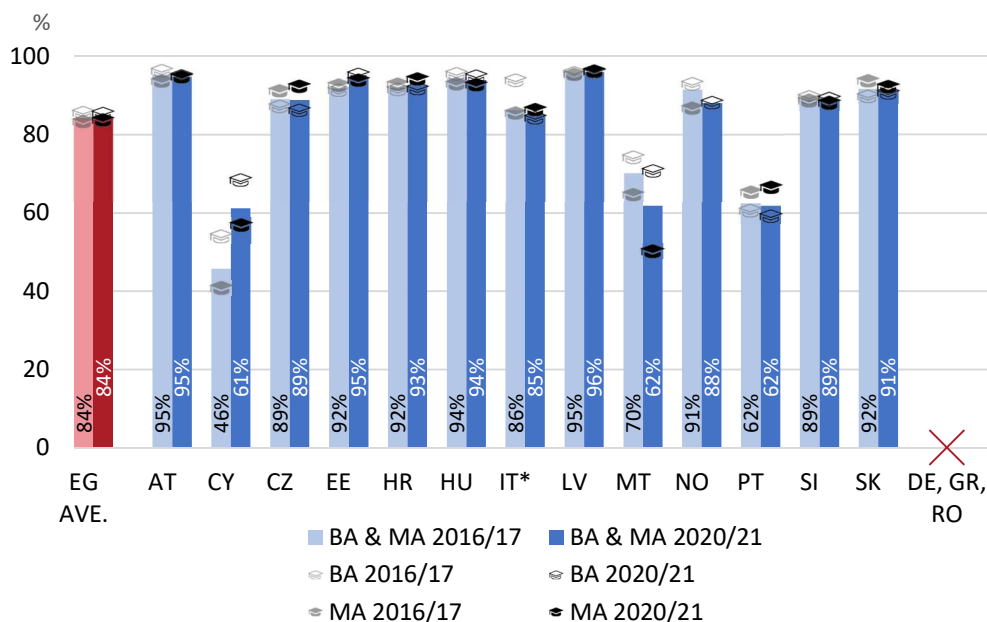
Non-study-related labour market experiences during studies can have different effects on the employment outcomes of graduates. The same study shows both positive and negative effects on employment outcomes. The work experience of MA-level graduates who graduated from a university in 2016/17 has a positive impact on finding a job that requires a Master's degree, while the work experience of BA-level graduates from non-universities has a negative impact on the level of earnings in the first job after graduation. These findings suggest that depending on the type of work experience during their studies and the reason why students are working, it may be a need to finance their studies or it may be an opportunity to gain work experience and develop various general skills, such as communication skills, teamwork or interpersonal skills in internships that require working with others, or self-management and problem-solving skills required for more individualized types of work activities. However, students who work to make a living while studying may not have enough time to invest in their studies and are therefore in a poorer position to master their subject. Although the nature of labour market experience during studies and the circumstances that led students to find non-study related work during their studies, previous studies have shown that labour market experience during studies increases graduates' social capital, which is important for finding a first job (Matković, 2011; Tecilazić, 2023).

Figure 2.3.1: Proportion of graduates with any study-related labour market experience – international comparison

Study-related labour market experience: Paid labour that took place during and was related to the field of the reference programme and/or internships/work placements that were part of its curriculum.

All graduates by:

Survey country (X-Axis), cohort (twin bars), degree level (icons)



Source: Eurograduate Survey 2022; Notes: n = 171.922; IT: IT: Limited comparability. DE, GR, RO: not surveyed

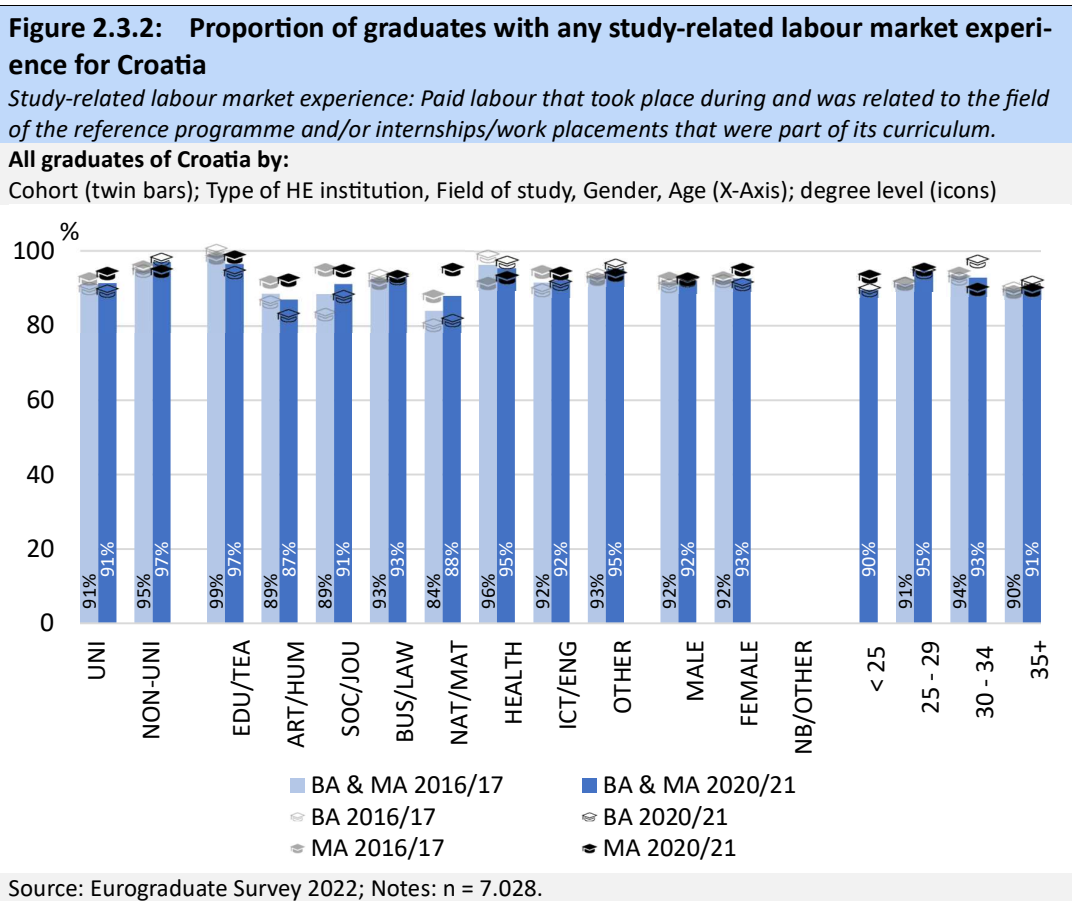
The Eurograduate survey examined graduates' study-related labour market experiences, i.e. paid work that took place during the reference programme and was related to the field of the reference programme and/or internships or work placements that were part of the curriculum. A comparative overview of the proportion of graduates with study-related labour market experience that was part of the curriculum shows that there is a strong work-based learning environment during the programme in all Eurograduate countries. The proportion of graduates with study-related work experience in Croatia, as in most of the countries analysed, is above average (84%). This results with a different picture than described in the Eurograduate pilot survey (2018). The proportion of graduates in Croatia who stated that they had undertaken an internship or study-related work experience during their studies is 91,4% at BA level, compared to 55,2% in the Eurograduate pilot survey, and 92,7% at MA-level, compared to 55,9% in the Eurograduate pilot survey. Comparing the results of MA-level and BA-level graduates who graduated in Croatia, there are no major differences in both cohorts, which is also true for almost all countries surveyed.

Since one of the reasons for the low proportion of internships or study-related work experience is usually the lack of employers willing to hire interns for a short period of time, i.e. for the duration of the internship, this almost doubled proportion of students with experience in internships or study-related work experience is a sign of an important change in the Croatian labour market since 2018, the time of the first Eurograduate survey, and 2022, when this data

was collected. During this period, Croatia has gone from a country with a very high unemployment rate the lowest ever. Furthermore, the demand for international labour has never been higher, making Croatia the EU member state with the highest import of labour from non-EU countries. The rapid increase in employment reflects two trends: the mobility of labour from Croatia to other member states and the economic growth triggered, among other things, by the positive effects of EU accession.

The import of labour from less developed countries, which is comparatively cheaper than domestic labour, has given students a better position on the labour market. The knowledge acquired during studies is more valued, leading to a higher match between studies and job requirements and ultimately a higher likelihood of being employed in positions corresponding to the degree obtained during studies.

For all these reasons, employers are more open to interns because they use the student internship as a recruitment tool. Those students who prove to be the best workers can easily find employment with the same employer after graduation.

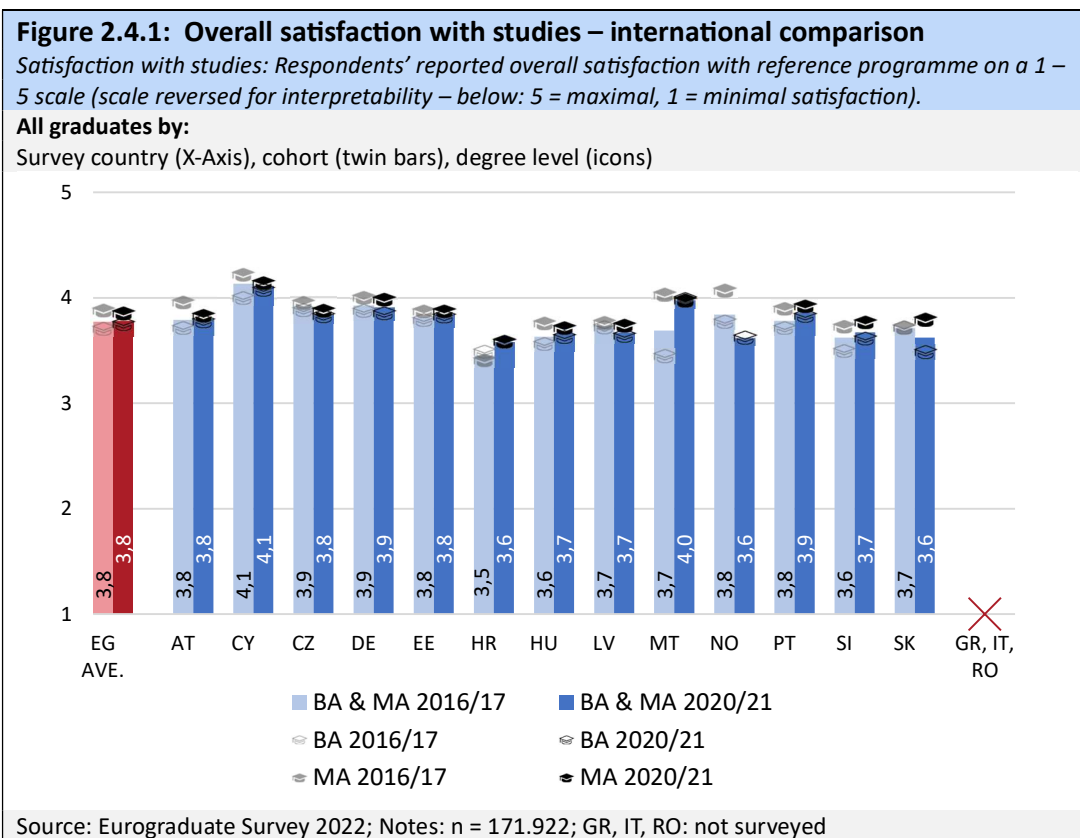


A more detailed picture of study-related labour market experience in Croatia, broken down by type of institution, field of study, gender and age of graduates show that, in general, there are no major differences between BA-level and MA-level graduates of both cohorts who completed their studies at universities or non-universities. There are also no major differences between the genders and the different age groups.

