Retiring Together or Apart: A Twofold Regression Discontinuity Study of Spouses' Retirement and Hours of Work Outcomes

Elena Stancanelli[*][†]

April 2013

Abstract

Earlier studies conclude that spouses time their retirement closely together. Here, we exploit early retirement age legislation to identify the effect of spousal retirement on own retirement patterns and hours of work, considering both contractual hours and reported hours in the past week, and applying a twofold regression discontinuity approach. The sample for the analysis is drawn from pooled years of the French Labor Force Surveys and it includes over 85 000 French couples with both spouses aged 50 to 70 years. We find large and significant jumps in the own retirement probability upon reaching legal early retirement age, which supports our identification strategy. However, we conclude that there is considerable heterogeneity in cross retirement and hours responses of spouses. In particular, the evidence gathered in this study suggests that joint retirement is not as important as anticipated.

Keywords: Ageing, Retirement, Regression Discontinuity, Policy Evaluation

JEL classification: J14, C1, C36, D04

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[*] Paris School of Economics, CNRS, Sorbonne Economics Research Center,106 Boulevard de l'Hopital, 75013 Paris. Telephone: 33-(0)1 4407 8729. elena.stancanelli@univ-paris1.fr

[†] This paper was started while visiting Cambridge University in the UK. I am indebted for suggestions to Thomas Lemieux, Hamish Low, Nicolas Moreau, David Neumark, Arthur van Soest and to the participants to a 2013 Netspar conference in Amsterdam and a seminar given at Siena University. All errors are mine. Programs and data will be made available online upon acceptance of the paper for publication.

1. Introduction

There is growing interest in the retirement strategies of individuals in a couple. Earlier studies conclude that spouses time their retirement closely together and this phenomenon is referred to in the economic literature as "joint retirement". Here we exploit the early retirement law in France to investigate the causal effect of a spouse's retirement on the other spouse's retirement and hours of work, taking a regression discontinuity approach.

Earlier retirement studies conclude that partners tend to retire together mainly because of leisure complementarities (see, for example, Michael Hurd , 1990;   Gustman and Thomas Steinmeier , 2000; Nicole Maestas 2001; Pierre-Carl Michaud, 2003; Mark An, Bent Jesper Christensen and Nabanita Datta Gupta, 2004).[1] Recent work though highlights also possible asymmetries in spouses' retirement strategies. Gustman and Steinmeier (2009) incorporate partial retirement strategies in a discrete choice model of spouses' retirement to conclude that in numerous situations individuals in a couple may decide to retire only if their spouse does not retire. Using data drawn from the Health and Retirement Study (HRS), they find that the increased labour force participation of American women has actually contributed to lower husbands' hours of market work. Stancanelli and Van Soest (2012) find striking asymmetries in the change in house work hours of partners upon own and partner's retirement.   However, these studies neglected that the marriage market is also likely to affect joint retirement strategies of spouses (see, for example, Pierre-Andre Chiappori, Sonia Oreffice and Climent Quintano-Domeque, 2012 for an intriguing analysis of marriage 'mismatch' –defined as such when spouses exhibit large differences in age or education) , who exploit data on spouses' measures of physical (weight scaled by height) and socio-economic attraction (hourly wages for men and education for women), drawn from the USA Panel Study of Income Dynamics Surveys from 1999 to 2007, to show that an higher wage for men or an additional year of education for women can compensate for larger weight scaled by height (BMI) in the marriage market.

Institutions are likely to affect spouses' retirement decisions. David Blau (1998) concludes, for example, that eliminating dual entitlement to social security benefits would have a significantly positive effect on the labour supply of married women and a negative one on husbands' labour supply, though both effects would be small. Baker (2002) studies the effect

[1] See Gruber, Jonathan and David Wise (2005) for a complete overview of retirement patterns all over the world.

of the introduction of an allowance for dependent spouses in the Canadian social security system, finding a negative effect on the participation rates of eligible women and their husbands . Kanika Kapur and Jeannette Rogowski (2007) investigate the effect of employer-provided retiree health insurance (assumed exogenous by the authors) on the retirement behaviour of dual-earners in the USA, findings evidence of asymmetric effects for partners: the wife's health insurance increases joint retirement while the husband's does not. James Banks, Richard Blundell, and Maria Casanova Rivas (2010) compare retirement behaviour of American and British dual-earners (using American husbands as a control group for British husbands) to conclude that British husbands are significantly more likely to retire when their wife reaches state pension age. These studies did not exploit exogenous variation in the retirement decision of both partners as we do here. Moreover, the scant empirical literature on joint retirement relates to British or North-American or Scandinavian countries in which contribution-defined pension systems are much more widespread than in France. It is well possible that tightly regulated and benefit-defined public pension plans reduce the incentives for joint retirement of spouses. In particular, survivor benefits are much less generous in France than in the United States, which might also reduce the scope for joint retirement.

In this paper, we study the causal effect of spouses' retirement on spouses' retirement and hours of work taking a regression discontinuity approach. Using a regression discontinuity approach has the advantage of being closer to a natural random experiment design than other quasi-experimental methods (see, for example, David Lee and Thomas Lemieux, 2010, for a discussion). We use the discontinuity in each spouse's retirement probability at the legal early-retirement age in France to identify the effect of own and spousal retirement in our model. Therefore, we specify an instrumental variable model of the effect of own and spousal retirement on spouses' hours, considering alternatively usual contractual hours and reported actual hours of work in the past week. The data for the analysis are drawn from the French Labour Force Surveys (LFS). We select a sample of dual-earners or retiree couples with both spouses aged between 50 and 70 years, encompassing over 85000 couples.

We find evidence of large and significant jumps in the own retirement probability at the legal early retirement age for both the man and woman in a couple. However, there is evidence of considerable asymmetry in the responses of hours and employment of husband and wife to each other's retirement at many instances. Therefore, we conclude that joint retirement is not the prevailing retirement strategy of individuals in a couple, possibly because retiring together is too costly in terms of foregone future pension benefits.

2. The empirical model

Our objective is to study the causal effect of spouses' retirement on spouses' hours. We are especially interested in the cross effects: does his (her) retirement after her (his) hours? Individuals' hours decisions are unlikely to be independent from retirement decisions. Therefore, to identify the effect of retirement on hours of work, we exploit exogenous variation in retirement due to the discontinuity in the individual retirement probability at age 60, which is the legal early retirement age for most workers in France.[3] There are no other policies that affect individuals of age 60 in France; [4] and age presumably cannot be manipulated by the respondents. Moreover, we know the individual month and year of birth as well as the day, month and year of the interview, and retirement status is also measured on the day of the interview. We thus can assume that age is measured continuously.[5]

As far as the underlying theory model goes, this is a conventional labor supply model of individuals maximising utility of consumption and leisure subject to a budget constraint, as we estimate hours regressions separately for each spouse and thus apply a standard RD approach. However, we assume that hours of work will be a function of own and partner's characteristics (including age), to reflect the household decision process, [6] as well as labor market conditions. Earlier structural models of join retirement of partners did not explicitly model the bargaining process within the couple (see, for example, Gustman and Steinmeier, 2000 and 2009). The prediction from these structural models is that partners retire at a close time because of leisure complementarities. Therefore, we would expect a large jump in the own retirement probability not only when the individual reaches 60 (i.e. legal early retirement age) but also when the spouse turns 60. Similarly, we would expect to find a large drop in

[3]See, for example, Blanchet, Didier and Louis-Paul Pele (1997) for details of the French pension system. In 2010, legal early retirement age was set at 62 years, with effect, however, only as from 2018. Jean-Olivier Hairault, Francois Langot and Thepthida Sopraseuth (2010) model the employment effect of the distance to legal retirement age in France, within a theoretical job search framework, to conclude that increasing legal retirement age is likely to increase employment rates of older workers.

