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Dueñas Fernández, D., Iglesias Fernández, C., Llorente Heras, R. 2014, "Occupational segregation by sex in Spain: Exclusion or confinement?", *International Labour Review*, vol. 153, no. 2, p. 311-337.

Available at <https://doi.org/10.1111/j.1564-913X.2014.00206.x>

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# Occupational segregation by sex in Spain: Exclusion or confinement?

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***Abstract.** Spain has one of Europe's highest levels of occupational segregation by sex. Using data from the Spanish Working Conditions Survey, this article investigates the determinants of workers' probabilities of employment in male-dominated and female-dominated occupations. Combining Oaxaca-Blinder decomposition technique with counterfactual analysis based on a sample of "hypothetical women", the authors probe the unexplained components of the probability differentials they identify. While gendered labour market dynamics are found to account for the bulk of segregation, the strength of this effect owes more to "positive discrimination" favouring women in female-dominated occupations than to discrimination against women in male-dominated occupations.*

The labour market in Spain has recently undergone profound transformations, particularly in regard to women's access, presence and position in the workplace. From 31.8 per cent in 1987, the rate of female labour force participation increased to 52.6 per cent in 2010. Over the same period, women's employment rate almost doubled, from 23 to 41.7 per cent. On these indicators, the labour market differences between women and men have been drastically reduced. In 1987, women's participation and employment rates were respectively 45.8 and 39.7 per cent of men's; by 2010, they were 77.7 and 76.8 per cent.

One of the factors explaining these trends is the growth of services sector employment, coupled with the reduction of agricultural and industrial employment (Iglesias Fernández, Llorente Heras and Dueñas Fernández, 2009). Another factor is the development of new information and communication technologies which, at least in the case of Spain, is linked to growth in female employment, albeit with only moderate improvements in women's labour

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market situation in terms of gender equality (idem, 2010). Other important factors include the implementation of economic and social policies against discrimination, women's higher educational attainment, lower fertility rates and the emergence of new flexible working arrangements (Dolado, Felgueroso and Jimeno, 2002).

Against this background, there are several arguments for studying occupational segregation by sex in Spain. First, segregation is one of the most persistent features of labour markets in all developed countries (Anker, 1998; Rubery, Smith and Fagan, 1999; Boeri, Del Boca and Pissarides, 2005) – and Spain presents above-average levels of segregation. Second, in contrast to the moderate reductions in segregation observed in comparable countries, Spain has continued to experience increasing occupational segregation, at least until recent years (Mora and Ruiz-Castillo, 2003; Cebrián López and Moreno Raymundo, 2008; Alonso-Villar and del Río, 2010). Third, segregation is the main cause of income inequality between women and men because of women's concentration in low-paid, low-productivity industries and jobs (Bettio, 2002; see also, Blau and Kahn, 2000; De la Rica, 2007; Chzhen, 2006). Fourth, occupational segregation also affects women's employment decisions, reducing their levels of participation and employment by lowering returns on their investments in human capital (Rubery, Fagan and Maier, 1996). This, in turn, causes inefficiency in labour allocation, which ultimately reduces economic growth (European Commission, 2009).

Moreover, the ILO (2012) estimates that even in the developed countries 8.3 per cent of employed women are in situations of vulnerability. Women's preferences for jobs enabling them to balance work and family responsibilities help to explain their disproportionate representation in occupations associated with worse working conditions, lower pay, poorer promotion prospects, lower responsibility and difficult access to managerial positions. In Spain, as in most other developed countries, women also show higher rates of temporary and part-time employment than men; and the gender wage gap is wide and persistent (Cebrián López and Moreno Raymundo, 2008).

The remainder of this article is organized into five sections. The first briefly reviews some theoretical explanations for occupational segregation by sex advanced in the literature and introduces the conceptual framework of our analysis. The second describes the characteristics of occupational segregation in Spain by comparison with the situation in neighbouring countries. The third section presents the methodology used in our analysis, and the data from the Spanish Working Conditions Survey (SWCS), on which it is based. The fourth section presents the results of the analysis, and the fifth sums up and concludes.

## Theoretical explanations and conceptual framework

Attempts have been made to explain occupational segregation by sex using various demand-side and supply-side arguments (Petrongolo, 2004). First, women may make lower investments in acquiring human capital than men, which would explain their assignment to jobs with lower productivity. This

could be the result of decisions taken within the family prior to labour market entry, based on the relative productivity of each spouse in performing household vs market work (Becker, 1965; Mincer and Polachek, 1974). An alternative argument is that causality works in the opposite direction, such that women and men make different decisions regarding human capital investments in anticipation of segregated labour markets (Rubery, Fagan and Maier, 1996). Although this hypothesis has enjoyed a high level of explanatory relevance in the past, the most recent empirical evidence for Spain indicates that the differences in educational investment by women and men are in fact very narrow. However, this idea may still help to explain segregation if one considers other gender-based educational differences (e.g. types of studies undertaken).

Second, based on the concept of compensating differentials, segregation could be merely an expression of women's preferences for jobs with particular working conditions. According to Glass (1990), the concentration of women in particular occupations is a result of their own preferences for better working conditions in terms of flexibility and opportunities for combining work and family (see also, Bender, Donohue and Heywood, 2005). Hence the "paradox of the happy segregated female worker": in a sex-segregated labour market, women report higher levels of job satisfaction than men, even though they earn less and despite the fact that they are employed in jobs defined as "feminine", i.e. dominated by women.<sup>1</sup> However, the preferences of women are conditioned by a mix of important effects including those of institutions, economic conditions and other characteristics, which may result in, say, women being involuntarily employed in part-time jobs (Marlier and Ponthieux, 2000; Meurs and Ponthieux, 2006; Gupta and Smith, 2006).

Research into female career mobility has also recently highlighted the significance of higher proportions of same-sex co-workers at the workplace. According to McGinn and Milkman (2013), women inside a large professional service organization were found to move towards jobs/workteams already featuring a high proportion of women, anticipating reduced turnover and more opportunities for promotion. The concentration of women thus results from a feedback process driven by labour flows within the same workplaces.

Lastly, segregation may simply be the expression of occupational discrimination, whereby men and women are assigned to different jobs despite having identical productivity levels and preferences (Bergmann, 2005). In this connection, two new ideas should be also mentioned for their possible contributions based on consideration of the problems that can emerge when men and women share the same occupations. First, Goldin (2002) emphasizes the cost perceived by men when women fight to enter workplaces that have traditionally been male-dominated: they interpret this as indicating that the educational requirements and hence the social prestige of these occupations

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<sup>1</sup> This turns out to be the case in the sample used in this study: on a scale of 0 to 10, women's average job satisfaction scores are 7.37, 7.23 and 7.22 in female-dominated, balanced and male-dominated occupations, respectively.

are declining and that their jobs are being “contaminated” as a result. Based on this argument, one should observe some sort of process of *exclusion* of women from male jobs. Second, the reasoning of “identity economics” (Akerlof and Kranton, 2000) holds that women who access jobs in which men typically predominate do so at the cost of a loss of feminine identity and possible rejection by male colleagues with whom they spend hours in the workplace. Such costs should therefore act as an incentive for increased segregation. From this perspective, segregation would thus be driven by processes *confining* women and men to employment featuring characteristics with which they identify.

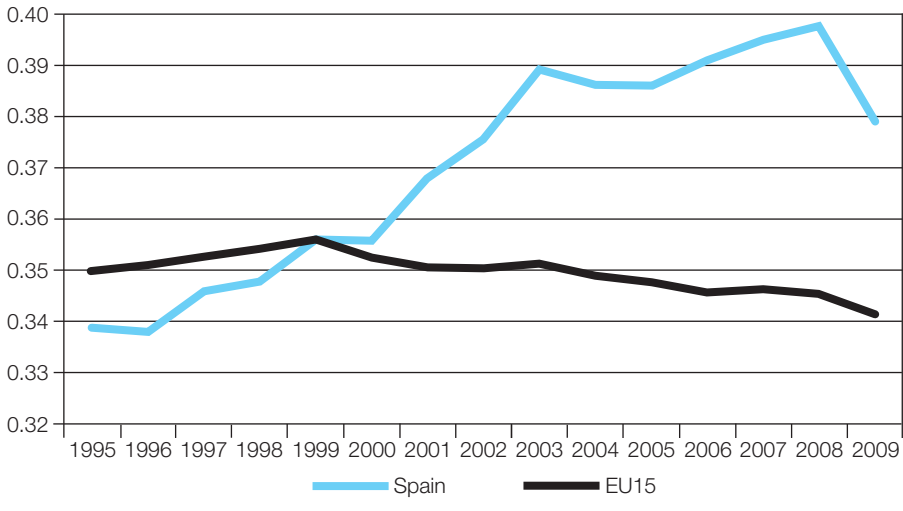
Against this background, the objective of this article is to conduct an in-depth analysis of the drivers of occupational segregation by sex in Spain. To that end, we will make a distinction between segregation driven by differences in women’s and men’s characteristics (related to productivity) and preferences, on the one hand, and segregation driven by discrimination, i.e. where employment decisions are based solely on individuals’ sex, without consideration of their other characteristics, on the other. Women and men would thus experience different occupational outcomes either because they differ in their labour characteristics or labour preference formation, or because discrimination exists in the labour market. Based on this conceptual framework, the most original contribution of this article is that it breaks down “discrimination” into an “exclusion effect” and a “confinement effect”, whereby women are either discriminated against by being excluded from male-dominated occupations or “discriminate against themselves” by confining themselves to female-dominated occupations.

