

Gender Differences in Retirement patterns: Spain in an international comparison

Laura Hospido
Research Division, Bank of Spain

Gema Zamarro
RAND Corporation

First version: May 2009
Preliminary and incomplete

Contents

1	Introduction	1
2	Literature Review	4
3	Descriptive Analysis	6
3.1	Data	6
3.2	Retirement Patterns	7
4	Regression Analysis	10
4.1	Labor participation and retirement decisions	10
4.2	Retirement transitions	13
5	Conclusions	18
6	Appendix	19
6.1	Sample Selection	19
6.2	Sample composition	19

1 Introduction

As population ages around the world, due to increased life expectancy, individuals are increasingly encouraged to extend their working life to reduce budgetary concerns of old age insurance systems. However, the extent to which people continue to participate in the labor market after the age of 50 varies considerably across countries. As we can see in Table 1 Spain, Austria and Italy are in the group of European countries with lowest participation rates for those in between 50 and 64 years old. In addition, big differences are observed in participation rates of men and women, especially in these countries.

Table 1: Employment/population ratios (50-64 years).

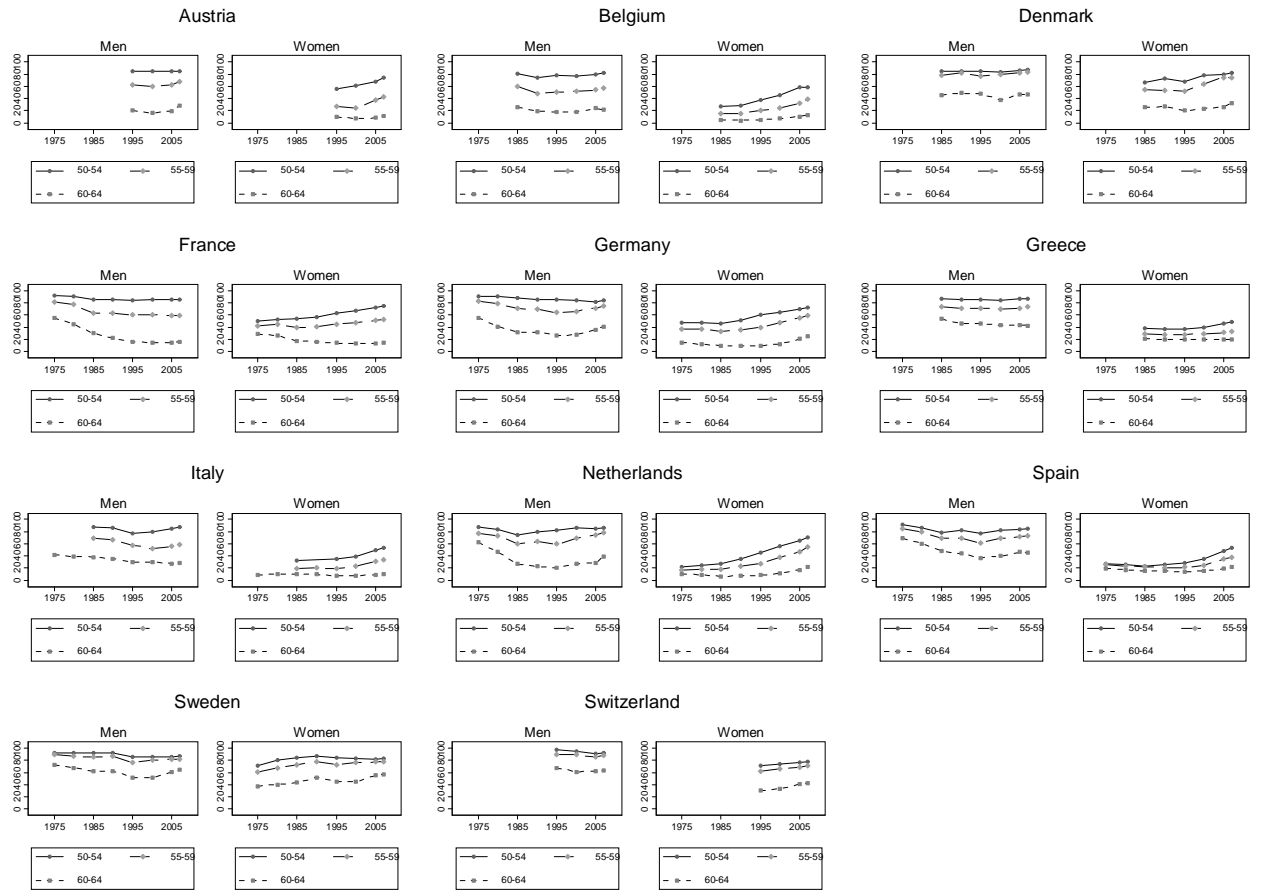
Country	Total	Males	Females
Austria	32.85	43.43	25.00
Belgium	42.96	50.66	35.98
Denmark	62.74	67.46	58.46
France	50.43	51.32	49.74
Germany	52.06	58.75	46.82
Greece	49.40	72.75	29.20
Italy	29.15	41.79	20.61
Netherlands	49.31	59.13	42.07
Spain	38.89	58.02	26.52
Sweden	74.43	77.75	71.76
Switzerland	71.04	79.74	63.43
Total	49.66	59.79	41.60

Source: SHARE (2004, 2006/07).

Underlying these cross-country differences in labor participation rates of older workers are very different trends over time by gender for different countries (see Figure 1). Participation rates for older men have fallen substantially since the 70's in most countries but by much more in some countries than in others. For instance, participation rates for men aged 55 to 59 dropped 22.7 percentage points in France in between 1975 and 2007, 11.6 in Spain and 8.1 in Germany. In contrast, labor participation rates for older women have been in the rise. However, this increase has been much bigger in some countries than in others. For example, labor participation rates of women aged 50 to 54 increased by 48.2 percentage points in The Netherlands in between 1975 and 2007 while in Spain it increased only by 26.5 percentage points.

Tightly related with the labor participation rates of older workers is the effective age of retirement. In most countries, the effective age of retirement is well below the official age of receiving a full old-age pension and females are found to retire around one to two years earlier than males. Table 2 collects the statutory Early and Full retirement ages in place in each country jointly with the Effective age of retirement obtained

Figure 1: Participation rates over time (Source: OECD ALFS).



from the Survey of Health Ageing and Retirement in Europe (SHARE, 2004-2006).

Table 2: Retirement Age.

Country	Males			Females		
	Early	Normal	Effective	Early	Normal	Effective
Austria	60	65	58	57	60	56
Belgium	60	65	58	60	65	56
Denmark	65	65	60	65	65	60
France	57	60	58	57	60	58
Germany	63	65	60	63	65	59
Greece	57	65	60	57	65	59
Italy	57	65	57	57	65	56
Netherlands	60	65	59	60	65	58
Spain	60	65	61	60	65	58
Sweden	61	65	62	61	65	61
Switzerland	63	65	63	62	64	62

Source: SHARE (2004, 2006/07). Effective age = median age of stop working.

From the point of view of policy, these observed gender differences in late-aged labor participation are very relevant as they have important implications for inequality in economic wellbeing among elderly persons. Less continuous work histories, lower skill employment and more family responsibilities may lead women to a greater probability of losing or leaving their jobs than men. In addition, lower levels of labor attachment would lead to less accumulated experience in the job and hence to a lower probability of receiving work related old-aged pensions.

This paper would further our understanding of the determinants of gender differences in labor status and timing of retirement of middle age and older workers. In particular, using data from the first two waves of SHARE 2004-2006, we will study the role of different social security rules, labor market experience, care responsibilities, health shocks and preferences for joint retirement. Using the first wave of SHARE, we estimate probit models to study labor market participation decisions, and - focusing on those individuals who were working at the age of 50 - to study retirement decisions by gender and country. Using both waves of data, we estimate probit models to study the determinants of transitions from employment to non employment and multinomial probit models to study the determinants of different retirement patterns: retirement, and unemployment or homemaker.

The rest of the paper goes as follows: Section 2 presents a review of the relevant literature on possible sources of gender differences in retirement behavior; Section 3 presents the dataset and main descriptive statistics; Section 4 presents our econometric results and section 5 the conclusions.

