THE EMPLOYMENT OUTCOMES OF MASTER'S DEGREE HOLDERS FROM UNIVERSITIES IN CATALONIA

Survey of the employment outcomes of the population of Master's degree graduates from Catalan universities

AQU Agència per a la Qualitat del Sistema Universitari de Catalunya

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Universitat de Barcelona · Universitat Autònoma de Barcelona · Universitat Politècnica de Catalunya BarcelonaTech · Universitat Pompeu Fabra Barcelona · Universitat de Girona · Universitat de Lleida

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TABLE OF CONTENTS

Índex de taules i figures

0. INTRODUCTION

The fifth survey on the employment outcomes of the graduate population from Catalan universities was carried out in 2014 and for the first time included graduates of Master's programmes.

All of the universities (both public and private) in the Catalan higher education system participated in the survey. The public system accounts for 78% of the Master's graduate population, with the private universities (including affiliated and partner schools and institutes) accounting for the remaining 22%.

Based on the 2014 survey, this study analyses the employment outcomes of 7,647 graduates, out of a total of 16,218 who graduated at the end of the 2009-2010 and 2010-2011 academic years, a figure which accounts for 47% of the Master's graduate population, with a sample error of 0.81%.

The survey itself covered graduates in 495 Masters programmes carrying between 60 to 120 ECTS credits, which were analysed according to twenty-nine 29 fields of study.

As these Master's programmes were already running prior to the introduction of undergraduate programmes under the Bologna scheme (which are referred to as Bachelor degrees), all these students were therefore graduates of pre-Bologna undergraduate degrees (hereinafter, undergraduate degrees).

There are two clearly distinctive groups among the graduates interviewed: those with a continuous academic career between their pre-Master's and Master's studies, with an average age of 31 at the time of the survey (49% of the sample), and those who had worked full-time prior to taking their Master's, with an average age of 38 (51% of the sample). It would therefore seem that the purpose of a Master's degree is divided equally between, on the one hand, a more in-depth, specialised training and, on the other, continuous education and training for those already working at professional level.

0.1. Background

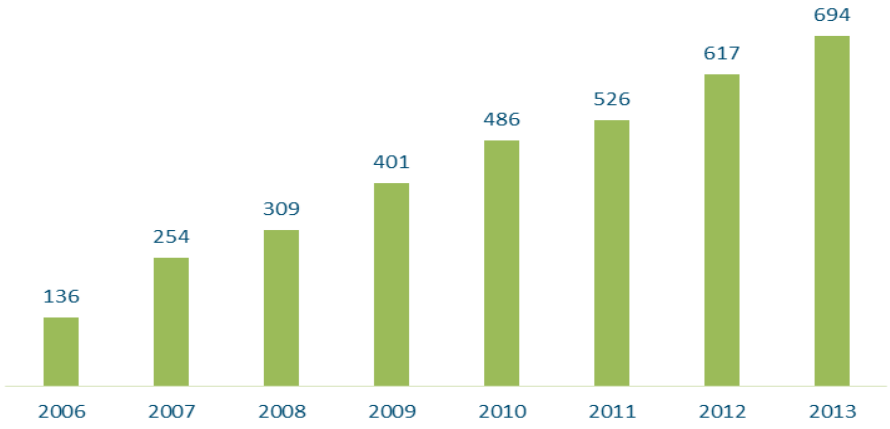
Surveys and studies on the employment outcomes of graduates from Catalan universities are a consequence of the interest at university level in obtaining data, together with benchmarks, regarding the quality of the employment outcomes of their graduates, and a survey and study has been coordinated by AQU Catalunya once every three years since 2001. The scope of the fifth survey was broadened for the first time to include graduates of Master's programmes, in addition to graduates of undergraduate and doctoral degrees.

Table 0.1. Population and interview sample in the 2014 survey

	Population	Sample	Response	Sample error
Undergraduate	31,279	17,337	55.43%	0.51%
Master's	16,218	7,647	47.15%	0.81%
Doctorate/PhD	2,080	1,426	68.56%	1.5%

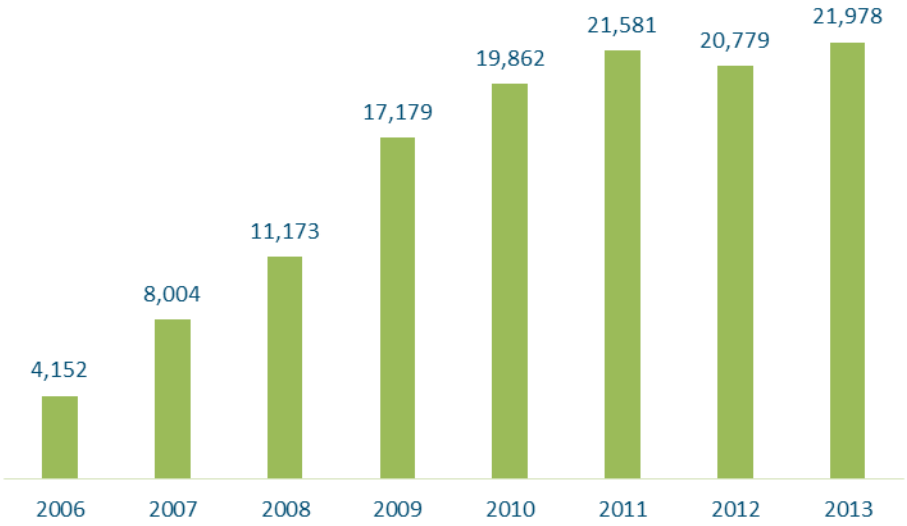
The decision to include Master's degrees, which resulted in a considerable increase in the sample size, was made because Master's degrees are the most flexible in terms of graduates of these programmes being able to better adapt to the needs and requirements of the labour market. There has also been a considerable increase in Master's degrees since they were introduced, as can be seen from figures 0.1 and 0.2, in terms of both the number of programmes offered and the number of registered students (an increase of 80% and 81%, respectively).

Figure 0.1. Change in the number of Master's programmes offered (data from UNEIX)[1]



[1] UNEIX is the Secretariat for Universities and Research's university indicator system which guarantees transparency and equity in the analysis of information on degree programmes and provides accountability consistent with European benchmarks for quality in higher education.

Figure 0.2. Change in the number of registered Master's degree students (data from UNEIX)



The main objective of the surveys on graduate employment outcomes is to make indicators available to the universities as guidance for both new study programmes being offered and the review and adaptation of programmes already introduced in accordance with the current professional needs of graduates.

The survey on the Master's graduate population, which was adapted by an *ad hoc* working group at AQU Catalunya,[2] includes two new features not present in the survey on the employment outcomes of the graduate population of undergraduate-level degrees from Catalan universities. The first is a section on the impact of a Master's degree on the professional careers of graduates; a considerable number of students was already working prior to studying at university, meaning that any analysis of their "first job" loses its relevance. The second is a section on internationalisation based on an assessment of this dimension by the NVAO,[3] due to the fact that the profile of Master's programmes is very international in terms of both the type of student and the content being offered.

In this first survey of the employment outcomes of Master's degree graduates of universities in Catalonia, all of the public and private universities participated, together with six affiliated and partner schools and institutes.

[2] The working group that designed the survey on the employment outcomes of Master's graduates (see annex 2) consisted of twenty-two member representatives of the twelve universities in Catalonia.

[3] NVAO (2010) *Programme accreditation and internationalisation – a distinctive (quality) feature for internationalisation.* <http://nvao.com/page/downloads/Framework_BKK_Internationalisation_2010.pdf>.

Table 0.2. Population and sample according to type of institution

	Population	Sample	Response	Sample error
PUBLIC UNIVERSITIES	**12,701**	**6,088**	**47.93 %**	**0.91 %**
Universitat Autònoma de Barcelona	2,953	1,454	49.24 %	1.83 %
Universitat de Barcelona	4,392	1,739	39.59 %	1.83 %
Universitat de Girona	732	464	63.39 %	2.75 %
Universitat de Lleida	471	296	62.85 %	3.48 %
Universitat Politècnica de Catalunya	1,744	839	48.11 %	2.44 %
Universitat Pompeu Fabra	1,191	593	49.79 %	2.85 %
Universitat Rovira i Virgili	1,218	703	57.72 %	2.40 %
PRIVATE UNIVERSITIES	**3,233**	**1,370**	**42.38 %**	**2.01 %**
Universitat Abat Oliba CEU	79	55	69.62 %	7.33 %
Universitat de Vic - Universitat Central de Catalunya	98	68	69.39 %	6.61 %
Universitat Internacional de Catalunya	256	148	57.81 %	5.24 %
Universitat Oberta de Catalunya	868	400	46.08 %	3.60 %
Universitat Ramon Llull	1,932	699	36.18 %	2.96 %
AFFILIATED AND PARTNER SCHOOLS AND INSTITUTES	**284**	**189**	**66.55 %**	**4.13 %**
Escola Superior d'Arxivística i Gestió de Documents	16	11	68.75 %	17.06 %
Escola Superior de Comerç Internacional	25	8	32.00 %	29.15 %
Escola Superior de Disseny i Engineering de Barcelona Elisava	58	39	67.24 %	9.06 %
Escola Universitària Salesiana de Sarrià	38	27	71.05 %	10.28 %
Institut Nacional d'Educació Física de Catalunya (Barcelona)	74	49	66.22 %	8.19 %
Institut Nacional d'Educació Física de Catalunya (Lleida)	73	55	75.34 %	6.61 %
Total	**16,218**	**7,647**	**47.15 %**	**0.81 %**

Regulatory framework applicable to Masters courses

In Spain, Master's degree courses are a product of the so-called Bologna process, which involved the adoption of a basic framework consisting of three levels – undergraduate (Bachelor's) degrees, Masters degrees and doctorate degrees – that, together with the

introduction of a credit system (ECTS),[4] provides for the establishment of a structure for higher education awards that are comparable and compatible at European level. The European Higher Education Area (EHEA) therefore consists of three cycles of higher education, Bachelor's, Master's, and Doctoral degrees, with all three types of degree being valid across the EHEA, which is currently made up of 49 countries.

The main guidelines for higher eduction in Spain were laid down in Implementing Act (Organic Act) 6/2001, 21 December, on the Universities in Spain (LOU), which promoted the integration of the Spanish university system in the new scenario across Europe, although it was not until Executive Order (Royal Decree) 1393/2007[5] that the arrangement of recognised university courses based on two levels – undergraduate (240 ECTS credits) and postgraduate (a minimum of 60 credits) – and a three-cycle system of Bachelor's, Master's and Doctoral degrees was established.

Recognised Masters programmes were first introduced in the 2006-2007 academic year, although Bachelor's degrees were only introduced in 2010. As a result, Master's degrees were introduced prior to the existence of any graduates of Bachelor's degree programmes. The Master's degree courses that were initially offered were therefore aimed at holders of 3 and 5-year pre-Bologna undergraduate degrees. In a sense, Masters programmes originated more as a recognised form of continuous education subsequent to a pre-Bologna degree course as to a separate second cycle following on from an undergraduate degree.

As defined by the Spanish Ministry of Education and Science (Executive Order 1393/2007), the purpose of a recognised Master's programme is the acquisition of advanced knowledge of either a specialised and/or multidisciplinary nature in a specific field of study (discipline) or area of professional practice; it can also serve as the start of research work. The research-based purpose of Master's degrees was reinforced in Executive Order 420/2015,[6] 29 May, according to which 70% of the teaching staff of Master's degree courses must be holders of a doctorate (PhD) degree. Master's degrees carry between 60 and 120 ECTS credits.

Skills (competences) of Master's degree holders: qualifications frameworks

The intended skills for each of the three cycles of higher education are set out in qualifications frameworks, the purpose of which is to facilitate academic and job mobility, in particular by referencing each country's qualifications levels to the levels set out by a qualifications framework at European level, in a transparent way.

[4] *European Credit Transfer System*. Unit of measurement common to all university degrees aligned with the EHEA. One (1) ECTS credit represents a student workload of between 25 and 30 hours.

[5] Executive Order 1393/2007, 29 October, on the academic governance of recognised programmes and awards (Official Bulletin of the Spanish State/BOE no. 260, 30 October 2007).

[6] Executive Order 420/2015, 29 May, on the establishment, recognition, authorisation and accreditation of universities and university faculties and schools.

In 2008, the European Commission developed the European Qualifications Framework (EQF),[7] which is based on the Dublin Descriptors. This framework was established as a benchmark for comparing the different national qualifications frameworks across Europe. The core of the EQF concerns eight reference levels which span from the end of compulsory secondary education to higher education and professional training. Levels 5 to 8 of the EQF correspond to the descriptors for higher education agreed to in the Bologna process.

In Spain, the Spanish Qualifications Framework for Higher Education (QF-EHEA in Spain/MECES)[8] was developed in 2011. The QF-EHEA in Spain only covers higher education study programmes.

Table 0.3. Descriptors for Bachelor's, Master's and Doctoral programmes in Spain

	Bachelor's	Master's	Doctorate
Knowledge	Advanced knowledge of a field of work or study	Highly specialised knowledge	Knowledge at the most advanced frontier of a field of work or study
Application	The ability to solve complex problems in a specialised field of work or study	Specialised skills required to solve problems in research and/or innovation	Contribution through original research that extends existing knowledge
Communication	The ability to transmit information, ideas, etc. to both a specialised and non-specialised public	The ability to clearly and concisely communicate underlying knowledge and reasons	The ability to communicate with colleagues, the academic community as a whole and with society in general
Learning ability	The necessary skills to undertake further study with a certain degree of autonomy	The necessary skills to continue studying in a self-directed and autonomous way	The ability to promote tecnological, social and cultural advancement

In accordance with these frameworks, Master's degrees constitute a more in-depth understanding of a specific field of study. Strictly speaking, the former "second cycle" non-recognised Master's degrees would fall outside of this framework. Neverless, social interest in the provision of Master's degrees in new disciplines (politics for economists, statistics for non-statistical researchers, journalism for political scientists or sociologists) has led to consolidation in the provision of these Master's degrees, in spite of the fact that they do not strictly conform to the qualifications framework as they do not constitute a more in-depth understanding of a specific field of study. The current regulatory framework in Spain seeks to address this situation

[7] <https://ec.europa.eu/ploteus/content/descriptors-page>.

[8] Executive Order 1027/2011, 15 July, whereby the Spanish Qualifications Framework for Higher Education was established (Official Bulletin of the Spanish State/BOE no.185, 3 August 2011).

with bridging courses, although this renders Master's degrees of this type less attractive as students require more time to complete a Master's programme.

In other national frameworks, for example the ones in Ireland[9] and Australia,[10] this second type of Master's degree constitutes an intermediary qualification between a Bachelor and Master's Degree and is referred to as a postgraduate Bachelor's degree "with honours".

The data for this study, in which around one third of Master's degree holders took their higher degree in a different discipline to that of their qualifying degree, show that Master's degrees fulfil an important social function. It is important, however, that this should be referred to in the qualifications framework.

Important factors in the employment outcomes of Master's degree holders

In the survey on the employment outcomes of Master's degree holders, use was made of different variables – often referred to as control variables – to analyse aspects of a personal, academic and professional nature that may have had an influence on employment outcomes.

Table 0.4. Independent variables in the study

Personal data	Academic background	Professional career
Gender	Qualifying degree for the Master's programme: change of discipline or subject	Continuity/discontinuity between studies: work experience prior to obtaining the Master's degree
Age	Subject and discipline of Master's programme taken	
Nationality		
Parents' level of education		

[9] National Qualifications Authority of Ireland (2003) *National Framework of Qualifications: a framework for the development, recognition and award of qualifications in Ireland*. Dublín: National Qualifications Authority of Ireland. <http://www.qqi.ie/Publications/Determinations%20for%20the%20outline%20National%20Framework%20of%20Qualifications.pdf>.

[10] The qualifications framework in Australia distinguishes between three levels (Bachelor, Bachelor Honours and Masters) as follows:

The purpose of the Bachelor Degree qualification type is to qualify individuals who apply a broad and coherent body of knowledge in a range of contexts to undertake professional work and as a pathway for further learning.	The purpose of the Bachelor Honours Degree qualification type is to qualify individuals who apply a body of knowledge in a specific context to undertake professional work and as a pathway for research and further learning.	The purpose of the Masters Degree (Research) is to qualify individuals who apply an advanced body of knowledge in a range of contexts for research and scholarship and as a pathway for further learning.

Font: <http://www.aqf.edu.au/aqf/in-detail/aqf-qualifications>.

Reference is made throughout the report to these variables when a significant trend is identified. Out of all of them, the analyses on which this report is based show professional career to be the most important.

51% of Master's degree holders had already had a full-time job prior to completing their Master's studies. The mean age of this group was 38, seven years more than the group who had never had a full-time job prior to completing their Master's studies (see table 0.5.).

Table 0.5. Age of Master's degree holders at the time of the survey

	N	Mean age	SD
Full-time students or with part-time jobs	3,723	30.59	5.06
Full-time job	3,923	37.88	8.09
Total	**7,646**	**34.33**	**7.70**

SD: standard deviation

The average age of the Master's degree holders who participated in this survey was 34. As a whole the sample population can be divided into two different groups: on the one hand, those with a continuous academic career between their undergraduate and Master's studies, inasmuch as they were either full-time students or had occasional part-time jobs while studying, but whose main occupation up until obtaining their Master's degree was their studies ($\dot{x}_{edat}$ = 31 anys); and, on the other, those who worked full-time at least for a year between obtaining their undergraduate degree and their Master's degree ($\dot{x}_{edat}$ = 38 anys).

The sample can therefore be divided into two different groups: for one group, a Master's degree was the gateway to a full-time job, whereas for the other group a Masters degree played no role in graduates finding their first full-time job. The level of maturity and the requirements of these two groups are therefore probably quite different and, according to Riverin-Simard (1984, 1994), they find themselves at different stages in their professional career.[11]

[11] Summed up in the expression "from planet school to planet work", Riverin-Simard identifies up to nine phases in working life, the second and third of which correspond with the time frame covered in this study:

- 1st phase: Arrival on the job market (aged 23-27)
- 2nd phase: Seeking a promising path (aged 28-32)
- 3rd phase: Grappling with an occupational race (aged 33-37)

The group that transitions seamlessly (continuity) from undergraduate to Master's studies is in the phase of seeking a promising path and in the process of questioning and reframing their professional goals and identifying the skills and abilities required in the job market, whereas those with full-time work experience prior to their Master's degree have already had one or several jobs that have determined their professional profile and are now at a point of consolidating and asserting this profile. They are therefore at the stage of being committed to their career, they have already experienced job promotion and would have therefore achieved a work situation not just where there is an education-job skills match (university-level job duties and responsibilities), but also of initial professional success.

1. POPULATION AND SAMPLE

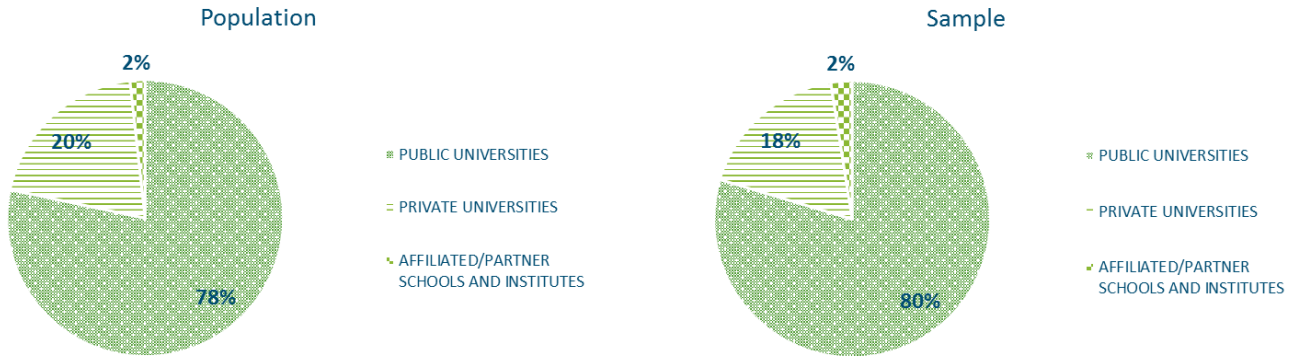
The sample is representative according to type of institution, field of study and gender.

30% of Master's degree holders took their previous degree in a different field of study. An explanation for this may be either the need to acquire new skills for professional reasons, specialisation in interdisciplinary professions or personal interest.

1.1. Distribution according to the type of institution

78% of the graduate population of Master's degrees from a higher education institution in Catalonia obtained their first degree from a public university. The remaining 22% studied for their undergraduate degree either at a private university (20%) or an affiliated or partner school/institute (2%). Figure 1.1.1 shows the distribution of Master's graduates as a whole and those interviewed in the survey according to public universities, private universities and affiliated and partner schools and institutes. The response rate for affiliated and partner schools and institutes is higher because the starting populations are much smaller, which means that a higher response rate is necessary in order to obtain reasonable levels of sample error. As the volume of affiliated and partner schools and institutes is small, however, the sample is not overly affected by this "overpopulation".

Figure 1.1.1. Distribution of the population and sample according to type of institution



1.2. Distribution according to field of study

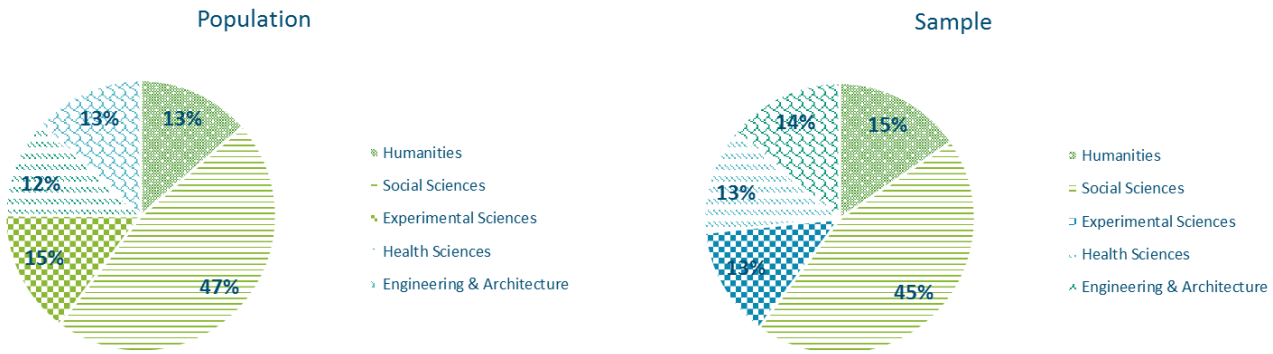
As mentioned above, the reference population consisted of 16,218 Master's degree holders and the achieved sample was 7,647, or 47% of the total number of Master's degree holders in 2010 and 2011 in Catalonia. The overall sample error for the study is 0.81%.

Table 1.2.1. Population and sample according to field of study

	Population	Sample	Response	Sample error
Humanities	2,199	1,179	53.62 %	1.94 %
Social Sciences	7,575	3,421	45.16 %	1.24 %
Experimental Sciences	2,409	1,012	42.01 %	2.35 %
Health Sciences	1,897	971	51.19 %	2.20 %
Eng. and Architecture	2,138	1,064	49.77 %	2.13 %
Total	**16,218**	**7,647**	**47.15 %**	**0.81 %**

Graduate interviewees were mostly from the Social Sciences (45%), followed by Humanities (15%), Engineering and Architecture (14%), with Experimental Sciences and Health Sciences both accounting for 13% (see figure 1.2.1).

Figure 1.2.1. Distribution of the population and sample according to field of study



As can be seen from figure 1.2.2, the composition of the public and private universities, in terms of field of study, is different. Social Sciences is the subject area most represented in terms of Master's degrees in both public and private universities, although much more so in the private than in the public universities (79% compared to 38%). Experimental Sciences (19% compared to 1%), Health Sciences (14% compared to 4%) and Humanities (16% compared to 6%) account for more Master's degrees in public universities. As regards affiliated and partner schools and institutes, the composition is similar to that of the private universities, with Master's degrees in Social Sciences accounting for 87% and the remaining 13% being accounted for by Engineering and Architecture.

Figure 1.2.2. Population distribution according to field of study and type of institution

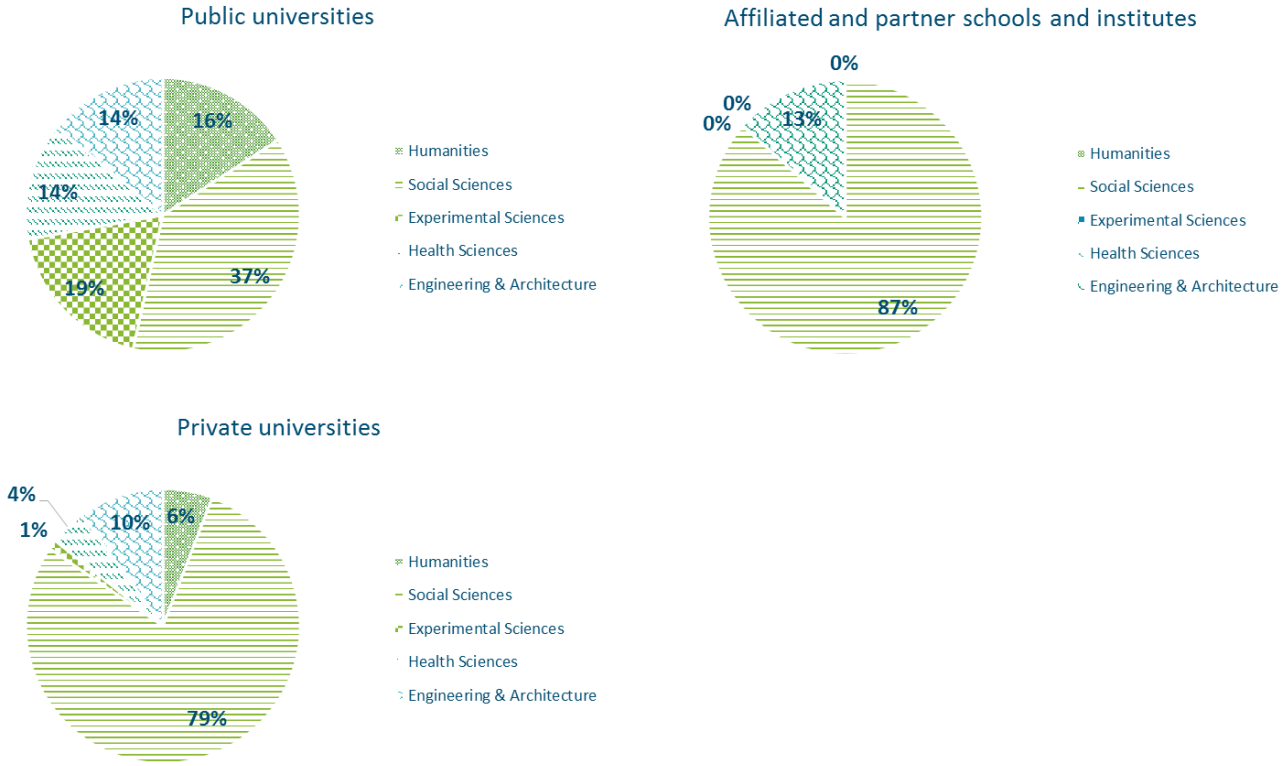


Table 1.2.2. Population and sample according to subject/discipline

	Population	Sample	Response	Sample error	Female (*n*)	Female (%)	Male (*n*)	Male (%)
Humanities								
Fine Art	194	101	52.06 %	6.77 %	61	60.40 %	40	39.60 %
Comparative Studies	359	189	52.65 %	4.91 %	121	64.02 %	68	35.98 %
Catalan and Spanish Studies	167	99	59.28 %	6.30 %	70	70.71 %	29	29.29 %
Modern Languages	225	127	56.44 %	5.75 %	100	78.74 %	27	21.26 %
Philosophy and Humanities	368	213	57.88 %	4.36 %	128	60.09 %	85	39.91 %
Geography and History	886	450	50.79 %	3.24 %	258	57.33 %	192	42.67 %
Social Sciences								
Communication Sciences	551	335	60.80 %	3.35 %	194	57.91 %	141	42.09 %
Political Sciences	532	256	48.12 %	4.41 %	153	59.77 %	103	40.23 %
Documentation	48	31	64.58 %	10.58 %	28	90.32 %	3	9.68 %
Law	509	269	52.85 %	4.11 %	141	52.42 %	128	47.58 %
Economics and Business Administration and Management	2,037	585	28.72 %	3.42 %	242	41.37 %	343	58.63 %
Teacher Training	1,907	829	43.47 %	2.56 %	500	60.31 %	329	39.69 %
Physical Activity and Sports Sciences	131	93	70.99 %	5.49 %	39	41.94 %	54	58.06 %
Pedagogy	929	493	53.07 %	3.02 %	351	71.20 %	142	28.80 %
Psychology	506	277	54.74 %	3.96 %	221	79.78 %	56	20.22 %
Labour Relations	229	146	63.76 %	4.89 %	88	60.27 %	58	39.73 %
Tourism	196	107	54.59 %	6.40 %	82	76.64 %	25	23.36 %
Experimental Sciences								
Biology and Natural Sciences	1,338	497	37.14 %	3.49 %	295	59.36 %	202	40.64 %
Physics and Mathematics	299	174	58.19 %	4.81 %	58	33.33 %	116	66.67 %
Chemistry	336	198	58.93 %	4.47 %	112	56.57 %	86	43.43 %
Human Sciences	436	143	32.80 %	6.72 %	89	62.24 %	54	37.76 %
Health Sciences								
Pharmacy and Food Technology	348	178	51.15 %	5.14 %	142	79.78 %	36	20.22 %
Medicine and Dentistry	979	430	43.92 %	3.54 %	295	68.60 %	135	31.40 %
Healthcare	484	318	65.70 %	3.22 %	259	81.45 %	59	18.55 %

Veterinary Science	86	45	52.33 %	10.14 %	23	51.11 %	22	48.89 %
Engineering and Architecture								
Aeronautics	64	34	53.13 %	11.60 %	11	32.35 %	23	67.65 %
Agricultural Engineering	59	44	74.58 %	7.51 %	21	47.73 %	23	52.27 %
Architecture	469	238	50.75 %	4.46 %	127	53.36 %	111	46.64 %
Civil Engineering	162	63	38.89 %	9.68 %	15	23.81 %	48	76.19 %
Information and Communications	835	393	47.07 %	3.60 %	70	17.81 %	323	82.19 %
Advanced Production Technologies	549	292	53.19 %	3.93 %	76	26.03 %	216	73.97 %
Total	**16,218**	**7,647**	**47.15 %**	**0.81 %**	**4,370**	**57.15 %**	**3,277**	**42.85 %**

1.3. Distribution according to gender

Of the 16,218 people awarded a Master's degree in 2010 and 2011, 56% were female and 44% male. As was the case with undergraduate and doctoral degrees, female graduates were in the majority.

Table 1.3.1. Comparison of the three cycles: distribution according to gender (sample)

	n	Female	Male
Undergraduate	17,337	59.19%	40.81%
Master's	7,647	57.15%	42.85%
Doctorate	1,426	51.96%	48.04%

Comparison of the three cycles
Females were clearly in the majority as far as both undergraduate and Master's degrees were concerned. In the case of doctoral degrees, the proportion of male and female doctorate holders was more even.

Although the majority of graduates were female (56%), there are clear differences as to the distribution of male and and females according to field of study. 74% of Master's graduates in the Health Sciences were female, whereas in Engineering and Architecture they accounted for 30%. In conclusion, the differentiation or segregation between male and female graduates is not vertical, but horitzontal, i.e. according to field of study.

Table 1.3.2. Distribution of the population and sample according to discipline and gender

	Population					Sample				
	Total n	Female		Male		*Total n*	Female		Male	
		n	%	*n*	%		*n*	%	*n*	%
Humanities	2,199	1,368	62.21%	831	37.79%	1,179	738	62.60 %	441	37.40 %
Social Sciences	7,575	4,312	56.92%	3,263	43.08%	3,421	2,039	59.60 %	1,382	40.40 %
Experimental Sciences	2,409	1,398	58.03%	1,011	41.97%	1,012	554	54.74 %	458	45.26 %
Health Sciences	1,897	1,344	70.85%	553	29.15%	971	719	74.05 %	252	25.95 %
Eng. and Architecture	2,138	642	30.03%	1,496	69.97%	1,064	320	30.08 %	744	69.92 %
Total	**16,218**	**9,064**	**55.89%**	**7,154**	**44.11%**	**7,647**	**4,370**	**57.15 %**	**3,277**	**42.85 %**

1.4. Distribution according to original field of study

The original field of study of 30.5% of those who obtained a Master's degree from a university in Catalonia was different to that of their Master's programme. Instead of gaining a more in-depth knowledge of what they learned at undergraduate level, these people engaged in a different field of study and chose an inter-disciplinary study profile. The remaining 70% did not change field of study, although in many cases they did change subject, as discussed below.

According to subject, Master's degrees in Teacher Training clearly stand out with three quarters of the students having originally taken different subjects. This situation is totally coherent given that the purpose of these Master's programmes is to train graduates from other academic disciplines (Experimental Sciences, Humanities, etc.) as teachers. Economics and Business Administration and Management, Medicine and Dentistry, and Philosophy and Humanities are subject areas in which around half of all graduates originally took a different subject. These subject groupings are of particular interest in that they illustrate three different situations:

- In the case of Economics and Business Administration and Management, 68% of the students who had taken other subjects were from Engineering (Advanced Production Technologies, and Information and Communications). In total, out of the 236 students who had originally taken another subject, 70% held managerial positions (74% in the case of those from Engineering). It is therefore probable that the main reason for taking a Master's degree in these subjects was to complement training in management and administration for reasons of a managerial nature. This hypotheseis is based on the fact that, out of the five reasons given in the survey, this group rated professional career advancement at 6.22 (on a scale from 1 to 7).
- In the case of Medicine and Dentistry, 42% of the students were from Biology and Natural Sciences, 33% from Psychology, 12% from different degrees in Engineering and Physics and Mathematics, and the rest from different degree courses with a lower

incidence. Unlike Economics and Business Administration and Management, only 13% held managerial positions, whereas 54% held positions in research and teaching (80% in the case of those from Experimental Sciences and 55% from Engineering). In the case of Psychology, 55% held care-related positions.

