PhD theses in Spain: a gender study covering the years 1990-2004

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(Artículo publicado en *Scientometrics* (2008), Volume 77, Number 3)

Summary (50-100 words)

In this study we analyse gender equality in the preparation, supervision and defence of PhD theses in Spain in the period 1990-2004.

The results indicate a tendency towards greater equality in the number of men and women successfully completing doctoral studies. However, the gender imbalance among thesis supervisors and on thesis assessment boards is more apparent, with a predominance of male academics. Moreover, the gender of the PhD student has a clear relationship on the gender of the supervisor, and both also have an influence on the gender of the members of the assessment boards of PhD theses in Spain.

1 Introduction

In recent decades women in Spain have enjoyed greater access to higher education. In general terms, the number of female students and academics has grown considerably since the application of the Spanish University Reform Act in 1983. The *University Education Statistics* (produced by the Ministry of Education and Science or by the National Statistics Institute, depending on the year) estimate that during the period 1985-2005 the number of women enrolled on degree courses increased from 49.5% to 54.3% in 2005-2006. The trend is found in almost all subject areas (social and legal sciences, engineering, health sciences and

experimental sciences), with the exception of humanities, which has shown a decline in the number of female students. Women outnumber men in almost all subject areas: in the 2005-2006 academic year, the percentages ranged between 59.3% in experimental sciences to 74.2% in health sciences or 63% in social and legal sciences and the humanities. However, despite the general growth during the period, female students remain a small minority in engineering disciplines (making up only 27.3% of the total in the 2005-2006 academic year). When we also consider the proportion of female students to complete their degree studies we also notice an increase during the twenty years analysed, in which the percentage of female graduates rose from 54.6% (in the 1985-1986 academic year) to 60.5% (2005-2006). Although graduation rates among female students increased in all subject areas, there were some notable differences. The highest graduation rates were recorded in health sciences (where 77.3% of the graduates were female in the 2005-2006 academic year), social and legal sciences (with 68.4% of female graduates), humanities (66.9%) and experimental sciences (63.9%), whereas the rate for engineering disciplines remained low (29.2%). The number of female graduates was greater in all cases (with the exception of engineering), which indicates either better performance or a lower dropout rate.

The first studies on gender equality in the Spanish university system focused on the participation of women in degree and PhD courses and their presence at the different levels of the academic hierarchy (PÉREZ SEDEÑO, 1995; GARCÍA DE CORTÁZAR and GARCÍA DE LEÓN, 1995, 1997; ALCALÁ, 1996; BECERRA and ORTIZ, 1996). These studies revealed that the growing numbers of women enrolled on university courses from the beginning of the democratic period onwards had not reduced the substantial imbalance in certain subject areas (particularly in engineering and technology, in which there was a predominance of male students) or improved access to higher levels of university education (PhD), which lead to teaching and research careers. These studies also showed that the larger numbers of female university teaching staff had been accompanied by a greater concentration in disciplines considered to be more “feminine” (the humanities and social and legal sciences) and a stronger presence in the lower levels of the academic hierarchy.

The most recent studies continue to reveal appreciable differences in the relative opportunities of men and women to access jobs with higher salaries and greater professional recognition, as well as the slowness with which women are incorporated into teaching and research careers, despite the continuing growth in the number of female students gaining degrees and PhDs (GARCÍA DE LEÓN and GARCÍA DE CORTÁZAR, 2001; BORDONS et al., 2003, 2006; PÉREZ SEDEÑO et al., 2003; GUIL, 2004; ALCALÁ et al., 2005; MAULEÓN and BORDONS, 2005; MUÑOZ, 2005). The latest data published by the National Statistics Institute show that in the 2005-2006 academic year only 14% of professors at Spanish universities were women.

The conclusion is that despite the growing balance in the numbers of male and female students and teachers in the Spanish university system, women continue to represent a minority in certain subject areas and at some professional levels. These results are consistent with many earlier studies that analysed the effect of a gender bias in the scientific careers of women at the international level (LEMOINE, 1992; LONG and FOX; 1995; WENNERAS and WOLD, 1997, 2000; ANDERSEN, 2001; BLACK, 2002; LETA and LEWISON 2003; PRPIC, 2003; HANDELSMAN et al., 2005; BARRES, 2006). These studies showed that male scientists achieved better results and that women had less access to higher academic positions, high salaries and research funding.