2 Literature Review

Numerous studies, based mostly in males, have shown the importance of Social Security incentives for retirement decisions. The timing of retirement has been found to be in part determined by the incentives imbedded in the rules determining Social Security benefits, as well as employer-provided pension benefits (see [Hurd, 1990](#) and [Lumsdaine and Mitchell, 1999](#) for reviews). Likewise, other cross-national research published volumes edited by [Gruber and Wise \(1999, 2004\)](#) note that there is a strong negative correlation between labor force participation at older ages and the generosity of early retirement benefits.¹ Finally, [Coe and Zamarro \(2008\)](#) find that official retirement ages in Europe are a strong predictor of retirement. In this sense, different incentives for men and women might be responsible of gender differences in retirement patterns. For instance, the official retirement ages in Europe vary by country, and sometimes by gender, by as much as 8 years (see Table 2 in the Introduction).

On the other hand, recent research has also stressed the role of "push" factors in determining the timing of labor market exit. In particular, labor market constraints, poor health or family care-giving obligations may have strong implications on the timing of retirement and may also help explain the gender differences in employment behavior among men and women.

Labor markets vary substantially across European countries, providing different employment opportunities for older workers both before and after retirement. Labor market rigidities are particularly important as they tend to inhibit job mobility, conciliation of work and care responsibilities, as well as the ability of workers to recover from unexpected job losses. For instance, in countries in which it is difficult to fire unproductive workers, hiring is inhibited, especially from within classes of workers with high productivity variance (e.g., older workers) ([Hurd, Michaud, and Rohwedder, 2008](#)). As a result, the employed experience "job lock" and re-entry by workers who experience job loss or who retire is more difficult ([García-Pérez and Sánchez-Martín, 2008](#)). [Maestas and Li \(2006\)](#) document low job attainment rates for older job-seekers compared to younger workers. Other factors that affect re-entry are structural aspects of the labor market such as the existence of a sizable part-time employment sector or an informal employment sector. To the extent that these labor market constraints are perceived differently by men and women, they may be a source of gender differences in retirement behavior. In this respect, research shows a lower attachment of women in the labor market with lower participation rates than men, lower wages and earnings as well as a lower likelihood of getting

¹In particular, for the Spanish case see [Boldrin et al. \(1999, 2004\)](#) in those volumes.

promoted and receiving a pension (Even and Macpherson, 1990, 1994; Altonji and Blank, 1999; Spilerman and Petersen, 1999).

Informal caregiving to elderly or disabled family members and friends is a widespread phenomenon. Around 20% of individuals in between 50 and 60 years old declare to provide help to a parent in the first wave of SHARE (2004). Research indicates that caring responsibilities can have important implications for labor participation. Using a sample of women from SHARE, Crespo (2006) finds that assuming "intensive" caregiving responsibilities to an elderly parent decreases the probability of participating in the labour market both in Northern and Southern European countries. The effect of care giving on labor supply can be also different for men and women. Fevang, Kverndokk and Røed (2008), using data from Norway, found that having a lone parent in the terminal phase of life significantly affects the offspring's labor participation but in a bigger magnitude for daughters than for sons.

The recent literature has also stressed the role of health in determining the timing of retirement. Bad health can lead to less attractive employment opportunities as a result of decreases in productivity and hence possibly lower wages. In addition, bad health can make work more burdensome, increasing the preference for retirement. On the other hand, if health insurance availability is related to employment then the effect of health on retirement becomes ambiguous. See, for example, Currie and Madrian (1999) for an overview of the literature on the relationship between health, health insurance and labor market outcomes. If men and women react differently to health shocks, this could be an additional factor explaining gender differences in retirement behavior.

Finally, an increasing part of the literature considers retirement as a decision concerning the couple, rather than the individual (see Gustman and Steinmeier, 2000; Blau and Gilleskie, 2006; Coile, 2004a, 2004b; Michaud, 2003; Michaud and Vermulen, 2004). This follows the observation that a significant share of spouses retire within less than one year of each other, independently of the age difference between them. As women typically marry older men, joint retirement then implies that wives are likely to retire at a younger age than their husbands (Ruhm, 1996). In addition, there might also be different preferences towards joint retirement among men and women.

In what follows we study the role of different social security rules, labor market experience, care responsibilities, health shocks and preferences for joint retirement in labor market participation decisions in the late career.

3 Descriptive Analysis

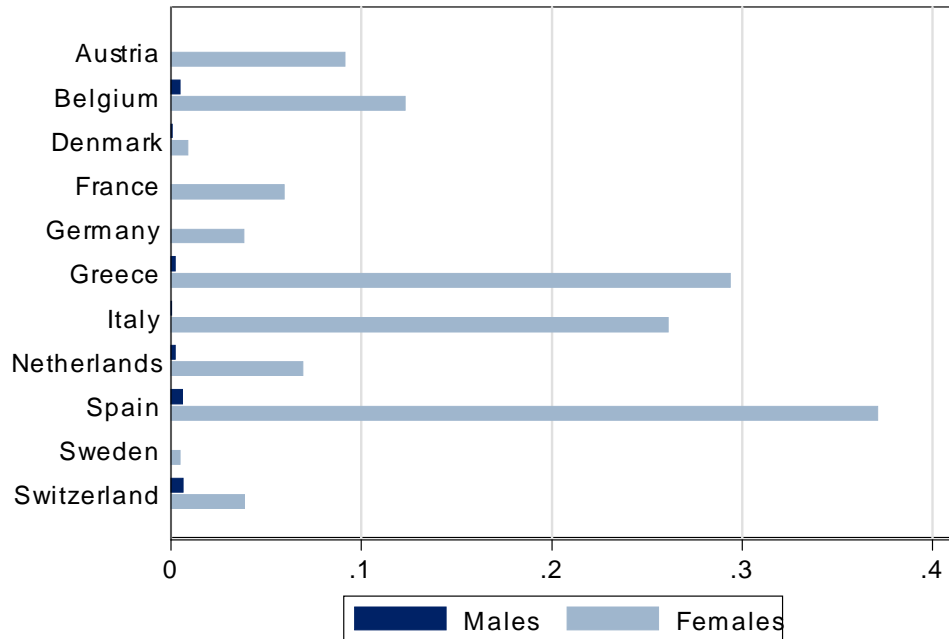
3.1 Data

We use data drawn from SHARE, a multidisciplinary and cross-national panel database of micro data on health, socioeconomic status and social and family networks of more than 40,000 individuals aged 50 or over.² The main purpose of this survey is to provide detailed information about the living conditions of middle-aged and older people for several countries in Europe. They are a balanced representation of the various regions in Europe, ranging from Scandinavia (Denmark and Sweden) through Central Europe (Austria, France, Germany, Switzerland, Belgium, and the Netherlands) to the Mediterranean (Spain, Italy and Greece). Further data have been collected in 2005-06 in Israel. The Czech Republic, Poland and Ireland have joined SHARE in 2006 and participated in the second wave of data collection in 2006-07. SHARE collects information on health variables (self-reported health, health conditions, physical and cognitive functioning, health behavior, use of health care facilities), biomarkers (grip strength, body-mass index, peak flow), psychological variables (psychological health, well-being, life satisfaction), economic variables (current work activity, job characteristics, opportunities to work past retirement age, sources and composition of current income, wealth and consumption, housing, education), and social support variables (assistance within families, transfers of income and assets, social networks, volunteer activities), both at household and individual level. This gives the possibility to analyze a wide variety of questions related to population ageing and the quality of life of the elderly.

We use data on the first two waves, collected by personal interviews in 2004 and 2006/07. We just focus on the first eleven countries that contributed data to the 2004 SHARE baseline study and for whom we have longitudinal data available. We select individuals aged 50 to 75 who answered their own interview. In addition, we eliminate individuals with incomplete records and those who never worked. We obtain a panel with 13,147 individuals and 25,178 observations (sample 1). Step-by-step details on sample selection are reported in Appendix 6.1. Sample composition by country and gender, and demographic characteristics are presented in Appendix 6.2.

²This survey was designed and developed by the SHARE project for several countries in Europe. For more information on this project, see www.share-project.org.

Figure 2: Proportion of individuals who never worked.



3.2 Retirement Patterns

In some European countries (notably the Mediterranean countries) the proportion of women who never worked is much higher than for men (Figure 2). In our analysis those individuals, both men and women, are excluded because they were never attached to the labor market.

