EUROGRADUATE Pilot Study

Key findings
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The world of work is transforming very rapidly, and this trend is expected to be accelerated after the COVID-19 pandemic. Most jobs will disappear by 2040 and will be replaced by new ones. Demand for highly skilled, socially engaged people is both increasing and changing. Education and culture are key to build cohesive societies and to strengthen European identity. The EU’s New Strategic Agenda 2019-2024 seeks to step up investment in education and skills. It is even more important now than ever. It needs to be underpinned by a single European learning space as envisaged in the European Education Area by 2025. To reach this ambitious objective, there is a need to improve data availability to help policy makers in addressing higher education challenges, as described in the renewed EU Agenda for Higher Education, and ensure efficient investment. The recommendation of the EU Council of Education Ministers on tracking graduates highlights that limitations of existing cross-country data make it difficult to draw conclusions from country differences and limits mutual learning.

As a response, the European Commission launched a pilot survey in eight countries (Austria, Czechia, Croatia, Germany, Greece, Lithuania, Malta and Norway) with the intention to lay the ground for sustainable European wide graduate research. The results of the survey are presented here in a comparative study, which is complemented with eight national reports focusing on specificities in the surveyed countries.

The pilot survey in these eight countries comprises surveys of four distinct types of higher education graduates carried out over the period October 2018 – February 2019. Close to 21,000 Bachelor-level graduates and Master-level graduates from two graduation cohorts were interviewed – the academic years of 2012/13 and 2016/17.

Unlike most graduate tracking surveys, the EUROGRADUATE survey covers all three different aspects higher education prepares graduates for: sustainable employment, their personal skills development and active citizenship. It provides information on the way graduates were taught during their higher education studies, their mobility experience and spatial relocation patterns, their self-perceived skills level and how much they use those skills in their jobs. This allows for a new type of analysis, so far not possible in existing graduate surveys: which educational experiences lead to the best results on the labour market, and best prepare graduates to become active citizens? What are the country differences in labour market outcomes?

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1. EC (2017), Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on a renewed EU agenda for higher education COM/2017/0247 final
2. EC (2017), Council Recommendation of 20 November 2017 on tracking graduates (Text with EEA relevance.)
3. For Germany, the cohort 2012/13 was covered by a sub-sample of the national graduate survey. Therefore, not all aspects were covered in it.
4. Promoting the relevance of higher education (DG EAC, 2019)
This study provides a unique opportunity to compare graduates' journeys from education to the labour market and active life as citizens in different European countries. It gives a European perspective on the relevance of higher education for policy makers, the wide public and researchers.

0.1 Summary of the main findings

1. Preparing graduates for the labour market

A central aim of higher education is to prepare students for a successful transition to the labour market, adequate employment and career development.

   i. Participation in the labour market

Labour market participation and performance on the labour market depends a lot on the situation in the different countries. Youth unemployment rates were, at the time of the study, highest in Greece (39.9%) and Croatia (23.8%) and lowest in Germany (6.2%) and Czechia (6.7%). Nevertheless, the clear majority of graduates surveyed are present on the labour market in all countries.
Graduates’ decisions on whether to enter to the labour market or continue studying depend only partially on the general labour market prospects. It also depends on how they assess their study programme, whether they feel well prepared to start working. Most graduates believe that their studies prepare better for their future career, so they expect better labour market outcomes on a mid-term perspective.

In Austria, Czechia and Germany, Master graduates felt better prepared (more than 12% higher) for the labour market than Bachelor students. There are also clear differences between the fields of study: Technology and engineering graduates and Natural sciences and health graduates are the ones mostly satisfied with the adequacy of their study programme with the world of work, as compared to other fields (40% and 20% higher, respectively).

The way knowledge was acquired also matters in preparation for the labour market. Graduates who were confronted with an activating learning environment (e.g. problem-based or project-based learning environment) were four times more satisfied with the way their study programmes prepared them to start to work than those who were left to study alone. Graduates studying in work-related learning environment (e.g. internships or work experience as formal part of the curriculum) also felt better prepared for the labour market (their satisfaction rate was 50% higher).

