Labour market

2024

EQUITY IN GRADUATE EMPLOYMENT OUTCOMES AND SOCIAL MOBILITY FOR CATALAN ON-CAMPUS UNIVERSITIES

AQU CATALUNYA

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SUMMARY

FOREWORD

Studies on the employability of graduates of the Catalan Higher Education System (SUC) repeatedly show that university studies have a major impact on the employment and quality of employment for graduates. The data on the Spanish labour force, such as those collected by the Spanish National Statistics Institute (INE) in the Labour Force Survey, show that holding a higher education degree significantly favours participation in the labour market. The most recent AQU Catalunya study on graduate employability (2023) also indicates that SUC graduates have an unemployment rate that is very close to what is known as *full employment* (5%).

Given the opportunities offered by universities to access a higher quality labour market, research is important to investigate whether all entrants, regardless of their social background, can enjoy the benefits of having a university degree. Furthermore, evidence should be provided to SUC stakeholders so that they can carry out improvement actions to help everyone to maximise their chances of integration, regardless of their social background. To this end, AQU Catalunya, as a university quality assurance agency, adopts the approach proposed in the Rome Communiqué, a joint document of the ministries responsible for higher education in the European Higher Education Area. This document states that "whenever possible, external quality assurance systems should address how the social dimension, diversity, accessibility, equity and inclusion are reflected within the institutional missions of higher education institutions" (EHEA, 2020, p.7).

This report uses data from the Employment Outcomes Survey coordinated by AQU Catalunya to carry out the analysis. Given that this data is used, the report analyses equity "at exit". Therefore, the results do not allow any assessment to be made of equity of access.

The report is organised into four sections. The first section analyses the breakdown of graduates by social origin, the second investigates whether there are differences by social origin in employment outcomes, the third explores the role of the Catalan university as a social elevator, and the fourth synthesises the results and makes a set of final remarks.

The results presented here are broadly consistent with the results of other studies on equity in employment outcomes by social origin, both in Catalonia and elsewhere. However, the results should be treated with caution. Therefore, the report contains numerous methodological notes. However, having made this consideration, we are convinced that the work carried out is valid and interesting. As such, the report is expected to be an important contribution to the study of equity in employment outcomes according to the social origin of graduates, and we invite the academic community to analyse the data from this survey in greater depth.

Ultimately, we trust that our results will serve to generate reflection and also contribute to the establishment of improvements in the degrees offered by Catalan universities from an equity perspective, with a view to generating equal opportunities in employment. However modest this contribution may be, the analysis you will read below has already fulfilled its objective.

Thank you very much for your interest.

Jaume Valls Pasola, AQU Catalunya Director

TECHNICAL INTRODUCTION

This section briefly outlines key technical aspects of the data analysed in this report, which are taken from the AQU Catalunya Employment Outcomes Survey. Data is analysed for SUC Bachelor's degree or degree-equivalent graduates from on-campus universities.[1] The data analysed is weighted by education and sample unit.[2]

This report uses three main variables to measure the social origin of graduates: parental educational level (PEL), parental occupation level (POL), and social class, which is a variable that combines PEL and FOL and is inspired by the variable used in the *Via Universitària* study (2022). These three variables are explained below.

Parental educational level (PEL)

This is defined as the highest level of education attained by parents and is one of the indicators that, according to the sociological literature, most solidly captures social origin and family income (Breen & Müller, 2020; Sánchez-Gelabert *et al.*, 2019). It includes the following categories:[3]

- Low PEL: the maximum level of education of both parents is primary education.
- Average PEL: the maximum level of education of both parents is secondary education (one or both of them have secondary education).
- High PEL: the maximum level of education of the parents is higher education (one or both of them have higher education).

Parental occupational level (POL)

This variable seeks to capture the occupational status of graduates' parents and is understood as the maximum occupational status of the parents (Fachelli & Planas, 2016). It includes the following categories:

- Management.
- Senior specialist: an occupation that requires university education and in which the functions carried out are of university level.
- Skilled: an occupation that requires the knowledge and experience necessary to carry out a trade.
- Self-employed: independent work that does not require a university education.
- Unskilled.

[1]For more information on the population surveyed, the response rate and the sampling error of the survey, please refer to the data sheet included at the end of this document.

[2]For more information on weighting, see AQU Catalunya (2023). *Technical report of the Employment Outcomes Survey of Catalan University Graduates 2023*. Barcelona: AQU Catalunya.

[3] For ease of reading, this report uses the following nomenclature: 1) Low PEL, 2) Average PEL, and 3) High PEL.

Social class (PELxPOL)

This variable aims to measure the social origin of graduates based on the PEL and the POL. To adapt it to the *Via Universitària* methodology, the POL variable was first recategorised into four categories:

PEL (according to AQU Catalunya)	**PEL (*Via Universitària*)**
Management	High *white collar*
Senior specialist	Low *white collar*
Skilled	High *blue collar*
Self-employed	
Unskilled	Low *blue collar*

Note 1. Generally speaking, the terms white collar and blue collar refer to whether a profession is manual (blue collar) or non-manual (white collar). The distinction between high and low professions refers to whether they are managerial and responsible (white collar) or whether they require qualifications (blue collar).

Next, the PEL variable has been combined in four categories with the POL variable to identify people in the upper-, middle- and lower-classes:

- Upper-class:
  - People with white collar parents and higher education.
  - People with high white collar parents and medium level studies.
- Middle class:
  - People with white collar parents and primary education.
  - People with medium studies and low white collar or high blue collar.
  - People with higher education and blue collar.[4]
- Lower class:
  - People with parents with primary education and blue collar professions.
  - People with medium-level studies and lower blue collar professions.

[4] People with parents with higher education and lower blue collar professions represent a very small part of the sample analysed (3.5% in 2023).

GLOSSARY

- Social class: variable that measures the social origin of the graduates according to the PEL and the POL.
- Occupational quality index (OQI): it is calculated from different indicators (type of contract, job satisfaction, pay and suitability). Values range from 0 to 100: higher values indicate higher occupational quality. For further details, see Corominas *et al.* (2012).
- PEL: Parental educational level.
- AOL: Attained occupational level.
- POL: Parental occupational level.
- Potential parents: the population that corresponds to the typical age range of the parents of a target population. Information on this population is used when information on the characteristics of the parents of the target population is not available.
- Extended sub-field: the second level of the hierarchical classification of university degrees according to their disciplinary proximity produced by AQU Catalunya. For further information, please visit the catalogue website.
- SUC: Catalan Higher Education System.
- Teaching: the most detailed level of the hierarchical classification of AQU Catalunya's degree programmes according to their disciplinary proximity.
- Ownership of the graduation centre: a distinction is made between integrated public centres and private and affiliated centres.
- Non-metropolitan universities: Universities located outside the Barcelona metropolitan area.
- Metropolitan universities: Universities located in the Barcelona metropolitan area.

GRADUATE EMPLOYMENT OUTCOMES EQUITY FOR CATALAN ON-CAMPUS UNIVERSITIES

Breakdown of graduates by social class (PELxPOL)

This section looks at the breakdown of SUC graduates by social class. A detailed cross-sectional analysis is provided of how this breakdown varies by sub-field of degree, location and ownership of the graduating institution, using the variable that calculates social class.[5]

The analysis of this breakdown by degree sub-field is important because of the phenomenon known as *horizontal stratification of higher education*, which refers to the fact that some degrees are more prestigious than others because of the opportunities they offer to students, and how this is reflected in the social class of these students (Triventi, 2013). The choice of degree can also be affected by the social class of students depending on the difficulty of completion, the time commitment required or the selectivity of the entry grade, aspects that have a high equity component (Troiano & Elias, 2013). Degrees that are considered more academically demanding and associated with higher salaries tend to have fewer scholarship holders based on income, as shown in a study by the Secretariat for Universities and Research (now the Department of Research and Universities) (2020). The phenomenon of horizontal segregation is also evident in the choice of degrees according to gender, as shown in previous studies by AQU Catalunya (AQU Catalunya, 2021).

[5] The social class variable synthesises the occupational and educational aspects, combining the values of parental educational level and parental occupational level. This is the variable that best explains the variance in different indicators of employment outcomes of all the social origin variables analysed in this report.

> Breakdown of the graduate population by social class (PELxPOL) according to sub-field of degree, location and ownership of the graduating institution

Strong horizontal stratification of degree programmes in Catalonia: the percentage of high social class graduates varies by 30 percentage points between medicine and biomedical sciences (59%) and social intervention (29%).

- Medicine and biomedical sciences are followed by arts and design and industrial technologies as the sub-fields with the highest proportion of high social class graduates.
- Social intervention, education and languages and literatures are among the sub-fields with the highest percentage of low social class graduates (between 33% and 25%).
- For the five major fields of study, the following can be observed:
  - There is a clear differentiation between medicine and biomedical sciences and all other health degrees.
  - All engineering degrees have more than 46% of upper-class graduates.
  - Only one sub-field of humanities (arts and design) is above 40% of upper-class graduates.
- Interestingly, we find significant differences between the degrees belonging to each sub-field in terms of the distribution of their graduates by social class. Annex 1.1 includes a figure showing the social class breakdown of the education provided in the SUC.[6] Annex 1.2 shows the sub-divisions with the largest differences in the percentage of upper-class graduates by education within each sub-division. For example:

  - Social studies degrees include courses with 70% of upper-class graduates (International Business Management) and others with 26% (Social Work).[7]
  - The sub-fields in which we find the greatest differences regarding the percentage of upper-class graduates are industrial technologies; economics, business and tourism; and ICT:
    - Under industrial technologies, we find that 39% of graduates in Marine Technologies are upper-class, compared to 86% in Textile Engineering.
    - In economics, business and tourism, only one-fifth of the graduates in Accounting and Finance come from the upper-class, while 70% of the graduates in International Business Management are from this class.

[6] Education is the most detailed category in AQU Catalunya's degree classification system.

[7] Social Work has historically been a degree that has provided opportunities for access to people from more disadvantaged backgrounds, both in Spain (Rondón García, 2015) and elsewhere (Hanley, 2019).

Table 1. Breakdown of graduates by social class and by broad sub-field (2023)

Sub-field	Upper-class	Middle class	Lower class
Medicine and Biomedical Sciences	58.5%	29.6%	11.8%
Arts and Design	52.2%	35.6%	12.2%
Industrial Technologies	50.7%	34.0%	15.3%
Communication and Documentation	49.7%	36.2%	14.0%
Architecture, Construction and Civil Engineering	49.2%	32.9%	17.9%
Experimental and Mathematical Sciences	49.0%	34.3%	16.7%
Economy, Business and Tourism	48.5%	35.2%	16.4%
Biological and Earth Sciences	47.2%	35.4%	17.4%
ICT	46.7%	37.5%	15.9%
Agriculture, Forestry and Fisheries	46.1%	35.8%	18.2%
Nursing and Healthcare	40.2%	40.0%	19.7%
Law, Labour and Politics	39.8%	36.9%	23.3%
Philosophy and History	39.2%	39.2%	21.6%
Psychology and Therapy	39.0%	37.4%	23.6%
Education	35.7%	39.0%	25.3%
Languages and Literature	34.6%	41.0%	24.5%
Social Intervention	28.3%	39.2%	32.5%

Legend

Note 1. The broader sub-fields are ordered according to the share of people in the upper social class.