[4]Other policies are targeted at older unemployed workers, aged 55 and above, that are allowed not to search for jobs ("dispenses the recherches d'emploi") or at employers, that have to pay some large penalty to be able to fire older workers, aged above 55 ("Contribution Delalande"). Here we restrict the sample for analysis to dual-earner couples (see Section 3).

[5] See also Yingying Dong (2012) on RD treatment.

[6] Studying the retirement decision using a collective decision making model requires a complex dynamic model and there is no published study that did this yet, to our knowledge.

working hours upon both own and spousal retirement. This is not what we find. Therefore, our findings suggest that either the predictions of structural models that do not allow for intrahousehold bargaining overemphasize joint retirement or that the French social security system reduces spouses' incentives to retire together.

We use a Regression Discontinuity (RD) approach to identify retirement in the hours equations. This approach has several advantages that have been carefully discussed by, for example, David Lee and Thomas Lemieux (2010), Wilbert van der Klaauw (2008), and Guido Imbens and Thomas Lemieux (2007). Essentially, because individuals close to the discontinuity cut-off (age 60 in our case) and situated on the two sides of the age cut-off are likely to be very similar, a regression discontinuity design is very close to an experimental design and requires fewer assumptions than, for example, other techniques such as differences-in-differences, which rely on finding a control group similar to the treatment group.

Under an RD design, to estimate the effect of individual retirement, R (the binary treatment) on hours of work, H (the outcome variable), we would specify retirement as a function of age, $R_i = f(age_i)$, assuming that $f(age_i)$ is continuous on the two sides of the discontinuity at the legal early retirement age (60 years for most workers in France today) and that individuals cannot manipulate their age. Under a so-called "sharp" RD design, everyone would retire when they reach age 60 -the jump in the retirement probability at age 60 would be equal to one. However, in practice some individuals may retire earlier, due to special sector-of-employment (early) retirement plans, and others may retire later, because they may not have accumulated enough pension contributions by the time they reach age 60 to be able to obtain maximum (full) pension benefits[7] –and thus they will continue to work a few extra years past age 60 to retire later with larger pension benefits. To account for this, we use a Fuzzy Regression Discontinuity (FRD) design (see Jinyong Hahn, Petra Todd and Wilbert van der Klaauw, 2001, for more details of this approach) that allows for a jump greater than zero but less than one in the probability of retirement at the age cut-off of 60 years. The FRD design has also been used in the literature as an alternative to a sharp RD approach when

[7] The pension benefits payable reach a maximum when individuals have cumulated a given contribution record (for example, 40 years of contributions in 1994 for people born in 1944 and working in the private sector). Once individuals have contributed enough to retire with maximum (full) pension benefits, their pension benefits will not increase if they retire later. Furthermore, periods of unemployment or sick leave, including maternity and parental leave, all lead to full (100 per cent coverage of) pension contribution records.

there are variables that may affect the treatment (retirement here) but are not observed by the researcher.[8]

Under a FRD setup, the causal effect of retirement on hours can be estimated using an instrumental variable approach , namely two-stage least squares (see, Jinyong Hahn, Petra Todd and Wilbert van der Klaauw, for a proof; and for example, David Card, Carlos Dobkin, and Nicole Maestas (2009), or Battistini, et al. 2009, for some applications). Let us then specify an equation for hours as follows:

2) $H_i = \alpha + R_i \iota + Z_i \beta^i + Age_i \mu^i + \upsilon_i$

Jinyong Hahn, Petra Todd and Wilbert van der Klaauw (2001) show that the error term in this equation does not have to be uncorrelated with age for identification purposes.

The first stage equation takes the following form:

3) $R_i = D_i \gamma^{ri} + Age_i \mu^{ri} + Z_i \beta^{ri} + \nu^{ri}$

where the dummy D_i takes value one when the individual has reached age 60 and zero otherwise, Age_i is a flexible polynomial in age (in the empirical specification, we use quartic polynomials in age of partners, thus n equals 4), and the vector Z_i other contains individual characteristics. Combing equations 2 and 3, the reduced form equation for the effect of retirement on hours outcomes is:

4) $H_i = \alpha + D_i \gamma^{hi} + Age_i \eta^{hi} + Z_i \beta^{hi} + \nu^{hi}$

and $\iota^{IV} = \frac{\gamma^{hi}}{\gamma^{ri}}$

where ι can be estimated using two-stage least squares, instrumenting R with D, and correcting the standard errors, as in Jinyong Hahn, Petra Todd and Wilbert van der Klaauw (2001).

Allowing both spouses' retirement to affect hours, equation 4 becomes:

[8] This is the case here for the contribution period and household income that are not collected in the French LFS. Notice, however, that individuals can control their contribution period by increasing or reducing work effort, so that this variable is likely to be endogenous. Moreover, income is likely to drop at retirement while in the RD design covariates are required to vary smoothly on the two sides of the discontinuity. Therefore, we are confident about excluding these variables from the FRD model. See, for example, Eric French (2005) on retirement dynamics and wealth effects in the United States.

5) $H_i = \alpha + D_m \gamma^{hm} + Age_m \eta^{hm} + + Z_m \beta^{hm} + D_f \gamma^{hf} + Age_f \eta^{hf} + Z_f \beta^{hf} + v^{hi}$

where m stands for husband and f for wife, and i takes also value m or f, as we estimate this equation separately for hours of the husband and hours of the wife. The causal effect of retirement on spouses' hours is then given, respectively by:

6) $\iota^{IV\,m} = \frac{\gamma^{hm}}{\gamma^{rm}} \quad , \quad \iota^{IV\,f} = \frac{\gamma^{hf}}{\gamma^{rf}}$

Because spouses are on average two years apart, we can identify both spouses' retirement in the hours regression.

3. The data

The data for the analysis are drawn from the French Labour Force Surveys (LFS) 1990-2002. We use this sample cut for a number of reasons. First of all, these yearly surveys are highly comparable over time as they use the same questionnaire, the same data collection method (personal interviews at the respondent's home) and the same sample design approach. The LFS series was broken in 2003 to comply with Eurostat requirements. The recent LFS series (as from 2003) are carried out quarterly and most of them are done by telephone; and the questionnaire and the sample design have changed dramatically relative to the earlier 1990-2002 surveys. In addition, another reform of the length of the pension contribution period took place in 2003, exactly at the time of the break in the LFS series.

Therefore, we select a sample of couples from the 1990-2002 yearly LFS as follows[11]:

- Individuals were matched to their partner if any
- Single people were dropped from the sample
- Same sex couples were dropped from the sample
- Multi-couple households were also dropped
- Records from different survey years were pooled together.

