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ABSTRACT

Occupational Mismatch and Moonlighting among Spanish Physicians: Do Couples Matter?*

There are relevant gender differences in the labour-market status of health sciences graduates in Spain: (i) female physicians have lower participation rates than male physicians plus they are subject to higher occupational mismatch, and (ii) moonlighting is more frequent among male physicians. In this paper we investigate whether such differences are related to the monopsonistic features of the labour market of health-care professionals. This provides an interesting case study since, among all university graduates, Spanish physicians are the ones most often coupled to partners with the same educational level and/or same type of studies.

JEL Classification: J24, J42, J44, J61, J70

Keywords: monopsony, physicians, mismatch, moonlighting, gender

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1. Introduction

Precarious working conditions in health-care (HC, henceforth) occupations are common in several countries. This may explain shortage of HC professionals, given the availability of other professional alternatives with higher relative earnings, less heavy working loads and lower needs of initial and on-the-job training. These precarious working conditions have been related to the existence of monopsonistic characteristics in labour markets of HC professionals (see, e.g., Blau et al., 1998, Bhaskar et al., 2002, and Manning, 2003). In fact, an example commonly used in Economics textbooks to illustrate f monopsony is the labour market of nurses. Several economists even go so far as to state that "if no evidence of monopsony is found in this market, it turns out to be difficult to argue that monopsonistic competition is a relevant fact of labour market"[1].

Economic theory often refers to monopsony and its implications when workers have access to scarce occupational alternatives. In this case —unlike competitive labour markets— the labour supply faced by firms is not perfectly elastic.[2] Thus, a decrease in wages or a worsening of labour conditions in a firm do not entail the sudden diaspora of their employees towards other firms; in other words, the higher the "monopsony power" of a firm is, the lower its problems regarding workers´ retention are. In these markets, not only the so-called "monopsonistic exploitation" (lower wages and worse labour conditions than in competitive markets) exists, but also "monopsonistic discrimination", according to which two groups of equally productive workers, may receive different treatment depending on their outside options.

Occupational alternatives are determined, to a large extent, by mobility of workers from their local markets to other markets seeking for better opportunities. The higher are the educational level of an individual and the lower the number of local firms with adequate vacancies, the greater geographical mobility is required to achieve an optimal occupational adjustment (i.e., a good match of individual´s skills and job´s requirements). Further, the more specific is the type of studies that an individual has attained,

[1] See Sullivan (1989), Staiger *et al.* (1999), Askildsen et al., 2002, Antonazzo et al. (2003), Shields (2003), and Hirsh and Schumacher (2004)

[2] See Burdett and Mortensen (1998) and Manning (1994, 2003) for the derivation of monopsonistic features in labour markets subject to search frictions.

the greater is the need for mobility. It is in this sense that the market for nursing professionals has become the paradigmatic example of monopsonistic markets: there is a scarce number of firms in the HC sector demanding their services and this is a non-generic profession (i.e., not practised in every kind of sector, as it might be the case for economists or lawyers).

Following such reasoning, it could be argued that, when two people living as a couple seek occupational adjustment, the probability that at least one of them suffers mismatch is greater. In fact, when one of them has a higher educational attainment or greater participation in the labour market, maximization of joint household utility may lead the other member to be displaced out of his/her optimal occupation (see Frank, 1978). This increases the probability of experiencing monopsonistic exploitation and/or discrimination insofar as the number of alternative jobs offered by the labour market to which he/she has moved is lower. Such would be a possible explanation of why women —with lower educational level and lower labour participation than men in the past— have been traditionally more prone to experience this kind of situations, including non-employment.

However, even when both partners have identical educational attainments, it might happen that optimal adjustment implies working in a different region from that of origin. Further, if both members of the couple do not only have the same level but also the same type of studies, and such type is specific, maximization of their joint utility may lead to both staying in their current locality of residence, involving a mutual mismatch. In such extreme case, if the mobility of any of the two partners leads to the occupational adjustment of one of them and the mismatch of the other - providing the same joint utility independently of who is and is not mismatched - we may talk of "intra-couple gender discrimination".[3]

In view of these arguments, the goal of this paper is to analyse to what extent we may find empirical evidence favouring the previous theoretical reasoning on gender differences in labour adjustment in the case of health-

[3] See e.g., Adamache and Sloan (1982), Sicherman (1991), McGoldrick y Robst (1996), Hartog (2000) and Dolado et al. (2008). As regards over-education in Spain, see Alba-Ramirez (1993), Dolado et al. (2000) and Sanromá and Ramos (2004)..

sciences (HS, henceforth) graduates in Spain. This case study is especially interesting due to the following four stylized facts:

- HC has been one of the professions more feminized within the last two decades in Europe. Until then, women gathered around medium and low levels of HC professions;
- HS graduates are those who marry more often partners with the same level and type of studies;
- The fraction of mismatched workers (i.e., working in occupations differing from HC professions) is very high, especially in the case of women. Around one-third of mismatched people is employed in other kind of occupations or simply not employed at all. Such percentage doubles the ratio of mismatched men in each age cohort.
- Besides suffering higher occupational mismatch, female physicians experience a much higher temporary employment rate than their male partners.

Specifically, this paper makes three contributions to the literature on monopsonistic labour markets. First, we extend the available research on possible monopsonistic features in the HC labour market to their upper level professionals —essentially to physicians. As mentioned earlier, most of the empirical literature on this issue has focused on the labour market of nurses (i.e. within a medium educational level) where women's geographical lack of mobility can be explained through lower human capital than men. However, currently the presence of Spanish women at the higher levels of HC professions has already exceeded even that of men, and such women are frequently coupled to other physicians or men with similar educational attainments.

Secondly, we focus on the monopsonistic effects on occupational adjustment, leaving aside issues related to wages. In particular, we investigate whether there are gender differences in the factors determining occupational adjustment and its alternatives (distinguishing between temporary and permanent adjustment, mismatch and non-employment), analysing to what extent the level and type of studies, and the geographical mobility of both members of the couples influence such situations.

Finally, we analyse if there are gender differences as well in the determinants of simultaneously holding more than one job (moonlighting or pluri-employment). Moonlighting is another peculiar feature of Spanish HC professionals which may explain gender gaps in earnings (see, e.g., García-Prado and González, 2006). The lack of time to practise more than one job, perhaps due to unequal distribution of household chores, may also be at the origin of possible earnings gaps. However, moonlighting could also be interpreted as a response to avoid potential monopsonistic effects.[4] For instance, owning a private clinic might make labour supply be more elastic. Therefore, if women are less prone to moonlighting, they will be subject to greater monopsonistic exploitation.

The rest of the paper is organised as follows. In Section 2 we briefly illustrate the stylized facts regarding the above-mentioned issues in the population of HS graduates in Spain. Sections 3 and 4 analyse the determinants of occupational adjustment and moonlighting, respectively, making use of alternative econometric approaches. Finally, Section 5 summarizes the main conclusions. An Appendix contains supplementary Tables.

2. Stylized Facts for Health Sciences graduates in Spain

2.1 Marital status

One of the most outstanding features of high-skilled professionals in the HC sector in Spain is their marital status. More precisely, they show the highest ratio of people coupled to others with the same level and type of studies.

Table 1 shows the fraction of couplings between HS graduates and individuals with different qualifications, as well as the levels of education and the fields of study of the partners, for each age group. Tables A1 and A2 in the Appendix display similar information, this time related to fields of study for population up to 65 years old.

HS male graduates are those who couple more frequently to a partner with the same field of study: 36.4 % against an average of 14.6 % (20% of the

[4] See,e.g., Shisko and Rostker (1996), Krishnan (1990), Paxon and Sicherman (1996), Biglaiser and Mas (2006), Renna and Oaxaca (2006), and Delfgaauw (2007).

same level and 13% of lower level). They are also those who couple more frequently to women with such type of studies but of a lower level. By age, such rates and differences with the average of the remainder qualifications are even higher, especially in the age range between 25 and 44 years old (same educational attainment) and between 45 and 54 years old (same type of studies, but lower level of education).