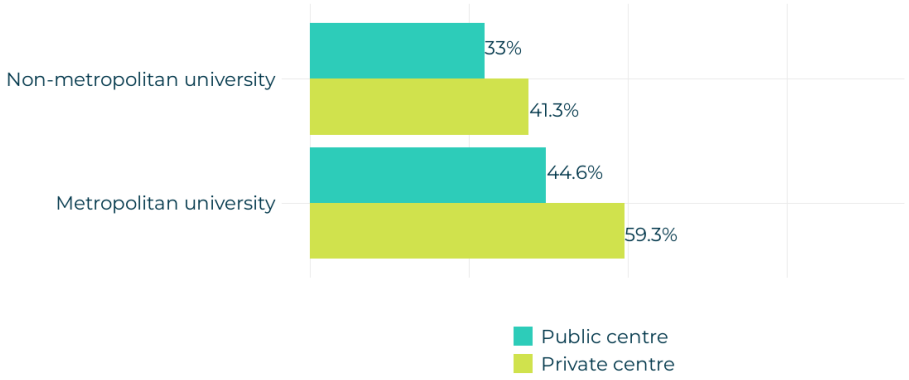
Note 2. A higher intensity of the cell colour indicates a higher value in the corresponding column.

Note 3. The colours of the cells on the left of the sub-fields refer to the five areas of the degrees taught in the SUC.

Metropolitan state centres have a lower percentage of upper-class than private centres. Non-metropolitan centres, regardless of their ownership, continue to have a more equitable distribution of the graduate population.

> Interestingly, centre typologies, whether by location or ownership, are heterogeneous in terms of the courses taught and, as seen above, the typology of studies is strongly linked to the class composition of the student body. As can be seen in Annex 2, public centres, despite having a lower average percentage of upper-class graduates than private centres, offer more engineering degrees, which tend to have a higher percentage of upper-class graduates. There are also degrees taught in private centres that have low percentages of upper social class, such as Occupational Therapy or Nursing.

Figure 1. Percentage of upper-class graduates according to location and ownership of the graduation centre (2023)



Note 1. In keeping with all the analysis in the report, only campus-based university centres are included.

When analysing the social class breakdown of the graduate population by extended sub-field, location and ownership, the non-metropolitan centres continue to have the highest proportion of people from lower class backgrounds, demonstrating their role as institutions of expansion of educational opportunities.

> The sub-field of social intervention in the non-metropolitan public universities is the one with a graduate population from less privileged backgrounds.

> 8 out of 10 graduates in medicine and biomedical sciences from a private, metropolitan university are from upper-class backgrounds.

Table 2. Sub-fields according to the location and ownership of the centre with the highest percentage of upper- and lower-class graduates (2023)

Sub-field	Location	Ownership	
Top 5 sub-fields with the highest percentage of upper-class graduates			**% upper-class**
Medicine and biomedical sciences	Metropolitan	Private or affiliated centre	80.6%
Experimental and mathematical sciences	Metropolitan	Private or affiliated centre	77.3%
Biological and Earth Sciences	Metropolitan	Private or affiliated centre	68.9%
Communication and documentation	Metropolitan	Private or affiliated centre	66.4%
Architecture, construction and civil engineering	Metropolitan	Private or affiliated centre	63.7%
Top 5 sub-fields with the highest percentage of lower-class graduates			**% lower class**
Social intervention	Non-metropolitan	Integrated state centre	38.7%
Law, labour and politics	Non-metropolitan	Integrated state centre	36.3%
Psychology and therapy	Non-metropolitan	Integrated state centre	33.6%
Languages and literature	Non-metropolitan	Integrated state centre	32.9%
Social intervention	Non-metropolitan	Private or affiliated centre	31.8%

Note 1. This table can be read as follows: 80.6% of the graduates of a medicine and biomedical sciences degree from a metropolitan and private university are upper-class.

Note 2. Combinations of sub-fields, location, ownership and social class with a frequency of less than 10 are excluded.

Employment outcomes and working conditions equity

> Employment and types of employment

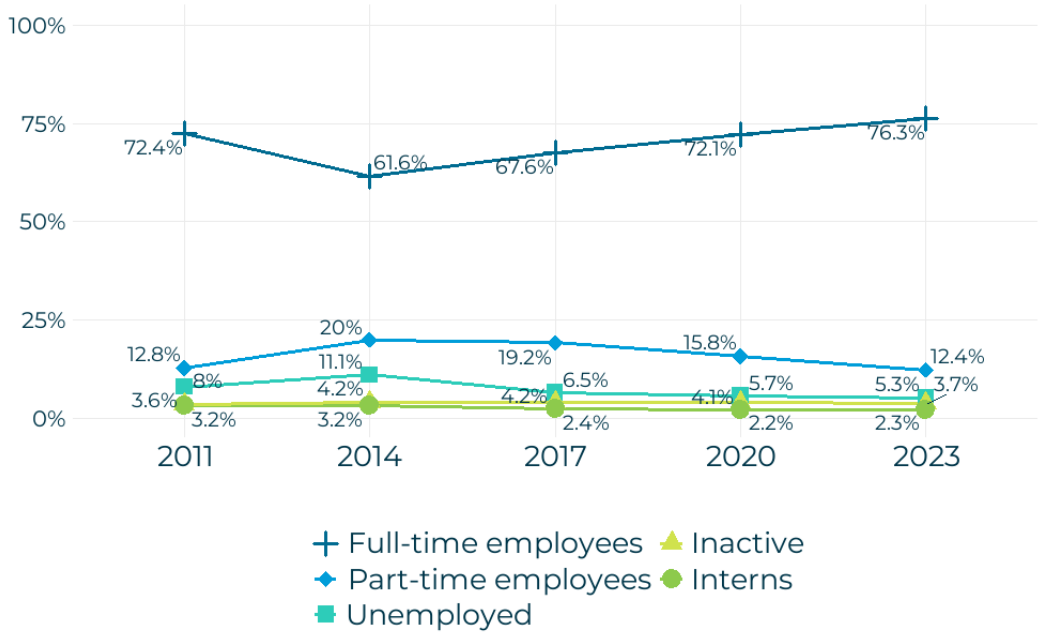
This section investigates whether there are differences by social class between employment three years after graduation and type of employment.

To this end, a single variable is used that measures whether graduates have found a job and whether it is a full-time job, as the researchers Fachelli & Planas (2016) have done. Three years after graduating, this variable indicates whether the graduate:

- was working full-time.
- was working part-time.
- was working as an intern.
- was unemployed.
- was inactive.

By 2023, over 76% of graduates were working full-time, a fact that shows clear signs of recovery from the worst years of the global financial crisis.

Figure 2. Employment trends among SUC graduates



The differences in the percentages of full-time employment between upper- and lower-class people in 2023 are almost zero (1.2 percentage points).

- Over the years analysed, differences are statistically significant, but do not necessarily indicate that upper-class people have better full-time employment than their lower-class counterparts. Moreover, the effect size quantifying the strength of the association between employment and social class is weak.

Table 3. Changes in the percentage of people in full-time employment by social class

	2011	2017	2020	2023
Upper-class	70.4%	69.5%	72.3%	77.7%
Middle class	71.7%	66.8%	71.9%	75.8%
Lower class	75.1%	66.8%	72.7%	76.5%
Overall	**72.4%**	**67.9%**	**72.2%**	**76.8%**
Cramer's V	**0.037*** **	**0.029** **	**0.028** **	**0.022***

Note 1. A ki-squared test has been performed to determine whether there is any association between the variables analysed for each corresponding year. The effect size was calculated for this test (Cramer's V) and in all cases, despite the existence of a statistically significant association, the effect size is weak (Cohen, 1988).

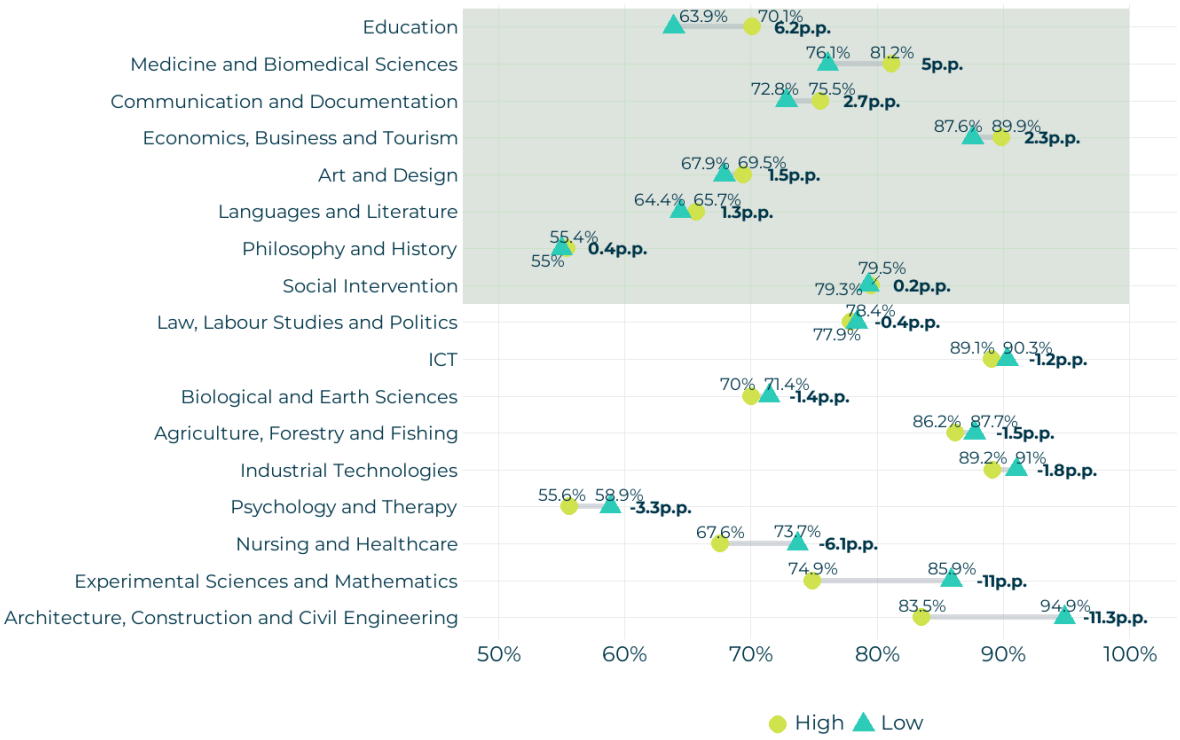
Note 2. Statistical significance levels: p <0.05*, p <0.01**, p <0.001***.