At the international level, some studies have analysed the influence of gender on obtaining a PhD (EUROPEAN COMMISSION, 2006; HOPKINS, 2006; KURTZ-COSTES et al., 2006). One of the most important is BORNMANN and ENDERS (2004), which studies the influence of gender on obtaining PhDs and on the subsequent development of academic careers in Germany. The authors found that gender was a significant factor in four (biology, Germanic studies, mathematics and social sciences) of the six disciplines analysed (biology, electrical engineering, Germanic studies, mathematics, social sciences and economics/business studies), reporting that the percentage of male PhD holders was greater than the corresponding proportion of male degree holders in those disciplines. However, the influence of gender was even greater on the subsequent development of a scientific career, which many women seemed very likely to abandon.

Following BORNMANN and ENDERS (2004) and to determine whether the growing equality between men and women in degree studies in the Spanish university system is also apparent at PhD level, the present study aims to analyse the changes in the number of women who write or supervise PhD theses and form part of academic assessment boards at doctoral level.

The statistical data provided by the Spanish Ministry of Education and Science and the National Statistics Institute highlight the progressive increase in the number of female postgraduate students and the number of PhD theses written by women. The percentage of female students enrolled on PhD courses in Spain rose from 36.4% in the 1985-1986 academic year to 51% in 2005-2006. Nevertheless, while the number of female PhD students has increased, the percentage is still lower than at degree level (54% in the 2005-2006 academic year). In terms of subject area, female PhD students during the 2005-2006 academic year formed a majority in experimental and health sciences (58.8%), in humanities (56.7%) and in social and legal sciences (51%). The only area that reveals a greater discrepancy and in which male students predominate is engineering (72.4%). Similar results were found by BORNMANN and ENDERS in their study of German universities, in which the proportions of male PhD holders in four (biology, Germanic studies, mathematics and social sciences) of the six disciplines analysed were higher than the proportions of male university graduates in the same discipline.

The percentage of PhDs received by female students also increased over the twenty-year period considered, from 34.2% in the 1985-1986 academic year to 46.8% in 2005-2006. The difference is also apparent in the respective subject areas. Thus, the proportion of successful theses in the 2005-2006 academic year written by female students was 51.7% in experimental and health sciences; 48.4% in the humanities; 47.4% in social and legal sciences and 25.9% in engineering. We therefore identify a clear discrepancy between these data and those referring to the numbers of students enrolled; although women are now the majority in most subject areas, men are more likely to successfully complete their PhD studies.

The aim of the present study is to use these data as the starting point for an analysis of gender equality in the preparation, supervision and defence of a PhD thesis in the Spanish university system. To do so we will consider the numbers of PhD theses written, supervised and assessed by women in Spain between 1990 and 2004. We expect to find reveal changes in the participation of women not only in writing theses but in supervising PhDs and forming part of academic assessment boards at the doctoral level. We also intend to determine whether there is a relationship between the gender of the PhD student and those of the thesis supervisor and the members of the assessment board in each case.

2 Methodology

We analysed a sample of doctoral theses presented in Spanish universities between 1990 and 2004. The theses were identified using the TESEO database (http://teseo.mec.es/teseo/) compiled by the Spanish Ministry of Education and Science.

Between 1990 and 2004 a total of 86,390 students received PhDs in Spain. A sample of 1,054 was selected to work with an accuracy of 3% and a confidence level of 95%. The sample was chosen in a random procedure and stratified according to university and the year in which theses were presented. Although we initially considered the possibility of stratifying the sample according to subject areas or disciplines, this option was eventually discarded as it could not be implemented *a priori* due to the structure of the database. For each of the selected theses we determined the genders of the student, the supervisor(s) and each of the members of the assessment board.

Under Spanish law the defence of a PhD thesis is a public act in which the author defends an original research study in front of the assigned assessment board. The board must be composed of five PhD holders who may be Spanish or of other nationalities, and who are linked to universities, higher education institutions or research institutes. There can be no more than two members from the same department and three from the same university. One of the

members, who must be a university professor, acts as the board president. Under no circumstances may the supervisor of the thesis form part of the board, although in practice he often has a strong input in selecting the members.

Analysis of data

We applied the chi-square test to analyse the relationship between qualitative variables and used Cramer's phi coefficient to determine the strength of the association. Standardized residuals were computed in order to determine which cells are the major contributors to the significant chi-square value. Thus, any residual with a value greater than $z_{0.5} = 1.96$ was considered significant at the 0.05 level. We used the Student t-test or analysis of variance to compare a quantitative and a qualitative variable and when the assumptions for these were not met the appropriate non-parametric test was applied. The relationship between variables was considered statistically significant when $p<0.05$.