When we restrict the analysis only to individuals that ever worked and look at the labor force participation, we observe some gender differences in non-employment but especially in retirement rates (Figure 3). In general, the proportion of women who are not working is higher relative to men, but - on the contrary - the proportion of females who actually declare being retired is lower than for males. Those differences are more pronounced in countries like Spain or the Netherlands.

If we look at the age at which workers in our sample stop working we observe that in some countries a large number of women stop early in their careers (see bimodal histogram shapes in Figure 4 for females in countries like Greece, the Netherlands or Spain). For this reason, in Figure 5 we focus only on those individuals who were working at the age of 50 and calculate their corresponding current labor force participation.

Even for this group we observe gender differences in retirement patterns. Now, the proportion of women

Figure 3: Proportion of individuals who do not work.

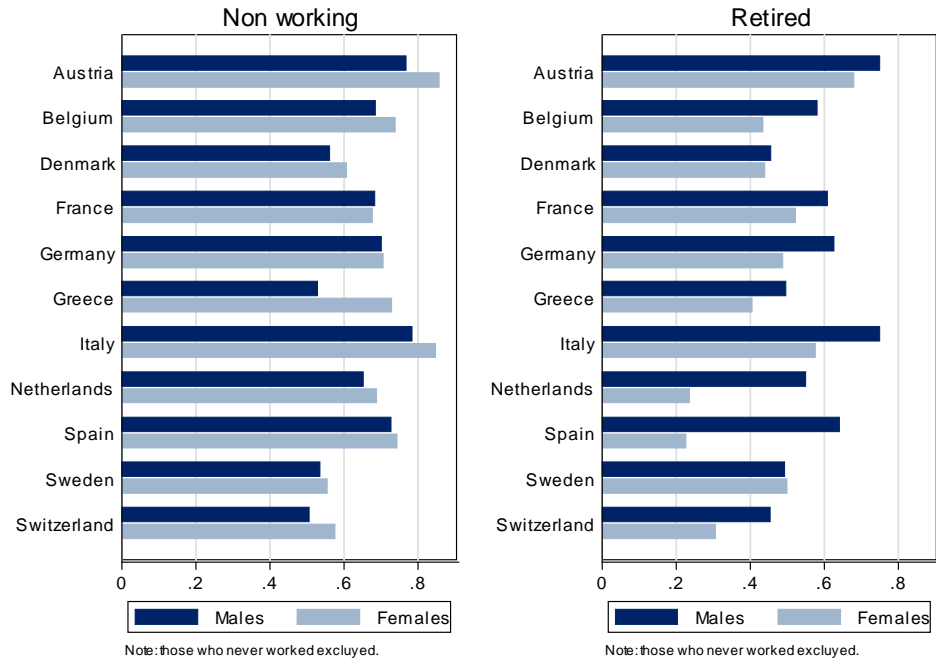


Figure 4: Stop working age.

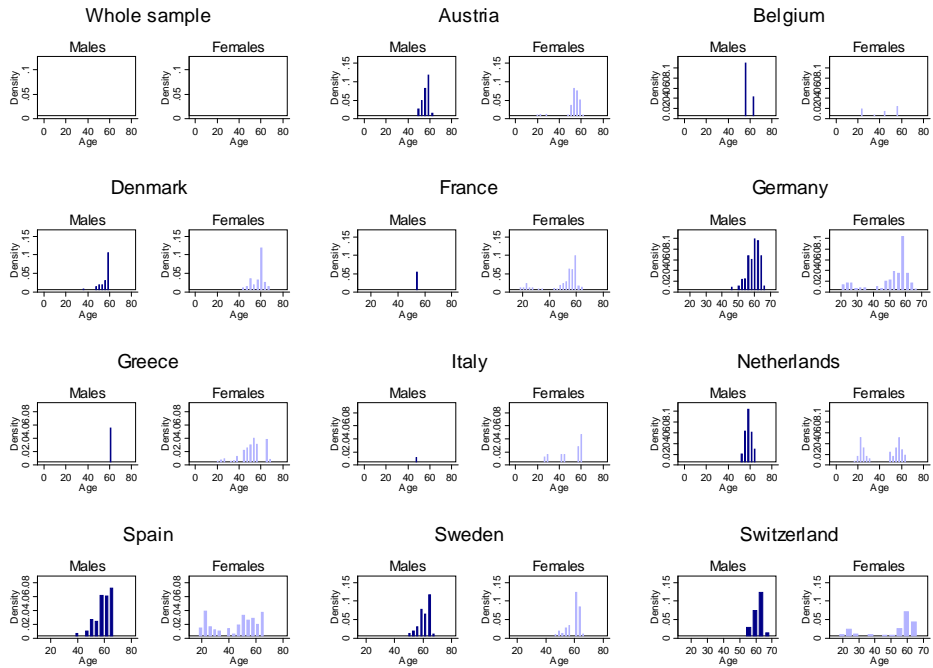
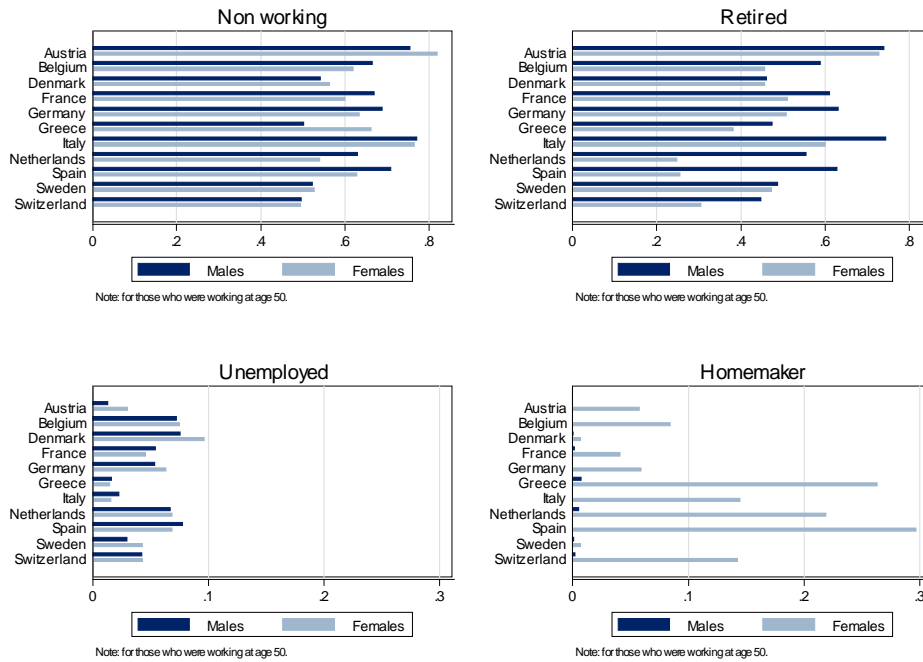


Figure 5: Proportion of individuals who do not work.



who are not working at the time of the interview is not longer higher relative to men, but still the proportion of females who actually declare being retired is much lower³.

And what these individuals (mainly women) do if they do not work but neither declare being retired? In Figure 5 we can also see that, although the proportions are smaller in absolute terms, we have a significant number of women that declare being homemaker in countries like Greece, the Netherlands or Spain.