## Occupational segregation by sex in Spain

The Spanish labour market features clear differentiation between men and women, with industries and occupations characterized as markedly male-dominated or female-dominated (Cebrián López and Moreno Raymundo, 2008). Such industries and occupations are those in which men or women are over-represented relative to their respective shares of total employment. Generally speaking, manual occupations are mostly male-dominated, while non-manual occupations tend to be female-dominated. Thus, while the primary, manufacturing and construction industries tend to be male-dominated, the service industries – especially those featuring direct interaction with customers or the public and strict selection processes – provide more job opportunities for women, although some services, such as transport, have a more pronounced male character. Very few manufacturing activities (except in the textile industry) are female-dominated.

The SWCS industry groups with the highest concentrations of female employment are “private household with employed persons”, “health care”, “other retail trade” and “public administration”. The same goes for the occupations of “office cleaning staff”, “shop workers”, “shop assistants and display staff”, “household employees”, “administrative management specialists” and “administrative and auxiliary personnel dealing with the public”.

Figure 1. Indices of dissimilarity: Spain and EU15



If Spain's occupational segregation is measured using the Duncan and Duncan (1955) index of dissimilarity (ID), we obtain a value of 0.38 for 2009, which means that almost 40 out of every 100 men and women would have needed to change their occupation in order to equalize occupational distribution by sex.<sup>2</sup> Taking the European Union (EU15) as a benchmark for comparison, the level of segregation in Spain was 10.9 per cent higher in 2009 (ID values of 0.341 versus 0.378 in Spain), although their starting levels were similar in 1995 (figure 1). While segregation in the EU15 declined moderately in those 15 years (–2.4 per cent), it increased significantly in Spain (by 11.8 per cent), despite the reduction in segregation caused by the 2008 crisis, which was much more pronounced in Spain. A similar picture emerges from a more detailed comparison based on a selection of northern European countries (Germany, United Kingdom and Denmark) and southern European countries (France, Italy and Portugal). On average, the ID values for the northern European countries declined between 1995 and 2009, whereas the ID value increased in Spain. As a result of these trends, only Germany's ID value remained higher than Spain's at the end of the period, although the Spanish labour market displayed a lower ID value

<sup>2</sup> The ID is calculated as  $ID = \frac{1}{2} \sum_i |x_i/x - y_i/y|$ , with  $i = 1$  to  $n$ , where  $x_i/x$  is the percentage of women employed in occupation  $i$  relative to the percentage of women in total employment, and  $y_i/y$  is the equivalent percentage for men. As an indicator of occupational segregation by sex, this index has been subject to extensive criticism in the academic literature (e.g. for using the patterns of occupational concentration for men as a criterion for assessing the existence of segregation), yet it is still one of the most commonly used indicators for measuring segregation (Blau, Brummund and Liu, 2012). Although we are aware of the existence of both classical alternative indicators (Karmel and MacLachlan, 1988) and more recent ones based on the concept of entropy (Mora and Ruiz-Castillo, 2003) and the construction of segregation curves based on the Gini Index concept (Alonso-Villar and del Río, 2010), the use of a more complex indicator does not seem necessary given the descriptive nature of its function in this study.

than any of these northern countries in 1995 (figure 2). As regards the southern European countries, Italy and Portugal, like Spain, present a rising trend in segregation. France, by contrast, exhibits a decreasing trend in segregation similar to that observed in the northern European countries (figure 3).

To the extent that segregation is associated with vulnerability and sub-optimal working conditions, it is worth noting that occupational segregation by

Figure 2. Indices of dissimilarity: Spain and northern European countries

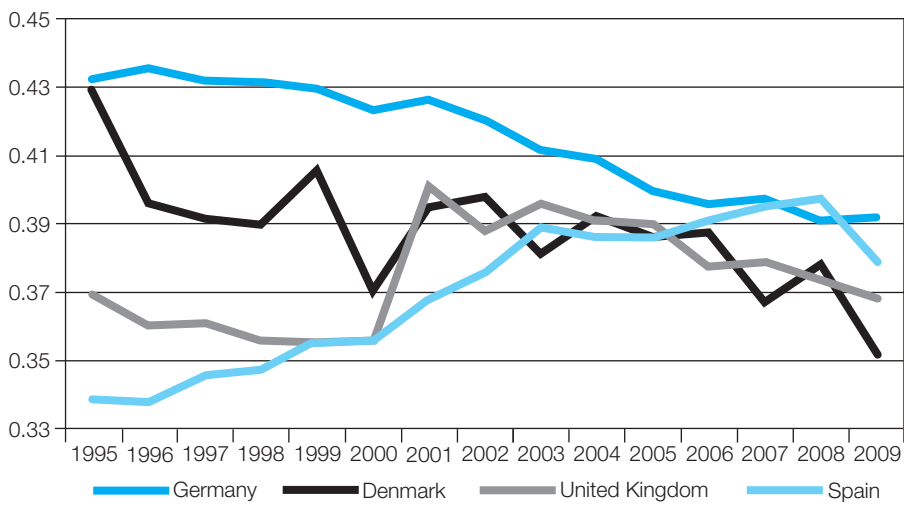
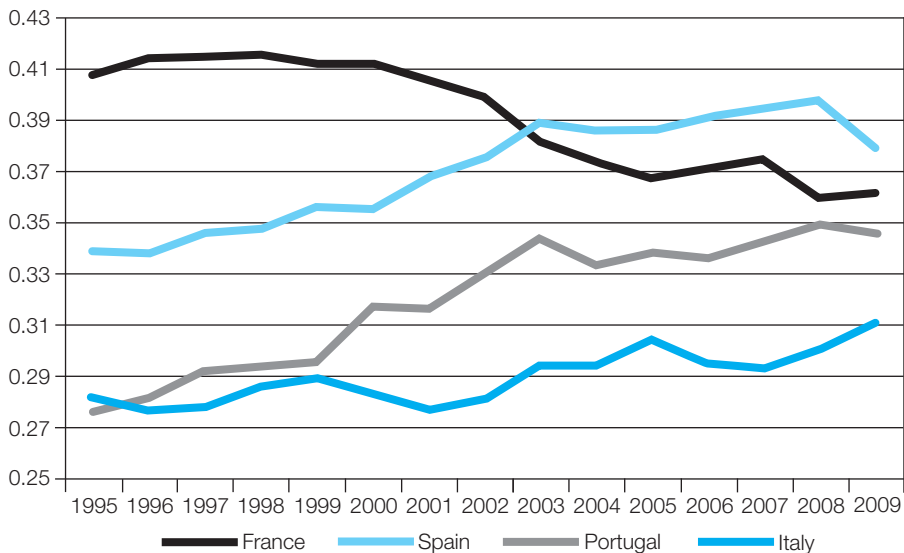


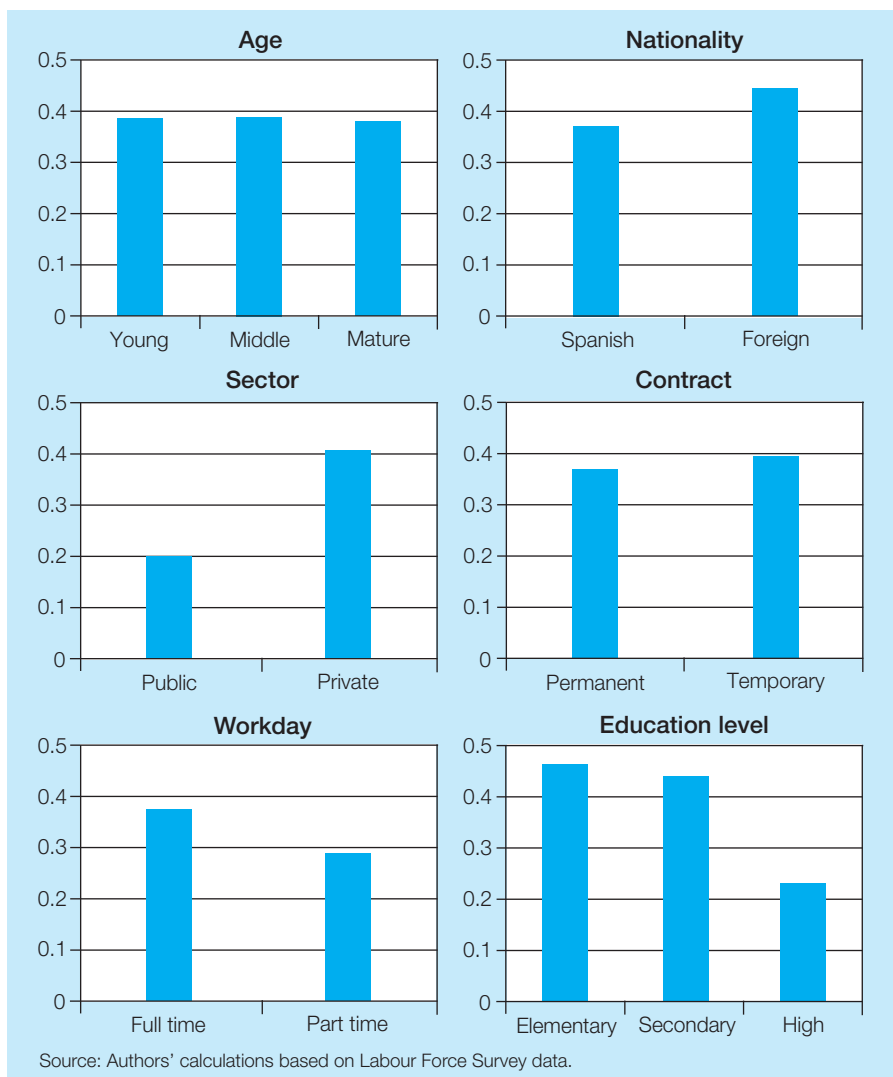
Figure 3. Indices of dissimilarity: Spain and southern European countries



Source: Authors' calculations based on Eurostat data.

sex in the Spanish labour market typically intersects with other worker characteristics. In particular, immigrant workers present a high degree of occupational segregation, with a particularly strong impact on women from non-European countries, which often leads to social exclusion (del Río and Alonso-Villar, 2012; Farber and Allard, 2012). Although age and type of contract (permanent vs fixed term) do not introduce significant differences in terms of segregation, other variables such as sector of activity (public vs private), working time or educational attainment also tend to compound segregation (see figure 4).