It would therefore seem that the aim here is specialisation in a given professional field as to gaining skills associated with a hierarchical position.

- In the case of Philosophy and Humanities, unlike the other two subject groupings, the profile is of one of graduates who took their Master's degree more out of personal reasons than for work-related reasons (a mean of 6.06 for complementing and acquiring more specialist knowledge compared to 5.09 for professional career advancement). 56% were from Social Sciences, 34% from Health Sciences (more specifically, the Master's programme in Bioethics), 7% (7 people) from Experimental Sciences and 2% (2 people) from Engineering.

Table 1.4.1. Subject studied according to the number of students (descending order) from different fields of study to that of the Master's degree[12]

	n	From a different field of study
Teacher Training	798	75.19 %
Economics and Business Administration and Management	517	46.81 %
Medicine and Dentistry	416	46.63 %
Philosophy and Humanities	206	45.63 %
Tourism	99	41.41 %
Pharmacy/Food Science and Technology	171	40.94 %
Pedagogy	485	40.00 %
Labour Relations	141	39.01 %
Documentation and Communication Sciences	347	30.84 %
Agricultural Engineering	43	30.23 %
Geography and History	414	26.33 %
Biology and Natural Sciences	475	25.05 %
Human Sciences	141	24.82 %
Fine Art	83	22.89 %
Physics and Mathematics	166	20.48 %
Modern Languages	110	20.00 %
Comparative Studies	174	19.54 %
Advanced Production Technologies/Aeronautics	307	17.92 %

[12] Due to the small sample size, Documentation and Communication Sciences, and Advanced Production Technologies/Aeronautics, were grouped together (see annex 4).

Political Science	235	13.62 %
Physical Activity and Sports Sciences	90	13.33 %
Psychology	272	9.93 %
Chemistry	193	9.84 %
Veterinary Science	41	9.76 %
Catalan and Spanish Studies	94	9.57 %
Healthcare	310	8.06 %
Information and Communications	357	7.28 %
Architecture	228	2.63 %
Civil Engineering	46	2.17 %
Law	265	1.89 %
Total	**7,224**	**30.50 %**

On the other hand, there are subjects in which practically no students were from a different field of study. Programmes offered in these subjects, for example, Law, Civil Engineering and Architecture, clearly lead to specific Master's qualifications.

2. INTERNATIONALISATION

Approximately 3 out of 10 students of Master's degrees were international (i.e. of foreign nationality).

The volume of international students has progressively increased since 2006 (by around 10 per cent).

Approximately 6 out of 10 Master's degree holders took their Master's degree at a different institution to the one where they took their previous degree.

14% of the Master's degree holders obtained their previous degree from a foreign university, and 16% from a university in Spain outside of Catalonia. Internationalisation varied widely according to each Master's degree.

Out of the seven indicators on the quality of the international experience, only one was rated as very good. The low ratings do however conceal a considerable heterogeneity according to subject.

International students rated student guidance and orientation at Catalan universities as between very good and good.

This section looks at a series of indicators associated with the internationalisation of Master's programmes. There are three types of indicator:

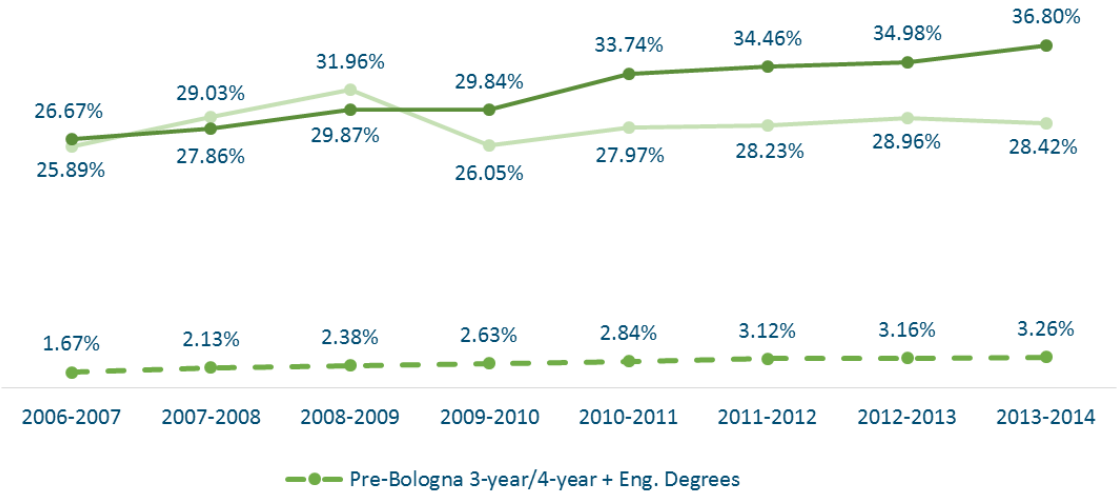
- Number of foreign holders of Master's degrees and their place of origin.
- Data on the university of origin.
- Survey data on the degree to which each Master's degree is internationalised.

2.1. Number of foreign graduates of Master's degrees

Official data

Figure 2.1.1 shows the change in the percentage of foreign holders of Master's degrees[13] who obtained their degree from a university in Catalonia according to UNEIX data. It can be seen that the percentage of foreign holders of Master's degrees remained stable over the seven-year period from 27% in the 2006-2007 academic year to 37% in the 2013-2014 academic year.

Figure 2.1.1. Changes in the percentage of foreign holders of Master's degree who obtained their degree from a Catalan university (UNEIX)



As can be seen, approximately 3 out of 10 Master's degree holders were international. The volume of international students has progressively increased over the last ten years. Since new regulations in 2010, however, there has been a big increase in the volume of Spanish students taking Master's programmes, resulting in a lower proportion of international students.

According to the most recent data on the 2013-2014 academic year, 49.29% of foreign holders of a Master's degree from a university in Catalonia were from Latin America and the Caribbean, 30.4% were from the EU (not including Spain) and 4.93% were from other European countries.

[13] Non-Spanish graduates of Master's programmes.

Data from surveys on graduate employment outcomes

Out of the 16,218 graduates awarded a Master's degree in Catalonia in 2010 and 2011, 26% were foreigners (4,283).

Table 2.1.1. Comparison of the three cycles: student nationality (population data)

	n	Foreign graduates	Spanish graduates
Undergraduate	28,005	1.75%	98.25%
Master's	16,218	26.46%	73.54%
Doctorate	2,080	31.78%	68.22%

Comparison of the three cycles
The higher the level of higher education, the higher the percentage of foreign students who came to study at a university in Catalonia.

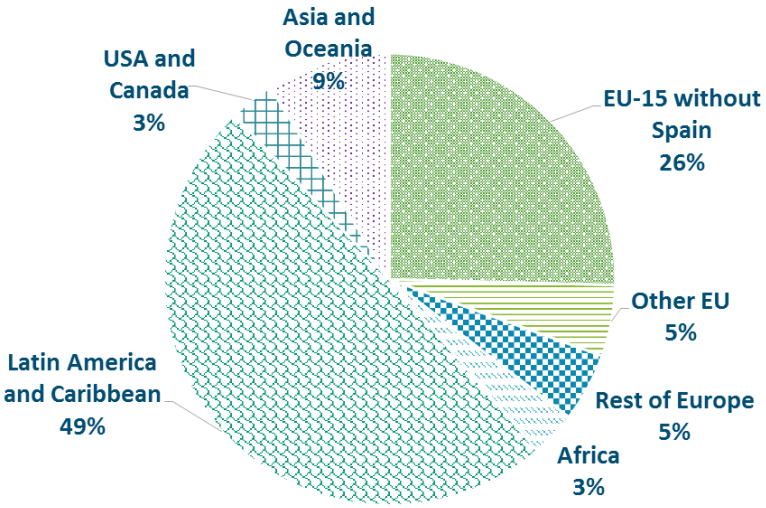
Table 2.1.2. Comparison of the three cycles: continent of origin

	n	Africa	Latin America/ Caribbean	Asia + Oceania	USA + Canada	Europe
Undergraduate	546	5.49%	28.57%	3.30%	3.48%	59.16%
Master's	4,283	3.25%	49.29%	8.55%	3.20%	35.42%
Doctorate	1,020	3.04%	60.88%	4.61%	1.08%	30.39%

Comparison of the three cycles
Students of Master's programmes appear to be more diverse in terms of their country of origin.

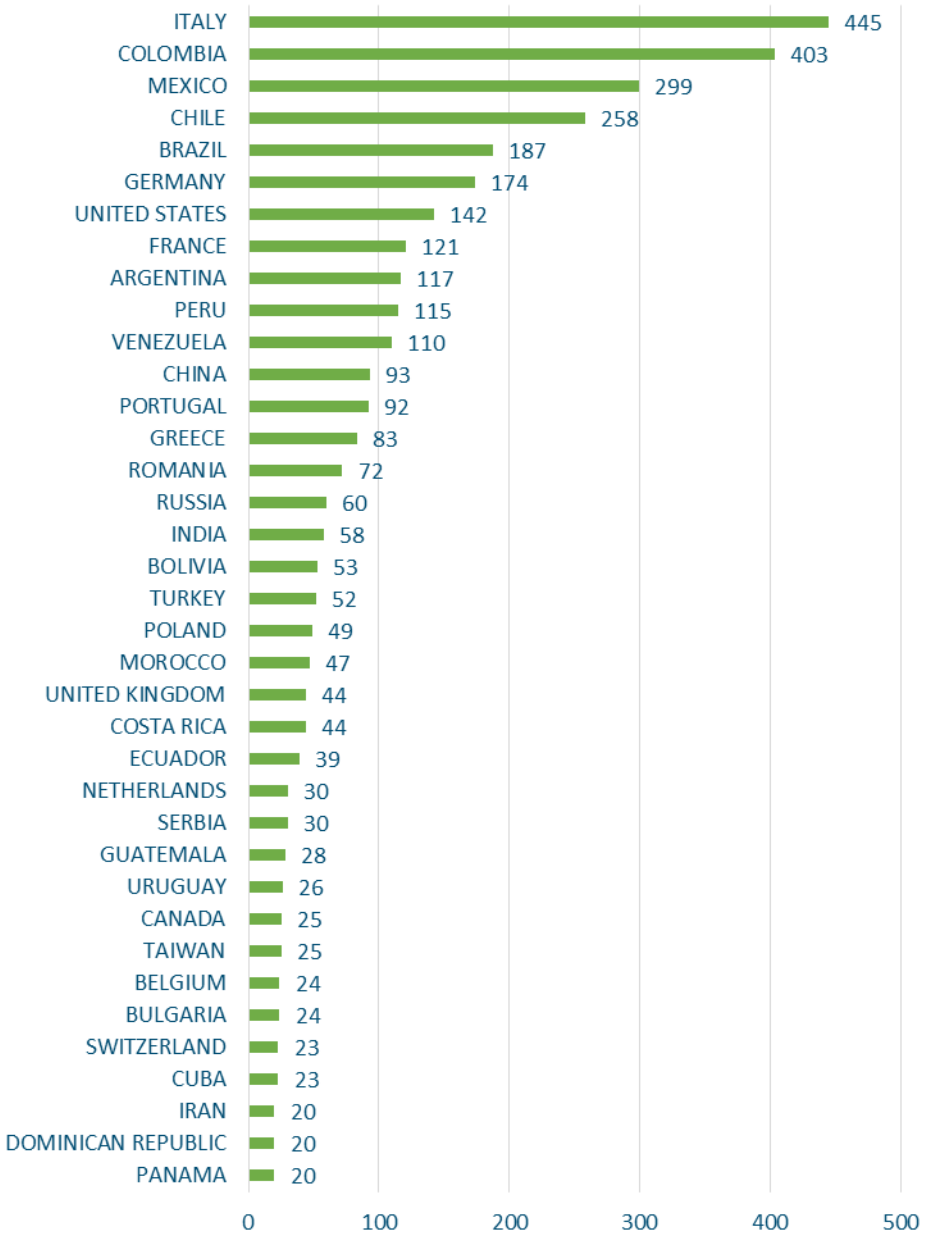
Students from abroad who took a Master's degree programme in Catalonia came mainly from Latin America and Europe (49% and 25%, respectively), 9% were from Asia and Oceania, and there were just a few from Africa (3%) and North America (3%).

Figure 2.1.2. Distribution of foreign holders of a Master's degree from a Catalan university according to place of origin



According to country, Italy and Colombia were the main countries of origin of foreign students studying Master's degrees in Catalonia, followed by Mexico, Chile and Brazil.

Figure 2.1.3. Countries of origin of foreign holders of Master's degrees taken at a Catalan university[14]



In terms of the distribution according to continent of origin and Master's subject, most graduates in almost all subjects were mainly from either Europe or America.

The distribution according to subject again shows a wide heterogeneity for Master's programmes. For example, Catalan and Spanish Studies had the highest percentage of

[14] Countries with less than twenty (20) Master's graduates are not shown.

graduates from Asia (35% compared to an average of 9%); Political Science, on the other hand, attracted many foreign students from Europe (53% compared to an average of 35%). Subjects attracting the most students from Africa were Physical Activity and Sports Sciences, Biology and Natural Sciences, and Healthcare.

Table 2.1.3. Distribution of foreign holders of a Master's degree from a Catalan university according to continent of origin and subject

	n	Africa	North America	Latin America and the Caribbean	Asia	Europe	Oceania
Agricultural Engineering	32	3.13%	0.00%	78.13%	9.38%	9.38%	0.00%
Architecture	204	0.00%	0.98%	62.25%	6.37%	30.39%	0.00%
Fine Art	90	1.11%	2.22%	53.33%	8.89%	34.44%	0.00%
Biology and Natural Sciences	318	10.38%	2.20%	62.58%	3.46%	21.38%	0.00%
Political Science	281	2.85%	9.25%	26.33%	8.19%	53.02%	0.36%
Documentation and Communication Sciences	96	0.00%	2.08%	55.21%	7.29%	35.42%	0.00%
Law	150	1.33%	0.67%	72.67%	0.67%	24.67%	0.00%
Economics and Business Administration and Management	723	2.77%	5.95%	26.97%	14.38%	49.65%	0.28%
Civil Engineering	58	1.72%	3.45%	63.79%	12.07%	18.97%	0.00%
Comparative Studies	149	2.01%	8.05%	39.60%	4.70%	45.64%	0.00%
Pharmacy/Food Science and Technology	69	2.90%	0.00%	79.71%	0.00%	17.39%	0.00%
Catalan and Spanish Studies	60	8.33%	1.67%	23.33%	35.00%	31.67%	0.00%
Modern Languages	137	2.19%	3.65%	11.68%	29.20%	53.28%	0.00%
Philosophy and Humanities	74	1.35%	4.05%	44.59%	1.35%	47.30%	1.35%
Physics and Mathematics	75	6.67%	0.00%	38.67%	20.00%	34.67%	0.00%
Teacher Training	106	3.77%	1.89%	12.26%	5.66%	76.42%	0.00%
Geography and History	277	2.53%	1.44%	52.71%	4.33%	38.99%	0.00%
Physical Activity and Sports Sciences	6	16.67%	0.00%	16.67%	0.00%	66.67%	0.00%
Information and Communications	178	2.25%	2.81%	48.88%	15.73%	29.78%	0.56%
Medicine and Dentistry	267	1.50%	1.12%	66.67%	2.25%	28.09%	0.37%
Pedagogy	209	1.44%	2.87%	77.03%	2.39%	16.27%	0.00%
Healthcare	30	10.00%	10.00%	60.00%	3.33%	16.67%	0.00%

Psychology	175	0.57%	2.29%	70.86%	1.71%	24.57%	0.00%
Chemistry	43	9.30%	2.33%	62.79%	2.33%	23.26%	0.00%
Labour Relations	24	0.00%	0.00%	54.17%	4.17%	41.67%	0.00%
Advanced Production Technologies/Aeronautics	201	7.46%	0.50%	58.71%	16.42%	16.42%	0.50%
Tourism	144	2.08%	0.69%	59.03%	6.94%	31.25%	0.00%
Veterinary Science	38	7.89%	0.00%	71.05%	2.63%	18.42%	0.00%
Human Sciences	69	2.90%	1.45%	57.97%	5.80%	31.88%	0.00%
Total	**4,283**	**3.25%**	**3.20%**	**49.29%**	**8.69%**	**35.42%**	**0.16%**

2.2. Distribution according to university of origin

As can be seen from the table, around 70% of those who obtained a Master's degree from a higher education institution in Catalonia also graduated (with a previous degree) from an institution in Catalonia: 41% from the same university and 29% from another Catalan university. Of the remaining 30%, 14% of all Master's degree holders went to a foreign university and 16% to a Spanish university (not including universities in Catalonia). Public HE institutions in Catalonia attracted more international students, whereas private institutions attracted students more from Spain.

The difference in the proportion of those who had previously been to a foreign university (14%) and students of foreign nationality (26%) suggests that the nationality-based internationalisation indicator over-estimates the population volume from outside Catalonia.

Table 2.2.1. Sample distribution according to the university where a Master's degree was taken

	Same university	Another university in Catalonia	A Spanish university (outside Catalonia)	A foreign university
Public universities	45.01%	25.08%	14.06%	15.85%
Private universities	24.05%	44.08%	23.46%	8.41%
Total	**41.16%**	**28.57%**	**15.79%**	**14.48%**

Around 60% of Master's holders graduated from a different university to the one in which they obtained their previous degree. The subjects that attracted the most international students were Modern Languages and Comparative Studies, together with building and construction-related subjects, such as Architecture and Civil Engineering. Physical Activity and Sports Sciences in the Social Sciences, together with Fine Art in Humanities, attracted more students who came from other Spanish universities to take a Master's degree at a university in Catalonia.

Table 2.2.2. University of origin (sample) according to the Master's degree subject

	Same university	Another university in Catalonia	A Spanish university (outside Catalonia)	A foreign university
Fine Art	44.55%	4.95%	30.69%	19.80%
Comparative Studies	36.51%	19.58%	12.17%	31.75%
Catalan and Spanish Studies	48.48%	25.25%	12.12%	14.14%
Modern Languages	37.80%	11.02%	13.39%	37.80%
Philosophy and Humanities	33.33%	27.23%	26.76%	12.68%
Geography and History	44.89%	23.56%	15.33%	16.22%
Political Science	33.59%	24.61%	14.06%	27.73%
Documentation and Communication Sciences	22.13%	40.44%	25.14%	12.30%
Law	32.71%	31.23%	21.19%	14.87%
Economics and Business Administration and Management	25.04%	39.79%	13.55%	21.61%
Teacher Training	42.53%	45.32%	7.65%	4.50%
Physical Activity and Sports Sciences	2.15%	50.54%	41.94%	5.38%
Pedagogy	40.48%	36.27%	16.43%	6.81%
Psychology	44.77%	24.91%	18.05%	12.27%
Labour Relations	46.58%	28.08%	17.81%	7.53%
Tourism	28.04%	37.38%	25.23%	9.35%
Biology and Natural Sciences	43.46%	24.95%	19.92%	11.67%
Physics and Mathematics	45.98%	25.29%	13.22%	15.52%
Chemistry	65.66%	15.15%	13.13%	6.06%
Human Sciences	41.26%	32.17%	18.18%	8.39%
Pharmacy/Food Science and Technology	52.25%	31.46%	9.55%	6.74%
Medicine and Dentistry	29.07%	36.28%	16.98%	17.67%
Healthcare	53.77%	25.47%	16.98%	3.77%
Veterinary Science	31.11%	13.33%	28.89%	26.67%
Agricultural Engineering	50.00%	22.73%	20.45%	6.82%
Architecture	39.50%	6.72%	19.75%	34.03%
Civil Engineering	44.44%	4.76%	11.11%	39.68%
Information and Communications	57.76%	13.99%	14.50%	13.74%
Advanced Production Technologies/Aeronautics	46.01%	19.94%	15.95%	18.10%
Total	**40.14%**	**28.97%**	**16.52%**	**14.36%**

2.3. Indicators of internationalisation[15]

This section describes the degree to which survey respondents, who took an international inter-university Master's degree, had the opportunity to participate in events and/or implement actions at academic and/or professional level that opened up possibilities of internationalisation for them.

Of the seven items included in this section, only one (the possibilities of personal, academic and professional advancement) was rated higher than "pass". The others, which are associated with different facets of the students' international experience, were rated below the pass mark.[16]

In spite of the fact that the degree courses concerned were international inter-university Master's programmes, the opportunities of periods of study or work experience abroad and/or to participate in congresses, seminars and other international events were few.

Figure 2.3.1. Assessment of the internationalisation opportunities (scale from 0 to 10) of the Master's programme (only international Master's programmes)

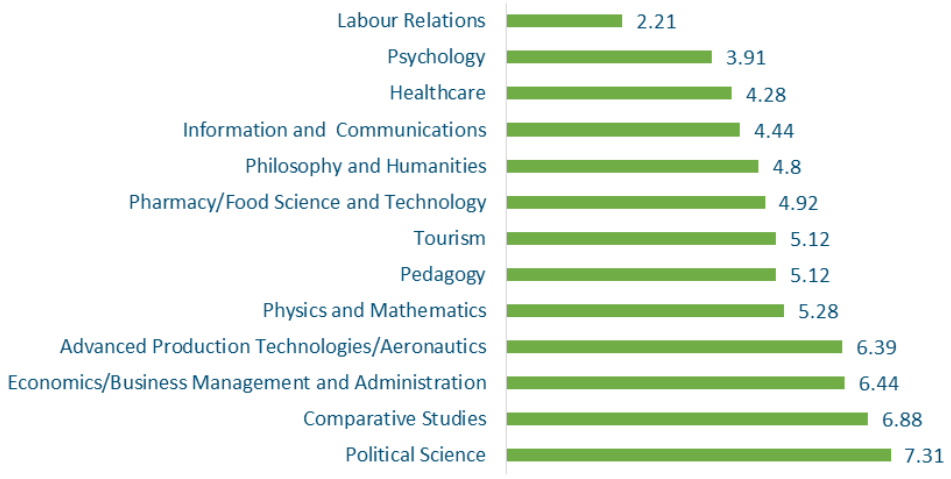
This picture, which overall is poor, conceals a range of situations. For example, Political Science and Comparative Studies were rated as "very good" in terms of the students acquiring an international vision as to their field of study was concerned. These were also the two subjects with the highest number of international teaching staff and more opportunities to participate in international congresses and seminars (see table 2.3.1). Labour Relations and

[15] A Master's programme is considered to be "international" when more than 40% of the graduates in the cohort study are foreign nationals, i.e. where [(international graduates 2009-2010 + international graduates 2010-2011) / (graduates 2009-2010 + graduates 2010-2011)] >= 40%.

[16] Reliability testing (see annex 5) shows that there is an improvement in the scale if the item of personal, academic and professional advancement is eliminated overall, which gives a value of Cronbach's alpha from 0.91 as to 0.92. Factor analysis reveals one factor, which also improves substantially when this item is eliminated, that accounts for 72% of the variance instead of 66%. The most important item in the scale is networking, which moderately correlates with all the other items.

Psychology were the two subjects where there was the most room for improvement in this aspect.

Figure 2.3.2. Assessment of the degree to which students acquired an international vision as to their field of study during their Master's degree studies (scale from 0 to 10) according to subject (only international Master's programmes)[17]



With regard to the opportunities for internationalisation according to the Master's degree subject, it can be seen that there are more opportunities in subjects in Engineering, particularly Master's programmes in Civil Engineering and Architecture. At the same time, there are other fields of study where there are few apparent opportunities for students, yet in certain subjects opportunities are offered to a considerable degree: for example, Comparative Studies, Modern Languages, Political Science and Economics and Business Management and Administration.

Subjects that stand out are Labour Relations, which offers the fewest opportunities for internationalisation as a whole, and Chemistry, which does offer more possibilities of periods of study or work experience abroad than other subjects in Experimental Sciences, but this does not make up for the low rating for establishing contact with people and institutions at international level and job listings and opportunities abroad.

[17] The results for Modern Languages, Geography and History, Biology and Natural Sciences, Chemistry, Medicine and Dentistry, Veterinary Science, Civil Engineering, Aeronautical Engineering and Architecture are not included because *n* was under 10.

Table 2.3.1. Assessment of the opportunities for internationalisation (scale from 0 to 10) during Master's degree studies according to subject (only international Master's programmes)[18]

	n	Study/work experience abroad	Contact with academic staff at other universities/countries	International congresses and seminars	Contact with people/ institutions at international level	Job listings and opportunities abroad	International vision	Personal/academic/ professional advance
Comparative Studies	23	4.49	7.68	6.81	6.59	4.57	6.88	6.96
Philosophy and Humanities	34	1.76	2.55	3.38	3.28	2.12	4.80	6.16
Political Science	13	4.87	6.28	5.64	4.87	4.62	7.31	8.08
Economics and Business Administration and Management	32	4.95	5.22	5.11	5.59	5.17	6.44	7.69
Pedagogy	14	2.02	4.76	4.76	4.52	3.10	5.12	6.31
Psychology	29	2.30	3.68	2.87	3.16	2.08	3.91	7.07
Labour Relations	34	0.64	1.32	1.62	2.11	1.42	2.21	5.15
Tourism	29	2.47	3.56	4.02	4.08	2.18	5.12	6.78
Physics and Mathematics	24	2.99	5.83	3.06	4.44	4.51	5.28	7.78
Pharmacy/Food Science and Technology	20	2.67	3.92	3.17	3.92	2.42	4.92	6.50
Healthcare	30	2.28	2.83	2.22	3.28	2.22	4.28	6.44
Information and Communications	12	4.03	5.69	5.69	5.00	4.72	4.44	5.97
Advanced Production Technologies/Aeronautics	12	3.19	5.69	5.76	5.00	3.64	6.39	7.50
Total		**2.79**	**4.21**	**3.90**	**4.09**	**3.08**	**4.97**	**6.72**

The subjects offering the most possibilities of periods of study or work experience abroad during Master's degree studies were Economics and Business Administration and Management, Political Science and Comparative Studies. This option was practically non-existent in Labour Relations. Nonetheless, no subject was rated higher than 5 (on a scale from 0 to 10) as regards the possibility of periods of study or work experience abroad during the Master's programme.

[18] The results for Modern Languages, Geography and History, Biology and Natural Sciences, Chemistry, Medicine and Dentistry, Veterinary Science, Civil Engineering, Aeronautical Engineering and Architecture are not included because *n* was under 10. They are included in the overall result.

2.4. Assessment of the services offered to international students (on periods of study or work experience abroad)

The survey covers a total of eight items that deal with orientation for international students[19] and range from the prior accessibility of public information, advice and counselling to student reception.

The level of satisfaction of the 273 students who responded was very high, with an overall rating of 6.3. It is interesting to note that, in all cases, there was a higher level of satisfaction among international students as regards student services than among students of Spanish nationality. These differences are significant for all items except for prior accessibility of public information, and academic formalities (support, speed and ease of admission, registration, qualifications, certificates, etc.).[20] It would seem therefore that student support and orientation offered to international students by universities in Catalonia is of a higher quality than that offered by foreign universities to Master's students of Spanish nationality undertaking periods of study abroad.

Table 2.4.1. Assessment (scale from 0 to 10) of the services offered to international students (only international Master's programmes)

	n	Prior access to public information on Master's degree programmes	Information provided by the university's international office/service	Advice/help regarding enquiries to the university's international office/service	Services (accommodation, food, transport, etc.)	Student reception and orientation in the university / study programmes (academic guidance, tutoring, etc.)	Academic formalities (support, speed and ease of admission, registration, qualifications, certificates, etc.)	Personal support and resources for language learning (Catalan/Spanish)	Cultural and social activities facilitating integration and multi-culturalism
International students	186	7.16	7.14	7.02	5.99	7.02	6.28	6.28	6.44
Students of Spanish nationality	87	6.61	6.19	6.06	4.76	6.19	5.92	3.85	4.78
Total	**273**	**6.98**	**6.84**	**6.71**	**5.62**	**6.77**	**6.17**	**5.64**	**5.95**

[19] Reliability testing (see annex 5) gives a Cronbach's alpha value of 0.869 for the eight items. All of the items contribute positively to the reliability. Factor analysis (principal component analysis, varimax rotation) reveals two factors that account for 67% of the variance. The first includes the first six items, connected with information and advice for international students, and also services offered and academic formalities. The second includes two items related to socio-cultural integration: language learning resources (Catalan/Spanish) and activities facilitating integration and multi-culturalism.

[20] Student's *t* compared to independent samples, Cronbach's alpha = 0.05 (see annex 5).

3. THE REASON FOR TAKING A MASTER'S DEGREE

3.1. Reasons for taking a Master's degree

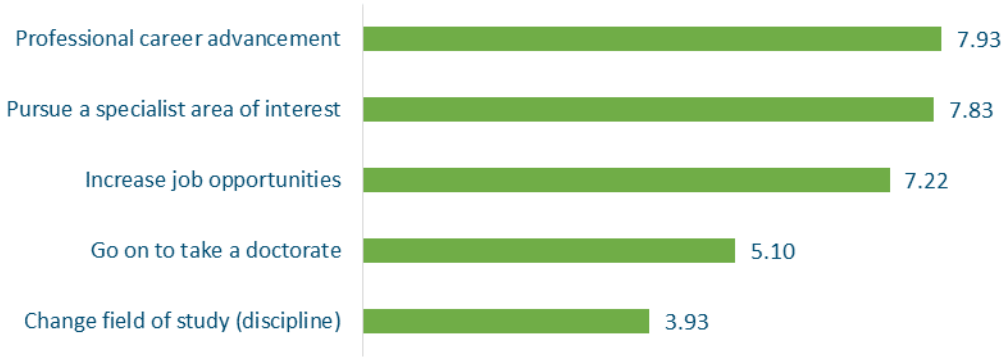
There are two main reasons for taking a Master's degree: professional career advancement and to pursue a specialist area of interest studied during one's previous degree studies or career, i.e. a combination of both personal and professional reasons.

According to the student profile, taking a Master's degree in order to go on and take a doctorate and to increase one's job possibilities were more important reasons for those who had never worked full-time prior to their Master's studies than for those who had worked previously. Conversely, taking a Master's degree in a different field of study was on average rated higher by those who had worked full-time prior to their Master's studies than for those who hadn't.

The main reasons and ratings for taking a Master's degree were: professional career advancement (7.9 out of 10) and to pursue a specialist area of interest (7.8).[21]

[21] Reliability testing (see annex 6) shows that the five items measure different things. Cronbach's alpha = 0.28. The only two items that measure the same are: to increase job opportunities and professional career advancement. The items have a low level of correlation. The results are particularly disparate for going on to take a doctorate, which is clearly independent of professional reasons, and even pursuing a specialist area of interest (correlation of 0.10), which gives a very weak negative correlation with a change of discipline. Elimination of this item raises the reliability from 0.28 to 0.50. This analysis shows that the reasons given are, to a certain extent, inconsistent and do not correlate.

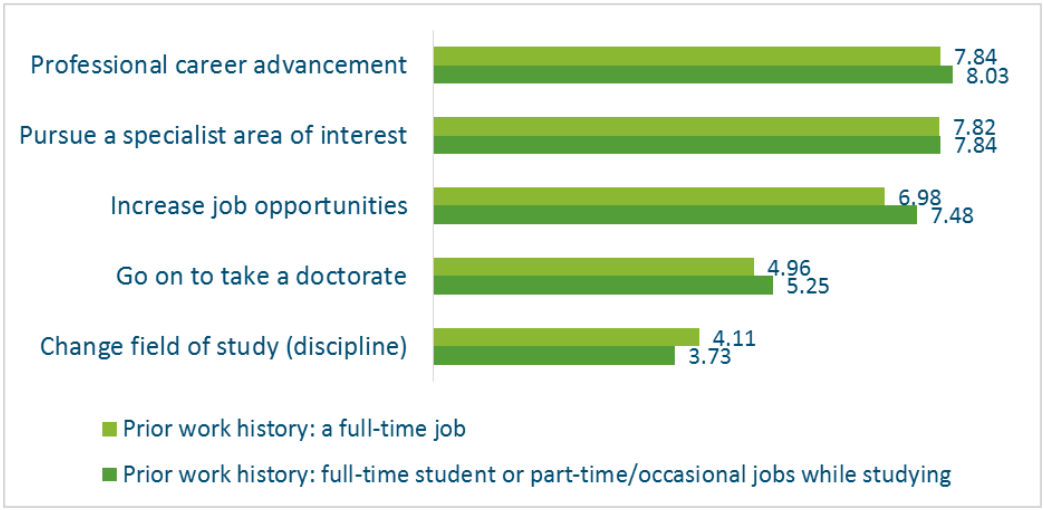
Figure 3.1.1. Reasons for taking a Master's degree (scale from 0 to 10)



Those who were highly motivated to change their field of study (> 5) were more motivated to increase their job opportunities (7.8 compared to 6.7 for those who were not). This is not the case among those who chose to take a Master's degree in order to go on and take a doctorate (> 5); in fact, the motivation to increase job opportunities was rated lower among those did not take a Master's degree for the purpose of going on to take a doctorate (6.6 compared to 7.7).

In terms of professional career advancement, better job prospects was logically more important for those who, prior to obtaining a Master' degree, had either been full-time students or taken part-time jobs while they studied, compared to those who had worked full-time (7.5 compared to 7). Conversely, the mean values for students who were already working full-time were higher than those of students who were not working full-time as far as wanting to change their field of study is concerned (4 compared to 3.7).

Figure 3.1.2. Reasons for deciding to take a Master's degree in relation to professional career advancement (scale from 0 to 10)



According to subject, it is interesting to see that the subjects in which personal motivation (pursuit of a specialist area of interest) was the highest were in Humanities: Fine Art and Languages. These were followed by Pedagogy, Architecture and Psychology.

The subject where the main motivation was to increase one's job opportunities was Teacher Training, where a Master's qualification is compulsory for teaching positions in secondary education. This was followed by Labour Relations, Aeronautics, Tourism, and Economics and Business Administration and Management.