This gave a sample of 588 654 couples. We selected couples for the analysis as follows:

1. -Both partners were aged between 50 and 70 (see below for our measure of age), which gave a sample of 148 395 couples.

[11] The programs for sample construction and econometric estimation of the model will be made available online by the author upon acceptance of the paper.

2. -Both were dual-earners or retirees (dropping other inactive partners, i.e. dropping 60127 couples)
3. -Couples were formally married (we dropped 2795 cohabitant couples).

This gave a final sample of 85 473 couples. To apply a regression discontinuity approach we use ten year bounds on the two sides of the discontinuity, at age 60, which is the legal early retirement age for most workers in France. We also test for the robustness of the results to selecting narrower bandwidths on the two sides of the age discontinuity.

The LFS collects month and year of birth together with records of the day, month and year of the interview. Therefore, we construct a continuous measure of age on the day of the interview. Retirement status is measured on the interview date. We exploit two different measures of hours based on the following two questions:

- ✓ Usual weekly hours of work
- ✓ Actual hours of work in the past week

Education refers to completed years of education. The reference category includes individuals with only an elementary education. As mentioned before, individuals with higher levels of education are likely to enter the labour market later and thus to postpone retirement.

The number of children comprises children younger than 18 years at the time of the survey. This variable may affect retirement as individuals with younger children are probably less likely to retire since retirement induces a drop in income (pension benefits are smaller than earnings). Besides, the presence of relatively young children may also affect work hours.

The most disaggregated area of residence available in the survey is the department. France is divided into 22 regions that are further subdivided into 95 departments - without considering the overseas territories (French Guyana, Guadeloupe, Martinique, Mayotte, Ile de la Reunion) that were not covered by these surveys. The level of the unemployment rate may affect the individual retirement probability as, for example, employers may encourage older workers to retire in recessionary times. Therefore, we construct a measure of the local unemployment rate, using the level of the departmental unemployment rate in the year before each survey was carried out –which gives 95 department *13 survey values for the local unemployment rate.

We also include year dummies in all the regressions of the model to capture macroeconomic changes like the secular increase in female labour supply. In particular, in France like in the United States and in many other countries education and participation rates of women have increased dramatically over time, thanks also to the availability of contraception (see Claudia Goldin and Larry Katz, 2002, for a passionating account), which has gone together with postponing of marriage and age at first birth (see also Claudia Goldin and Larry Katz, 2008, for example, for more insights into the dynamic interacting patterns of marriage, fertility, education and labor market participation of Harvard female college graduates). Year and cohort dummies also serve as controls for the differences-in-differences specification.

Finally, the survey provides information on the day of the month the survey was carried out. Firms typically have to satisfy orders by a certain day of the month. Therefore, the day of the month is likely to affect hours and we include it in the regressions. Because over 95 per cent (and over 99 percent in some years) of the LFS interviews were carried out in March of each year, we do not use the month of the survey.

4. Descriptive statistics and exploratory analysis

Descriptive statistics of the main sample for analysis, including married couples who are dual-earner or retirees, with both spouses aged 50 to 70 years, are provided in Table 1.[13] The wife is on average 2 years younger than the husband. About 60 percent of married men and 48 percent of married women in our sample are aged 60 or above. Half of our sample have an elementary school diploma, which is the reference category for the education dummies in the econometric model. About 30 percent of the men and 27 percent of the women have only completed middle school; while about 6 percent of the men and 8.5 percent of the women have only a high school diploma. The proportion of college graduates is slightly larger for men, (10 percent) than for women (8 percent). We know that the proportion of college graduates increases over time and does so faster for women than for men, so that in recent years this pattern is reversed (we control for year dummies in the regressions). About 97 percent of the spouses had a French nationality. The average number of children younger than 18 years is 0.30 (remember the couples in the sample are aged between 50 and 70 years). The local unemployment rate was equal to 9 percent on average. As mentioned before (see Section 3), there is a lot of variation in the unemployment rate, which is allowed to vary over

[13] Descriptive statistics for the sample including all inactive partners aged 50 to 70 years are provided in Table B of the Appendix to the paper.

the 95 French departments and over the thirteen years covered by the sample. Finally, about 63 percent of men and 50 percent of women had retired from work. According to the definition of hours used (usual weekly hours or hours of work in the past week, see Section 3) the average of usual (past-week) hours, for those still working was 42 (40) for men and 34 (31) for women. The corresponding figures when also averaging in instances of zero hours were, respectively, 12 (15) hours for men and 14 (15) hours for women.

Table 2 provides descriptive statistics of the Z variables in our model (see Section 2) for compliers (retirees) and non-compliers (employed persons) on the two sides of the discontinuity (below and above age 60).[14] As anticipated (see Section 2), college educated spouses are less likely to retire at early retirement age. The number of dependent children also correlates negatively with retiring early. As a test that the covariates included in the instrumental variable model (the Z) are not discontinuous at age 60 we also plots the predicted retirement probability including only the Z among the regressors (see later).

To graphically explore the discontinuity in spouses' retirement at the legal early retirement age, as is usually done in the RD literature, we plot the retirement probability against age on the two sides of the age cut-off, using bins of ten month size, as is usually done in the RD literature (see top panels of Charts 1). We find very large jumps in spouses' retirement as a function of own age.[16]

We also explore graphically the continuity of the other covariates–the Z vector in the notation of Section 2- by plotting the age profile of the predicted retirement probability, estimated including only the Z covariates among the regressors (see bottom panels of Charts 1). On the basis of this evidence, we can conclude that the Z variables are indeed continuous at age 60.

Non-parametric evidence on the behaviour of the retirement probability on the two sides of the age cut-off point is also gathered in Charts 2, where the probability of retirement is estimated as a function of smoothed local polynomials in age on the two-sides of the age cut-off. We repeat the analysis for own age ((left-hand charts in Charts 2) and spouse's age (right-hand charts in Charts 2), by letting the retirement probability vary, respectively, as a function of own-age polynomials (left-hand charts) or, alternatively, spouse's age polynomials (right-hand charts). We also plot 95 confidence bounds around each curve –

[14] Table C in the Appendix to the paper provides similar statistics for the sample including also inactive spouses (see also Section 3).

[16] The raw age distribution of married men and married women in our sample, excluding or including inactive spouses, is plotted in Charts 1 in the Appendix.

notice that given the large sample size the confidence bounds basically coincide with the predicted probability curves. We find large jumps in the own retirement probability upon reaching age 60. We also observe small jumps in the husband's retirement probability when the wife reaches age 60; and, vice-versa, in the wife's retirement probability when the husband reaches age 60.

Charts 3 (and Charts 4) provide similar information for usual week hours (past-week hours of work). Hours drop dramatically for both spouses at the legal early retirement age cut-off. We also detect a small drop in the hours of the husband when the wife is aged 720 months or more; and, vice-versa, we see a small drop in her hours when he is aged 720 months or more. The 95 confidence bounds are very close to the predicted probability curves and never cross, thus suggesting that the cross effects are statistically significant for both spouses. Similar patterns are detected from raw plots of spouses' hours against spouses' age (see Charts 5 and 6).