TABLE 1: Graduates living in couple by educational attainment of the partner, for each gender and age group, health science graduates and other types of graduates (% over total population aged less than 65 years)

	Health sciences graduates				**Other graduates**			
		Educational attainment of the partner				Educational attainment of the partner		
Age	All	Same field of study	Same level of education	Same field and level	All	Same field of study	Same level of education	Same field and level
Men								
< 65 years old	**79.6**	**36.4**	**35.6**	**22.5**	**62.1**	**14.6**	**28.4**	**11.3**
25-34	41.2	21.5	24.2	15.1	32.3	8.5	18.2	7.3
35-44	85.0	38.2	44.3	27.9	76.1	20.3	40.8	16.1
45-54	89.5	42.3	37.4	24.4	84.8	18.8	29.9	13.0
55-64	95.3	37.4	28.9	16.2	87.6	11.2	25.2	7.9
Women								
< 65 years old	**61.5**	**21.8**	**37.8**	**20.8**	**53.3**	**12.9**	**30.5**	**11.8**
25-34	43.6	10.2	23.5	8.8	39.0	7.6	17.8	6.9
35-44	70.3	26.3	40.1	25.4	76.4	18.3	42.0	16.6
45-54	82.3	30.8	51.6	30.1	69.8	19.1	43.8	17.8
55-64	58.9	25.4	47.3	25.4	67.4	11.7	43.5	11.4

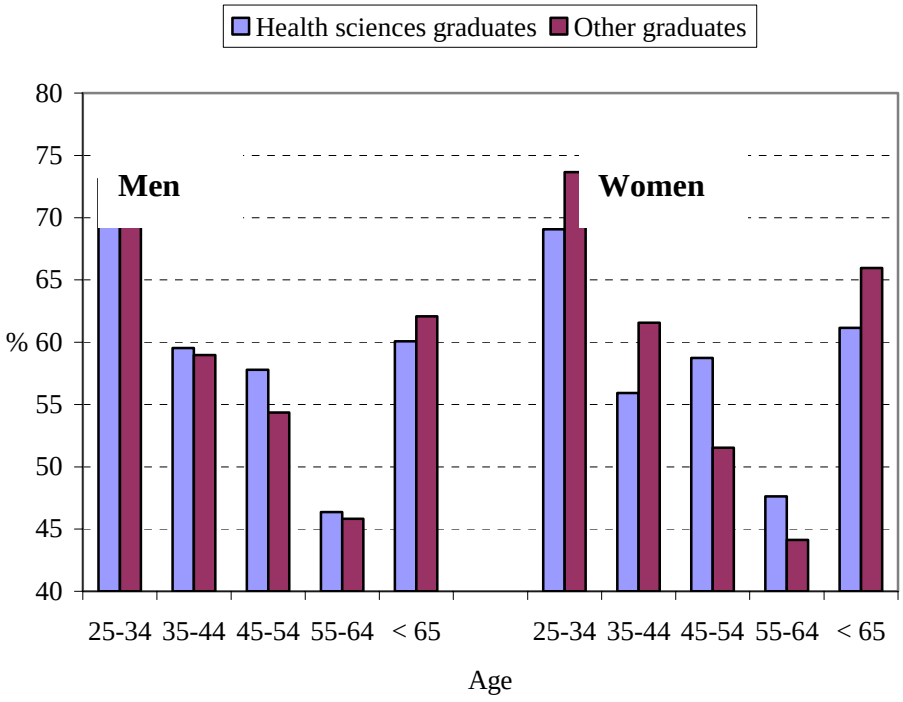
Source: Spanish Labour Force Survey (2004, 2nd quarter)

HS female graduates are also those more frequently coupled to people of the same branch of studies (21 %), only behind certain female engineers (qualifications with longer training-duration than the rest —as it is the case of Medicine). They are also those more often coupled to men with the same educational level (37 % against the average of 29 %), only preceded by female mechanic engineers and architects. By age, the fraction of women older than 35 years whose partner has the same educational level in HS is quite striking.

2.2 Geographical mobility

The indicator of geographical mobility we use here is based on comparing the current province of residence with that of birth. As Figure 1 shows, the percentage of HS graduates who remain living in their birth province is lower for men than for women. However, as in the previous section, we find an important composition effect by age. For both genders we observe a positive correlation between mobility and age, as well as for the rest of educational attainments. However, gender gaps are different among youth (among whom women are majority) and adults (among whom the percentage of men is higher). In fact, mobility among female HC professionals, younger than 45 years of age, has become higher than that of men with the same age, while the opposite holds for older women.

FIGURE 1: Percentage of graduates still living in their birth province, for each gender and age group.



Source: Spanish Labour Force Survey (2000, 2002 and 2004, 2nd quarters)

In comparison with the rest of studies, male geographical mobility seems to be lower for each age group although, due to a composition effect, it might be higher among those younger than 65 years of age. However, a different pattern is observed for women. Female mobility is higher than in the rest of qualifications within the youngest segment of age, while it is lower within older

segments (from 45 to 64 years of age). In fact, mobility is higher among those women between 35 and 44 than among those between 45 and 54 years of age.

TABLE 2: Geographical mobility of high-skilled health professionals: number provinces in which they have worked as wage-earners until 35, 45 and 55 years old.
Negative binominal regressions for #NP (incidente rates)

	All		Until 35 years old	Until 45 years old	Until 55 years old
Woman	0.96*	0.97	0.92	0.94	0.98
30-34 years	1.34***	1.27			
35-39 years	1.52***	1.55***			
40-44 years	1.50***	1.56***	0.87		
45-49 years	1.47***	1.51***	0.91		
50-54 years	1.46***	1.40**	0.75**	0.87	
55-59 years	1.45***	1.46**	0.70**	0.86	
60-64 years	1.38***	1.33	0.83	0.76	0.94
Woman x 30-34 years		0.11			
Woman x 35-39 years		0.10			
Woman x 40-44 years		0.10	1.03		
Woman x 45-49 years		0.10	0.99		
Woman x 50-54 years		0.11	1.03	1.07	
Woman x 55-59 years		0.12	1.07	1.04	
Woman x 60-64 years		0.16	1.06	1.06	0.99
Age at first employment as wage earner in the Health Care sector	0.98***	0.98***	0.90***	0.96***	0.97***
Overdispersion (θ)	1.23***	1.15**	1.14***	1.21***	1.27**
N	5613	5613	4151	2685	778
Adjusted R^2	0.018	0.018	0.113	0.045	0.033

Notes: all regressions include provincial dummies
***, **, * represent significance at 99, 95 and 90%, respectively
Source: Continuous Sample of Working Lives (2005)

Another indicator of labour mobility of HS graduates is the number of provinces in which they have worked in such sector during their professional life (#NP hereafter; data obtained from registers of the Spanish Social Security contained in Continuous Sample of Working Lives, 2005). Table 2 shows the

results of estimating a *negative binomial* model to analyse the determinants this variable. It is assumed that #NP follows a *negative binomial* distribution with expected value μ and a variance given by μ (1+θ) where θ is the over-dispersion parameter (θ =0 corresponds to the Poisson distribution). The expected value μ is assumed to be a log-linear function of explanatory variables (x), such that ln $\mu = \delta_p + \beta' x$ where δ_p is an intercept specific to each province, implicitly controlling for all stable characteristics of each province, and x includes different age brackets, gender and their intersection plus the age at first employment in the HC sector. Incidence ratios are reported.

The main result to be drawn from Table 2 is that women have lower geographical mobility than men. However, such difference disappears with the interaction between gender and age. Besides, there is also higher mobility of people between 35 and 44 years of age, although such effect vanishes when possible cohort effects are taken into account (estimations for each cohort until 35 and 45 years of age).

Anyhow, it should be noticed that both mobility indicators are not directly comparable. The first one deals with mobility from birth province, while the second deals with labour mobility during the working life, which may have begun outside of the birth province.

The first mobility indicator can also be combined with the corresponding indicator of the other member of the couple. Table 3 contains such information for HS graduates living in couples by gender and level/type of studies of the partner. It can be observed that the situation of complete immobility of both partners (i.e., both were born in the same province and live in such province) is the most frequent status for both genders, and for all levels and types of studies of the other member of the couple, except in the case of women whose partner has HS studies at a lower level of than graduate studies. In any case, total immobility is higher among men than among women, except when the other member has neither a university degree nor HS studies, where the converse phenomenon occurs.