There is a radical change in the top five positions when the main motivation was to go on to take a doctorate, with the leading subjects being in Experimental Sciences and Health Sciences: Chemistry, Physics and Mathematics, Healthcare, Human Sciences, and Medicine and Dentistry. These subjects are therefore taken by people who tend to go on to a career in research.

Table 3.1.1. Reasons for deciding to take a Master's degree according to subject (scale from 0 to 10)

	Better job prospects	Professional career advancement	Go on to take a doctorate	Pursue a specialist area of interest	Change in field of study
Fine Art	6.75	8.86	6.47	8.61	2.66
Comparative Studies	5.09	6.8	6.35	8.13	3.99
Catalan and Spanish Studies	6.52	7.58	5.98	8.22	3.32
Modern Languages	7.82	8.39	4.2	8.56	3.81
Philosophy and Humanities	5.26	7.1	5.77	8.24	3.54
Geography and History	6.27	7.61	6.51	8.13	3.85
Communication Sciences	6.93	7.56	5.52	7.77	3.94
Political Science	7.22	8.21	4.66	8.23	4.13
Documentation	7.63	8.17	1.51	8.17	2.37
Law	7.3	7.92	4.55	8.28	2.97
Economics and Business Administration and Management	8.06	8.53	2.95	7.79	4.73
Teacher Training	8.78	7.27	1.41	6.44	6.17
Physical Activity and Sports Sciences	7.29	8.58	6	8.32	2.87
Pedagogy	6.42	8.26	5.12	8.52	3.83
Psychology	7.45	8.32	5.09	8.39	3
Labour Relations	8.58	8.47	1.88	8.33	4.26
Tourism	8.22	8.08	2.5	7.99	4.16
Biology and Natural Sciences	7.55	8.23	6.39	7.66	3.66
Physics and Mathematics	6.72	7.95	7.49	7.84	3.22

Chemistry	7.18	7.97	7.67	7.42	3
Human Sciences	7	7.62	7.33	7.03	4.63
Pharmacy/Food Science and Technology	7.61	8.31	4.68	8.05	3.7
Medicine and Dentistry	6.66	8.03	7	7.56	3.35
Healthcare	6.62	8.34	7.41	8.14	3.63
Veterinary Science	7.26	8.3	6.78	7.85	3.33
Aeronautics	8.48	8.58	3.38	8.24	4.31
Agricultural Engineering	6.55	7.16	6.36	7.31	2.88
Architecture	6.75	7.94	6.05	8.44	2.68
Civil Engineering	7.67	8.1	5.82	7.86	3.17
Information and Communications	7.05	7.77	5.09	7.96	3.48
Advanced Production Technologies	7.34	7.73	6.35	7.44	3.49
Total	**7.22**	**7.93**	**5.1**	**7.83**	**3.93**

4. EMPLOYMENT OUTCOMES

4.1. Employment situation two years after finishing a Master's degree

The higher the level of (higher) education, the higher the employment rate and the lower the unemployment rate.

86% of Master's degree holders were working two years after completing their Master's studies. This percentage ranges between 90% for those who had already worked full-time prior to starting their Master's degree and 82% for those with continuous academic careers between their pre-Master's and Master's studies.

Official statistics show that, for the majority of countries, the higher the level of education, the higher the activity rate and level of employment[22] (OECD, 2013).[23] The labour force survey (EPA) for Spain shows that this trend is steady and becomes accentuated in times of economic crisis, as pointed out in the AQU Catalunya 2014 report on the employment outcomes of Bachelor's degree graduates from Catalan universities (2014).

[22] This is not the case for all countries. A recent study carried out by the European Commission distinguishes three groups of countries (European Commission/EACEA/Eurydice, 2015):

- Countries where the outcomes show the abovementioned trend results (the higher the level of education, the higher the employment rate and the lower the unemployment rate). **Spain is one of these countries**. **The findings of this study of Master's degree holders concur with this** (see table 4.1.1 for a comparison of Bachelor's, Master's and doctorate degrees).
- Countries where the outcomes show that the higher the level of education, the lower the employment rate and the higher the unemployment rate, although the outcomes have not deteriorated since 2008 (Republic of Macedonia, Georgia, Albania, Armenia, Turkey and Moldavia).
- Countries where the outcomes show that the higher the level of education, the lower the employment rate and the higher the unemployment rate, and where the unemployment rate has increased considerably since 2008 (Greece, Bosnia and Herzegovina, Serbia, Croatia, Cyprus, Portugal, Romania).

European Commission/EACEA/Eurydice (2015) *The European Higher Education Area in 2015: Bologna Process Implementation Report.* Luxemburg: Publications Office of the European Union.

AQU Catalunya (2014) *Universities and employment in Catalonia 2014. Survey of the employment outcomes of Bachelor's degree graduates from Catalan universities*. Barcelona: AQU Catalunya. <http://www.aqu.cat/doc/doc_26089170_1.pdf>.

[23] OECD (2013) *Education at a Glance 2013. OECD Indicators*. <http://dx.doi.org/10.1787/eag-2013-en>.

Table 4.1.1. Comparison of the three cycles: occupational situation

	n	Employed	Unemployed	Inactive
Undergraduate	16,044	84.78%	10.96%	4.26%
Master's	7,605	85.85%	8.80%	5.35%
Doctorate	1,426	93.13%	4.91%	1.96%

Comparison of the three cycles
The higher the level of (higher) education, the higher the employment rate and the lower the unemployment rate.

86% of Master's degree holders were working two years after completing their Master's studies, and 9% were unemployed. Of those who had either been full-time students or worked part-time while they were studying, 82% were employed at the time of the survey, compared to 90% of those who had worked full-time prior to obtaining their Master's degree were employed (see annex 7).

According to the labour force survey (EPA) for Spain, in the first quarter of 2014 the employment rate was 11 per cent lower among the population aged between 25 and 44 (see table 4.1.2).

Table 4.1.2. Rates of employment, unemployment and inactivity of the population aged between 25 and 44 (EPA/labour force survey for Spain)

	Employment rate	Unemployment rate	Inactivity rate
Higher education (which includes advanced vocational training, university and doctoral studies)	77%	16%	7%
Compulsory and post-compulsory secondary education	62%	26%	12%
Primary education	41%	34%	25%

According to subject (see table 4.1.3), there were considerable differences in the employment rate, ranging from 94% in Physical Activity and Sports Sciences to 72% in Fine Art. It is interesting to note that the five subjects with the highest level of employment include subjects in Social Sciences (Physical Activity and Sports Sciences, Economics and Business Administration and Management), Engineering Sciences (Information and Communications, Civil Engineering) and Health Sciences (Medicine and Dentistry).

At the other extreme, there were five subjects with an employment rate of under 80%: Catalan and Spanish Studies, Agricultural Engineering, Veterinary Science, Geography and History, and Fine Art. As in the previous case, this includes graduates from different fields of study: Humanities (Philology, Geography and History, Fine Art), Engineering Sciences (Agricultural Engineering) and Health Sciences (Veterinary Science).

In some subjects, there was a considerable spread in the employment rate according to the graduates' **academic background**.[24] For example, amongst graduates in Fine Art, Catalan and Spanish Studies and Healthcare, the employment rate was 15% higher for those who were already working full-time prior to starting their Master's studies. Conversely, there was a difference of less than 1% in Biology and Natural Sciences, Political Science and Psychology. In Human Sciences, the employment rate was highest among the group that had the least work experience. These data reflect the difficulty of reaching valid conclusions for all graduates as regards what leads to a higher employment rate.

Table 4.1.3. Employment, unemployment and inactivity according to subject, in descending order according to employment rate

	Employment rate	Unemployment rate	Inactivity rate	Total *n*	Number of graduates that had worked full-time (FT)	Difference in the employment rate according to prior work experience (FT - FTS/PT)
Physical Activity and Sports Sciences	94.44%	3.33%	2.22%	90	43	10.64%
Information and Communications	91.60%	3.82%	4.58%	393	190	5.99%
Medicine and Dentistry	90.89%	4.91%	4.21%	428	217	6.63%
Economics and Business Administration and Management	90.74%	6.17%	3.09%	583	378	5.64%
Civil Engineering	90.32%	3.23%	6.45%	62	31	13.54%
Advanced Production Technologies/Aeronautics	90.18%	4.60%	5.21%	326	151	4.91%
Law	89.18%	5.97%	4.85%	268	151	11.55%
Modern Languages	88.80%	6.40%	4.80%	125	43	1.27%
Healthcare	88.64%	4.42%	6.94%	317	222	16.18%
Pedagogy	88.53%	7.04%	4.43%	497	305	11.59%
Labour Relations	88.28%	10.34%	1.38%	145	83	7.88%
Pharmacy/Food Science and Technology	86.93%	7.39%	5.68%	176	70	9.11%

[24] The background of Master's graduates is here defined as the combination of their occupational situation during their pre-Masters studies. There are primarily two situations: students who are either full-time or have a part-time job, which may or may not be related to their studies (FTS/PT), and students who have a full-time job, which may or may not be related to their studies (FT).

Human Sciences	86.71%	6.99%	6.29%	143	35	-13.04%
Documentation and Communication Sciences	86.26%	8.79%	4.95%	364	200	4.89%
Teacher Training	86.22%	9.76%	4.02%	820	392	6.62%
Psychology	84.98%	10.99%	4.03%	273	95	1.02%
Physics and Mathematics	84.80%	7.60%	7.60%	171	35	-1.94%
Chemistry	83.25%	13.71%	3.05%	197	37	6.16%
Architecture	83.19%	9.24%	7.56%	238	137	4.30%
Philosophy and Humanities	83.02%	10.85%	6.13%	212	101	15.18%
Tourism	82.24%	6.54%	11.21%	107	57	10.75%
Political Science	81.89%	12.60%	5.51%	254	75	0.82%
Comparative Studies	80.11%	14.52%	5.38%	186	68	1.54%
Biology and Natural Sciences	80.08%	15.65%	4.27%	492	133	0.06%
Catalan and Spanish Studies	78.79%	11.11%	10.10%	99	39	17.73%
Agricultural Engineering	77.27%	20.45%	2.27%	44	22	3.57%
Veterinary Science	77.27%	15.91%	6.82%	44	9	-11.41%
Geography and History	76.89%	12.22%	10.89%	450	161	12.86%
Fine Art	72.28%	13.86%	13.86%	101	22	20.89%
Total	**85.85%**	**8.80%**	**5.35%**	**7,605**	**3,913**	

With regard to the unemployment rate, the subjects with the poorest employment outcomes were Agricultural Engineering, Veterinary Science, and Biology and Natural Sciences, all three having an unemployment rate of over 15%. These were followed by Comparative Studies and Fine Art. In this first group of five subjects we see yet again how the cliché that subjects in the Humanities have a higher unemployment rate than technical subjects does not necessarily apply: one is in Engineering (Agricultural Engineering), one in Health Sciences (Veterinary Science), one in Experimental Sciences (Biology and Natural Sciences) and two in Humanities (Comparative Studies and Fine Art).

4.2. Recruitment in the public and private sectors

Approximately 6 out of 10 Master's degree holders were working in the private sector.

There were more Master's degree holders working in the public sector than undergraduate or Doctorate degree holders.

Table 4.2.1. Comparison of the three cycles: recruitment in the public and private sectors

	n	Public sector	Private sector
Undergraduate	15,535	22.27%	77.73%
Master's	7,053	39.02%	60.98%
Doctorate	1,418	35.47%	64.53%

Comparison of the three cycles
The percentage of Master's degree holders working in the public sector was higher than that of doctorate holders and especially graduates of undergraduate degrees.

39% of Master's degree holders were working in the public sector. This percentage is higher than that of graduates of pre-Bologna undergraduate programmes and 4% higher than that of doctorate holders. One hypothesis to be tested is whether taking a Master's degree is more compatible with a job in the public sector as to the private sector.

Recruitment in either the public or private sector is linked to the Master's subject studied. Recruitment in either the public sector was 72% in Physics and Mathematics, but only 21% in Economics and Business Administration and Management, and Architecture.

Table 4.2.2. Recruitment in the public or private sector, in descending order according to the employment rate in the public sector

	Public sector	Private sector	Total *n*
Physics and Mathematics	72.33%	27.67%	159
Chemistry	61.58%	38.42%	190
Pedagogy	58.21%	41.79%	457
Medicine and Dentistry	56.78%	43.22%	398
Human Sciences	55.88%	44.12%	136
Healthcare	53.38%	46.62%	296
Catalan and Spanish Studies	52.94%	47.06%	85
Documentation	51.61%	48.39%	31
Agricultural Engineering	48.78%	51.22%	41
Biology and Natural Sciences	48.37%	51.63%	461
Philosophy and Humanities	43.32%	56.68%	187

Geography and History	42.28%	57.72%	395
Physical Activity and Sports Sciences	40.00%	60.00%	80
Veterinary Science	40.00%	60.00%	40
Political Science	38.94%	61.06%	226
Information and Communications	38.75%	61.25%	369
Advanced Production Technologies	37.77%	62.23%	278
Tourism	36.84%	63.16%	95
Modern Languages	35.00%	65.00%	120
Comparative Studies	34.48%	65.52%	174
Civil Engineering	33.93%	66.07%	56
Law	31.62%	68.38%	253
Psychology	30.98%	69.02%	255
Pharmacy/Food Science and Technology	30.72%	69.28%	166
Fine Art	25.93%	74.07%	81
Teacher Training	25.20%	74.80%	766
Labour Relations	25.18%	74.82%	139
Communication Sciences	24.18%	75.82%	306
Aeronautics	23.53%	76.47%	34
Architecture	21.10%	78.90%	218
Economics and Business Administration and Management	20.50%	79.50%	561
Total	**39.02%**	**60.98%**	**7,053**
Full-time students or with part-time jobs	36.9%	63.1%	3,333
Background with a full-time job	40.9%	59.1%	3,719

In terms of **professional background**, 41% of the graduates who had worked full-time prior to taking their Master's were working in the public sector, compared to 37% for full-time students and students who had worked in part-time jobs. Although this difference is small, it would seem to indicate a possible bias towards the public sector in students who worked full-time while taking a Master's degree, i.e. there were more public sector professionals who took Master's degree than private sector professionals.

4.3. Unemployment

9% of Master's degree holders were unemployed.

Out of all of those who were unemployed, two thirds (65%) had been looking for work for less than one year.

Table 4.3.1. Comparison of the three cycles: time spent looking for a job

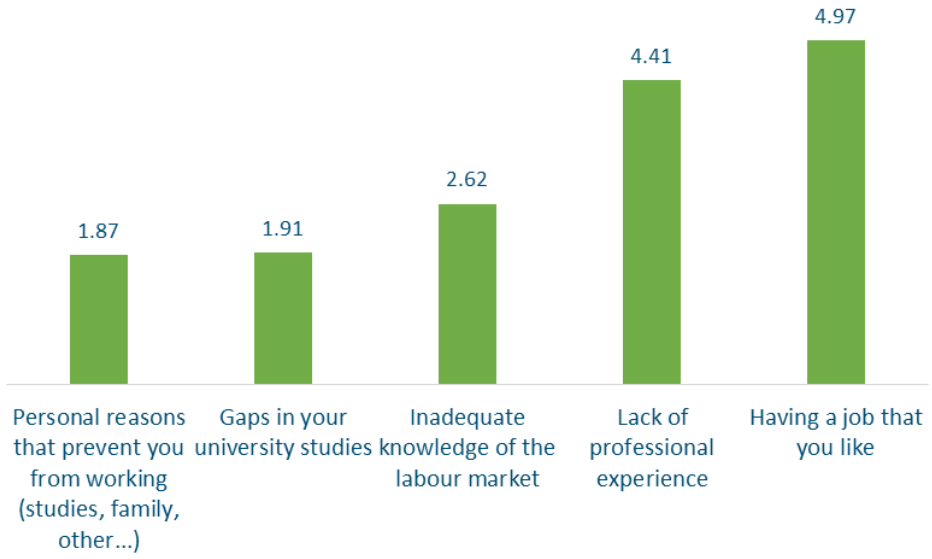
	n	Less than 6 months	Between 6 months and one year	Between one and two years	More than 2 years	*Comparison of the three cycles*
Undergrad. degree	1,757	49.29%	20.77%	14.06%	15.88%	It took more time for unemployed Master's degree holders to find work than unemployed graduates and doctorate holders.
Master's	668	43.56%	21.11%	17.51%	17.81%	
Doctorate	70	48.57	25.7%	12.9%	12.9%	

Out of the 7,647 Master's degree holders who were interviewed, 668 were unemployed, meaning that they did not have a job and they were looking for one. Of these, 65% had been looking for work for less than a year and the remaining 35% had been looking for more than a year.

None of the reasons provided in the survey were considered to be important reasons for not finding work (none of them were rated above 5), which suggests that the main reason was job availability. The most important reasons given by graduates was the difficulty of finding a job that they liked (5 out of 10) and the lack of professional experience (4 out of 10).

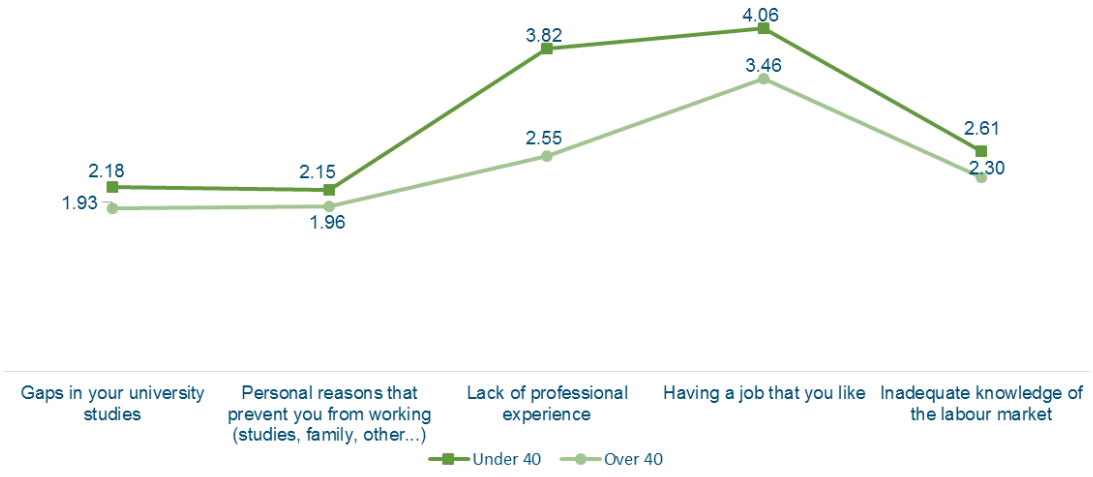
It is worthy of note that Master's degree holders did not rate their lack of theoretical or practical skills as one of their reasons for not finding a job.

Figure 4.3.1. Reasons for not finding a job (scale from 0 to 10)



The reasons for students having difficulties in finding a job varied according to the group. As can be seen from figure 4.3.2, a lack of professional experience was more important for those aged under 40 than for those over 40. The group over 40 was also more open to accepting jobs that they did not particularly like than the younger group. For all the other items there were no significant differences between the two groups.

Figure 4.3.2. Reasons for not finding a job according to age (scale from 0 to 10)[25]



[25] Annex 7 shows the result for the Student *t* test of two independent samples for each reason for Master's graduates not finding work. The null hypothesis for the two age groups being equal was rejected in the cases of lack of professional experience and having a job that I like.

A quantitative model of employment: multivariant analysis of the probability of a Master's degree holder being in employment

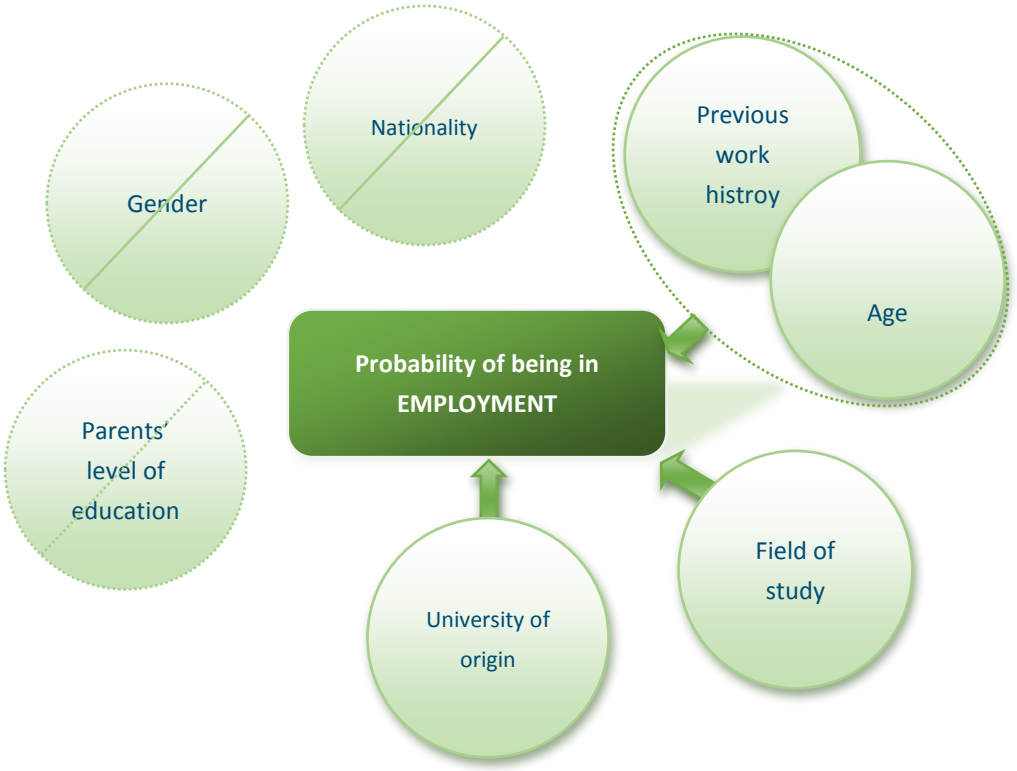
Through the use of a logistic regression model (see annex 8), this section analyses the impact of the abovementioned variables on Master's graduates obtaining a job. It should first be noted that the logistic models applied have a low to moderate predictive level of accuracy, with an AUC[26] of 60%. An analysis of the odds ratio, on the other hand, allows us to see the variables that are more influential in explaining graduate employment. This is because transition to the labour market is a highly complex phenomenon and this aspect is only partially covered by the surveys.

Analysis of the probability of a Master's degree holder being in employment shows that gender is not a predictor, provided the remaining variables in the model are controlled (see section 1, annex 8), nor is the parents' level of education. Likewise, nationality (a foreigner compared to a person of Spanish nationality) has no significant effect on the probability of a Master's degree holder being in employment, and neither is the fact of taking a doctoral degree a significant predictor of a Master's degree holder being in employment or not.

Of the variables considered, the most influential are age and having worked prior to taking a Master's degree. The probability of people aged over 40 who had worked full-time prior to studying for a Master's degree being in employment was 2.4 times higher than those under 40 and who had not worked prior to taking a Master's degree. Irrespective of age and prior work history, those taking a Master's degree in Engineering Sciences (excluding Architecture and Civil Engineering) were 2.2 more likely to be in employment. Taking a Master's in Economics and Law-related subjects also increased the probability of a Master's degree holder being in employment by 1.8.

[26] Area Under the Curve (AUC) is a measure of discrimination that shows the probability of correctly establishing whether a person is employed or not. An AUC of 50% represents a worthless test (i.e. it will not discriminate), and 70% is considered to be a fair (acceptable) level of discrimination.

Figure 4.3.3. Quantitative model for the employment rate[27]



The other variables included in the model are also significant, but with a lower level of impact on the probability of a Master's degree holder being in employment. Conceptually speaking, it is interesting to note the impact of having studied at either a Spanish or international university. One possible hypothesis is that people who change their place of residence to go and study somewhere else probably have a higher level of soft skills, i.e. they are people who "on the ball". The public or private nature of the university is also significant, even when the parents' level of studies is controlled. One possible explanation is the degree to which Master's studies provide for effective networking in the process of recruitment.[28]

[27] Of all the significant variables in the model, only the ones most influencing the probability of a graduate being in employment have been described.

[28] This variable has been tested in other models connected with the parents' level of education, and it has been established that there is no interaction when predicting the probability of a graduate being in employment.

5. THE QUALITY OF EMPLOYMENT

5.1. Job stability

Around half of the Master's degree holders had a fixed-term contract (45%), compared to 30% who had a temporary contract.

There were more graduates with a fixed-term contract amongst those who worked full-time prior to obtaining a Master's degree (56%) than those who were full-time students or worked part-time while they were studying (33%).

The type of contract is clearly related to the Master's subject studied.

The highest percentage of self-employed Master's graduates was in Architecture, Fine Art and Law.

The highest percentage of scholarship and grant recipients was in subjects in Experimental Sciences, in which more graduates go on to take a Doctorate.

Table 5.1.1. Comparison of the three cycles: job stability

	n	Permanent	Self-employed	Part-time	Scholarship /grant recipient	No contract
Undergrad. degree	15,550	48.34%	11.23%	34.98%	4.22%	1.23%
Master's	7,038	45%	12.08%	30.21%	11.61%	1.11%
Doctorate	1,418	45.70%	4.58%	39.14%	10.30%	0.28%

Comparison of the three cycles
The types of contract are quite similar across all three cycles.

Almost half of the Master's degree holders had a fixed-term contract (45%), compared to 30% who had a temporary contract. Of the three cycles surveyed, Master's degrees had a slightly higher percentage of students who were scholarship or grant recipients. 91% of the scholarship/grant recipients were taking a doctoral degree.

There were only six subjects where more than half of Master's degree holders had a fixed-term contract: Healthcare (70%), followed by Labour Relations, Economics and Business Administration and Management, Information and Communications, Pedagogy and Law. At the other extreme were Human Sciences, Chemistry, Physics and Mathematics, not because of a higher temporary employment rate or short-term work contract rate, but because more than 40% of the graduates in these subjects were scholarship or grant recipients. These subjects are therefore clearly aimed at a career in research, which is characterised by a high rate of temporary employment or short-term work contracts, as is highlighted in the studies on the employment outcomes of doctoral degree holders from universities in Catalonia.

Those who were self-employed were concentrated mainly in professions connected with the free movement of professionals and therefore varied according to the degree subject. For example, 41% of graduates in Architecture, 28% in Fine Art and 24% in Law were self-employed. Conversely, there were none in Physics and Mathematics and very few in Human Sciences and Chemistry.

Table 5.1.2. Job stability: permanent employment in descending order according to subject

	Permanent	Self-employed	Temporary	Scholarship / grant recipients	No contract	Total *n*
Healthcare	70.37%	6.73%	20.88%	1.68%	0.34%	297
Labour Relations	64.49%	4.35%	26.09%	4.35%	0.72%	138
Economics and Business Administration and Management	64.17%	15.33%	14.62%	5.17%	0.71%	561
Information and Communications	57.99%	5.96%	21.68%	14.36%		369
Pedagogy	56.83%	6.72%	29.72%	5.64%	1.08%	461
Law	55.16%	23.81%	18.25%	1.59%	1.19%	252
Documentation and Communication Sciences	54.17%	18.45%	22.62%	3.87%	0.89%	336
Civil Engineering	51.79%	10.71%	28.57%	8.93%		56
Physical Activity and Sports Sciences	51.25%	11.25%	31.25%	5.00%	1.25%	80
Advanced Production Technologies/Aeronautics	49.52%	6.75%	27.65%	15.11%	0.96%	311
Pharmacy/Food Science and Technology	45.78%	6.02%	37.35%	10.24%	0.60%	166
Philology 2	45.38%	14.29%	28.57%	10.08%	1.68%	119
Philosophy and Humanities	44.62%	13.98%	26.34%	13.44%	1.61%	186
Tourism	41.49%	12.77%	40.43%	3.19%	2.13%	94
Teacher Training	40.79%	11.45%	44.21%	2.50%	1.05%	760

Philology 1	40.00%	9.41%	35.29%	11.76%	3.53%	85
Political Science	40.00%	12.44%	35.11%	10.22%	2.22%	225
Medicine and Dentistry	39.55%	10.58%	32.49%	16.88%	0.50%	397
Agricultural Engineering	39.02%	7.32%	41.46%	12.20%		41
Geography and History	36.96%	16.46%	32.66%	12.15%	1.77%	395
Psychology	36.86%	18.43%	36.08%	7.45%	1.18%	255
Veterinary Science	35.00%	12.50%	25.00%	27.50%		40
Comparative Studies	33.14%	14.53%	36.63%	13.95%	1.74%	172
Architecture	32.87%	40.74%	21.76%	3.70%	0.93%	216
Fine Art	29.63%	28.40%	30.86%	4.94%	6.17%	81
Biology and Natural Sciences	27.83%	7.61%	38.48%	24.78%	1.30%	460
Physics and Mathematics	22.64%		31.45%	45.91%		159
Chemistry	18.95%	2.11%	34.21%	44.21%	0.53%	190
Human Sciences	16.91%	1.47%	35.29%	43.38%	2.94%	136
Total	**45.00%**	**12.08%**	**30.21%**	**11.61%**	**1.11%**	**7,038**

According to prior work history, the proportion of those with a fixed-term contract was clearly higher (almost double) among those who were already working full-time prior to their Master's (56% compared to 33%).

Table 5.1.3. Job stability: type of contract according to prior work history

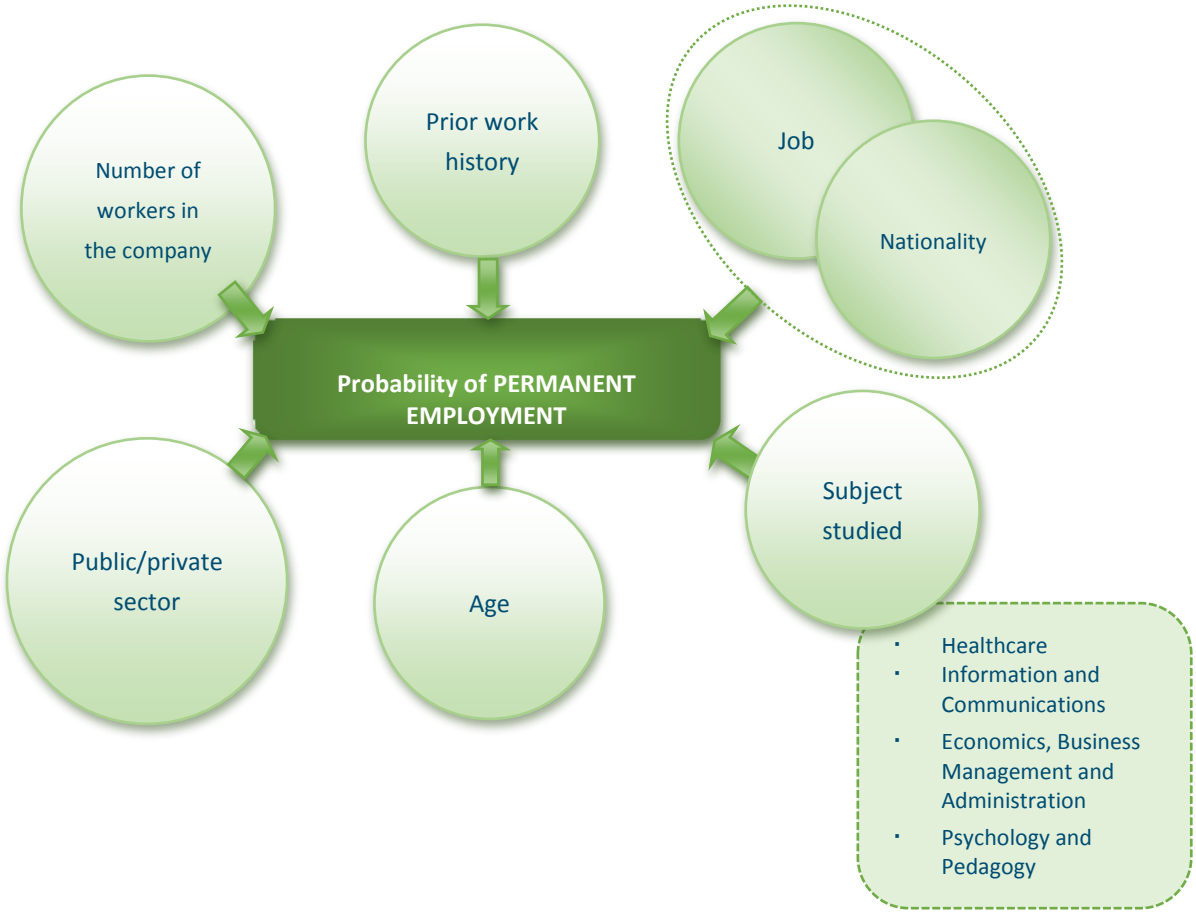
		Type of contract				
	n	**Permanent**	**Self-employed**	**Temporary**	**Scholarship-grant recipients**	**Without a contract**
Aggregate total: full-time students	3,324	33.15%	10.56%	36.52%	18.29%	1.47%
Aggregate total: those working full-time	3,713	55.59%	13.44%	24.56%	5.63%	0.78%

A quantitative model of employment: multivariant analysis of the probability of a Master's degree holder having a fixed-term contract

Section 2 of annex 8 gives the logistic regression model that confirms the influence of the following variables on the probability of a Master's degree holder having a fixed-term contract:

- Master's degree subject, particularly Healthcare, and Information and Communications, and also Economics and Business Administration and Management, Psychology and Pedagogy.
- Prior work history combined with age: between 2 and 5 times more likely to have a fixed-term contract than those who had never worked full-time and aged under 40.
- Working full-time: the probability was 2.7 times higher of a Master's degree holder having a fixed-term contract than working part-time.
- Working in the private sector: the probability of having a fixed-term contract was 2.55 higher.
- Number of workers in the company: the probability of a Master's degree holder having a fixed-term contract was between 4 and 5 times higher when working for a company with more than ten workers.