Figure 4. How occupational segregation by sex (ID) intersects with other variables, Q2 2009





In short, occupational segregation by sex is a stronger characteristic of the labour market in Spain than it is in other European countries. Within the theoretical framework outlined above, there are two possible explanations for this outcome. The first is based on the possibility of different characteristics and/or preferences between men and women whose perceptions of better conditions for doing certain jobs thus polarize the labour market into male-dominated and female-dominated occupations. The second is the possibility that discriminatory labour market dynamics channel men and women into different occupations despite the similarity of their profiles.

The difference between these two hypothetical explanations has extremely important policy implications. If the first is more significant than the second, policy would need to target the different conditioned preferences and characteristics of women and men in order to reduce occupational segregation. Alternatively, if the second explanation is more significant than the first, segregation would result from “pure discrimination” by the labour market, and policy would have to be targeted accordingly.

## Data and methodology

The SWCS is an annual survey conducted by the Spanish Ministry of Labour and Immigration that provides data on a wide range of variables pertaining to the workers employed in the Spanish labour market. It offers information not only about their personal and occupational characteristics, but also on characteristics of their families, such as the number and age of their children living at home, dependants in the household, and the time they spend on household chores. It also provides qualitative data relating to their level of personal satisfaction at work, their level of satisfaction with their personal life, and many other issues. Compared with the possibilities offered by other data sets, this source allows for richer analysis by incorporating various family characteristics and factors related to working conditions.

The SWCS samples for 2007, 2008 and 2009 consisted of 7,782, 8,351 and 7,982 individuals, respectively. By pooling the data from these three waves, we obtained a sample of 24,029 employed individuals after removing those working in the armed forces. We then also discarded all those employed in agriculture-related occupations so as to be left only with wage employees in manufacturing, construction and service industries. Our sample thus consists of a total of 22,840 employed individuals, of whom 57.5 per cent are men and 42.5 per cent are women.

Using the National Occupational Classification, our first step was to classify these employees into three categories, depending on whether they were employed in male-dominated, female-dominated or balanced occupations, i.e. occupations in which the proportion of men or women exceeded the male or female proportion of total employment by 25 per cent, with the remainder being defined as balanced occupations. Table 1 shows the absolute numbers and percentages of workers in each of the three categories.

Table 1. Distribution of employment across male-dominated, female-dominated and balanced occupations

|                  | Frequency | Percentage |
|------------------|-----------|------------|
| Male-dominated   | 7,973     | 34.9       |
| Female-dominated | 9,132     | 40         |
| Balanced         | 5,735     | 25.1       |
| Total            | 22,840    | 100        |

Source: Authors' calculations based on SWCS data, 2007–09.

The next step was to identify the determinants of the resulting occupational distribution of women and men by estimating the probability of working in a male-dominated or female-dominated occupation and controlling for individuals' personal and labour characteristics. To that end, four binary response logit models were estimated. The first two determined the probabilities that men and women, respectively, would be employed in a male-dominated occupation rather than in a balanced occupation (model 1). The other two were used to perform the same probability analysis in regard to female-dominated occupations (model 2). The explanatory variables considered for the estimation of these models are those identified as relevant in the literature (the full list of variables is given in table 2). The estimation results of the two models are presented in Appendix tables A1 and A2, respectively.

Based on these models, and using the Oaxaca-Blinder methodology (Oaxaca, 1973; Blinder, 1973), we then estimated two decompositions – one for each model – in order to distinguish the part of the probability differential attributable to differences in the characteristics of women and men from the part of the differential that is unexplained. For the purposes of this investigation, we call  $(\bar{P}_M)$  and  $(\bar{P}_W)$  the average probabilities that men and women, respectively, will be employed in a male-dominated or female-dominated occupation rather than a balanced occupation, as established by the following equations based on the estimated probabilities of a *logit* model:

$$P_i (Y = 1/w_i) = \frac{1}{1 + e^{-Z_i}} = \frac{Z_i}{1 + e^{Z_i}}; Z_i = \beta_0 + \beta_i w_i + \varepsilon \quad (1)$$

where  $P_i$  is the probability obtained for men and women separately in models 1 or 2,  $\beta_i$  the coefficient vector, and  $w_i$  the explanatory variables associated with these coefficients. Based on these equations, the objective is to decompose  $\bar{P}_M - \bar{P}_W$  into two components, one of which is associated with the differences in characteristics, and the other, with differences in the returns of those characteristics. To do so, we can break down each probability differential as:

$$\bar{P}_M - \bar{P}_W = (\bar{W}_M - \bar{W}_W) \hat{\beta}_M + \bar{W}_W (\hat{\beta}_M - \hat{\beta}_W) \quad (2)$$

Following Jann (2008), the first of the terms on the right of this equation expresses the differences between average probabilities for men and women

**Table 2. Personal, occupational and family variables included in the logit models**

|   |   |
|---|---|
| <b>Personal variables</b>               |   |
| Level of education                      | Primary education; Lower secondary education/ Middle school; Upper secondary education; University – Graduate level; University – Post-graduate level |
| Educational matching                    | Yes, No   |
| Age                                     | 16–25; 26–35; 36–45; 46–50; 51–55; Over 55 years  |
| Tenure in the company (months)          | 0–10; 11–45; Over 45 months   |
| Marital status                          | Without a partner; With a partner   |
| Nationality                             | Spanish; Foreign  |
| <b>Occupational variables</b>           |   |
| Economic activity                       | Manufacturing; Construction; Services   |
| Sector                                  | Public; Private   |
| Contract                                | Permanent; Temporary  |
| Working hours                           | Full time; Part time – by choice; Part time – Not due to own choice   |
| Working time                            | Continuous; Split   |
| Size of workplace                       | 1; 2–10; 11–50; over 50   |
| Size of company                         | 1; 2–10; 11–50; over 50   |
| Work from home                          | Yes; No   |
| Physical exertion                       | Yes; No   |
| Perception of job discrimination        | Yes; No   |
| Stress                                  | Yes; No   |
| Income (€)                              | Less than 1,000; between 1,000 and 2,100; Over 2,101  |
| Job satisfaction                        | Low-medium; High  |
| <b>Family variables</b>                 |   |
| Children under 3 years of age           | None; 1 or more   |
| Children aged between 3 and 5 years     | None; 1 or more   |
| Children aged between 6 and 14 years    | None; 1 or more   |
| Other dependants in her/his care        | Yes; No   |
| Time spent on housework during the week | Less than 1 hour; Between 1 and 3 hours; Over 3 hours   |
| Possible residential mobility for work  | Yes; No   |
| Assessment of personal life             | Low; Intermediate; High   |
| <b>Control variables</b>                |   |
| Year                                    | 2007; 2008; 2009  |
| Regions                                 | Catalonia; Valencia; Madrid; Rest of country  |

as an explanation for the unequal distribution of characteristics, i.e. the “explained” part of the probability differential. The second term expresses the differences in returns to characteristics between men and women as an explanation for the differences in average probabilities, i.e. the “unexplained” part of the probability differential.

Using the methodology developed by Chzhen (2006), we then created a “hypothetical female population”, in which women’s occupational distribution as predicted by the logit model was similar to men’s. Considering that “typical” men and women enter the labour market with a number of characteristics but that the returns to those characteristics differ by sex, we can equate men’s and women’s visions of the labour market by applying the male coefficients to women’s characteristics, thereby counterfactually hypothesizing that the labour market treats both men and women as men. The male coefficients of the variables are thus multiplied both by the mean values for men’s characteristics – i.e.  $\bar{W}_M \hat{\beta}_M$  (“typical men”) – and by the mean values for women’s characteristics, namely  $W_W \hat{\beta}_M$  (“hypothetical women”).<sup>3</sup>

The estimated probabilities for this new hypothetical female population,  $\bar{P}_{HW} = e^{\bar{W}_M \hat{\beta}_M}$ , were then compared with the results obtained previously by performing the Oaxaca-Blinder decompositions for each of the models considered. The comparative differences between these sets of probabilities are interpreted as follows: in model 1, the reduction in the male/female probability differential expresses the extent of the “exclusion” effect experienced by “real” women in male-dominated occupations; and in model 2, the reduction in the probability differential expresses the extent of the “confinement” effect experienced by “real” women in female-dominated occupations. Moreover, this would explain part of the “unexplained” component obtained from the Oaxaca-Blinder decomposition in terms of differential treatment of the average characteristics of women, which may reflect some degree of discrimination. This interpretation of probability differentials thus offers a fuller explanation of occupational segregation.

## Results

Based on the results of the estimated logit models presented in Appendix tables A1 and A2,<sup>4</sup> the findings of the Oaxaca-Blinder decomposition, together with the contribution of each of the variables considered, are shown in Appendix tables A3 and A4 (for models 1 and 2, respectively). The average probability of men being employed in a male-dominated occupation compared to being employed in a balanced occupation is almost triple (2.958) that of women, while the average probability of women being employed in a female-dominated occupation compared to being employed in a balanced occupation is

<sup>3</sup> Note that the probability of being employed in a particular occupation is measured by estimating a logit model based on a set of personal and occupational characteristics. An adequate and accurate estimation of the model is therefore critical for obtaining the correct coefficients. Errors attributed to the omission of variables, the existence of unobservable personal variables or their inappropriate definition are added to the “unexplained” part of our estimates. Hence our attempt to investigate the unexplained component in greater depth by constructing the counterfactual group of “hypothetical women”. However, readers’ attention is drawn to the size of the “unexplained” component, which must be considered approximate rather than exact.