Graduates are most satisfied with higher education preparing them for entry into the labour market when:

- they studied in an activating learning environment or were exposed to work-based learning
- they have a degree in technology, engineering, natural sciences or health
ii. Finding matching jobs

When graduates enter the labour market, it is important that they find a job that matches their qualifications. Graduates who are unemployed or employed in a position that does not require higher education qualifications (vertical mismatch) or are employed below their qualification and in a different field (double mismatch) are considered to be in a particularly difficult situation. They face skills depreciation and they earn significantly less (according to survey data, graduates earn 13% less in a vertical mismatch situation, and 18% less in a double mismatch situation, compared to those who are employed at their degree level and in their field of study).

Fig. 3 Graduates at risk, MA-level graduates, cohort 2016/17 (%)

More than 40% of graduates are in a difficult position in Malta, Croatia, Lithuania and Greece one year after graduation. Five years after graduation (cohort 2012/13), it is still the same countries where graduates are most at risk, although in most countries the situation is improved: less graduates are unemployed or employed below their degree qualifications (by approximately 10%) with the exception of Greece, where unemployment decreases while mismatched jobs increase.

Among personal characteristics, coming from a disadvantaged background (i.e. no higher educated parent) increases the chance of not having a matching job after graduation (20% higher). The effect is stronger in Croatia and strongest in Lithuania and Germany. This finding implies that social inequality in skill mismatch is not equal across countries. It is much more likely for graduates in Germany, Lithuania and Croatia to depend – aside from their own abilities, their field of study, their study-related work experiences etc. – on their parents’ support in order to find employment that meets their qualification level.

Further analysis of the data confirms that graduates from Technology and engineering, Natural sciences and health fields are more than 20% less likely to be in a weak position. Study-related work experience also decreases almost by 50% the probability that a graduate end up in a problematic work-related situation after graduation.
iii. Employment quality and earnings

Quality employment also means satisfactory working conditions and earnings. About 4 in 5 graduates in each country have a permanent contract five years after graduation. This is a significant increase compared to one year after graduation in Croatia (less than 50%), Germany and Austria (less than 60%). Apart from country differences, the highest share of permanent contracts are among graduates of Business, administration and law and Technology and engineering. Male graduates are generally more likely to have permanent contracts than female graduates (difference varies between 1% in Norway and 21% in Germany).

Earnings differ significantly by country (with graduates working in Germany and Norway registering double the gross earnings than those in Croatia). Master graduates record higher earning than Bachelor graduates (except in Germany, where Bachelor graduates earn 4.5% more one year after graduation), with the highest premium recorded in Greece for MA studies (53%). In all countries, one year after graduation, the highest earnings are paid to Technology and Engineering graduates and the lowest to Education, arts and humanities graduates (the average difference is more than 20%). The hourly earnings of male graduates is significantly higher: between 10% (Germany and Norway) up to 50% (Lithuania). Previous study-related work experience has a positive effect with an increase in wage premium of 8%.

The survey also permitted the collection of information on general job satisfaction. The highest job satisfaction is observed in Austria, Czechurchia and Germany with shares above 70%. In most countries, the job satisfaction only marginally differs between male and female graduates (cohort 2016/17) with the highest differences in Austria (male graduates +8%-points) and Norway (female graduates +8%-points).
When analysing the characteristics that have an impact on job satisfaction, **50% of graduates report being unsatisfied with earnings**. With respect to **career prospects** and a **good work-life balance**, **40% of graduates are unsatisfied**. After five years into the labour market, only in two countries (Malta and Norway) close to half of the employed MA-level graduates report that their job gives them good career prospects. In contrast to that, in Austria, Czechia, Greece and Lithuania, less than 40% report good career prospects. A good work-life balance seems to be present in most countries in around 50% of the jobs. An exceptional low percentage of jobs with a good work-life balance is found in the MA-level cohort of 2016/17 in Greece. From this group of graduates, only around one in three graduates report that a good work-life balance applies to a (very) high extent to their current job. For all the three aspects - earnings, career prospects and work-life balance - , the dissatisfaction reported is **larger among female graduates** than among male graduates. Female graduates are more likely to feel that **they are doing something useful for the society**. The jobs held by female graduates in generally score in all countries higher with respect to this character with an even staggering difference in 33%-points (Male: 48% / Female: 73%) in Germany. Relative high differences are also found in Czechia, Lithuania and Malta. The strongest negative effect on job satisfaction, however, is lack of **possibilities to learn new things** and lack of **new challenges**; if these factors are missing, graduates are **50% less likely** to report high job satisfaction.