5. Estimation Results

Earlier structural models of join retirement of partners predict that partners retire at a close time because of leisure complementarities (see, for example, Gustman and Steinmeier, 2000 and 2009). Therefore, we would expect a large jump in the own retirement probability not only when the individual reaches 60 (i.e. legal early retirement age) but also when the spouse turns 60. Similarly, we would expect to find a large drop in working hours upon both own and spousal retirement. Our regression discontinuity equation (see Section 2) allows the individual hours of work to vary as a function of both own retirement (instrumented with a dummy for being aged 60) and the spouse's retirement (instrumented with a dummy for the spouse being aged 60).

First of all, we provide the results of estimation of regression discontinuity models for the outcome of reported hours of work in the week preceding the survey (see Table 3). Specification 1 (the second column of Table 3) allows for the husband's discontinuity in retirement behaviour at legal early retirement age to affect his hours of work. We find that his retirement probability increases strongly by 0.31 and his hours drop dramatically (by 35 hours per week) when he turns 60. Similarly, specification 2 (the third column of Table 3) allows for the wife's discontinuity in retirement behaviour at legal early retirement age to affect her hours of work. We find that her retirement probability increases strongly by 0.32 and her hours drop dramatically (by 25 hours per week) when she turns 60. Both sets of estimates are very robust to the inclusion of covariates -spouses' French nationality and education dummies, number of children, local unemployment rate, day of the interview, year and cohort dummies- as shown, respectively, for the husband, in the fourth column of Table 3 (specification 3), and for the wife, in the fifth column (specification 4). Next, we allowed for both own and spousal retirement to affect the husband's hours of work (specification 5 in Table 3, and Equation 5 in Section 2 for the econometric model). The estimated jump in his retirement probability upon turning 60 is equal 0.31 and the drop in hours is equal to 35 hours per week, indicating that our estimates are very robust to including a regression discontinuity term for spousal retirement. Similarly, we find that allowing for both own and spousal retirement to affect the wife's hours of work (specification 6 in Table 3, and Equation 5 in Section 2 for the econometric model), her retirement probability increases by 0.32 when she turns 60 and her hours drop by 25 hours per week. Therefore, these findings support our identification approach showing that we can identify the effect of spousal retirement on own retirement (first stage regressions) and own hours of work. In particular, when the wife retires, the husband's retirement probability jumps up slightly (by 0.016) and his market hours drop by one and half hour per week on average and both effects are statically significant. If the husband retires, the wife's retirement probability also increases significantly and slightly (by 0.013). However, her hours do not respond to his retirement.

These estimates are generally robust to reducing the sample boundaries on the two sides of the discontinuities at the husband's and the wife's legal early retirement age by selecting, couples with, respectively, both spouses aged 52 to 68, 54 to 66, and 56 to 64 (see Table 4). In particular, the increase in the husband's retirement probability upon retirement of the wife is robust to narrowing the sample bounds. However, the reduction in his market hours upon her retirement becomes less significant when narrowing the sample bounds. The effect of his retirement on her retirement probability also loses significance when restricting the sample to couples with both spouses closer to legal retirement age. This might be due to the fact that when restricting the sample to couples with spouses of age closer to the legal early retirement age, one actually loses identification power - as on average spouses are far apart in age but those couples in which spouses have larger age differences are now dropped from the sample and these couples may actually be those that allow one to identify the effect of spousal retirement on own retirement.

We also find similar results for the outcome of usual (contractual) hours of work (see Table 5). In particular, the husband reduces hours significantly by almost an hour and a half per week upon retirement of the wife.

Because individuals with at most primary education are likely to have entered the labor market earlier and thus are more likely to have accumulated enough pension contributions to retire with maximum benefits at the legal early retirement age than others, we re-estimate the model selecting only couples in which both spouses have at most primary education (see Table 6). The results of estimation are generally comparable to those for the full sample. However, the estimates of the increase in his retirement probability upon her reaching age 60 and above becomes slightly larger -is equal now to 0.02- and the drop in his market hours upon her retirement also becomes slightly larger in absolute value –and equal to almost two hours per week. Moreover, both effects are now robust to narrowing the sample bounds on the two sides of the discontinuity at legal early retirement age (see Table 6).

In contrast, when both spouses are college educated we do not find any significant effect of spousal retirement on the own labor supply (see Table 7) as more educated individuals enter the labor market later and are thus less likely to be able to retire at legal early retirement age with full pension benefits. Indeed the jump in the own retirement probability at the legal early retirement age is half the size than that for spouses with at most primary education, and equal, respectively to 0.15 for the husband and 0.12 for the wife in couple in which both spouses are college educated (see Table 7) against 0.33 for the husband and 0.38 for the wife in couples in which both spouses have at most primary education (see Table 6).

Restricting the sample to couples in which spouses have completed at most intermediary education (nine years of schooling), the jumps in the own retirement probability are very close in size to those estimated for the subsample of spouses with elementary education and equal, respectively, to 0.32 for the husband and 0.33 for the wife (see Table 8). However, the cross-effects of spousal retirement on the own retirement probability are not statistically significant, neither is the response of market hours of the husband to retirement of the wife. In contrast, we find for this subsample that she increases significantly hours of work upon his retirement and this effect is robust to various specifications checks, including using measures of usual (contractual) hours of work as an alternative to reported hours of work in the past week and narrowing the sample bounds on the two sides of the discontinuity (see Table 8). In particular, retirement of the husband increases her market hours by about five hours per week.   A possible explanation for this result may be found in the type of occupation of men and women with an intermediary education level, which will be typically clerk (shop-assistant) jobs for the women and construction workers for the men.[18] However, since the choice of occupation may be related to individual preferences for working hours, we consider next the occupation of the father, which is asked in the labor force surveys.

Therefore, we restrict the sample for the analysis first, to couples in which the father of the groom was a self-employed (see Table 9). Self-employed people have typically more control of their working hours. Individual self-employment status is strongly and largely correlated with father's self-employment status, and this last can this be considered exogenous. Indeed, we find that for this subsample, the drop in market hours of the husband upon retirement of the wife is twice as large as in the main sample and equal to about three hours per week. Interestingly, the increase in the own probability of retirement upon spousal retirement is now statistically significant for both partners and very close in size. Each spouse's retirement probability increases by about 0.02 when the other spouse reaches early retirement age. This may be perhaps explained by the fact that both spouses work in the same self-employed business, which we have instrumented here with self-employment status of the father of the groom. Therefore, to shed more light into occupational effects, we select next a subsample of couples in which the father of the bride is a self-employed but the father of the groom is not (see Table 10). Remarkably, we find now a statistically significant decrease in her retirement probability when the husband reaches early retirement age. Although the size of the negative effect of his retirement on hers is quite small and equal to 0.04 in absolute value, this negative effect is robust to various specification checks (see Table 10). Moreover, for these couples her retirement does not affect significantly his retirement or his hours (see Table 10) in contrast to the significant findings for couples in which the father of the groom was self-employed (see Table 9) and the increase in the own retirement probability of the husband at age 60 and above is much smaller than for couples in which the father of the groom was self-employed, being equal to 0.27 (see Table 10) against 0.37 for couples in which the father of

[18] Income taxation may also interact with social security design to affect spouses' incentives to retire together. Under joint income taxation which applies to married individuals in France, spouses' incomes are summed together for income taxation purposes and spouses do not have the option to file income taxes separately. This may create incentives for one spouse to increase working hours upon spousal retirement. However, joint income taxation may also create disincentives for secondary earners to participate in the labor market or to work longer hours. To remove as much as possible this type of mechanisms from the analysis, we have considered only couple in which both spouses participate in market work and have the same education level. Now perhaps the income earned by individuals with intermediary education level is such that on average when one spouse retires the other has an incentive to increase working hours –because of the design of the tax schedule. This is something we do not test for here as it would require a different approach and possibly longitudinal data.

the groom was self-employed (see Table 9). The increase in her retirement probability upon her reaching legal early retirement age is about 0.32 for both subsamples (see Tables 9 and 10).