<sup>4</sup> We have decided to ignore the interpretations attached to each of the variables in models 1 and 2, since they are not important to the main objective of this study.

almost four times higher (3.823) than that of their male counterparts. In model 1 (employment in male-dominated occupations), 31.9 per cent of the probability differential is attributable to individuals' characteristics and preferences, while the remaining 68.1 per cent is based on factors that are not explained. In model 2 (employment in female-dominated occupations), 21.9 per cent of the probability differential is due to the different characteristics and preferences of men and women, while the remaining 78.1 per cent is unexplained.

Analysis of the contributions of the discrete variables included in these models yields some important insights. First, as shown in Appendix table A3, the decomposition of the probability of being employed in a male-dominated occupation highlights the following points:

- The variables that contribute most to the explained part of the probability differential are working in the construction sector, and having a post-graduate university education. The unequal occupational distribution of men and women on account of these characteristics is indeed the most powerful single driver of the gender differences that favour men in male-dominated occupations. Although employed women have more human capital than men in the most recent generations (e.g. 28.5 per cent of them were university-educated compared to 19 per cent of men in the second quarter of 2009), their occupational distribution still differs from men's.
- To a lesser extent, having a graduate-level university education, voluntarily working part time, the "no possibility" of residential mobility for work,<sup>5</sup> experiencing stress, physical exertion at work, perceiving discrimination, and having a high income are also positively associated with the explained part of the probability differential driving the over-representation of men in male-dominated occupations. These characteristics have little to do with the need for work-family reconciliation and are indeed related to the traditional definition of masculine tasks.
- As for the unexplained component, the largest contribution comes from the constant, which means that the explanatory variables considered fail to account for most of the probability differential that is unrelated to differences in composition. This may be due to the existence of unobservable variables that cannot be captured statistically (Albrecht, van Vuuren and Vroman, 2004).
- As regards the variables included, the largest contribution to the unexplained part comes from the variable "working from home", although this result merely reflects the existence of different coefficients (rewards) related to this labour situation. Also important are the differences in the way that the market assigns male-dominated occupations to men and women with secondary education or intermediate level training, young and middle-aged workers, those living with a partner, those with Spanish national-

<sup>5</sup> When the SWCS asks about how work is organized in a firm, one of the questions is whether the firm has the possibility of asking the worker to relocate to a different place of residence if changes in the internal labour circumstances of the firm so require.

ity, those having a permanent contract, those reporting a high level of job satisfaction, those spending some time on household tasks, those who rate their personal lives highly and those engaging in some degree of physical exertion and reporting some stress in their work. Men and women are assessed differently on all of these characteristics, with men more likely to be assigned to male-dominated occupations despite having the same characteristics as women.

In short, most of the gender differences embedded in male-dominated occupations are not due to compositional differences between male and female workers, but to differences in how the market values the characteristics that women and men possess. In addition, the variables considered fail to account for most of the unexplained component, which must therefore be related to characteristics that are not directly observable or issues that are not considered in the literature.

Second, as regards the differential in the probability of being employed in a female occupation (Appendix table A4):

- The variables with the highest negative coefficients for the explained part – which therefore contribute most to favouring women in female-dominated occupations – are employment in manufacturing, and higher pay. Industry affiliation and wage level therefore contribute to explaining female occupational segregation. Job satisfaction and the variables related to the valuation of personal life do not appear to be determinants of the explained component. In other words, the theory of the “happy segregated female worker” is not obviously supported by our estimation results.
- As with male-dominated occupations, the constant captures the largest contribution to the unexplained part of the probability differential in regard to female-dominated occupations. Here again, with the labour market establishing a different valuation of identical characteristics by sex, the main driver of women’s concentration in female-dominated occupations remains unexplained. Some of the variables are noteworthy, however. First, the “private sector” variable shows a significant contribution to the unexplained part, which could reflect women’s preference for higher job security over other job characteristics. Second, the variable capturing the valuation of personal life suggests that men and women with the same score favour different occupations. Finally, the nationality variable indicates that male and female immigrants are distributed unevenly in the market despite sharing a foreign nationality (as already demonstrated in a case study of women by del Río and Alonso-Villar, 2010).

To sum up, we find a strong influence of the unexplained portion of the probability differential in both models. Although this effect is often loosely equated with discrimination, it is stronger in the model for female-dominated occupations than in the model for male-dominated occupations. It is therefore appropriate to think not only in terms of the lower probability of women working in a male-dominated occupation merely because they are women (the

exclusion effect), but also in terms of the higher probability of women working in a female-dominated occupation – also only because they are women (the confinement effect).

We now examine these results in greater depth by constructing a sample of “hypothetical women”, whose characteristics are “rewarded” on a par with men’s. Specifically, we use the difference between the probabilities obtained from the Oaxaca-Blinder decomposition and the estimated probabilities for our hypothetical women to quantify discrimination – i.e. differences in “reward” determined by the mere fact of being a woman or man – and interpret the unexplained part of the probability differential obtained in the previous decomposition. The results of this exercise are summarized in table 3.

Our initial Oaxaca-Blinder decomposition yielded probability differentials of 2.641 in favour of men working in a male-dominated occupation and –3.062 in favour of women working in a female-dominated occupation. Table 3 shows that these differentials would be markedly smaller if the labour market were to evaluate the characteristics of women “from a male perspective” rather than “from a female perspective”. For male-dominated occupations, the reduction in the probability differential can be quantified at 42.94 per cent (from the initial 2.641 to 1.507 in favour of men); and for female-dominated occupations, the reduction can be quantified at 92.18 per cent (from 3.062 to 0.239 in favour of women).

In the light of these results, discriminatory processes would seem to explain 42.94 per cent of the differential assignment of men and women to male-dominated occupations, and 92.18 per cent of their differential assignment to

Table 3. Counterfactual analysis of Oaxaca-Blinder decomposition results

|  |  | Male vs balanced<br>(Model 1) | Female vs balanced<br>(Model 2) |
|--|--|-------------------------------|---------------------------------|
| <b>Oaxaca-Blinder decomposition (coefficients)</b> |  |                               |                                 |
| Men  | $\bar{W}_M \hat{\beta}_M$                    | 1.085                         | -0.274                          |
| Women  | $\bar{W}_W \hat{\beta}_W$                    | -1.149                        | 1.341                           |
| <b>Hypothetical population (coefficients)</b>      |  |                               |                                 |
| Hypothetical women                                 | $\bar{W}_W \hat{\beta}_M$                    | 0.372                         | 0.080                           |
| <b>Relative probabilities (odds ratios)</b>        |  |                               |                                 |
| Men  | $\bar{P}_M = e^{\bar{W}_M \hat{\beta}_M}$    | 2.958                         | 0.761                           |
| Women  | $\bar{P}_W = e^{\bar{W}_W \hat{\beta}_W}$    | 0.317                         | 3.823                           |
| Hypothetical women                                 | $\bar{P}_{HW} = e^{\bar{W}_W \hat{\beta}_M}$ | 1.451                         | 1.000                           |
| <b>Differences in probabilities</b>                |  |                               |                                 |
| Men – Women  |  | 2.641                         | -3.062                          |
| Men – Hypothetical women                           |  | 1.507                         | -0.239                          |
| <b>Reduction in the difference</b>                 |  | <b>1.134 (42.94%)</b>         | <b>-2.823 (92.18%)</b>          |

Source: Authors’ calculations based on SWCS data, 2007–09.

female-dominated occupations. This would make discrimination the most important factor in occupational segregation by sex in Spain, as it explains both the exclusion of women from male-dominated occupations and their confinement to those that are female-dominated. However, the importance of these results lies not only in the magnitude of the counterfactual reductions in the probability differentials between men and women, but also in the fact that the reduction that occurs in regard to female-dominated occupations is greater than that observed for male-dominated occupations. It can thus be argued that the “positive” discrimination of the “confinement effect” that favours women in female-dominated occupations is stronger than the “negative” discrimination of the “exclusion effect” against women in male-dominated occupations. In other words, the “negative view” with which women are considered in male-dominated occupations is less significant in determining the overall distributional outcome than the “positive view” with which women are considered in female-dominated occupations.

## Conclusions

The analysis performed in this article has attempted to identify the drivers of Spain’s persistent occupational segregation by sex. The analysis was carried out in two stages. First, an Oaxaca-Blinder decomposition determined the extent to which segregation is related to differences in the characteristics of males and females. Second, the construction of a counterfactual sample of “hypothetical females” enabled us to approximate the underlying discriminatory component of the share of segregation that was not explained by the decomposition. Our most noteworthy findings are summed up below.

First, a very significant part of the probability differentials between men and women being employed in male-dominated or female-dominated occupations could not be explained by the personal, employment or family variables we considered (differences in composition). The labour market therefore seems to act as a segregating agent by considering gender when assigning employment to male and female workers. The main explanation for the occupational distribution of women and men is thus the market’s differential treatment of the same characteristics as between women and men.

Second, some variables do contribute to explaining the occupational differences between men and women, in regards to both the explained and unexplained components of those differences. On the one hand, the unequal sectoral distribution of female and male employment maps into the main differences observed in terms of occupational segregation. On the other hand, there is a set of variables which accounts for much of the differential treatment of men and women. These variables are related to the nature of more traditional male labour (physical exertion, stress...) and to the differential valuation of working conditions in terms of work–family reconciliation. Women thus appear to display some preference for occupational segregation to the extent that it enables them to obtain higher job security even to the detriment of other dimensions of quality of employment.