Figure 5.1.1. Quantative model according to the permanent employment rate



Entrepreneurship

This section looks at two indicators connected with the entrepreneurship of Master's degree holders, which is here understood to be in a position of leadership and responsibility, either by having set up one's own company (self-employed/freelance) or by holding a managerial position in another organisation.

Self-employed/freelance Freelance self-employed

Table 5.1.5. Comparison of the three cycles: self-employed

	n	Self-employed/free-lance	Employee	*Comparison of the three cycles*
Undergrad. degree	1,745	80%	20%	The higher the level of higher education, the higher the percentage of self-employed graduates.
Master's	850	85.18%	14.82%	
Doctorate	65	90.77%	9.23%	

Of the 12% of Master's degree holders who were self-employed, 85% were freelance. The subject with the highest percentage of freelance self-employed graduates was Architecture, followed by Teacher Training, and Economics and Business Administration and Management; there were hardly any in Civil Engineering, Aeronautics, Agricultural Engineering, Physical Activity and Sports Sciences, Labour Relations, Documentation, Veterinary Science or Chemistry.

Table 5.1.6. Job stability: self-employed Master's degree holders in descending order according to subject

	Self-employed	Total *n*
Architecture	40.74%	216
Fine Art	28.40%	81
Law	23.81%	252
Documentation and Communication Sciences	18.45%	336
Psychology	18.43%	255
Geography and History	16.46%	395
Economics and Business Administration and Management	15.33%	561
Comparative Studies	14.53%	172
Philology 2	14.29%	119
Philosophy and Humanities	13.98%	186
Tourism	12.77%	94
Veterinary Science	12.50%	40
Political Science	12.44%	225
Teacher Training	11.45%	760
Physical Activity and Sports Sciences	11.25%	80
Civil Engineering	10.71%	56
Medicine and Dentistry	10.58%	397

Philology 1	9.41%	85
Biology and Natural Sciences	7.61%	460
Agricultural Engineering	7.32%	41
Advanced Production Technologies/Aeronautics	6.75%	311
Healthcare	6.73%	297
Pedagogy	6.72%	461
Pharmacy/Food Science and Technology	6.02%	166
Information and Communications	5.96%	369
Labour Relations	4.35%	138
Chemistry	2.11%	190
Human Sciences	1.47%	136
Physics and Mathematics	-	159
Total	**12.08%**	**7,038**

Managerial positions (leadership and responsibility)

Table 5.1.7. Comparison of the three cycles: managerial positions

	n	Managerial positions	No managerial position
Undergrad. degree	15.568	26,32%	73,68%
Master's	7.056	30,91%	69,09%
Doctorate	931	25,77%	74,23%

Comparison of the three cycles
The percentage of Master's degree holders with managerial responsibilities in their job was higher than that of first cycle graduates and doctorate holders.

31% of Master's degree holders held managerial positions (own company, management, production, financial, etc.) within two years of completing their Master's studies. Compared to graduates of first cycle undergraduate degrees and doctorate holders, Master's-level programmes either attract students who are already in managerial positions or they lead more to people holding future managerial positions.

The figures in table 5.1.8 would seem to lend support for the first hypothesis: the percentage of people with managerial positions who had previously worked full-time was 17 per cent higher than that of students who were either full-time students or just had the occasional job while studying.

Table 5.1.8. Job stability: managerial positions according to prior work history

	No managerial position	Managerial positions	*n*
Either full-time students or with part-time jobs	78.10%	21.90%	3,333
Work history: full-time job	61.04%	38.96%	3,722
Total	**69.10%**	**30.90%**	**7,055**

As can be seen from table 5.1.9, the only **subject** where more than half of the Master's graduates held managerial positions was Economics and Business Administration and Management (61%). There were many subjects, however, for which more than one third of Master's graduates held managerial positions. As with the case of those who were self-employed, subjects that are more research-orientated had the lowest proportion of Master's graduates in managerial positions.

Table 5.1.9. Job stability: managerial positions according to subject

	Managerial positions	Total *n*
Economics and Business Administration and Management	61.14%	561
Architecture	47.71%	218
Tourism	45.26%	95
Physical Activity and Sports Sciences	45.00%	80
Law	43.48%	253
Documentation and Communication Sciences	42.43%	337
Philosophy and Humanities	37.43%	187
Labour Relations	37.41%	139
Political Science	37.17%	226
Pedagogy	35.28%	462
Advanced Production Technologies/Aeronautics	32.37%	312
Civil Engineering	30.36%	56
Healthcare	29.63%	297
Information and Communications	29.54%	369
Fine Art	27.16%	81
Pharmacy/Food Science and Technology	27.11%	166
Geography and History	26.84%	395
Philology 2	25.00%	120
Teacher Training	24.28%	762
Psychology	23.92%	255
Comparative Studies	22.99%	174

Veterinary Science	20.00%	40
Philology 1	17.65%	85
Human Sciences	17.65%	136
Agricultural Engineering	17.07%	41
Biology and Natural Sciences	16.70%	461
Medicine and Dentistry	14.82%	398
Chemistry	13.09%	191
Physics and Mathematics	8.81%	159
Total	**30.91%**	**7,056**

5.2. Annual income

The higher the level of study, the higher the income.

Five out of 10 Master's degree holders who were in employment were earning more than 24,000 euros a year, while 2 out of 10 were earning less than 15,000 euros.

An annual income of under 15,000 euros is associated with part-time employment. 76% of those working part-time were earning less than 15,000 euros a year, whereas only 20% of those working full-time were earning less than 15,000 euros.

One factor that was clearly of influence as regards salary is work experience. For the group working part-time, those who were working full-time prior to their Master's degree were earning 241 euros more a month gross than those who had never worked or had just worked part-time. For those who, at the time of the survey, were working full-time, the difference was 539 euros a month gross.

Table 5.2.1. Comparison of the three cycles: gross annual income

		Full-time employed		
	n	**15,000/yr**	**15,000-24,000/yr**	**Over 24,000/yr**
Undergrad. degree	9,206	22.20%	40.50%	37.30%
Master's	3,893	18.11%	30.67%	51.22%
Doctorate	1,116	2.70%	18.10%	79.20%

Comparison of the three cycles

The higher the level of (higher) education, the higher the level of income from employment. Account should be taken of age as a variable that may also influence the results.

Annual income was calculated on the basis of those working full-time from a sample of 3,893 people.

Half of the Master's degree holders who were working full-time were earning over 24,000 euros gross a year, compared to 18% whose income was under 15,000 euros gross a year.

As can be seen from table 5.2.2, and as is the case with graduates of undergraduate degrees, an income of 15,000 euros a year is associated with part-time employment. 76% of the 1,292 people interviewed were earning under 15,000 euros gross a year, compared to 20% of those who were working full-time.

Table 5.2.2. Gross annual income (in euros) according to full and part-time employment and prior work history

		Under 15,000	15,000 to 24,000	Over 24,000	*n*
Full-time job	Either full-time students or with part-time jobs	29.60%	36.80%	33.60%	1,643
	Work history: full-time job	13.90%	27.90%	58.20%	2,617
	Total	**20.00%**	**31.30%**	**48.70%**	**4,260**
Other (non-full-time) working hours	Either full-time students or with part-time jobs	83.70%	13.00%	3.30%	784
	Work history: full-time job	65.20%	24.20%	10.60%	508
	Total	**76.40%**	**17.40%**	**6.20%**	**1,292**

The annual income of Master's degree holders who were working full-time was over 2,000 euros a month/24,000 euros a year gross.

Table 5.2.3. Average gross monthly income of those in full-time employment in descending order according to subject

	Mean	Standard error
Economics, Business Administration and Management, and Business Studies	3,058.23	63.59
Medicine and Dentistry	2,503.79	71.15
Advanced Production Technologies	2,448.03	67.47
Information and Communications	2,405.78	57.16
Philosophy and Humanities	2,390.99	122.91
Aeronautics	2,304.29	186.10
Civil Engineering	2,295.29	146.44
Healthcare	2,249.21	60.95
Physics and Mathematics	2,203.98	127.49

Architecture	2,127.48	87.50
Law, Labour Relations and Political Science	2,097.45	45.78
Pharmacy/Food Science and Technology	2,010.59	71.33
Documentation and Communication Sciences	1,980.13	59.38
Physical Activity and Sports Sciences	1,928.29	123.02
Chemistry	1,878.56	88.07
Psychology and Pedagogy	1,859.54	37.19
Philology, Languages and Comparative Studies	1,812.17	63.37
Teacher Training	1,793.79	37.87
Biology and Natural Sciences	1,751.46	42.12
Geography and History	1,708.33	65.46
Tourism	1,682.37	107.64
Agricultural Engineering	1,678.76	171.75
Fine Art	1,662.88	159.28
Veterinary Science	1,569.44	147.79

One item that has an obvious influence on salary is work experience. The gross monthly income of those already working full-time prior to starting their Master's degree was higher than that of those working part-time prior to their Master's, ranging from 539 euros more if currently working full-time to 241 euros more if currently working part-time (the data refer to mean values).

Table 5.2.4. Average gross monthly income according to full/part-time employment and prior work history

		Average	Standard deviation	*n*
Full-time job	Either full-time students or with part-time jobs	1,799	860.95	1,643
	Work history: full-time job	2,338	1,047.69	2,617
	Total	**2,130**	**1,014.28**	**4,260**
Other (non-full-time) working hours	Either full-time students or with part-time jobs	957	493.69	784
	Work history: full-time job	1,198	696.43	508
	Total	**1,052**	**593.35**	**1,292**

5.3. Education-job skills match

Nine out of 10 Master's degree holders who were in employment had university-level job duties and responsibilities. In Medicine the figure was almost 100% and in Fine Art 74%.

Five out of 10 had Master's degree-level job duties and responsibilities. Specific match was highest in Civil Engineering and Chemistry, where 7 out of 10 had Master's-level job duties and responsibilities, and lowest in Political Science, where only 3 out of 10 had Master's-level job duties and responsibilities.

Quality of employment was not affected by prior work history (the difference between those with work experience and those not having any work experience was less than 1%).

Table 5.3.1. Comparison of the three cycles: university-level job duties and responsibilities

	n	Job duties specific to the degree	University-level job duties and responsibilities	Job duties NOT specific to the degree
Undergrad. degree	15,566	55.58%	78.04%	21.96%
Master's	7,056	51.34%	90.35%	9.65%
Doctorate	1,418	59.45%	97.25%	2.75%

Comparison of the three cycles

Specific match was slightly lower for Master's degrees than for the other two cycles. As regards university-level job duties and responsibilities, Master's degree holders were in an intermediate position.

90% of Master's degree holders in employment had jobs that required a university education. On the other hand, just over half stated that their job duties and responsibilities were specific to their Master's degree, which is to be expected given that the only Master's degrees linked to regulated professions are Teacher Training and certain Engineering subjects (such as Civil Engineering).

Subjects with the highest percentage of Master's degree holders with Master's-level job duties and responsibilities were Civil Engineering, Chemistry, Human Sciences, Information and Communications, and Physics and Mathematics, all of which had percentages higher than 65%. At the other extreme, Political Science had the lowest percentage (33%), followed by Physical Activity and Sports Sciences, Tourism, Fine Art and Teacher Training, all with percentages of around 40%. Special mention is made of Teacher Training, which is a Master's degree that is clearly professionally oriented in that it is a legal requirement for secondary education teaching.

Two to three years after completing their studies, however, only 40% stated that their job was specific to their Master's degree.

Table 5.3.2. Education-job skills match

	Master's level job duties and responsibilities	Graduate level job duties and responsibilities
Agricultural Engineering	63.41 %	87.80 %
Architecture	47.71 %	91.74 %
Fine Art	39.51 %	74.07 %
Biology and Natural Sciences	50.33 %	87.64 %
Political Science	32.74 %	87.17 %
Documentation and Communication Sciences	45.99 %	87.54 %
Law	60.08 %	91.30 %
Economics and Business Administration and Management	54.72 %	91.62 %
Civil Engineering	73.21 %	94.64 %
Comparative Studies	43.10 %	89.08 %
Pharmacy/Food Science and Technology	48.80 %	94.58 %
Catalan and Spanish Studies	47.06 %	85.88 %
Modern Languages	46.67 %	88.33 %
Philosophy and Humanities	47.06 %	86.63 %
Physics and Mathematics	65.41 %	98.11 %
Teacher Training	40.03 %	81.10 %
Geography and History	49.37 %	81.01 %
Physical Activity and Sports Sciences	38.75 %	88.75 %
Information and Communications	65.85 %	96.48 %
Medicine and Dentistry	53.52 %	99.25 %
Pedagogy	59.74 %	94.59 %
Healthcare	42.09 %	97.31 %
Psychology	54.90 %	92.16 %
Chemistry	71.20 %	96.34 %
Labour Relations	54.68 %	85.61 %
Advanced Production Technologies/Aeronautics	52.24 %	96.79 %
Tourism	38.95 %	85.26 %
Veterinary Science	62.50 %	95.00 %
Human Sciences	66.91 %	96.32 %
Total	**51.35 %**	**90.35 %**

Quality of employment: analysis according to the National Classification of Occupations

The information in this section comes from the coding of the open-ended question on job description according to the Classification of Occupations (for Spain) 2011 (NCO-11). This classification groups occupations according to two concepts: the type of work (or occupation) and skill level.[29]

The classification offers the advantage of international comparison. As can be seen from table 5.3.3, occupation groups 1, 2 and 3 require the highest level of skills.

Table 5.3.3. National Classification of Occupations

	Groups of occupations	Skill level
1	**Directors and managers**	Highly skilled occupations
2	**Scientific and intelectual technicians and professionals**	
3	**Technical activities; professional support activities**	
4	**Accounting, administrative and other office employees**	Medium skill level occupations
5	**Workers in catering, personal, and protection services and trade salespersons**	
6	**Skilled agricultural, livestock, forestry and fishery workers**	
7	**Skilled manufacturing industry and construction crafts persons and workers (except installation and machinery operators)**	
8	**Plant and machine operators, and assemblers**	
9	**Elementary occupations**	Unskilled (low skill) occupations

93% of Master's degree holders said they held highly skilled positions.

[29] For more information <http://www.ine.es/daco/daco42/clasificaciones/Introduccion_NCO11.V02.pdf>.

Table 5.3.4. Comparison of the three cycles: official Classification of Occupations for Spain

	National Classification of Occupations			*Comparison of the three cycles*
	n	**Highly skilled occupations**	**Medium skill level occupations**	**Unskilled (low skill) occupations**	
Undergrad. degree	15,368	82.92%	16.57%	0.51%	The relation between the level of study (cycle) and highly skilled jobs is clearly positive. The higher the level of study (cycle), the higher the percentage of graduates holding highly skilled positions.
Master's	6,614[30]	93.06%	6.57%	0.36%	
Doctorate	1,418	98.80%	0.92%	0.28%	

The only **subject** that stands out in the category of directors and managers is Economics and Business Administration and Management, which, as mentioned above, where there was a high proportion of Master's degree holders who stated they held chief executive or managerial positions. In the category of scientific and intelectual technicians and professionals, Healthcare (96%) stands out, followed by Catalan and Spanish Studies (88%), Documentation and Communication Sciences (87%), Pedagogy (87%) and Philosophy and Humanities (86%). In the third category, technical activities and professional support activities, Chemistry (74%) stands out, followed by Human Sciences (68%), subjects in which graduates are likely to be involved in laboratory support activities.

Table 5.3.5. Graduate distribution according to job skill level[31]

	Directors and managers	**Scientific and intelectual technicians and professionals**	**Technical activities; professional support activities**	***n***
Geography and History	3.59%	75.15%	21.26%	334
Philosophy and Humanities	4.22%	86.14%	9.64%	166
Comparative Studies	1.28%	80.77%	17.95%	156
Catalan and Spanish Studies	1.28%	88.46%	10.26%	78

[30] 322 answers to the open-ended question for Master's degrees in Fine Art, Psychology, Veterinary Science, Medicine and Dentistry, Architecture and Law could not be coded according to the National Classification of Occupations. They were instead classified according to pre-defined categories in their corresponding field of work.

[31] In the absence of code in the National Classification of Occupations for certain answers to the open-ended question relating to field of work, the distribution for the following subjects was not included: Fine Art, Psychology, Veterinary Science, Medicine and Dentistry, Architecture and Law.

Modern Languages	0.94%	82.08%	16.98%	106
Economics and Business Administration and Management	26.90%	59.45%	13.65%	513
Labour Relations	8.80%	50.40%	40.80%	125
Political Science	4.98%	74.63%	20.40%	201
Documentation and Communication Sciences	6.54%	87.58%	5.88%	306
Pedagogy	3.88%	86.99%	9.13%	438
Tourism	7.25%	57.97%	34.78%	69
Physical Activity and Sports Sciences	9.09%	46.75%	44.16%	77
Teacher Training	5.02%	81.66%	13.32%	638
Chemistry	1.16%	24.28%	74.57%	173
Biology and Natural Sciences	2.42%	56.42%	41.16%	413
Physics and Mathematics	2.74%	47.95%	49.32%	146
Human Sciences		32.06%	67.94%	131
Healthcare	1.40%	95.79%	2.81%	285
Pharmacy/Food Science and Technology	1.29%	60.00%	38.71%	155
Civil Engineering	3.64%	78.18%	18.18%	55
Advanced Production Technologies/Aeronautics	5.67%	68.00%	26.33%	300
Information and Communications	2.81%	75.56%	21.63%	356
Agricultural Engineering		42.50%	57.50%	40
Total	**5.10%**	**72.23%**	**22.66%**	**6,155**

According to **prior work history**, it can be seen there were practically no differences.

Table 5.3.6. Graduate distribution according to prior work history

	Unskilled (low skill) occupations	Medium skill level occupations	Highly skilled occupations	*n*
Either full-time students or with part-time jobs	0.55%	8.29%	91.16%	3,101
Work history: full-time job	0.20%	5.07%	94.73%	3,512
Total	**0.36%**	**6.58%**	**93.06%**	**6,613**

5.4. Current job satisfaction

Master's degree holders who were in employment rated their overall satisfaction with their current job at 7.63 on a scale from 0 to 10

Table 5.4.1. Comparison of the three cycles: current job satisfaction

	n	Generally satisfied with current job
Undergrad. degree	13,420	7.60
Master's	6,288	7.63
Doctorate	1,156	7.70

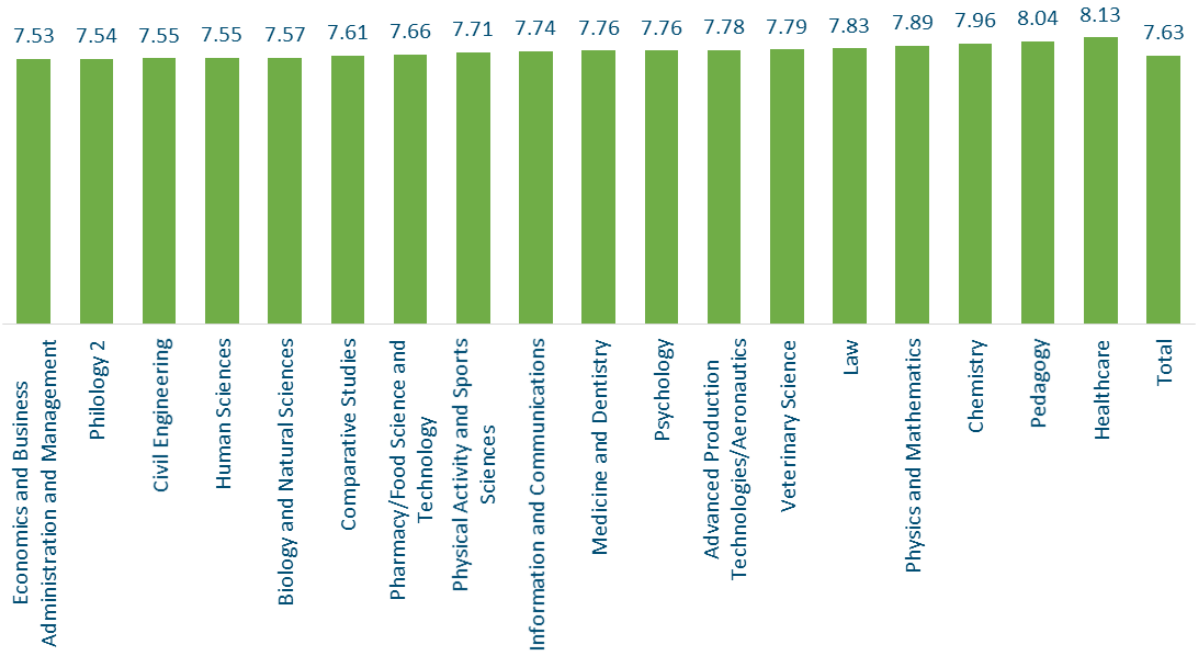
Comparison of the three cycles
The mean level of overall current job satisfaction is comparable across the three cycles.

On a scale from 0 to 10, Master's degree holders rated their overall satisfaction with their current job at 7.63. As to the different aspects of their current job, job content stands out as the most satisfactory, whereas the least satisfactory was the usefulness of the knowledge and skills acquired from the Master's programme.

Figure 5.4.1. Mean level of satisfaction of Master's graduates with their current job (scale from 0 to 10)

According to **the subject studied at Master's level**, the ratings for overall job satisfaction were very similar. The highest level of satisfaction was in Physics and Mathematics, Chemistry, Pedagogy and Healthcare.

Figure 5.4.2 Mean level of satisfaction of Master's degree holders with their current job (scale from 0 to 10) according to subject



According to **prior work history**, it can be seen that in general those who had worked full-time prior to taking a Master's degree were more satisfied than those who had not worked full-time, with one exception: job prospects, which was rated the highest by graduates with the least work experience.

Table 5.4.2. Mean level of satisfaction of Master's graduates with their current job according to prior work history

	Satisfaction with job content	Satisfaction with job prospects	Satisfaction with salary level	Satisfaction/ usefulness of Master's skills and knowledge	Overall job satisfaction
Either full-time students or with part-time jobs	7.87	6.04	5.61	4.90	7.57
Work history: full-time job	8.12	5.83	5.76	5.56	7.68
Total	8.02	5.92	5.70	5.28	7.63

Quality of employment: an explanatory model

In this section, multivariant analysis is used, by way of a multiple regression model, to analyse the variables that give the highest occupational quality index (see section 3, annex 8).

The occupational quality index (OQI, or job quality index) was developed by a research group led by Dr. Enric Corominas (2007)[32] consists of four of the more important aspects for defining the quality of employment: type of contract, salary, the education-job skills match and job satisfaction.

The OQI is defined as follows:

$$\text{Occupational quality index} = f\,[(C + R + A) * S] * 100$$

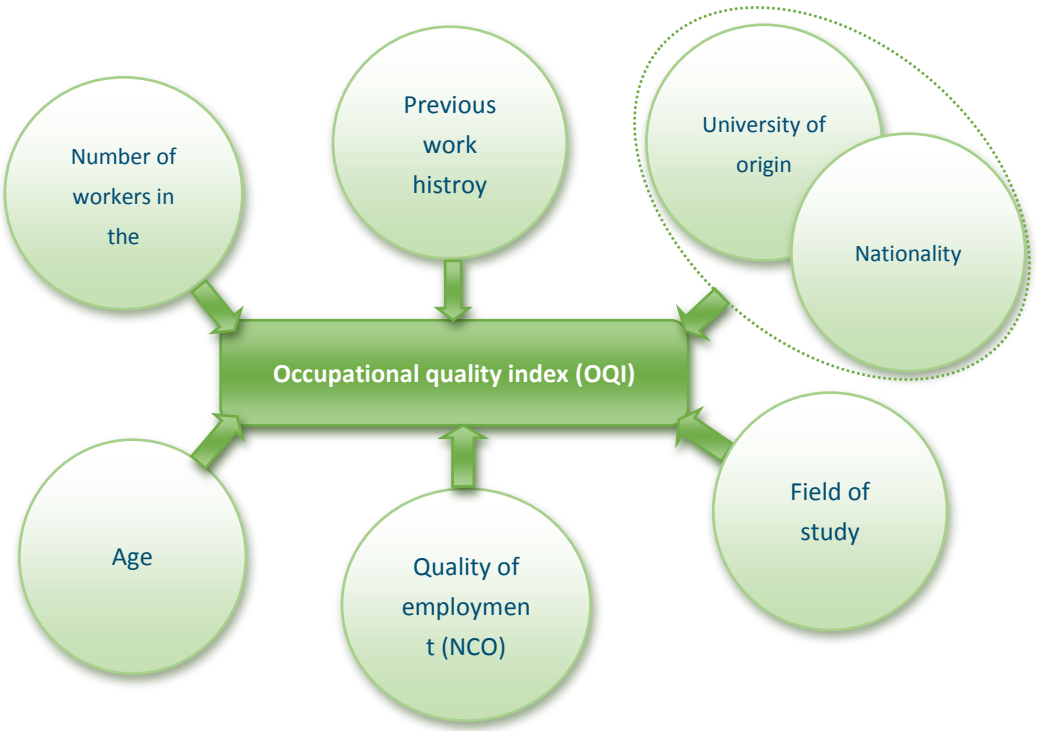
where C is the type of contract, R is salary income, A is the education-job skills match and S is job satisfaction.

The model accounts for 37.3% of the variance of the OQI, which is a very high value for the type of data. The coefficients of each variable are given in section 3, annex 8. The main conclusions are as follows:

- A **prior full-time work history** increases the OQI by almost 5 percent.
- The **quality of employment**, as defined according to the National Classification of Occupations, is the most predictable factor of the OQI: a highly skilled occupation increases the OQI by 17.5 percent. This is to be expected given that, despite being defined independently, the first from an open description of the job and the second from a combination of variables, these two variables are intended to measure the same thing, i.e. professional success.
- **Company size** is also associated with higher ratings on the OQI. The biggest increase in the OQI (6.8 percent) is for enterprises with between 101 and 250 workers.
- **Field of study** is related to the quality of employment: fields of study with the biggest increase in the OQI were Engineering Sciences and Economics and Law-related subjects.
- **Age** is also a factor related to the OQI, although of less influence: for every ten years, there was an increases in the OQI of 1.7 percent.

[32] E. Corominas et al. (2007) "El mercat laboral qualificat i la qualitat de l'ocupació". A: A. Serra Ramoneda (ed.). *Educació superior i treball a Catalunya: anàlisi dels factors d'inserció laboral*. Barcelona: AQU Catalunya (pp. 95-153).

Figure 5.4.3. A quantitative model of the occupational quality index[33]



[33] Out of all the significant variables in the model, only the ones with the most influence on the OQI are given.

6. MOBILITY

6.1. Job location

Approximately 8 out of 10 holders of a Master's degree from a Catalan university and of Spanish nationality were working in Catalonia. 13% were working elsewhere in Spain, which is normal given that 16.5% of all graduates were originally from Spanish universities outside of Catalonia.

Of students of Spanish nationality who were working abroad, 71% were working in Europe and 20% in Latin America and North America.

With regard to the international graduates interviewed in the survey, 39% were working outside of Spain, 58% were in Catalonia and 3% elsewhere in Spain.

The majority of international Master's students who were working in Spain were taking doctoral (PhD) studies (52%); on the other hand, only 24% living outside of Spain went on and were taking doctoral studies.

There was little variation in either employment or education-job skills match according to whether Master's graduates were in employment in Spain or abroad. The main difference was in job stability (10 per cent higher abroad) and gross annual earnings (also higher for those working abroad).

Table 6.1.1. Comparison of the three cycles: job location

		Spanish students			
	n	**Barcelona**	**Rest of Catalonia**	**Rest of Spain**	**Outside of Spain**
Undergrad. degree	15,556	67.54%	21.28%	7.98%	3.20%
Master's	6,096	62.02%	21.52%	12.66%	3.79%
Doctorate	1,418	64.70%	13.20%	7.80%	14.30%

Comparison of the three cycles

Mobility among Master's degree holders was similar to that of undergraduate degree holders.

The geographical distribution of Spanish Master's graduates was very similar to that of undergraduate degree holders: 83% were working in Catalonia, 13% in the rest of Spain and 4% abroad.

As to be expected, the distribution of international students was clearly different: 58% were still in Catalonia, 3% in the rest of Spain and 39% abroad. Out of those who were in employment in Spain, 52% were taking doctoral (PhD) studies, compared to 24% of those working abroad.

Figure 6.1.1. Job location

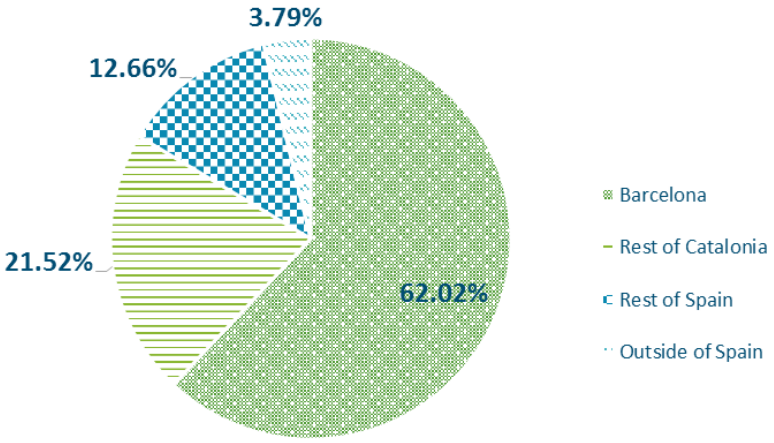


Figure 6.1.2. Job location according to nationality

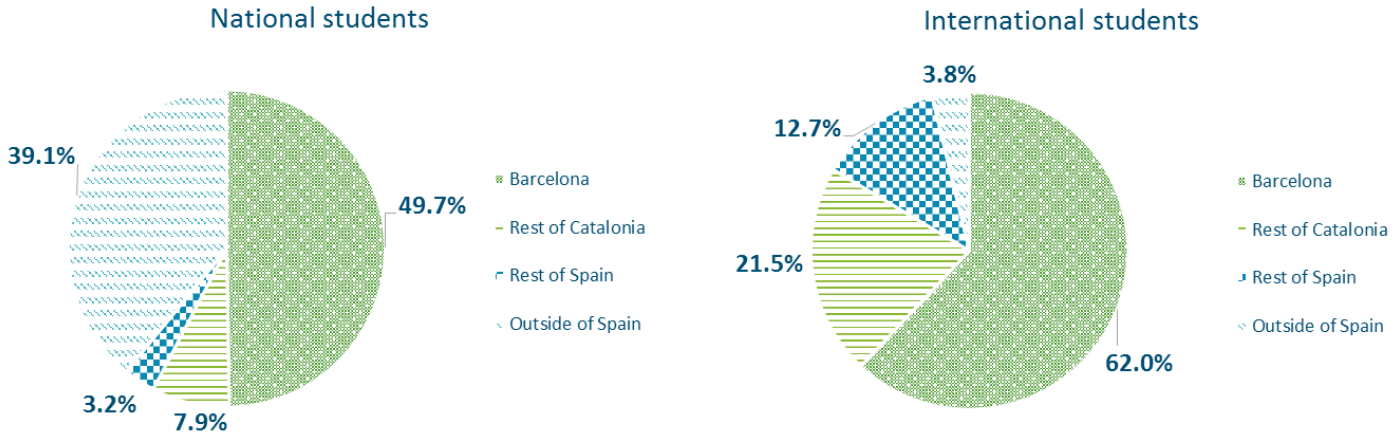


Table 6.1.2 attempts to show whether there is any association, in the case of international students, between the decision to study for a doctoral degree and staying in Spain. The data appear to show that the two variables are related. The majority of international students who were working in Spain were taking doctoral studies (52%); only 24% of those who were abroad, however, went on to take doctoral studies.

Table 6.1.2. Job location according to continuity with doctoral studies

	Did not go on to take doctoral studies	Went on to take doctoral studies	*n*
Working abroad (outside of Spain)	75.60%	24.40%	373
Working in Spain	47.70%	52.30%	579
Total	**58.60%**	**41.40%**	**952**

Out of those who were working abroad (603), the majority were either working in Europe (53%) or Latin America and the Caribbean (34%). The percentages again varied according to the nationality of graduates. 71% of students of Spanish nationality who were working abroad were working in al Europe and 20% in Latin America, the Caribbean and North America. In the case of international students, these percentages were 42% and 50%, respectively.