Looking at the differences between the fields of study, it can be seen that the graduates with the most study-related labour market experience in the 2016/17 cohort (98,9 %) and in the 2020/21 cohort (96,5 %) were graduates of Education and Teacher Training and those with the least study-related labour market experience in the 2016/17 cohort (84,0 %) and in the 2020/21 cohort (88,0 %) were graduates of Natural Sciences, including Mathematics. Since teacher training in Croatia is highly regulated, the internship is an integrated and compulsory part of the curriculum and therefore it is not surprising that almost all students in this field have had internship or study-related work experience during their studies. On the other hand, Natural Sciences, including Mathematics, as purely academic disciplines, do not have as many opportunities for internships, as highly specialised jobs in this field do not require workers at either secondary school or BA level.

2.4 Overall satisfaction with studies

The Eurograduate survey examined the overall satisfaction of graduates with the reference programme. Participants of the survey were asked to rate their level of satisfaction with the overall study programme based on their perspective at the time of the survey. Results are presented as ratings on a 5-point scale ranging from 1 (very unsatisfied) to 5 (very satisfied).



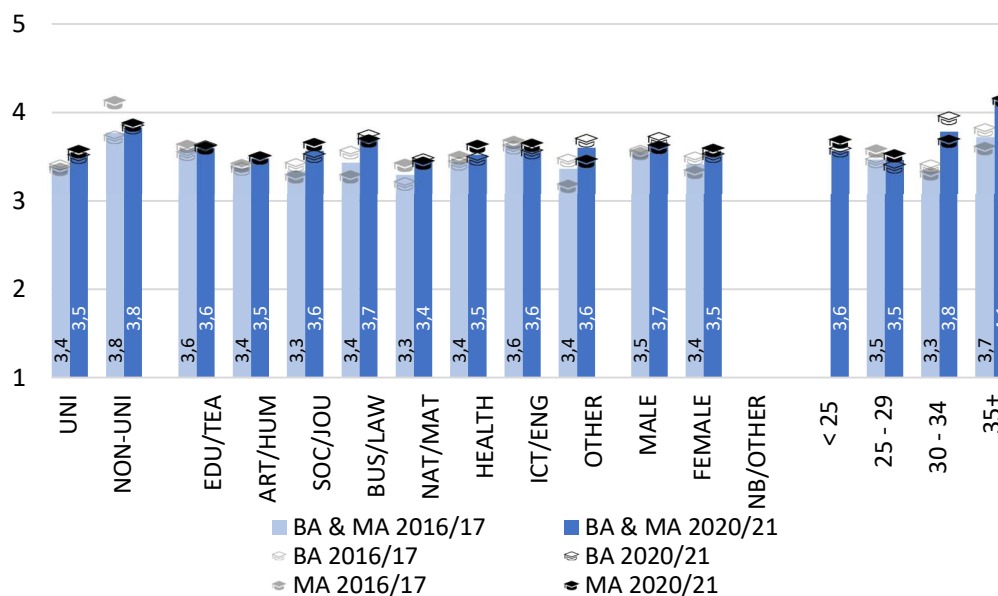
A comparative analysis of the mean value for satisfaction with the degree programme between the countries surveyed shows that graduates in Croatia are the most critical of their degree programme. On a scale of 1-5 (1 = minimum satisfaction; 5 = maximum satisfaction), the BA graduates of the 2016/17 cohort in Croatia rated their satisfaction with the reference study programme at an average of 3,5 and the MA-level graduates study programme 3,4, which are the lowest values compared to the other countries. The results of the 2020/21 cohort are not much different and show a slight increase in graduates' satisfaction with their reference study programme, which averages 3,6, still at the bottom of the list of all countries surveyed.

Figure 2.4.2: Overall satisfaction with studies for Croatia

Satisfaction with studies: Respondents' reported overall satisfaction with reference programme on a 1 – 5 scale (scale reversed for interpretability – below: 5 = maximal, 1 = minimal satisfaction).

All target group graduates of Croatia by:

Cohort (twin bars); Type of HE institution, Field of study, Gender, Age (X-Axis); degree level (icons)



Source: Eurograduate Survey 2022; Notes: n = 7.028.

A more detailed picture of overall satisfaction with studies in Croatia, broken down by type of institution, field of study, gender and age of graduates, generally shows that non-university graduates are slightly more satisfied with their study programme than university graduates. BA-level and MA-level graduates from universities in 2016/17 are the least satisfied with their degree programme and rate their satisfaction with the reference study programme at an average of 3,4. Graduates are satisfied with their degree programme at an average of 4,1.

In comparison by the fields of study, the BA-level graduates of the 2016/17 cohort that are most critical of their degree programme are graduates in Natural Sciences including Mathematics, who state an average satisfaction with their study programme of 3,2, and the least critical are the MA-level graduates in Technology and Engineering of the 2016/17 cohort, who state an average satisfaction with their study programme of 3,7.

If these results are combined with the graduates' statements on the predominant learning and teaching methods, it can be seen that the BA-level graduates in Natural Sciences including Mathematics of the 2016/17 cohort, who are the least satisfied with their degree programme, perceive their study programme as predominantly lecture-based, more so than the graduates of all other subjects in the same BA-level graduate cohort (85,4%). In contrast, MA-level graduates of the 2016/17 cohort from the field of Technology and Engineering, who showed the highest satisfaction with their study programme, described their study programme as the least lecture-based (54,3%) and with most frequently used a combination of lectures and project or

problem-based forms of learning during their programme (36,8%). These results indicate a positive correlation between activating learning and teaching methods and graduates' satisfaction with their studies.

These findings are consistent with the results of an analysis of data from the Eurograduate 2018 pilot survey, which show that the use of activating teaching and learning methods has a positive effect on graduates' satisfaction with their study programme. Graduates in Croatia who self-reported that traditional modes of teaching and learning were more emphasised in their study programme were less likely to choose the same study programme again at the same institution than those graduates who self-reported that activating modes of teaching and learning were prevalent in their study programme (Tecilazić, 2022).

There are no major differences between male and female graduates, although male graduates on average show slightly higher satisfaction with their reference study programme than female graduates. Again, difference is mostly related to male dominance in the two fields of study: ICT and Engineering.

In terms of age differences, the more mature BA-level and MA-level graduates (35+) of the 2020/21 cohort appear to value their study programme the most, rating their satisfaction at an average of 4,1. With an overall increase in satisfaction levels from the 2016/17 cohort to the 2020/21 cohort, the greatest difference can be observed in the 30-34 age group of BA-level graduates when comparing the average rating of graduates' satisfaction with the reference study programme from 3,3 in 2016/17 to 3,9 in 2020/21. The reasons for these higher satisfaction rates among mature graduates lie in their motivation for studying. Mature students are generally working part-time students who pay their own tuition fees and therefore choose more carefully what and where they want to study, and therefore appreciate the learning opportunities at higher education institutions more.

3 Labour Market Participation and Labour Market Outcomes

3.1 Current employment status

The decades-long tradition of higher education during the socialist period of the former Yugoslavia was based on the idea of a unitary system in which higher education was provided exclusively by universities and in which university qualifications were easily understood and recognised by the labour market in Croatia. In addition, the "lazy" tenure system, characterised by dominant seniority and very weak scientific competitiveness, further entrenched the higher education system and made it highly resistant to change. Before the introduction of the Bologna three-cycle structure, there were only a few study programmes at lower higher education level (for example, operational engineers in mechanical and civil engineering, nurses, administrative lawyers, unlicensed sports coaches), while most study programmes lasted four or five years. But even for these few professions, with the exception of nurses, there was a progression route to a higher level of education which, in the case of the regulated professions, led to the acquisition of a professional licence after a prescribed period of practical training. Within this system, nu-

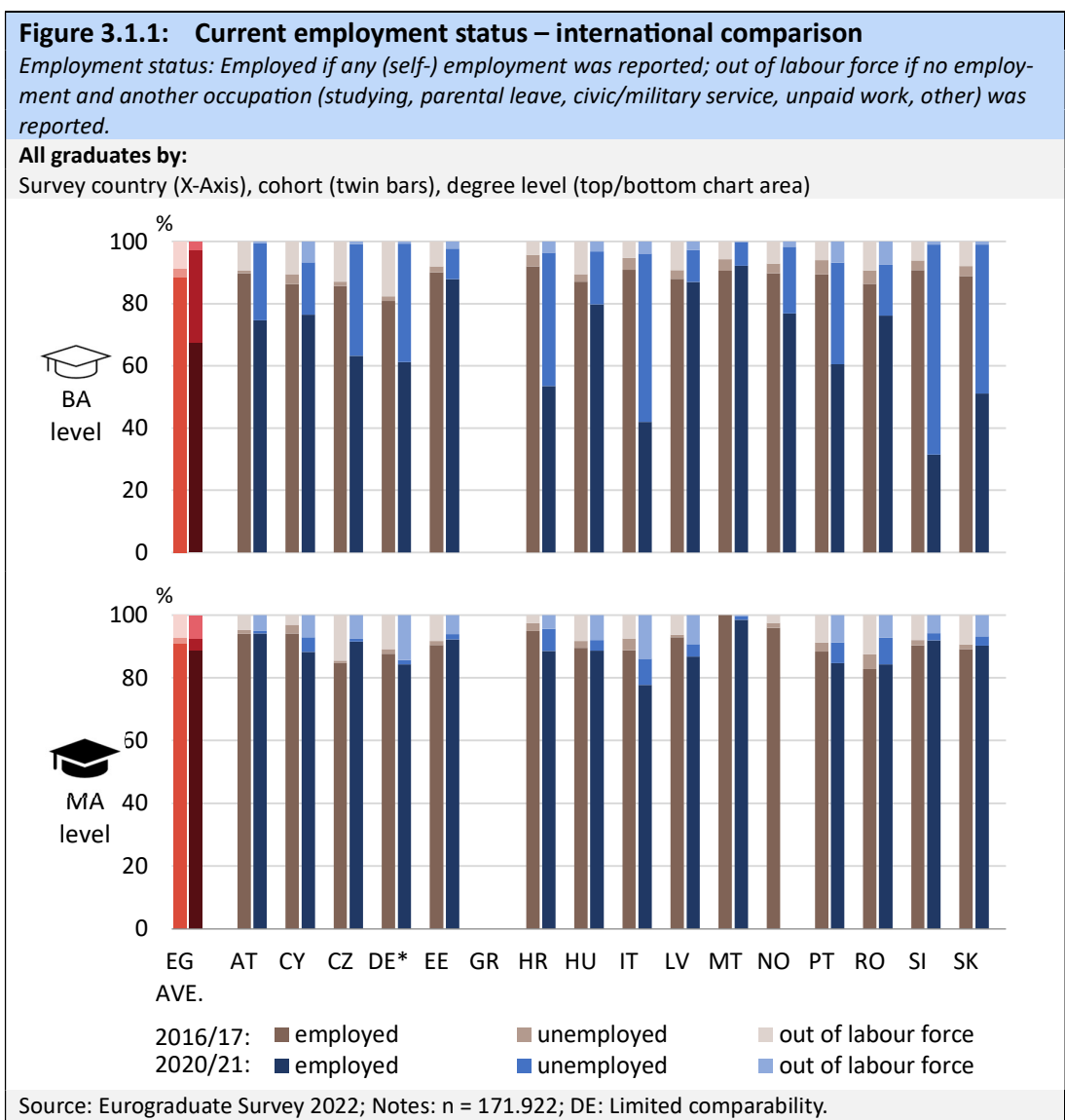
merous regulated professions were defined, from doctors, dentists, architects, lawyers, psychologists and teachers to social workers in the state social care system. This added to the pressure to complete the second level of higher education to ensure recognition in the labour market and employability.