Third, most of the differences in the treatment of women and men in the labour market are not captured by the personal, family and work-related variables that are typically identified in the literature, and which were included in our estimated models. This suggests there may be other, unobservable variables that are relevant to occupational segregation by sex. Our methodology therefore attempted to clarify the market-driven occupational distribution of men and women by contrasting “negative” discrimination against women in male-dominated occupations with discriminatory dynamics that “positively” segregate women into female-dominated occupations. While highlighting the overall importance of discrimination as a driver of occupational segregation, our results indicate that the latter, “confinement” effect – which can be interpreted in terms of identification and makes it difficult for women to escape from female-dominated occupations – has stronger explanatory power than the former, “exclusion” effect, which makes it difficult for women to access male-dominated occupations.

In short, differential treatment by sex rather than male/female differences in characteristics is the most powerful explanatory factor driving occupational segregation in Spain. Given the implications of working conditions for work–life reconciliation and the effect of unobservable variables, this is particularly evident with regard to the concentration of women in female-dominated occupations – even more so than in their exclusion from male-dominated occupations.

In view of these results, since occupational segregation by sex is mainly driven by women’s confinement to female-dominated occupations because these offer better opportunities for reconciling work and family life, occupational segregation in Spain (and elsewhere) could arguably be reduced if such opportunities could be extended to all occupations. In this sense, government policy has a key role to play in reducing discrimination by providing workers and employers with opportunities for reconciling their employment and family life across the entire occupational structure of employment.

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# Appendix

Table A1. Probability of being employed in a male-dominated vs balanced occupation

|                                  | Men         |                                    |         | Women       |                                    |         |
|----------------------------------|-------------|------------------------------------|---------|-------------|------------------------------------|---------|
|                                  | Coefficient | Relative probability (odds ratios) | P>z     | Coefficient | Relative probability (odds ratios) | P>z     |
| <b>Education</b>                 |             |                                    |         |             |                                    |         |
| Lower secondary/Middle school    | -0.102      | 0.903                              | 0.000** | -0.236      | 0.790                              | 0.000** |
| Upper secondary school           | -0.118      | 0.888                              | 0.000** | 0.028       | 1.028                              | 0.000** |
| University – Graduate level      | -0.425      | 0.654                              | 0.000** | -0.281      | 0.755                              | 0.000** |
| University – Post-graduate level | -1.043      | 0.353                              | 0.000** | -0.617      | 0.539                              | 0.000** |
| <b>Educational matching</b>      |             |                                    |         |             |                                    |         |
| Yes                              | 0.156       | 1.169                              | 0.000** | 0.242       | 1.274                              | 0.000** |
| <b>Age</b>                       |             |                                    |         |             |                                    |         |
| Up to 25 years                   | -0.103      | 0.902                              | 0.000** | 0.501       | 1.650                              | 0.000** |
| 36–40 years                      | -0.195      | 0.822                              | 0.000** | -0.375      | 0.687                              | 0.000** |
| 41–45 years                      | -0.322      | 0.724                              | 0.000** | -0.711      | 0.491                              | 0.000** |
| 46–50 years                      | -0.308      | 0.735                              | 0.000** | -0.720      | 0.487                              | 0.000** |
| 51–55 years                      | -0.397      | 0.673                              | 0.000** | -0.601      | 0.548                              | 0.000** |
| Over 55 years                    | -0.340      | 0.712                              | 0.000** | -0.976      | 0.377                              | 0.000** |
| <b>Tenure in the company</b>     |             |                                    |         |             |                                    |         |
| 11 to 45 months                  | -0.172      | 0.842                              | 0.000** | 0.174       | 1.190                              | 0.000** |
| Over 45 months                   | -0.335      | 0.715                              | 0.000** | 0.166       | 1.180                              | 0.000** |
| <b>Marital status</b>            |             |                                    |         |             |                                    |         |
| With a partner                   | 0.265       | 1.303                              | 0.000** | 0.038       | 1.038                              | 0.000** |
| <b>Nationality</b>               |             |                                    |         |             |                                    |         |
| Spanish                          | -0.209      | 0.811                              | 0.000** | -0.365      | 0.694                              | 0.000** |
| <b>Economic activity</b>         |             |                                    |         |             |                                    |         |
| Manufacturing                    | 0.008       | 1.008                              | 0.000** | 0.206       | 1.228                              | 0.000** |
| Construction                     | 2.502       | 12.201                             | 0.000** | 2.242       | 9.417                              | 0.000** |
| <b>Sector</b>                    |             |                                    |         |             |                                    |         |
| Private                          | -0.421      | 0.656                              | 0.000** | -0.280      | 0.756                              | 0.000** |
| <b>Contract</b>                  |             |                                    |         |             |                                    |         |
| Permanent                        | 0.014       | 1.014                              | 0.000** | -0.111      | 0.895                              | 0.000** |
| <b>Working hours</b>             |             |                                    |         |             |                                    |         |
| Part time – Voluntary            | -0.180      | 0.835                              | 0.000** | 0.085       | 1.089                              | 0.000** |
| Part time – Involuntary          | 0.050       | 1.051                              | 0.000** | 0.030       | 1.030                              | 0.000** |
| <b>Working time</b>              |             |                                    |         |             |                                    |         |
| Split                            | 0.036       | 1.036                              | 0.000** | 0.075       | 1.078                              | 0.000** |
| <b>Size of workplace</b>         |             |                                    |         |             |                                    |         |
| 1 worker                         | -0.092      | 0.912                              | 0.000** | -0.086      | 0.918                              | 0.000** |
| 2–10 workers                     | -0.499      | 0.607                              | 0.000** | -0.814      | 0.443                              | 0.000** |
| 11–50 workers                    | -0.284      | 0.753                              | 0.000** | -0.164      | 0.849                              | 0.000** |

(continued overleaf)

Table A1. Probability of being employed in a male-dominated vs balanced occupation (*concl.*)

|  | Men         |                                    |         | Women       |                                    |         |
|--|-------------|------------------------------------|---------|-------------|------------------------------------|---------|
|  | Coefficient | Relative probability (odds ratios) | P>z     | Coefficient | Relative probability (odds ratios) | P>z     |
| <b>Size of company</b>                         |             |                                    |         |             |                                    |         |
| 1 worker                                       | -0.340      | 0.711                              | 0.000** | -0.655      | 0.519                              | 0.000** |
| 2–10 workers                                   | 0.234       | 1.264                              | 0.000** | -0.397      | 0.672                              | 0.000** |
| 11–50 workers                                  | -0.114      | 0.892                              | 0.000** | -0.445      | 0.641                              | 0.000** |
| <b>Work from home</b>                          |             |                                    |         |             |                                    |         |
| Yes  | 0.613       | 1.846                              | 0.000** | -0.173      | 0.841                              | 0.000** |
| <b>Job satisfaction</b>                        |             |                                    |         |             |                                    |         |
| High   | 0.105       | 1.111                              | 0.000** | 0.080       | 1.084                              | 0.000** |
| <b>Children</b>                                |             |                                    |         |             |                                    |         |
| Under 3 years of age                           | 0.186       | 1.205                              | 0.000** | 0.514       | 1.672                              | 0.000** |
| Aged between 3 and 5 years                     | -0.002      | 0.998                              | 0.545   | 0.058       | 1.059                              | 0.000** |
| Aged between 6 and 14 years                    | 0.032       | 1.033                              | 0.000** | 0.057       | 1.059                              | 0.000** |
| <b>Dependants</b>                              |             |                                    |         |             |                                    |         |
| No   | -0.165      | 0.848                              | 0.000** | -0.071      | 0.931                              | 0.000** |
| <b>Time spent on housework during the week</b> |             |                                    |         |             |                                    |         |
| Between 1 and 3 hours                          | -0.024      | 0.976                              | 0.000** | -0.016      | 0.984                              | 0.007** |
| Over 3 hours                                   | 0.051       | 1.053                              | 0.000** | -0.027      | 0.973                              | 0.000** |
| <b>Satisfaction in personal life</b>           |             |                                    |         |             |                                    |         |
| Intermediate                                   | -0.316      | 0.729                              | 0.000** | -0.409      | 0.664                              | 0.000** |
| High   | -0.252      | 0.777                              | 0.000** | -0.347      | 0.707                              | 0.000** |
| <b>Possible residential mobility for work</b>  |             |                                    |         |             |                                    |         |
| No   | -0.288      | 0.750                              | 0.000** | 0.233       | 1.263                              | 0.000** |
| <b>Experience of stress</b>                    |             |                                    |         |             |                                    |         |
| Yes  | -0.242      | 0.785                              | 0.000** | -0.299      | 0.742                              | 0.000** |
| <b>Physical exertion at work</b>               |             |                                    |         |             |                                    |         |
| Yes  | 0.409       | 1.505                              | 0.000** | 0.045       | 1.046                              | 0.000** |
| <b>Perception of job discrimination</b>        |             |                                    |         |             |                                    |         |
| Yes  | -0.098      | 0.907                              | 0.000** | 0.146       | 1.158                              | 0.000** |
| <b>Income</b>                                  |             |                                    |         |             |                                    |         |
| Between €1,000 and €2,100                      | 0.305       | 1.357                              | 0.000** | 0.753       | 2.123                              | 0.000** |
| Over €2,101                                    | 0.304       | 1.356                              | 0.000** | 0.917       | 2.502                              | 0.000** |
| <b>Year</b>                                    |             |                                    |         |             |                                    |         |
| 2007   | -0.150      | 0.861                              | 0.000** | 0.452       | 1.572                              | 0.000** |
| 2008   | -0.310      | 0.734                              | 0.000** | 0.044       | 1.045                              | 0.000** |
| <b>Regions</b>                                 |             |                                    |         |             |                                    |         |
| Catalonia                                      | 0.095       | 1.100                              | 0.000** | -0.140      | 0.869                              | 0.000** |
| Valencia                                       | -0.115      | 0.891                              | 0.000** | -0.211      | 0.810                              | 0.000** |
| Madrid   | 0.217       | 1.242                              | 0.000** | 0.289       | 1.336                              | 0.000** |
| Constant                                       | 0.781       | 0.000                              | 0.000** | -1.719      | 0.000                              | 0.000** |

Note: \*\* Significant within a probability of 95% of standard errors. The reference is the omitted category (see table 2).