3 Results

3.1 Gender of PhD students

The data for the sample of 1,054 PhD thesis extracted from the TESEO database show that the percentage of male students who are awarded the title of doctor is higher than the percentage of female students for the 15-year period analysed (56.2% and 43.8% respectively). However, a temporal analysis shows that towards the end of the period this tendency is reduced or even reversed (see Figure 1). The temporal analysis also reveals an increase in the number of theses defended each year, independently of student gender.

[Insert Figure 1]

Statistically significant differences are found for both gender and subject area. Analysis of the standardized residuals shows a major contribution of engineering disciplines, in which more than three quarters of the theses were written by male students.

[Insert Table 1]

If we analyse the subject area data in five-year periods, we can see that there are no statistically significant differences in any area except for engineering, in which the male predominance is maintained in all three of the five-year periods considered ($\chi^2 = 8.92$, d.f. = 2, p = 0.012).

[Insert Figure 2]

3.2 Gender of PhD thesis supervisors

We also compiled data on the gender of the thesis supervisor. Theses co supervised by one male and one female academic were classified as “mixed”. In 37 of the 1,054 thesis we were unable to determine the gender of the supervisor as the information was not included in the database used (n = 1,017). The analysis by gender of thesis supervisor shows a clear predominance of male academics, who supervised more than three quarters of the theses presented during the period analysed (male supervisor: 78.2%, female supervisor: 13.9%, mixed: 8%). This majority of male supervisors was expected because fewer women are available to supervise PhD students. Nevertheless, according to data provided by the National Statistics Institute, during the 1998-2006 period around 30% of the tutors qualified to supervise

theses at Spanish universities were women – considerably higher than the figure of 13.9% of female supervisors actually recorded in our data.

The evolution of the data over the period considered shows that mixed thesis supervision (theses co-supervised by male and female academics) was first observed in 1998 (see Figure 3). In recent years, the percentage of theses supervised only by men has decreased, while the percentage of mixed supervision has increased slightly.

[Insert Figure 3]

Although a very high percentage of theses were supervised by men, analysis of the variables gender of thesis supervisor and subject area reveals statistically significant differences overall (χ^2 = 24.67, d.f. = 8, p = 0.002). By studying the standardized residuals we observe a lower percentage of theses with mixed co-supervision in social and legal sciences with respect to the rest of the subject areas considered, a lower percentage of theses supervised by women in engineering with respect to other areas, and an increase in the percentage of mixed co-supervision in experimental sciences (see Table 2).

[Insert Table 2]

Table 3 shows the statistically significant relationship between the gender of the PhD student and that of the supervisor. Male students are more likely to have male supervisors, while female students are more likely to have female supervisors or to have a mixed co-supervision.

[Insert Table 3]

Analysing the data by subject area, the relationship between the gender of the PhD student and the supervisor was statistically significant only in the experimental sciences. In this discipline, male students were more likely to have a male supervisor, whereas female students were more likely to have a female supervisor or be supervised by a male and a female academic (χ^2 = 16.22 d.f. = 2, $p < 0.001$, $\varphi_c = 0.26$, $p < 0.001$).

3.3 Gender of the members of the thesis assessment board

The overwhelming majority of assessment board presidents are men (99%), and no variation is observed over the period studied. It is important to bear in mind that, under Spanish law, the board member acting as president must be a university professor. According to data provided by the National Statistics Institute, during the period 1998-2006 only 14% of professors in Spanish universities were women. This indicates an excessive discrepancy in the representation of male and female academics on assessment boards with respect to the number of professors of each gender in the Spanish university system.

With regard to the remaining board members, a total of 4,187 people were involved in the assessment of the theses analysed. The members of these boards were predominantly male (76.6% / n = 3,208 as opposed to 23.4% / n = 979 female members). As in the case of the gender of supervisors, this majority of men on assessment boards is due to the preponderance of male academics in the Spanish universities (around 70% of the academics during the 1998-2006 period, according to data provided by the National Statistics Institute).

The evolution over the period considered shows a slight increase in the percentage of women on assessment boards, reaching 30.6% in 2003, and a corresponding decrease in the proportion of men (see Figure 4).

[Insert Figure 4]

The number of women present on the assessment board is significantly higher when the author of the thesis is also a woman (see Table 4). Similarly, when the thesis supervisor is female the number of women on the assessment board is statistically higher than when the supervisor is male or the thesis is co-supervised by a male and a female academic (see Table 5).