The Bologna three-cycle structure in higher education introduced in 2005, legally established a binary system of university and professional higher education in Croatia and three levels of higher education were defined: Bachelor, Master and Doctoral level. In addition, the Agency for Science and Higher Education was founded in 2009 and legislation was introduced that provides for quality assurance in higher education in accordance with Standards and Guidelines in the European Higher Education Area (ESG), external, independent peer reviews as the basis for the accreditation of institutions and study programmes and the possibility of establishing private higher education institutions. In a new, binary system, universities remained the only providers of Master's and doctoral programmes as well as integrated long-term study programmes leading directly to a Master's degree. Professionally oriented higher education began to develop with the establishment of numerous public polytechnics, while the private sector concentrated on establishing Bachelor level programmes, primarily in business and administration. It was only later that professional higher education institutions were allowed to offer professionally oriented Master programmes.

Previous studies on employability (Rimac & Ogresta, 2018) of individuals who have obtained a Bachelor's degree in professional education showed a very low level of employability, with many individuals remaining in the same job positions they held before obtaining their degree. Therefore, many Bachelor-level graduates continue their education at Master level, particularly among university students.

The labour market in Croatia has changed dramatically in the last four years. The Eurograduate pilot study from 2018 shows that Croatia had a weak economy, which was severely impacted by the 2018 financial crisis. At that time, 74,8 % of MA-level graduates were employed one year after graduation and 17,8% were unemployed. The older cohort of MA-level graduates (2012/2013) had an unemployment rate of 10,4%, 5 years after graduation.

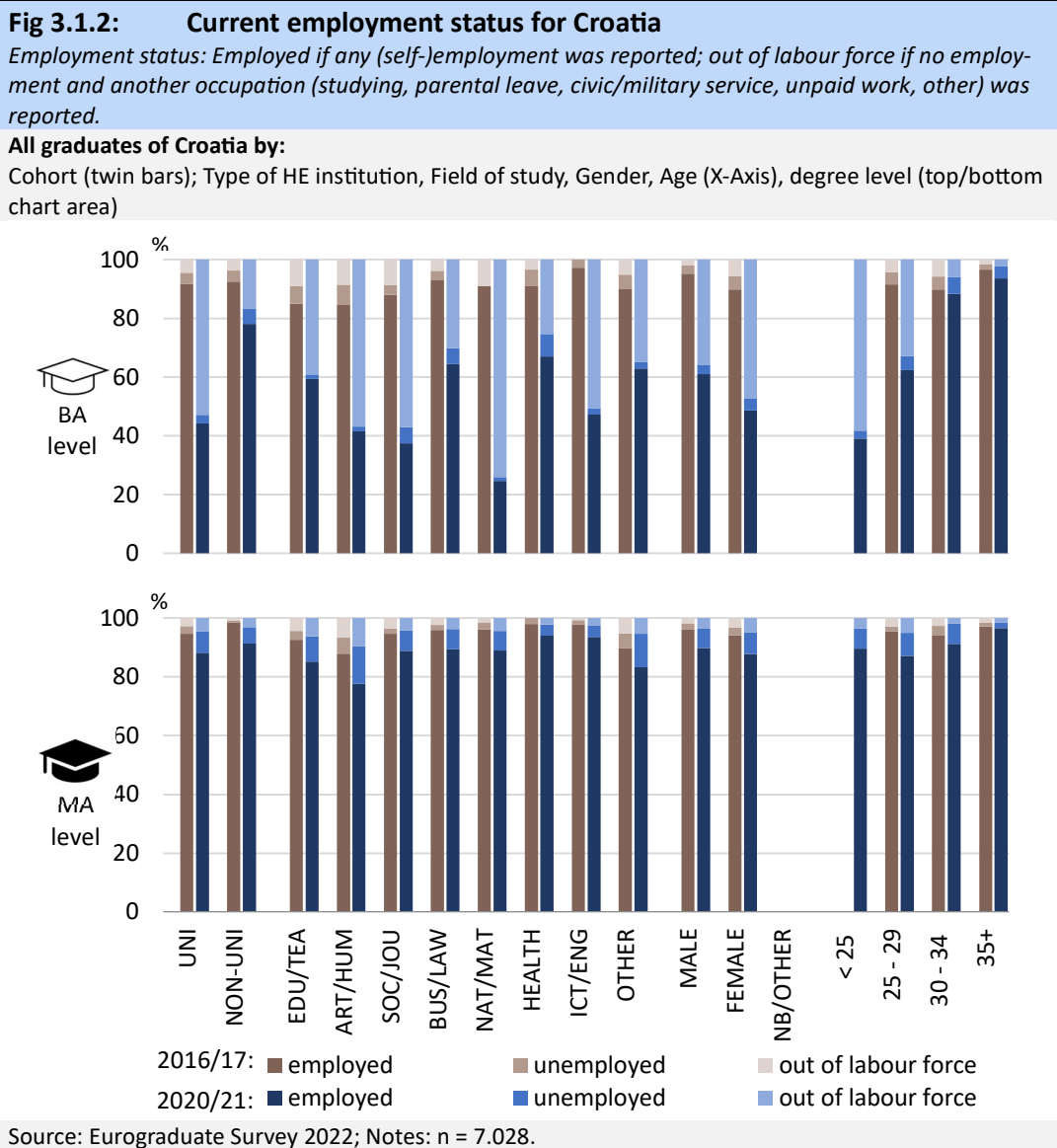
Meanwhile Croatia has since joined the Eurozone and the Schengen area, and all restrictions on employment in EU member states have been lifted. In 2022, Croatia became a country with high demand for low-skilled labour in tourism, construction and trade. Today, the import of foreign labour from Asian countries exceeds 50,000 per year, with the economy growing rapidly with 1.5 million employees. Such a dramatic change in the labour market needs to be taken into consideration when comparing results from 2018 with 2022 for the same cohort graduated in 2016/2017.



Comparing the findings of previous studies with recent findings, it is still evident that the labour market favours the MA-level graduates, albeit under the considerable influence of the current shortage of labour on the labour market (less than 4% unemployment rate). The relatively high percentage of 92% of employed BA-level graduates after five years on the labour market shows a clear shift in the employment of individuals with higher education degrees. However, the fact that only 53% of BA-level graduates are employed one year after graduation, while 43% are out of the labour force due to pursuing MA-level studies, illustrates the impact of further education on employment trends.

The current dynamics of entry into employment for graduates with a Master's degree are significantly different. In the first year after graduation, almost 89% find employment, while over a period of five years the employment rate reaches 95% (2016/17 cohort). During this period, the share of unemployed individuals decreases from 7,2% to less than 2,4% and the number of persons out of the labour force falls from 4,4% to 2,6%. As a conclusion, it is evident that the

high absence of employment of individuals with a Bachelor’s degree is a result of their choices to pursue further education at the master level.



Reviewing the employment status of BA-level graduates from the 2016/17 cohort, it is noticeable that both university and professional BA-level graduates are employed to the same extent (91,8 % compared to 92,5%) five years after graduation. However, there is a difference in their employment status one year after graduation (Rimac et al., 2020): 44,2% of university BA-level graduates are employed, compared to 78,1% of professional BA-level graduates. In addition, 52,9% of university BA-level graduates are out of the labour force, while only 16,6 % of professional BA-level graduates belong to this category.

In this sense, the conclusion emerges that the primary generator of not employed university BA-level graduates is the ambition to continue and complete a Master's degree. This conclusion is further supported by the fact that the final employment rate after five years is equal for professional and university BA-level graduates.

The employment rate of MA-level graduates in the first year after graduation is very high, but slightly lower for university graduates (88,2%) than for professional MA-level graduates (91,3%). The employment rate of the 2016/17 cohort increases by a further 6,5% to 7,2% five years after graduation. This suggests that the employment prospects for both, professional and university MA-level graduates are the same, which is due to the current shortage of labour on the Croatian labour market. However, for BA-level graduates, an important element in describing their employment prospects shortly after graduation is a high proportion of those who continue their studies at Master level within the university sector.

Analysis of employment outcomes by fields of study shows lower employment rates for BA-level graduates from arts and humanities, social sciences and journalism and natural sciences and mathematics. All these education fields require MA degree as full recognition of competences. For employment in profession. Little bit better situation is in mixture fields where there are defined jobs for BA level graduates: in education (BA preschool childcare vs. MA regulated profession of teacher), health (BA nursing vs. MA regulated medical doctors, psychologists, dentist, social workers) and business and law. Therefore, graduates from these fields are, in general, more inclined to continue their education at Master level.

In addition to the general impact on overall employability, the positive developments of the national labour market have had a positive impact on gender equality in employment. Smaller differences result from the unequal proportion of men and women in the fields of arts and humanities (more women) and ICT and engineering (more men). Since the employability of BA-level graduates is still higher in ICT and engineering, while a Master's degree is expected mainly in arts and humanities, this still has an impact on better employment outcomes for men.

Finally, the expected higher employment rate of mature graduates mostly stems from the fact that most of them were already employed before their studies and pursued their studies while working.

3.2 Job security

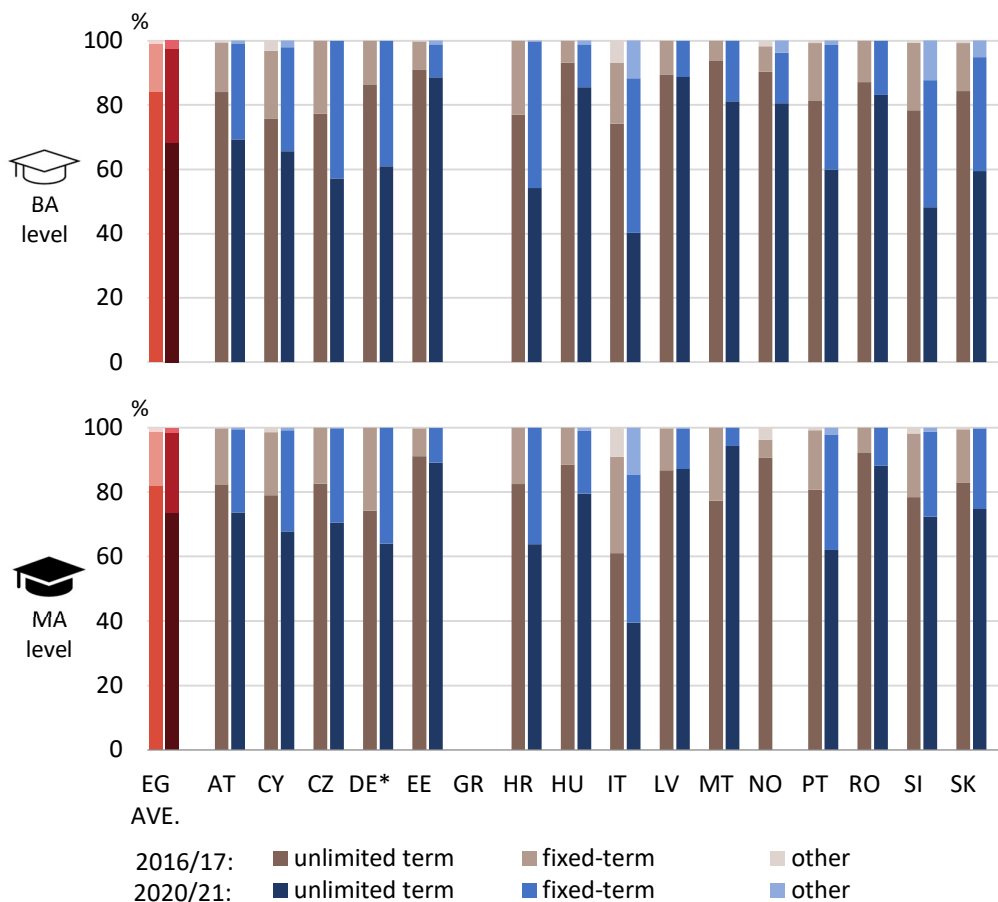
From a legal perspective, Croatia has a high level of protection for workers against dismissal. However, in earlier times, when the demand for labour was weaker, there was a clear difference in the nature of employment contracts dominantly used in the public or private sectors. The public sector mainly employed workers on unlimited-term contracts, while the private sector, adapting to variable market risks, mainly hired on fixed-term contracts in order to avoid some of the benefits granted to workers with unlimited-term contracts in the event of dismissal.