Figure 6.1.3. Job location amongst Master's graduates working abroad

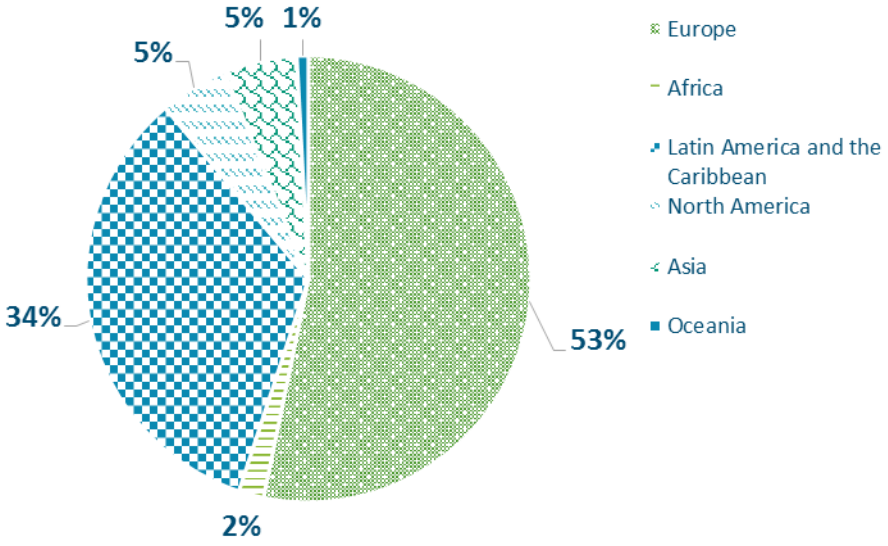
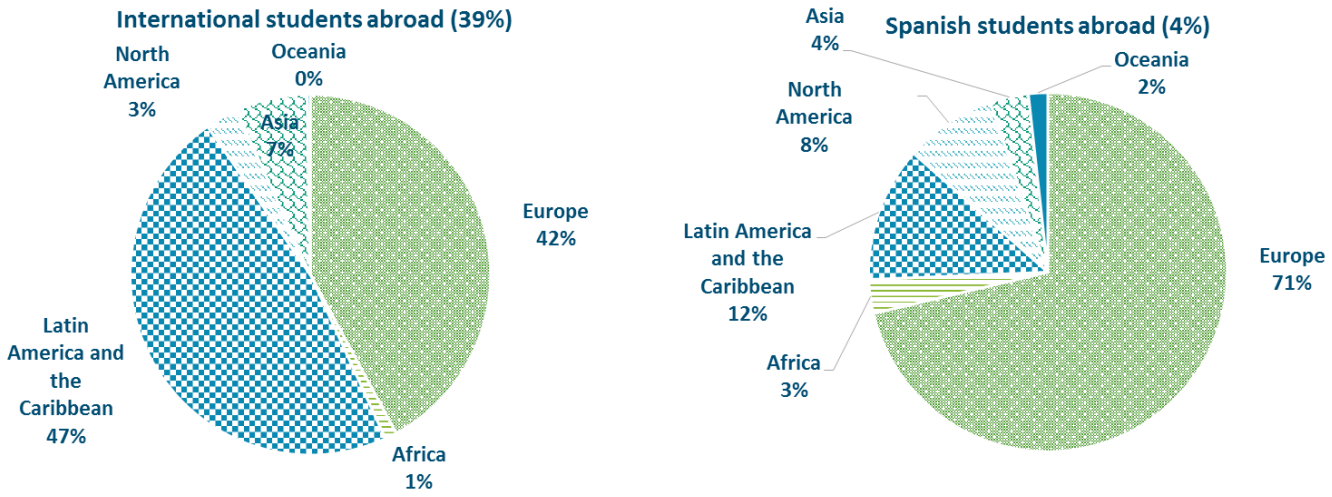


Figure 6.1.4. Job location amongst Master's graduates working abroad according to nationality



Job mobility and quality of employment

The following tables compare three indicators according to whether those interviewed were working abroad or in Spain. When interpreting the results, one must bear in mind the difference between the number of people interviewed who were working in Spain (6.448) and those working abroad (605).

As can be seen from the following figures, there was little variation in either employment or education-job skills match according to whether Master's graduates were in employment in Spain or abroad. The main difference was in job stability (10 per cent higher for Master's graduates working abroad) and annual earnings (also higher for Master's graduates working abroad).

Figure 6.1.5. Job location according to employment situation

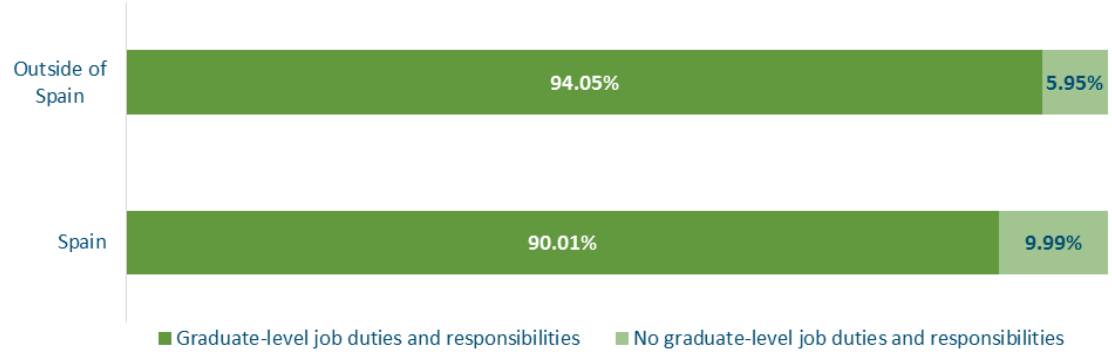
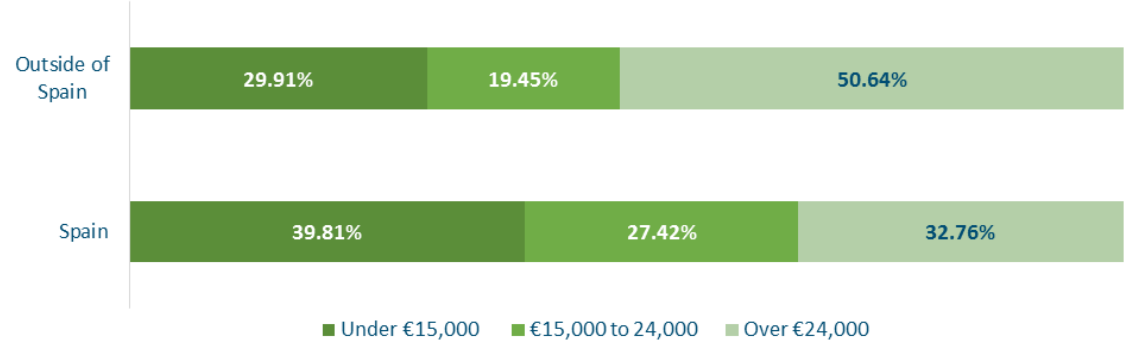


Figure 6.1.6. Job location according to job duties and responsibilities

Figure 6.1.7. Job location according to gross annual earnings



6.2. Mobility

23% of Master's degree holders of Spanish nationality had had some experience of mobility during their Master's degree studies.

Academic mobility

23% of Master's graduates of Spanish nationality had some experience of mobility during their Master's degree studies. This fulfils the objective for academic mobility established by the European Commission in its Mobility Strategy 2020.[34] Academic mobility among undergraduate

[34] Ministerial Conference Bucharest, 2012. *Mobility strategy 2020 for the European Higher Education Area*.

students was 27%. This lower percentage among Master's graduates was due to the difficulty of undertaking mobility stays in programmes that are only one year long.

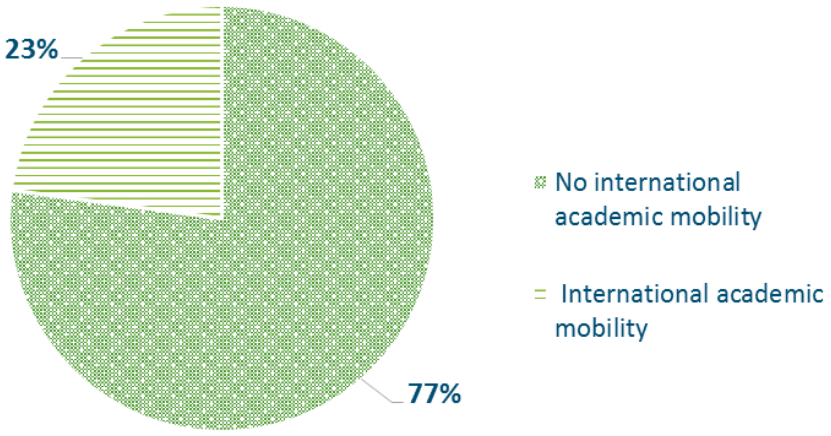


Figure 6.2.1. Academic mobility of Master's graduates of Spanish nationality

The subjects with the highest overall percentage for international academic mobility were: Modern Languages and Fine Art, in the Humanities; Architecture and Engineering Agricultural Engineering, in Engineering and Architecture; and Political Science, in the Social Sciences. Psychology, Pedagogy, and Physical Activity and Sports Sciences, all three in the Social Sciences, had the lowest level of international academic mobility, together with Healthcare, in the Health Sciences.

It should be noted that the duration of the Masters programme is an influential factor in mobility, and it is much easier for this to occur when the Master's programme is longer than one year.

Table 6.2.1. Subjects with the highest level of international academic mobility among Master's degree holders of Spanish nationality (in descending order)[35]

	n	International academic mobility
Modern Languages	68	58.82%
Agricultural Engineering	41	43.90%
Political Science	189	40.74%
Fine Art	79	35.44%
Comparative Studies	129	33.33%

[35] Not including the results in Civil Engineering, the *n* value of which were lower than 10.

Architecture	158	32.91%
Human Sciences	130	30.00%
Economics and Business Administration and Management	462	29.65%
Philosophy and Humanities	183	25.14%
Advanced Production Technologies/Aeronautics	264	24.62%
Geography and History	379	24.27%
Information and Communications	335	24.18%
Tourism	97	22.68%
Teacher Training	792	22.22%
Chemistry	184	21.74%
Documentation and Communication Sciences	333	21.02%
Physics and Mathematics	145	20.69%
Biology and Natural Sciences	440	20.68%
Labour Relations	131	20.61%
Medicine and Dentistry	358	19.83%
Pharmacy/Food Science and Technology	163	19.02%
Law	229	18.34%
Catalan and Spanish Studies	81	17.28%
Pedagogy	462	15.58%
Psychology	236	14.41%
Physical Activity and Sports Sciences	87	13.79%
Healthcare	307	10.42%
Veterinary Science	33	9.09%
Total	**6,532**	**22.86%**

As would seem logical, there was a higher percentage of students of international Master's programmes who had experience with academic mobility abroad during their studies (39% compared to 24%).

Job mobility

25% of Master's degree holders had some experience of job mobility after obtaining their Master's degree. This percentage was slightly higher than that of graduates of undergraduate degrees (20%). As would seem logical, job mobility was higher among international graduates (who had already had the experience of mobility) than among graduates of Spanish nationality (42% compared to 22%).

Table 6.2.2. Job mobility according to nationality

	No experience of international job mobility		Experience of international job mobility		
	n	**%**	***n***	**%**	**Total *n***
International students	562	58.06%	406	41.94%	968
Students of Spanish nationality	4,829	77.64%	1,391	22.36%	6,220
Total	**5,391**	**75.00%**	**1,797**	**25.00%**	**7,188**

According to subject, the highest level of international job mobility was in Physics and Mathematics, and Chemistry (Experimental Sciences), and Agricultural Engineering (Engineering and Architecture). The subjects with the lowest level of international job mobility were in Social Sciences: Documentation and Communication Sciences, Psychology, Physical Activity and Sports Sciences, Teacher Training and Labour Relations.

Table 6.2.3. Subjects with the highest level of international job mobility (in descending order)

	n	International job mobility
Physics and Mathematics	160	50.63 %
Agricultural Engineering	42	42.86 %
Chemistry	191	41.36 %
Modern Languages	120	39.17 %
Architecture	218	35.78 %
Civil Engineering	58	34.48 %
Advanced Production Technologies/Aeronautics	314	34.39 %
Political Science	233	33.05 %
Comparative Studies	175	32.57 %
Human Sciences	139	32.37 %
Biology and Natural Sciences	467	31.91 %
Catalan and Spanish Studies	88	30.68 %
Information and Communications	377	29.44 %
Economics and Business Administration and Management	564	28.55 %
Fine Art	82	26.83 %
Geography and History	401	25.69 %
Tourism	99	24.24 %
Medicine and Dentistry	413	23.49 %
Veterinary Science	40	20.00 %
Philosophy and Humanities	195	20.00 %
Law	259	19.69 %

Documentation and Communication Sciences	349	19.48 %
Psychology	265	17.74 %
Physical Activity and Sports Sciences	89	16.85 %
Teacher Training	773	16.56 %
Pharmacy/Food Science and Technology	170	15.88 %
Labour Relations	139	15.11 %
Healthcare	301	11.96 %
Pedagogy	468	11.32 %
Total	**7,189**	**25.00 %**

7. SATISFACTION WITH THE MASTER'S PROGRAMME

7.1. Skills acquired and their usefulness in the workplace[36, 37]

The level of skills at Master's degree level, in accordance with the Spanish Qualifications Framework for Higher Education (QF-EHEA in Spain/MECES), was rated above 5 out of 10 (pass).

Master's degree holders rated the level of theoretical skills they acquired at around 7 and the level of practical skills at 5.

The five skills regarded by Master's degree holders as the most important in their current job were critical thinking; skills in documentation and the identification of sources; the capacity for self-assessment and continuous learning; ethical behaviour and social responsibility in professional practice; and oral and written communication skills.

The five skills in which graduates had the most deficit as regards their work were English; problem solving and decision-making; ethical behaviour and social responsibility in professional practice; team work, initiative and leadership; and creativity and innovation.

Education-job skills match

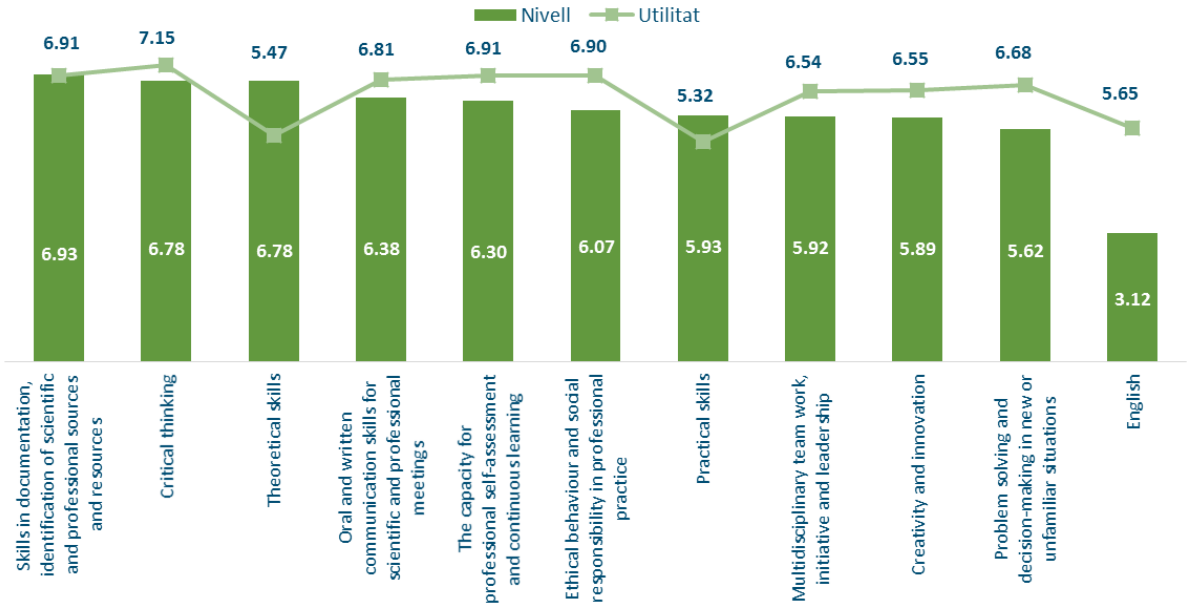
The skills in the survey cover the standard skills for Master's programmes in accordance with the Spanish Qualifications Framework for Higher Education (QF-EHEA in Spain/MECES). With the exception of English, all of the skills were rated above 5.

[36] The skills acquired and their usefulness in the workplace (job) were originally rated according to a scale from 1 to 7. The results have been transformed in this section according to a scale of 0 to 10, for interpretation purposes.

[37] In interpreting the results in this section it should be noted that, where indicated, only Master's graduates who stated they had university-level job duties and responsibilities (i.e. connected with their Master's degree or prior undergraduate studies) were considered.

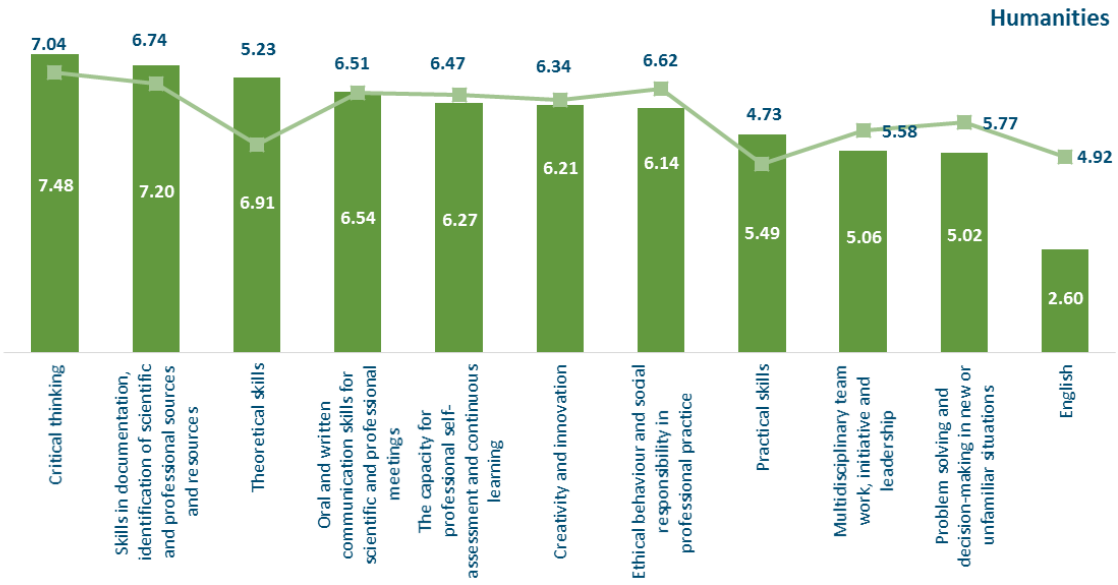
The best skills that interviewees considered they acquired during their Master's programme were documentation and the identification of sources, theoretical skills, critical thinking, oral and written communication, and capacity for self-assessment and continuous learning.

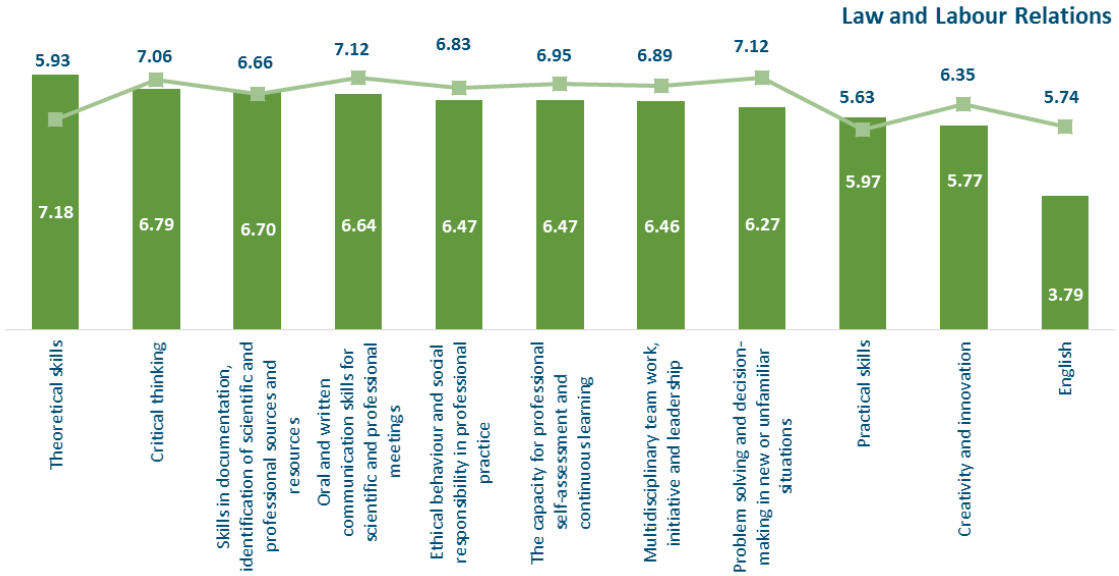
Figure 7.1.1. Assessment of the level of soft skills acquired (scale from 0 to 10, only graduates with university-level job duties and responsibilities)

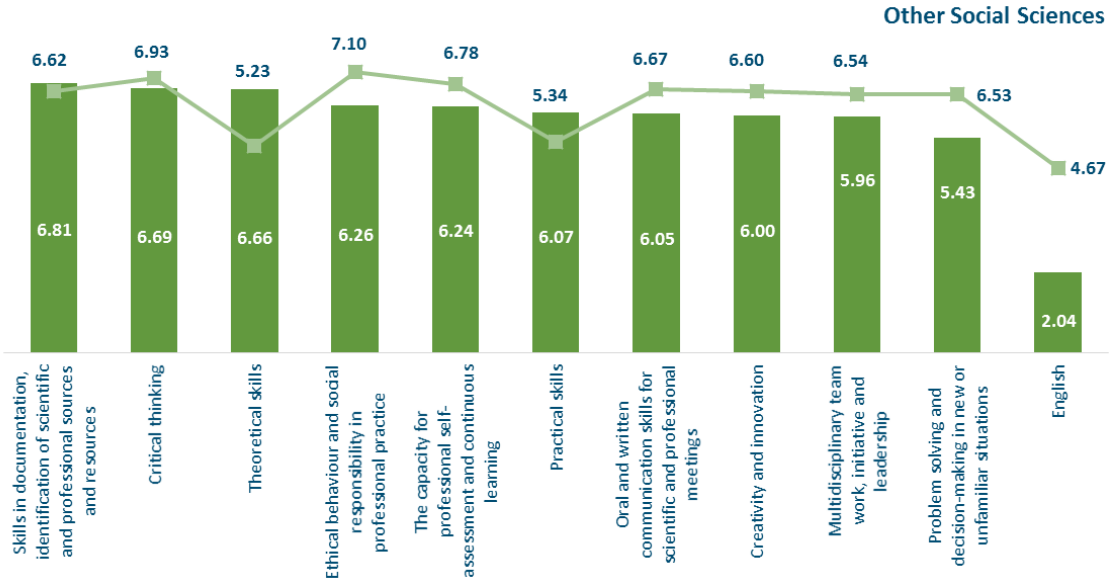


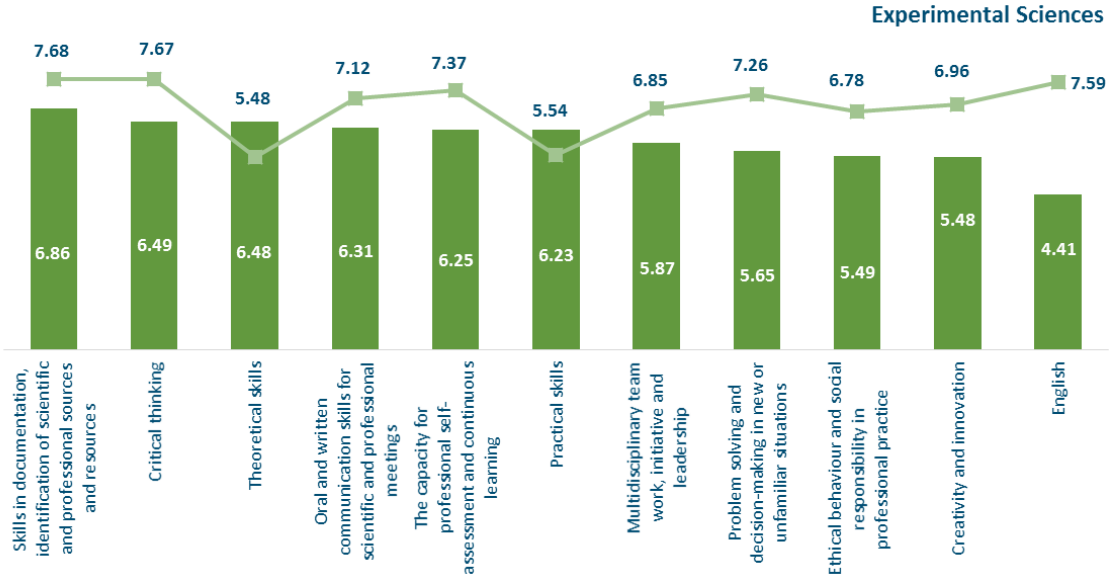
The following figures give a breakdown of the overall assessment above according to the main fields of study. It can be seen that the learning outcomes are slightly different. For example, critical thinking is in the number one position in Humanities, third in two Engineering subjects and second in all other fields of study. On the other hand, the level of practical skills is in second-to-last place (tenth) in the two most professionally oriented disciplines (Health Sciences and Construction Engineering), but in sixth position in Experimental Sciences.

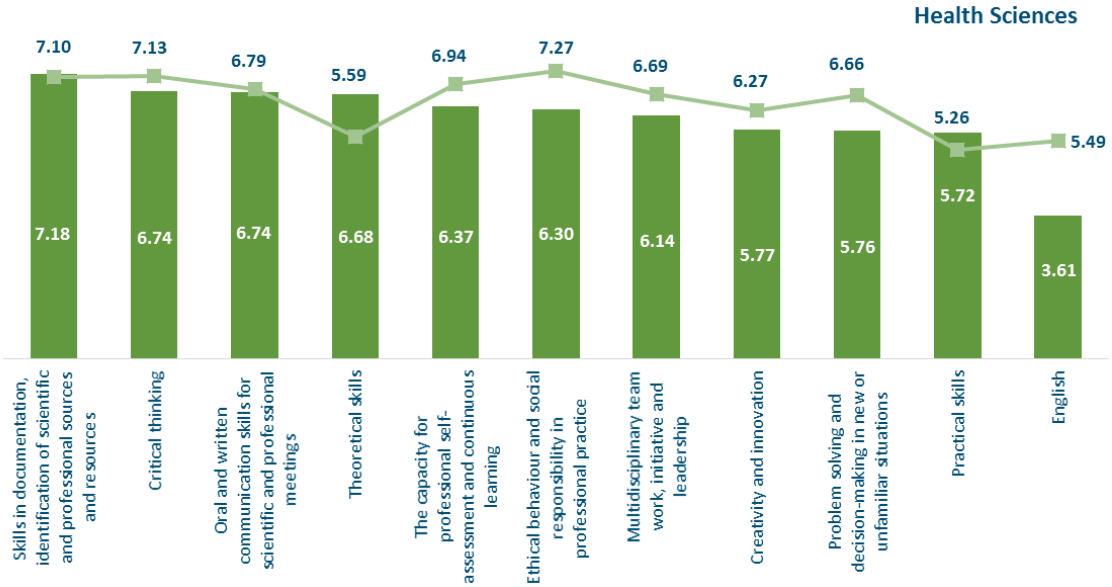
Figure 7.1.2. Assessment of the level of soft skills acquired according to field of study (scale from 0 to 10, only graduates with university-level job duties and responsibilities)

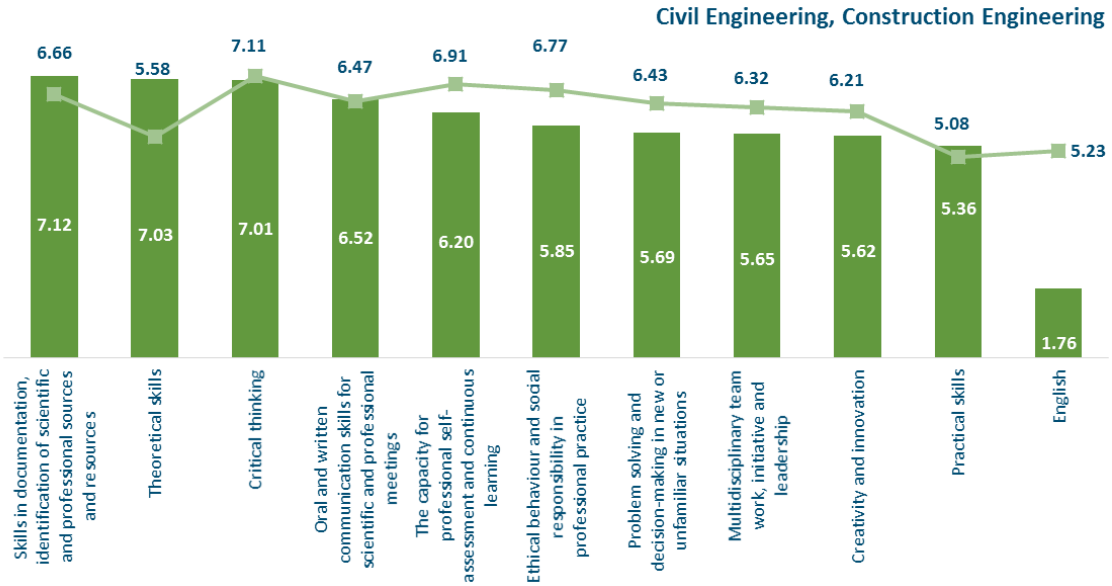


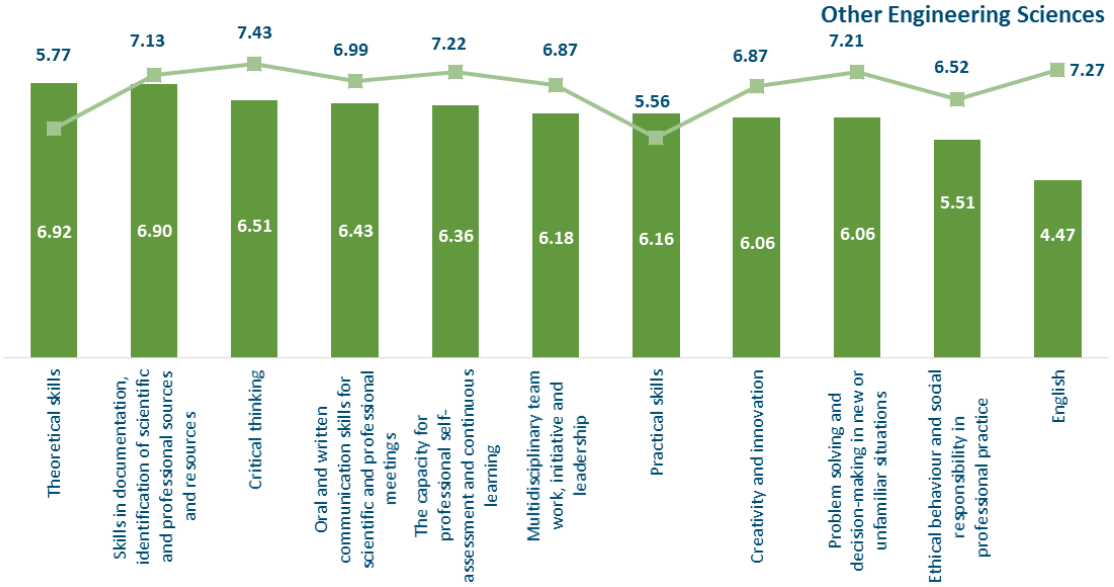



Other Social Sciences
6.62
6.93
5.23
7.10
6.78
5.34
6.67
6.60
6.54
6.53
4.67
6.81
6.69
6.66
6.26
6.24
6.07
6.05
6.00
5.96
5.43
2.04
Skills in documentation, identification of scientific and professional sources and resources
Critical thinking
Theoretical skills
Ethical behaviour and social responsibility in professional practice
The capacity for professional self-assessment and continuous learning
Practical skills
Oral and written communication skills for scientific and professional meetings
Creativity and innovation
Multidisciplinary team work, initiative and leadership
Problem solving and decision-making in new or unfamiliar situations
English


Experimental Sciences
7.68
7.67
5.48
7.12
7.37
5.54
6.85
7.26
6.78
6.96
7.59
6.86
6.49
6.48
6.31
6.25
6.23
5.87
5.65
5.49
5.48
4.41
Skills in documentation, identification of scientific and professional sources and resources
Critical thinking
Theoretical skills
Oral and written communication skills for scientific and professional meetings
The capacity for professional self-assessment and continuous learning
Practical skills
Multidisciplinary team work, initiative and leadership
Problem solving and decision-making in new or unfamiliar situations
Ethical behaviour and social responsibility in professional practice
Creativity and innovation
English


Health Sciences
7.10
7.13
6.79
5.59
6.94
7.27
6.69
6.27
6.66
5.26
5.49
7.18
6.74
6.74
6.68
6.37
6.30
6.14
5.77
5.76
5.72
3.61
Skills in documentation, identification of scientific and professional sources and resources
Critical thinking
Oral and written communication skills for scientific and professional meetings
Theoretical skills
The capacity for professional self-assessment and continuous learning
Ethical behaviour and social responsibility in professional practice
Multidisciplinary team work, initiative and leadership
Creativity and innovation
Problem solving and decision-making in new or unfamiliar situations
Practical skills
English


Civil Engineering, Construction Engineering
6.66
5.58
7.11
6.47
6.91
6.77
6.43
6.32
6.21
5.08
5.23
7.12
7.03
7.01
6.52
6.20
5.85
5.69
5.65
5.62
5.36
1.76
Skills in documentation, identification of scientific and professional sources and resources
Theoretical skills
Critical thinking
Oral and written communication skills for scientific and professional meetings
The capacity for professional self-assessment and continuous learning
Ethical behaviour and social responsibility in professional practice
Problem solving and decision-making in new or unfamiliar situations
Multidisciplinary team work, initiative and leadership
Creativity and innovation
Practical skills
English



Usefulness of the knowledge and skills acquired

The five most necessary skills for the workplace (current job) were critical thinking, documentation and the identification of sources, the capacity for self-assessment and continuous learning, and ethical behaviour and social responsibility in professional practice.

Conversely, theoretical skills and practical skills were, together with English, the skills considered by graduates of Master's programmes to be of least use in their job.

Figure 7.1.3. The usefulness of soft skills in the workplace (scale from 0 to 10, only graduates with university-level job duties and responsibilities)

Skills deficit

Figure 7.1.4 gives data on the skills deficit, i.e. the difference between the mean level of skill acquired from the Master's programme and the mean level necessary for each skill in the workplace (current job).

Broadly speaking, skills acquired from the study of a Master's degree closely matched the level of skills required in the workplace (current job). The skills with the biggest deficit between the level received and the level required in the workplace (current job) were creativity and, to a lesser degree, critical thinking.

Figure 7.1.4. Skills deficit (scale from 0 to 10, only graduates with university-level job duties and responsibilities)

7.2. Satisfaction with the Master's programme

66% of graduates would take the same Master's programme again.

This percentage, which conceals a considerable heterogeneity between subjects, ranged from 75% in Physics and Mathematics to 51% in Veterinary Science.

The higher the appraisal of the theoretical skills acquired from the Master's, the higher the intention to take the same degree programme again.

Table 7.2.1 Comparison of the three cycles: satisfaction with Master's studies

	n	Intention to take the same programme again
Undergrad. degree	15,875	71.58%
Master's	7,593	66.17%
Doctorate	1,411	84.83%

Comparison of the three cycles
The percentage of Master's graduates who would take the same degree again was lower than that of graduates of undergraduate and doctoral programmes.