The asymmetries in spousal responses may perhaps also reflect age differences between spouses as the women in the sample are on average two years younger than the husband (see Table 1 of descriptive statistics for the couples in the sample). Because of the social security design, older spouses may be able to retire as soon as their younger spouse retires from work without incurring large penalties in terms of future pension benefits –because they are older and thus have contributed more years into the pension fund and thus are more likely to retire with maximum pension benefits. Therefore, to test for this possibility, we select a subsample of couples in which the wife is at least one month older than the husband (see Table 11). Indeed, we find that her retirement probability increases significantly when he reaches early retirement age (by 0.02) and her market hours drop significantly (by about two and half hours per week) upon his retirement. Interestingly, her retirement has now a slightly larger effect on his retirement probability than for the main sample, equal to 0.07 against 0.016 for the main sample (see Table 3) in which the husband is on average two years older than the wife (see sample descriptives in Table 1). Moreover, her retirement does not affect his market hours any longer (see Table 11). Therefore, we conclude that the labor supply of the older spouse in the couple is more sensitive to the retirement of the younger spouse, than viceversa, which seems reasonable since older spouses can presumably afford to retire a little earlier with a smaller loss in future pension benefits. An additional explanation may be that older spouses are wealthier and can thus, afford to retire a little earlier (see, for example, Pierre-Andre Chiappori, Sonia Oreffice and Climent Quintana-Domeque (2012) for a discussion of marriage mismatches and spousal labor supply). Notice, however that even when the wife is older she does not reduces significantly market hours upon retirement of the husband. The reason for the insignificant changes in market hours upon spousal retirement at many instances may be that most individuals are not able to reduce their hours of work due to occupational constraints.

Finally, we allow for a social security reform that was announced in 1993 (and implemented in 1994), which increased the length of the pension contribution period for younger cohorts of individuals, thus reducing incentives to retire at the legal early retirement age for the younger cohorts. To test for the effects of this social security reform on spouses' incentives to retire together we have selected the subsample of couples in which both spouses were affected by the reform (see columns two and three of Table 12) as well as the subsample in which neither spouse was affected by the reform (see columns four and five of Table 12), and as an alternative to including cross effects of being affected by the reform and reaching legal early retirement age in the main sample (see last two columns of Table 12). We conclude that the social security reform reduced significantly the husband's incentives to retire or reduce hours upon retirement of the wife while it had no effect on the response of the wife's labor supply to the husband's reaching early retirement age.

As a further specification check, because there are also legal requirements to retire no later than age 65 for many workers in France[19], we also include additional instruments for whether each spouse's reached age 65 and above in the first stage equations of the regression discontinuity model (see Table 13). Although there is evidence that the wife's retirement probability increases significantly both upon reaching age 60 and also upon reaching age 65, the estimate of the additional increase in her retirement probability upon reaching age 65 is small in size and equal to 0.02. Furthermore, controlling for the additional spike in her retirement probability at age 65 and above, does not affect the significance or the size of the estimate of the jump in her retirement probability at age 60 and above - which is equal to 0.327 under this specification (see Table 13) and to 0.321 under the main specification (see Table 3)- or that of the increase in his retirement probability upon her reaching age 60 and above –which is equal to 0.016 under this specification (see Table 13) and to 0.0157 under the main specification (see Table 3). Finally, we also re-estimate this specification for the subsample of couples in which the both spouses have completed at most intermediary education (see last two columns of Table 13) to conclude that the estimate of the increase in her market hours upon retirement of the husband is robust to this specification check and equal to five hours as in Table 8.

Finally, as a placebo test, we test for changes in spouses' retirement and market hours upon reaching age 40. To this end, we select a sample of couples in which both spouses were aged 30 to 50, from pooled years of the French labor force surveys and following the same procedure as we did to select our main sample (see Section 3) -thus requiring individuals to be formally married and to be either employed or (early-)retirees. The results of estimation indicate that there are no significant changes in own or spousal labor supply upon turning 40 and above (see Table 14).

[19] See, for example, Blanchet, Didier and Louis-Paul Pele (1997) for details of the French pension system.

Therefore, we conclude that joint retirement strategies of spouses are less important than anticipated on the basis of theoretical models of spouses' retirement. In particular, while the husband's retirement probability increases significantly, though slightly, upon the wife's reaching early retirement age and his hours also drop slightly when she retires, the wife's labor supply is not affected by his retirement. This may be explained by the average husband in the sample being older than the wife, which makes him able to retire 'together' without incurring large future pension penalties. Indeed, in couples in which the wife is at least one month older than the husband, the wife's retirement probability increases though slightly upon the husband's reaching early retirement age and her hours also drop slightly upon his retirement. However, generally these cross-retirement effect are quite small in size and do not suggest that spouses time their retirement very closely. This is perhaps partly explained by occupational choices and social security rules which are such that retiring together would be quite costly in terms of foregone pension benefits. We find that the estimates of these cross-effects are larger in self-employed couples –using the self-employment status of the father of the groom as a proxy for self-employment- and, to a certain extent, also in couples in which both partners have entered the labor market earlier –as proxied by elementary education of both spouses. Finally, we also find that in some instances the wife has an incentive not to retire or to increase market hours upon retirement of the husband. Joint income taxation of married people which is the rule in France may partly explain some of these asymmetries in spouses' retirement behavior as the wife is often the younger spouse and the secondary earner and she may thus have an income-tax incentive to increase hours only when he has retired from work –as that would then be possible without incurring increases in the couple's income tax, something we cannot however formally test for with our model and data. Therefore, we conclude that joint retirement is not the prevailing retirement strategy of individuals in a couple, possibly because retiring together is too costly in terms of foregone future pension benefits.

Conclusions

Earlier literature concludes that spouses time their retirement together. In this study, we apply a regression discontinuity approach to identify the effect of spousal retirement on both spouses' labor supply, by exploiting legal early retirement age in France. We would expect a large jump in the own retirement probability not only when the individual reaches 60 (legal early retirement age) but also when the spouse turns 60. Similarly, we would expect to find a large drop in working hours upon both own and spousal retirement.

The model is estimated with data on over 85 000 dual-earner couples with spouses aged 50 to 70, drawn from pooled years of the French labor force survey. In particular, we measure not only usual (contractual) hours of work but also actual hours of work in the past week, which may be more sensitive to spousal retirement. Exploratory graphical analysis indicates very large jumps in the own retirement probability at the legal early retirement age for both spouses. The retirement probability also jumps up when the partner reaches age 60 (cross effects), though the cross effects are much smaller than the own effects. Own hours are found to fall dramatically with own retirement and to decrease slightly further with spousal retirement –suggesting negative cross effects of a partner's retirement on own hours. Parametric estimation confirms large and significant jumps in the own retirement probability at the legal early retirement age for both the husband and the wife, thus supporting our identification strategy.