Figure 3.2.1: Job security of current job – international comparison by degree level

Job security: Proportion of graduates in employment in unlimited term contracts, as opposed to fixed-term and other contract types.

Graduates in employment (excluding self-employment) by:

Survey country (X-Axis), cohort (twin bars), degree level (top/bottom chart area)

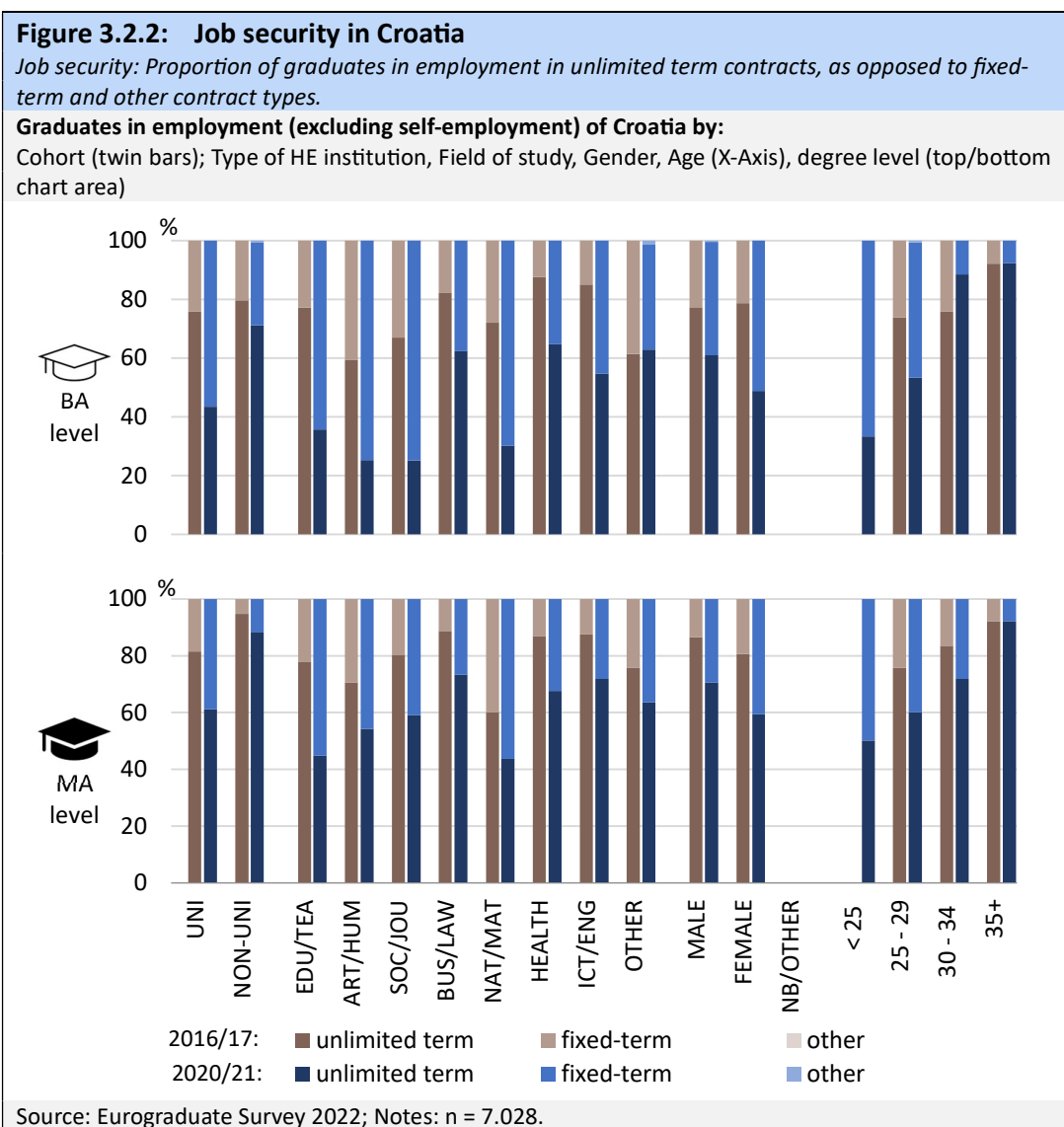


Source: Eurograduate Survey 2022; Notes: n = 171.922; DE: Limited comparability.

The high demand for highly educated professionals has not significantly changed this aspect of employment in the early stages after graduation. In terms of the share of unlimited-term contracts in the 2020/21 cohort, Croatia is at the bottom of the list compared to other countries (63.9 % for MA-level graduates and 54,2 % for BA-level graduates), behind Italy with the lowest proportion of unlimited-term contracts, sharing second and third place with Portugal (for MA-level graduates) and Slovenia (for BA-level graduates). The correlation in the duration of employment contracts with Italy and Portugal is probably due to the seasonal nature of tourism activities in the Mediterranean countries. The precarious situation of BA-level graduates should be attributed to the similar experiences in the transition of the higher education system that Slovenia and Croatia share from the former common state.

Fortunately, the proportion of unlimited-term contracts of MA-level graduates in the 2016/17 cohort, five years after graduation, is much higher (82,6%) and in line with the average of all countries participating in the Eurograduate project. In contrast, the share of BA-level graduates with permanent contracts is still at the lower end of the list, although it is significantly higher

(77%) than in the first year of job search. Evidently, lack of offer on labour market push employers to keep their employees by unlimited time contracts, after period of internship.



The analysis of basic correlates within the Croatian labour market primarily points to a weaker negotiating position regarding employment contracts for BA-level graduates from universities. Employers likely perceive them as having a lower tendency to remain in employment due to the general societal expectation that they will continue their studies at the Master level. It is also possible that their lack practical skills and knowledge that they could immediately apply compared to graduates from professional studies at the Bachelor level.

It is interesting to note that the relatively underrepresented field of natural sciences and mathematics has the lowest proportion of unlimited-term employment contracts. This is linked to another important factor concerning employment in the science and higher education sector,

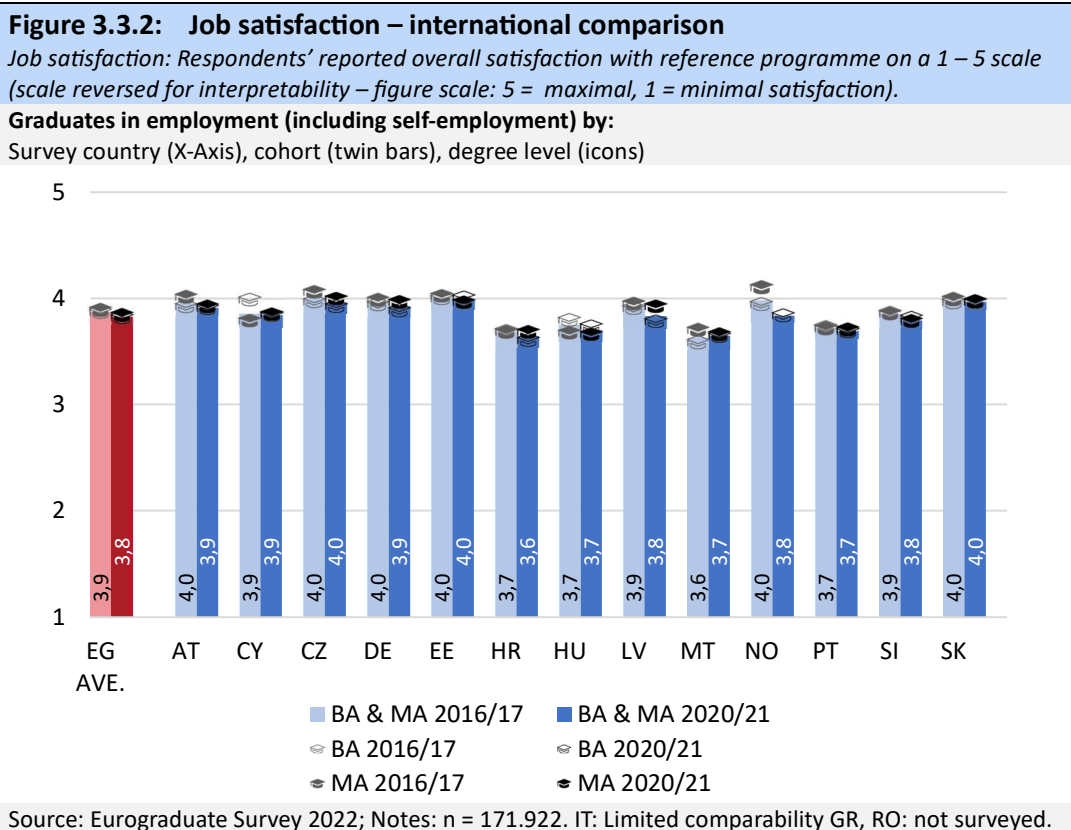
which involves a significantly longer period of employment on fixed-term contracts before being considered for tenure.

As far as gender differences are concerned, it is obvious that men are more likely to obtain permanent employment than women. The primary discriminatory determinant is the expectation of employers that women will use their right to maternity leave in the early stages of their career, taking time off work with full job protection. In contrast, due to existing gender stereotypes, men are not as expected to utilise their right to parental leave.