TABLE 3: Geographical mobility of couples of graduates in Health sciences, by gender and level of education and field of study of the partner

Birth Province (BP) y Province of the current residence (RP); a: individual of reference; b: partner

	Educational attainment of the partner (b)				
	Graduate Health sciences	Graduate Other fields	Non Graduate Health sciences	Non Graduate Other fields	Total
Men (a), partner (b)					
BPa = BPb, RPa = BPa	37.3	45.7	34.8	37.2	38.2
BPa = BPb, RPa ≠ BPa	16.8	14.7	12.4	12.3	14.0
BPa ≠ BPb, RPa ≠ BPa, RPb = BPb	15.4	8.8	16.3	19.4	16.0
BPa ≠ BPb, RPa = BPa, RPb ≠ BPb	13.4	17.3	11.6	16.6	15.0
BPa ≠ BPb, RPa ≠ BPa, RPb ≠ BPb	17.1	13.5	24.8	14.5	16.8
Women (a), partner (b)					
BPa = BPb, RPa = BPa	33.3	34.3	21.7	44.3	37.0
BPa = BPb, RPa ≠ BPa	19.9	16.9	20.7	16.0	17.6
BPa ≠ BPb, RPa ≠ BPa, RPb = BPb	15.6	17.4	28.4	16.0	16.5
BPa ≠ BPb, RPa = BPa, RPb ≠ BPb	14.7	12.0	29.2	10.9	12.8
BPa ≠ BPb, RPa ≠ BPa, RPb ≠ BPb	16.5	19.4		12.9	16.0

Source: Spanish Labour Force Survey (2000, 2002 and 2004, 2nd quarters)

2.3 Temporary adjustment, educational mismatch and non-employment

Another interesting feature is the proportion of these professionals who do not work as such, since they are mismatched (employed in another occupation) or simply non-employed. Tables 4a and 4b show the distribution of HS graduates living in Spain for three alternative situations: permanently and temporary adjusted employed, unadjusted employed and non-employed.[5]

TABLE 4a: Occupational adjustment among health sciences graduates, by gender and year (2000-2004)

	Men			Women		
	2000	2002	2004	2000	2002	2004
Permanently adjusted and self-employed	53.6	58.5	55.1	31.6	35.8	34.6
Temporary adjusted	25.1	25.7	26.2	27.4	31.5	29.0
Unadjusted employees	11.9	11.6	11.5	25.2	18.6	19.7
Non-employed	9.4	4.2	7.2	15.9	14.1	16.8

Source: Spanish Labour Force Survey (2000, 2002 and 2004, 2nd quarters)

[5] For HS graduates we define here as "health occupations" the following ones: Direction of specialized areas and departments; Physicians and dentists; Pharmacists; Other health professionals of superior level; Professors at Universities and other higher education centres.

TABLE 4b: Occupational adjustment among health sciences graduates, by gender (averages for the period 2000-2004)

	Men				Women			
	25-34	35-44	45-54	55-64	25-34	35-44	45-54	55-64
Permanently adjusted and self-employed	53.4	69.8	72.3	56.1	40.4	49.9	43.4	36.4
Temporary adjusted	25.2	21.7	16.7	26.1	27.8	25.3	26.9	29.4
Unadjusted employees	18.5	7.4	5.9	11.4	21.0	16.0	9.4	18.9
Non-employed	2.9	1.2	5.0	6.3	10.8	8.8	20.3	15.4

Source: Spanish Labour Force Survey (2000, 2002 and 2004, 2nd quarters)

Inspection of Table 4a shows that mismatch is more important among women than among men. More than 33 % of women were not adjusted during 2000-2004 whereas for men this fraction was around 15 %. About 12 % of male graduates and 19 % of female graduates were employed in different occupations and the rest, 4 % and 14 %, respectively, were non-employed. Over this period, holding constant the percentage of people working in other occupations, there is also an increase of the degree of adjustment at the expense of a reduction of the ratio of non-employed,

Across age groups, it can also be noticed that adjustment is lower among youth. The fraction of mismatched employees reaches its maximum within the range between 35 and 44 years of age. Besides, the percentage of adjusted people with temporary contracts, that of unadjusted employed and that of non-employed is higher for women than for men for all age groups. The high ratio of non-employed women of more than 55 years of age is also noteworthy: 20 % (four times higher than that of men).

2.4 Moonlighting

Among all the existing professions in Spain, those related to the HC sector are the ones with a higher incidence of moonlighting—that is, working at the same time as a physician in two jobs. According to Spanish Labour Force Survey, the 6 occupations where HC professionals work are among the 20 occupations with higher degree of moonlighting. In particular, 20% of physicians and dentists are pluri-employed. In the case of men, it goes even further, since 5 HC occupations are among the top 6 occupations with higher intensity of moonlighting.

Table 5 shows the distribution of HC professionals according to different situations of exclusivity/ moonlighting in different sectors, distinguishing between salaried and self-employed workers. For all occupations, it can be observed that the presence of women exclusively working as wage-earners in the public sector is higher, being such difference with men around 20 p. p. Such gender gaps are mainly explained through a greater presence of men as self-employed in exclusivity (4 p. p. more than women) and as self-employed and employees in the public sector (11 p. p. more than women). In any case, the proportion of women exclusively working as wage-earners in the private sector has also been reduced. However, such reduction has been almost completely offset by an increase of the number of self-employed in exclusivity, being the combination of self-employed and wage-earner in the public sector still very residual.

TABLE 5: Distribution of health-care professionals by situations of exclusivity/ moonlighting in different sectors and labour status, Physicians and dentists (1994, 2000 y 2006)

	Men			Women		
	1994	2000	2006	1994	2000	2006
Wage-earner in public sector only	60	60	45	77	63	64
Wage-earner in private sector only	10	10	9	8	17	10
Self-employed only	14	15	23	11	12	17
Wage earner in public and private sectors	2	4	7	0	6	3
Wage earner public sector and self-employed	12	11	14	3	1	3
Wage earner in private sector and self-employed	1	0	2	2	1	1

Source: Spanish Labour Force Survey (1994, 2000 and 2006, 2nd quarters)

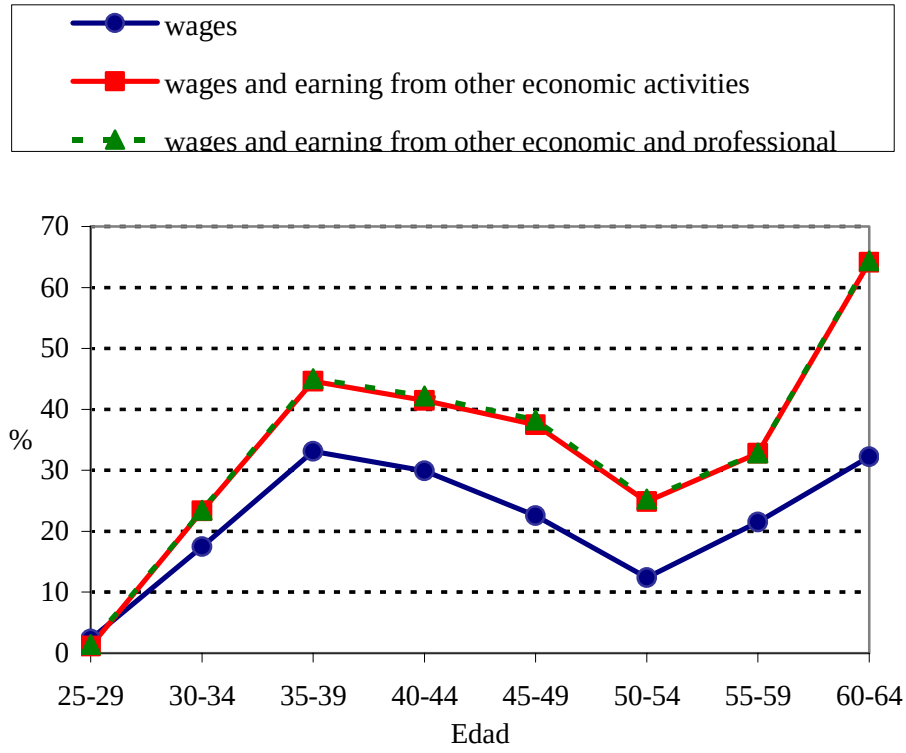
In order to evaluate the effect of moonlighting on gender earnings differentials for HC professionals, we make use again of the information provided by the Continuing Sample of Labour Lives (2005) on Social Security records. Figure 2 displays gender differences in annual labour earnings for this type of graduates and by age group. Labour earnings include wages and profits generated by professional activities. [6]

Wages exhibit a different behaviour than profits. Annual wage gaps are almost zero at the beginning of professional careers and progressively increase until 35-49 years of age. Then, they decrease and increase again, reaching their

[6] Profit from economic activities, but also from giving courses, conferences, seminars and the like, as well as those coming from the elaboration of literary, artistic or scientific works

maximum between 60-64 years of age. In turn, profits provide an additional gap which remains stable between 35 and 55 years of age.

FIGURE 2: Gender differences in annual earnings among high-skilled professionals in the Health sector (wages and earning from other economic and professional activities (2005,%)



(Source: Continuous Sample of Working Lives, 2005)

3. Gender differences in occupational adjustment

In the previous section we have documented high rates of non-employment, educational mismatch and temporary employment of upper HC professionals, as well as important gender gaps in each of these situations. In this section we analyse to what extent such gaps are determined by characteristics of couples and geographical mobility.