Source: Authors' calculations based on SWCS data, 2007–09.

Table A2. Probability of being employed in a female-dominated vs balanced occupation

|                                  | Men         |                                    |         | Women       |                                    |         |
|----------------------------------|-------------|------------------------------------|---------|-------------|------------------------------------|---------|
|                                  | Coefficient | Relative probability (odds ratios) | P>z     | Coefficient | Relative probability (odds ratios) | P>z     |
| <b>Education</b>                 |             |                                    |         |             |                                    |         |
| Lower secondary/Middle school    | 0.050       | 1.051                              | 0.000** | 0.384       | 1.469                              | 0.000** |
| Upper secondary school           | 0.416       | 1.516                              | 0.000** | 0.335       | 1.398                              | 0.000** |
| University – Graduate level      | 0.786       | 2.194                              | 0.000** | 0.358       | 1.430                              | 0.000** |
| University – Post-graduate level | 0.708       | 2.030                              | 0.000** | -0.133      | 0.876                              | 0.000** |
| <b>Educational matching</b>      |             |                                    |         |             |                                    |         |
| Yes                              | 0.277       | 1.319                              | 0.000** | 0.387       | 1.472                              | 0.000** |
| <b>Age</b>                       |             |                                    |         |             |                                    |         |
| Up to 25 years                   | 0.160       | 1.174                              | 0.000** | 0.128       | 1.136                              | 0.000** |
| 36–40 years                      | -0.529      | 0.589                              | 0.000** | -0.103      | 0.902                              | 0.000** |
| 41–45 years                      | -0.167      | 0.846                              | 0.000** | -0.116      | 0.890                              | 0.000** |
| 46–50 years                      | -0.442      | 0.642                              | 0.000** | 0.079       | 1.082                              | 0.000** |
| 51–55 years                      | -0.347      | 0.707                              | 0.000** | 0.122       | 1.130                              | 0.000** |
| Over 55 years                    | -0.428      | 0.652                              | 0.000** | -0.106      | 0.899                              | 0.000** |
| <b>Tenure in the company</b>     |             |                                    |         |             |                                    |         |
| 11 to 45 months                  | 0.313       | 1.368                              | 0.000** | 0.080       | 1.083                              | 0.000** |
| Over 45 months                   | 0.318       | 1.374                              | 0.000** | 0.407       | 1.502                              | 0.000** |
| <b>Marital status</b>            |             |                                    |         |             |                                    |         |
| With a partner                   | 0.071       | 1.074                              | 0.000** | -0.200      | 0.819                              | 0.000** |
| <b>Nationality</b>               |             |                                    |         |             |                                    |         |
| Spanish                          | -0.443      | 0.642                              | 0.000** | -0.112      | 0.894                              | 0.000** |
| <b>Economic activity</b>         |             |                                    |         |             |                                    |         |
| Manufacturing                    | -1.601      | 0.202                              | 0.000** | -1.688      | 0.185                              | 0.000** |
| Construction                     | -0.106      | 0.900                              | 0.000** | 0.189       | 1.208                              | 0.000** |
| <b>Sector</b>                    |             |                                    |         |             |                                    |         |
| Private                          | -1.003      | 0.367                              | 0.000** | -0.499      | 0.607                              | 0.000** |
| <b>Contract</b>                  |             |                                    |         |             |                                    |         |
| Permanent                        | -0.117      | 0.889                              | 0.000** | -0.239      | 0.787                              | 0.000** |
| <b>Working hours</b>             |             |                                    |         |             |                                    |         |
| Part-time – Voluntary            | 0.013       | 1.013                              | 0.086*  | 0.413       | 1.511                              | 0.000** |
| Part-time – Involuntary          | 0.078       | 1.081                              | 0.000** | 0.262       | 1.299                              | 0.000** |
| <b>Working time</b>              |             |                                    |         |             |                                    |         |
| Split                            | -0.072      | 0.930                              | 0.000** | -0.018      | 0.982                              | 0.000** |
| <b>Size of workplace</b>         |             |                                    |         |             |                                    |         |
| 1 worker                         | -0.709      | 0.492                              | 0.000** | -0.170      | 0.843                              | 0.000** |
| 2–10 workers                     | -0.582      | 0.559                              | 0.000** | -0.324      | 0.723                              | 0.000** |
| 11–50 workers                    | -0.324      | 0.723                              | 0.000** | -0.072      | 0.930                              | 0.000** |

(continued overleaf)

Table A2. Probability of being employed in a female-dominated vs balanced occupation (*concl.*)

|  | Men         |                                    |         | Women       |                                    |         |
|--|-------------|------------------------------------|---------|-------------|------------------------------------|---------|
|  | Coefficient | Relative probability (odds ratios) | P>z     | Coefficient | Relative probability (odds ratios) | P>z     |
| <b>Size of company</b>                         |             |                                    |         |             |                                    |         |
| 1 worker                                       | 0.008       | 1.008                              | 0.631   | 1.103       | 3.014                              | 0.000** |
| 2–10 workers                                   | 0.512       | 1.669                              | 0.000** | 0.026       | 1.026                              | 0.000** |
| 11–50 workers                                  | 0.225       | 1.252                              | 0.000** | –0.004      | 0.996                              | 0.260   |
| <b>Work from home</b>                          |             |                                    |         |             |                                    |         |
| Yes  | 0.102       | 1.107                              | 0.000** | –0.111      | 0.895                              | 0.000** |
| <b>Job satisfaction</b>                        |             |                                    |         |             |                                    |         |
| High   | 0.131       | 1.140                              | 0.000** | 0.014       | 1.014                              | 0.000** |
| <b>Children</b>                                |             |                                    |         |             |                                    |         |
| Under 3 years of age                           | 0.170       | 1.185                              | 0.000** | 0.037       | 1.038                              | 0.000** |
| Aged between 3 and 5 years                     | –0.003      | 0.997                              | 0.461   | –0.096      | 0.909                              | 0.000** |
| Aged between 6 and 14 years                    | 0.057       | 1.058                              | 0.000** | –0.108      | 0.897                              | 0.000** |
| <b>Dependants</b>                              |             |                                    |         |             |                                    |         |
| No   | –0.213      | 0.808                              | 0.000** | –0.251      | 0.778                              | 0.000** |
| <b>Time spent on housework during the week</b> |             |                                    |         |             |                                    |         |
| Between 1 and 3 hours                          | 0.239       | 1.270                              | 0.000** | –0.037      | 0.964                              | 0.000** |
| Over 3 hours                                   | –0.032      | 0.969                              | 0.000** | –0.041      | 0.960                              | 0.000** |
| <b>Satisfaction in personal life</b>           |             |                                    |         |             |                                    |         |
| Intermediate                                   | –0.421      | 0.656                              | 0.000** | 0.128       | 1.136                              | 0.000** |
| High   | –0.241      | 0.786                              | 0.000** | 0.095       | 1.099                              | 0.000** |
| <b>Possible residential mobility for work</b>  |             |                                    |         |             |                                    |         |
| No   | 0.203       | 1.225                              | 0.000** | 0.324       | 1.383                              | 0.000** |
| <b>Experience of stress</b>                    |             |                                    |         |             |                                    |         |
| Yes  | –0.152      | 0.859                              | 0.000** | –0.204      | 0.816                              | 0.000** |
| <b>Physical exertion at work</b>               |             |                                    |         |             |                                    |         |
| Yes  | –0.279      | 0.756                              | 0.000** | –0.052      | 0.950                              | 0.000** |
| <b>Perception of job discrimination</b>        |             |                                    |         |             |                                    |         |
| Yes  | –0.001      | 0.999                              | 0.836   | –0.285      | 0.752                              | 0.000** |
| <b>Income</b>                                  |             |                                    |         |             |                                    |         |
| Between €1,000 and €2,100                      | –0.190      | 0.827                              | 0.000** | –0.150      | 0.861                              | 0.000** |
| Over €2,101                                    | –0.651      | 0.522                              | 0.000** | –0.443      | 0.642                              | 0.000** |
| <b>Year</b>                                    |             |                                    |         |             |                                    |         |
| 2007   | 0.175       | 1.191                              | 0.000** | 0.136       | 1.146                              | 0.000** |
| 2008   | –0.018      | 0.982                              | 0.000** | –0.130      | 0.878                              | 0.000** |
| <b>Regions</b>                                 |             |                                    |         |             |                                    |         |
| Catalonia                                      | –0.055      | 0.947                              | 0.000** | –0.068      | 0.934                              | 0.000** |
| Valencia                                       | 0.257       | 1.293                              | 0.000** | –0.266      | 0.766                              | 0.000** |
| Madrid   | 0.004       | 1.004                              | 0.222   | –0.165      | 0.847                              | 0.000** |
| <b>Constant</b>                                | 0.779       | 0.000                              | 0.000** | 2.324       | 0.000                              | 0.000** |

Note: \*\* (\*) Significant within a probability of 95% (90%) of standard errors. The reference is the omitted category (see table 2).

Source: Authors' calculations based on SWCS data, 2007–09.