Note 2. The percentages above the overall percentage are marked in green.

Lower-class graduates in the vast majority of sub-fields are more likely to be in full-time employment than their upper-class counterparts, with differences of up to 11 percentage points.

- However, the sub-fields of education and medicine and biomedical sciences stand out, where upper-class graduates have a higher percentage of full-time employment than lower-class graduates (6 percentage points and 5 percentage points, respectively).
- Moreover, upper-class graduates are more likely to continue studying (Ortiz-Gervasi, 2023), which would explain the delay in the full-time employment of these students compared to lower-class people.
- Finally, as seen above, the most important differences in the percentage of people in full-time employment are to be found between sub-fields, regardless of the graduates' social class.

Figure 3. Differences in the percentage of full time employed upper and lower class graduates, by sub-field (2023)



Note 1. The sub-fields are ranked according to the difference in percentage points of the percentage of people in full-time employment. The green box indicates the sub-fields in which the percentage of full-time employed persons in the upper-class is higher than in the lower-class.

Note 2. The figure in black in the graph shows the difference, in percentile points, between the two groups analysed.

There are no substantial differences between social classes and the percentage of full-time employment according to the location of the university or the ownership of the graduation centre.

> Non-metropolitan universities have a lower percentage of full-time employment, probably due to the employment opportunities available in the territory.[8]

[8] For example, Idescat (Catalan Institute of Statistics), based on data from the INE's Labour Force Survey, shows that in 2022 the employment rate in the province of Tarragona was five percentage points lower than the average for Catalonia.

Figure 4. Percentage of people in full-time employment according to social class by university location (2023)

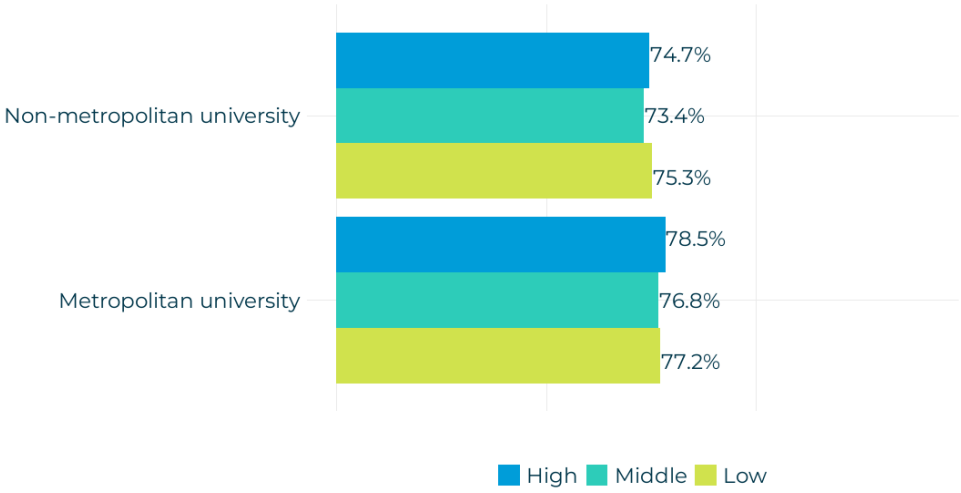
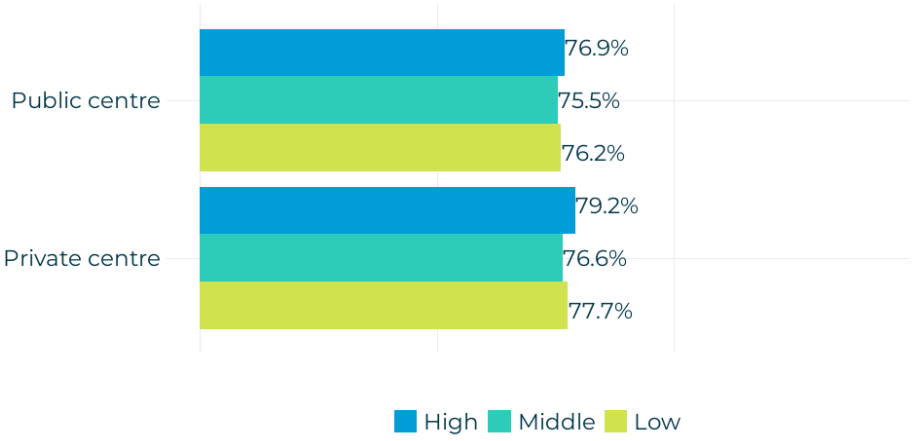


Figure 5. Percentage of people in full-time employment according to social class by centre ownership (2023)



> Factors explaining full-time employment from an equity perspective

The probabilities of being in full-time employment are mainly explained by the teaching of the degree programmes studied.

- Viewed from an equity perspective, no differences by social class or biological sex are observed in the probabilities of being in full-time employment when controlling for the other variables.
- However, the variables included in the analysis only weakly explain the likelihood of being employed full-time.[9] There are other important factors with explanatory power for which no information is available, but which have an equity component. These are the following factors:
  - The place of residence and the possibility to move geographically for work.
  - Acquiring skills that are highly valued by the labour market and that are not necessarily taught during the training period at university (e.g. English or advanced ICT skills).
  - Acquiring personal competences that could help graduates in selection processes.

Figure 6. Factors explaining the probability of being in full-time employment (2023)[10]

[9] We see that graduates who continue studying in the period between the date of graduation and three years later are less likely to be in full-time employment. The data analysed in this report show employment outcomes three years after graduation and therefore do not capture the long-term benefits of continuing to study. These individuals may well be less likely to be in full-time employment because they have delayed entry into the labour market, but as the results of our employment outcomes study show, Master's graduates are more employable and have a better quality of employment.

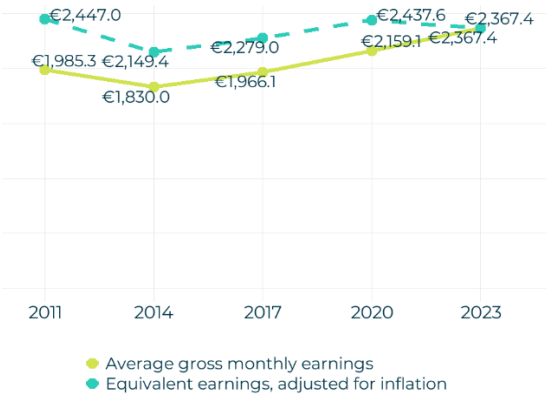
[10] A logistic mixed model is used to predict the probability of being in full-time employment, with education as a random effect. The forward stepwise technique was used to select the independent variables, which were initially chosen for their theoretical relevance. The model chosen was the one that best explains the variance and has an optimal AIC value (Aikake, 1974) and includes the following predictors: characteristics of the student (social class, biological sex, age), characteristics of their university studies (location of the university, ownership of the study centre (public or affiliated/private), and factors that may delay entry into the labour market (whether the person has continued studying after their studies). The probabilities are shown in the figure in average marginal effects, which represent the change in the probability of being in full-time employment for each unit of change in the independent variable, if the variable is numerical, or the difference in the probability between the reference category and the analysed category, if the variable is categorical.

> Monthly income

This section analyses the wage differentials of graduates in relation to social class. The earnings of those working full-time are used to compare salaries. When data prior to 2023 is analysed, incomes are corrected for inflation, which allows for a comparison of salaries of different years in terms of purchasing power taking into account the evolution of the average cost of living. Specifically, the equivalent average income is shown assuming the cost of living in 2023.[11]

First, wage changes in real terms are shown for the entire graduate population. Next, the differences between individuals from different social classes by sub-field of study, location and graduating school ownership are analysed.

Figure 7. Average gross monthly earnings and equivalent earnings adjusted for inflation.



Graduates' purchasing power has improved compared to the worst years of the financial crisis.

- Graduates' average gross earnings have increased since 2014, but they have not recovered the values of 2011 if the effect of inflation is taken into account.
- Nevertheless, purchasing power has declined slightly over the last three years due to the recent high levels of inflation.

[11] To make this calculation, the consumer price index (CPI) published by the Spanish National Statistics Institute in January of each year analysed (base 2023, consulted in May 2023) is used. For each year *x*, the deflator coefficient is calculated (CPI year x / CPI base year) and the following formula is applied: inflation-adjusted earnings = observed earnings / deflator coefficient.

Although wage differentials by social class are observed, this association is very weak according to statistical criteria.

- Descriptively, people in the upper-classes tend to have a higher average monthly wage than people in the lower classes.
- This gap has widened compared to the first year of the time series analysed, although it has been narrowing since 2017. The financial crisis may have had an effect on this gap and the reduction in later years may be due to the economic recovery.

Table 4. Average gross monthly salaries (only full-time employees) by social class and adjusted for inflation

	2011	2017	2020	2023
Upper-class	**2529.9**	**2420.3**	**2566.7**	**2463.8**
Middle class	2387.4	2201.7	2358.6	2310.1
Lower class	2426.8	2159.4	2339.9	2257.2
Overall	2447.1	2279	2437.6	2367.4
Difference between upper- and lower-class	103.1	260.9	226.8	206.6
Partial eta squared	<0.01**	<0.01***	<0.01***	<0.01***

Note 1. An ANOVA test has been performed to determine whether there is any association between the variables analysed for each corresponding year. The effect size has been calculated for this contrast test (eta squared) and in all cases, although there is a statistically significant association, the effect size is very weak, less than 0.01, the threshold for considering the eta squared effect size as small (Cohen, 1988).