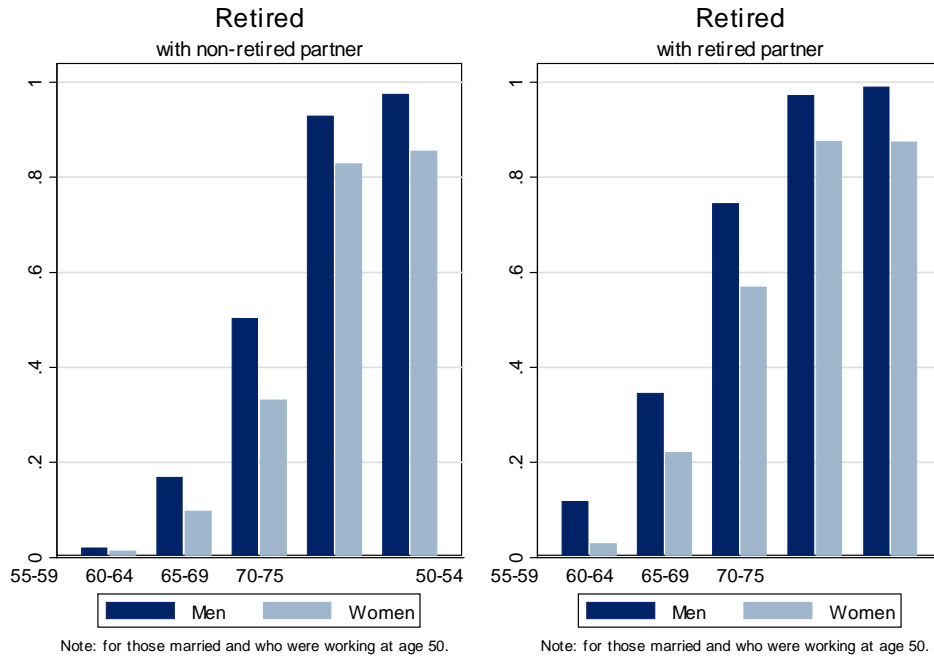
Finally, we evaluate the importance of joint retirement focusing on a sample of only married couples⁴. We look at the share of retired individuals when his/her spouse is still working or when he/she is also retired (Figure 6). We observe that the proportion of workers that retire earlier than age 65 increases when the partner is also retired.

In the next section we will use probit regression analysis to study participation decisions, and - focusing on those individuals who were working at the age of 50 - to study retirement decisions by gender and country.

³Similar results have been found for Spain in Gutiérrez-Domènech (2006) and in Argimón *et al.* (2007), using different datasets.

⁴For those married individuals who were working at the age of 50, we obtain a sample with 8,948 individuals and 16,781 observations.

Figure 6: Joint retirement.



4 Regression Analysis

4.1 Labor participation and retirement decisions

In this subsection, we present estimates of the determinants of both labor participation and retirement decisions using SHARE wave 1. The set of explanatory variables included in these regressions are variables related to the type of current or last job (employment in the public sector, self-employment), education, marital status, number of children and grandchildren, a dummy indicating if the partner is still participating in the labor market, household income excluding individual's income, health (own, partner's, parent's), and dummy variables indicating whether the respondent and the partner are over early or full retirement age.

Table 3 shows the results of probit regressions by gender using as dependent variable a dummy indicating non-participation in the labor market. As we can see in this table, variables related to the type of job and education are significant and have a similar effect for both men and women. In this respect, women working in the public sector participate in the labor market with a higher probability than men. Being married or living with a partner has a positive and significant effect on the probability of non participating in the labor market but only for women. Having grandchildren has a positive effect on non participation but higher for

men than for women. In the same way men with limited health participate in the labor market with a lower probability than women. Having a partner that is still participating in the labor market has a positive effect on the probability of participating and reaching the eligibility age for retirement has a negative effect. Men seem to react more than women to them or their partners achieving either full or early retirement ages.

Table 3: Probit regression for non participating in the labor market.

	Marginal Effects (Standard Errors)	
	Males	Females
Public-employment	-0.124*** (0.026)	-0.228*** (0.021)
Self-employed	-0.441*** (0.024)	-0.462*** (0.027)
High education	-0.133*** (0.022)	-0.172*** (0.019)
Medium education	-0.066*** (0.020)	-0.060*** (0.015)
Married/Living with partner	-0.035 (0.022)	0.072*** (0.017)
Children	-0.034*** (0.007)	0.005 (0.006)
Grandchildren	0.031*** (0.004)	0.012*** (0.003)
Bad health	0.203*** (0.015)	0.146*** (0.011)
Partner bad health	0.052** (0.021)	-0.002 (0.019)
Parents bad health	-0.039 (0.028)	0.001 (0.018)
Household income	-0.104 (0.420)	-0.619** (0.294)
Partner working	-0.104*** (0.020)	-0.092*** (0.018)
Over Early Age	0.306*** (0.013)	0.168*** (0.011)
Over Full Age	0.624*** (0.014)	0.469*** (0.012)
Partner over Early Age	0.080*** (0.022)	0.034** (0.015)
Partner over Full Age	0.158*** (0.029)	0.087*** (0.017)
Observations	6,211	6,429
Pseudo R-squared	0.489	0.424

Note: country dummies included. * significant at 10%, ** 5%, and *** 1.

In the same way as it was presented in table 3, Table 4 shows the results for probit regressions for non participating in the labor market but now focusing on the case of Spain. As for Europe as a whole, variables related to the type of work and education have a significant effect on the labor participation. However, this is especially the case for women in Spain. Being married or living with a partner has a negative effect on labor participation of Spanish women. Health problems reduce the probability of participating in the labor market for both men and women in Spain. Finally, having a partner participating in the labor market increases the probability of participating for Spanish women while being above the early or full retirement ages or having a partner above these ages reduces the probability of participation especially for Spanish men.

Table 4: Probit regression for non participating in the labor market. Spain.

	Marginal Effects (Standard Errors)	
	Males	Females
Public-employment	-0.100 (0.090)	-0.690*** (0.098)
Self-employed	-0.613*** (0.102)	-0.716*** (0.086)
High education	-0.081 (0.080)	-0.264*** (0.119)
Medium education	-0.230** (0.126)	-0.164* (0.104)
Married/Living with partner	0.071 (0.089)	0.124* (0.081)
Children	-0.010 (0.018)	-0.003 (0.020)
Grandchildren	0.003 (0.013)	0.046** (0.020)
Bad health	0.126*** (0.043)	0.123** (0.048)
Partner bad health	-0.084 (0.065)	0.102 (0.057)
Parents bad health	-0.022 (0.076)	-0.025 (0.094)
Household income	-0.057 (2.374)	-0.497 (1.580)
Partner working	-0.126 (0.102)	-0.236*** (0.094)
Over Early Age	0.156*** (0.044)	-0.008 (0.075)
Over Full Age	0.573*** (0.076)	0.190** (0.059)
Partner over Early Age	0.068 (0.052)	0.082 (0.051)
Partner over Full Age	0.237** (0.062)	0.087 (0.074)
Observations	409	328
Pseudo R-squared	0.555	0.471

Note: * significant at 10%, ** 5%, and *** 1.

Previous regressions combine retirement with non-participation in the labor market. In order, to study the determinants of retirement decisions alone next we restrict our sample to those who were working at the age of 50. In the following tables we define retirement as non participation in the labor market for this particular sample. Alternative definitions of retirement were also considered, including self-reported retirement. The main results still hold for these alternative definitions. Table 5 shows the results for Europe as a whole while Table 6 shows the results for Spain. As we can see in these tables, the main conclusions of tables 3 and 4 still hold.

Table 5: Probit regression for retirement (those were working at age 50).

	Marginal Effects (Standard Errors)	
	Males	Females
Public-employment	-0.153*** (0.029)	-0.204*** (0.025)
Self-employed	-0.432*** (0.024)	-0.406*** (0.029)
High education	-0.115*** (0.024)	-0.154*** (0.025)
Medium education	-0.052** (0.022)	-0.061*** (0.022)
Married/Living with partner	-0.009 (0.026)	0.083*** (0.024)
Children	-0.039*** (0.008)	-0.017* (0.009)
Grandchildren	0.035*** (0.005)	0.026*** (0.005)
Bad health	0.197*** (0.018)	0.199*** (0.018)
Partner bad health	0.060** (0.024)	-0.006 (0.029)
Parents bad health	-0.037 (0.030)	-0.007 (0.029)
Household income	-0.430 (0.480)	-0.789* (0.441)
Partner working	-0.110*** (0.022)	-0.140*** (0.025)
Over Early Age	0.355*** (0.014)	0.283*** (0.016)
Over Full Age	0.680*** (0.014)	0.638*** (0.014)
Partner over Early Age	0.090*** (0.024)	0.065*** (0.024)
Partner over Full Age	0.170*** (0.031)	0.138*** (0.026)
Observations	5,882	4,895
Pseudo R-squared	0.520	0.476

Note: country dummies included. * significant at 10%, ** 5%, and *** 1.

Table 6. Probit regression for retirement (those were working at age 50). Spain.