[Insert Table 4]

[Insert Table 5]

The analysis by subject area shows that when the PhD student is female, the number of women present on the assessment board is higher in humanities, social sciences and experimental sciences (see Table 6). In health sciences and experimental sciences, the number of women on the assessment board is higher when the thesis supervisor is female than when the role is occupied by a male academic. In the specific case of experimental sciences, the number of female board members is also higher when the supervisor is a woman than when the thesis is co-supervised by a male and a female academic (see Table 7).

[Insert Table 6]

[Insert Table 7]

4 Conclusions

The increasing number of women in the Spanish higher education system in recent years has led to greater gender equality both between university students and between teaching staff. Despite this growing balance, the increase remains unsatisfactory in certain subject areas and at some professional levels.

Female degree holders constitute a majority on PhD courses in most subject areas except for engineering and technology. However, although there are more female students, the male students are more likely to successfully complete their PhD studies. This phenomenon is observed in all subject areas, albeit with varying degrees of intensity. The fact that women may face greater obstacles and may approach the challenges of doctoral studies differently than men has already been discussed in the literature (see ANDERSEN, 2001; BORNMANN and ENDERS, 2004; KÜRTZ-COSTES et al., 2006). Indeed, compared to men, women in many industrialized countries are less likely to reach the most advanced levels of education and are more likely to abandon their studies before completing their degree. From a sociological perspective, this fall in the proportion of women at the post doc level (and after it) has been attributed to a “leaky pipeline”, a metaphor frequently used to describe the fact that women are under-represented at the higher levels of academia. According to CLARK (2005), the effect of differential leaking is to create a sex-based filter that removes one sex from the stream and leaves the way open for the other to reach the end of the pipeline. Although this loss of women is not a conscious decision, the cumulative effect of many separate but related factors results in the sex imbalance that is observed today.

Nevertheless, from a general perspective, the numbers of male and female students writing PhD theses has become markedly more balanced in recent years.

In the present study we analysed the preparation, supervision and defence of a PhD thesis in relation to gender. The following conclusions were drawn:

- In recent years the traditional gender imbalance in the production of PhD theses has gradually been redressed. However, there remain discrepancies in certain subject areas. Specifically, the percentage of successful male PhD students is much higher in engineering. These findings are consistent with those presented by the EUROPEAN COMMISSION (2006) in its report on women and science in the European Union, in which the participation of women at this level has increased between 1999 and 2003 at a significantly higher rate than that of men. However, there remain significant gender variations across subject groupings. Similar data were found in a study for the Schools of Science and Engineering at the Massachusetts Institute of Technology, where as a consequence of pressure from the civil rights movement in the early 1970s and the efforts between 1996 and 2000 made by both schools in response to critical reports regarding the representation of women among faculty, the number of women obtaining PhDs increased notably over the period, although the increases vary considerably from discipline to discipline (HOPKINS, 2006).
- The supervision of PhD theses is largely performed by men, although there are also discrepancies according to subject area. Women are less likely to supervise theses in engineering disciplines, while there is a greater tendency for mixed co-supervision in experimental sciences. These results come as no surprise, since fewer women are in higher ranking positions, particularly in the more technological disciplines.
- Overall, the results show that there is a relationship between the gender of the PhD student and that of the supervisor: male students are more likely to have a male supervisor, while female students are more likely to have female supervisors or to be co-supervised by a man and a woman. This is most apparent in the field of experimental sciences. Although there is some international evidence on student satisfaction with same-sex supervisors (ERKUT and MOKROS, 1984; EHREBERG et al, 1995), a recent qualitative study on perceptions of PhD students at an American university concludes that for these students it was not the gender of their supervisors that was necessarily most significant factor; rather, it was the overall supportiveness of the mentor that influenced students' career commitment (KURTZ-COSTES et al., 2006).

The mixed results provided by the literature suggest that more detailed investigation of these issues is required.