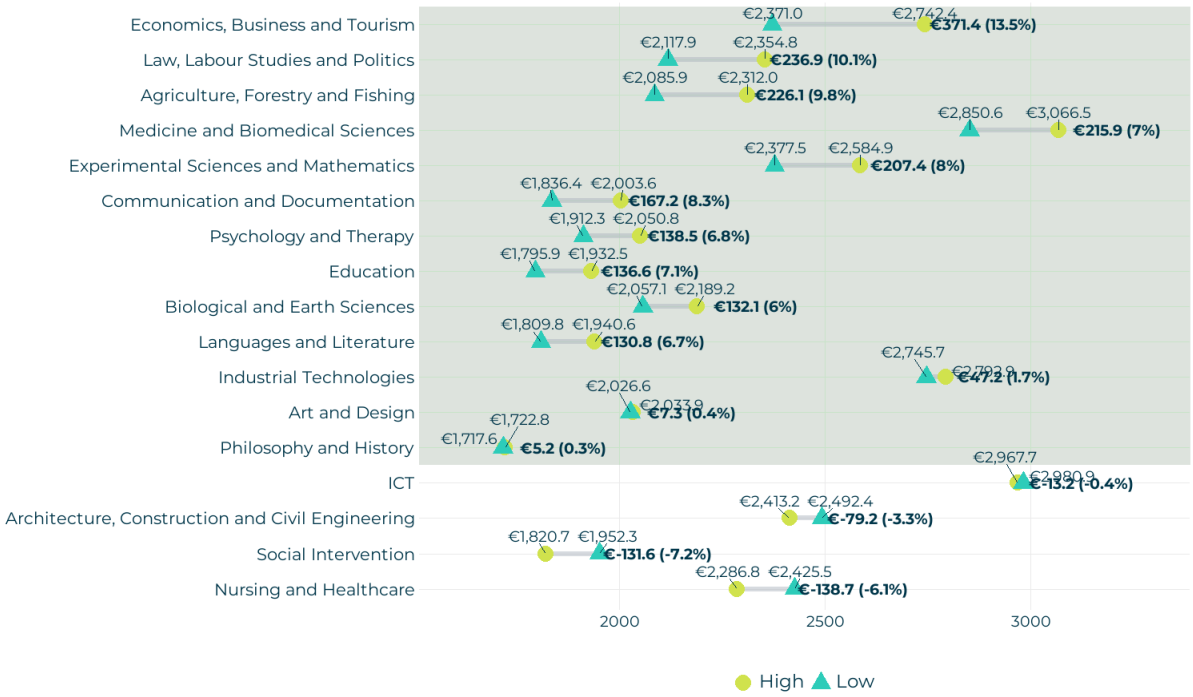
Note 2. Statistical significance levels: p <0.05*, p <0.01**, p <0.001***.

Note 3. Average salaries above the overall average are marked in green.

As for differences by sub-field, upper-class graduates in full-time employment tend to earn more than lower-class graduates in most sub-fields.

- This difference is highest in the sub-fields of economics, business and tourism; law, labour and politics; and agriculture, forestry and fisheries.
- In a subset of sub-fields, lower-class people tend to be paid more than upper-class people. Nursing and healthcare and social intervention are prominent.

Figure 8. Differences in average salaries by social class and sub-field (2023)



Note 1. The sub-fields are sorted according to the difference in average salaries. The green box indicates the sub-fields in which the mean wage of upper-class graduates is higher than that of lower-class graduates.

Note 2. The bold figure in the graph shows the absolute difference between the average wages of the two groups analysed, and, in brackets, the wage gap between the two groups analysed.[12]

Although they earn slightly less than their metropolitan counterparts, the earnings of graduates from non-metropolitan universities are more equitable: the wage differences between upper- and lower-class graduates are smaller.

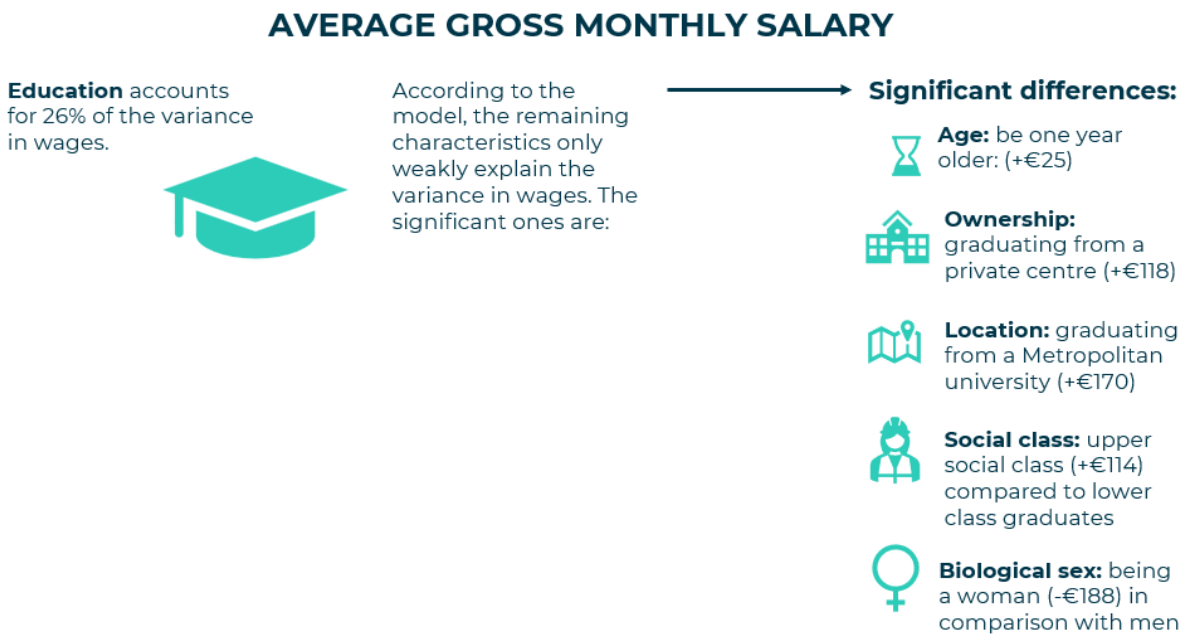
[12] The wage gap is calculated by dividing the difference in average salary between the most advantaged and the least advantaged group by the average salary of the most advantaged group.

> Factors explaining gross monthly salaries

Upper social class graduates earn more than lower class graduates, but this is mainly explained by the education received. Social class has practically no explanatory weight when it comes to understanding the variance of earnings.

> However, from an equity perspective, the wage differentials by biological sex can be highlighted: women earn, on average, €188 less than men. Biological sex explains the variance in wages slightly better, but still has very little explanatory power.[13]

Figure 9. Factors explaining full-time wages from an equity perspective (2023)[14]



[13] Analytical caution is advised when interpreting these wage differences. Social class and biological sex have very little explanatory power for the variance in full-time wages. When social class is factored into the model, only 0.3% of the variance in full-time wages, as measured by the marginal R-squared, is explained. This increases to 1.3% when biological sex is included.

[14] A mixed regression model is used to predict full-time earnings with teaching as a random effect. The forward stepwise technique was used to select the independent variables, which were initially chosen for their theoretical relevance. The chosen model best explains the variance and has an optimal AIC value (Aikake, 1974) and includes the following predictors: student characteristics (social class, biological sex, age), characteristics of the university studies (location of the university, ownership of the study centre (public or affiliated/private), and factors that may delay entry into the labour market (whether the person has continued studying after the studies). Independent variables have been added to each model and the changes of each predictor in the marginal R-squared have been observed to see the impact of each variable in explaining the variance in full-time wages.

> Occupational quality index

This section analyses the probability of graduates from different social classes to get a high-quality job, as measured by the occupational quality index (OQI).[15] *High-quality jobs* are defined as those OQI values that are equal to or higher than the mean of the OQI plus one standard deviation for each year analysed. As such, high occupational quality is understood to be operationalised in a relative way for each SUC graduating class analysed, associating it with the state of the labour market in which the graduates of each edition of the survey are placed.

There has been a substantial improvement in the OQI in the last three editions of the survey, both in the average and in the percentage of graduates who get a high-quality job.

Table 5. Mean and standard deviation of the OQI for each edition of the Employment Outcome Survey (2017-2023)

	2017	2020	2023
Mean	60.3	64.4	69.1
Standard deviation	19.5	18.1	18.9
% of people with a high-quality job	14.0%	17.6%	17.8%

Figure 10. Trend in the number of graduates who obtain a high-quality job, by social class[16]

Differences in the attainment of high-quality jobs by social class have been reduced.

> Upper-class graduates are more likely to get a high-quality job than their middle- and lower-class counterparts.

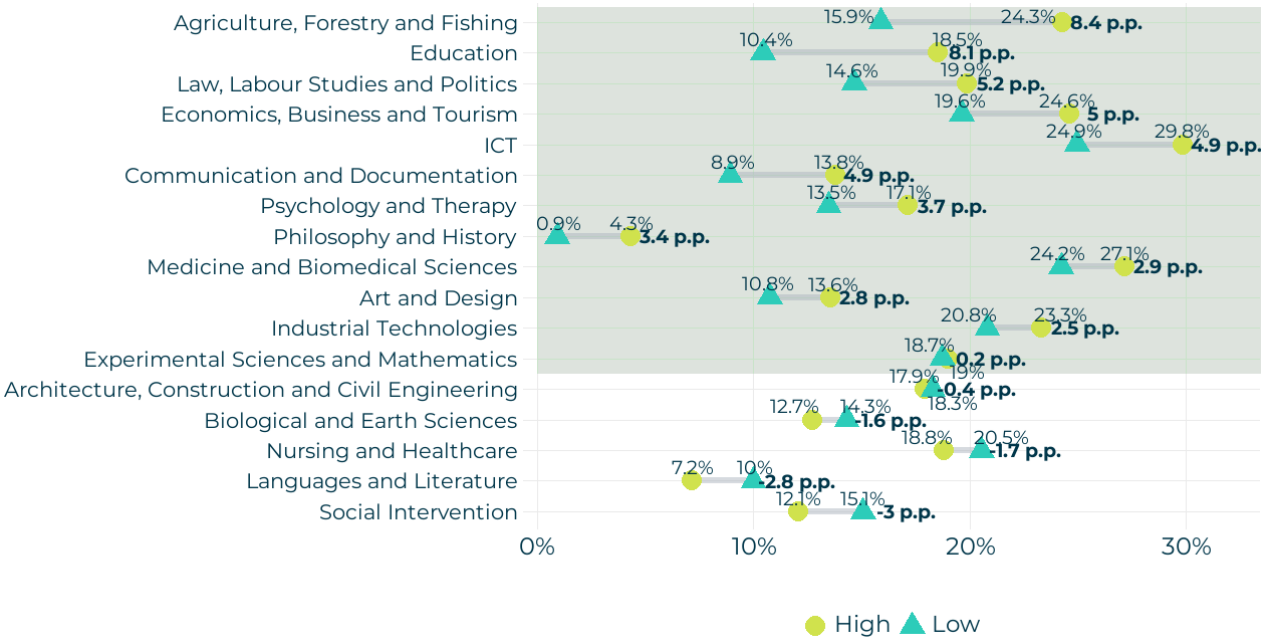
[15] The occupational quality index (OQI) is calculated based on different indicators: contract, job satisfaction, pay and suitability. It takes values from 0 to 100, with higher values indicating higher occupational quality. For further details, see Corominas *et al.* (2012). The OQI analysis in this section is done for the years 2017, 2020 and 2023, as in 2017 a change was made in the way of measuring the job suitability of the degree and, therefore, does not allow comparison with previous editions of the Employment Outcomes Survey.