To investigate the influence of the level of studies and labour status of the partner on employment and occupational adjustment, we carry out two kinds of regressions. First, we estimate the determinants of the probability of occupational adjustment. Secondly, we estimate how the probabilities regarding temporary occupational adjustment and non-employment change

considering permanent adjustment or self-employment. Estimations have been carried out for men and women separately. The sample comes from Spanish Labour Force Survey and contains 3,019 HS graduates younger than 65 years old (1,552 women, 51.4 %), who were interviewed in the second quarter of the years 2000, 2002 and 2004.

We analyse the effects of three sets of covariates: a) personal characteristics of the reference person (age, living in couple —both if they are married or not—, age difference with the partner and the presence of underage children at the household); b) educational level and status of employment/adjustment of the partner; and finally c), a geographical-mobility indicator combining birth and residence provinces of the two members of the couple —as defined in the previous section.

In turn, the last two sets of explanatory variables give rise to two regression models. In model A, we use level and type of studies of the partner and —when those are similar to the ones of the reference person (i.e. when both of them are HS graduates) — level of occupational adjustment of the other member of the couple. In models B and C, the variables used are the level of studies of the partner and the geographical mobility indicator (model C also includes the interaction between these two variables). The results of the regressions are shown in Tables 6 and 7.

Table 6 shows the marginal effects (in means) estimated through a *probit* regression modelling the probabilities of occupational adjustment. We summarise the main results as follows:

(i) Age has a positive effect in the case of men for groups between 45 and 64 years of age. On the contrary, the probability of occupational adjustment for women only increases significantly in intermediate age groups (from 35 to 54 years of age); therefore, no adjustment differences are observed between the youngest and oldest groups. However, in both cases the probability of maximum adjustment would be reached within the age range between 45 and 54 years of age.

(ii) Having non-adult children (younger than 18 years of age) living in the household does not affect adjustment of men, but it has a negative effect on female adjustment.

(iii) Not having a partner (i.e., being single) has a negative effect on the adjustment of women. In the case of men, such variable has different effects depending on specifications A and B-C. More precisely, in model A, it has a negative effect when compared to the situation in which the partner is an adjusted HS graduate. The sign of this variable remains the same independently of the gender of the reference person. However, marginal effect for occupational adjustment is higher in the case of women. By contrast, in models B and C, there is no significant negative effect on male adjustment.

(iv) The age gap with the partner also has different effects for each gender. For men, the adjustment probability is only higher when both members are the same age. In the case of women, being the same age or being younger does not seem to affect adjustment, whose probability would definitely be reduced when women are older than men.

(v) The fact that the partner has lower level and/or non-HS studies does not seem to have effects on the probability of men. However, negative effects appear for women irrespectively of their educational attainment (B and C).

Regarding the different specifications, in model A —in which the reference partner is an HS graduate who is occupationally adjusted- the adjustment of both members of the couple seems to be correlated for both genders. Occupational adjustment of men would decrease up to 54 p. p. when their partner is not adjusted, whereas that of women would even decrease somewhat more, by 57 p.p. , in such case. It would also fall substantially when the partner does not have HS studies. The last set of variables in model B attempts to gauge the possible effects of geographical mobility on occupational adjustment. The reference in this case is the situation in which the two members of the couple were born in the same province and also work in such province (immobility). As shown in Table 6, we do not obtain significant effects of mobility in the case of men. By contrast, in the case of women, the adjustment probability would be reduced when both members of the couple were born in the same province and have moved to another province, and it would increase

when —coming from different native provinces— women are the ones who have moved to the origin province of men. Interactions between the type of studies of the partner and mobility indicators (model C) turns out to be statistically significant only when the partner has educational level similar to HS studies, yet in a different type of studies.

Finally, it can be observed that occupational adjustment varies across autonomous regions. Men see how their adjustment probability rises to a larger extent in Extremadura and Murcia, while it decreases in Asturias and Canarias. In turn, such probability rises for women, in Aragon, Valencia, Galicia and Navarra. However, once we control for characteristics, there seems to be no significant increase of the adjustment probability.

Table 7 shows the results of *multinomial logit* regression models which, to a large extent, confirm the previous evidence. In comparison with the *probit* estimations, we separate permanent occupational adjustments or self-employments from temporary adjustments. The case of no adjustment is also split into unadjusted employee and non-employed. The reference category is that of an adjusted employee with a permanent contract or self-employed. The results are presented as relative-risk ratios.

The main findings can be summarised as follows. The relative probabilities of the two first alternatives decrease with age, to a larger extent in the case of men than for women. For instance, the relative probability of temporary adjustment in comparison with permanent adjustment is 0.27 for men while such ratio is more than twice for women: 0.56. The same holds for older workers. Relative probabilities of unadjusted employment also decrease with age in the case of 45-54 year-old men and women from 35-44 years of age onwards. Relative probabilities of non-employment are more than three times higher for women than for men from 45-54 years of age onwards. In the case of women, however, there are no differences among youth and those of more advanced age.

The educational attainment of the partner does not affect any relative probability in the case of women, except when it is interacted with mobility indicators. Thus, ratios of relative risk of temporary adjustment and unadjusted employment are higher than those of permanent adjustment when women have

lower level of studies and both members have moved outside their origin region. The opposite happens when the woman has different type of studies and has moved to the origin province of her partner.

With regard to women, the level of studies of the partner does seem to affect their relative probabilities in most of the alternative situations and, in some cases, even independently of mobility. Likewise, mobility indicators also affect these relative probabilities independently of the level of studies of the man. More precisely, if the man has studies of the same level but in a different field, the relative probabilities of unadjusted employment and non-employment turn out to be significantly higher that those of permanent adjustment, independently of the interaction with mobility indicators. Likewise, if the man has lower educational level and non-HS studies, the three alternative situations of mismatch are higher than that of permanent adjustment, relative to the situation in which the man has the same educational attainment in HS.

Irrespectively of the level of studies, the comparison of a situation of immobility with another in which both members have moved yields a higher probability of temporary adjustment or non-employment for women. Therefore, if a woman moves to the origin province of the man, this would mean lower probability of unadjusted employment, while their simultaneous movement —when they do not come from the same origin province— also leads to a lower probability of temporary adjustment in comparison with permanent adjustment, except in the case that the man has studies of the same level but not in HS. In this case, the opposite phenomenon takes place. In fact, it is when men have such educational attainment that HS female graduates are more prejudiced regarding permanent adjustment. Thus, their probability of adjustment to a temporary job is higher in all these cases in which she had moved from her origin province, while those regarding mismatch and employment also are strengthened.

By regions, the results are different to those previously obtained with *probit* regression models. For instance, HS graduates in Madrid have lower probability of temporary adjustment and non-employment than of permanent adjustment, for both genders. Moreover, there is a reduction of the relative probability of non-employment in the case of men and higher relative probability of adjusted employment in the case of women.

In sum, the results obtained in this section point out that temporary adjustment, mismatch and non-employment probabilities of HS graduates exhibit different patterns by to gender:

- Having underage children does not affect the adjustment and employment probabilities of men but it does reduce those of women;
- The level and type of studies of the partner does not affect the adjustment of men, but it does affect that of women; when the other member does not have studies in HS, the adjustment probability decreases considerably;
- Geographical mobility only seems to affect the probability of adjustment of women. In the case where both partners in the couple were born in the same province, but have subsequently moved to another province, the relative probability of non-employment for women increases in relation with that of occupational adjustment, irrespectively of the education of the man (including graduates in HS). In the same situation of mobility, the relative probability of being employed —although unadjusted— also increases when the partner does not have studies in HS. Such probability would also increase when it is the man the one who has moved from his origin province, with qualifications not related to HS; and finally
- We only find one element of gender similarity: there exists a positive correlation in occupational adjustment when the other member is also a HS graduate. In such case, adjustment probabilities increase when the partner is also adjusted and decrease when he/she is not.