3.3 Job satisfaction

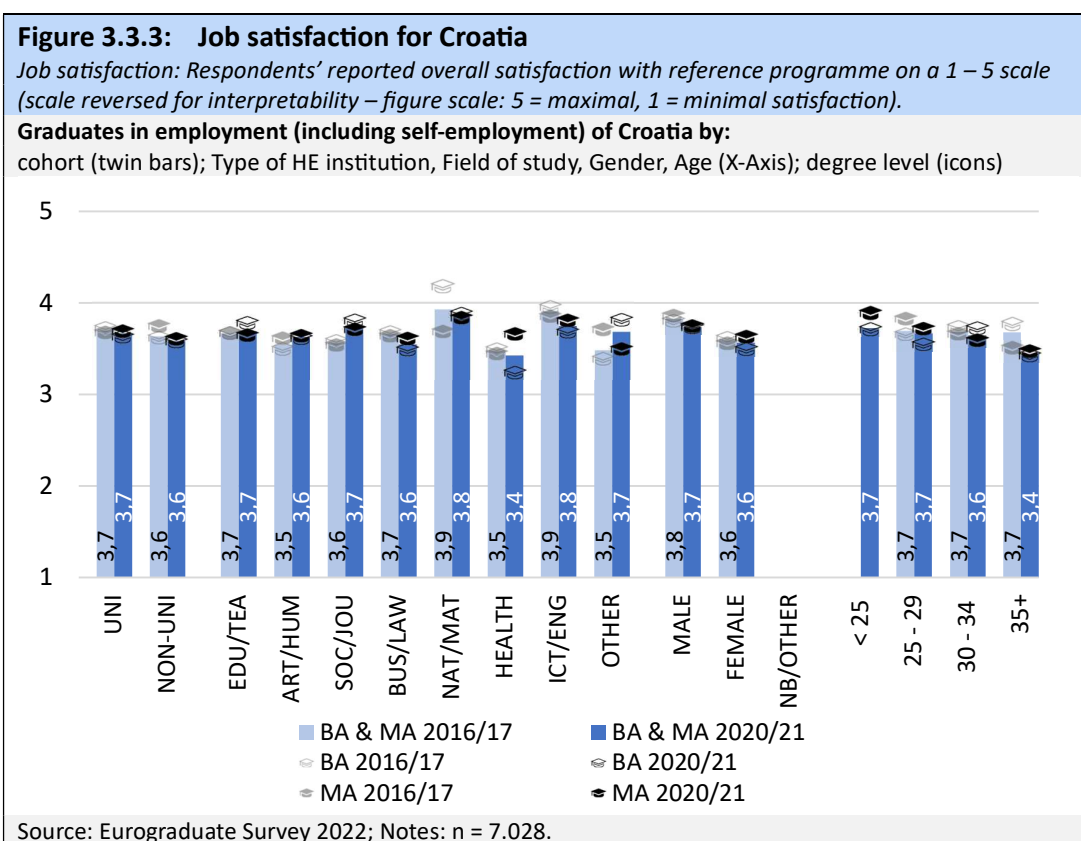
An overview of the satisfaction of graduates with their job, similar to the satisfaction with the study programmes they completed, shows that employed graduates in Croatia have relatively low level of satisfaction compared to the satisfaction of employed graduates in other countries. The average value for the 2016/17 cohort of 3,7 on a five-point scale, with higher values indicating greater satisfaction, and the slightly lower average value of 3,6 for the 2020/21 cohort show that graduates are disappointed with their professional environment.

Comparisons between BA-level graduates and MA-level graduates, regardless of the aforementioned difference in their employment outcomes, shows that the level of dissatisfaction is equally critical among them. In the 2016/17 cohort, the average dissatisfaction for both degrees were 3,7 while in the 2020/21 cohort BA-level graduates were slightly more critical with a score of 3,6 than MA-level graduates whose satisfaction was at 3,7 on average.



An overview of the satisfaction of graduates in Croatia with various aspects of work shows that the highest levels of satisfaction are with working hours (4,0), working conditions (3,9) and work-life balance (3,8). Satisfaction with work environment is also highly valued, although satisfaction with longer working hours is slightly lower (2020/21 cohort: 3,9; 2016/17 cohort: 3,8). Satisfaction with the content of the work and the opportunity to contribute with one's own ideas increases with work experience (content of the work from 3,6 to 3,8; contribution of own ideas from 3,6 to 3,7).

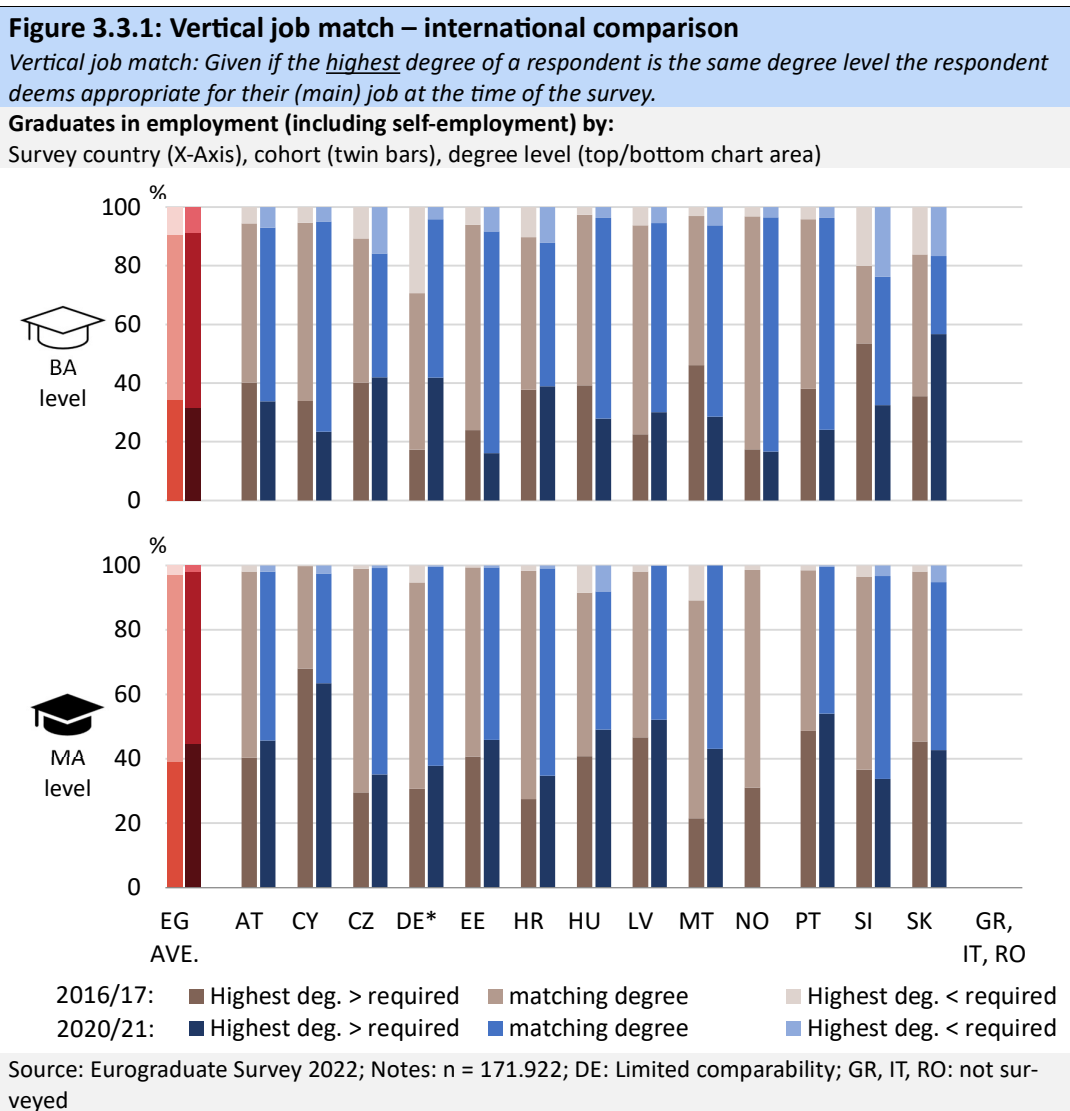
However, it appears that the most important determinant of low overall job satisfaction is related to three components: professional position (3,6 in both cohorts), salary and other benefits (3,2 for the 2020/21 cohort, 3,3 for the 2016/17 cohort) and satisfaction with advancement opportunities (3,2 for both cohorts).



Overall low job satisfaction is present in all comparative subgroups, varying within 0,2 points. Graduates of professional studies are 0,1 points less satisfied than graduates of university studies. Women are less satisfied with their jobs than men, and older graduates are less satisfied than younger ones. Variations among fields of studies show slightly higher satisfaction in the field of natural sciences and mathematics, where there is a shortage of experts, as well as in the growing innovative fields of ICT and engineering. Alarming, low levels of satisfaction are observed among employees in healthcare, where poor working conditions and staff overload in public healthcare have been present for many years.

It seems plausible to conclude that job satisfaction is associated with the receptiveness of economic sectors to specific types of professionals and the expectations that students had regarding their future jobs with the obtained degree.

3.4 Education-employment match (vertical)



Generally speaking, in most countries covered by the Eurograduate project, informal learning plays a minor role in job positions requiring qualifications beyond formal education. About 9% of individuals with a Bachelor's degree are in positions that require a higher level of education, while this percentage is even lower for those with a Master's degree (3% cohort 2016/2017, 2% cohort 2021/2022). The lower percentage among individuals with a Master's degree can be attributed to greater regulation in positions requiring a Master's degree.

On the other hand, it is common for individuals with a higher education degree to perform jobs that require a lower level of education than what they obtained through their studies. Two possible reasons for this are: a higher supply of highly educated individuals in the labour market

compared to demand, and poor career advancement opportunities in jobs after acquiring a higher level of education.

The average proportion of MA-level graduates working in positions requiring a lower level of qualification than a Master's degree is around 45% at the beginning of their career (2020/21 cohort), and this proportion decreases to 39% five years after graduation (2016/17 cohort). The proportion of individuals with a Bachelor's degree in less demanding positions is slightly lower and shows an opposite trend over the observed period: 32% for the 2020/21 cohort and 35% for the 2016/17 cohort. The opposite trend for BA-level graduates reflects the fluctuations in labour market conditions and the low chances of advancement in occupations that require a Bachelor's degree. However, for a clearer understanding of the relationship between labour market conditions and employment in positions above or below the qualification level, it would be necessary to track data on economic activity in specific sectors.

The position of individuals who have obtained a BA-level or MA-level degree in Croatia is generally better than the overall average for all countries. On average, 27,5 % of MA-level graduates have an underrated job compared to 39,0 % of all countries and 70,8 % have a job that matches their qualification (compared to 57.9 % on average for all countries). The position of BA-level graduates is much closer to the average of all countries so that 37,8 % graduates have an underrated job compared to 35,3 % in all countries and 52,0 % have a job that matches their qualification compared to 55,0 % in the overall average. The better position of both groups in Croatia is additionally discussed in the section of professional mobility after graduation.