[16] A ki-squared test was performed to determine whether there is any association between the variables analysed for each corresponding year. The effect size was calculated for this test (Cramer's V) and in all cases, although there is a statistically significant association, the effect size is weak (Cohen, 1988).

Upper-class people are more likely to have a high-quality job than lower-class people in most sub-fields.

- One set of sub-fields with more equal job outcomes can be highlighted, where this difference is virtually zero: experimental sciences and mathematics, and architecture, construction and civil engineering.
- There are also large differences between sub-fields, regardless of the social class of the graduates.

Figure 11. Differences in the percentage of graduates with high-quality jobs by social class and sub-field (2023)



Note 1. The sub-fields are ranked according to the difference, in percentage points, in the percentage of graduates with a high-quality job. The green box indicates the sub-fields in which the percentage of upper-class people is higher than that of lower-class people.

Note 2. The figure in black in the graph shows the difference, in percentile points, between the two groups analysed.

> Factors explaining the attainment of high-quality jobs

The probability of having a high-quality job is mainly explained by the teaching of the degree studied.

- Viewed from an equity perspective, very low differences are observed in the probability of getting a high-quality job according to social class and biological sex.[17]
- However, the variables included in the analysis, excluding degree education, explain only very weakly the probability of getting a high-quality job. Other important factors have explanatory power for which no information is available, but which have an equity component, such as those mentioned in the section "Factors explaining full-time employment from an equity perspective".

Figure 12. Factors explaining the likelihood of finding a high-quality job (2023)[18]

[17] Not only are the differences low, but the explanatory power of social class and biological sex in the logistic mixed model is very low. When included in the model, social class increases the explanation of variance by only 0.2 % and biological sex by 0.1 %, according to the marginal R-squared. Therefore, analytical caution is recommended when interpreting these results.

[18] A logistic mixed model is used to predict the probability of getting a high-quality job with teaching as a random effect. The forward stepwise technique was used for the selection of independent variables, which were initially chosen for their theoretical relevance. The chosen model best explains the variance and has an optimal AIC value (Aikake, 1974) and includes the following predictors: student characteristics (social class, biological sex, age), characteristics of the university studies (location of the university, ownership of the study centre (public or affiliated/private), and factors that may delay entry into the labour market (whether the person has continued studying after the studies). The probabilities are shown in the figure in average marginal effects, which represent the change in the probability of being in full-time employment for each unit of change in the independent variable, if the variable is numerical, or the difference in the probability between the reference category and the analysed category, if the variable is categorical.

SOCIAL MOBILITY FOR GRADUATES FROM CATALAN ON-CAMPUS UNIVERSITIES: UNIVERSITY AS A SOCIAL ELEVATOR

This section explores SUC graduates' social mobility and analyses the changes in the employment typology of graduates compared to their parents. To this end, the variable of parental occupational level (POL) and the attained occupational level (AOL) of SUC graduates are used.

First, structural changes are investigated regarding the destination occupation of graduates with respect to their POL in the SUC as a whole for the years 2020 and 2023.[19] Secondly, the occupational mobility of graduates according to social class, sub-field of study, location and ownership of the graduation centre is analysed using the latest edition of the Employment Outcome Survey.

Graduates in the SUC are occupationally mobile: more than 7 out of 10 are in senior specialist jobs (jobs requiring university education), while only a third of parents are in this type of job.

- We do find a significantly lower incidence of graduates in managerial jobs relative to parents: this is clearly attributable to their career paths, as a large proportion of graduates would not be expected to end up working in managerial positions only three years after graduating, at which point the survey takes place.
- The data suggest that occupational improvement among the graduate population is greater than that of the general population. According to data from the INE Living Conditions Survey and analysed by Carabaña (2023), the percentage of the population aged 26-35 in the Spanish state in 2019 who had a professional or non-manual medium-level job (close to the category of senior specialist used in this report) was 14 percentage points and 9 percentage points higher, respectively, than that of their parents,[20] a far cry from the 46 points shown in the table below.
- However, surprisingly, the proportion of people in unskilled jobs among parents and graduates remains almost the same.

[19] This is only analysed since 2020 due to a change that occurred in the variable that measures whether a graduate has a position of responsibility, which is used to assign the category "Management" to graduates and which does not allow the results to be compared between the editions prior to 2020 and the editions of 2020 and 2023.

[20] Analytical caution is advised in the comparison of occupational mobility shown in this report and in the analysis of data from the Carabaña Living Conditions Survey (2023). The latter classifies occupations using the EGP class scheme (Erikson, Goldthorpe & Portocarero, 1979) and is not directly comparable to the occupational level categorisation in this report. However, the analysis of categories I*a* (senior professional) and I*b*, II and III*a* (managerial, technical and administrative) of the EGP scheme can give an approximation of occupational mobility towards categories requiring higher qualifications in the general population.

Table 6. Structural change from parents to children (university graduates) regarding occupational attainment (2020-2023)

	Management	Senior specialist	Skilled	Self-employed	Unskilled
Breakdown of parents by employment (POL)					
2020	17.9%	28.3%	26.4%	16.6%	10.9%
2023	20.4%	30.1%	24.3%	15.3%	10.0%
Breakdown of graduates by employment (AOL)					
2020	3.6%	75.6%	10.7%	1.2%	8.9%
2023	3.1%	76.3%	9.9%	1.2%	9.4%
Structural change (AOL-POL)					
2020	-14.3	+47.3	-15.7	-15.4	-2.0
2023	-17.3	+46.2	-14.4	-14.1	-0.6

Note 1. The structural change results from subtracting the percentages of the parental breakdown and graduate breakdown by employment.

The vast majority of graduates with parents without managerial or senior specialist jobs are socially upwardly mobile.

- Although those from high occupational backgrounds are more likely to end up in managerial or higher skilled jobs than those with unskilled parents, the correlation between parental employment and graduate employment is very low.
- The association between parental employment and graduate employment appears to be much weaker than for the general population. According to the study by Carabaña (2023), using data from the INE Living Conditions Survey, the correlation coefficient between the employment of 26-35 year-olds in the state and their parents was 0.35 in 2019.[21]

[21] Again, analytical caution is advised in the comparison of occupational mobility shown in this report and the analysis of the Carabaña Living Conditions Survey data (2023). The latter classifies occupations using the EGP class scheme (Erikson, Goldthorpe & Portocarero, 1979) and is not directly comparable to the occupational level categorisation in this report.

Table 7. Graduates' occupational mobility, percentage of people with upward mobility and percentage of people reaching managerial or higher skilled employment, by parental occupational level (2020-2023)

	POL	Management	Senior specialist	Skilled	Self-employed	Unskilled	Upward mobility	Management or senior specialist post
2020	Management	4.3%	78.2%	9.4%	1.3%	6.8%		82.6%
	Senior specialist	3.6%	76.4%	11.4%	1.7%	6.9%	3.6%	80.0%
	Skilled	2.8%	76.2%	10.3%	0.7%	10.0%	79.0%	79.0%
	Self-employed	4.4%	72.2%	10.0%	1.8%	11.6%	86.6%	76.6%
	Unskilled	3.1%	72.8%	12.8%	0.3%	11.0%	89.0%	76.0%
Correlation coefficient 2020: 0.06								
2023	Management	3.4%	78.9%	9.8%	1.2%	6.7%		82.3%
	Senior specialist	3.2%	78.1%	9.1%	1.5%	8.1%	3.2%	81.2%
	Skilled	2.5%	75.5%	10.3%	0.9%	10.8%	77.9%	77.9%
	Self-employed	3.8%	72.2%	10.9%	1.4%	11.7%	86.9%	76.0%
	Unskilled	2.6%	74.4%	10.5%	0.6%	11.9%	88.1%	77.0%
Correlation coefficient 2023: 0.06								

Note 1. The rows represent the parental occupational level and the columns in white represent the attained occupational level. Therefore, it could be interpreted as follows: in 2023, 78.9% of the people with a POL "Management" will have a higher specialist occupation.

Note 2. The correlation coefficient is calculated for each graduating class analysed. As this is an ordinal variable, the Spearman method was considered, but the final choice was to use Pearson's coefficient, because the results are practically identical and because it allows comparison with the results of Carabaña (2023).

Note 3. The column "Upward mobility" (in green) calculates the percentage of people who had an occupation superior to that of their parents. Therefore, no percentage is shown for persons with a management POL.

Note 4. The column 'Destination management or senior specialist' (in green) shows the percentage of people who end up in a managerial or senior specialist occupation, according to the POL.

Graduate upward mobility varies markedly between sub-fields. The four sub-fields with the highest occupational mobility are social intervention, education, psychology and therapy, and nursing and health.

- The percentage of people moving up the occupational ladder is strongly correlated with the percentage of graduates with parents who are managers or senior specialists. As shown in Figure 16, the higher the percentage of people with parents in higher occupations, the lower the upward mobility.
- Annex 3 shows the association between the social composition of degrees and the social mobility of graduates in more detail, with a finer breakdown of the undergraduate degrees taught in the SUC.

Figure 13. Percentage of people with upward occupational mobility by sub-field (2023)

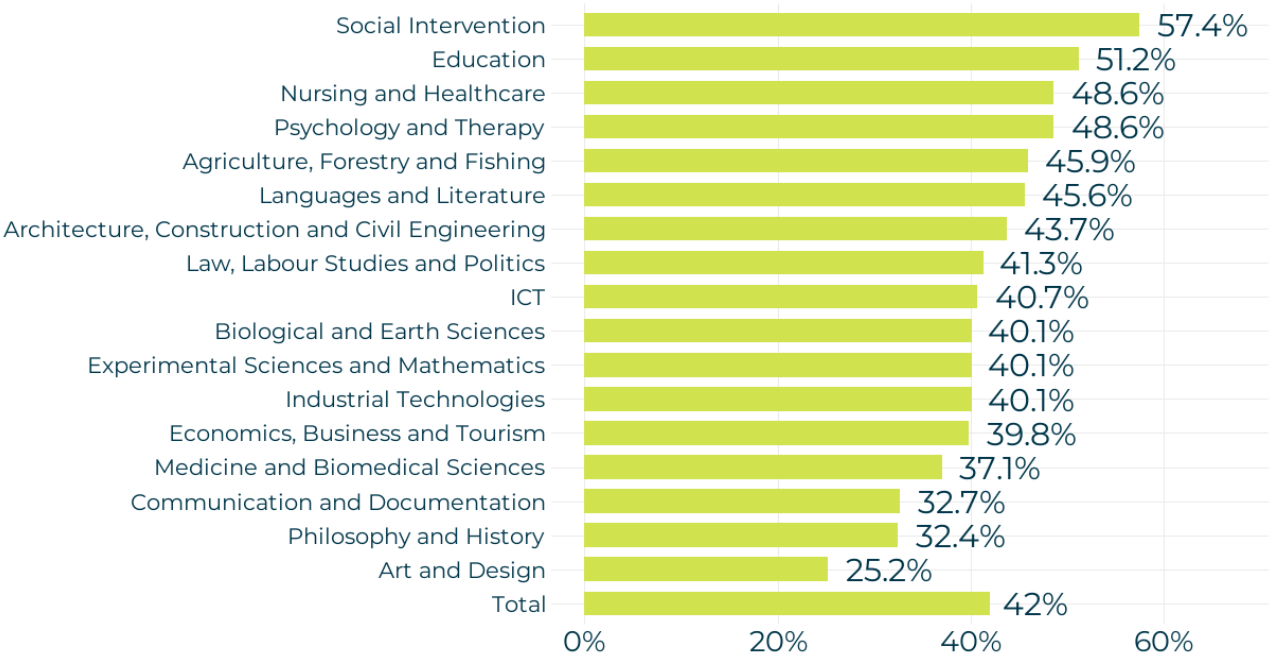


Figure 14. Correlation between the percentage of graduates with senior managerial or specialist parents and the percentage of graduates with upward occupational mobility by sub-field (2023)