- Most of the members of thesis assessment boards are men, and the data are particularly worrying in the case of the presidency of these boards, given that only 1% of these positions were filled by women, despite the fact that they constitute approximately 14% of the university professors in Spain. These results corroborate those of previous studies showing that women in academic careers are disadvantaged compared with men (see NATIONAL SCIENCE FOUNDATION, 2003 for a comprehensive review of the literature). Besides the fact that women are promoted less frequently to senior academic ranks, they are underrepresented on scientific boards, senior management positions in universities and decision making committees, a fact that may affect their progress through the hierarchy (EUROPEAN COMMISSION, 2006). ANDERSEN (2001) presented evidence of a significant gender bias in Danish research recruitment, mainly owing to selection decisions prior to entry into the research community. WENNERAS and WOLD (2000) provided evidence from different countries that female academics tread a harder path than their male colleagues. In the case of United States, the authors pointed out that female medical-school graduates were more likely than their male classmates to pursue academic careers, but were less than half as likely to be promoted to professors. In Italy, it was twice as hard for female senior researchers supported by the National Research Council to become research directors compared with their male counterparts. WENNERAS and WOLD (2000) concluded that in countries where the proportion of women among the academics is even lower than in the United States and Italy, the hurdles facing women academics are even higher.
- There is a relation between the gender of the PhD student or of the supervisor and the number of women present on the thesis assessment board. There are more female members when the student is female and when the thesis supervisor is also female. The highest numbers of female assessment board members are found in health sciences and experimental sciences.

In summary, the numbers of male and female students who successfully complete their PhD studies are becoming more balanced. However, this is not the case among thesis supervisors and on thesis assessment boards, which are dominated by male academics. Moreover, the gender of the PhD student has a clear relationship on the gender of the supervisor, and both also have an influence on the gender of the members of the assessment boards of PhD theses in Spain. More research is needed in order to determine the underlying mechanisms of producing these imbalances to interpret them directly as inequalities.

The research reported here was supported by the Spanish Ministry of Education and Science (EA2007-0194).

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Figures and Tables

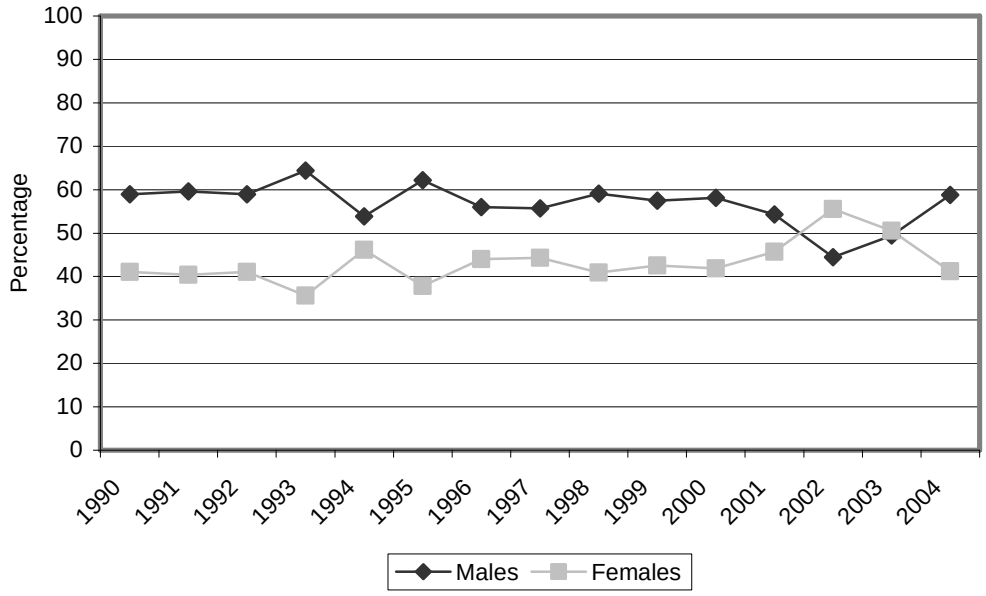

Figure 1. Evolution of the percentage of PhDs by gender (1990-2004)

Table 1. Relationship between the gender of the PhD student and subject area

	Males	Females	χ^2 (d.f.)	p	φ_c (p)
	55.7%	44.3%			
Social and Legal Sciences	(n = 122)	(n = 97)			
	(SR =-0.2)	(SR = 0.2)			
	76.6%	23.4%			
Engineering	(n = 108)	(n = 33)			
	(SR = 5.3)	(SR = -5.3)			
	53.3%	46.8%			
Humanities	(n = 90)	(n = 79)	28.556	< 0.001	0.165
	(SR = -0.8)	(SR = 0.8)	(4)		(< 0.001)
	51.7%	48.3%			
Health Sciences	(n = 140)	(n = 131)			
	(SR = -1.7)	(SR = 1.7)			
	52.0	48.0%			
Experimental Sciences	(n = 132)	(n = 122)			
	(SR = -1.5)	(SR = 1.5)			
Total	56.2%	43.8			
	(n = 592)	(n = 462)			

n: number of subjects, SR: standardized residuals, χ^2: chi-square test, d.f.: degree of freedom, p: level of significance, φ_c: Cramer's phi coefficient