**Table A3. Oaxaca-Blinder decomposition for male-dominated vs balanced occupations: Components and contributions**

| Results           | Coefficient  | P>z            | (Odds ratios) | %            |
|-------------------|--------------|----------------|---------------|--------------|
| Men               | 1.085        | 0.000**        | 2.958         |              |
| Women             | -1.149       | 0.000**        | 0.317         |              |
| <b>Difference</b> | <b>2.234</b> | <b>0.000**</b> | <b>2.641</b>  | <b>100.0</b> |
| Explained         | 0.712        | 0.000**        | 0.842         | 31.9         |
| Unexplained       | 1.522        | 0.000**        | 1.799         | 68.1         |

|  | Contribution to the explained part |             |     | Contribution to the unexplained part |             |     |
|--|------------------------------------|-------------|-----|--------------------------------------|-------------|-----|
|  | Coefficient                        | Odds ratios | P>z | Coefficient                          | Odds ratios | P>z |

**Education**

|                                  |        |       |         |        |       |         |
|----------------------------------|--------|-------|---------|--------|-------|---------|
| Lower secondary/Middle school    | -0.010 | 0.990 | 0.000** | 0.034  | 1.034 | 0.000** |
| Upper secondary school           | -0.002 | 0.998 | 0.000** | -0.034 | 0.966 | 0.000** |
| University – Graduate level      | 0.028  | 1.029 | 0.000** | -0.020 | 0.981 | 0.000** |
| University – Post-graduate level | 0.132  | 1.141 | 0.000** | -0.095 | 0.910 | 0.000** |

**Educational matching**

|     |        |       |         |        |       |         |
|-----|--------|-------|---------|--------|-------|---------|
| Yes | -0.002 | 0.998 | 0.000** | -0.048 | 0.953 | 0.000** |
|-----|--------|-------|---------|--------|-------|---------|

**Age**

|                |        |       |         |        |       |         |
|----------------|--------|-------|---------|--------|-------|---------|
| Up to 25 years | -0.001 | 0.999 | 0.000** | -0.071 | 0.932 | 0.000** |
| 36–40 years    | 0.004  | 1.004 | 0.000** | 0.032  | 1.033 | 0.000** |
| 41–45 years    | 0.004  | 1.004 | 0.000** | 0.057  | 1.059 | 0.000** |
| 46–50 years    | -0.001 | 0.999 | 0.000** | 0.043  | 1.044 | 0.000** |
| 51–55 years    | -0.013 | 0.987 | 0.000** | 0.012  | 1.012 | 0.000** |
| Over 55 years  | -0.011 | 0.989 | 0.000** | 0.038  | 1.039 | 0.000** |

**Tenure in the company**

|                 |        |       |         |        |       |         |
|-----------------|--------|-------|---------|--------|-------|---------|
| 11 to 45 months | -0.001 | 0.999 | 0.000** | -0.070 | 0.932 | 0.000** |
| Over 45 months  | -0.011 | 0.989 | 0.000** | -0.029 | 0.972 | 0.000** |

**Marital status**

|                |       |       |         |       |       |         |
|----------------|-------|-------|---------|-------|-------|---------|
| With a partner | 0.009 | 1.009 | 0.000** | 0.146 | 1.157 | 0.000** |
|----------------|-------|-------|---------|-------|-------|---------|

**Nationality**

|         |        |       |         |       |       |         |
|---------|--------|-------|---------|-------|-------|---------|
| Spanish | -0.008 | 0.992 | 0.000** | 0.064 | 1.066 | 0.000** |
|---------|--------|-------|---------|-------|-------|---------|

**Economic activity**

|               |       |       |         |        |       |         |
|---------------|-------|-------|---------|--------|-------|---------|
| Manufacturing | 0.000 | 1.000 | 0.000** | -0.052 | 0.949 | 0.000** |
| Construction  | 0.517 | 1.676 | 0.000** | 0.009  | 1.009 | 0.000** |

**Sector**

|         |        |       |         |        |       |         |
|---------|--------|-------|---------|--------|-------|---------|
| Private | -0.031 | 0.970 | 0.000** | -0.110 | 0.896 | 0.000** |
|---------|--------|-------|---------|--------|-------|---------|

**Contract**

|           |        |       |         |       |       |         |
|-----------|--------|-------|---------|-------|-------|---------|
| Permanent | -0.001 | 0.999 | 0.000** | 0.036 | 1.036 | 0.000** |
|-----------|--------|-------|---------|-------|-------|---------|

**Working hours**

|                         |        |       |         |        |       |         |
|-------------------------|--------|-------|---------|--------|-------|---------|
| Part time – Voluntary   | 0.011  | 1.011 | 0.000** | -0.022 | 0.978 | 0.023*  |
| Part time – Involuntary | -0.003 | 0.997 | 0.000** | 0.002  | 1.002 | 0.000** |

**Working time**

|       |       |       |         |        |       |         |
|-------|-------|-------|---------|--------|-------|---------|
| Split | 0.006 | 1.006 | 0.000** | -0.015 | 0.986 | 0.000** |
|-------|-------|-------|---------|--------|-------|---------|

(continued overleaf)



Table A3. Oaxaca-Blinder decomposition for male-dominated vs balanced occupations: Components and contributions (*concl.*)

|  | Contribution to the explained part |             |         | Contribution to the unexplained part |             |         |
|--|------------------------------------|-------------|---------|--------------------------------------|-------------|---------|
|  | Coefficient                        | Odds ratios | P>z     | Coefficient                          | Odds ratios | P>z     |
| <b>Size of workplace</b>                       |                                    |             |         |                                      |             |         |
| 1 worker                                       | 0.000                              | 1.000       | 0.000** | 0.000                                | 1.000       | 0.778   |
| 2–10 workers                                   | –0.007                             | 0.993       | 0.000** | 0.107                                | 1.113       | 0.000** |
| 11–50 workers                                  | –0.007                             | 0.993       | 0.000** | –0.037                               | 0.964       | 0.000** |
| <b>Size of company</b>                         |                                    |             |         |                                      |             |         |
| 1 worker                                       | 0.001                              | 1.001       | 0.000** | 0.004                                | 1.004       | 0.000** |
| 2–10 workers                                   | 0.005                              | 1.005       | 0.000** | 0.122                                | 1.129       | 0.000** |
| 11–50 workers                                  | –0.006                             | 0.994       | 0.000** | 0.067                                | 1.069       | 0.000** |
| <b>Work from home</b>                          |                                    |             |         |                                      |             |         |
| Yes  | 0.017                              | 1.018       | 0.000** | 0.711                                | 2.036       | 0.000** |
| <b>Job satisfaction</b>                        |                                    |             |         |                                      |             |         |
| High   | 0.000                              | 1.000       | 0.000** | 0.013                                | 1.013       | 0.000** |
| <b>Children</b>                                |                                    |             |         |                                      |             |         |
| Under 3 years of age                           | –0.001                             | 0.999       | 0.000** | –0.616                               | 0.540       | 0.000** |
| Aged between 3 and 5 years                     | 0.000                              | 1.000       | 0.561   | –0.113                               | 0.893       | 0.000** |
| Aged between 6 and 14 years                    | 0.000                              | 1.000       | 0.000** | –0.044                               | 0.957       | 0.000** |
| <b>Other dependants</b>                        |                                    |             |         |                                      |             |         |
| No   | 0.001                              | 1.001       | 0.000** | –0.090                               |             |         |
| <b>Time spent on housework during the week</b> |                                    |             |         |                                      |             |         |
| Between 1 and 3 hours                          | 0.003                              | 1.003       | 0.000** | –0.005                               | 0.995       | 0.245   |
| Over 3 hours                                   | –0.007                             | 0.993       | 0.000** | 0.014                                | 1.014       | 0.000** |
| <b>Satisfaction in personal life</b>           |                                    |             |         |                                      |             |         |
| Intermediate                                   | –0.004                             | 0.996       | 0.000** | 0.034                                | 1.034       | 0.000** |
| High   | –0.003                             | 0.997       | 0.000** | 0.055                                | 1.056       | 0.000** |
| <b>Possible residential mobility for work</b>  |                                    |             |         |                                      |             |         |
| No   | 0.012                              | 1.012       | 0.000** | –0.463                               | 0.629       | 0.000** |
| <b>Experience of stress</b>                    |                                    |             |         |                                      |             |         |
| Yes  | 0.019                              | 1.019       | 0.000** | 0.035                                | 1.035       | 0.000** |
| <b>Physical exertion at work</b>               |                                    |             |         |                                      |             |         |
| Yes  | 0.045                              | 1.046       | 0.000** | 0.128                                | 1.137       | 0.000** |
| <b>Perception of job discrimination</b>        |                                    |             |         |                                      |             |         |
| Yes  | 0.011                              | 1.011       | 0.000** | –0.065                               | 0.937       | 0.000** |
| <b>Income</b>                                  |                                    |             |         |                                      |             |         |
| Between €1,000 and €2,100                      | 0.008                              | 1.008       | 0.000** | –0.318                               | 0.728       | 0.000** |
| Over €2,101                                    | 0.016                              | 1.016       | 0.000** | –0.117                               | 0.889       | 0.000** |
| <b>Year</b>                                    |                                    |             |         |                                      |             |         |
| 2007   | –0.006                             | 0.994       | 0.000** | –0.210                               | 0.811       | 0.000** |
| 2008   | 0.009                              | 1.009       | 0.000** | –0.139                               | 0.870       | 0.000** |
| <b>Regions</b>                                 |                                    |             |         |                                      |             |         |
| Catalonia                                      | 0.002                              | 1.002       | 0.000** | 0.045                                | 1.046       | 0.000** |
| Valencia                                       | –0.012                             | 0.988       | 0.000** | 0.011                                | 1.011       | 0.000** |
| Madrid   | 0.000                              | 1.000       | 0.000** | –0.015                               | 0.985       | 0.000** |
| <b>Constant</b>                                |                                    |             |         | 2.501                                | 12.191      | 0.000** |

Notes: \*\* (\*) Significant within a probability of 95% (90%) of standard errors.