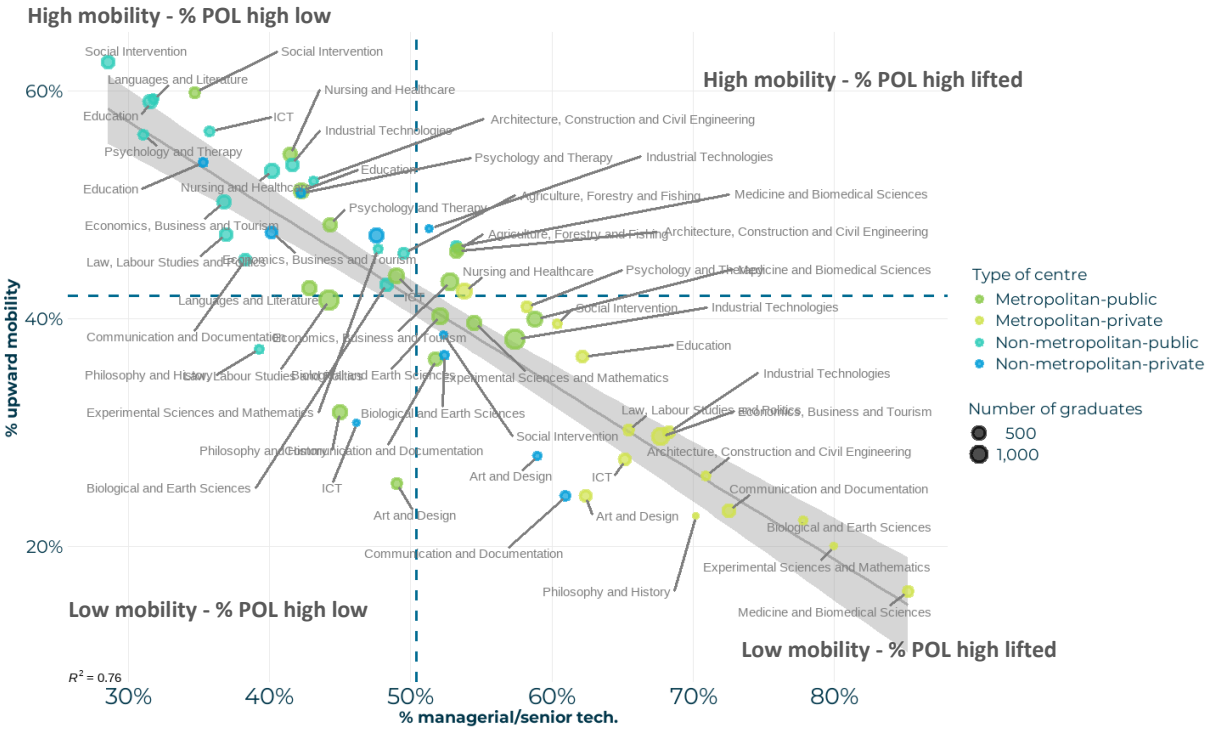
Note 1. Points are measured as the total number of graduates in each sub-field.

Note 2. The top left-hand side of the graph shows the R^2 of the regression model applied to explore the association between the two percentages. This value represents the proportion of the upward mobility variable's variance that is explained by the percentage variable of people with managerial or senior specialist parents.

Graduates in non-metropolitan public centres differ from the rest in that they are more likely to be socially mobile.

- These centres mostly have a more diverse graduate population with respect to the POL and, therefore, are more likely to have a higher probability of achieving higher employment than their parents.
- The social mobility of ICT graduates at a non-metropolitan public centre is important, especially when comparing these values with those of ICT graduates at metropolitan and private or affiliated centres.

Figure 15. Correlation between upward mobility and social composition by sub-field, university location and title of degree centre (2023)



Note 1. Points are measured as the total number of graduates in each sub-field.

Note 2. The bottom left-hand side of the graph shows the R^2 of the regression model applied to explore the association between the two percentages. This value represents the proportion of the upward mobility variable's variance that is explained by the percentage variable of people with managerial or senior specialist parents.

Note 3. The vertical and horizontal lines represent the overall values of the variables analysed.

Note 4. The horizontal axis shows the percentage of graduates with a POL equivalent to management or senior specialist.

RESULTS SUMMARY AND FINAL OBSERVATIONS

The main findings of this report are as follows:

Graduation inequality (horizontal stratification) by sub-field and type of university

- The social class breakdown of graduates varies substantially across sub-fields:[22]
  - Medicine and Dentistry differ from the rest of the health degrees, with 59% of graduates in the upper-class.
  - All engineering degrees have more than 46% upper-class graduates.
  - Social intervention, education and languages and literature are the sub-fields with the highest percentage of lower class graduates.
- This unequal sub-field distribution is consistent with research that identifies that the choice of degree can be affected by the social background of students depending on the difficulty in completing the degree, the time commitment required or the selectivity of the entry grade (Troiano & Elias, 2013).
- Furthermore, the uneven distribution by subject affects the equity of the system. Students with lower incomes tend to enrol in studies with a more moderate labour market insertion (Secretariat for Universities and Research, 2020), although it has been shown that these sub-fields with a higher lower class and lower quality of employment outcomes are often also the ones that provide the greatest upward social mobility.
- Universities located outside the Barcelona metropolitan area have a more equitable distribution of the graduate population regarding social class, which demonstrates their role as institutions for the expansion of educational opportunities.

Employment outcomes equity:

Full-time employment

- No significant differences are observed in graduate full-time employment according to social class or biological sex. Differences in the probability of being in full-time employment are mainly explained by the degree subject.

Income

- Social class and biological sex only slightly explain the aggregate differences in monthly earnings of full-time graduates and employed persons:
  - Degree subject continues to explain most of the variance in monthly earnings.

[22] This report uses the "extended sub-field" to identify Bachelor's degrees study area. The extended sub-field is the second level of the hierarchical classification of university degrees according to their disciplinary proximity produced by AQU Catalunya and known as the *degree catalogue*. For further information, please visit the catalogue website.

- Upper social class graduates earn, on average, €114 more than lower social class graduates when controlling for other socio-demographic and educational variables. As for biological sex, men earn €188 more on average than women. However, these results should be interpreted with great caution, as social class makes virtually no contribution to explaining the variance in wages and biological sex makes a very small contribution.
- Some differences are observed in some sub-fields. In some cases, salary differences by social class exceed €200 (economics, business and tourism; law, labour and politics; agriculture, forestry and fisheries; medicine and biomedicine; experimental science and mathematics).

> Employment quality

> There are virtually no aggregate differences by social class in relation to getting a high-quality job.[23] The differences in the likelihood of getting a high-quality job are again best explained by the degree subject. Also, women are slightly less likely to get a high-quality job (-1.8%). However, the percentage of upper-class graduates with a high-quality job in two sub-fields (agriculture, forestry and fishing; and education) exceeds the percentage of lower-class graduates by 8 percentage points.

Social mobility

> SUC graduates are socially mobile, and the correlation between the occupational status of the parents and that of the graduates is practically nil.
> A set of sub-fields can be identified that act as real driving forces of the Catalan university social elevator: social intervention, education and languages and literature.
> When analysed by location of the university and the ownership of the study centre, these degrees are particularly potent for social mobility in public centres located outside the metropolitan area of Barcelona. They are also the centres with the most equitable distribution of the graduate population.

[23] To identify high-quality jobs, the occupational quality index (OQI) is used, which is constructed from different indicators: contract types, job satisfaction, pay and suitability. It takes values from 0 to 100, with higher values indicating higher occupational quality. For more details, see Corominas *et al.* (2012).

General conclusions

The findings presented here concur with other studies on equity in employment outcomes by social background, both in Catalonia and elsewhere (for Catalonia, see Fachelli & Planas, 2016; for the United States, see Torche, 2011, 2018):

- Overall, the social class of graduates, measured as a combination of parental educational attainment and employment, does not appear to play a substantial role in explaining differences in different indicators of employability when controlling for other socio-demographic and educational variables, such as field of study, graduating school ownership or sex. Fundamental inequality, therefore, is located in access and, as a direct consequence, in graduation. After completing a given degree, employment outcomes differ very little from those of their peers. However, some degrees show persistent differences, which deserve to be investigated.
- People from different social backgrounds are not randomly distributed by degree (a phenomenon known as *horizontal segmentation*), which has an important impact on entry characteristics.
- Furthermore, biological sex continues to explain some of the differences in the employment outcomes of graduates, as shown in previous studies (AQU Catalunya, 2021).

Likewise, universities play an important role as a social elevator for those who manage to gain access to them: the association between the employment of parents and that of graduates is weaker than that of the general population (Carabaña, 2023). There are a set of degrees that particularly help graduates to be socially mobile: degrees in the sub-fields of social intervention, education and languages and literature from public universities located outside the metropolitan area of Barcelona.

These results show that universities clearly have an important role to play in creating job opportunities for people from diverse social backgrounds. However, the social bias regarding access to degrees with the best employment outcomes (such as engineering degrees) continues to be a challenge for the system, both in terms of social class and gender (AQU Catalunya, 2021). This bias is not always attributable to university actions and policies. For example, differences by social class in academic performance in pre-university stages, which subsequently determine access to the most selective degrees, are explained by structural inequalities that manifest themselves outside the university environment. Gender bias in degree choice is also observed in terms of pre-university trajectory and preferences (Barone and Herbaut, 2021; Usart, Sánchez-Canut, Lores, 2022).

Academic research has identified the relationship between social class and access to a set of degrees based on economic and social risk. For example, Torrents & Troiano (2021) show that concerns about not being able to continue higher education for economic reasons are particularly strong among lower-class students. This aspect points to a possible path for the development of systemic support policies that could result in a change in the real and perceived risk of educational choices. As for the risk of academic difficulty and, therefore, of probability of success, implementing policies to accompany students who are more likely to experience academic difficulties throughout their studies would also be a desirable approach.