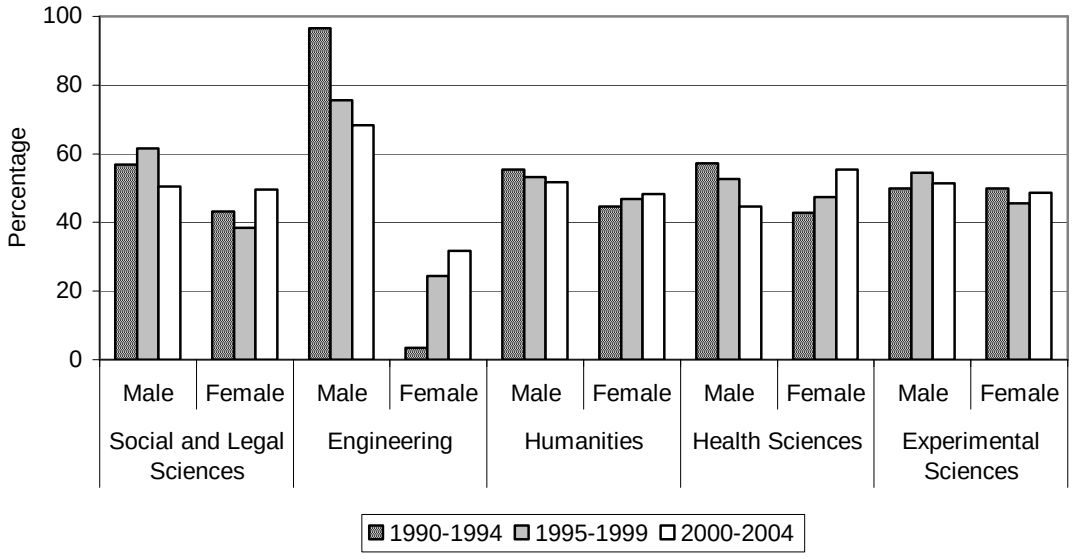

Figure 2. Evolution of the gender of PhD students according to subject area in five-year periods

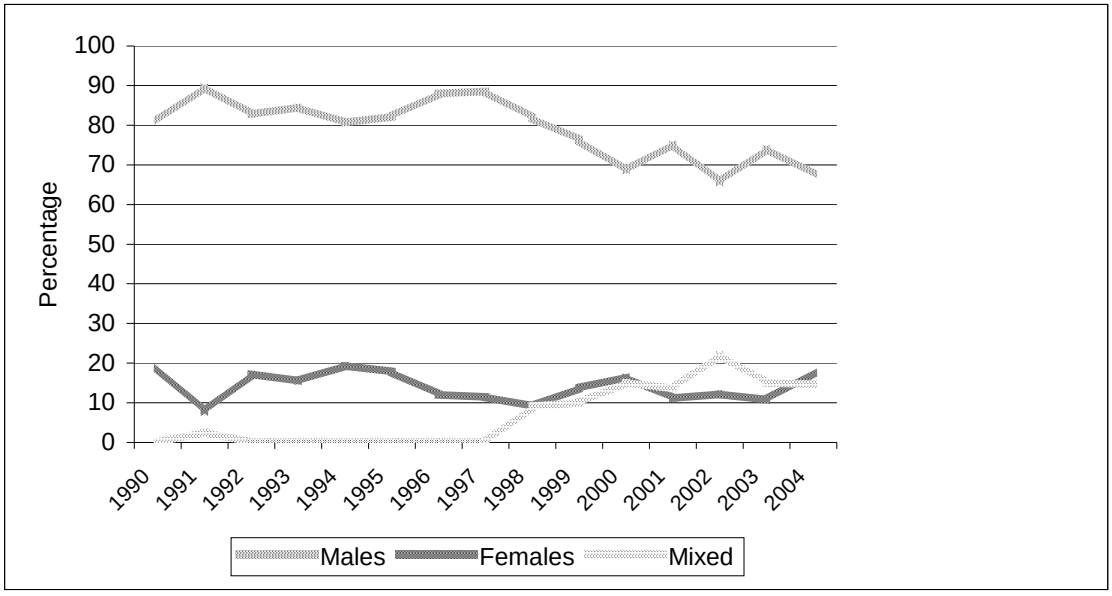

Figure 3. Evolution of the percentage of thesis supervisors by gender (1990-2004)