TABLE 6: Occupational adjustment of health sciences graduates. Probit regressions for each gender (marginal effects)

	Men			Women		
	(A)	(B)	(C)	(A)	(B)	(C)
25-34 years						
35-44 years	0.008	0.000	0.004	0.117***	0.112	0.115***
45-54 years	0.120***	0.121***	0.111***	0.148***	0.155***	0.159***
55-64 years	0.112***	0.114***	0.110***	0.040	0.042	0.041
Not living in couple	-0.190***	-0.051	-0.079	-0.297***	-0.190**	-0.217**
Same age than the partner [-2 years,+2 years]	0.066**	0.076**	0.080**	-0.015	0.004	-0.006
Older than the partner (> 2 years)*(age diff - 2 years)	0.004	0.003	0.006	-0.049**	-0.041*	-0.040*
Younger than the partner (> 2 years)*(age diff - 2 years)	0.012	0.004	0.002	0.007	0.009	0.010
Underage children	0.034	0.038	0.032**	-0.126***	-0.129***	-0.138***
Level of education, field of study and adjustment of the partner:						
Graduate/health sciences		-	-		-	-
Graduate/health sciences, adjusted in the health sector	-			-		
Graduate/health sciences, adjusted in another sector	-0.547***			-0.571***		
Graduate/other field of study	-0.149**	0.005	-0.124	-0.230***	-0.140***	-0.184*
Not graduate/health sciences	-0.061	0.048	0.102	0.110	0.198	-0.522*
Neither graduate/neither health sciences	-0.186***	-0.004	-0.020	-0.271***	-0.178***	-0.177*
Birth province (BP) y province of current employment (RP) (a: individual i; b: partner)						
BPa = BPb, RPa = BPa		-	-		-	-
BPa = BPb, RPa ≠ BPa		-0.064	0.007		-0.152**	-0.067
** Graduate/other field of study*			0.127			-0.142
** Not graduate/health sciences*			-0.200			
** Neither graduate/Neither health sciences*			-0.334*			-0.189
BPa ≠ BPb, RPa ≠ BPa, RPb = BPb		-0.025	-0.072		0.125**	0.111
** Graduate/other field of study*			0.131			0.101
** Not graduate/health sciences*			-0.084			
** Neither graduate/Neither health sciences*			0.017			-0.085
BPa ≠ BPb, RPa = BPa, RPb ≠ BPb		0.039	0.082		0.005	-0.091
** Graduate/other field of study*						0.247*
** Not graduate/health sciences*			-0.506**			
** Neither graduate/Neither health sciences*			-0.118			-0.043
BPa ≠ BPb, RPa ≠ BPa, RPb ≠ BPb		0.005	-0.039		0.023	-0.029
** Graduate/other field of study*			0.093			0.003
** Not graduate/health sciences*			0.008			
** Neither graduate/Neither health sciences*			0.001			0.179
Partner not employed	-0.202***	-0.065	-0.279**	-0.309***	-0.077	-0.255
** Graduate/other field of study*			0.142**			0.153
** Not graduate/health sciences*			0.030			
** Neither graduate/Neither health sciences*			0.133*			0.164

TABLE 6 (continued)

	Men			Women		
	(A)	(B)	(C)	(A)	(B)	(C)
Region of Residence						
Andalucía	-	-	-	-	-	-
Aragón	-0,094	-0,079	-0,085	0,164***	0,144**	0,153
Asturias	-0,142*	-0,113	-0,128	0,150*	0,124	0,127
Islas Baleares	0,081	0,091	0,077	0,030	0,049	0,047
Canarias	-0,101*	-0,093*	-0,103*	0,113	0,099	0,104
Cantabria	-0,123	-0,113	-0,099	0,054	0,060	0,064
Castilla-León	0,034	0,030	0,028	0,056	0,048	0,048
Castilla La Mancha	0,019	0,025	0,020	0,052	0,043	0,068
Cataluña	-0,008	0,004	0,004	0,092	0,089	0,088
Comunidad Valenciana	-0,047	-0,045	-0,037	0,104*	0,092*	0,101**
Extremadura	0,095**	0,094**	0,091**	0,014	0,002	0,021
Galicia	-0,044	-0,038	-0,041	0,116*	0,123**	0,125**
Madrid	-0,036	-0,049	-0,030	-0,002	-0,031	-0,027
Murcia	0,102**	0,105**	0,102**	0,082	0,072	0,059
Navarra	-0,042	-0,035	-0,053	0,153**	0,140*	0,144**
País Vasco	-0,002	-0,010	0,014	0,038	0,027	0,041
La Rioja	-0,039	-0,024	-0,016	-0,004	-0,037	-0,068
Ceuta y Melilla	-0,299**	-0,302**	-0,277**	-0,038	-0,052	-0,034
Year dummies						
2000	-	-	-	-	-	-
2002	-0,018	-0,030	-0,035	-0,047	-0,057	-0,058
2004	0,010	0,009	0,010	0,024	0,022	0,022
N	1439	1439	1439	1482	1482	1482
Pseudo R^2	0,129	0,103	0,125	0,081	0,067	0,076
Log pseudo-likelihood	-584,4	-602,0	-581,6	-876,0	-889,1	-875,7
Observ. Prob.	0,823	0,823	0,821	0,657	0,657	0,654
Predict. Prob.	0,858	0,851	0,855	0,671	0,670	0,667

Note: ***, **, * represent significance at 99, 95 and 90%, respectively
Sample: Health science graduates aged less than 65 years old, 2nd quarters of years 2000, 2002 and 2004, Spanish Labour Force survey

TABLE 7: Occupational adjustment of health sciences graduates. Multinomial logit regressions for each gender (relative-risk ratios) (reference category: permantently adjusted as wage-earner or self-employed)

	Men			Women		
	Temporary adjusted	Unadjusted employed	Non-employed	Temporary adjusted	Unadjusted employed	Non-employed
Age						
25-34 years	-	-	-	-	-	-
35-44 years	0,267***	1,170	0,163***	0,558***	0,643**	0,265***
45-54 years	0,194***	0,387**	0,057***	0,367***	0,411***	0,184***
55-64 years	0,152***	0,204***	0,166***	0,328***	0,373**	0,507*
Not living in couple	1,645	1,179	5,591**	1,080	3,766***	1,659
Same age than the partner [-2 years,+2 years]	1,024	0,430***	0,886	0,892	1,323	0,639
Older than the partner (> 2 years)*(age diff - 2 years)	1,054	0,963	0,955	1,101	1,291**	1,194
Younger than the partner (> 2 years)*(age diff - 2 years)	0,987	0,928	1,161	1,000	0,984	0,894
Underage children	1,542**	0,991	0,605	0,613***	1,746***	1,287
Level of education, field of study and adjustment of the partner:						
Graduate/health sciences	-	-		-	-	
Graduate/health sciences, adjusted in the health sector	0,995	2,040	1,508	1,105	2,315**	2,166*
Graduate/health sciences, adjusted in another sector	0,889	0,357				
Graduate/other field of study	1,025	1,098	0,705	1,787*	3,220***	2,366*

TABLE 7 (Continued)

	Men			Women		
	Temporary adjusted	Unadjusted employed	Non-employed	Temporary adjusted	Unadjusted employed	Non-employed
Birth province (BP) y province of current employment (RP) (a: individual i; b: partner)						
BPa = BPb, RPa = BPa	-	-		-	-	
BPa = BPb, RPa ≠ BPa	1,341	1,113		3,016***	0,922	4,006***
** Graduate/other field of study*	0,989	0,215		0,379	2,564	0,726
** Not graduate/health sciences*	0,974	3,789				
** Neither graduate/Neither health sciences*	5,900*	14,171**		0,271	5,335*	0,352
BPa ≠ BPb, RPa ≠ BPa, RPb = BPb	0,814	1,597		0,798	0,117*	0,901
** Graduate/other field of study*	0,095*	0,083*		3,215**	5,007	0,499
** Not graduate/health sciences*	0,709	1,005				
** Neither graduate/Neither health sciences*	1,376	0,988		0,589	3,877	0,927
BPa ≠ BPb, RPa = BPa, RPb ≠ BPb	0,944	0,151	1,569	1,220	2,360*	0,771
** Graduate/other field of study*	1,861			1,123	0,248*	0,134
** Not graduate/health sciences*	0,867					
** Neither graduate/Neither health sciences*	1,572	6,340	2,399	0,564	0,775	0,698
BPa ≠ BPb, RPa ≠ BPa, RPb ≠ BPb	0,527	1,018	1,045	0,340**	1,140	0,465
** Graduate/other field of study*	1,427	0,661		3,323*	0,591	4,224*
** Not graduate/health sciences*	1,037	0,991				
** Neither graduate/Neither health sciences*	0,210	1,067	2,664	1,123	0,315	0,460
Partner not employed	1,272	5,629*	6,679*	1,745	1,629	6,498**
** Graduate/other field of study*	1,019	0,137*	0,105	3,477	2,684	0,371
** Not graduate/health sciences*	0,776	0,076				
** Neither graduate/Neither health sciences*	0,779	0,253	0,274	0,559	0,950	0,115*

TABLE 7 (Continued)