66% of graduates stated that they would take the same Master's programme again, although there were variations according to subject and specific Master's programmes.

Table 7.2.2. Percentage of graduates who would take the same Master's degree again

	Would take the same Master's degree again		
	Yes	**No**	***n***
Physics and Mathematics	78.95%	21.05%	171
Law	73.68%	26.32%	266
Civil Engineering	72.58%	27.42%	62
Catalan and Spanish Studies	72.45%	27.55%	98
Philosophy and Humanities	72.38%	27.62%	210
Information and Communications	72.31%	27.69%	390
Healthcare	71.97%	28.03%	314
Economics and Business Administration and Management	71.82%	28.18%	582
Teacher Training	71.43%	28.57%	819
Labour Relations	69.18%	30.82%	146
Medicine and Dentistry	67.85%	32.15%	423

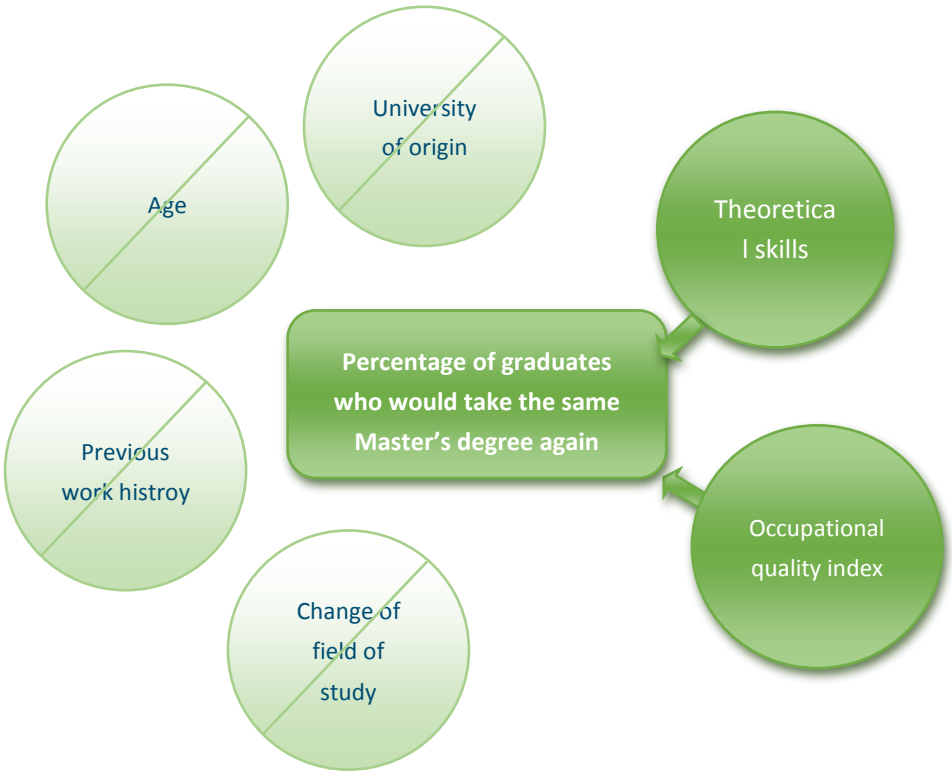
Comparative Studies	66.84%	33.16%	187
Advanced Production Technologies/Aeronautics	66.46%	33.54%	325
Architecture	65.81%	34.19%	234
Pedagogy	65.72%	34.28%	493
Geography and History	65.26%	34.74%	449
Modern Languages	63.49%	36.51%	126
Human Sciences	62.94%	37.06%	143
Tourism	62.62%	37.38%	107
Political Science	62.60%	37.40%	254
Pharmacy/Food Science and Technology	60.67%	39.33%	178
Documentation and Communication Sciences	60.06%	39.94%	363
Chemistry	57.87%	42.13%	197
Psychology	57.76%	42.24%	277
Biology and Natural Sciences	54.53%	45.47%	497
Fine Art	53.00%	47.00%	100
Physical Activity and Sports Sciences	52.69%	47.31%	93
Agricultural Engineering	52.27%	47.73%	44
Veterinary Science	51.11%	48.89%	45
Total	**66.18%**	**33.82%**	**7,593**

The intention of graduates to take the same Master's programme again: an explanatory model

The estimated model accounts for 48% of the variability in the percentage of graduates who would take the same Master's degree again (see section 4, annex 8). The two most influential factors regarding intention to take the same degree again were satisfaction with the theoretical skills acquired in the Master's programme and the occupational quality index.

Factors such as age, prior work history and a change of field of study had no influence.

Figure 7.2.1. Quantitative model for the percentage of graduates who would take the same Master's degree

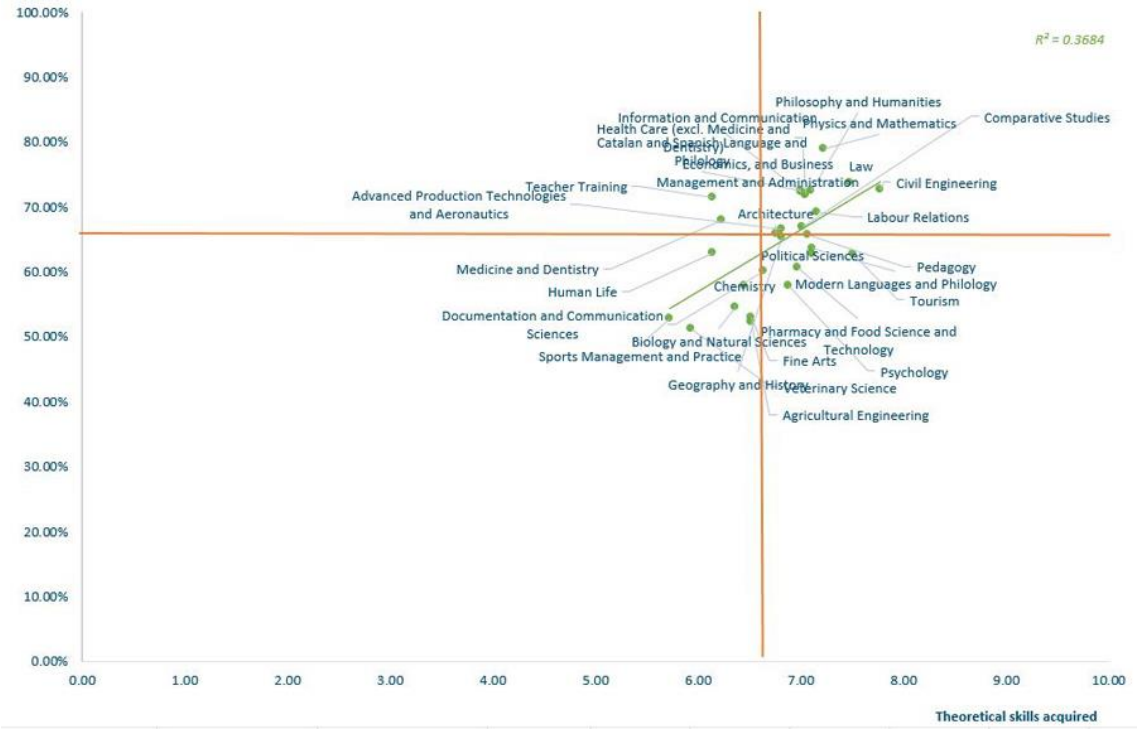


The intention to take the same Master's degree again according to subject ranges on a theoretical axis from 0 to 100% of the students who would take the same Master's degree again. The resulting model (see section 4, annex 8) shows the following:

- For every 1 percent increase in the graduates' rating of their level of theoretical skills acquired (scale from 0 to 10), there is an 8 percent increase in the intention to take the same Master's degree again. This means that the intention would range from between 0 and 80 percent according to whether the skills acquired were rated between 0 or 10.
- Likewise, for every 1 percent increase in the occupational quality index (scale from 0 to 10), the intention to take the same Master's degree again would increase by 0.5 percent (between 0 and 50 percent more).

The following figure shows the positive relationship between the level of theoretical skills acquired and the intention to take the same Master's degree again according to subject.

Figure 7.2.2. Intention to take the same Master's degree again according to the level of theoretical skills acquired and Master's subject studied



7.3. The impact of a Master's degree in the workplace

One out of three graduates stated that their Master's degree had a positive objective impact on their situation in the labour market, resulting mainly in a higher salary/earnings.

The impact was greatest for those who were not working full-time, probably because there was more room for improvement.

In terms of the subjective impact, only one of the indicators given in the survey was rated higher than 7 (on a scale from 0 to 10), pursue a specialist area of interest. The second most highly rated factor was the possibility of establishing contacts (5,8).

There were notable differences according to prior work history, in terms of more job opportunities and taking on new job duties and responsibilities for those who were either working full-time or had part-time jobs.

The impact of a Master's degree was measured on the basis of five items that cover objective change (see table 7.3.1) and eight items that comprise a subjective assessment of improvements relating to duties and responsibilities in the workplace (see table 7.3.2).

Objective impact

Table 7.3.1. Comparison of the three cycles: indicators assessing the objective impact [38]

	n	Job	Better contract	Higher salary	Better working time
Master's	4,901	22.34%	29.80%	34.78%	30.53%
Doctorate	1,179	48.86%	49.92%	52.65%	27.22%

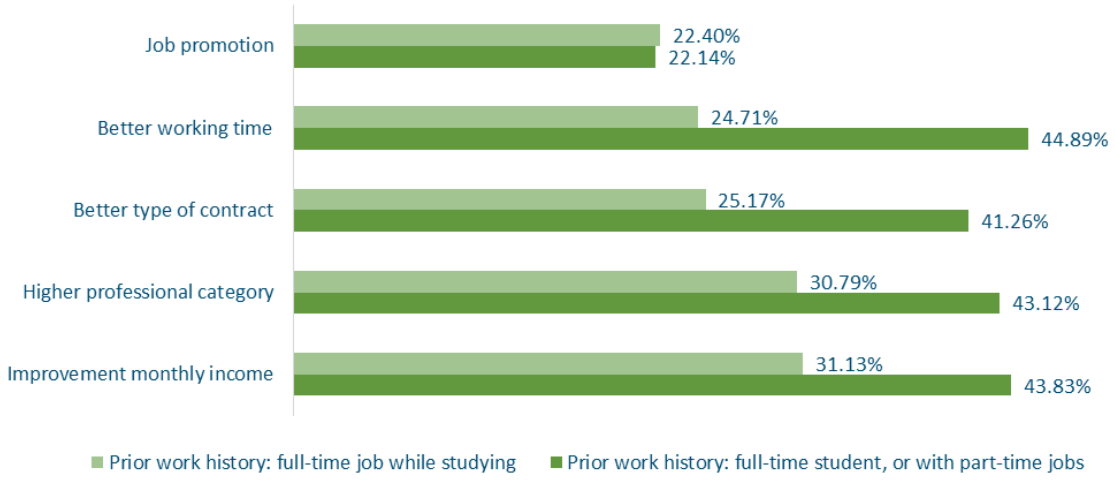
Comparison of the three cycles

The objective impact of a Master's degree was more positive for the employment situation of doctorate holders, in comparison to that of Master's degree holders.

One third of the graduates stated that their Master's degree resulted in an improvement in their earnings, 30% an improvement in working time and the type of contract, and 22% for promotion.

According to **prior work history**, the impact is clearly greater for those who had not worked full-time, probably because there was more room for improvement.

Figure 7.3.1. Objective indicators on the impact of a Master's degree in the workplace



Subjective impact

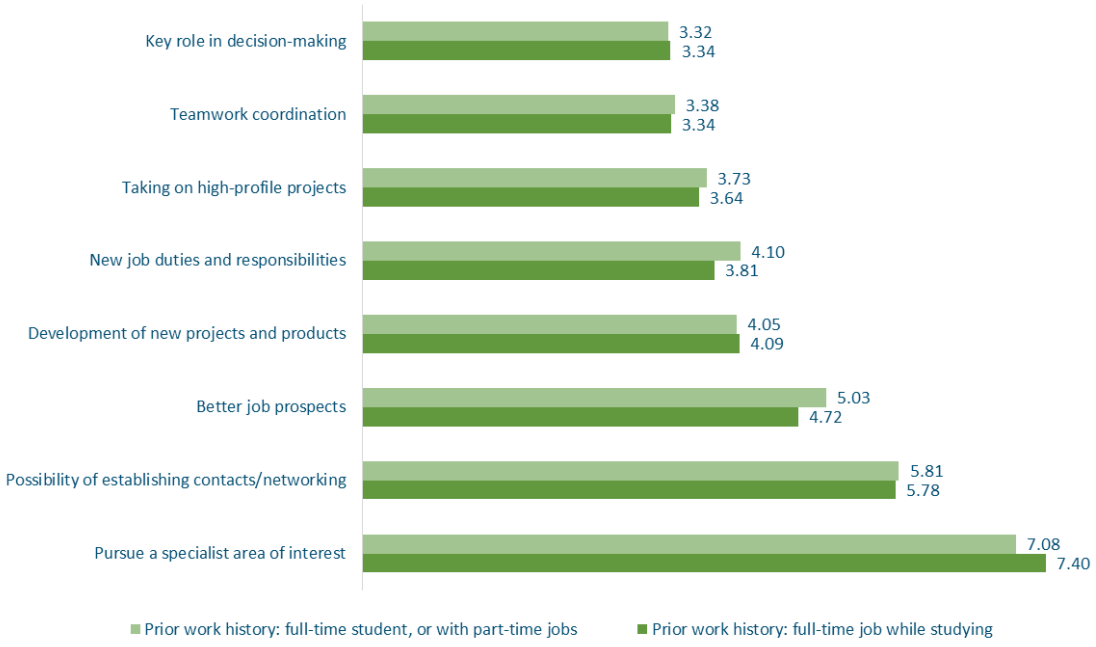
Table 7.3.2. Comparison of the three cycles: indicators assessing the subjective impact

[38] The impact of a Master's programme is measured on the basis of five items, although only the four given in the table are comparable with doctorate-level programmes.

	n	Better job prospects	New job duties and responsibilities	Taking on high-profile projects	Development of new projects and products	Teamwork coordination	Key role in decision-making	Pursue a specialist area of interest	Establishing contacts
Master's	5,305	4.81	3.90	3.67	4.08	3.35	3.33	7.31	5.79
Doctorate	1,403	-	5.87	4.45	4.45	5.32	4.02	-	-

Graduate perception of professional improvement following a Master's degree was very low in terms of the work-related duties, tasks and responsibilities given in the survey, in the case of full-time students, students working part-time and those working full-time. In all cases, there was only one rated at 7 (on a scale from 0 to 10), namely, pursuit of a specialist area of interest. It was in this aspect that most improvement was perceived as a result of having taken a Master's degree, especially in the case of those working full-time. The second most highly rated aspect was the possibility of networking with people and institutions, rated at 5.8 in both cases. The aspects where the least improvement was perceived were playing a key role in decisions having a direct impact on the business, and teamwork coordination and problem solving.

Figure 7.3.2. Subjective indicators on the impact of a Master's degree studies in the workplace (scale from 0 to 10, full-time students or with part-time jobs compared to students with a full-time job



8. EMPLOYMENT OUTCOMES AND MASTER'S DEGREE SUBJECT

As seen above, graduate employment outcomes depend to a significant extent on the subject taken at university. This section gives an overview of the employment outcomes of Master's graduates according to the subject studied.[39]

The following series of indicators on the quality of employment outcomes was used for the analysis:[40]

1. **Employment rate**: the percentage of graduates employed out of the total number of graduates.
2. **Job stability rate**: the percentage of graduates with a fixed-term contract out of the total number of employed graduates.
3. **Education-job skills match**: the percentage of graduates with at least university-level job duties and responsibilities out of the total number of employed graduates.
4. **Quality of employment:** the percentage of graduates working in jobs classified under groups 1 to 3 of the National Classification of Occupations (CNO).
5. **Managerial duties and responsibilities**: the percentage of graduates in managerial positions (management) out of the total number of employed graduates.
6. **Annual salary of over 24,000 euros**: the percentage of graduates working full-time, with university-level job duties and responsibilities, and earning over 24,000 euros gross a year.

[39] "Subjects" are an intermediate-level aggregation between study programmes (degree) and the five main subject areas. They were established in 2001 by a panel of experts from all the public universities in Catalonia, according to a twofold criterion: the specific influence of the number of students (Law, Business Studies, etc.) and affinity with other programmes in the same discipline (for example, Hebrew Studies comes under the same subject as Arabic Studies). Annex 1 gives a list of the degree programmes in each subject.

[40] For the analysis of these indicators, all of which are categorical variables, use was made of proportions as descriptive statistics, the chi-square test to compare the differences between the different groups of data, and interpretation of the standardised and adjusted residuals.

Table 8.1. Comparison of employment outcomes according to Master's subject[41]

	Employment rate	Fixed-term contract	University-level job duties/responsibilities	Managerial positions	Skilled occupation
Geography and History	↓	↓	↓	→	↓
Philosophy and Humanities	→	→	→	→	→
Comparative Studies	↓	↓	→	↓	→
Catalan and Spanish Studies	→	→	→	↓	→
Modern Languages	→	→	→	↓	↓
Fine Art	↓	↓	↓	↓	→
Economics/Business Management and Administration	↑	↑	→	↑	→
Law	→	↑	→	↑	↑
Labour Relations	→	↑	→	↑	→
Political Science	→	→	→	↑	→
Documentation and Communication Sciences	→	↑	→	↑	→
Psychology	→	↓	→	→	↑
Pedagogy	→	↑	↑	↑	→
Tourism	→	→	→	↑	↓
Sport Management and Practice	→	→	→	↑	→
Teacher Training	→	↓	↓	↓	↓
Chemistry	→	↓	↑	↓	↑
Biology and Natural Sciences	↓	↓	↓	↓	→
Physics and Mathematics	→	↓	↑	↓	↑
Human Sciences	→	↓	↑	↓	↑
Healthcare	→	↑	↑	→	↑
Medicine and Dentistry	↑	↓	↑	↓	↑
Pharmacy/Food Science and Technology	→	→	→	→	→
Veterinary Science	→	→	→	↓	→
Architecture	→	↓	→	↑	↑
Civil Engineering	→	→	→	→	→
Advanced Production Technologies/Aeronautics	↑	→	↑	→	↑
Information and Communications	↑	↑	↑	→	↑
Agricultural Engineering	→	→	→	→	→

[41] The symbol ↓ indicates a negative performance as regards the quality of the employment outcomes compared to other subjects, whereas ↑ indicates a positive performance. The symbol → indicates that the performance was similar to what would be expected given no effect resulting from the type of degree.

ANNEX 0. TECHNICAL SPECIFICATIONS

Company that carried out the fieldwork

Ikerfel

Population and sample

The survey analyses the employment outcomes of 7,647 Master's degree holders, out of a total of 16,218 who graduated in the 2009-2010 and 2010-2011 academic years, or 47% of the population, with a sample error[42] of 0.81%.

Two cohorts of graduates were used to enhance the sample according to subject. The size of the sample was defined so as to obtain a sample error of 8% according to subject and university. Master's graduates were interviewed either by telephone or, in a small minority of cases, on-line.

Table A0.1. Distribution of the sample according to the system for gathering data

	Sample
Online	250
Telephone	7,397
Total	**7,647**

The survey covers a total of 495 Master's programmes that carry between 60 and 120 ECTS credits[43] and offer study programmes with an average of 72 credits, 16 of which cover the Master's dissertation.

Dates, times and average call time of the survey interviews

Master's degree programmes (less than 40% international students)

The field work on Master's degrees in Spain was carried out between 27 February until 3 April 2014. Telephone interviews were carried out between 8.30 am and 10.30 pm.

[42] Sample error (%) = $\sqrt{\frac{(N-n)}{(N*n)-n}} * 100$, where *N* is the size of population and *n* the size of the sample used in the survey.

[43] European Credit Transfer and Accumulation System.

The average duration of each call was 10 minutes and 58 seconds: 11 minutes and 2 seconds in the case of those in employment at the time of the survey, 11 minutes and 28 seconds for those who were not working at the time of the survey, but who had worked since completing their studies, and 8 minutes and 40 seconds in the case of those who had never worked since graduation.

International Master's degree programmes (minimum of 40% international students)

In the case of online interviews, the field work was carried out between 20 March and 7 April 2014. Given the very limited response during this time, the deadline was extended until 30 April and the online survey replaced by a telephone survey.

The average duration of each call was 11 minutes and 4 seconds: 11 minutes and 12 seconds in the case of those in employment at the time of the survey, 11 minutes and 4 seconds for those who were not working at the time of the survey, but who had worked since completing their studies, and 8 minutes and 55 seconds in the case of those who had never worked.

Back Office

Codes for the branch of economic activity were established according to the open description of the industry/branch of economic activity. Occupation was coded according to the National Classification of Occupations, based on the open description of the type of job and the full name of the degree programme. In the case of the latter, open responses to the categories *Other associated* and *Other not associated* could not be classified.

Types of call

Table A0.2. Distribution of the type of telephone call to holders of Master's degrees (programmes having less than 40% international students)

Detall	*n*	%
Interview completed	5,762	50.45%
Did not wish to collaborate	299	2.62%
Made appointment for another day and it was impossible to contact them	626	5.48%
Listing error (wrong number, the person didn't exist, fax, etc.)	757	6.63%
Unreachable after several attempts	6	0.05%
Didn't pick up the phone, line busy, answer phone, etc.	3,137	27.46%
Dropped out of the survey	35	0.31%
Not used	393	3.44%
Abroad	168	1.47%
Other causes	239	2.09%
	11,422	**100%**

Table A0.3. Distribution of the type of telephone call to international Master's degree holders (with more than 40% international students)

Detall	*n*	%
Online interviews	251	5.23%
Interview completed	1,637	34.13%
Did not wish to collaborate	57	1.19%
Made appointment for another day and it was impossible to contact them	179	3.73%
Listing error (wrong number, the person didn't exist, fax, etc.)	733	15.28%
Unreachable after several attempts	5	0.10%
Didn't pick up the phone, line busy, answer phone, etc.	1,332	27.77%
Dropped out of the survey	13	0.27%
Not used	122	2.54%
Abroad	93	1.94%
Other causes	86	1.79%
Incomplete interview, invalid, not considered for the telephone call stage	148	3.09%
No response to the online survey, no telephone number	140	2.92%
	4,796	**100%**

ANNEX 1. MASTER'S DEGREES AND SUBJECTS

Table A1.1. Humanities

Recognised Master's degrees	Subject	Code
Master's degree in World History	Geography and History	101
Master's degree in Anthropology and Ethnography		
Master's degree in Medical Anthropology and International Health		
Master's degree in Social and Cultural Anthropology		
Master's degree in Urban Anthropology		
Master's degree in Archaeology		
Master's degree in Classical Archaeology		
Master's degree in Quaternary Archaeology and Human Evolution		
Master's degree in Prehistoric Archaeology		
Master's degree in Advanced Studies in the History of Art		
Master's degree in Comparative History, 16th-20th Centuries		
Master's degree in Historical Societies and Political Forms in Europe		
Master's degree in the History of Science. Science, History and Society		
Master's degree in Sciences of Antiquity and the Middle Ages		
Master's degree in History and Culture of Diet		
Master's degree in Ethnographic Language, Anthropological Theory and Intercultural Relations		
Master's degree in Language and Civilisation of Ancient Egypt		
Master's degree in Contemporary Far East Asia (research-based)		
Master's degree in Music an an Interdisciplinary Art		
Master's degree in Medieval Cultures		
Master's degree in Musicology and Music Education		
Master's degree in Musicology, Music Education and the Interpretation of Early Music		
Master's degree in Cultural Heritage and Local Development		
Master's degree in Regional Planning and Environmental Management		
Master's degree in Contemporary History		
Master's degree in Analysis and Management of Artistic Cultural Heritage		
Master's degree in Local Management of Cultural Heritage		
Master's degree in Cultural Heritage Management		
Master's degree in Regional and Population Studies		
Master's degree in Latin American Studies		
Master's degree in Women, Gender and Citizenship Studies		
Master's degree in Historical Studies		
Master's degree in Humanistic and Social Studies	Philosophy and Humanities	102
Master's degree: Initiation to Reseach in the Humanities: History, Art, Philosophy, Language and Literature		
Master's degree in Bioethics		

Master's degree in Specialised Translation		
Master's degree in Citizenship and Human Rights: Ethics and Politics		
Master's degree in Pure and Applied Logic		
Master's degree in Philosophy and Classical Studies		
Master's degree in Contemporary Thought		
Master's degree in Philosophy Analytical		
Master's degree in Contemporary Philosophy: Trends and Debates		
Master's degree in Cultural Management		
Master's degree in Philosophy and Humanistic Studies (research-based)		
Master's degree in Natural Language Processing and Computer Scienceal Linguistics	Comparative Studies	103
Master's degree in Lexicology and Linguistic Communication		
Master's degree in Applied Linguistics and Language Acquisition in Multilingual Contexts		
Master's degree in Linguistics and Computer Scienceal Linguistics		
Master's degree in Construction and Representation of Cultural Identity		
Master's degree in Comparative Literature and Literary Translation		
Master's degree in Comparative Literature: Literary and Cultural Studies		
Master's degree in Cultures and Languages of Antiquity		
Master's degree in Literary Creation		
Master's degree in Theoretical and Applied Linguistics		
Master's degree in Comparative Studies in Literature, Art and Thought		
Master's degree in Cognitive Science and Language		
Master's degree in Spanish and Hispanic Literature	Catalan and Spanish Studies	104
Master's degree in Teaching Spanish and Catalan as Second Languages / Languages and Population Movements		
Master's degree: Advanced Studies in Catalan Language, Literature and Culture		
Master's degree: Advanced Applied Studies in Catalan Language and Literature		
Master's degree in Applied Languages		
Master's degree in Spanish and Hispanic Literature		
Master's degree in Spanish as a Foreign Language in Professional Fields		
Master's degree in Teaching Spanish/Catalan to Immigrants		
Master's degree in the Teaching of Foreign Languages	Modern Languages	105
Master's degree in Translation, Interpretation and Intercultural Studies		
Master's degree: in Advanced English Studies: Literature and Culture		
Master's degree in Cultural Studies in English, Texts and Contexts		
Master's degree in English Language Acquisition and Intercultural Communication		
Master's degree in Information Processing and Multilingual Communication		
Master's degree in Translation and Intercultural Studies		
Master's degree in Translation Studies: Strategies and Procedures		
Master's degree in Urban Design: Art, City and Society	Fine Art	108
Master's degree in Drama (Theatre Studies)		
Master's degree in Artistic Creativity: Reality and Context		
Master's degree in Art Production and Reseach		
Master's degree in Conservation and Restoration Management: Collections and Heritage Sites		
Master's degree in Typography: Discipline and Uses		

Table A1.2. Social Sciences

Recognised Master's degrees	Subject	Code
Master's degree in International Management and Administration of Technology Innovation	Economics and Business Administration and Management	201
Master's degree in Industrial Business Management		
Master's degree in Strategic Business Management		
Master's degree in Prevention of Occupational Hazards		
Máster Universitari in Finance		
Master's degree in Project Management		
Master's degree in Cultural Management		
Master's degree in Economcs		
Master's degree in International Management		
Master's degree in Sustainable Fisheries Management		
Master's degree in Business Management, Organisation and Economics		
Master's degree in Industrial Organisation		
Master's degree in Marketing Management		
Master's degree in Economic History		
Master's degree in Business Innovation and Technology Management		
Master's degree in Entrepreneurship and Business Management Research		
Master's degree in Internationalisation		
Master's degree in Business Economics and European Economic Integration		
Master's degree in Global Entrepreneurship and Management		
Master's degree in Master Accounting, Auditing and Management Control		
Master's degree in Business Management and Production Systems		
Master's degree in Applied Research in Economics and Business		
Master's degree in Economic Analysis		
Master's degree (reseach-based) in Human, Social and Legal Sciences		
Master's degree (reseach-based) in Management Sciences		
Master's degree in International Retail Business		
Master's degree (reseach-based) in Business, Finance and Insurance		
Master's degree (reseach-based) in Economics, Finance and Business		
Master's degree in Creation and Management of Innovative Technology-Based Companies		
Erasmus Mundus Master's degree in Models and Methods of Quantitative Economics (QEM)		
Master's degree in Business Reseach		
Master's degree in Business Management		
Master's degree in Sport Management		
Master's degree in Company Law: Tax Consultancy and Management and Company Law	Law	203
Master's degree in Administrative Management		
Master's degree in Public Law: Globalisation and Legal Cultures		
Master's degree in Sports Law		
Master's degree in Company Law		
Master's degree in Business and Private Sector Law		
Master's degree in Criminology and Criminology, Criminal Justice Policy and Sociology of Criminal Law		
Master's degree in Advanced Legal Sciences		
Master's degree in Business and Contractual Law		
Master's degree in Business Law		
Master's degree in Advanced Public Management		
Master's degree in Interactive Digital Communication		

Master's degree in Environmental Law		
Master's degree in Criminal Justice System		
Master's degree in Migrations and Social Mediation	Labour Relations	204
Master's degree in Social and Labour Rights		
Master's degree in Occupational Health and Safety		
Master's degree in in Labour and Social Policy		
Master's degree in Administration, Management and Intervention in Social Services		
Master's degree in Occupational Risk Prevention		
Master's degree in Political and Social Sciences	Political Science	205
Master's degree in Mediterranean Cultural Studies		
Master's degree in Applied Sociology (research-based)		
Master's degree in European Integration		
Master's degree in Public Administration		
Master's degree (reseach-based) in Political Sciences		
Master's degree in in Political Analysis and Institutional Assessment		
Master's degree in Equal-Opportunity Agents for Women		
Master's degree in Immigration Management		
Master's degree in in Law and Policies of European Integration: European Constitutional Law and Multilevel Constitutionalism		
Master's degree in International Development and Cooperation		
Master's degree in Sociology		
Master's degree in Participation and Local Policies		
Master's degree in Thought and Government in Complex Societies		
Master's degree in International Relations, Security and Development		
Master's degree in Political, Institutional and Corporate Communication in Crisis and Risk Environments		
Master's degree in Political Philosophy		
Master's degree in Information Society and Communication	Documentation and Communication Sciences	206
Master's degree in Advertising and Public Relations		
Master's degree in Advanced Journalism		
Master's degree in Design and Communication		
Master's degree in Archival and Records Management		
Master's degree in Innovation and Quality in Television		
Master's degree in School Library Services and the Encouragement of Reading		
Master's degree in Film and Television. Production and Realisation		
Master's degree in Film and Contemporany Audio-visual Studies		
Master's degree in Advanced Studies in Social Communication		
Master's degree in Digital Content Management		
Master's degree in Contents Research in the Digital Era		
Master's degree in Communication and Journalism (research-based)		
Master's degree in Communication and Cultural Studies		
Master's degree in Advertising Strategy and Creativity		
Master's degree in Cognitive and Communication Psychology	Psychology	208
Master's degree in Assessment and Measurement of Behaviour		
Master's degree in Psychology of Education – MIPE		
Master's degree in in Psychology of Work, Organization and Human Resources		
Master's degree in Health Psychology (research-based)		
Master's degree in Psychology: Sport and Physical Activity (research-based)		
Master's degree in Psychology of Education		
Master's degree in Clinical Psychology (research-based)		

Master's degree in Personality and Behaviour (research-based)		
Master's degree in Health Psychology and Psychotherapy		
Master's degree in Social Psychology (research-based)		
Master's degree in Psycho-social Intervention		
Master's degree in Management of Human Resources in Organisations		
Master's degree in Psychology of Work, Organisations and Human Resources		
Master's degree in Psychogerontology		
Master's degree in Primatology		
Master's degree in Clinical Psychology: Health and Quality of Life		
Master's degree in in Language Pathology		
Master's degree in Visual Arts and Education: a Constructionist Approach		
Master's degree in in Educational Technology: e-Learning and Knowledge Management		
Master's degree in Motor Activity and Education		
Master's degree in Adult Education		
Master's degree in Teaching Training in Catalan for Adults		
Master's degree in Teaching in Secondary Schools, Vocational Training and Language Centres		
Master's degree in Education Technologies		
Master's degree in Inclusive Education		
Master's degree in Education Planning and Management		
Master's degree in Social and Community Pedagogy: Leadership and Social and Educational Transformation		
Master's degree in Psychology and Education		
Master's degree in Models and Strategies for Social and Educational Action in Infancy and Adolescence		
Master's degree in Migrations and Social Mediation		
Master's degree in the Deaf, Education and Sign Language		
Master's degree in Education for Diversity	Pedagogy	209
Master's degree in Education: Social Sciences, Geography, History and Art (research-based)		
Master's degree in Education and ICT		
Master's degree in Educational Reseach		
Master's degree in Education: Language and Literature (research-based)		
Master's degree in Education: Mathematics and Science (research-based)		
Master's degree in Education: Learning and Educational Assessment (research-based)		
Master's degree in Education (research-based)		
Master's degree in Digitally Mediated Learning Environments		
Master's degree in Social and Educational Action		
Master's degree in Higher Education		
Master's degree in Education and Rural Development		
Master's degree in Education: Citizenship And Values		
Master's degree in Intercultural Education		
Master's degree in Interdisciplinary Education in the Arts		
Master's degree in Specific Teaching Methods (research-based)		
Master's degree in Youth and Society		
Master's degree in Tourism Management and Planning		
Master's degree in Analytical Techniques and Innovation in Tourism		
Master's degree in Tourism Management	Tourism	211
Master's degree in Tourism Management		
Master's degree in Cultural Management		
Master's degree in Cultural Tourism		
Master's degree in Sport, Leisure and Social Change: Contemporary Strategies for Analysis and	Sport Management	212