	Marginal Effects (Standard Errors)	
	Males	Females
Public-employment	-0.166 (0.119)	-0.554*** (0.109)
Self-employed	-0.621*** (0.106)	-0.635*** (0.089)
High education	-0.029 (0.084)	-0.289** (0.141)
Medium education	-0.175 (0.129)	-0.277* (0.149)
Married/Living with partner	0.132 (0.114)	0.065 (0.112)
Children	-0.022 (0.024)	-0.023 (0.036)
Grandchildren	0.006 (0.015)	0.073** (0.034)
Bad health	0.124** (0.052)	0.210** (0.085)
Partner bad health	-0.093 (0.076)	0.244* (0.098)
Parents bad health	-0.046 (0.102)	-0.089 (0.169)
Household income	-1.813 (3.081)	-0.211 (2.832)
Partner working	-0.140 (0.119)	-0.253** (0.127)
Over Early Age	0.214*** (0.053)	0.073 (0.121)
Over Full Age	0.661*** (0.075)	0.355** (0.104)
Partner over Early Age	0.080 (0.062)	0.108 (0.110)
Partner over Full Age	0.273** (0.072)	0.129 (0.135)
Observations	381	221
Pseudo R-squared	0.591	0.479

Note: * significant at 10%, ** 5%, and *** 1.

4.2 Retirement transitions

In this subsection, we present estimates of the determinants of retirement transitions between waves. To do so, we concentrate on those respondents who were working in the first wave of SHARE (2004) and study their

transitions out of paid employment. Table 7 shows the results of these regressions for Europe as a whole while Table 8 shows the results for Spain. The set of explanatory variables includes information about the type of job performed in the first wave (i.e. job in the public sector, self-employment), accumulated experience in the job measured in the first wave, marital status, education, number of children and grandchildren, a dummy indicating the birth of new grandchildren during waves, health status (own, of the partner or of the parents), dummies indicating the appearance of health problems in the partner or parents, household income excluding individual's income measured in the first wave, a dummy indicating if the partner is still participating in the labor market in the second wave, and dummies indicating if the respondent or the partner reached early or normal retirement ages.

Table 7: Probit regression for transitions to non participating (those working in wave 1).

	Marginal Effects (Standard Errors)	
	Males	Females
Public-employment	-0.002 (0.022)	-0.012 (0.022)
Self-employed	-0.081***(0.016)	0.012 (0.026)
High education	-0.055***(0.018)	-0.061***(0.022)
Medium education	-0.033* (0.018)	-0.003 (0.022)
Married/Living with partner	0.051** (0.019)	0.079***(0.020)
Children	-0.020***(0.007)	-0.020** (0.009)
Grandchildren	0.021***(0.005)	0.012** (0.005)
New Grandchild	-0.010 (0.021)	0.003 (0.027)
Bad health	0.094***(0.028)	0.107***(0.033)
Partner bad health	0.006 (0.025)	-0.014 (0.029)
Parents bad health	-0.026 (0.022)	-0.044* (0.025)
New Health problems	0.112***(0.032)	0.150***(0.035)
New Health problems partner	0.028 (0.030)	0.023 (0.037)
New Health problems parents	-0.028 (0.021)	0.004 (0.025)
Household income	0.315 (0.335)	0.333 (0.381)
Partner working	-0.077***(0.016)	-0.047** (0.021)
Over Early Age	0.220***(0.027)	0.231***(0.031)
Over Full Age	0.577***(0.043)	0.603***(0.044)
Over Early Age partner	0.062***(0.026)	0.006 (0.025)
Over Full Age partner	0.006 (0.037)	0.013 (0.028)
Experience in the job	0.001** (0.001)	0.002** (0.001)
Observations	2,506	2,084
Pseudo R-squared	0.257	0.204

Note: country dummies included. * significant at 10%, ** 5%, and *** 1.

As it can be seen in Table 7 men who are self-employment retire later. Being married or living with a partner, and the number of grandchildren has a positive effect for both men and women while the number of children has a negative effect. This latter result might be capturing income effects. Health problems encourage retirement for both men and women while having a parent with health problems has a slightly

negative effect on retirement for women. Having a partner that is still participating in the labor market has a positive effect on the probability of participating whereas work experience has a positive and significant effect on retirement. Again, the eligibility age for retirement matters and, in addition, men react more than women to their partners reaching early retirement ages.

Table 8: Probit regression for transitions to non participating (those working in wave 1). Spain.

	Marginal Effects (Standard Errors)	
	Males	Females
Public-employment	-0.156 (0.061)	-0.146 (0.125)
Self-employed	-0.229** (0.068)	-0.016 (0.150)
High education	-0.161 (0.070)	-0.168 (0.115)
Medium education	-0.117 (0.076)	-0.023 (0.150)
Married/Living with partner	0.084 (0.095)	0.067 (0.167)
Children	-0.060 (0.038)	-0.126* (0.069)
Grandchildren	0.018 (0.038)	0.089 (0.062)
New Grandchild	0.162 (0.171)	0.120 (0.236)
Bad health	0.163 (0.139)	0.062 (0.198)
Partner bad health	-0.016 (0.099)	0.259 (0.337)
Parents bad health	0.067 (0.137)	-0.074 (0.194)
New Health problems	-0.005 (0.111)	-0.001 (0.176)
New Health problems partner	0.208 (0.225)	0.224 (0.223)
New Health problems parents	0.338** (0.186)	0.277 (0.198)
Household income	-1.514 (4.653)	2.705 (3.846)
Partner working	-0.103 (0.086)	0.005 (0.165)
Over Early Age	0.172 (0.126)	0.428* (0.227)
Over Full Age	0.850*** (0.079)	0.748*** (0.139)
Over Early Age partner	0.017 (0.120)	0.351** (0.171)
Over Full Age partner	0.006 (0.234)	-0.065 (0.189)
Experience in the job	0.002 (0.003)	0.006 (0.005)
Observations	139	90
Pseudo R-squared	0.398	0.370

Note: * significant at 10%, ** 5%, and *** 1.

Table 8 shows the results for the case of Spain. Given the small sample sizes we obtain in this case we do not want to push these results too far, but what they seem to suggest is the following. As for Europe as a whole, Spanish men who are self-employment retire later. Now the number of children has a negative effect only for women while the appearance of new health problems in a parent has a positive effect on retirement for men. Spanish women retire with a higher probability than men when they reach early retirement age and also react more than men to their partners reaching early retirement ages.

As an alternative, we also consider a multinomial probit model to study different retirement patterns: from being working in the first wave of SHARE (2004), individuals in the second wave (2006-07) in our sample can be still working, or if they do not work they can be either retired or not retired (that is, unemployed or

homemaker).

Table 9 shows the results of these multinomial probit regressions by gender for Europe using as dependent variable the possible transitions from being working in wave 1: still working (base category), not working and retired, or not working and not retired.⁵

Table 9: Marginal effects (and Standard Errors) from Multinomial Probit regression.

	Males		Females	
	Retired	Unemployed or Homemaker	Retired	Unemployed or Homemaker
Public-employment	0.014 (0.020)	-0.014** (0.006)	0.001 (0.017)	-0.014 (0.012)
Self-employed	-0.070*** (0.013)	-0.006 (0.006)	-0.049*** (0.014)	0.060*** (0.020)
High education	-0.045*** (0.016)	-0.006 (0.007)	-0.009 (0.017)	-0.046*** (0.011)
Medium education	-0.025 (0.016)	-0.004 (0.007)	0.001 (0.017)	-0.001 (0.012)
Married/Living with partner	0.057*** (0.015)	-0.009 (0.010)	0.045*** (0.014)	0.023* (0.012)
Children	-0.022*** (0.006)	0.001 (0.002)	-0.017** (0.007)	-0.002 (0.005)
Grandchildren	0.020*** (0.004)	0.001 (0.002)	0.007* (0.004)	0.003 (0.003)
New Grandchild	0.001 (0.019)	-0.010 (0.006)	-0.017 (0.018)	0.017 (0.017)
Bad health	0.078*** (0.026)	0.015 (0.011)	0.092*** (0.028)	0.012 (0.017)
Partner bad health	0.002 (0.021)	0.005 (0.010)	-0.035** (0.017)	0.025 (0.020)
Parents bad health	-0.028 (0.019)	0.001 (0.009)	-0.028 (0.018)	-0.009 (0.014)
New Health problems	0.100*** (0.029)	0.010 (0.012)	0.117*** (0.031)	0.026 (0.019)
New Health problems partner	0.022 (0.027)	0.005 (0.012)	0.003 (0.027)	0.021 (0.022)
New Health problems parents	-0.023 (0.018)	-0.003 (0.007)	0.002 (0.019)	0.003 (0.014)
Household income	0.138 (0.317)	0.104 (0.095)	0.105 (0.309)	0.114 (0.195)
Partner working	-0.065*** (0.014)	-0.006 (0.006)	-0.057*** (0.015)	0.010 (0.013)
Over Early Age	0.202*** (0.026)	0.015 (0.009)	0.162*** (0.028)	0.061*** (0.020)
Over Full Age	0.608*** (0.043)	-0.017*** (0.005)	0.600*** (0.051)	0.009 (0.024)
Over Early Age partner	0.052** (0.023)	0.006 (0.010)	0.015 (0.020)	-0.006 (0.013)
Over Full Age partner	0.006 (0.032)	-0.002 (0.015)	0.023 (0.021)	-0.010 (0.014)
Experience in the job	0.002*** (0.000)	-0.000 (0.000)	0.003*** (0.001)	-0.002*** (0.000)
Observations	2,506		2,084	

Note: country dummies included. * significant at 10%, ** 5%, and *** 1. Base category: Employed.