We find that while the husband's retirement probability increases significantly, though slightly, upon the wife's reaching early retirement age and his hours also drop slightly when she retires, the wife's labor supply is not affected by his retirement. This may be explained by the average husband in the sample being older than the wife, which makes him able to retire 'together' without incurring large future pension penalties. Indeed, in couples in which the wife is at least one month older than the husband, the wife's retirement probability increases though slightly upon the husband's reaching early retirement age and her hours also drop slightly upon his retirement. Generally, however, these cross-retirement effects are quite small in size and do not suggest that spouses time their retirement very closely. This is perhaps partly explained by occupational choices and social security rules which are such that retiring together would be quite costly in terms of foregone pension benefits. Indeed, we find that the estimates of the cross-effects are larger in self-employed couples –using the self-employment status of the father of the groom as a proxy for self-employment- and, to a certain extent, also in couples in which both partners have entered the labor market earlier –as proxied by elementary education of both spouses. Finally, we also find that in some instances the wife has an incentive not to retire or to increase market hours upon retirement of the husband. Joint income taxation of married people which is the rule in France may partly explain some of these asymmetries in spouses' retirement behavior as the wife is often the younger spouse and the secondary earner and she may thus have an income-tax incentive to increase hours only when he has retired from work –as that would then be possible without incurring increases in the couple's income tax. Therefore, we conclude that joint retirement strategies of spouses are less important than anticipated on the basis of theoretical models of spouses' retirement.

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Table 1.	Sample descriptive			
	Husband		Wife	
	Mean	Standard dev.	Mean	Standard dev.
Age	61.233	5.467	59.279	5.526
Age 60 and above	0.597	0.490	0.476	0.499
Elementary School	0.523	0.499	0.564	0.495
Middle School	0.298	0.457	0.266	0.442
High School	0.066	0.249	0.085	0.279
College	0.109	0.312	0.081	0.274
French	0.971	0.166	0.978	0.146
Retired	0.635	0.481	0.508	0.499
Usual week Hours >0	42.18	12.861	33.90	13.72
Past week Hours (if usual week hours >0)	40.08	18.39	30.87	17.74
Usual week Hours	12.34	20.42	14.36	18.98
Past week hours	14.95	22.40	15.08	19.80
		Couple's characteristics		
		Mean	Standard dev.	
Children number		0.325	0.652	
Local U rate		9.222	2.36	
Observations no.	*85473*			

Note: The sample includes dual-earner or retiree married couples with both spouses aged 50 to 70 (extremes included).
The local U rate is the year (t-1) unemployment rate at the department level (there are 95 departments). U rate varies across departments and over the 13 LFS years.

Table 2. Sample descriptives by retirement status on the two sides of the age cut-off

	Not Retired Age 50-59	Retired Age 50-59	Not Retired Age 60-70	Retired Age 60-70
Men in a Couple				
Elementary School	0.366	0.463	0.445	0.628
	(0.481)	(0.498)	(0.497)	(0.483)
Middle School	0.382	.0376	0.193	0.245
	(0.485)	(0.484)	(0.395)	(0.430)
High School	0.083	0.077	0.082	0.054
	(0.277)	(0.267)	(0.275)	(0.226)
College	0165	0.082	0.276	0.070
	(0.371)	(0.274)	(0.276)	(0.255)
French	0.963	0.979	0.947	0.976
	(0.187)	(0.143)	(0.222)	(0.151)
Children number	0.588	0.323	0.353	0.170
	(0.813)	(0.624)	(0.669)	(0.474)
Local U rate	9.107	9.263	9.128	9.290
	(2.350)	(2.367)	(2.336)	(2.365)
Observations no.	28334	*6053*	*2829*	*48257*
Women in a Couple				
	Not Retired Age 50-59	Retired Age 50-59	Not Retired Age 60-70	Retired Age 60-70
Elementary School	0.479	0.421	0.654	0.667
	(0.499)	(0.493)	(0.475)	(0.470)
Middle School	0.309	0.302	0.188	0.224
	(0.462)	(0.459)	(0.391)	(0.417)
High School	0.101	0.135	0.072	0.062
	(0.301)	(0.342)	(0.259)	(0.241)
College	0.108	0.140	0.081	0.044
	(0.311)	(.347)	(0.273)	(0.205)
French	0.969	0.983	0.961	0.987
	(0.171)	(0.127)	(0.193)	0.111)
Children number	0.537	0.272	0.238	0.124
	(0.788)	(0.601)	(0.548)	(0.397)
Local U rate	9.114	9.223	9.296	9.326
	(2.338)	(2.391)	(2.359)	(2.373)
Observations no.	*38319*	*6392*	*3653*	*37109*

Note: The sample includes dual-earner and retiree spouses aged 50 to 70.
The total sample size is 85473 observations.

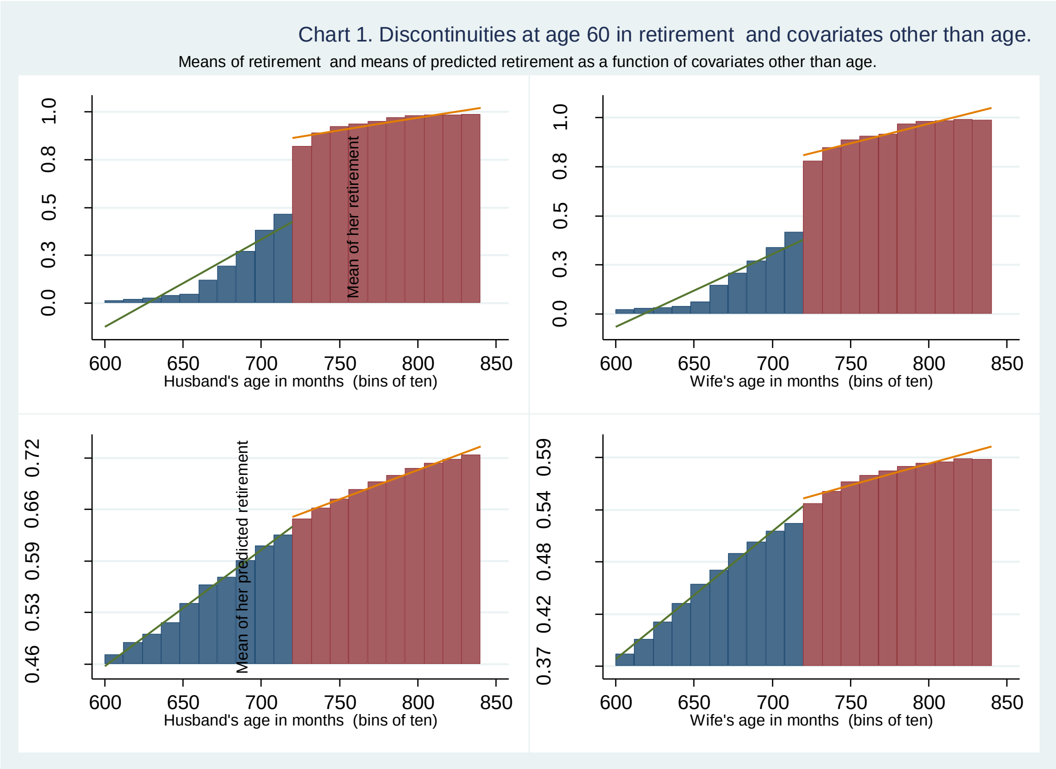
Chart 1. Discontinuities at age 60 in retirement and covariates other than age.
Means of retirement and means of predicted retirement as a function of covariates other than age.
Mean of her retirement
Husband's age in months (bins of ten)
Wife's age in months (bins of ten)
Mean of her predicted retirement
0.0
0.3
0.5
0.8
1.0
0.46
0.53
0.59
0.66
0.72
0.37
0.42
0.48
0.54
0.59
600
650
700
750
800
850