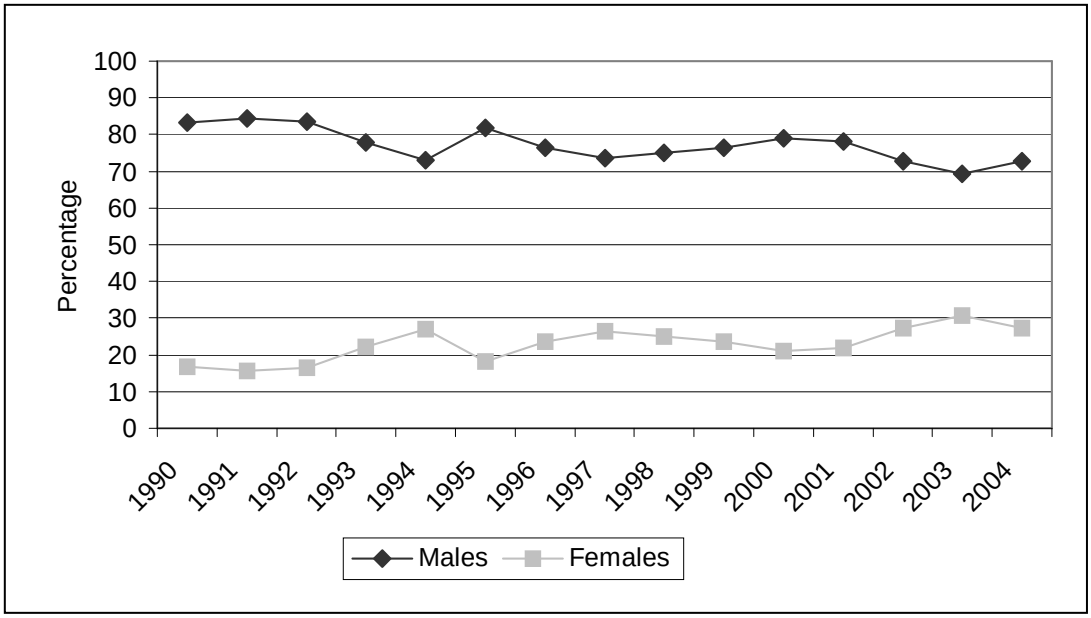

Figure 4. Evolution of the percentage of the members of thesis assessment boards by gender (1990-2004)

Table 2. Relationship between gender of thesis supervisor and subject area

	Males	Females	Mixed	χ^2 (d.f.)	p	φ_c (p)
Social and Legal Sciences	81.9% (n = 177) (SR = 1.51)	15.3% (n = 33) (SR = 0.68)	2.8% (n = 6) (SR = -3.17)			
Engineering	82.5% (n = 113) (SR = 1.31)	6.6% (n = 9) (SR = -2.66)	11.0 (n = 15) (SR = 1.39)			
Humanities	78.2% (n = 129) (SR = 0)	17.6% (n = 29) (SR = 1.51)	4.2% (n = 7) (SR = -1.93)	24.67 (8)	0.002	0.156 (0.002)
Health Sciences	75.6% (n = 192) (SR = -1.15)	14.2% (n = 36) (SR = 0.16)	10.2% (n = 26) (SR = 1.54)			
Experimental Sciences	75.1% (n = 184) (SR = -1.33)	13.9% (n = 34) (SR = 0.01)	11.0% (n = 27) (SR = 2.03)			
Total	78.2% (n = 795)	13.9% (n = 141)	8.0% (n = 81)			

n: number of subjects, SR: standardized residuals, χ^2: chi-square test, d.f.: degree of freedom, p: level of significance, φ_c: Cramer's phi coefficient

Table 3. Relationship between gender of PhD students and supervisors

		Gender of supervisor			χ^2 (d.f.)	p	φ_c (p)
		Male	Female	Mixed			
PhD student	Male	83.3% (n = 478) (SR = 4.49)	10.6% (n = 61) (SR = -3.40)	6.1% (n = 35) (SR = -2.50)	20.119 (2)	< 0.001	0.141 (< 0.001)
	Female	71.6% (n = 317) (SR = -4.49)	18.1% (n = 80) (SR = 3.40)	10.4% (n = 46) (SR = 2.50)			
Total		78.2% (n = 795)	13.9% (n = 141)	8.0% (n = 81)			

n: number of subjects, SR: standardized residuals, χ^2: chi-square test, d.f.: degree of freedom, p: level of significance, φ_c: Cramer's phi coefficient