Management	and Practice	
Master's degree Sports Performance: Specialisation and Elite Competition		
Master's degree in Physical Activity and Sport		
Master's degree in Physical Activity, Health and Sports Training		
Master's degree in Sports Development Management		
Master's degree in Sports Management		
Master's degree in Sustainable Sports and Well-being		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education. Social Sciences	Teacher Training	213
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education		
Master's degree in Special Education		
Master's degree in Teacher Training		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education. Biology and Geology		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education. Specialisation in Biology and Geology		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education. Specialisation in Physical Education		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education		
Master's degree in Teacher Training: Spanish As A Foreign Language		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education. Philosophy		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education. Specialisation in Technology		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education. Specialisation in Geography and History		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education. Specialisation in Technology/ Industrial Technology		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education. Educational Guidance		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education. Specialisation in English		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education. Physics and Chemistry		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education. Catalan and Spanish Language and Literature		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education. Mathematics		
Master's degree in Secondary and Upper Secondary School Education, Vocational Training and Language Education. Music		

Table A1.3. Experimental Sciences

Recognised Master's degree	Subject	Code
Master's degree in Chemistry and Engineering Chemistry (research-based)	Chemistry	301
Master's degree in Chemistry in Industry		

Master's degree in Chemical Science and Technology		
Master's degree in Advanced Chemistry		
Master's degree in Materials Science and Technology		
Master's degree in Water Science and Technology		
Master's degree in Computer Scienceal and Theoretical Chemistry		
Master's degree in Homogeneous Catalysis		
Master's degree in Applied Chromatographic Techniques		
Master's degree in Enology		
Master's degree in Synthesis and Catalysis		
Master's degree in Applied Microbiology	Biology and Natural Sciences	302
Master's degree in Environment		
Master's degree in Plant Biology and Biotechnology		
Master's degree in Clinical Analysis Laboratory		
Master's degree in Molecular Biology and Biomedicine		
Master's degree in Biochemistry, Molecular Biology and Biomedicine		
Master's degree in Advanced Biotechnology		
Master's degree in Natural Resources Engineering		
Master's degree in Environmental Engineering		
Master's degree in Advanced Microbiology		
Master's degree in Medicinal Chemistry and Molecular Design		
Master's degree in Oceanography and Marine Environmental Management		
Master's degree in Fundamental and Applied Ecology		
Master's degree in Terrestrial Ecology and Biodiversity Management		
Master's degree in Cellular Biology		
Master's degree in Human Biology		
Master's degree in Integrated Planning for Rural Development		
Master's degree in Plant Breeding		
Master's degree in Geophysics		
Erasmus Mundus Master's degree in Environmental Studies - Cities and Sustainability (JEMES)		
Master's degree in Integrative Physiology		
Master's degree in Physics of Biological Systems and Radiophysics		
Master's degree in Environmental Agrobiology		
Master's degree in Water. Interdisciplinary Analysis and Sustainable Management		
Master's degree in Advanced Genetics		
Master's degree in Paleontology		
Master's degree in Geology		
Master's degree in Sustainability		
Master's degree in Aquaculture		
Master's degree in Environmental Management and Restoration		
Master's degree in Biodiversity		
Master's degree in Immunology		
Master's degree in Environmental Studies		
Master's degree in Advanced and Professional Mathematics	Physics and Mathematics	303
Master's degree in Advanced Mathematics		
Master's degree in Applied Mathematics		
Master's degree in Meteorology		
Master's degree in High Energy Physics, Astrophysics and Cosmology		
Master's degree in Computer Scienceal and Applied Physics		
Master's degree in Nanosciences and Nanotechnology		
Master's degree in Advanced and Professional Physics		

MSc in Advanced Mathematics and Mathematical Engineering (MAMME)		
Master's degree in Astrophysics, Particle Physics and Cosmology		
Master's degree in Mathematical Engineering		
Master's degree in Photonics		
Master's degree in Engineering Physics		
Master's degree in Synchrotron Radiation and Particle Accelerators		
Master's degree in Statistics and Operations Research		
Master's degree in Bioinformatics		
Master's degree in Biophysics		
Master's degree in Molecular Biotechnology		
Master's degree in Biomedicine	Human Sciences	304
Master's degree in Neurosciences		
Master's degree in Developmental Biology and Genetics		
Master's degree in Bioengineering		

Table A1.4. Health Sciences

Recognised Master's degree	Subject	Code
Master's degree in Health and Communitary Welfare		
Master's degree in Nutrition and Metabolism		
Master's degree in Health Promotion		
Master's degree in Nursing Sciences		
Master's degree in International Health		
Master's degree in Genetic, Nutritional and Environmental Factors in Growth and Development	Healthcare	401
Master's degree in Optometry and Vision Science		
Master's degree in Education for Health		
Master's degree in Active and Satisfactory Ageing		
Master's degree in Ageing and Health		
Master's degree in Leadership and Management in Nursing		
Master's degree in Physiotherapy and Scientific Evidence		
Master's degree in Oncological Surgery		
Master's degree in Liver Diseases (research-based)		
Master's degree in Family Therapy		
Master's degree in Mental Health: Research in Psychiatry, Neurotoxicology and Psychopharmacology		
Master's degree in Public Health		
Master's degree in Dental Sciences (research-based)		
Master's degree in Clínical Research and Dential Materials		
Master's degree in Mental Health: Research in Psychiatry, Neurotoxicology and Psychopharmacology	Medicine and Dentistry	402
Master's degree in Clinical and Health Psychology		
Master's degree in Biomedical Research		
Master's degree in Legal, Forensic and Criminological Psychopathology		
Master's degree in Basic Research in Dentistry and Biomedicine		
Master's degree in Applied Clinical Research in Health Sciences		
Master's degree Clinical Research in Medicine		
Master's degree in Neurosciences		
Master's degree in Translational Medicine		
Master's degree in Autoimmune Diseases		
Master's degree in Biotechnology in the Health Sciences		

Master's degree in Biomedical Engineering		
Master's degree in Respiratory Medicine		
Master's degree in Organ, Tissue and Cell Donation for Transplantation		
Master's degree in Clinical Science Research		
Master's degree in Comprehensive Care for Critically-ill Patients and Emergencies		
Master's degree in Endoscopic Surgical Techniques		
Master's degree in Occupational Health		
Master's degree in Management and Innovation in the Food Industry	Pharmacy/Food Science and Technology	403
Master's degree in Food Safety		
Master's degree in Drug Research, Development and Control		
Master's degree in Food Biotechnology		
Master's degree in Pharmaceutical Industry and Biotechnology		
Master's degree in Nutrition and Metabolism		
Master's degree in Pharmaceutical Care		
Master's degree in Drug, Cosmetics and Food Quality		
Master's degree in Food Development and Innovation		
Master's degree in Pharmacology		
Master's degree in Research in Animal and Food Science	Veterinary Science	404
Master's degree in Swine Health and Production		
Master's degree in Research in Veterinary Science		

Table A1.5. Engineering and Architecture

Recognised Master's degree	Subject	Code
Master's degree in Building Construction	Architecture	501
Master's degree in Landscape Architecture		
Master's degree in Integrated Building Management		
Master's degree in Urban Land Management and Valuation		
Master's degree in Biodigital Architecture		
Master's degree in Urban Planning		
Master's degree in Technology in Architecture		
Master's degree in Theory and Practice of Architectural Project Management		
Master's degree in Theory and History of Architecture		
Master's degree in Integrated Architecture Project Management		
Master's degree in Architecture, Energy and Environment		
Master's degree in International Cooperation in Sustainable Emergency Architecture		
Erasmus Mundus Master's degree in Computer Scienceal Mechanics	Civil Engineering	503
Erasmus Mundus Master's degree in Structural Analysis of Monuments and Historical Constructions (SAHC)		
Master's degree in Numerical Methods in Engineering		
Master's degree in Coastal and Marine Engineering and Management		
Master's degree in Structural and Construction Engineering		
Master's degree in Water Resource Management		
Master's degree in Mechanics of Materials and Structures		
Master's degree in Civil Engineering		
Master's degree in Geotechnical Engineering		
Master's degree in Industrial Data Processing, Automatic Control, Computing and Systems	Advanced Production Technologies/Aeronautics	506
Erasmus Mundus Master's degree in Advanced Materials Science and Engineering (AMASE)		
Master's degree in Industrial Computing and Automatic Control		
Master's degree in Automatic Control and Robotics		

Erasmus Mundus Master's degree in Vision and Robotics (VIBOT)		
Master's degree in Air Conditioning Technologies and Energy Efficiency in Buildings		
Master's degree in Aeronautical Management		
Erasmus Mundus Master's degree in Mechanical Engineering (EMMME)		
Master's degree in Energy Engineering		
Master's degree in Leather Engineering		
Master's degree in Industrial Management and Organisation		
Master's degree in Engineering: Textile, Paper and Graphics		
Master's degree in Engineering Electronics and Automatics		
Master's degree in Chemical and Process Engineering (research-based)		
Master's degree in Polymers and Biopolymers		
Master's degree in Electronic Engineering: Professional and Reseach		
Master's degree in Biotechnology Engineering		
Master's degree in Electronic Engineering		
Master's degree in Applied Engineering Sciences		
Master's degree in Computer Science Engineering and Management		
Master's degree in Logistics, Transportation and Mobility		
Master's degree in Fluid Thermodynamics Engineering		
Master's degree in Fluid Thermodynamics Engineering (research-based)		
Master's degree in Chemical and Process Engineering		
Master's degree in Environmental Engineering		
Master's degree in Nanoscience and Nanotechnology		
Master's degree in Aerospace Science and Technology		
Master's degree in NanoTechnology		
Master's degree in Materials Science and Engineering		
Master's degree in Applied Information Technologies	Information and Communications	508
Master's degree in Computer Vision and Artificial Intelligence		
European Master of Language on Information and Communication Technologies (MERIT)		
Master's degree in Information Technologies		
Master's degree in Sound and Music Computing		
Master's degree in Open Source Software Engineering		
Master's degree in Multimedia Technologies		
Master's degree in Network Engineering and Telecommunications		
Master's degree in Telecommunication Systems Design		
Master of Science in Information and Communication Technologies (MINT)		
Master in Cognitive Systems and Interactive Media		
Master's degree in Open Source Software Engineering		
Master's degree in Information, Communications and Audiovisual Technologies		
Master's degree in Computer Architecture, Networks and Systems		
Master's degree in Human-Computer Interaction		
Master's degree in Artificial Intelligence		
Master's degree in Engineering: Data Transmission (Telematics)		
Master's degree in Computer Scienceal Science and Engineering		
Master's degree in Advanced Computer Science		
Master's degree in Computer Engineering: Computer Security and Intelligent Systems		
Master's degree in Applied Telecommunications and Engineering Management		
Master's degree in Open Source Software Engineering		
Master's degree in Information Technology and Management (research-based)		
Master's degree in Computer Science		
Master's degree in High Performance Computing		

Master's degree in Computer Security and Intelligent Systems		
Master's degree in ICT Management		
Master's degree in Microelectronics and Nanoelectronics Engineering		
Master's degree in Multimedia Creation, Design and Engineering		
Master's degree in Agriculture for Development	Agricultural Engineering	510
Master's degree in Peri-urban Agriculture Systems		
Master's degree in Forestry Systems and Products (research-based)		
Master's degree in Soil and Water Management		
Master's degree in Integrated Pest Management		
Master's degree in Agrifood Production Systems (research-based)		

ANNEX 2. SURVEY TEAM MEMBERS

Dolors Baena Tostado	UB
Montserrat Peregrina Pedrola	UAB
Mari Paz Álvarez del Castillo	UAB
Santiago Roca Martín	UPC
Laura Campeny Carrasco	UPC
Jordi Serret Sanahuja	UPF
Pilar del Acebo Peña	UdG
Mireia Agustí Torrelles	UdG
Carme Sala Martínez	UdL
Ferran Mañé Vernet	URV
Remei Areny Joval	URL
Ariadna Barberà Mata	URL
Maria Taulats Pahissa	UOC
Nerea Fernández Caliza	UOC
Marianna Zanuy Fanals	UIC
Ricard Giramé Parareda	UVic - UCC
Jesús Montes Peral	UAO
Jordi Garcia Palou	UAO
Lorena Bernáldez Arjona	AQU
Sebastián Rodríguez Espinar	AQU
Anna Prades Nebot	AQU
Maria Giné Soca	AQU

ANNEX 3. MASTER'S DESCRIPTORS ACCORDING TO DUBLIN, QF-EHEA IN SPAIN AND EQF

The descriptors for Master's programmes given in the different qualifications frameworks are given below. The following table therefore presents an overview of what is expected of Master's graduates in terms of what they know, understand and are capable of doing on completing their studies.

Table A3.1. Competences expected of Master's degree holders

Dublín Descriptors (2nd cycle)	QF-EHEA in Spain (NQF) (level 3 of 4)	EQF (level 7 of 8)
Have demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with Bachelor's level, and that provides a basis or opportunity for originality in developing and/or applying ideas, often within a research context.	Have acquired advanced knowledge and demonstrated, in the context of scientific and technological research or a highly specialized field, detailed and informed understanding of the theoretical and practical aspects of the methodology and work in one or more fields of study.	Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research.
Can apply their knowledge and understanding, and problem solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study.	Can apply and integrate their knowledge and understanding and the underlying scientific fundaments, with problem-solving abilities in new and loosely defined environments, including multidisciplinary contexts in research and highly specialised professional contexts.	Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields.
Have the ability to integrate knowledge and handle complexity, and formulate judgments with incomplete or limited information, but that include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgments.	Have the ability to evaluate and select appropriate scientific theory and the precise methodology in their fields of study and formulate judgements with incomplete or limited information including, where applicable and necessary, reflecting on the social and ethical responsibilities linked to the solution proposed in each case.	Critical awareness of knowledge issues in a field and at the interface between different fields
	Have the ability to predict and control the evolution of complex situations by developing new and innovative	Manage and transform work or study contexts that are complex, unpredictable and require new

	working methodologies tailored to specific and in general multidisciplinary scientific/research, technological or professional fields in which the activity takes place.	strategic approaches.
Can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously.	Know how to convey clearly and unambiguously to a specialist or non-specialist audience results from research in science and/or technology within the scope of advanced innovation, together with the underlying principles on which they are based.	
	Have developed sufficient autonomy to participate in research projects and scientific and technological collaborations in the field, in interdisciplinary contexts and, where applicable, with a high degree of knowledge transfer.	Take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams.
Have the learning skills to allow them to continue to study in a manner that may be largely self-directed or autonomous.	Be able to take responsibility for their own professional advancement and specialisation in one or more fields of study.	

ANNEX 4. GROUPING OF MASTER'S PROGRAMMES AND SUBJECTS

Due to the limited sample in subjects in Documentation, Communication Sciences, Advanced Production Technologies/Aeronautics, and given the similarity between the programmes concerned, it was decided to group Documentation together with Communication Sciences, and Advanced Production Technologies with Aeronautics.

Before doing this, however, it was necessary, through a comparison of two proportions and/or means of two independent samples, to test the similiarity in the behaviour of the main indicators for employment outcomes among the groups. The following results suggest there was insufficient evidence to reject the null hypothesis of equality in any of the ten indicators chosen.

Table A4.1. Comparison of proportions for two independent samples

Subject	Employed	Unemployed	*n*	University-level job duties/responsibilities	*n*	Fixed-term contract	Part-time contract	*n*	Over € 2,000 a month	n	Managerial positions	*n*
Communication Sciences	86.49%	8.71%	333	87.58%	306	54.75%	21.97%	305	34.52%	281	43.14%	306
Documentation	83.87%	9.68%	31	87.10%	31	48.39%	29.03%	31	22.58%	31	35.48%	31
P-test statistic	0.863	0.088		0.875		0.542	0.226		0.333		0.424	
***P* * (1 - *P*)**	0.118	0.08		0.109		0.248	0.175		0.222		0.244	
(1/*n*1) + (1/*n*2)	0.035	0.035		0.036		0.036	0.036		0.036		0.036	
***Z* *N*(0,1)**	**0.405**	**0.182**		**0.078**		**0.678**	**0.896**		**1.338**		**0.822**	

Table A4.2. Comparison of proportions for two independent samples

Subject	Employed	Unemployed	*n*	University-level job duties/responsibilities	*n*	Fixed-term contract	Temporary contract	*n*	Over €2,000 a month	*n*	Managerial positions	*n*
Advanced Production Technologies	89.73%	4.79%	292	96.76%	278	48.38%	27.80%	277	53.20%	250	30.58%	278
Aeronautics	94.12%	2.94%	34	97.06%	34	58.82%	26.47%	34	50.00%	34	47.06%	34
P-test statistic	0.902	0.046		0.968		0.495	0.277		0.528		0.324	
***P* * (1 - *P*)**	0.089	0.044		0.031		0.25	0.2		0.249		0.219	
(1/*n*1) + (1/*n*2)	0.033	0.033		0.033		0.033	0.033		0.033		0.033	
***Z* *N*(0,1)**	**0.815**	**0.488**		**0.093**		**1.15**	**0.163**		**0.351**		**1.939**	

Table A4.3. Means test for two independent samples

Subject	Average monthly income	*n*	Standard deviation	Job satisfaction	Standard deviation	*n*	Occupational quality index	Standard deviation	*n*
Communication Sciences	1,794.04	281	950.41	7.28	2.12	274	54.5	17.87	239
Documentation	1,502.69	31	827.75	7.5	2.37	26	52.99	22.56	26
(*n*1 - 1) * VAR1	252918557.2			1231.79			76014.372		
(*n*2 - 1) * VAR2	20555331.54			140.222			12721.721		
***n*1 + *n*2 - 1**	310			298			263		
(*n*1 + *n*2) / (*n*1 * *n*2)	0.035816783			0.042			0.043		
***t* test statistic**	1.639064702			0.497			0.397		

Table A4.4. Means test for two independent samples

Subject	Average monthly income	*n*	Standard deviation	Job satisfaction	Standard deviation	*n*	Occupational quality index	Standard deviation	*n*
Advanced Production Technologies	2.123,83	250	1001,56	7,78	1,748	253	62.29	16,743	195
Aeronautics	2.269,61	34	1072,02	7,76	2,341	32	60.33	17,028	31
(*n*1 - 1) * VAR1	249775701.4			770.83			54384.94		
(*n*2 - 1) * VAR2	37924428.1			169.94			8698.72		
***n*1 + *n*2 - 1**	282			283			224		
(*n*1 + *n*2) / (*n*1 * *n*2)	0.033411765			0.035			0.0373		
***t* test statistic**	0.789562308			0.076			0.602		

ANNEX 5. RELIABILITY ANALYSIS: INTERNATIONALISATION

A5.1. Reliability analysis and factor analysis of the indicators on internationalisation

Reliability statistics

Cronbach's alpha	No. of items
0.91	7

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlations	Cronbach's alpha if item deleted
Periods of study/work experience abroad	26.82	290.21	0.67	0.91
Contacts established with teaching staff at other universities and/or in other countries	25.40	277.73	0.77	0.90
Participation in international congresses/seminaris/events	25.74	275.64	0.80	0.90
Contacts and networking with people and/or institutions abroad	25.53	274.56	0.84	0.89
Job listings and opportunities abroad	26.57	287.36	0.79	0.90
Acquire an international vision as to the field of study	24.68	284.32	0.77	0.90
Personal, academic and professional advancement	22.90	321.42	0.53	0.92

Factor analysis of the seven indicators on internationalisation

Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy		**0.91**
Bartlett's test of sphericity	chi squared	1,470.84
	gl	21.00
	Sig.	0.00

	Initial eigenvalues			**Extraction sum of squared loadings**		
Component	**Total**	**% variance**	**% accum.**	**Total**	**% variance**	**% accum.**
1	4.65	66.42	66.42	4.65	66.42	66.42
2	0.73	10.40	76.82			
3	0.47	6.77	83.59			
4	0.40	5.70	89.28			
5	0.30	4.32	93.60			
6	0.24	3.45	97.05			
7	0.21	2.95	100.00			

	Component 1
Periods of study/work experience abroad	0.75
Contacts established with teaching staff at other universities and/or in other countries	0.84
Participation in international congresses/seminaris/events	0.86
Contacts and networking with people and/or institutions abroad	0.90
Job listings and opportunities abroad	0.86
International vision as to the Master's field of study	0.84
Personal, academic and professional advancement	0.63

According to the reliability analysis, the overall item "Personal, academic and professional advancement" was eliminated from the factor analysis.

Factor analysis of the seven indicators on internationalisation

Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy		**0.91**
Bartlett's test of sphericity	chi squared	1,345.07
	gl	15.00
	Sig.	0.00

	Initial eigenvalues			**Extraction sum of squared loadings**		
Component	**Total**	**% variance**	**% accum.**	**Total**	**% variance**	**% accum.**
1	4.30	71.67	71.67	4.30	71.67	71.67
2	0.52	8.68	80.35			
3	0.40	6.69	87.04			
4	0.33	5.48	92.53			
5	0.24	4.02	96.55			
6	0.21	3.45	100.00			

	Component 1
Periods of study/work experience abroad	0.76
Contacts established with teaching staff at other universities and/or in other countries	0.84
Participation in international congresses/seminaris/events	0.87
Contacts and networking with people and/or institutions abroad	0.91
Job listings and opportunities abroad	0.86
Acquire an international vision as to the Master's field of study	0.83

A5.2. Reliability analysis and factor analysis of the indicators on the services offered to students on periods of study or work experience abroad

Reliability statistics

Cronbach's alpha	No. of items
0.87	8

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlations	Cronbach's alpha if item deleted
Prior access to public information on Master's degree programmes	42.74	281.14	0.58	0.86
Information provided by the university's international office/service	42.92	271.49	0.69	0.85
Advice/help regarding enquiries to the university's international office/service	43.11	257.23	0.75	0.84
Services (accommodation, food, transport, etc.)	44.09	264.89	0.60	0.86
Student reception and orientation in the university / study programmes (academic guidance, tutoring, etc.)	43.03	259.26	0.76	0.84
Academic formalities: support, speed and ease (admission, registration, qualifications, certification, etc.)	43.71	270.39	0.60	0.86
Personal support and resources for language learning (Catalan/Spanish)	44.16	272.05	0.49	0.87
Cultural and social activities facilitating integration and multi-culturalism	43.80	268.58	0.56	0.86

Assessment of the indicators on student services according to the graduate's nationality. Student's *t* test for independent samples

	Levene's test for equal variance		Student's t test for equal means						
	F	Sig.	*t*	gl	Sig. (bilateral)	Mean difference	Difference in standard error	95% confidence interval for the difference	
								Lower	Higher
Prior access to public information on Master's degree programmes	0.001	0.977	1.567	271	0.118	0.5503	0.35129	-0.1413	1.24191
Information provided by the university's international office/service	0.121	0.728	2.605	265	0.01	0.94978	0.36466	0.23178	1.66778
Advice/help regarding enquiries to the university's international office/service	0.084	0.772	2.396	262	0.017	0.96166	0.40135	0.17138	1.75194
Services (accommodation, food, transport, etc.)	0.405	0.525	2.65	244	0.009	1.2386	0.46742	0.3179	2.1593
Student reception and orientation in the university / study programmes (academic guidance, tutoring, etc.)	0.341	0.56	2.105	263	0.036	0.82651	0.39271	0.05326	1.59976
Academic formalities: support, speed and ease (admission, registration, qualifications, certification, etc.)	0.152	0.697	0.907	271	0.365	0.36182	0.39899	-0.42369	1.14733
Personal support and resources for language learning (Catalan/Spanish)	2.614	0.107	4.867	242	0	2.42361	0.49797	1.44271	3.40451
Cultural and social activities facilitating integration and multi-culturalism	7.976	0.005	3.356	118.098	0.001	1.65995	0.49459	0.68053	2.63937

Factor analysis of the indicators on student services according to the graduate's nationality

Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy		**0.85**
Bartlett's test of sphericity	chi squared	864.04
	gl	28.00
	Sig.	0.00

	Initial eigenvalues			**Extraction sum of squared loadings**			**Rotation sum of squared loadings**		
Component	**Total**	**% variance**	**% accum.**	**Total**	**% variance**	**% accum.**	**Total**	**% variance**	**% accum.**
1	4.29	53.68	53.68	4.29	53.68	53.68	3.32	41.48	41.48
2	1.08	13.46	67.14	1.08	13.46	67.14	2.05	25.66	67.14
3	0.69	8.59	75.73						
4	0.59	7.40	83.12						
5	0.45	5.66	88.79						
6	0.43	5.42	94.21						
7	0.31	3.82	98.03						
8	0.16	1.97	100.00						

	Component 1	**Component 2**
Prior access to public information on Master's degree programmes	0.73	0.16
Information provided by the university's international office/service	0.89	0.10
Advice/help regarding enquiries to the university's international office/service	0.88	0.21
Services (accommodation, food, transport, etc.)	0.56	0.44
Student reception and orientation in the university / study programmes (academic guidance, tutoring, etc.)	0.64	0.54
Academic formalities: support, speed and ease (admission, registration, qualifications, certification, etc.)	0.65	0.32
Personal support and resources for language learning (Catalan/Spanish)	0.13	0.85
Cultural and social activities facilitating integration and multi-culturalism	0.23	0.81

ANNEX 6. RELIABILITY ANALYSIS: THE REASON FOR TAKING A MASTER'S DEGREE

A6.1. Reliability analysis and factor analysis of the indicators on the reason for students taking a Master's degree

Reliability statistics

Cronbach's alpha	No. of items
0.28	5

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlations	Cronbach's alpha if item deleted
Motivated by better job prospects	24.79	51.80	0.23	0.15
Motivated by professional career advancement	24.07	48.96	0.42	0.01
Motivated by starting doctoral (PhD) studies	26.91	61.71	-0.11	0.50
Motivated by the pursuit of a specialist area of interest	24.18	55.09	0.26	0.15
Motivated by a change of field of study	28.08	54.56	0.06	0.32

Factor analysis of the indicators on the reason for students taking a Master's degree

Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy		**0.54**
Bartlett's test of sphericity	chi squared	4,090.71
	gl	10.00
	Sig.	0.00

	Initial eigenvalues			**Extraction sum of squared loadings**			**Rotation sum of squared loadings**		
Component	**Total**	**% variance**	**% accum.**	**Total**	**% variance**	**% accum.**	**Total**	**% variance**	**% accum.**
1	1.78	35.56	35.56	1.78	35.56	35.56	1.70	33.91	33.91
2	1.14	22.80	58.36	1.14	22.80	58.36	1.22	24.45	58.36
3	0.90	17.92	76.28						
4	0.77	15.33	91.61						
5	0.42	8.39	100.00						
6									
7									
8									

	Component 1	**Component 2**
Motivated by better job prospects	0.66	0.46
Motivated by professional career advancement	0.86	0.02
Motivated by starting doctoral (PhD) studies	0.11	-0.79
Motivated by a specialist area of interest	0.70	-0.11
Motivated by a change of field of study	0.09	0.61

ANNEX 7. EMPLOYMENT

A7.1. Employment rate according to work history during earlier degree studies

Table A7.1. Employment rate according to prior work history

	Employed	Unemployed	Inactive
Full-time student or with part-time jobs	81.98 %	11.19 %	6.83 %
Full-time job	89.50 %	6.54 %	3.96 %
Total	**85.85 %**	**8.80 %**	**5.35 %**

A7.2. Reasons why graduates did not find work, according to age. Student's *t* test for independent samples

	Levene's test for equal variance		Student's *t* test for equal means						
								95% confidence interval for the difference	
	F	Sig.	*t*	gl	Sig. (bilateral)	Mean difference	Difference in standard error	Lower	Higher
Gaps in your university studies	1.948	0.163	1.314	636	0.189	0.41291	0.31435	-0.20439	1.0302
Personal activities that prevent you from working (studies, family, other...)	2.318	0.128	0.983	663	0.326	0.32086	0.3264	-0.32005	0.96177
Lack of professional experience	1.204	0.273	5.147	660	0	2.10741	0.40944	1.30345	2.91137
Having a job that you like	0.007	0.935	2.633	663	0.009	1.00594	0.38199	0.25589	1.75598
Lack of knowledge of the labour market	0.9	0.343	1.486	656	0.138	0.51302	0.34523	-0.16486	1.19091

ANNEX 8. QUANTITATIVE REGRESSION MODELS

Objective

To estimate which of the independent variables that characterise and describe the time spent by students at university influence the employment rate of Master's degree holders .

Methodology

Generalised lineal model (GLM). Models with a non-linear response.

Estimation procedure

Using the model with the constant, an estimate was made for each model by introducing a new independent variable in relation to the previous model. Once the estimate was made, a comparison test was made of the deviances obtained to estimate the goodness of fit, i.e. if the new variable introduced was significant and improved the model in relation to the previous one.

Selection criterion

The model with the new variable was only chosen if and only if:

- The estimated coefficient was statistically significant.
- The hypothesis of the test of the difference in deviance being 0 was rejected.
- A minimum AIC was reached.

A8.1. Generalised lineal model for the employment rate

Table A8.1. Explanatory variables for the employment rate

Dependent variable
Employment rate
Independent variables
Subject area of Master's degree
Gender
Graduate's age at the time of the survey
Student's nationality

Prior full-time work history
University of origin
Change in field of study between previous degree and Master's
Public or private university
International academic mobility
Would take the same Master's degree again

```
lr.mod11 <- glm(c_ocupat ~ c_id_area + c_edat_categ_40 + c_trajectoria_tc + c_uni_procedencia + c_publ_priv +
c_edat_categ_40*c_trajectoria_tc , data = dadesLOG, family = "binomial")

summary(lr.mod11)
```

Syntaxis

Resulting model

Residual deviance				
Mín.	**1Q**	**Mean**	**3Q**	**Max.**
-2.5352	0.3935	0.4964	0.6078	1.0927
	β	**Pr(>|z|)**		**OR**
(Intercept)	1.309	< 2e-16	***	3.703
c_id_area: Law and Labour Studies	0.605	2.12e-05	***	1.831
c_id_area: Other Social Sciences	0.286	0.00256	**	1.331
c_id_area: Experimental Sciences	0.183	0.09862	.	1.201
c_id_area: Health Sciences	0.543	1.41e-05	***	1.721
c_id_area: Civil Engineering	0.352	0.04798	*	1.422
c_id_area: Other Engineering Sciences	0.774	7.15e-08	***	2.168
c_age_categ_40: Age over 41	-0.516	0.00161	**	0.597
c_trajectoria_tc: Full-time job	0.437	1.27e-08	***	1.547
c_uni_procedencia: From another university in Catalonia	0.005	0.95455		1.005
c_uni_procedencia: From another university in Spain	-0.288	0.00261	**	0.750
c_uni_procedencia: From a foreign university	-0.591	3.03e-10	***	0.554
c_publ_priv: Private university	0.273	0.00695	**	1.313
c_edat_categ_40*c_trajectòria_tc: Age over 41 and with a full-time job	0.892	1.00e-05	***	2.439

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Null deviance: 6362.3 on 7643 degrees of freedom
Residual deviance: 6124.9 on 7630 degrees of freedom
AIC: 6152.9

A8.2. Generalised lineal model for type of contract

Table A8.2. Explanatory variables for the percentage of graduates with fixed-term contracts

Dependent variable
Percentage of graduates with fixed-term contracts
Independent variables
Master's degree subject
Gender
The graduate's age at the time of the survey
The student's nationality
Parents' level of studies
Prior full-time work history
Place of work
Full-time job
Public or private sector
Number of employees/workers in the company

```
lr.fix3 <- glm(c_fix ~ id_subarea_aa + c_trajectoria_tc + c_age_categ_40 +ambit + c_lloctreb_2cat*c_nationality + numtreb + jorn_tc + c_nivest , data=il, family=binomial)
summary(lr.fix3)
```

Syntaxis

Resulting model

Residual deviance				
Mín.	**1Q**	**Mean**	**3Q**	**Max.**
-2.2511	-0.9843	0.4680	0.9384	2.4490
	β	**Pr(>|z|)**	**OR**	
(Intercept)	-2.252075	< 2e-16 ***	0.1051807	
id_subarea_aa: Philosophy and Humanities	0.018397	0.93185	1.0185674	
id_subarea_aa: Comparative Studies	-0.15217	0.49149	0.8588424	
id_subarea_aa: Philology 1	0.153697	0.58992	1.1661370	
id_subarea_aa: Philology 2	0.31887	0.20058	1.3755719	
id_subarea_aa: Fine Art	-0.290321	0.3284	0.7480236	
id_subarea_aa: Economics and Business Administration and Management	0.464915	0.00376 **	1.5918793	
id_subarea_aa: Law	0.149362	0.42128	1.1610929	
id_subarea_aa: Labour Relations	0.412644	0.08068 .	1.5108068	
id_subarea_aa: Political Science	-0.143523	0.47064	0.8663006	
id_subarea_aa: Documentation and Communication Sciences	0.22259	0.19942	1.2493086	

id_subarea_aa208: Psychology	-0.224924	0.23191	0.7985768	
id_subarea_aa209: Pedagogy	0.52271	0.00143 **	1.6865919	
id_subarea_aa211: Tourism	-0.342289	0.19567	0.7101427	
id_subarea_aa212: Physical Activity and Sports Sciences	0.494291	0.07384 .	1.6393359	
id_subarea_aa213: Teacher Training	-0.289441	0.04943 *	0.7486818	
id_subarea_aa301: Chemistry	-0.705759	0.00558 **	0.4937334	
id_subarea_aa302: Biology and Natural Sciences	-0.450229	0.00892 **	0.6374823	
id_subarea_aa303: Physics and Mathematics	-0.321933	0.22403	0.7247468	
id_subarea_aa304: Human Sciences	-0.924528	0.00194 **	0.3967185	
id_subarea_aa401: Healthcare	0.759643	.29e-05 ***	2.1375130	
id_subarea_aa402: Medicine and Dentistry	0.003452	0.98402	1.0034584	
id_subarea_aa403: Pharmacy/Food Science and Technology	-0.033252	0.87737	0.9672951	
id_subarea_aa404: Veterinary Science	0.305781	0.46995	1.3576852	
id_subarea_aa501: Architecture	-0.563054	0.00543 **	0.5694674	
id_subarea_aa503: Civil Engineering	0.02093	0.95105	1.0211507	
id_subarea_aa506: Advanced Production Technologies/Aeronautics	0.034075	0.85314	1.0346617	
id_subarea_aa508: Information and Communications	0.545619	0.00237 **	1.7256762	
id_subarea_aa510: Agricultural Engineering	-0.347906	0.36029	0.7061650	
c_trajectoria_tc: Full-time work history	0.462908	.80e-13 ***	1.5886875	
c_edat40: Age over 41	0.626854	.07e-15 ***	1.8717134	
ambit: Private	0.935919	< 2e-16 ***	2.5495551	
c_lloctreb_2cat: Working in Spain	-1.036199	.77e-10 ***	0.3548006	
c_nationalitat: Students of Spanish nationality	-0.611576	0.00223 **	0.5424951	
numtreb2: Between 11 and 50	1.333456	< 2e-16 ***	3.7941317	
numtreb3: Between 51 and 100	1.613592	< 2e-16 ***	5.0208138	
numtreb4: Between 101 and 250	1.498091	< 2e-16 ***	4.4731420	
numtreb5: Between 251 and 500	1.302826	< 2e-16 ***	3.6796804	
numtreb6: Over 500	1.445833	< 2e-16 ***	4.2453850	
jorn_tc: Yes	0.982453	< 2e-16 ***	2.6709990	
c_nivest2: One of the two/Both completed secondary education	-0.153208	0.04655 *	0.8579513	
c_nivest3: One of the two/Both has/have/had a higher education	-0.196521	0.00550 **	0.8215844	
c_lloctreb_2cat1*c_nationalitat1: Working in Spain and of Spanish nationality	1.137343	.15e-07 ***	3.1184720	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Null deviance: 8467.1 on 6109 degrees of freedom
Residual deviance: 7188.8 on 6067 degrees of freedom