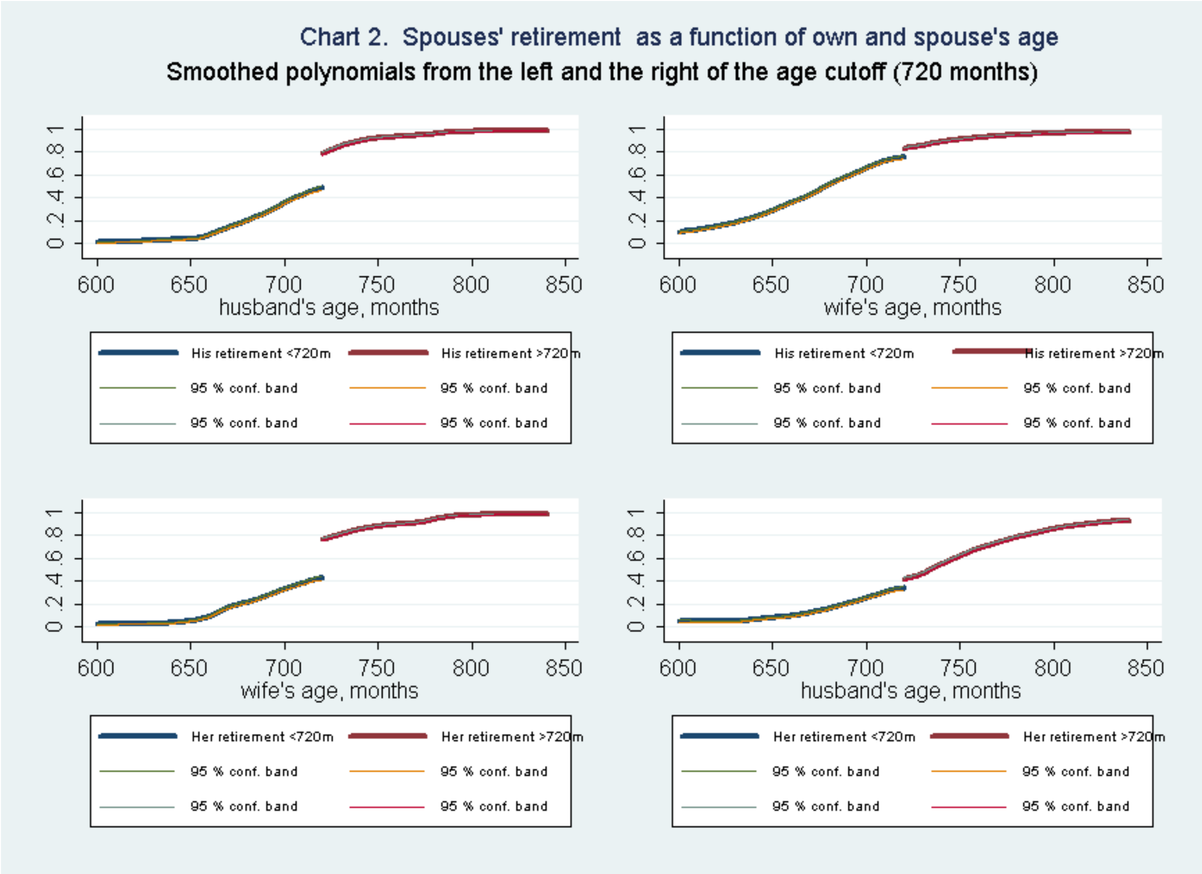
Chart 2. Spouses' retirement as a function of own and spouse's age
Smoothed polynomials from the left and the right of the age cutoff (720 months)
0 .2 .4 .6 .8 1
600 650 700 750 800 850
husband's age, months
His retirement <720m
His retirement >720m
95 % conf. band
wife's age, months
Her retirement <720m
Her retirement >720m

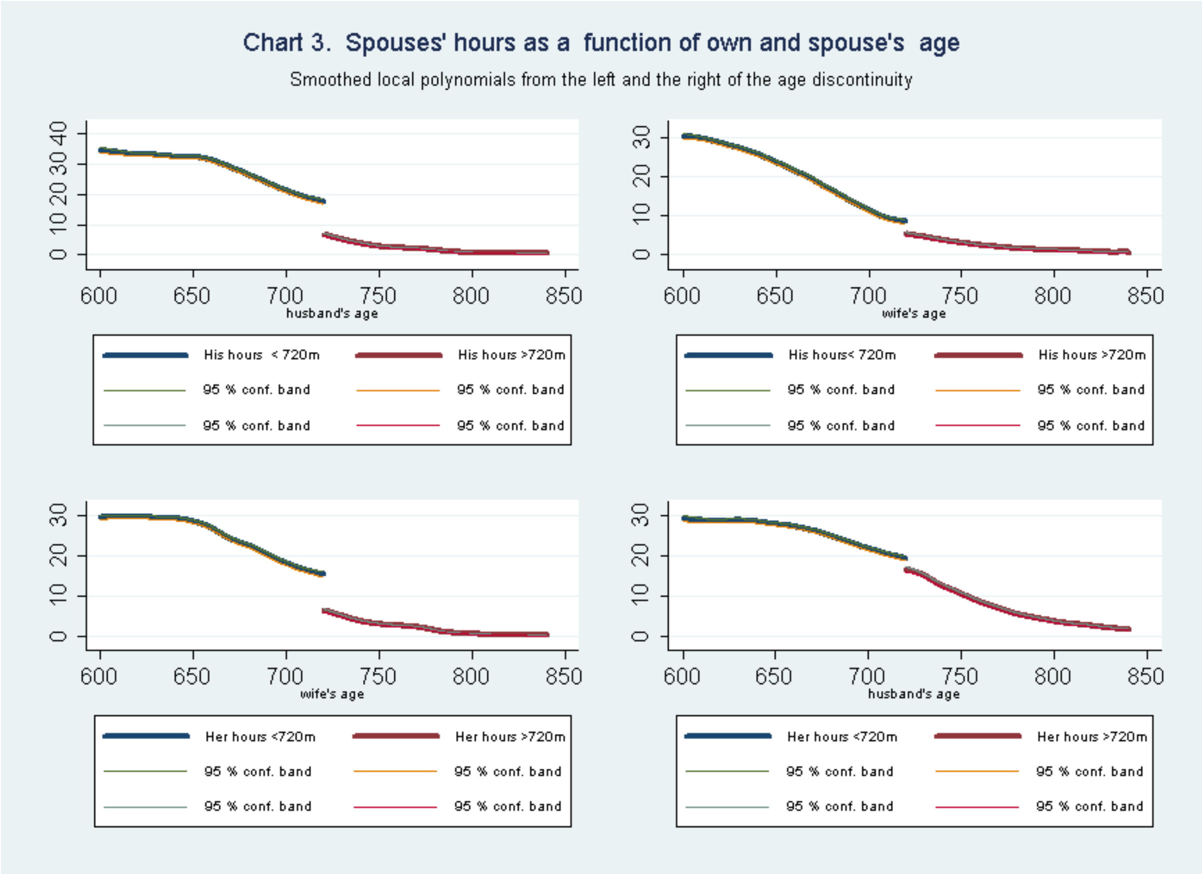
Chart 3. Spouses' hours as a function of own and spouse's age
Smoothed local polynomials from the left and the right of the age discontinuity
0 10 20 30 40
600 650 700 750 800 850
husband's age
His hours < 720m
His hours >720m
95 % conf. band
0 10 20 30
wife's age
His hours< 720m
wife's age
Her hours <720m
Her hours >720m
husband's age