**What other quality aspects affect job satisfaction?**

<table>
<thead>
<tr>
<th>Having a permanent contract is most common for Business, Law and Technology graduates and for male graduates</th>
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<tbody>
<tr>
<td>A stimulating working environment (opportunity to learn more, facing new challenges) matters clearly more for high satisfaction than earning or career prospect.</td>
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</table>
2. Developing high level skills and competencies for the future

The EUROGRADUATE survey provides a unique opportunity to analyse the links between the skills acquired by graduates and the type of their studies and observe how these skills are used on the labour market. Graduates were asked if they received a higher education that provided a good basis to develop their advanced literacy, numeracy and digital skills, as well as social, entrepreneurial and managerial skills. With few exceptions, in all countries, less than half of graduates report that their higher education provided a very good basis for the development of these skills. The few exceptions are advanced literacy skills in Austria and Malta, advanced numeracy skills in Germany, and social skills in Croatia and Lithuania: here, graduates were more satisfied.

i. What influences the development of these skills?

The type of the institution matters: graduates of research universities are more positive about the basis provided for numeracy and ICT skills, while non-research university graduates are more positive about social skills, entrepreneurial and management skills.

The learning environment graduates were faced with during their studies also seems to have a significant effect on their skills development. Activating learning environments with mixed instruction styles (which use problem/project based learning intensively, in which the teacher has the role of instructor, not only a process manager) clearly outperforms all other learning environment types for skills development. Graduates who reported activating learning to be the dominant type of learning were twice as likely to report advanced numerical skills, four times more likely to report a high level of literacy skills and five times more likely to report high social skills.

Work-related learning environments (internships, or work placements as part of the study programme) also proved to be useful especially for the development of entrepreneurial and social skills.

In all countries, less than 50% of graduates reported being exposed to activating learning environments, with MA graduates reporting it more often than BA graduates. In contrast, work-related learning environments were more prevalent for Bachelor studies, but again less than 50% (with the exception of Lithuania).

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5 The survey requested graduates to assess the learning environment of their higher education institutions. Based on the answers, four types of learning environment were identified: self-study style (when the institution provided relatively little support for learning), the classical lecture style (when the teacher talks and student listens), the problem/project-based learning style (when the role of the teacher is more process- than content-oriented), and the mixed style, which relies equally on lectures and problem/project based learning.
Study attitudes also have an effect on skill development: graduates that follow their personal study interest (i.e. thanks to a student-centred learning approach) rather than the standard curriculum are more positive about the basis provided by the study programme with respect to Managerial/leadership skills, Personal development and Building a social network.

What influences skills development at higher education?

Activating learning environments have a clear advantage for skill development.

Study-related work experience improves entrepreneurial and social skills.

Research universities prepare graduates better for ICT and advanced numerical skills, while universities of applied sciences present advantages in social and entrepreneurial skill development.

Graduates who followed curricula less strictly report a higher level of managerial and social skills.

ii. Skills and competencies required by employers

According to the surveyed graduates, field-specific skills, communication skills, team working skills, learning and planning skills and problem-solving skills were required in their professional occupations by at least two third of employed graduates to a high extent. On the other hand, foreign language skills and customer handling skills are required by only about half of employers at a high level, and advanced ICT skills...
(skills going beyond the everyday use of IT, like using professional software) were reported to be required by roughly one third of respondents.

iii. Self-assessment of four key skill domains: Advanced ICT skills, field-specific skills, problem-solving skills and communication skills

Respondents were asked to assess the level of their own skills to see if they matched the requirements of employers. Self-assessment of competencies is to some extent subject to general cultural differences, so simple comparison among countries may be misleading (Norwegian graduates tend to assess their own skills lower, while Austrian graduates assess theirs higher). Male graduates report higher levels of competencies across all competency domains, in line with prior research stating that men rate their own abilities higher than women do.

ICT skills represent the only competence category in which a negative assessment of own abilities is more likely than a positive assessment. Attending a study programme at a research university increases the level of ICT skills. Graduates from the fields of Social Sciences, Health and Welfare and Service report significantly lower ICT skills compared to graduates from Engineering or Natural Sciences.