As it can be seen in Table 9 the probability of retirement is lower both for men and women who are self-employment although for women also has a positive effect on becoming unemployed or homemaker. Working as a civil servant has a slightly negative effect on becoming unemployed for men. Men who have high education retire later whereas women highly educated are less prone to become unemployed or homemaker. Being married or living with a partner has a positive effect on retirement for both men and women, and for women also on being unemployed or homemaker. Again, the number of grandchildren has a positive effect on retirement for both men and women while the number of children has a negative effect. As in previous estimates, health problems encourage retirement for both men and women while having a parent with health

⁵Those marginal effects were computed first at the individual level, and then we calculate the average among males and the corresponding average for females.

problems has a slightly negative effect on retirement for women. Having a partner that is still participating in the labor market has a positive effect on the probability of participating whereas work experience has a positive and significant effect on retirement. For women only, work experience also has a negative effect on being unemployed or homemaker. Finally, in terms of retirement men react more than women to their partners reaching early retirement ages.

Next we restrict the analysis to the Netherlands and Spain, countries where - according to the descriptive evidence presented above - the gaps between the percentage of women who are not working and those who actually declare being retired are more pronounced. As it can be seen in Table 10 women in these countries also react to their partners reaching full retirement ages, decreasing the probability that women retire and increasing their probability of becoming unemployed or homemaker.⁶

Table 10: Marginal effects (and Standard Errors) from Multinomial Probit regression.

Females. Netherlands and Spain.		
	Retired	Unemployed or Homemaker
Public-employment	-0.040 (0.024)	0.059 (0.048)
Self-employed	-0.071** (0.021)	0.134* (0.069)
High education	0.024 (0.035)	-0.081** (0.033)
Medium education	0.006 (0.037)	-0.059* (0.034)
Married/Living with partner	0.064*** (0.023)	0.050 (0.040)
Children	-0.010 (0.013)	-0.016 (0.018)
Grandchildren	0.001 (0.010)	0.004 (0.014)
New Grandchild	0.022 (0.046)	0.005 (0.053)
Bad health	-0.003 (0.033)	0.042 (0.057)
Partner bad health	-0.014 (0.041)	0.034 (0.073)
Parents bad health	0.056 (0.060)	-0.037 (0.044)
New Health problems	0.169* (0.097)	-0.006 (0.046)
New Health problems partner	0.057 (0.072)	-0.060 (0.037)
New Health problems parents	0.081 (0.061)	-0.006 (0.045)
Household income	-0.270 (0.606)	0.176 (0.701)
Partner working	-0.033 (0.027)	0.009 (0.045)
Over Early Age	0.418*** (0.107)	-0.024 (0.042)
Over Full Age	0.891*** (0.083)	-0.074*** (0.025)
Over Early Age partner	-0.007 (0.033)	0.065 (0.056)
Over Full Age partner	-0.054** (0.021)	0.168* (0.102)
Experience in the job	0.002 (0.001)	-0.002 (0.002)
Observations	302	
Note: country dummies included. * significant at 10%, ** 5%, and *** 1.		
Base category: Employed.		

⁶We do not report here the corresponding results for Spain only because, as noted earlier, the sample size is very small. In any case, the qualitative results are similar but much less precise.

5 Conclusions

This paper studies how the role of different social security rules, labor market experience, care responsibilities, health shocks and preferences for joint retirement, differs by gender in participation decisions of workers in their late careers. As the labour histories of women are known to be quite different from those of males, the determinants of their decisions may be also different. However, in previous empirical work women are often omitted or the differences are captured by a gender dummy only.

Results from the regression analysis show that, in general for all the countries in the sample, the eligibility age for receiving a social security pension and health problems matter, but the same for men and women. On the contrary, being married or self-employment has different effects by gender, as those variables increase the probability of becoming unemployed or homemaker only for women. In the data there is evidence of joint retirement behavior: whether the partner is still working or the eligibility age for the partner receiving a social security pension also matters in terms of retirement decisions. Moreover, Dutch and Spanish women also react to their partners reaching full retirement ages, increasing their probability of becoming unemployed or homemaker.

There are two issues, at least, that require further research: we plan to use decomposition techniques adapting the [Oaxaca \(1973\)-Blinder\(1973\)](#) method to the nonlinear framework, and to exploit the panel data structure of the data to control for unobserved heterogeneity, applying a [Chamberlain \(1980\)-Mundlack \(1978\)](#) type correlated random effects probit model or methods of estimation of nonlinear fixed effects panel data models with reduced bias properties (see [Arellano and Hahn, 2007](#), for a review).

6 Appendix

6.1 Sample Selection

Starting point: SHARE waves 1 and 2 - merged files (18,509 individuals). Sample filters:

1. We keep only those who answered their own interview = Sample (18,249 individuals).
2. We select individuals aged 50 to 75 = Sample (15,340 individuals).
3. We drop individuals with incomplete records = Sample (14,203 individuals).
4. We drop individuals who never worked = **SAMPLE 1** (13,147 individuals and 25,178 observations).
5. Keep those who were working at age 50 = **SAMPLE 2** (11,333 individuals and 21,560 observations).
6. Keep only those working in wave 1 = **SAMPLE 3** (4,615 individuals and 9,230 observations).

6.2 Sample composition

Table 6.2.1. Distribution of individuals by country and gender.

Country	SAMPLE 1			SAMPLE 2			SAMPLE 3		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
Austria	922	412	510	793	390	403	208	114	94
Belgium	1,895	947	948	1,533	884	649	562	324	238
Denmark	941	446	495	871	424	447	421	223	198
France	1,361	609	752	1,190	584	606	451	203	248
Germany	1,232	598	634	1,078	572	506	430	222	208
Greece	1,482	807	675	1,308	768	540	556	391	165
Italy	1,195	602	593	954	565	389	277	165	112
Netherlands	1,310	599	711	1,044	564	480	448	236	212
Spain	763	416	347	630	389	241	232	141	91
Sweden	1,528	707	821	1,463	689	774	771	363	408
Switzerland	518	252	266	469	247	222	259	140	119
Total	13,147	6,395	6,752	11,333	6,076	5,257	4,615	2,522	2,093

Table 6.2.2. Descriptive Statistics (I).