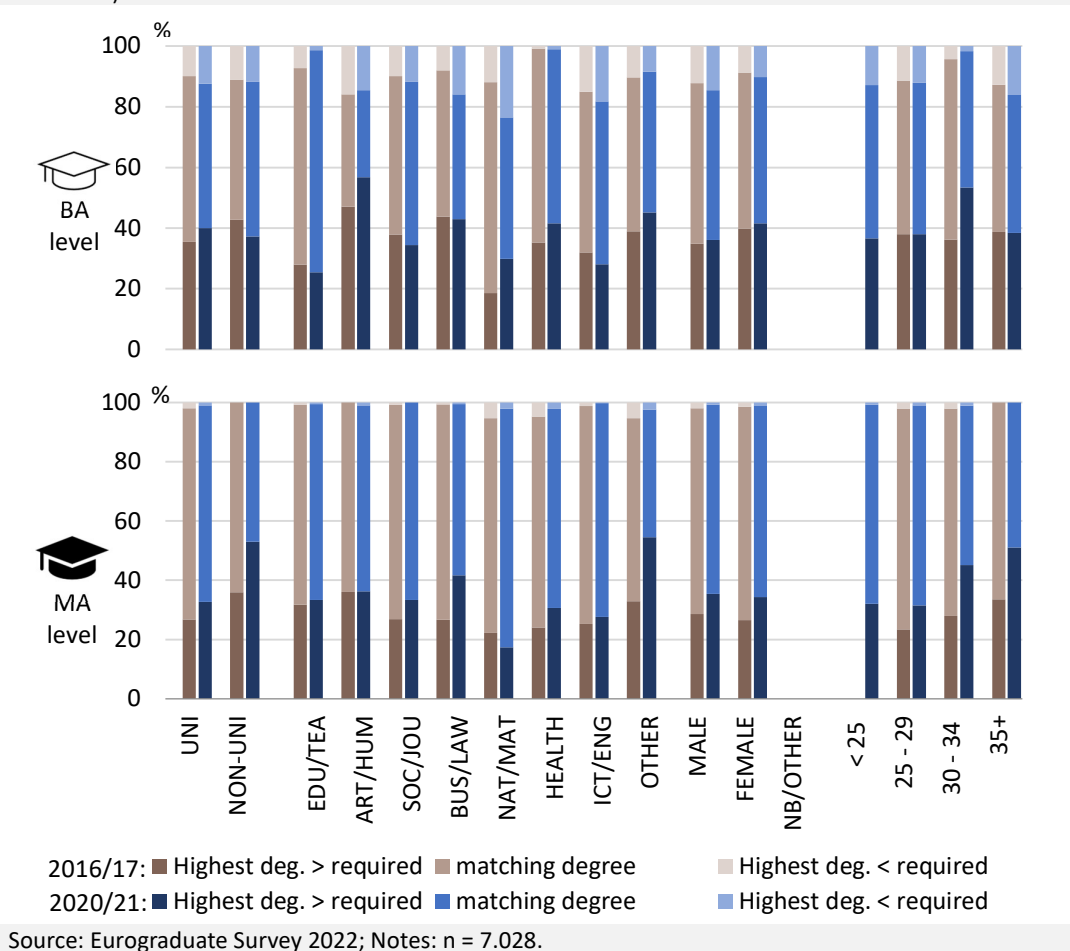
The low level of recognition of Bachelor's degrees on the labour market in Croatia has already been mentioned in the description of the introduction of the Bologna three-cycle structure in the higher education system in Croatia. On contrary, the position of MA-level graduates is much clearer, and it seems that their satisfaction with the job does not stem from working in positions that require a lower level of education, but rather it depends on working conditions and not being possible to use the skills and knowledge acquired with the Master's degree. It is precisely what leads to lower salaries with which employees are not satisfied.

Figure 3.3.2: Vertical job match for Croatia

Vertical job match: Given if the *highest* degree of a respondent is the same degree level the respondent deems appropriate for their (main) job at the time of the survey.

Graduates in employment (including self-employment) of Croatia by:

Cohort (twin bars); Type of HE institution, Field of study, Gender, Age (X-Axis); degree level (top/bottom chart area)



Source: Eurograduate Survey 2022; Notes: n = 7.028.

Analysis of the employment outcomes of BA-level graduates stress the fact that they are largely employed in positions below the level of their degree can be traced down to the origins of the way how the Bologna three-cycle structure was introduced in 2005 (see Section 1.3). In addition to that, professional Bachelor’s degree has not yet been recognised in the labour market to the same extent as university Bachelor’s degree (40% of university BA-level graduates compared to 42,8% of professional BA-level graduates are employed in positions below the level of their degree (2020/21 cohort). The same ratio is observed five years after graduation (2016/17 cohort), where 35,5% of university BA-level graduates and 37,3% of professional BA-level graduates are employed in positions for which a lower set of skills and knowledge would be sufficient.

In entering the labour market after graduation (2020/21 cohort), 32,7 % of MA-level graduates accept an employment in positions below their level of education. Graduates with a professional Master’s degree perform even worse so that 53,0% are employed in positions below their level of education. Five years after graduation (2016/17 cohort), university MA-level graduates

are employed in only 26,8 % of positions below their level of education, while professional MA-level graduates are slightly better off than professionals with a Bachelor's degree (36,0 %).

Therefore, it can be concluded that 4 out of 10 BA-level graduates are employed in positions below the level of their education, and very few progress in their careers as only 5% change their status to a vertically aligned employment. University MA-level graduates end up in suitable positions in 3/4 cases, while their starting position, mostly conditioned by internships in regulated professions, is 6% worse. In contrast to university MA-level graduates, the initial position of professional MA-level graduates (cohort 2020/21) is extremely poor, with more than half of them being unable to find a job suitable for their level of education, and even after five years in the job market, they remain 10% points worse off than university MA-level graduates who stay in positions below the level of their completed education (36%).

Comparison between men and women regarding employment in positions that match their qualifications does not show significant differences but still demonstrates the relationships between university and professional education and the differences between Bachelor and Master level of qualification. However, age differences indicate that the proportion of mismatched employment for BA-level graduates remains at the same level regardless of the age at graduation, while for MA-level graduates, there is a clear trend of increasing alignment among younger graduates.

Regarding fields of study, a clear deviation towards better alignment is only noticeable among MA-level graduates in fields where there has been a long-standing shortage in the labour market: healthcare, natural sciences and mathematics, as well as engineering and ICT.

4 Mobility after graduation

Croatia became a member of the EU on July 1st 2013. This opened up the possibility of free movement of labour between Croatia and other member states. From the date of accession until the final end of the transition period, the individual member states gradually lifted the restrictions on the employment of Croatian nationals until they were finally lifted completely on June 30th 2020.

During the transition period, there was growing concern among the Croatian public that an increasing number of citizens with higher education would migrate to other EU Member States that offered higher salaries or where there was a shortage of certain skilled labour. In contrast to the 1960s and 1970s, when a larger number of low-skilled workers migrated mainly to Germany's growing economy, this trend now caused concern, unlike the previous guest worker model in earlier decades.

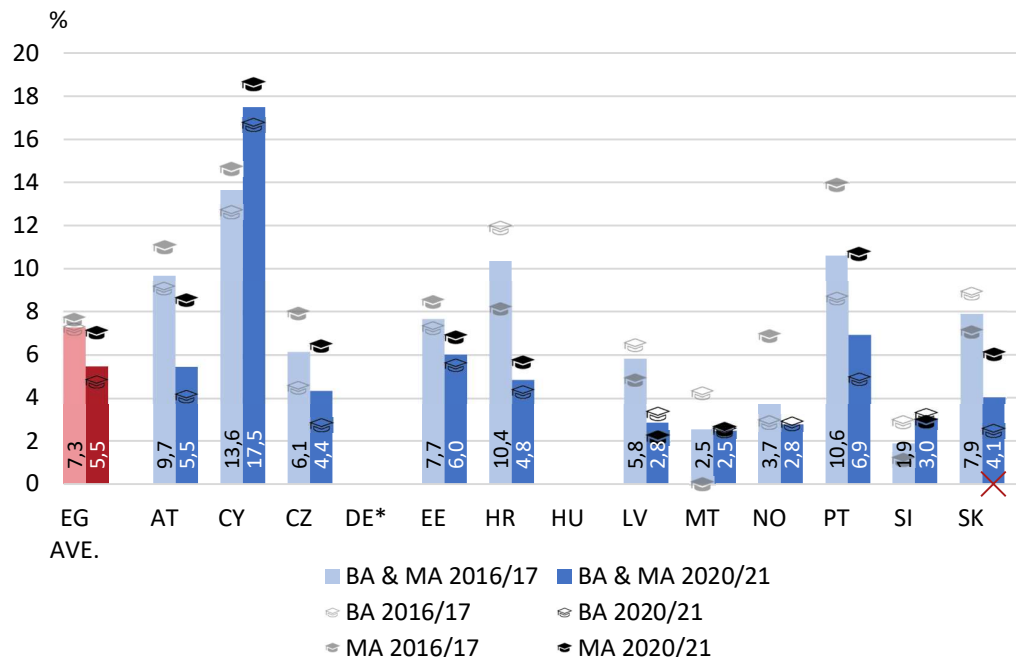
The 2021 census revealed that the Croatian population has decreased by 413 thousand inhabitants, dropping from 4.30 million to 3.87 million citizens. The basic depopulation trend is related to the ageing of the population and the natural decline in the number of older inhabitants. However, there is also a visible lack of younger population groups in regions with limited employment opportunities, especially in the Pannonian Croatia region.

Figure 4.1: International mobility of graduates after graduation – international comparison

International mobility: Graduates who lived in the survey country during their reference programme and in another country when they answered the survey, as proportion of all graduates.

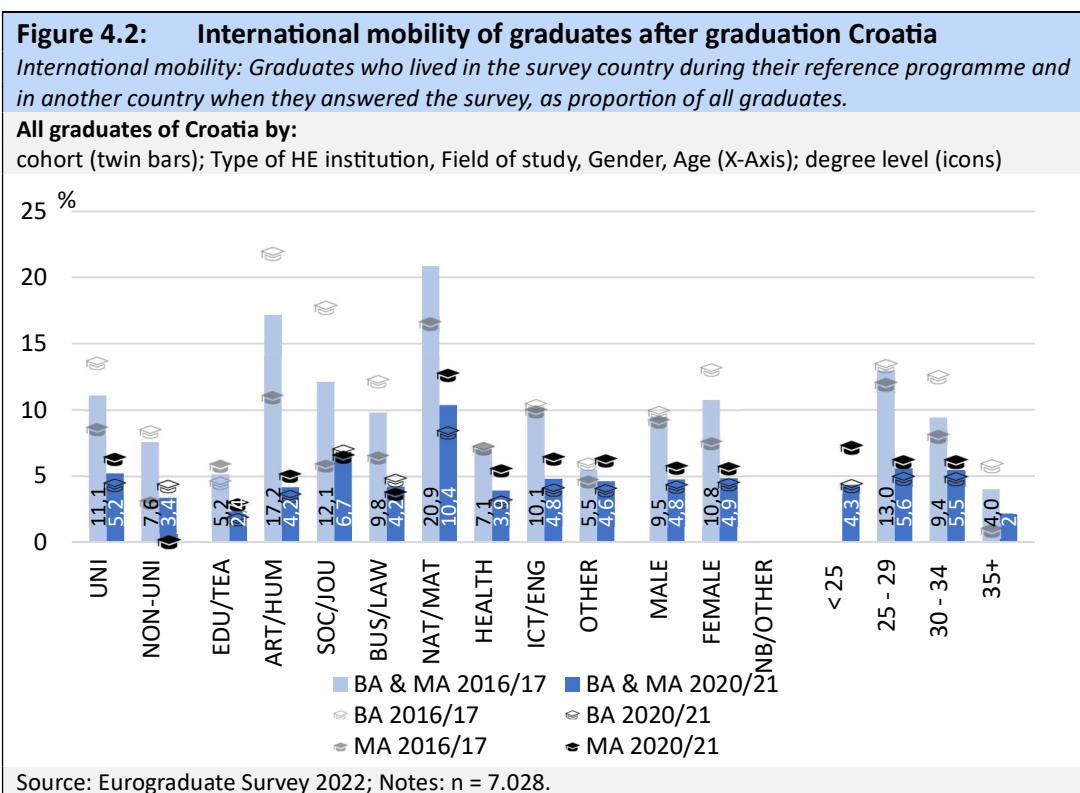
All graduates by:

Survey country (X-Axis), cohort (twin bars), degree level (icons)



Source: Eurograduate Survey 2022; Notes: n = 171.922; DE,GR,IT,RO: not surveyed

Croatia shares a similar pattern with Portugal in terms of the number of emigrated graduates (Croatia: 2016/17 10,4%, 2020/21 4,8%; Portugal: 2016/17 10,6%, 2020/21 6,9%). Comparing Portugal and Croatia with countries experiencing higher rates of migration of highly educated graduates, it should be noted that only Cyprus has a higher migration rate. Cyprians primarily migrates to Greece, country with which they share the same language and culture. Both Portugal and Croatia experience migrations to countries where there are higher transition costs in adjusting to work and living conditions. These higher transition costs are evident in the later decision to migrate, unlike Cyprus, which has a higher proportion of early migrants immediately after obtaining their degree.