	Men			Women		
	Temporary adjusted	Unadjusted employed	Non-employed	Temporary adjusted	Unadjusted employed	Non-employed
Region of residence						
Andalucía	-	-	-	-	-	-
Aragón	0,744	1,923	1,471	1,074	0,662	0,273**
Asturias	0,819	1,697	3,272	0,820	0,116*	0,674
Islas Baleares	0,686	0,685		0,459	0,317	0,763
Canarias	1,531	3,644***	1,133	0,928	0,808	0,416*
Cantabria	0,389	0,758	1,851	0,704	0,945	0,387
Castilla-León	1,256	0,855	0,820	1,280	0,771	1,014
Castilla La Mancha	1,069	1,038	0,642	0,895	0,763	0,610
Cataluña	0,610	1,084	0,538	0,705	0,645	0,483**
Comunidad Valenciana	1,336	2,020*	1,121	1,147	0,992	0,392***
Extremadura	0,470*	0,477	0,086**	0,895	0,707	0,856
Galicia	0,731	1,781	0,615	0,410**	0,408**	0,344**
Madrid	0,393**	1,504	0,379*	0,291***	1,114	0,343***
Murcia	0,491*	0,137*	0,358	1,133	1,389	0,316
Navarra	0,723	1,673	0,747	1,414	1,008	0,221*
País Vasco	0,844	1,070	0,594	1,284	1,197	0,737
La Rioja	0,639	1,498	0,924	1,425	1,993	1,365
Ceuta y Melilla	0,803	7,281**		5,265	5,240	2,739
Year						
2000						
2002	1,011	1,336	1,326	1,110	1,950***	0,893
2004	1,001	1,228	0,471*	1,210	1,270	0,762
N	1439			1482		
Pseudo R^2	0,158			0,105		
Log likelihood	-1329,68			-1763,98		

Note: ***, **, * represent significance at 99, 95 and 90%, respectively

Sample: Health science graduates aged less than 65 years old, 2nd quarters of years 2000, 2002 and 2004, Spanish Labour Force survey

4. Gender differences in moonlighting

As shown in Section 2, moonlighting - i.e., non-exclusive dedication to a single employer or being able to combine different jobs in the same or different sectors (e.g., in public and private sectors, in HC and teaching activities, as wage-earner or self-employed) is one of the most important characteristics of the labour status of HC professionals in Spain. Despite this fact, there is scarce evidence on the determinants of this phenomenon among physicians. Therefore, the goal of this section is to provide evidence about them, paying special attention to gender differences and, as before, to the effects which labour market status, studies of the partner, and geographical mobility of both members have on the probability of moonlighting.

The econometric approach followed here is similar to that used earlier. First, we estimate *probit* regression models for each gender. Next, such analysis is supplemented for those individuals living in couples, this time through *multinomial logit* regression models in which we estimate the relative probabilities of different alternative situations regarding a second job in comparison with the reference category of having a single job. The sample used also comes from Spanish LFS and has 3,583 individuals of less than 65 years old with their main job as physician or dentist (1,445 of these are women: 40.3 %), who were interviewed in the second quarters of the even years within the time-period between 1996 and 2006. [7]

To a large extent, controls are similar to those described in Section 4 and can be divided into four blocks: a) individual characteristics of the reference person —age, living in couple (either married or not), age difference with the other member of the couple and the presence of underage children at household; b) labour status and characteristics of the main job —seniority, type of contract, working week and labour status as wage-earner in public or private HC services, self-employed or wage-earner in another sector (e.g., as university professor); c) educational level and labour status of the other member of the couple; and finally , d) the indicator of geographical mobility based on birth and residence provinces of the two members of the couple.

[7] The sample size is larger than in Section 4, since —unlike the classification of studies used there— the classification of occupations has not changed along this period in the Spanish LFS.

Table 8 presents the results of the *probit* regressions for each gender. Model A refers to all physicians in the sample, while models B and C only consider physicians living in couple. Thus, their reference categories are: (Model A) wage-earners in public HC services with permanent contract who do not live in couple and works 40 hours a week; (Model B) the same kind of wage-earners but this time living with a partner who is full-time wage-earner in public HC services; and (Model C) wage-earners with permanent contract in public HC services, working 40 hours a week and whose partner is a HS graduate who also is a wage-earner in public HC services.

The main results obtained can be summarized as follows:

(i) Individual characteristics only seem to affect men, so that their probability of moonlighting increases with age and underage children living in household. Moreover, for men living in couple, such probability also increases with age difference within the couple when men are older than women.

(ii) The working week in the main job seems to be the variable with the strongest effect on the probability of moonlighting for both genders, although the increase of the probability in relation with a normal working week is much higher in the case of men. For instance, relative to an employed man with a working week of 40 hours, the probability of moonlighting increases by more than 50 p.p. for an employee with less than 20 hours, and by more than 7 p.p. for those working between 30 and 40 hours, in most cases full-time.

(iii) The labour status in the main job shows quite similar patterns across genders. Taking as reference category that of a wage-earner with permanent contract in public HC services, the probability of having more than one job increases for both genders if one is a steady wage-earner in the private sector (to a larger extent for men) and decreases if one works as self-employed (also to a larger extent for men). The only relevant gender difference is that temporary employment does not seem to affect men while it does affect women, whose probability of moonlighting falls when they are temporary wage-earners in public HC services.

(iv) Type of studies and labour status of the partner has different effects by gender. For men, the type of studies does not seem to have influence on

holding more than one job, although such probability does increase if his partner works as a wage-earner in HC private sector or as self-employed, especially if she is self-employed in her second job. However, no significant effects are found when his partner does not have a university degree or, having it, the degree is not in HS. As regards women, those whose partner also has a university degree have higher probability of moonlighting, particularly if her partner is a self-employed in the HC sector in any of his first or second job. On the other hand, this probability for female physicians also increases when their partners have non-HS qualifications, while it decreases when their partners are non-employed.

This last result suggests once more the presence of within-couple differences which could be interpreted either as discrimination or, alternatively, as a way to avoid the presence of monopsonistic effects. In fact, for women, the fact that probability of moonlighting increases when their partner also has a non-HS university degree may be explained as an attempt to avoid monopsonistic effects stemming from the greater capability of adjustment of their male partners. This agrees with the evidence in the previous section where we also observed that these HS graduates were less adjusted than the rest.

Finally, the indicator of geographical mobility is only significant in the case of women —when both members have moved from their origin provinces (between –3 and –4 p.p.)— while, in the case of men, it increases by more than 9 p.p. when they have moved to the origin province of their partners.

On the other hand, these results also seem to show the presence of agglomeration economies when both members of the couple share the same type of occupation. In effect, the probability of moonlighting by a member of the couple increases this probability for the other member, and if the partner is a self-employed (in his/her first or second job), it increases significantly the probability of holding more than one job of the reference person.[8]

Next, Table 9 presents the results of a *multinomial logit* regression model taking as reference category holding a single job and four other types of situations as a moonlighter: the first three ones refer to the HC sector as wage-earner of the public and private sectors and as self-employed, respectively,

[8] See Costa and Khan (2000), Averett (2001) and Compton and Pollak (2004).

while the fourth one considers second jobs outside the HC sector. The main results obtained can be summarized as follows:

(i) As in the *probit* models, personal characteristics only seem to affect men: age reduces relative probability of having a second job in public HC services and increases the relative probability of having a second job as self-employed.

(ii) The lower the number of weekly hours worked in the main job, the higher that relative probability of each of the four moonlighting alternatives is. Further, for men, working overtime hours increases the relative probability of having a second job as a wage-earner in private HC services while it reduces the relative probability of such second job to be as a self-employed. Also in this case, having a main job as a self-employed in HC services increases the relative probability of having a second job in public HC services. For women, the relative probability of being a self-employed in their second job raises considerably when their partners are not salaried HC professionals. This happens not only when men are self-employed in the HC sector, but also when they have non-HS qualifications or when they lack a university degree.

(iii) As in the *probit* models, the mobility indicators point out that, for men, moving to the origin province of their partners increases the relative probability of being a self-employed in HC services in their second job. On the contrary, for women, moving to the origin province of the man reduces such relative probability, as it also occurs when both move outside their different origin provinces.