Fig. 6 Share of graduates reporting high level ICT skills and high level required in the current job, cohort 2016/17

Overall, graduates from different fields of study rate their own abilities rather similarly, which means the overall level of field-specific skills is considered equally high across different higher education programmes. Internships and study abroad experiences during the study period increase the level of field-specific skills. The younger cohort reports much lower field-specific competencies compared to the older, which may be related to less experience on the job. In addition, a significant effect of study programmes that are designed in a more problem-based learning and teaching style can be observed: it increases the share of respondents who report high level competencies by 2%.
The assessment of **problem solving skills** most required by employers shows some clear study-field differences. Graduates from the field of **Education, Natural Sciences and ICT** report an acquired level of problem-solving skills that are **above average**. Beyond differences related to fields of study, **experiences abroad** during the study period increase the level of reported own problem-solving skills.

**Communication skills** are not at all influenced by field of study, but the **length of the studies undertaken** matters: the longer the study duration, the higher the share of graduates with a high level of communication skills. A study programme that is taught in a **language other than the country language** also increases communication abilities. The influence of **social background** is stronger compared to the other domains: graduates from **non-academic** and **immigrant background** rate their communication skills higher. The **younger cohort** reports much lower communication skills.
iv. Matching skills with the needs of employers

The majority of graduates report a **match between the required and acquired competencies**, with reported mismatch (over- or under-qualification) in less than 15% of the cases. The degree of under-qualification is higher in the younger cohort compared to graduates who have already been on the labour market for five years. In most countries the reported mismatch five years after graduation is smaller than 3 percentage points. In Greece, the difference is much bigger: the degree of over-qualification is 9 percentage points higher five years after graduation, while there is a 2 percentage point difference of reported under-qualification one year after graduation. This can be interpreted as a direct consequence of the economic crisis: graduates in Greece were unable to find jobs matching their skills.

Graduates from a **non-academic background** have a greater chance of being employed below their level of **field-specific, ICT, communication** as well as **problem-solving competencies**. Thus, social status matters significantly when finding the most suitable employment. The findings on over-skilling in problem-solving skills reveal strong differences between fields of study; graduates from **Social Sciences, Natural Sciences** and **Agriculture** report an approximately 1.5 higher chance of having problem-solving skills above the required level compared to the reference category **Engineering**.

<table>
<thead>
<tr>
<th>What influences acquisition of high level competences?</th>
<th>Advanced ICT skills are mostly influenced by the field of study (with STEM graduates having an advantage), and the type of institution (with research university graduates reporting higher skill levels).</th>
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<tr>
<td></td>
<td>Exposure to foreign languages and cultures increase problem solving skills</td>
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<td></td>
<td>Social background influences communication skills, but longer study programmes and studying in a foreign language increases abilities.</td>
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<td></td>
<td>Field specific skills are improved significantly if they are taught with a problem/project based method.</td>
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</table>
3. **International mobility**

An important benefit of a comparable European graduate survey is that it can provide information on those *graduates who leave the country* after graduation. Therefore, the EUROGRADUATE survey covered mobility patterns, whether before, during or after graduation, within and outside the country.

i. **Learning mobility**

In total, 13% of the respondents had a study abroad experience. In all countries, apart from Norway, it was through *participation in an EU mobility programme*. The *lowest participation* in any mobility program was in *Greece and Croatia*. Graduates who *financed their studies* themselves reported much *less participation* in mobility programmes, while both parental and grant support increased the chance of studying abroad. The *teaching language* is overall one of the strongest influencing factors in predicting the chance of studying abroad: if courses in the home country were taught in another language than the home-country’s (mostly English), the chance of studying abroad is almost 3-times higher for EU mobility programmes and more than 3-times higher for other programmes.

**Fig. 10** Study experiences abroad, **BA level, 2016/17**

**Fig. 11** Study experiences abroad, **MA level, 2016/17**

Moving to study abroad for *another degree* (after acquiring a Bachelor degree) was highest for *Croatian and Greek* graduates. For a Greek BA graduate, the chance to continue studies in another country is 9 times higher than for an Austrian BA graduate. Obtaining a degree from a *research university* (3 times higher) and having a *study period abroad experience* (2 times higher) also increases the chance to do a Master programme abroad.

ii. **Labour mobility**

There is a clear tendency of leaving from the *not so well-off economic countries* – with *Greece* being the country from which the most people moved abroad. In Greece, graduates of the 2012/13 cohort *were more likely* to leave the country than the younger cohort,
which coincides with the peak of the economic crisis. **Germany and Norway** are the countries with the **lowest share** of graduates who moved abroad after graduation.