The structure of migrants is strongly dependent on the field of education. For example, migrants are least common in the field of education (2,4 %, in the 2020/21 cohort; 5,2 % in the 2016/17 cohort), as this field is strongly linked to the national context, language and culture. In addition, BA-level graduates are more prevalent among migrants with degrees in arts and humanities (4,2% in the 2020/21 cohort; 17,2% in the 2016/17 cohort), social sciences and journalism (6,7% in the 2020/21 cohort; 12,1% in the 2016/17 cohort) and business and law (4,2%, in the 2020/21 cohort; 9,8% in the 2016/17 cohort). The dominant group of migrant MA-level graduates is from natural sciences and mathematics (10,4 in the 2020/21 cohort; 20,9% in the 2016/17 cohort), health studies (3,9% in the 2020/21 cohort; 7.1% in the 2016/17 cohort) and engineering and ICT (4,8% in the 2020/21 cohort; 10,1% in the 2016/17 cohort).

It is evident that language barriers continue to be a problem in this group, which requires a lot of communication with clients. As described in section 2.2 of this report, student mobility is well below average (3% for Bachelor and 9% for Master level programmes), so the difficulties of communicating in another language are just as noticeable for graduates in Croatia at the start of their careers as they are during their studies. A comparison between the type of institution awarding degrees shows that the migrants are mainly university graduates, while an analysis of the age structure shows, as expected, a significantly higher mobility among younger graduates.

5 Importance of democracy

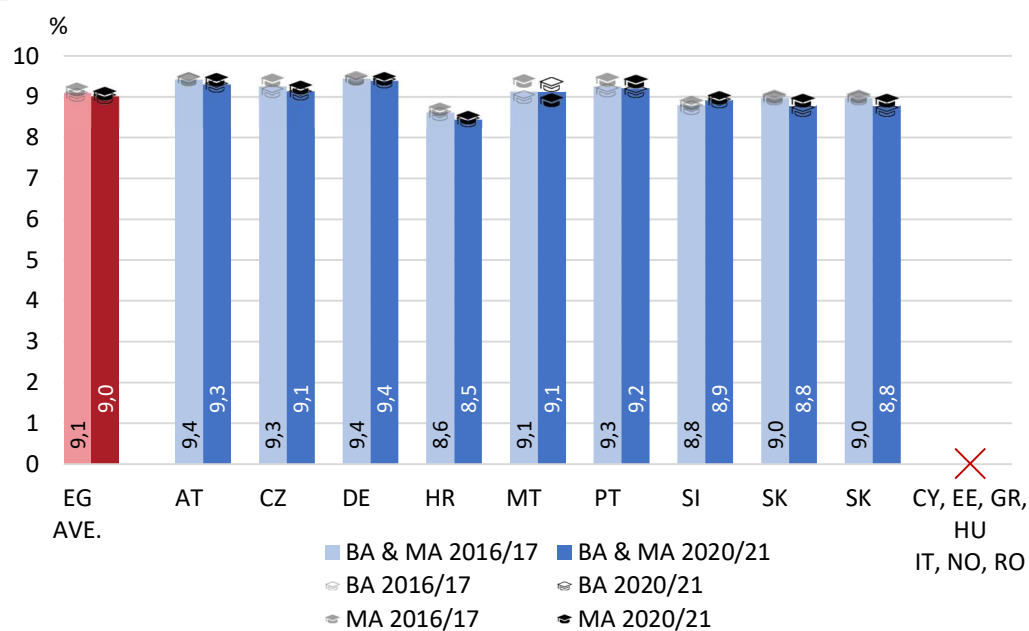
One of the expected outcomes of education is socialisation of individuals and the development of a civil democratic culture. Attitudes towards democracy, participation in social decision-making processes, and engagement in solving societal issues should be proportional to the level of education. Therefore, it is expected that in democratic societies, highly educated citizens will have a developed awareness of their role in shaping and changing society in line with their high level of education.

Figure 5.1: Importance of democracy – international comparison

Importance of democracy: Response to “How important is it for you to live in a country that is governed democratically?” on a 0 (not at all important) to 10 (extremely important) scale.

All graduates by:

Survey country (X-Axis), cohort (twin bars), degree level (icons)



Source: Eurograduate Survey 2022; Notes: n = 171.922; CY,EE,GR,HU,IT,NO,RO: not surveyed

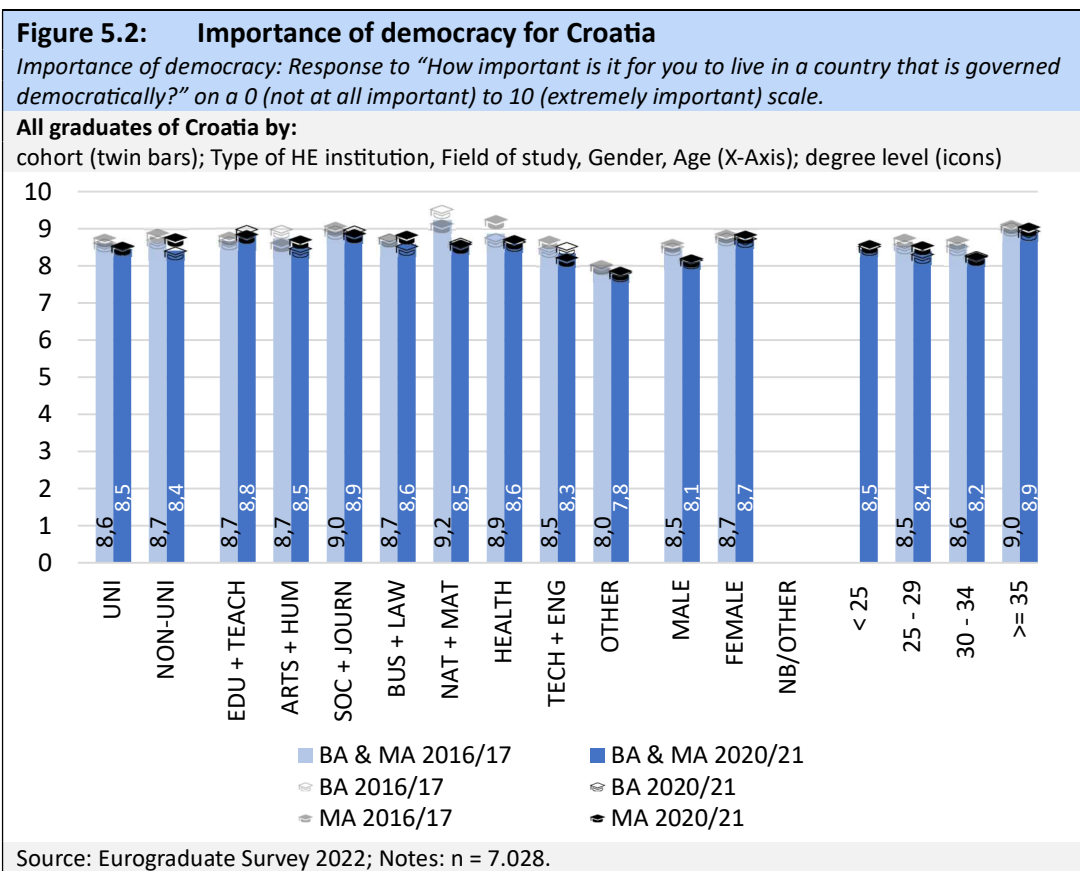
The orientation towards democratic values shows a high awareness of the importance of democracy for the lives of citizens. The overall average for all countries involved in the Eurograduate project is 9,1 on a scale of 0 to 10 for the 2016/17 cohort and 9,0 for the more recent 2020/21 cohort. The high level of support for democracy has not been undermined by measures against the Covid-19 epidemic, which include restrictions on individual freedom of movement and contact with others to prevent the spread of the pandemic.

However, attitudes towards democracy and trust in the institutions of the democracy depend primarily on the assessment of current holders of public political office. Therefore, a generally favourable attitude towards democracy often varies from country to country and reflects the performance of the current government, parliament and other actors within the democratic system (Rimac & Štulhofer, 2004).

In this regard, Croatia exhibits the lowest values in the evaluation of the importance of living in a democracy, with a score of 8,6 for the 2016/17 cohort and 8,5 for the 2020/21 cohort. It

should be emphasised that this result does not cover the entire sample of Eurograduate graduates, as the block of questions on democratic values was optional only for those respondents who agreed to answer questions on democratic values. The process consent was included in the questionnaire in Croatia due to numerous and strong reactions in the previous Eurograduate pilot project in 2018, where it was perceived as another disguised survey of public political opinion.

We therefore assume that the average attitude towards the importance of democracy is even lower than measured because participants who were not willing to comment on these issues were not included in the measurement.



An analysis of the individual key groups shows no significant differences in attitudes according to gender, age or type of higher education. In order to explain attitudes towards democracy, it is therefore necessary to analyse the individual components of attitudes that were measured in the block on civic participation.

Graduates from both cohorts exhibit similar patterns of attitudes towards civic participation and democratic values: they express themselves as fairly satisfied with their lives (6,6-6,9 on a scale of 0 to 10), but do not show much trust in others (4,8-5,2 on a scale of 0 to 10). The degree of trust in others indicates a relatively weak social network and an orientation towards the private sphere.

Interest in politics is relatively high (3,4-3,5 on a scale of 1 to 5), but citizens' perception of their influence on politics (1,8-1,9 on a scale of 1 to 5) and individual participation in politics (2,2-2,3 on a scale of 1 to 5) are very low, indicating a closed nature of political elites.

It was therefore to be expected that certain forms of political participation by citizens are mainly focussed on protests (47-51% have signed a petition, 31-43% have participated in boycotts), while affirmative forms of participation are very rare (contact with politicians 12-19%, donations to political parties 5-8%, working in political parties 5%, displaying political symbols in campaigns 5-7%). Active participation in demonstrations is relatively uncommon (13-16%), but engagement in social media is more widespread (20-26%), as is volunteering, which in this case is not necessarily political and occurs in around a fifth of graduates (29-22%).

Overall, political engagement can be described as a fragmented, atomized mass society with limited civil contacts, showing strong criticism towards political elites and little potential to build a society with greater trust in democratic institutions.

In terms of the political sphere, attitudes towards climate change are much more positive and the level of active participation is significantly higher (4,0-4,11 on a scale of 1 to 5).

6 Limitations of Eurograduate in Croatia

Before the Conclusion it is good to mention some limitations of implementation of Eurograduate project in Croatia which are necessary prerequisite to final conclusions.

Interview based survey depend on willingness of potential respondents to participate in survey. Picture that we have from self-selected sample is valid copy of the target population, especially if it is checked to proportions in population and corrected by calibration. But if self-selection of respondents has some visible systematic distortion it is necessary to have it on mind during interpretation of results of survey data. Contact data for target cohorts of graduates in Eurograduate are from higher education institution collected on time of graduation. E-mail addresses are not connected to place of residence, but changes in professional positions do influence which e-mail box do person check on daily basis, and which one is seldomly or never checked. This aspect of availability of contacts does influence our data in two ways – respondents from older cohort are less reachable, and more important graduates that work outside country of graduation are less visible. Smaller sample was calibrated to proportions of population in the same way as larger sample, but proportion of graduates who left Croatia in period between graduation and survey is unknown on population level and sample was not balanced in share of “domestic” and migrant graduates. This limitation left necessity to extend our conclusion beyond data with certain risk of guessing.