TABLE 8: Moonlighting among physicians and dentists
Probit regressions for each gender (marginal effects, 1996-2006)

	All (A)		Living in couple (B)		(C)	
Individual characteristics:	Men	Women	Men	Women	Men	Women
Age	0,023**	0,005	0,025*	-0,010	0,026*	-0,009
Age^2 x 100	-0,017	-0,004	-0,019	0,012	-0,020	-0,011
Not living in couple	-	-				
Partner not employed	0,023	-0,029	0,021	-0,031	0,012	-0,073***
Partner employed	0,034	0,016	-	-	-	-
Same age than the partner [-2 years,+2 years]	0,031	0,001	-	-	-	-
Older than the partner (> 2 years)*(age diff - 2 years)	-0,003	-0,005	-0,006*	-0,004	-0,006*	-0,006
Younger than the partner (> 2 years)*(age diff - 2 years)	-0,020	0,003	-0,027	0,003	-0,029	0,003
Underage children	0,015*	-0,007	0,019*	-0,009	0,019*	-0,007
Characteristics of the main job:						
Tenure in the main job (years)	-0,002	-0,003	-0,003	0,000	-0,003	-0,001
(Tenure in the main job)^2 x100	0,012	0,012	0,016	0,000	0,016	0,000
Weekly hours (main job):						
< 20 hours	0,523***	0,171***	0,552***	0,213***	0,559***	0,238***
[20-30 hours[	0,362***	0,124***	0,467***	0,175***	0,464***	0,167***
[30-40 hours [	0,073***	0,034**	0,088***	0,047**	0,087***	0,046**
40 hours	-	-	-	-	-	-
> 40 hours	-0,019	-0,011	-0,007	0,013	-0,008	0,015
Working status (main job)						
Wage-earner in the public Health sector/ permanent contract	-	-	-	-	-	-
Wage-earner in the public Health sector/ temporary contract	-0,052	-0,033**	-0,035	-0,046**	-0,032	-0,047**
Wage-earner in the private Health sector/ permanent contract	0,077**	0,038*	0,070*	0,052*	0,095**	0,043*
Wage-earner in the private Health sector/ temporary contract	-0,124	-0,021	-0,141		-0,137	
Self-employment in the Health sector	-0,106***	-0,029*	-0,161***	-0,057***	-0,160***	-0,058***
Employed in another sector	0,044	0,000	0,042	-0,010	0,047	-0,013

TABLE 8(Continued)

	All (A)		Living in couple (B)		Living in couple (C)	
	Men	Women	Men	Women	Men	Women
Working status (main job) and education attainment of the partner:						
Wage-earner in the public Health sector			-	-		
Wage-earner in the private Health sector			0,175***	0,007		
Self-employed in the Health sector			0,147**	0,212***		
Employed in another sector			0,036	0,023		
Partner moonlights			0,243***	0,081***		
Graduate, Wage-earner in the Health sector					-	-
Graduate, Wage-earner in another sector					0,062	0,071***
Not graduate, employed					0,022	0,028
Self-employed in the Health sector (main job)					0,125**	0,233***
Self-employed in the Health sector (secondary job)					0,586***	0,089*
Birth province (BP) y province of current employment (RP) (a: individual i; b: partner)						
BPa = BPb, RPa = BPa			-	-	-	-
BPa = BPb, RPa ≠ BPa			-0,018	-0,019	-0,016	-0,259
BPa ≠ BPb, RPa ≠ BPa, RPb = BPb			-0,036	-0,017	-0,037	-0,016
BPa ≠ BPb, RPa = BPa, RPb ≠ BPb			0,073	-0,026	0,094*	-0,024
BPa ≠ BPb, RPa ≠ BPa, RPb ≠ BPb			-0,012	-0,038*	-0,012	-0,038*
N	2135	1445	1811	892	1811	892
Pseudo R^2	0,115	0.124	0,124	0,195	0,120	0,194
Log pseudo-likelihood	-981,4	-334,0	-858,9	-212,9	-863,0	-213,3
Observ. Prob.	0,214	0,074	0,232	0,087	0,232	0,087
Predict. Prob.	0,186	0,051	0,204	0,049	0,206	0,048

Note: ***, **, * represent significance at 99, 95 and 90%, respectively. All regressions include year and regional dummies.
Sample: Health science graduates employed as physicians or dentists, aged less aged less than 65 years old, 2nd quarters of even years, 1996-2006, Spanish Labour Force Survey.

TABLE 9: Moonlighting among physicians and dentists living in couple. Multinomial logit regressions for each gender (relative-risk ratio, 1996-2006) (reference category: those not moonlighting)

	Working status in the secondary job							
	Men				Women			
	Wage-earn. public Health sect.	Wage-earn. private Health sect.	Self-employed Health sect.	Other employ-ments	Wage-earn. public Health sect.	Wage-earn. private Health sect.	Self-employed Health sect.	Other employ-ments
Individual characteristics:								
Age	0,63*	1,07	1,60*	1,05	0,44	0,62	0,62	1,17
Age^2 x 100	1,00*	1,00	1,00*	1,00	1,01	1,01	1,01	1,00
Same age than the partner [-2 years,+2 years]	-	-	-	-	-	-	-	-
Older than the partner (> 2 years)*(age diff - 2 years)	0,87*	0,94	0,99	0,86**	0,00	0,00	1,15	0,69
Younger than the partner (> 2 years)*(age diff - 2 years)	0,95	0,50	0,86	0,48	0,72	1,17	1,10	1,03
Underage children	1,17	1,04	1,13	1,15	0,55	1,24	1,05	0,52**
Characteristics of the main job								
Tenure in the main job (years)	1,03	0,97	0,96	1,00	1,13	0,89	1,21***	1,04
(Tenure in the main job)^2 x100	1,00	1,00	1,00	1,00	0,98	1,00	1,00	1,00
Weekly hours (main job):								
< 20 hours	37,09***	23,75***	23,49***	3,41	126,65**	44,66***	7,74*	4,13
[20-30 hours[	33,83***	9,19***	8,66***	4,99***	99,97**	0,00	9,78***	6,03**
[30-40 hours [	6,21***	2,90***	1,60***	1,03	11,14*	4,09*	2,17	1,55
40 hours	-	-	-	-	-	-	-	-
> 40 hours	0,90	2,16*	0,60*	1,48	0,00	1,69	2,16	0,95

TABLE 9 (Continued)

	Working status in the secondary job							
	Men				Women			
	Wage-earn. public Health sect.	Wage-earn. private Health sect.	Self-employed Health sect.	Other employ-ments	Wage-earn. public Health sect.	Wage-earn. private Health sect.	Self-employed Health sect.	Other employ-ments
Working status (main job)								
Wage-earner in the public Health sector/ permanent contract	-	-	-	-	-	-	-	-
Wage-earner in the public Health sector/ temporary contract	0,81	1,27	0,89	0,43	0,00	0,61	0,37	0,16
Wage-earner in the private Health sector/ permanent contract	29,68***	0,83	0,98	2,58**	0,37	2,68	3,22*	0,95
Wage-earner in the private Health sector/ temporary contract	0,00	3,90	0,00	0,00	0,00	0,00	0,00	0,00
Self-employment in the Health sector	5,15***	0,08**	0,03*	0,87	0,18	0,36	0,00	0,28
Employed in another sector	2,85	1,44	1,26	1,33	1,54	2,66	0,65	0,31
Working status (main job) and education attainment of the partner:								
Graduate, Wage-earner in the Health sector	-	-	-	-	-	-	-	-
Graduate, Wage-earner in another sector	1,18	0,77	1,76*	1,55	36,99***	1,36	7,37***	1,21
Not graduate, employed	0,40	0,58	1,54 *	1,22	17,57	0,29	4,05*	2,96
Not employed	0,31	0,59	1,83*	0,92	-	0,00	0,00***	0,00*
Self-employed in the Health sector (main job)	0,00	0,00	4,04***	2,42	0,00	9,92**	21,81***	9,74**
Self-employed in the Health sector (secondary job)	22,90**	0,00	24,41***	8,37***	0,00	0,00	12,86***	8,38**

TABLE 9 (Continued)

	Working status in the secondary job							
	Men				Women			
	Wage-earn. public Health sect.	Wage-earn. private Health sect.	Self-employed Health sect.	Other employ-ments	Wage-earn. public Health sect.	Wage-earn. private Health sect.	Self-employed Health sect.	Other employ-ments
Birth province (BP) y province of current employment (RP) (a: individual i; b: partner)								
BPa = BPb, RPa = BPa	-	-	-	-	-	-	-	-
BPa = BPb, RPa ≠ BPa	0,79	1,20	1,05	0,79	1,29	0,26	0,71	0,13
BPa ≠ BPb, RPa ≠ BPa, RPb = BPb	0,31	0,73	0,96	0,89	1,27	1,80	0,14**	0,47
BPa ≠ BPb, RPa = BPa, RPb ≠ BPb	0,77	1,44	2,78***	0,78	1,62	0,00	0,75	0,69
BPa ≠ BPb, RPa ≠ BPa, RPb ≠ BPb	0,40	0,59	1,40	0,75	2,53	0,68	0,10**	0,14
N	1811				892			
Pseudo R^2	0.183				0,357			
Log lilkelihood	-1169,3				-237,1			

Note: ***, **, * represent significance at 99, 95 and 90%, respectively. All regressions include year and regional dummies.
Sample: Health science graduates employed as physicians or dentists, aged less aged less than 65 years old, 2nd quarters of even years, 1996-2006, Spanish Labour Force Survey.