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DATA SHEET

Survey of male and female graduates from on-campus universities[24]

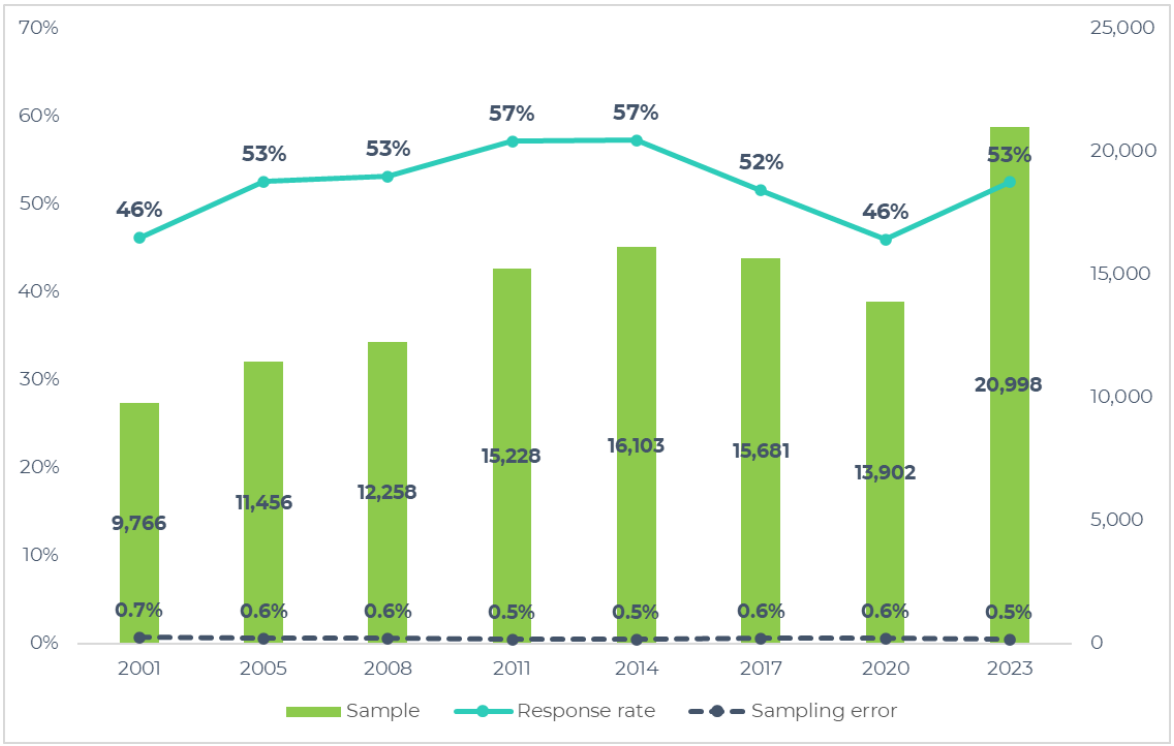
Population	People who graduated in the 2018-2019 and 2019-2020 academic years. For Medicine, the graduating classes included are 2015-2016 and 2016-2017.
Survey period	Fieldwork combining two modalities: - Electronic phase, from 7 November 2022 to 4 December 2022. - Telephone phase, from 23 January 2023 to 5 May 2023.
Average survey duration if working	Electronic phase: 8' 33''. Telephone phase 14' 53''.
Participating universities	UB, UAB, UPC, UPF, URL, UdL, UdG, URV, UVic-UCC, UIC, UAO CEU.

Population data and sample of on-campus university graduates (2023)

	Population	Contact population	Sample	Response rate	Sampling error
Universitat de Barcelona	9039	9038	4896	54.2%	1.0%
Universitat Autònoma de Barcelona	6875	6875	3890	56.6%	1.1%
Universitat Politècnica de Catalunya	4608	4608	2439	52.9%	1.4%
Universitat Pompeu Fabra	3808	3807	2012	52.9%	1.5%
Universitat Ramon Llull	2953	2952	1539	52.1%	1.8%
Universitat de Lleida	2400	2400	1265	52.7%	1.9%
Universitat de Girona	3632	3632	1710	47.1%	1.8%
Universitat Rovira i Virgili	3335	3335	1584	47.5%	1.8%
Universitat de Vic-UCC	1881	1881	916	48.7%	2.4%
Universitat Internacional de Catalunya	970	969	464	47.9%	3.4%
Universitat Abat Oliba CEU	528	528	283	53.6%	4.1%
TOTAL	40029	40025	20998	52.5%	0.5%

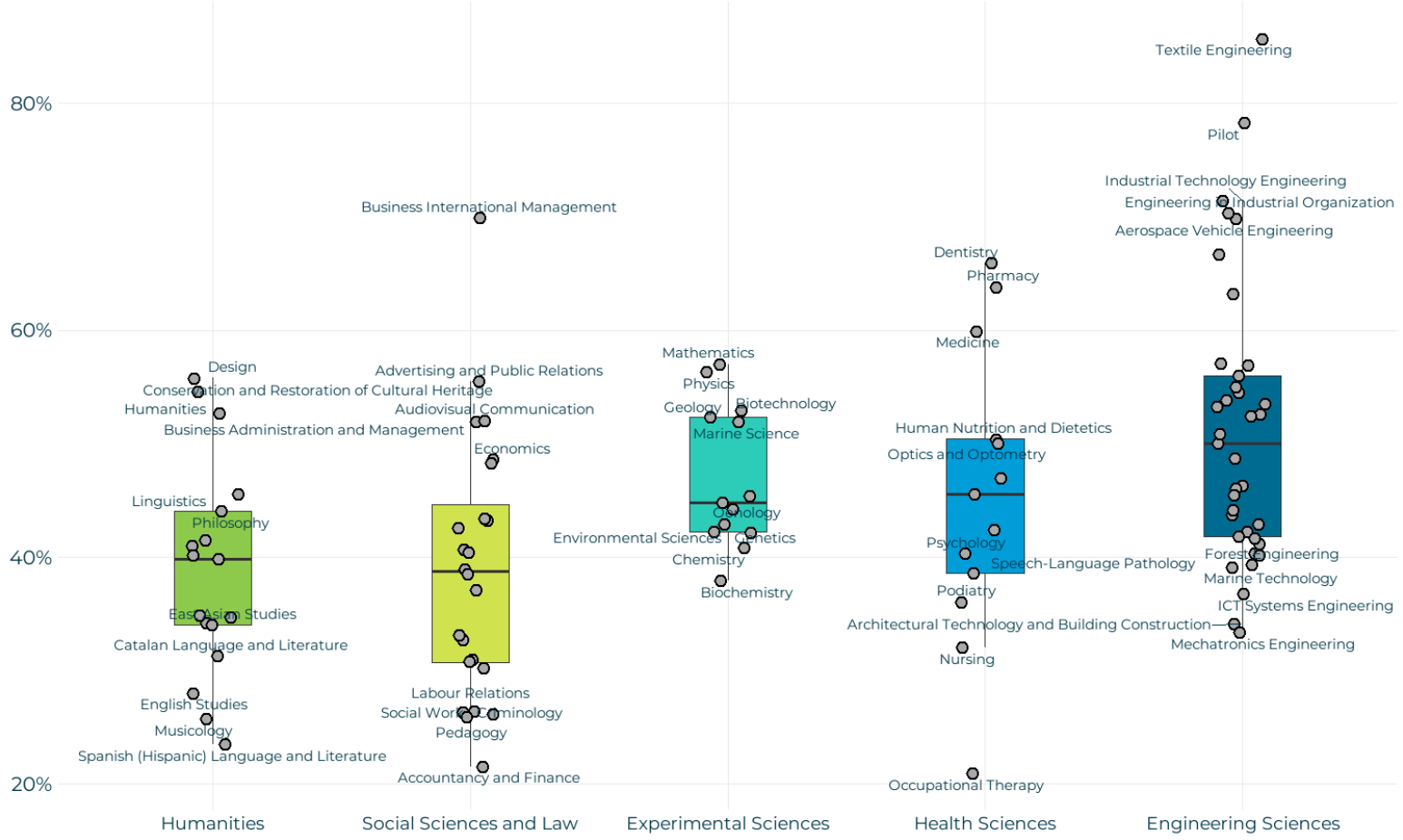
[24] The data presented in this report are weighted according to stratified sampling by teaching and sampling unit.

Figure 16. Sample evolution, response rate and sample error of the survey (on-campus universities)



ANNEX 1.1. SOCIAL COMPOSITION OF EDUCATION BY FIELD

Figure 17. Percentage breakdown of upper-class graduates by education and by field of study (2023)



Note 1. Only degrees with a minimum of 10 graduates are included.

Note 2. The labels in the graph show the five degrees with the highest and lowest percentages for each degree field.