Table 4. Gender of members of the assessment board according to PhD student gender

PhD	n	Mean (SD)	Median (IQR)	z	p
Male	582	0.73 (0.88)	0 (1)	6.8	< 0.001
Female	450	1.20 (1.14)	1 (2)		

N: number of subjects, SD: standard deviation, IQR: interquartile range, z: z value of the Mann-Whitney U test, p: level of significance

Table 5. Number of women on assessment boards according to gender of the supervisor

Supervisor	n	Mean (SD)	Median (IQR)	χ^2	p	Groups	z	p
Male	774	0.84 (0.87)	1 (1)			M – F	6.30	< 0.001
Female	141	1.47 (1.17)	1 (1)	34.28	< 0.001	F - MX	2.52	0.012
Mixed	80	0.95 (1.04)	1 (2)			H - MX	1.87	ns

N: number of subjects, SD: standard deviation, IQR: interquartile range, χ^2: chi-square value of Kruskal-Wallis test, p: level of significance, M: Male, F: Female, MX: Mixed, z: z value of the Mann-Whitney U test, ns: non significant

Table 6. Number of women on assessment boards according to subject area and PhD student gender

Área	PhD	n	Mean (SD)	Median (IQR)	Statistic	p
Social and Legal Sciences	Male	122	0.87 (0.95)	1 (1)	z = 1.53	ns
	Female	94	1.96 (1.20)	1 (2)		
Engineering	Male	106	0.43 (0.65)	0 (1)	t = 0.99 (d.f.:136)	ns
	Female	32	0.56 (0.62)	0.5 (1)		
Humanities	Male	87	1.17 (1.05)	1 (2)	z =2.75	0.006
	Female	78	1.74 (1.31)	2 (2)		
Health Sciences	Male	137	0.54 (0.78)	0 (1)	t = 4.82 (d.f.:261)	<0.001
	Female	126	1.07 (1.00)	1 (2)		
Experimental Sciences	Male	130	0.75 (0.84)	1 (1)	t = 3.54 (d.f.:248)	<0.001
	Female	120	1.18 (1.07)	1 (2)		

N: number of subjects, SD: standard deviation, IQR: interquartile range, z: z value of the Mann-Whitney U test, t: student t-test value, p: level of significance, ns: non significant

Table 7. Number of women on assessment boards according to subject area and gender of thesis supervisor

Area	Supervisor	n	Mean (SD)	Median (IQR)	Statistic	p	Groups	Statistic	p
Social and Legal Sciences	Male	174	0.92 (1.04)	1 (1)	F = 1.53 (d.f. = 2, 210)	ns			
	Female	33	1.3 (1.21)	1 (2)					
	Mixed	6	1.33 (1.37)	1 (3)					
Engineering	Male	110	0.44 (0.64)	0 (1)	F = 1.48 (d.f. = 2, 131)	ns			
	Female	9	0.55 (0.73)	0 (1)					
	Mixed	15	0.73 (0.59)	1 (1)					
Humanities	Male	125	1.35 (1.21)	1 (2)	F = 1.97 (d.f. = 2, 158)	ns			
	Female	29	1.79 (1.21)	2 (2)					
	Mixed	7	1.85 (1.35)	2 (3)					
Health Sciences	Male	185	0.64 (0.75)	0 (1)	χ^2 = 17.9 (d.f = 2)	<0.001	M - F	z = 3.79	<0.001
	Female	36	1.44 (1.25)	1 (2.75)			F - MX	z = 0.63	ns
	Mixed	25	1.24 (1.20)	1 (2)			H - MX	z = 2.45	0.014
Experimental Sciences	Male	180	0.87 (0.94)	1 (1)	F = 9.03 (d.f. = 2, 238)	<0.001	M - F	-	<0.001
	Female	34	1.62 (0.99)	2 (1)			F - MX	-	0.008
	Mixed	27	0.85 (0.99)	1 (1)			H - MX	-	ns

N: number of subjects, SD: standard deviation, IQR: interquartile range, F: F value of analysis of variance, d.f.: degree of freedom, χ^2: chi-square value of Kruskal-Wallis test, p: level of significance, ns: non significant, M: Male, F: Female, MX: Mixed, z: z value of the Mann-Whitney U test