5. Conclusions

Educational specialization —adjusted to a scarce number of firms demanding such qualifications— is a salient characteristic of several professions such as physicians or researchers. In both cases a high ratio of couplings between individuals with same profession can take place, due to both the larger duration of their training periods and the high concentration of firms where they can work. These case-studies are very interesting to investigate the determinants of gender differences, both in initial occupational adjustments and subsequent professional paths, as well as allow testing the possible presence of monopsonistic and intra-couple discrimination related to geographical mobility. To our knowledge, such an issue has not been yet tackled empirically in the literature on monopsony.

In this paper, using Spanish data, we show that there are important gender differences in the labour status of HS graduates: women practise their profession to a lower degree than men. By contrast, men supplement the practise of their main profession with second jobs (moonlighting) to a higher degree than women.

On top of this, we also provide empirical evidence showing that HS graduates have personal characteristics which may strengthen other potential monopsonistic effects (like, e.g., worse labour conditions), given the scarce number of employers offering vacancies adjusted to their human capital. In fact, among all graduates, those in HS are also the ones who more frequently couple to other persons of the same educational level and/or the same type of studies. In this sense, the optimal employment adjustment of each person (which is already complex on its own due to the specific characteristics of HS studies) gets even more complicated when both members of the couple have similar educational levels and type of studies. In this case, geographical mobility —which might be required for optimal occupational adjustment at the individual level— may hamper the adjustment of the other member of the couple, while at the same time geographical immobility —favoured by coupling— may reduce the adjustment probabilities of both of them.

Furthermore, the high proportion of couples in which both members have HC qualifications also allows examining alternative explanations of

gender gaps—which are due to intra-couple discrimination and therefore cannot be interpreted through differences in the productivities of men and women— according to which geographical mobility of couples where both members have the same level of human capital would result in better occupational adjustment of men.

Another interesting hypothesis to examine is whether the phenomenon of moonlighting is a way of lessening the effects of monopsonistic labour markets when firms face an increasing elasticity of supply, and therefore becomes an instrument to get an alternative job to the main one when there is geographical mobility. The results we obtain point out that —when both members of the couple are HS graduates— there is a high positive correlation between their occupational adjustment status and the probability of moonlighting. That is, when the other member of the couple is occupationally adjusted, the probability that the reference person is also adjusted is higher than in any other circumstance (adjustment or educational level/type of studies of the partner). By contrast, lower occupational adjustment of the other member is also related to a lower probability of future adjustment, even lower than that of being coupled to an individual with different level and/or type of studies. Although we lack of information about the moment in which the couple was initiated, such evidence may be related to the fact that the adjustment probability of both members will be higher when the starting date of the couple has been posterior to that of the adjustment. When the latter occurs earlier, the adjustment probability is even lower than in those couples in which the partner does not have HS studies.

The probability of holding more than one job —and especially that of working as a self-employed in a second job also— increases when the partner is also a self-employed either in his/her first or second job. This could be interpreted as supporting evidence for agglomeration economies in the opening and maintenance of an own clinic.

When we ignore the occupational adjustment of the partner, the adjustment and moonlighting probabilities of men are, in general, not affected by the level of education and/or field of study of their female partners. On the contrary, in the case of women, their adjustment probabilities decrease substantially when partners lack HS studies (especially, in situations of

unadjusted employment and non-employment), insofar as the probability of moonlighting (as a self-employed or wage-earner in public HC services) also increases considerably.

Likewise, geographical mobility only seems to affect female occupational adjustment. In the case where both members of the couple were born in the same province but have moved to another province, the relative probabilities of occupational adjustment through temporary contracts or non-employment increase significantly, independently of the educational level of men (including HS graduates). Additionally, in the same situation of mobility, the relative probability of mismatch also increases when the partner does not have HS studies. When it is men (with non-HS qualifications) the ones who have moved to the origin region of their partners, the woman also has a higher relative probability of mismatch.

Finally, geographical mobility only seems to affect the male probability of moonlighting. When they move to the province of origin of women, this probability increases. This can also be interpreted as a way to escape from potential monopsonistic effects stemming from moving to the province of origin of the partner.

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APPENDIX: TABLES

TABLE A.1 Graduates who are married and those who are living in couples by field of study (% of total graduates aged less than 65 years old)

	Men		Women	
	Married	Living in couple	Married	Living in couple
Education science	57,6	61,7	51,1	51,7
Arts	50,7	55,3	46,6	50,0
Humanities	51,9	53,0	52,4	57,6
Social and behavioural science	60,8	63,4	49,1	53,2
Journalism and information	47,4	54,5	32,8	43,6
Business and administration	55,4	56,6	45,6	48,4
Law	64,2	65,2	51,5	51,3
Life sciences	53,9	57,7	50,3	52,3
Physical sciences	65,4	63,2	50,4	57,0
Mathematics and statistics	68,7	70,2	56,1	64,0
Computing	38,0	40,3	38,9	49,7
Engineering and engineering trades	56,3	61,6	45,4	48,4
Manufacturing and processing	60,1	68,6	43,3	37,5
Architecture and building	66,7	68,6	47,2	51,7
Agriculture, forestry and fishery	55,9	60,1	38,0	37,9
Veterinary	67,4	77,2	49,1	53,6
Health sciences	**77,7**	**79,6**	**60,1**	**61,5**
Social services	19,7	19,7	36,9	60,3
Personal services	57,2	52,0	46,0	49,4
TOTAL	60,1	62,1	50,0	53,3

Source: Spanish Labour Force Survey (2004, 2nd quarter)

TABLE A.2 Graduates living in couple by field of study and level of education of the partner, for each field of study.
(% of total graduates aged less than 65 years old, including those not living in couple)

	Health sciences graduates						Other graduates					
	Men			Women			Men			Women		
	Same field of study	Same level of education	Same field and level	Same field of study	Same level of education	Same field and level	Same field of study	Same level of education	Same field and level	Same field of study	Same level of education	Same field and level
Education science	18,7	19,5	7,7	5,8	16,3	2,8	23,4	60,2	21,0	7,9	13,1	7,1
Arts	18,1	27,4	15,9	11,7	29,6	11,3	0,0	2,9	0,0	3,5	2,5	0,0
Humanities	14,6	25,5	13,6	8,2	32,1	8,1	1,9	7,0	0,8	6,0	2,9	0,6
Social and behavioural science	14,8	28,0	13,1	7,2	26,4	7,0	9,2	19,2	6,6	5,3	7,7	2,2
Journalism and information	10,1	31,9	9,5	8,6	30,0	7,9	7,0	2,0	0,0	1,9	5,7	0,0
Business and administration	14,3	21,8	7,5	12,6	21,8	8,6	13,8	13,6	5,8	8,8	12,1	5,0
Law	13,1	26,9	12,3	14,5	28,8	14,2	5,3	12,2	3,9	6,1	8,1	2,9
Life sciences	20,0	38,6	20,0	13,6	29,2	13,6	0,0	0,0	0,0	0,0	10,5	0,0
Physical sciences	9,3	28,0	8,6	12,9	29,8	12,9	0,0	7,7	0,0	82,5	6,7	5,8
Mathematics and statistics	11,8	49,5	11,8	12,6	33,3	12,6	4,5	12,9	4,5	71,3	7,9	4,0
Computing	3,8	13,1	1,9	7,8	27,6	7,8	3,8	13,2	2,8	11,3	19,3	8,1
Engineering and engineering trades	5,4	24,0	4,2	30,7	39,2	29,9	2,4	15,1	2,2	25,3	19,1	16,7
Manufacturing and processing	2,7	17,5	2,7	32,5	25,9	25,9	2,2	12,5	1,8	29,7	11,7	0,0
Architecture and building	9,2	31,3	7,5	14,5	38,0	12,8	3,4	11,7	2,5	10,4	12,7	6,9
Agriculture, forestry and fishery	2,9	22,6	2,9	15,6	27,6	10,3	2,8	17,3	1,7	5,6	6,7	4,7
Veterinary	12,9	34,3	12,9	16,3	33,3	16,3	0,0	0,0	0,0	0,0	0,0	0,0
Health sciences	**32,2**	**32,9**	**19,6**	**20,8**	**36,5**	**19,9**	**19,2**	**22,8**	**12,5**	**9,1**	**11,2**	**3,4**
Social services	19,7	19,7	19,7	2,9	11,2	2,9	8,9	25,2	8,9	2,0	11,7	2,0
Personal services	16,0	25,2	16,0	15,0	29,8	15,0	7,4	15,0	7,4	3,8	12,0	2,7
TOTAL	13,3	26,2	10,2	12,0	28,6	11,0	9,8	16,4	7,1	7,7	11,8	5,1

Source: Spanish Labour Force Survey (2004, 2nd quarter).