**Fig. 12** Percentage of graduates moving abroad and main country of destination

Graduates who had **negative labour market experiences** (e.g., experiences unemployment or where employed in vertical mismatched positions) were at least 15% more likely to leave. If respondents report having experienced (a phase of) unemployment since graduation, their likelihood of moving abroad is 1.6-times higher for the cohort of 2016/17 and even **3-times higher** for the 2012/13 cohort.

On average, **graduates working outside of the country of graduation** earn nearly **30% more** than those who stay in the country. The data shows that moving within the country, compared to not moving at all increases the average earnings of graduates only in **Malta** by approximately 500 Euros per month. In other countries, earning differences for moving within the country were not observed. The **highest benefit from being mobile** by leaving the country of study is for **Greek graduates**. They earn on average 2000 euros more per month if they leave Greece. The opposite effect is observed for **Norwegian graduates**; they lose **almost 2000 euros** of earnings per months by not living in Norway. Except for Germany, where graduates seems to move only if they find a higher quality job, **mobile graduates tend to work at a lower level** than their studies. The analysis confirmed that the main reason of finding a job in a foreign country is labour-market related: study abroad experience during studies is lowest for Greece and Croatia, while graduates of these countries have the highest proportion for degree mobility and, eventually, for finding a job abroad.
4. Democratic values and engaged citizenship

Besides high-level skills, higher education is expected to contribute to graduates becoming active citizens of healthy democracies. Analysing the data shows that characteristics of higher education are in fact significantly connected with social trust, democratic values, political interest, and political participation.

i. Personal satisfaction

Graduates in all countries report satisfaction with their personal situation. There are, however, significant differences among countries on how much graduates trust other people.

Fig. 13 Personal attitudes and values (%) MA level, cohort 2016/17

The results show that male graduates are generally less happy than female graduates are. With age, we observe, that trust given to others grows and graduates with no higher educated parents are less likely to trust others. Those that are unemployed or are working in a job that fits neither their degree level nor their field of study (double mismatch) are significantly less likely to be happy (the likelihood of being happy is half
of the graduates in a matching job), to be healthy and significantly less likely trust others. They are also more negative about immigration and about the European Union.

ii. Democratic citizenship

With respect to the importance for democracy, in all countries, and for both cohorts, at least 80% (and in most cases even more than 90%) of the graduates state that ‘free elections, ‘free opposition’, ‘reliable media information’ and ‘equal treatment by courts’ are crucial for democracy in general. However, there are significant country level differences in the opinions of graduates on how much these apply to their country of graduation.

Fig. 14 Application of democratic aspects (%) in their country of graduation - cohort 2012/13

Graduates from study programmes such as Social sciences and journalism, Education, arts and humanities tend to report significantly higher levels of democratic engagement compared to graduates of other fields. Activating learning environments and international mobility are associated with more political participation, and higher levels of trust in democratic values.

Next to higher education characteristics, differences are found associated with the social background of graduates. Individuals from lower socioeconomic backgrounds report lower levels of trust and less political participation. Fostering activities such as internships, voluntary activities or international mobility among students with a non-academic background could potentially balance existing inequalities in the empowerment of graduates becoming active citizens.
### What affects personal and social outcomes of graduates?

- **Unemployed graduates and graduates who are employed below their level are less happy, less healthy and trust others less.**

- **Humanities and social sciences graduates, graduates who were mobile or exposed to activating learning methods are more democratically engaged.**

- **Graduates with disadvantaged backgrounds report less trust in others, and less democratic engagement. Participation in voluntary activities or international mobility seems to balance out this negative effect.**

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### 5. A look into the future of EUROGRADUATE

The EUROGRADUATE pilot survey aimed at laying the ground for a sustainable European-wide graduate survey. For this end, pilot surveys have been conducted in the eight countries Austria, Czechia, Croatia, Germany, Greece, Lithuania, Malta and Norway. For evaluating the prospects of a full rollout of European graduate survey, the data collection conditions in the Erasmus+ countries have further been investigated.

### Main outcomes and steps forward?

- **The EUROGRADUATE comparative report exemplifies that it was possible to collect comparable data on higher education graduates across eight European countries yielding interesting results relevant to policy agendas.**

- **The feasibility assessment has shown that a full roll-out of a European graduate survey would be feasible in a clear majority of the Erasmus+ systems with available information.**

- **The results of the EUROGRADUATE comparative report lead to the conclusion that a European graduate survey could be initiated and also that it should be initiated in order to address the interests of many Erasmus+ countries in enhancing their graduate tracking capacities by a comparative dimension.**
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