	Austria	Belgium	Denmark	France	Germany	Greece	Italy	Netherlands	Spain	Sweden	Switzerland
SAMPLE 1: Males											
Age	61.83 (6.69)	60.38 (7.26)	60.20 (7.08)	60.51 (7.33)	62.12 (6.52)	60.84 (7.20)	62.43 (6.61)	60.94 (6.88)	62.88 (7.27)	61.55 (6.64)	61.58 (7.31)
Married	0.83	0.84	0.77	0.82	0.89	0.84	0.91	0.87	0.87	0.84	0.82
Children	2.15 (1.39)	2.05 (1.27)	2.17 (1.24)	2.29 (1.50)	1.94 (1.24)	1.87 (1.04)	2.07 (1.15)	2.31 (1.63)	2.51 (1.55)	2.44 (1.35)	2.11 (1.25)
Grandchild	1.87 (2.31)	1.99 (2.56)	2.24 (2.69)	2.08 (2.87)	1.82 (2.42)	1.03 (1.99)	1.48 (2.25)	2.12 (3.05)	1.95 (2.74)	2.52 (2.78)	1.67 (2.68)
High Education	0.30	0.30	0.34	0.23	0.35	0.22	0.06	0.26	0.12	0.22	0.33
Medium Education	0.53	0.28	0.53	0.37	0.59	0.27	0.20	0.31	0.07	0.28	0.23
Public-employment	0.15	0.06	0.14	0.06	0.14	0.04	0.11	0.18	0.12	0.28	0.16
Self-employed	0.10	0.12	0.13	0.12	0.10	0.39	0.27	0.10	0.20	0.16	0.25
Experience in the job (if experience>0)	32.38 (11.22)	27.84 (12.06)	20.03 (14.06)	26.69 (12.38)	26.28 (13.86)	29.86 (12.16)	29.69 (12.02)	26.67 (12.50)	26.12 (14.89)	24.02 (13.08)	25.43 (13.13)
Bad health	0.24	0.19	0.18	0.23	0.32	0.18	0.28	0.21	0.29	0.05	0.08
SAMPLE 1: Females											
Age	61.74 (6.76)	60.23 (7.22)	60.70 (7.07)	60.82 (7.16)	60.94 (6.74)	60.49 (7.47)	61.50 (6.71)	60.06 (6.97)	59.94 (6.92)	60.96 (6.63)	60.62 (7.09)
Married	0.52	0.68	0.67	0.63	0.81	0.58	0.79	0.79	0.81	0.76	0.64
Children	1.85 (1.28)	2.07 (1.28)	2.22 (1.21)	2.23 (1.49)	1.99 (1.23)	1.73 (1.08)	1.97 (1.23)	2.30 (1.48)	2.55 (1.64)	2.31 (1.23)	2.04 (1.31)
Grandchild	2.03 (2.39)	2.38 (2.79)	2.93 (3.25)	2.74 (3.26)	1.91 (2.40)	1.51 (2.28)	1.70 (2.41)	2.28 (3.09)	1.77 (2.55)	2.75 (2.83)	1.76 (2.72)
High Education	0.17	0.26	0.37	0.21	0.23	0.15	0.07	0.19	0.09	0.27	0.23
Medium Education	0.49	0.28	0.38	0.31	0.57	0.26	0.20	0.22	0.10	0.29	0.25
Public-employment	0.16	0.09	0.39	0.06	0.18	0.04	0.06	0.17	0.09	0.58	0.26
Self-employed	0.10	0.09	0.08	0.10	0.07	0.22	0.18	0.07	0.11	0.05	0.16
Experience in the job (if experience>0)	21.26 (12.91)	18.38 (13.13)	16.08 (11.57)	18.97 (13.49)	16.46 (11.97)	21.42 (14.14)	21.23 (12.37)	11.72 (9.51)	13.71 (13.16)	20.22 (11.74)	13.59 (12.45)
Bad health	0.22	0.21	0.20	0.27	0.31	0.28	0.39	0.23	0.41	0.10	0.15

Note: Wave 1. Standard deviations of non-binary variables in parentheses.

Table 6.2.2. Descriptive Statistics (II).

	Austria	Belgium	Denmark	France	Germany	Greece	Italy	Netherlands	Spain	Sweden	Switzerland
SAMPLE 2: Males											
Age	62.01 (6.62)	60.43 (7.27)	60.25 (7.03)	60.56 (7.29)	62.36 (6.44)	60.80 (7.22)	62.69 (6.59)	61.00 (6.91)	62.94 (7.22)	61.60 (6.64)	61.50 (7.29)
Married	0.84	0.85	0.79	0.82	0.90	0.84	0.91	0.87	0.87	0.86	0.83
Children	2.16 (1.39)	2.05 (1.25)	2.20 (1.21)	2.25 (1.45)	1.95 (1.25)	1.86 (1.03)	2.10 (1.16)	2.33 (1.59)	2.50 (1.53)	2.45 (1.33)	2.12 (1.25)
Grandchild	1.90 (2.31)	2.00 (2.56)	2.26 (2.69)	2.06 (2.79)	1.82 (2.40)	1.00 (1.94)	1.52 (2.27)	2.13 (3.00)	1.92 (2.73)	2.55 (2.75)	1.61 (2.51)
High Education	0.31	0.31	0.34	0.24	0.36	0.22	0.06	0.27	0.12	0.23	0.33
Medium Education	0.53	0.28	0.55	0.37	0.58	0.27	0.20	0.31	0.08	0.28	0.22
Public-employment	0.14	0.06	0.14	0.06	0.14	0.04	0.09	0.18	0.12	0.28	0.16
Self-employed	0.10	0.13	0.13	0.13	0.11	0.40	0.29	0.11	0.21	0.16	0.25
Experience in the job (if experience>0)	33.63 (10.21)	29.03 (11.58)	21.70 (14.00)	27.30 (12.16)	27.11 (13.65)	30.89 (11.71)	30.45 (11.82)	27.86 (12.20)	27.08 (15.56)	24.60 (12.97)	25.92 (12.92)
Bad health	0.23	0.17	0.16	0.22	0.31	0.17	0.28	0.19	0.27	0.05	0.08
SAMPLE 2: Females											
Age	61.62 (6.63)	59.68 (7.16)	60.85 (7.14)	60.44 (7.11)	60.70 (6.59)	60.99 (7.53)	61.56 (6.84)	59.20 (6.68)	59.70 (6.95)	60.97 (6.56)	60.05 (7.11)
Married	0.50	0.66	0.68	0.62	0.80	0.56	0.76	0.78	0.76	0.76	0.63
Children	1.79 (1.25)	2.01 (1.27)	2.19 (1.20)	2.09 (1.37)	1.97 (1.22)	1.71 (1.10)	1.89 (1.24)	2.20 (1.47)	2.52 (1.75)	2.32 (1.22)	1.99 (1.34)
Grandchild	2.00 (2.35)	2.16 (2.64)	2.90 (3.16)	2.47 (2.96)	1.91 (2.45)	1.59 (2.37)	1.79 (2.63)	2.02 (2.84)	1.80 (2.71)	2.78 (2.82)	1.61 (2.57)
High Education	0.20	0.34	0.40	0.23	0.25	0.15	0.09	0.25	0.11	0.28	0.25
Medium Education	0.48	0.27	0.37	0.31	0.57	0.25	0.23	0.24	0.11	0.29	0.26
Public-employment	0.19	0.12	0.41	0.06	0.21	0.03	0.06	0.23	0.14	0.59	0.29
Self-employed	0.12	0.11	0.09	0.12	0.08	0.26	0.24	0.10	0.16	0.05	0.18
Experience in the job (if experience>0)	25.06 (12.38)	26.15 (11.74)	17.88 (11.52)	23.62 (13.24)	19.49 (12.55)	25.61 (14.93)	27.46 (11.44)	16.88 (10.05)	18.78 (15.56)	21.44 (11.32)	17.62 (13.40)
Bad health	0.21	0.16	0.16	0.24	0.29	0.27	0.36	0.22	0.39	0.09	0.14

Note: Wave 1. Standard deviations of non-binary variables in parentheses.

Table 6.2.2. Descriptive Statistics (III).