Other limitation is strictly tied to number of respondents in sample. Due to care of individual disclosure on basis of published results, some interesting topics covered by initial scope of project were limited due to very small subgroups in sample. In Croatia, like in some other participating countries, it is connected to relatively small population of graduates, and especially detailed fragmentation of study programmes (over 1.300 study programmes). This fragmentation

has effect on of study programmes, within country change of place of living, type of employment etc.

Third last limitation relevant for conclusions are dramatic change of conditions in study and labour market from 2018 when we collect data in Eurograduate pilot project and time when we surveyed graduates in this project. These changes include: changes of teaching methods during Covid lock-down, recovering from financial crisis traces in 2018 and war in Ukraine and inflation in EU. None of these influences could be explicitly tracked in survey data.

7 Conclusion

Higher education in Croatia is dominantly tailored as university-based studies with orientation on academic disciplines (83% graduates are from universities). Dominance of academic disciplines has reflection of modes of teaching in which purely lecture style is still most dominant method (approx. 60%) with inclusion of problem style approach as subdominant mode. Very small percent of students do have experience of study outside own study programme, either abroad or in different types of learning or education surrounding. Same applies to working experience during study connected to subject of study.

Configuration of study profile put the weight of adaptation to real professional environment on graduates and employers, much more than on higher education institutions.

Labour market in Croatia pass dramatic changes during period from 2018 to 2022. In 2018 there were still visible traces of financial crisis, especially in high rates of unemployment (18-20 pct in that period). Between 2018 and 2022 Croatia gain three strong benefits from EU membership: falling of barriers for employment of Croatian citizens in other member states, entering Schengen zone and accepting Euro. All these benefits were important factors in rise of economy but had influence on movement of labour force mostly from Croatia to other member states.

In time of survey unemployment rates for graduates were about 2 pct with extremely low "out of labour force" graduates. In the same time number of imported workers, mostly for lower educated part of employees, rises in few last years to 10 pct of total labour force in Croatia.

It is possible that some of graduates left country and lower unemployed shares, but import of workers definitely argument conclusion rise of economy.

In such shortage of offer on labour market, weaknesses of higher education were tear off, but some other effects are present. Most of them are subjective in nature: less satisfaction/unsatisfaction of wares, types of tasks and underrated complexity of tasks in comparison to level of education are primary complains. Most of them could be connected to higher expectation and less preparation for real working environment, but some of them are real weaknesses of organizational and working culture in restructuring economy which still do not overpass some of non-market economy characteristics.

As been mentioned before in limitations of data, detailed analysis of migration to other EU member stated is limited in scope, especially in aspect of tracing motives of pull and push factors to move. The same objection is related to internal moves within Croatia.

Finally, we can conclude that everything looks nice in the period of prosperity, weaknesses irrelevant today could become relevant and important in the time of crisis.

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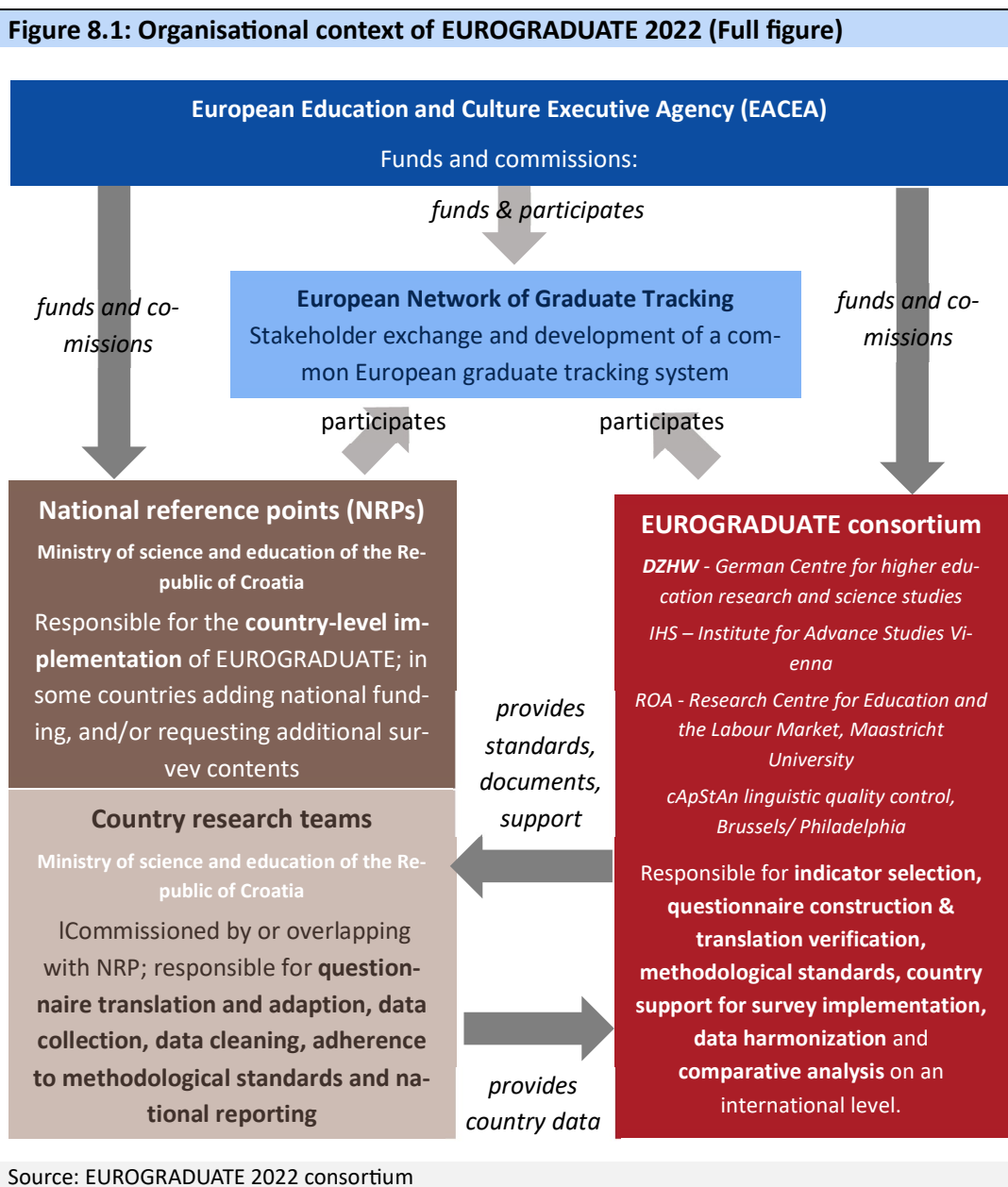
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9 Appendix

9.1 Organisational context of EUROGRADUATE – extended



9.2 Fields of study: Correspondence of dataset categories, report categories, and ISCED fields

Report categories (8-cat)	EG Field of study (survey categories)	Corresponds to ISCED fields
OTH - Other	0 Generic and unknown	00; UNK
EDU/TEA - Education and Teacher Training	1 Education Science	0110, 0111, 0119, 018
	2 Teacher Training	0112, 0113, 0114
ART/HUM - Arts, Humanities, Languages	3 Arts	021
	4 Humanities	020, 022, 028, 029
	5 Languages	023
SOC/JOU - Social Sciences, Journalism, Psychology	6 Social sciences, journalism and information	0310, 0311, 0312, 0314, 0319, 032, 038, 039
	7 Psychology	0313
BUS/LAW - Business, administration, law	8 Business and administration	040, 041, 048, 049
	9 Law	042
NAT/MAT - Natural sciences, mathematics, statistics	10 Natural sciences, mathematics and statistics	05
ICT/ENG - ICT and Engineering	11 ICT	06
	12 Engineering, manufacturing and construction	070, 071, 072, 073, 0, 0732, 078, 079
	13 Architecture and town planning	0731
OTH - Other	14 Agriculture, forestry, fisheries and veterinary	08
HEALTH – Health	15 Medicine, Dental Studies	0911, 0912
	16 Health	0910, 0913, 0914, 0915, 0917, 0919, 098, 099
	17 Pharmacy	0916
	18 Welfare	092
OTH - Other	19 Services	10

9.3 Survey methodology and response details for EG countries

	valid responses 2016/17 cohort				valid responses 2020/21 cohort				Total valid responses	Invited to survey	net response rate	sample/census approach	Contact data source	Field phase start	Field phase end
	ISCED level			Total	ISCED level			Total							
	5	6	7		5	6	7								
AT	-	2.455	3.008	5.463	-	3.450	3.520	6.970	12.433	22.000	56,5%	sample	central	10/2022	01/2023
BG	-	577	751	1.328	-	947	1.331	2.278	3.606	67.734	5,3%	census	decentral	01/2023	02/2023
CY	24	228	272	524	56	340	496	892	1.416	22.159	6,4%	census	decentral	01/2023	04/2023
CZ	-	1.624	1.868	3.492	-	1.980	1.846	3.826	7.318	123.160	5,9%	census	decentral	11/2023	03/2023
DE¹		453	446	899		2.942	2.824	5.766	6.765	50.586	13,4%	sample	central	11/2022	05/2023
EE	-	907	607	1.514	-	1.133	876	2.009	3.523	18.936	18,6%	census	central	11/2022	12/2022
GR	-	2.871	1.942	4.813	-	7.605	2.982	10.587	15.400	78.298	19,7%	census	decentral	11/2022	02/2023
HR	8	578	1.453	2.039	22	2.120	2.847	4.989	7.028	60.938	11,5%	census	decentral	12/2022	02/2023
HU	-	1.749	1.062	2.811	-	2.352	1.633	3.985	6.796	94.891	7,2%	census	central	11/2022	12/2022
IT²	-	5.177	64.225	69.402	-	1.562	1.778	3.340	72.742	186.371	39,0%	t+1 sample, t+5 census	central	01/2022	02/2023
LV	-	366	268	634	-	523	319	842	1.476	19.347	7,6%	sample	central	01/2023	05/2023
MT	23	55	47	125	91	109	99	299	424	15.580	2,7%	census	decentral	03/2023	05/2023
NO	-	1.457	1.745	3.202	-	1.662	-	1.662	4.864	24.343	20,0%	sample	central	12/2022	02/2022
PT	217	4.427	2.776	7.420	467	6.610	3.720	10.797	18.217	138.390	13,2%	census	decentral	11/2022	03/2023
RO	-	332	209	541	-	610	394	1.004	1.545	149.065	1,0%	census	central	11/2022	04/2023
SI	575	789	1.190	2.554	656	898	902	2.456	5.010	24.314	20,6%	census	central	05/2023	07/2023
SK	-	543	1.058	1.601	-	555	1.203	1.758	3.359	42.443	7,9%	Sample	central	11/2022	02/2023

¹ Germany: Results based on national survey, deviating sampling approach (stratified by region, degree level, Type of HEI; clustered by field of study within HEIs).

² Italy: t+5 based on national survey, census approach, surveyed 01/2022 – 12/2022; t+1 based on EG questionnaire, EG sample approach, surveyed 11/2022 – 01/2023