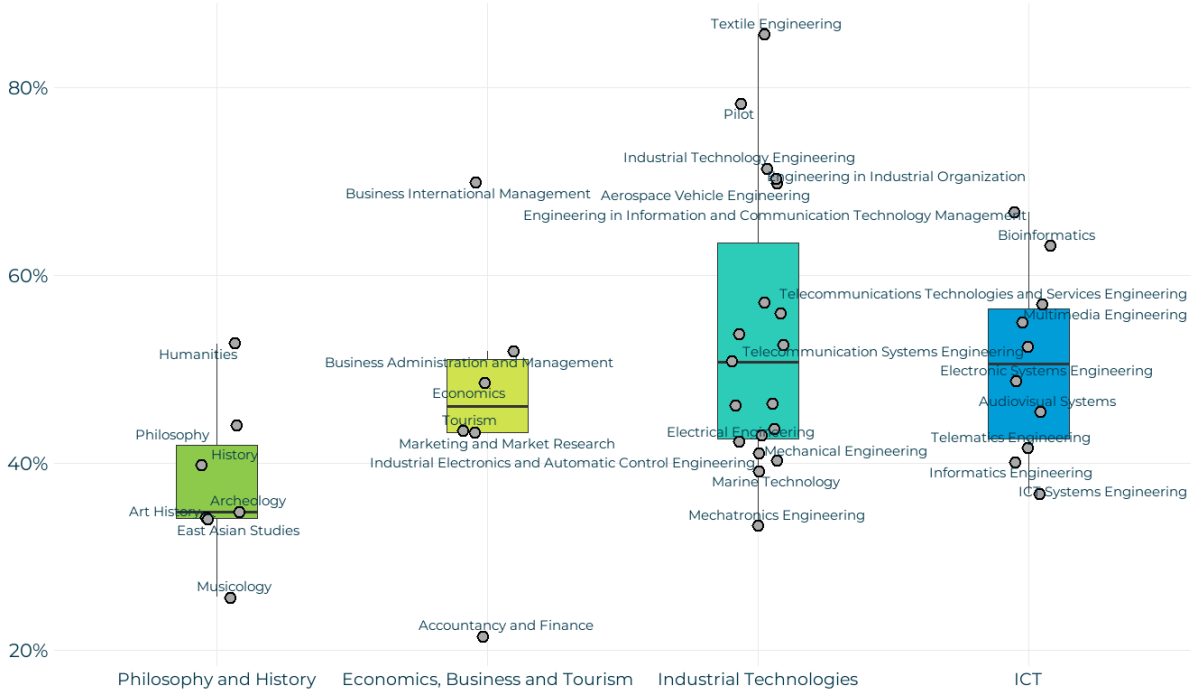
ANNEX 1.2. DIFFERENCES IN THE SOCIAL COMPOSITION OF EDUCATION BY SUB-FIELD

Table 8. Differences in the internal composition of the sub-fields

Sub-field	Standard deviation	Difference
Industrial Technologies	14.78	52.4
Economics, Business and	15.66	48.4
ICT	9.97	30
Philosophy and History	8.63	27
Communication and	10.25	22.8
Languages and Literature	7.85	22.1
Law, Labour Studies and	7.26	21.9
Medicine and Biomedical	9.19	20.4
Architecture, Construction and Civil Engineering	10.72	20.4
Psychology and Therapy	10.74	19.4
Nursing and Healthcare	7.61	18.4
Experimental Sciences and Mathematics	7.78	16.2
Biological and Earth Sciences	5.58	15
Education	7.25	14.5
Art and Design	7.91	14.3
Agriculture, Forestry and	6.61	14.2
Social Intervention	2.90	4.1

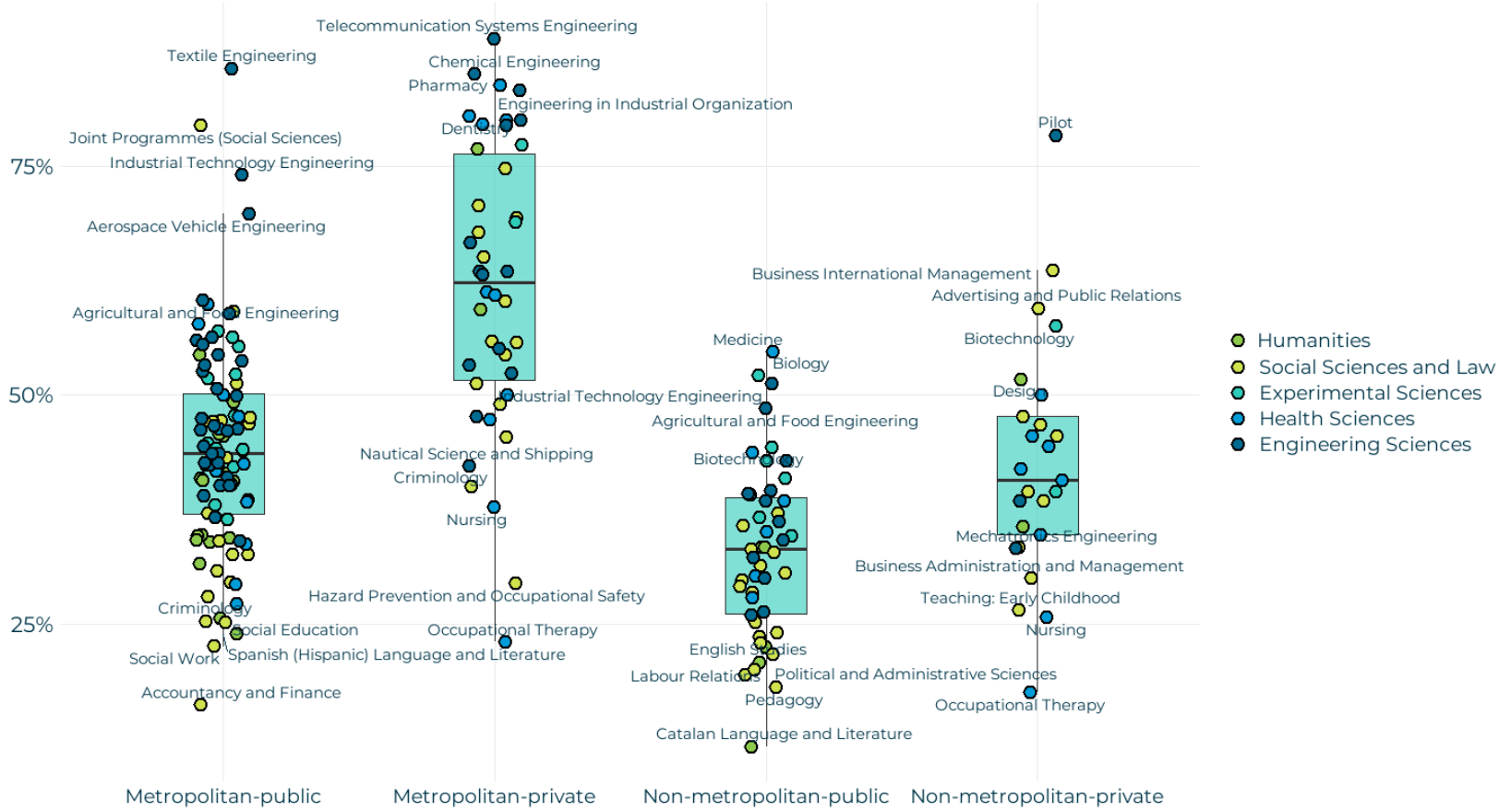
Note 1. Green shows the sub-fields with the greatest internal differences regarding the social composition of education. These are explored in the figure on the right.
Note 2. The difference indicates the difference in teaching points with the highest percentage of upper- and lower-class for each sub-field.

Figure 18. Percentage breakdown of upper-class graduates from sub-fields with a distance from the rank of above percentage points



ANNEX 2. SOCIAL COMPOSITION OF EDUCATION ACCORDING TO THE LOCATION AND OWNERSHIP OF THE CENTRE

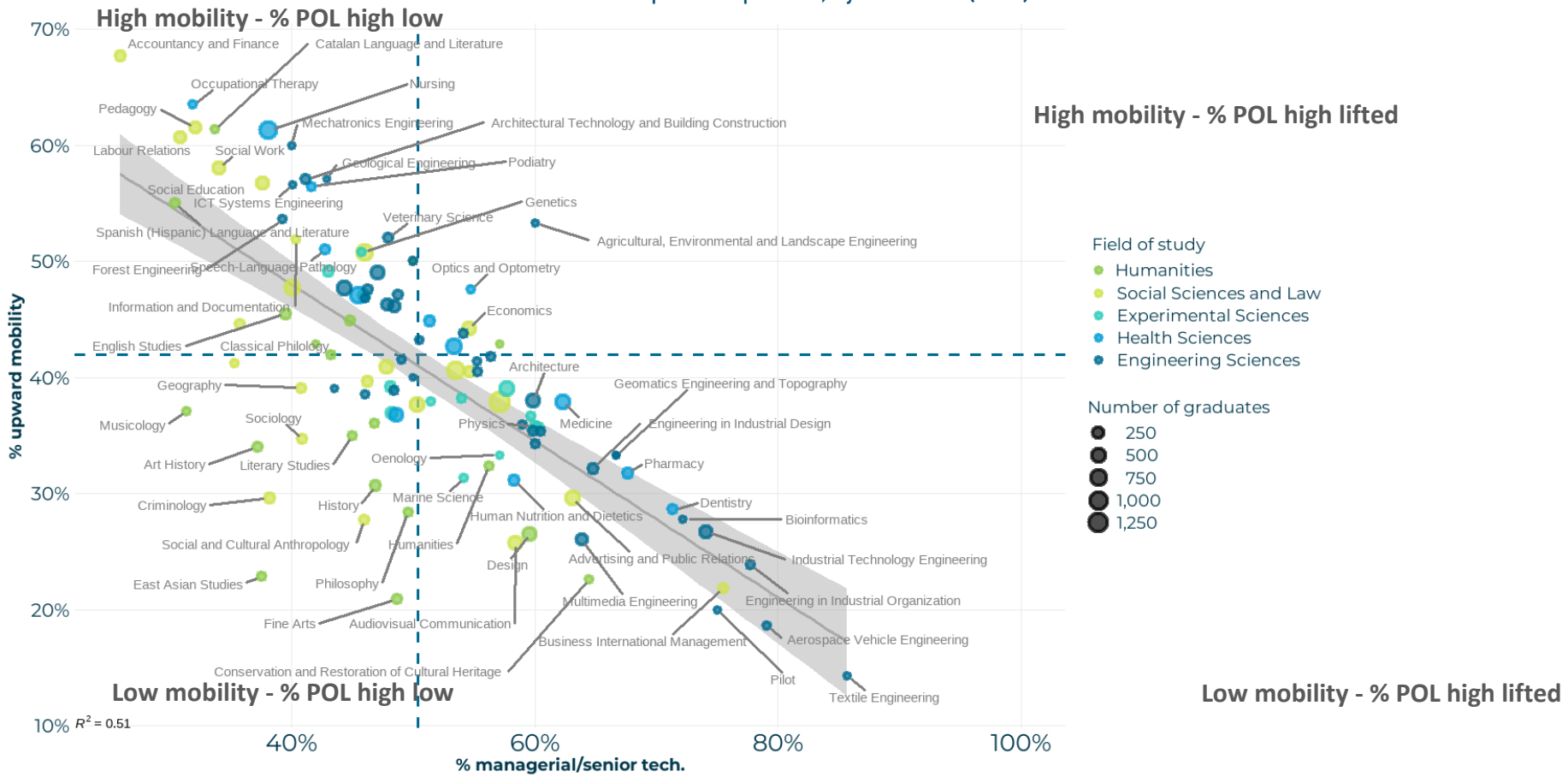
Figure 19. Percentage breakdown of upper-class graduates by education according to the ownership of the centre, location and field of study (2023)



Note 1. Only degrees with a minimum of 10 graduates are included.
Note 2. The labels in the graph show the five degrees with the highest and lowest percentages for each possible combination of ownership and location.

ANNEX 3. RELATIONSHIP BETWEEN SOCIAL MOBILITY AND SOCIAL COMPOSITION OF EDUCATION

Figure 20. Correlation between the percentage of graduates with upward occupational mobility and the percentage of graduates with managerial or senior specialist parents, by education (2023).



Note 1. The vertical and horizontal lines represent the overall percentages of each variable.
Note 2. The bottom left-hand side of the graph shows the R^2 of the regression model applied to the association between the two variables analysed.
Note 3. Points are measured according to the number of graduates in each course.

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