	Austria	Belgium	Denmark	France	Germany	Greece	Italy	Netherlands	Spain	Sweden	Switzerland
SAMPLE 3: Males											
Age	56.99 (3.38)	56.36 (3.41)	57.74 (4.51)	55.81 (2.95)	58.83 (4.45)	57.56 (4.13)	58.07 (4.28)	57.40 (3.46)	58.39 (4.45)	59.25 (4.35)	59.16 (5.09)
Married	0.88	0.87	0.84	0.81	0.87	0.86	0.91	0.86	0.84	0.86	0.81
Children	2.25 (1.50)	2.10 (1.16)	2.20 (1.15)	2.15 (1.29)	1.85 (1.15)	1.80 (0.99)	1.99 (0.95)	2.13 (1.33)	2.25 (1.43)	2.42 (1.33)	2.11 (1.11)
Grandchild	1.03 (1.51)	1.28 (1.74)	1.73 (2.17)	0.84 (1.40)	0.99 (1.56)	0.32 (0.85)	0.73 (1.38)	1.08 (2.14)	0.81 (1.46)	1.88 (2.38)	1.21 (2.21)
High Education	0.42	0.34	0.37	0.33	0.45	0.27	0.13	0.34	0.16	0.26	0.36
Medium Education	0.47	0.32	0.54	0.41	0.53	0.32	0.32	0.34	0.13	0.34	0.22
Public-employment	0.20	0.07	0.14	0.06	0.17	0.03	0.10	0.25	0.11	0.30	0.16
Self-employed	0.18	0.17	0.13	0.12	0.20	0.47	0.40	0.12	0.30	0.18	0.31
Experience the job (if experience>0)	26.80 (11.76)	26.84 (10.50)	19.35 (12.04)	22.61 (11.23)	22.73 (12.47)	25.76 (9.87)	28.05 (12.23)	22.75 (12.22)	24.16 (13.88)	20.23 (13.32)	21.37 (12.35)
Bad health	0.17	0.11	0.11	0.14	0.18	0.09	0.18	0.13	0.16	0.03	0.03
SAMPLE 3: Females											
Age	56.22 (4.07)	55.88 (3.30)	57.66 (3.93)	56.53 (3.24)	57.41 (3.94)	56.50 (3.92)	56.78 (3.64)	57.02 (3.64)	57.15 (4.17)	58.83 (4.02)	57.91 (4.38)
Married	0.66	0.75	0.74	0.67	0.80	0.57	0.83	0.76	0.80	0.80	0.67
Children	1.82 (1.18)	1.96 (1.18)	2.02 (1.15)	2.04 (1.22)	1.82 (1.05)	1.59 (0.95)	1.74 (0.98)	1.96 (1.14)	2.26 (1.43)	2.30 (1.20)	1.95 (1.20)
Grandchild	1.18 (1.52)	1.42 (1.99)	1.96 (2.50)	1.61 (2.04)	1.15 (1.70)	0.47 (1.19)	0.88 (2.06)	1.18 (1.77)	0.82 (1.49)	2.26 (2.50)	1.10 (1.71)
High Education	0.32	0.36	0.56	0.30	0.34	0.31	0.21	0.35	0.20	0.35	0.29
Medium Education	0.48	0.32	0.31	0.35	0.55	0.34	0.39	0.23	0.20	0.33	0.30
Public-employment	0.27	0.15	0.48	0.06	0.22	0.04	0.08	0.34	0.25	0.65	0.28
Self-employed	0.23	0.14	0.06	0.08	0.15	0.30	0.19	0.15	0.28	0.06	0.23
Experience the job (if experience>0)	21.57 (11.98)	23.94 (10.97)	18.07 (11.65)	21.12 (11.73)	19.29 (11.35)	20.79 (10.80)	24.65 (10.87)	14.90 (10.83)	17.74 (11.99)	17.77 (11.84)	15.52 (10.56)
Bad health	0.13	0.09	0.06	0.14	0.19	0.13	0.17	0.15	0.17	0.04	0.08

Note: Wave 1. Standard deviations of non-binary variables in parentheses.

References

- [1] Altonji, J. G. and R. Blank (1999), “Race and gender in the labor market”, In O. Ashenfelter and D. Card (Eds.) *Handbook of labor economics*, 3, Amsterdam: Elsevier, 3143-3259.
- [2] Arellano, M. and J. Hahn (2007), “Understanding Bias in Nonlinear Panel Models: Some Recent Developments”, In: R. Blundell, W. Newey, and T. Persson (eds.): *Advances in Economics and Econometrics, Ninth World Congress, Volume III*, Cambridge University Press, 381-409.
- [3] Argimón, I., C. I. González, and R. Vegas (2007), “La situación laboral en las edades próximas a la jubilación. Una explotación de la Muestra Continua de Vidas Laborales”. *Boletín Económico*, Abril, Banco de España.
- [4] Blau, D. and D. Gilleskie (2006), “Health insurance and retirement of married couples”, *Journal of Applied Econometrics*, 21(7), 935-953.
- [5] Blinder, A. S. (1973), “Wage Discrimination: Reduced Form and Structural Estimates”, *Journal of Human Resources*, 8(4), 436-455.
- [6] Boldrin, M., S. Jiménez-Martín, and F. Peracchi (1999), “Social Security and retirement in Spain”, In J. Gruber and D. Wise (Eds.) *Social Security programs and retirement around the world*, University of Chicago Press: Chicago, 305-353.
- [7] Boldrin, M., S. Jiménez-Martín, and F. Peracchi (2004), “Micro-modelling of retirement behaviour in Spain”, In J. Gruber and D. Wise (Eds.) *Social Security programs and retirement around the world. Microestimation*, University of Chicago Press: Chicago, 499-578.
- [8] Chamberlain, G. (1980), “Analysis of Covariance with Qualitative Data”, *Review of Economic Studies*, 47, 225-238.
- [9] Coe, N. and G. Zamarro (2008), “Health and Retirement in Europe”, WR-588, RAND Working Paper.
- [10] Coile, C. (2004a), “Retirement incentives and couple’s retirement decisions”, *Topics in Economics analysis and Policy*, 4(1), article 17.
- [11] Coile, C. (2004b), “Health shocks and couple’s labor supply decisions”, NBER working paper 10810.

- [12] Crespo, L. (2006), “Caring for Parents and Employment Status of European Mid-Life Women”, Working Paper CEMFI.
- [13] Currie J. and B.C. Madrian (1999), “Health, Health Insurance and the Labor Market” In O. Ashenfelter and D. Card (Eds.) *Handbook of labor economics*, 3, Amsterdam: Elsevier, 3309-3416.
- [14] Even, W. E. and D. A. Macpherson (1990), “The Gender Gap in Pensions and Wages”, *Review of Economics and Statistics*, 72, 259-265.
- [15] Even, W. E. and D. A. Macpherson (1994), “Gender Differences in Pensions”, *Journal of Human Resources*, 29, 555-587.
- [16] Fevang, E., S. Kverndokk and K. Røed (2008), “Informal Care and Labor Supply”, Health Economics Research Programme at the University of Oslo (HERO) Working Paper 8.
- [17] García Pérez, J. I., and A. R. Sánchez Martín (2008), “Social Security and the search behaviour of workers approaching retirement”, Universidad Pablo Olavide Working Paper Econ 08 03.
- [18] Gustman A. and T. Steinmeier (2000), “Retirement in dual-career Families: A structural model”, *Journal of Labor Economics*, 18(3), 503-545.
- [19] Gutiérrez-Domènech, M. (2006), “The employment of older workers”, La Caixa Working Paper 04/2006.
- [20] Gruber, J. and D. Wise (1999, 2004), *Social Security Programs and Retirement Around the World*, University of Chicago Press: Chicago.
- [21] Hurd, M. D. (1990), “Research on the Elderly: Economic Status, Retirement, and Consumption and Savings”, *Journal of Economic Literature*, 28(June 1990b), 565-637.
- [22] Hurd, M. D., P. Michaud, and S. Rohwedder (2008), “Using International Micro Data to Learn about Individuals’ Responses to Changes in Social Insurance”, WR-626, RAND Working Paper.
- [23] Lumsdaine, R. L. and O. S. Mitchell (1999), “New Developments in the Economic Analysis of Retirement”, in O. Ashenfelter and D. Card, eds., *Handbook of Labor Economics*, 3C, Amsterdam: North Holland, 3261-3307.

- [24] Maestas, N. and X. Li (2006), “Discouraged Workers: Job Search Outcomes of Older Workers”, WR-133, RAND Working Paper.
- [25] Michaud, P. (2003), “Joint labor supply dynamics of older couples”, IZA DP 832.
- [26] Michaud, P. and F. Vermeulen (2004), “A collective Retirement Model: Identification and Estimation in the Presence of Externalities”, IZA DP 1294.
- [27] Mundlack, Y. (1978), “On the Pooling of Time Series and Cross Section Data”, *Econometrica*, 46, 69-85.
- [28] Oaxaca, R. (1973), “Male-female wage differentials in urban labour markets”, *International Economic Review*, 14, 693-709.
- [29] Ruhm, C. J. (1996), “Do pensions increase the labor supply of older men?”, *Journal of Public Economics*, 59(2), 157-175.
- [30] Spilerman S. and T. Petersen (1999), “Organization Structure, Determinants of Promotion, and Gender Differences in Attainment”, *Social Science Research*, 28, 203-27.