Source: Authors' calculations based on SWCS data, 2007–09.

Table A4. Oaxaca-Blinder decomposition for female-dominated vs balanced occupations. Components and contributions

| Results           | Coefficient   | P>z            | (Odds ratios) | %            |  |  |
|-------------------|---------------|----------------|---------------|--------------|--|--|
| Men               | -0.274        | 0.000**        | 0.761         |              |  |  |
| Women             | 1.341         | 0.000**        | 3.823         |              |  |  |
| <b>Difference</b> | <b>-1.615</b> | <b>0.000**</b> | <b>-3.062</b> | <b>100.0</b> |  |  |
| Explained         | -0.354        | 0.000**        | -0.670        | 21.9         |  |  |
| Unexplained       | -1.261        | 0.000**        | -2.392        | 78.1         |  |  |

|                                  | Contribution to the explained part |             |         | Contribution to the unexplained part |             |         |
|----------------------------------|------------------------------------|-------------|---------|--------------------------------------|-------------|---------|
|                                  | Coefficient                        | Odds ratios | P>z     | Coefficient                          | Odds ratios | P>z     |
| <b>Education</b>                 |                                    |             |         |                                      |             |         |
| Lower secondary/Middle school    | -0.001                             | 0.999       | 0.000** | -0.092                               | 0.912       | 0.000** |
| Upper secondary school           | 0.006                              | 1.006       | 0.000** | 0.019                                | 1.019       | 0.000** |
| University – Graduate level      | -0.038                             | 0.962       | 0.000** | 0.072                                | 1.075       | 0.000** |
| University – Post-graduate level | 0.027                              | 1.028       | 0.000** | 0.163                                | 1.178       | 0.000** |
| <b>Educational matching</b>      |                                    |             |         |                                      |             |         |
| Yes                              | 0.001                              | 1.001       | 0.000** | -0.069                               | 0.933       | 0.000** |
| <b>Age</b>                       |                                    |             |         |                                      |             |         |
| Up to 25 years                   | -0.001                             | 0.999       | 0.000** | 0.004                                | 1.004       | 0.000** |
| 36–40 years                      | 0.009                              | 1.009       | 0.000** | -0.069                               | 0.934       | 0.000** |
| 41–45 years                      | -0.001                             | 0.999       | 0.000** | -0.008                               | 0.992       | 0.000** |
| 46–50 years                      | 0.000                              | 1.000       | 0.000** | -0.063                               | 0.939       | 0.000** |
| 51–55 years                      | -0.010                             | 0.990       | 0.000** | -0.036                               | 0.964       | 0.000** |
| Over 55 years                    | -0.012                             | 0.988       | 0.000** | -0.026                               | 0.975       | 0.000** |
| <b>Tenure in the company</b>     |                                    |             |         |                                      |             |         |
| 11 to 45 months                  | 0.015                              | 1.015       | 0.000** | 0.050                                | 1.052       | 0.000** |
| Over 45 months                   | 0.018                              | 1.018       | 0.000** | -0.007                               | 0.993       | 0.000** |
| <b>Marital status</b>            |                                    |             |         |                                      |             |         |
| With a partner                   | 0.004                              | 1.004       | 0.000** | 0.170                                | 1.186       | 0.000** |
| <b>Nationality</b>               |                                    |             |         |                                      |             |         |
| Spanish                          | 0.005                              | 1.005       | 0.000** | -0.139                               | 0.870       | 0.000** |
| <b>Economic activity</b>         |                                    |             |         |                                      |             |         |
| Manufacturing                    | -0.222                             | 0.801       | 0.000** | 0.009                                | 1.009       | 0.000** |
| Construction                     | -0.002                             | 0.998       | 0.000** | -0.005                               | 0.995       | 0.000** |
| <b>Sector</b>                    |                                    |             |         |                                      |             |         |
| Private                          | -0.063                             | 0.939       | 0.000** | -0.338                               | 0.713       | 0.000** |
| <b>Contract</b>                  |                                    |             |         |                                      |             |         |
| Permanent                        | 0.012                              | 1.012       | 0.000** | 0.033                                | 1.034       | 0.000** |
| <b>Working hours</b>             |                                    |             |         |                                      |             |         |
| Part-time – Voluntary            | -0.001                             | 0.999       | 0.000** | -0.043                               | 0.958       | 0.000** |
| Part-time – Involuntary          | -0.007                             | 0.993       | 0.000** | -0.025                               | 0.975       | 0.000** |
| <b>Working time</b>              |                                    |             |         |                                      |             |         |
| Split                            | -0.010                             | 0.990       | 0.000** | -0.018                               | 0.983       | 0.000** |

(continued overleaf)

Table A4. Oaxaca-Blinder decomposition for female-dominated vs balanced occupations. Components and contributions (*concl.*)

|  | Contribution to the explained part |             |         | Contribution to the unexplained part |             |         |
|--|------------------------------------|-------------|---------|--------------------------------------|-------------|---------|
|  | Coefficient                        | Odds ratios | P>z     | Coefficient                          | Odds ratios | P>z     |
| <b>Size of workplace</b>                       |                                    |             |         |                                      |             |         |
| 1 worker                                       | 0.017                              | 1.017       | 0.000** | -0.024                               | 0.976       | 0.000** |
| 2–10 workers                                   | 0.023                              | 1.023       | 0.000** | -0.092                               | 0.912       | 0.000** |
| 11–50 workers                                  | -0.004                             | 0.996       | 0.000** | -0.078                               | 0.925       | 0.000** |
| <b>Size of company</b>                         |                                    |             |         |                                      |             |         |
| 1 worker                                       | 0.000                              | 1.000       | 0.000** | -0.034                               | 0.967       | 0.000** |
| 2–10 workers                                   | -0.020                             | 0.980       | 0.000** | 0.100                                | 1.105       | 0.000** |
| 11–50 workers                                  | 0.005                              | 1.005       | 0.000** | 0.046                                | 1.047       | 0.000** |
| <b>Work from home</b>                          |                                    |             |         |                                      |             |         |
| Yes  | -0.003                             | 0.997       | 0.000** | 0.190                                | 1.209       | 0.000** |
| <b>Job satisfaction</b>                        |                                    |             |         |                                      |             |         |
| High   | 0.001                              | 1.001       | 0.000** | 0.057                                | 1.059       | 0.000** |
| <b>Children</b>                                |                                    |             |         |                                      |             |         |
| Under 3 years of age                           | 0.000                              | 1.000       | 0.000** | 0.250                                | 1.284       | 0.000** |
| Aged between 3 and 5 years                     | 0.000                              | 1.000       | 0.000** | 0.176                                | 1.192       | 0.000** |
| Aged between 6 and 14 years                    | 0.000                              | 1.000       | 0.000** | 0.292                                | 1.339       | 0.000** |
| <b>Other dependants</b>                        |                                    |             |         |                                      |             |         |
| No   | -0.002                             | 0.998       | 0.000** | 0.036                                |             |         |
| <b>Time spent on housework during the week</b> |                                    |             |         |                                      |             |         |
| Between 1 and 3 hours                          | -0.017                             | 0.983       | 0.000** | 0.197                                | 1.218       | 0.000** |
| Over 3 hours                                   | 0.005                              | 1.005       | 0.000** | 0.002                                | 1.002       | 0.000** |
| <b>Satisfaction in personal life</b>           |                                    |             |         |                                      |             |         |
| Intermediate                                   | 0.005                              | 1.005       | 0.000** | -0.203                               | 0.817       | 0.000** |
| High   | -0.007                             | 0.993       | 0.000** | -0.194                               | 0.823       | 0.000** |
| <b>Possible residential mobility for work</b>  |                                    |             |         |                                      |             |         |
| No   | -0.009                             | 0.991       | 0.000** | -0.110                               | 0.895       | 0.000** |
| <b>Experience of stress</b>                    |                                    |             |         |                                      |             |         |
| Yes  | 0.000                              | 1.000       | 0.000** | 0.029                                | 1.030       | 0.000** |
| <b>Physical exertion at work</b>               |                                    |             |         |                                      |             |         |
| Yes  | 0.014                              | 1.014       | 0.000** | -0.079                               | 0.924       | 0.000** |
| <b>Perception of job discrimination</b>        |                                    |             |         |                                      |             |         |
| Yes  | 0.000                              | 1.000       | 0.000** | 0.057                                | 1.059       | 0.000** |
| <b>Income</b>                                  |                                    |             |         |                                      |             |         |
| Between €1,000 and €2,100                      | 0.009                              | 1.009       | 0.000** | -0.027                               | 0.973       | 0.000** |
| Over €2,101                                    | -0.105                             | 0.900       | 0.000** | -0.036                               | 0.965       | 0.000** |
| <b>Year</b>                                    |                                    |             |         |                                      |             |         |
| 2007   | 0.001                              | 1.001       | 0.000** | 0.014                                | 1.014       | 0.000** |
| 2008   | 0.000                              | 1.000       | 0.000** | 0.043                                | 1.044       | 0.000** |
| <b>Regions</b>                                 |                                    |             |         |                                      |             |         |
| Catalonia                                      | 0.001                              | 1.001       | 0.000** | 0.003                                | 1.003       | 0.000** |
| Valencia                                       | 0.002                              | 1.002       | 0.000** | 0.056                                | 1.058       | 0.000** |
| Madrid   | 0.000                              | 1.000       | 0.000** | 0.029                                | 1.029       | 0.000** |
| <b>Constant</b>                                |                                    |             |         |                                      |             |         |
|  |                                    |             |         | -1.545                               | 0.213       | 0.000** |

Notes: \*\* Significant within a probability of 95% of standard errors.

Source: Authors' calculations based on SWCS data, 2007–09.