AIC: 7274,8

A8.3. Generalised lineal model for the occupational quality index

Table A8.3. Explanatory variables for the occupational quality index

Dependent variable
Occupational quality index
Independent variables
Gender
Graduate's age at the time of the survey
Student's nationality
Parents' level of studies
Prior full-time work history
Subject area of Master's degree
Change in field of study between previous degree and Master's
University of origin
Public or private university
International academic mobility
Post-Master's studies
Place of work
Skills level according to occupation
Number of employees/workers in the company
Public or private sector
International job mobility
Level of responsibility in relation to others
Managerial positions
Teamwork coordination and problem solving
Theoretical skills
Practical skills
Problem-solving and decision-making in new or unfamiliar situations
Having high profile duties and responsibilities/Taking on high-profile projects
Satisfaction with the usefulness of Master's studies

```
glm.mod30 <- lm(c_index_OQI ~ 1 + sexe + nivell_resp + fdir + ambit + numtreb + c_nivest + c_lloctreb_2cat + c_publ_priv + c_compt_cno1 + c_age + c_mob_acad_inter + c_mob_acad_inter*c_publ_priv + c_upra + c_usolprob + c_m_visib + c_satisf4 + c_trajectoria_tc + c_id_area + c_nationalitat + c_uni_procedencia + c_nationalitat*c_uni_procedencia, data = dadesGLM)
summary(glm.mod30)
```

Syntaxis

Resulting model

Residual deviance				
Mín.	**1Q**	**Mean**	**3Q**	**Max.**
-46.029	-9.268	0.628	9.470	
	β		**Pr(>|z|)**	
(Intercept)	20.23978		0.000664 ***	
Sexe: Male	1.95716		0.000583 ***	
nivell_resp: Middle management	-3.12832		0.001313 **	
nivell_resp: No responsibilities	-6.69785		5.83e-10 ***	
Fdir: Managerial positions	2.31284		0.000986 ***	
Àmbit: Private	1.85733		0.002940 **	
Number of workers between 11 and 50	3.14216		0.000412 ***	
Number of workers between 51 and 100	5.64023		2.41e-08 ***	
Number of workers between 101 and 250	6.8572		3.20e-10 ***	
Number of workers between 251 and 500	2.20141		0.090120 .	
Number of workers over 500	5.41118		2.39e-10 ***	
c_nivest: One of the two/Both completed secondary education	-0.9792		0.154082	
c_nivest: One of the two/Both has/have/had a higher education	0.43774		0.503097	
c_lloctreb_2cat: Working in Spain	-6.48034		4.81e-08 ***	
c_publ_priv:Private university	0.01262		0.986656	
c_compt_cno1: Medium skill level occupations	5.22813		0.261787	
c_compt_cno1: Highly skilled occupations	17.49992		0.000140 ***	
Age	0.17844		5.61e-06 ***	
c_mob_acad_inter: International academic mobility	-1.20593		0.105302	
Usefulness of practical skills	0.1818		0.086611 .	
Usefulness of problem-solving skills acquired	0.60082		2.60e-09 ***	
Improvements in job duties and responsibilities, projects	0.2667		0.003068 **	
Satisfaction with the usefulness of skills and knowledge acquired from the Master's	1.14448		< 2e-16 ***	
Prior full-time work history	4.83568		2.60e-13 ***	
c_id_area: Law and Labour Studies	3.13858		0.005667 **	
c_id_area: Other Social Sciences	0.11231		0.889742	
c_id_area: Experimental Sciences	2.39965		0.039840 *	
c_id_area: Health Sciences	3.56499		0.001359 **	
c_id_area: Civil Enginerring	1.77226		0.47752	
c_id_area: Other Engineering Sciences	4.32789		4.50e-05 ***	
c_nationalitat: Students of Spanish nationality	1.93844		0.544819	

c_uni_procedencia: From another university in Catalonia	-8.83758		0.16076	
c_uni_procedencia: From a university in Spain	11.65633		0.043152 *	
c_uni_procedencia: For university international	-1.2612		0.69875	
c_publ_priv: Privada*c_mob_acad_inter: International academic mobility	3.48216		0.015329 *	
Estudiants de nacionalitat espanyola*c_uni_procedencia: From another university in Catalonia	8.38168		0.185969	
c_nacionalitat*c_uni_procedencia: Students of Spanish nationality from a university elsewhere in Spain	-12.96735		0.026001 *	
c_nacionalitat*c_uni_procedencia: Students of Spanish nationality from a foreign university	-2.30881		0.544033	

Signif. codes: 0 '***' 0,001 '**' 0,01 '*' 0,05 ',' 0,1 ' ' 1

Residual standard error: 14.33 on 2957 degrees of freedom (4652 observations deleted due to missingness)
Multiple R-squared: 0.3735, Adjusted R-squared: 0.3657
F-statistic: 47.65 on 37 and 2957 DF, p-value: < 2.2e-16

A8.4. Generalised lineal model for the percentage of graduates who would take the same Master's subject again

The objective here is to establish why there was a higher level of intention among graduates in certain subjects who would take the same Master's degree again i.e. which variables account for there being certain subjects with a higher percentage of students who would take the same Master's degree again?

Procedure

The data used for this were the variables aggregated at subject level. Independent variables, in the case of the dichotomous variables, were the percentage corresponding to the category classified with a value of 1 and, in the case of the continuous variables, the mean obtained at subject level (subject of the Master's degree). The explanatory variables used were as follows:

Table A8.4. Explanatory variables for the percentage of graduates who would take the same Master's degree again

Dependent variable
Percentage of graduates who would take the same Master's degree again
Independent variables (as a percentage in dichotomous cases, and as a mean in continuous cases)
Student's nationality
Prior full-time work history
Graduate's age at the time of the survey

Parents' level of studies
University of origin
Public or private university
Subject area of Master's degree
Change in field of study between previous degree and Master's
International academic mobility
Employment situation - employed
Employment situation - unemployed
Employment situation - inactive
Level of responsibility in relation to others
R&D duties
Education-job skills match
Full-time
Number of employees/workers
Private or public sector
Job promotion (after the Master's degree)
Place of work
Skills level according to occupation. Coded as criterion1
Assessment of one's level of theoretical skills
Assessment of one's level of practical skills
Assessment of one's level of oral and written communication (scientific and professional)
Assessment of one's level of multidisciplinary team-work (initiative, leadership)
Assessment of one's level of problem-solving and decision-making in new and unfamiliar situations
Assessment of one's level of development in critical thinking
Assessment of one's level of development in creativity and innovation
Assessment of level of development of skills in documentation, identification of sources and scientific and professional resources
Assessment of one's level of English
Assessment of the professional capacity for self-assessment and continuous learning
Ethical and social responsibility in professional practice
Assessment of the usefulness of theoretical skills
Assessment of the usefulness of practical skills
Development of oral and written communication (scientific and professional)
Multi-disciplinary team-work (initiative and leadership)
Development of critical thinking
Development of creativity and innovation
Development of skills in documentation, identification of sources and scientific and professional resources
English
Professional capacity for self-assessment and continuous learning
Ethical and social responsibility in professional practice

Better job prospects
Having high profile duties and responsibilities/Taking on high-profile projects
Development of new projects and/or products, new lines of action
Possibility of establishing contacts and networking
Satisfaction with the usefulness of Master's studies
Overall satisfaction with current job
Motivated by better job prospects
Motivated by professional career advancement
Motivated by starting doctoral (PhD) studies
Motivated by the pursuit of a specialist area of interest
Motivated by a change of field of study
Post-Master's studies
International job mobility

```
lr.mod2 <- lm(reptcarr_pgt ~ 1+c_nteor_mean+c_index_OQI_mean, data = dadesAG)
summary(lr.mod2)
```

Syntaxis

Resulting model

Residual deviance				
Mín.	**1Q**	**Mean**	**3Q**	**Max.**
-7.867	-3.686	-1.480	3.371	14.545
	β		**Pr(>|z|)**	
(Intercept)	-17.7687		0.27232	
Level of Theoretical Skills	7.9828		0.00153 **	
Occupational quality index	0.5119		0.01317 *	

ANNEX 9. EMPLOYMENT OUTCOMES AND SUBJECT STUDIED

Table A9.1. Employment and unemployment rates

	Employment rate	*n*	Corrected residuals[44]	Unemployment rate	*n*	Corrected residuals
Geography and History	76.89%	450	-5.26	12.22%	450	2.69
Philosophy and Humanities	82.63%	213	-1.15	10.80%	213	1.07
Comparative Studies	78.84%	189	-2.58	14.29%	189	2.73
Catalan and Spanish Studies	78.79%	99	-1.87	11.11%	99	0.84
Modern Languages	87.40%	127	0.65	6.30%*	127	-0.99
Fine Art	72.28%	101	-3.75	13.86%	101	1.83
Economics and Business Administration and Management	90.43%	585	3.60	6.15%	585	-2.31
Law	88.85%	269	1.64	5.95%	269	-1.66
Labour Relations	87.67%	146	0.79	10.27%	146	0.66
Political Science	81.25%	256	-1.90	12.50%	256	2.16
Documentation and Communication Sciences	85.79%	366	0.23	8.74%	366	0.00
Psychology	83.75%	277	-0.78	10.83%	277	1.25
Pedagogy	88.18%	499	1.83	7.01%	499	-1.42
Tourism	82.24%	107	-0.92	6.54%*	107	-0.81
Physical Activity and Sports Sciences	91.40%	93	1.65	3.23%*	93	-1.90
Teacher Training	85.91%	823	0.45	9.72%	823	1.04
Chemistry	82.83%	198	-1.03	13.64%	198	2.47
Biology and Natural Sciences	79.28%	497	-3.98	15.49%	497	5.50
Physics and Mathematics	83.33%	174	-0.77	7.47%	174	-0.60
Human Sciences	86.71%	143	0.46	6.99%	143	-0.75
Healthcare	88.36%	318	1.54	4.40%	318	-2.80

[44] **A cell's residual is the difference between the expected frequency and the observed frequency of that cell,** divided by the estimated standard deviation. The resulting standardised residual is expressed in units of standard deviation. A value above 1.96 indicates significant differences either above or below the mean.

Medicine and Dentistry	90.47%	430	3.07	4.88%	430	-2.92
Pharmacy/Food Science and Technology	85.96%	178	0.22	7.30%	178	-0.69
Veterinary Science	75.56%	45	-1.87	15.56%	45	1.62
Architecture	83.19%	238	-0.97	9.24%	238	0.27
Civil Engineering	88.89%	63	0.79	3.17%*	63	-1.57
Advanced Production Technologies/Aeronautics	90.18%	326	2.51	4.60%	326	-2.71
Information and Communications	91.60%	393	3.59	3.82%	393	-3.55
Agricultural Engineering	77.27%	44	-1.53	20.45%*	44	2.76

* Subjects with n less than 10; care should be taken when interpreting the results.

Table A9.2. Fixed-term contract or temporary contract

	Fixed-term contract	*n*	Corrected residuals	Temporary contract	*n*	Corrected residuals
Geography and History	36.96%	395	-3.30	32.66%	395	1.09
Philosophy and Humanities	44.62%	186	-0.10	26.34%	186	-1.16
Comparative Studies	33.14%	172	-3.17	36.63%	172	1.86
Catalan and Spanish Studies	40.00%	85	-0.93	35.29%	85	1.03
Modern Languages	45.38%	119	0.08	28.57%	119	-0.39
Fine Art	29.63%	81	-2.80	30.86%	81	0.13
Economics and Business Administration and Management	64.17%	561	9.52	14.62%	561	-8.38
Law	55.16%	252	3.30	18.25%	252	-4.21
Labour Relations	64.49%	138	4.65	26.09%	138	-1.06
Political Science	40.00%	225	-1.53	35.11%	225	1.63
Documentation and Communication Sciences	54.17%	336	3.46	22.62%	336	-3.10
Psychology	36.86%	255	-2.66	36.08%	255	2.08
Pedagogy	56.83%	461	5.28	29.72%	461	-0.24
Tourism	41.49%	94	-0.69	40.43%	94	2.17
Physical Activity and Sports Sciences	51.25%	80	1.13	31.25%	80	0.20
Teacher Training	40.79%	760	-2.47	44.21%	760	8.90
Chemistry	18.95%	190	-7.32	34.21%	190	1.22
Biology and Natural Sciences	27.83%	460	-7.66	38.48%	460	4.00
Physics and Mathematics	22.64%	159	-5.73	31.45%	159	0.34
Human Sciences	16.91%	136	-6.65	35.29%	136	1.30
Healthcare	70.37%	297	8.98	20.88%	297	-3.58
Medicine and Dentistry	39.55%	397	-2.25	32.49%	397	1.02
Pharmacy/Food Science and Technology	45.78%	166	0.21	37.35%	166	2.03
Veterinary Science	35.00%	40	-1.27	25.00%	40	-0.72

Architecture	32.87%	216	-3.64	21.76%	216	-2.75
Civil Engineering	51.79%	56	1.03	28.57%	56	-0.27
Advanced Production Technologies/Aeronautics	49.52%	311	1.64	27.65%	311	-1.00
Information and Communications	57.99%	369	5.16	21.68%	369	-3.66
Agricultural Engineering	39.02%	41	-0.77	41.46%	41	1.57

Table A9.3. University-level job duties and responsibilities and managerial positions

	University-level job duties and responsibilities	*n*	Corrected residuals	Managerial positions	*n*	Corrected residuals
Geography and History	81.01%	395	-6.47	23.94%	330	-1.25
Philosophy and Humanities	86.63%	187	-1.74	31.88%	160	1.44
Comparative Studies	89.08%	174	-0.57	17.69%	147	-2.55
Catalan and Spanish Studies	85.88%	85	-1.40	12.99%	77	-2.77
Modern Languages	88.33%	120	-0.75	15.69%	102	-2.58
Fine Art	74.07%	81	-4.99	12.07%	58	-2.56
Economics and Business Administration and Management	91.62%	561	1.06	58.11%	475	15.96
Law	91.30%	253	0.52	34.90%	192	2.54
Labour Relations	85.61%	139	-1.91	35.61%	132	2.28
Political Science	87.17%	226	-1.65	35.03%	197	2.61
Documentation and Communication Sciences	87.54%	337	-1.79	38.32%	274	4.36
Psychology	92.16%	255	1.00	22.60%	208	-1.43
Pedagogy	94.59%	462	3.19	33.49%	430	3.19
Tourism	85.26%	95	-1.69	43.90%	82	3.49
Physical Activity and Sports Sciences	88.75%	80	-0.49	40.85%	71	2.66
Teacher Training	81.10%	762	-9.15	20.21%	673	-4.15
Chemistry	96.34%	191	2.84	11.29%	186	-4.88
Biology and Natural Sciences	87.64%	461	-2.04	12.47%	425	-6.95
Physics and Mathematics	98.11%	159	3.35	8.81%	159	-5.21
Human Sciences	96.32%	136	2.38	17.16%	134	-2.57
Healthcare	97.31%	297	4.15	28.16%	277	0.48
Medicine and Dentistry	99.25%	398	6.19	14.37%	355	-5.49
Pharmacy/Food Science and Technology	94.58%	166	1.87	23.08%	156	-1.09
Veterinary Science	95.00%	40	1.00	11.43%*	35	-2.07
Architecture	91.74%	218	0.71	35.16%	128	2.13
Civil Engineering	94.64%	56	1.09	26.00%	50	-0.15
Advanced Production Technologies/Aeronautics	96.79%	312	3.94	28.28%	290	0.54
Information and Communications	96.48%	369	4.10	27.38%	347	0.20

Agricultural Engineering	87.80%	41	-0.55	13.16%*	38	-1.92

* Subjects with n less than 10; care should be taken when interpreting the results.

Table A9.4. Monthly income (only full-time)

	No university-level job duties and responsibilities			University-level job duties and responsibilities		
	Monthly income	**Standard deviation**	***n***	**Monthly income**	**Standard deviation**	***n***
Geography and History	1,207.07	417.51	33	1,824.82	901.90	142
Philosophy and Humanities	1,361.11	936.34	9	2,493.98	1,204.19	90
Comparative Studies	1,795.83	1194.19	10	1,615.53	838.82	66
Catalan and Spanish Studies	1,458.33*	261.32	4	2,077.21	802.07	34
Modern Languages	1,827.38*	789.63	7	1,894.57	877.46	66
Fine Art	1,583.33*	748.46	7	1,684.29	966.89	26
Economics and Business Administration and Management	1,840.77	1095.32	28	3,148.65	1,246.86	377
Law	1,727.94	892.21	17	2,316.39	1,084.03	182
Labour Relations	1,637.82	495.17	13	2,140.19	852.18	96
Political Science	1,605.39	560.78	17	1,870.95	748.92	103
Documentation and Communication Sciences	1,305.56	485.36	27	2,066.87	920.86	210
Psychology	1,364.58	582.55	12	1,674.44	795.28	134
Pedagogy	1,612.18	698.54	13	1,983.03	748.83	275
Tourism	1,312.50	369.17	10	1,745.06	942.62	59
Physical Activity and Sports Sciences*	1,291.67*	436.01	5	2,012.06	810.03	38
Teacher Training	1,353.69	521.64	88	1,921.19	758.13	304
Chemistry*	2,236.11*	1178.76	3	1,864.98	787.22	79
Biology and Natural Sciences	1,301.39	397.8	30	1,776.58	780.27	221
Physics and Mathematics*	1,125.00*	0	3	2,254.56	1,040.57	64
Human Sciences*	2,055.56*	336.79	3	1,870.76	684.68	59
Healthcare*	925.00*	209.17	5	2,281.35	870.82	206
Medicine and Dentistry*	875.00*		1	2,510.87	1,078.37	230
Pharmacy/Food Science and Technology*	1,208.33*	362.44	7	2,059.42	781.06	115
Veterinary Science*	1,437.50*	1149.05	2	1,585.94	595.79	16
Architecture	1,359.85*	543.03	11	2,187.80	1,084.49	140
Civil Engineering*	1,305.56*	312.73	3	2,364.34	988.61	43
Advanced Production Technologies/Aeronautics*	1,620.37*	504.94	9	2,460.67	950.62	214
Information and Communications	2,616.67	650.5	10	2,397.47	937.96	254

Agricultural Engineering*	1,802.08*	1865.37	4	1,660.49	806.85	27
* Subjects with n less than 10; care should be taken when interpreting the results.						

Table A9.5. National Classification of Occupations

	Skilled occupations	Total graduates	Corrected residuals
Geography and History	85.64%	390	-5.94
Philosophy and Humanities	90.71%	183	-1.27
Comparative Studies	90.17%	173	-1.51
Catalan and Spanish Studies	91.76%	85	-0.47
Modern Languages	88.33%	120	-2.06
Fine Art*	100.00%	46	1.86
Economics and Business Administration and Management	91.94%	558	-1.09
Law	100.00%	191	3.83
Labour Relations	90.58%	138	-1.16
Political Science	90.95%	221	-1.26
Documentation and Communication Sciences	91.89%	333	-0.86
Psychology	99.49%	198	3.62
Pedagogy	95.01%	461	1.71
Tourism	73.40%	94	-7.55
Gestió i Pràctica de l'Sport	96.25%	80	1.13
Teacher Training	84.73%	753	-9.56
Chemistry	98.86%	175	3.06
Biology and Natural Sciences	90.97%	454	-1.82
Physics and Mathematics	98.65%	148	2.71
Human Sciences	97.76%	134	2.16
Healthcare	96.94%	294	2.68
Medicine and Dentistry	100.00%	338	5.15
Pharmacy/Food Science and Technology	95.09%	163	1.03
Veterinary Science*	100.00%	28	1.45
Architecture	100.00%	94	2.67
Civil Engineering	98.21%	56	1.52
Advanced Production Technologies/Aeronautics	98.04%	306	3.51
Information and Communications	99.16%	359	4.68
Agricultural Engineering*	97.56%	41	1.14
*** Subjects with n less than 10; care should be taken when interpreting the results.**			

ANNEX 10. SURVEY OF THE MASTER'S GRADUATE POPULATION

2014 Survey of graduates from Masters programmes
(2009/2010 and 2010/2011 academic years)
Questionnaire

		MASTER'S	
Pre-Master's degree qualification	Degree subject Field of study	University where you took your degree	The year you completed your degree
Master's degree	Subject of Master's degree Field of study/Master's degree	University where you took your Master's degree	The year you began your Master's studies

JOB SITUATION PRIOR TO YOUR MASTER'S DEGREE

1. Did you work during the two last years of your pre-Master's degree?

(1) No, I was a full-time student and any jobs I had were sporadic

(2) Yes, I worked during the two last years of my pre-Master's degree

2. In the time between graduating from your first degree and graduating from the Master's, did you work for at least one year?

(1) I did not work/I only had sporadic jobs

(2) Yes, I worked **part-time** in a job related to my previous degree

(3) Yes, I worked **part-time** in a job unrelated to my previous degree

(4) Yes, I worked **full-time** in a job related to my previous degree

(5) Yes, I worked **full-time** in a job unrelated to my previous degree

MOTIVATION FOR DOING MASTER'S STUDIES

Assess the importance of the following reasons (from 1 to 7, where 1 is highly dissatisfied and 7 is highly satisfied) to study a master:

3. To improve your job opportunities

4. Advancement in your professional career

5. To go on and take a doctorate/PhD degree

6. To complement, enhance or gain insight into either academia, the professional world or technical training

7. To change the field of study of your previous degree/training

CURRENT JOB SITUATION (POST-MASTER's)

8. Are you currently working?

(1) Yes

(2) Not at present→ State your last job since completing your Master's degree. Do not reply to either the SATISFACTION section or PROGRESS (questions 25-40)

(3) Never Go on to the SKILLS acquired in the Master's programmer (without assessing their usefulness in your job) (41)

9. On completing your Master's studies, how long did it take for you to find your first job? (Only if you answered "Yes" or "Not at present" to question 8 and "No, I was a full-time student and any jobs I had were only sporadic" to question 1 and "I did not work/I only had sporadic jobs" to question 2)

In relation to your CURRENT **JOB** (your main job) or your **LAST JOB** (after finishing your Master's degree)

10. What kind of job do you have/did you have? ..... (Open-ended question)

11. When did you start to work there? ..... (year)

12. What was required for this job?

(1) A Master's degree

(2) Your specific undergraduate/previous degree (Bachelor/Engineering degree/diploma/technical engineering)

(3) Any degree

(4) No university degree was required

13.1. Is/Was your job specific to your Master's studies?

(1) Yes→ Go to question 14

(2) No

13.2. For your current or last job, do you think your undergraduate degree is/was necessary?

(1) Yes→ Go to question 14

(2) No

13.3. For your current or last job, do you think it is/was necessary to be a graduate? (1) Yes (2) No

14. What is/was the company's economic activity? .....

15. Do/Did you hold any position of responsibility in relation to other people working with you?

(1) Senior management

(2) Middle management (head of area/section/department, official, foreman...)

(3) No position of responsibility over others

16. What duties does/did the job involve? *If no option is chosen from 1 to 7, please answer either 8 or 9.*

(1) Leadership/Management	(2) Commercial or logistics	(3) Teaching
(4) R+D	(5) Medical and social assistance	(6) Art and design
(7) Technical duties	(8) Other skilled duties (administrative)	(9) Non-skilled duties (auxiliary)

17. What kind of contract do/did you have?

(1) Long term

(2) Self-employed→ 18. If "Self-employed", do/did you work:

(1) For yourself →

(2) For a third party *(Self-employed and 75% dependent on one client)*

(3) Temporary

(4) Internship (Do not answer questions 19 or 23, nor questions 25 to 28 in the section on SATISFACTION WITH YOUR CURRENT JOB – Please answer 29)

(5) Without a contract (Do not answer questions 25 to 29)

19. Do you work full-time? (Do not answer if "Internship" in question 17)

(1) Yes (2) No (part-time)

20. How long was the contract for? (Only if you answered (3) ("Temporary" in question 17)

(1) Less than 6 months | (2) Between 6 months and one year | (3) More than one year

21. How much do you/did you earn a year (gross)?

(1) Less than €9,000 | (2) Between €9,000 and €12,000 | (3) Between €12,000 and €15,000

(4) Between €15,000 and €18,000 | (5) Between €18,000 and €24,000 | (6 Between €24,000 and €30,000

(7) Between €30,000 and €40,000 | (8) Between €40,000 and €50,000 | (9) Over €50,000

22. Company sector: (1) Private (2) Public

23. How many people does the company employ? (Do not answer if "Internship" in question 17)

(1) Less than 10 | (2) Between 11 and 50 | (3) Between 51 and 100

(4) Between 101 and 250 | (5) Between 251 and 500 | (6) Over 500

24. Where do/did you work (province, abroad)?

(1) Barcelona | (2)Tarragona | (3) Girona | (4) Lleida

(5) Other regional autonomous communities | (6) Europe | 24.1 In which country do/did you work?

(7) Other | 24.2. In which continent do/did you work?

24.3. In which country?

SATISFACTION WITH YOUR CURRENT JOB

Rate your satisfaction (from 1 to 7, where 1 is highly dissatisfied and 7 is highly satisfied) [Except for "Internships" and "Without a contract" in question 16, and "Not at present" in question 8)

25. Job content .....

26. Prospects for promotion and personal development .....

27. Salary .....

28. The usefulness in your job of knowledge acquired from your university studies (education-job match) .....

29. The job in general (If "Internship" in question 17, please reply to this question 29) .....

ADVANCEMENT II – POST-MASTER's DEGREE Experience - PRE-MASTER's DEGREE Experience

(Not if you answered, "No, I was a full-time student and any jobs were only sporadic" in question 1; "I did not work/I only had sporadic jobs" in question 2; and "Not at present" in question 8)

30. Since completing your Master's studies and in relation to any pre-Master's job, have/did you change/d your job or institution?

(1) Yes

(2) No

31. Have you been promoted at all in the company? (1) Yes (2) No

ASSESS YOUR PROGRESS (

Not if you answered, "No, I was a full-time student and any jobs I had were only sporadic" in question 1; "I did not work/I only had sporadic jobs" in question 2; and "Not at present" in question 8)

32. In relation to the job you had prior to taking the Master's programme, is your situation now better in terms of:

32.1. Type of contract?

(1) Yes

(2) No

32.2. Annual income/salary?

(1) Yes

(2) No

32.3. The working time?

(1) Yes

(2) No

32.4. Your professional category/occupational group?

(1) Yes

(2) No

Assess the impact of your Master's studies (from 1 to 7, where 1 is highly dissatisfied and 7 is highly satisfied) **regarding:**

33. Increased job opportunities (change of company or institution, change of employment, etc.).....

34. Taking on new duties or responsibilities different to those that you previously had.....

35. Taking on high profile duties, tasks or projects in the company .....

36. Developing new projects or products, new lines of action, strategies, etc. .....

37. Coordinating work groups and dealing with associated problems (due to the staff's lack of skill/experience, resistance to change, etc.) .....

38. Taking a key role in decision-making with a potential direct impact on the business .....

39. Enhancement of/upgrading academic studies or professional or technical training .....

40. The possibility to establish contacts and/or networking with individuals or institutions .....

SKILLS/COMPETENCES DEVELOPED IN THE MASTER'S DEGREE

Rate (from 1 to 7, where 1 is very little and 7 is a lot/very much) how much you learned from your Master's degree and its usefulness in your job:

41/42. Theoretical skills ..... / .....

43/44. Practical skills ..... / .....

45/46. Development of skills in oral and written communication for scientific and professional meetings...../.....

47/48. Multidisciplinary teamwork with initiative and leadership ability

49/50. Problem solving and decision-making in new and unfamiliar settings ...../.....

51/52. Development of critical thinking...../.....

53/54. Development of creativity and innovation ...../.....

55/56. Development of skills in documentation, identification of scientific and professional sources and resources ...../.....

57/58. English ..... / .....

59/60. Professional self-evaluation and continuous learning...../.....

61/62. Ethical and social responsibility in professional behaviour...../.....

63. If you were to study again, would you choose the same Master's degree? (1) Yes (2) No

64. If you were to study again, would you choose the same university? (1) Yes (2) No

POST-MASTER'S STUDY

65. Since completing your Master's studies, did you continue or are you continuing to study?

(1) No (Go to question 69) (2) Yes, a doctorate/PhD (3) Yes, other

66. Are you studying/Did you study the course at the same university? (1) Yes (2) No

67. Is the doctorate/PhD degree related to your Master's degree? (Only if "Yes, a doctorate" in question 65)

68. What is your main source of income during your doctorate/PhD degree studies? (Only if "Yes, a doctorate", in question 65)

(1) A scholarship
(2) Teaching or research work at university (including part-time and researcher contracts)
(3) A job within the scope of your Master's studies
(4) A job unrelated to your Master's studies
(5) Others

MOBILITY

69. Experience of academic mobility? (multiple answer)

(1) No → Go to question 71

(2) Yes, during my pre-Master's degree

(3) Yes, during my Master's degree

70. Was mobility national or international?

(1) National

(2) International

71. Have you had any experience of job mobility? (Except for "Never" in question 8; multiple answer)

(1) No → Go on to 73 if the Master's course is an international inter-university programme
→ Go on to 88 if it is not

(2) Yes, after my pre-Master's degree

(3) Yes, after completing the Master's degree

72. Was mobility national or international?

(1) National→ Go on to 73 if the Master's course is an international inter-university programme
→ Go on to 88 if it is not

(2) International

INTERNATIONALISATION I

Assess the extent to which your Master's studies enabled you to: (from 1 to 7, where 1 is not at all and 7 is totally) (only for international inter-university Master's programmes)

73. Do periods of study or work experience abroad.....

74. Contact teaching staff at other universities and/or in other countries .....

75. Participate in conferences/seminars/international events.....

76. Establish contacts and/or networking with people or institutions abroad.....

77. Obtain information on job listings and opportunities abroad .....

78. Acquire an international vision as to the Master's field of study.....

79. General improvement at personal, academic and/or professional level.....

INTERNATIONALISATION II

Assess the quality (from 1 to 7, where 1 is very low and 7 is very high) **of:** (Only for international Master's programmes, i.e. where more than 40% of the students are/were foreign (non-Spanish), and for graduates with experience of academic mobility during their Master's studies):

80. The accessibility of the public information (prospectus) on the Master's programme taken

81. The information provided by the university's international office/service

82. Advice and help provided by the university's international office/service

83. Accommodation, catering, transport, etc.

84. Student orientation/study programmes (academic support, tutorials, etc.)

85. Academic formalities: support, speed and ease (admission, registration, qualifications, certificates, etc.)

86. Individual support and resources for learning Catalan and Spanish languages

87. The role of cultural and social activities as facilitators of integration and multiculturalism

SOCIOECONOMIC STATUS

88. What was the highest level of education completed by your parents?

(1) Both completed primary school/no studies

(2) One of the two completed secondary education

(3) Both completed secondary education

(4) One of the two took a course in higher education

(5) Both took courses in higher education

IN CASE OF UNEMPLOYMENT (If for question 8) you answered either (2) Not at present or (3) Never

89. Are you currently looking for work?

(1) Yes→ Go to question 92
(2) No

90. If your answer was NO, what are your reasons?

(1) To continue studying /doctorate-PhD degree/ public service exams-competitions → End of survey

(2) Maternity/family → 91.1. If your answer was Maternity/family, do you intend to look for work in the future?
(1) Yes → End of survey.
(2) No → End of survey.

(3) Other → End of survey

(**Question 92 onwards: only if you are looking for work: and if you answered "Yes" in question** 89)

92. How long have you been looking for work?

(1) Less than 6 months (2) Between 6 months and 1 year (3) Between 1 and 2 years
(4) More than 2 years

93. What have you done to look for work? (You can select more than one option.)

(1) Personal contacts or family
(2) Personal initiative (sending out c.v.; applying for interviews; etc.)
(3) Advertisements in the press
(4) Public service exams/competition
(5) Servei Català de Col·locació (Catalan careers employment service)
(6) Setting up one's own company or office
(7) University services (job centre, employment bureau, etc.)
(8) Cooperation agreements (between the university and an institution or private enterprise)
(9) Professional body or association
(10) Institutional employment services
(11) Internet
(12) Others
(13) I am not looking for work

Assess the importance of the following factors in relation to the problems you have had finding work (from 1 to 7, where 1 is not very important and 7 is very important):

94. Gaps in your Master's studies .....
95. Lack of professional experience
96. Personal factors that prevent you from working (further study, family, other...) .....
97. Having a job that I like and that pays a satisfactory salary .....
98. The requirement of mobility in the job

End of survey

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