Chart 4. Partners'hours last week as a function of own and partner's age

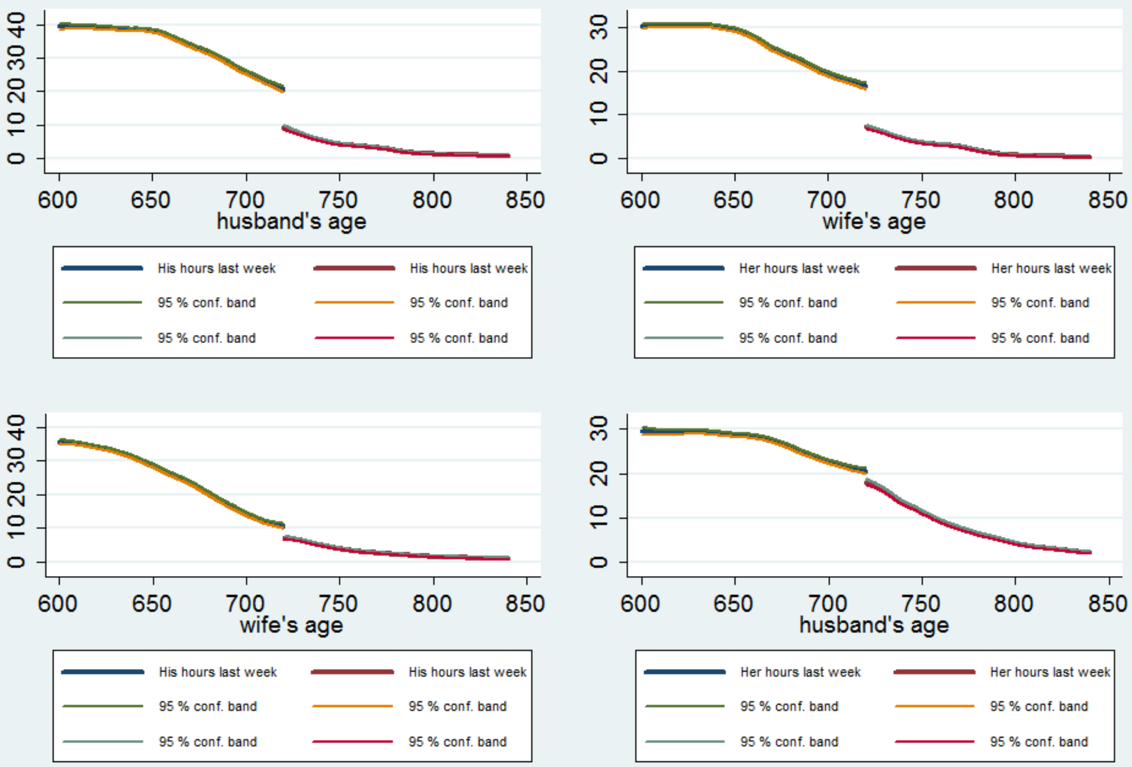

Chart 5.Discontinuities in his and her hours as a function of his and her age

Usual week hours of work (bins of ten months)

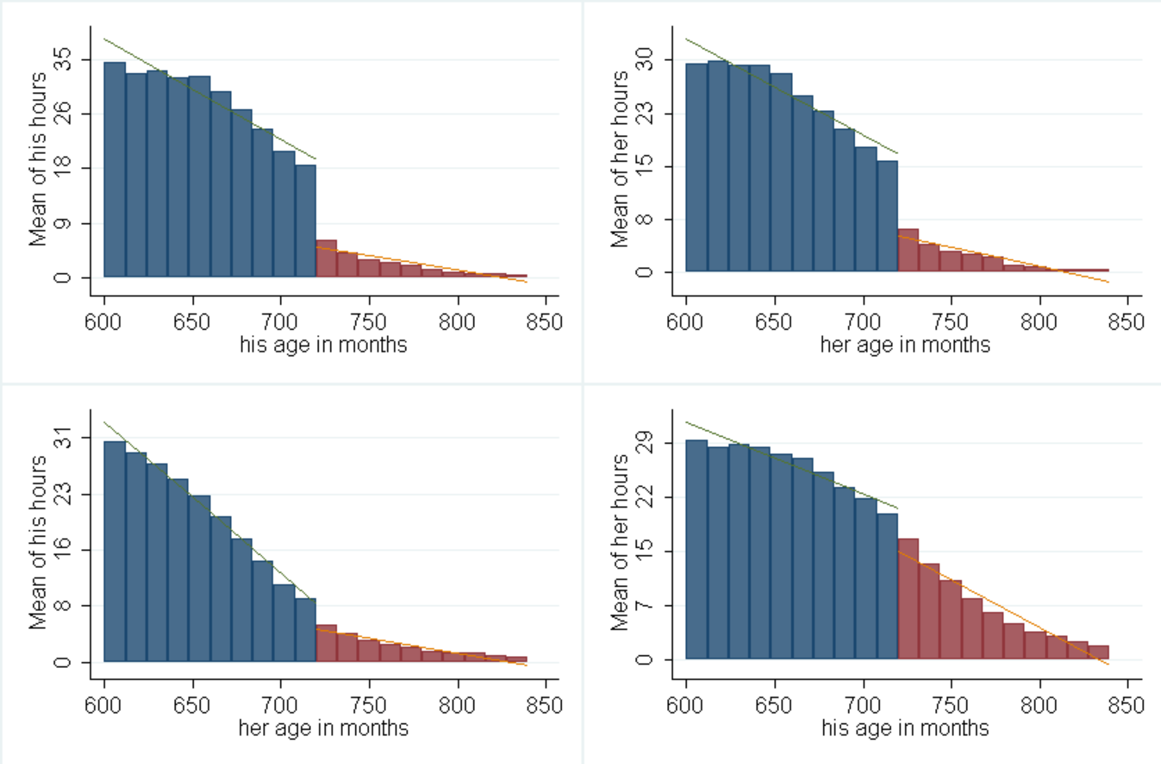

Chart 6. Discontinuities in his and her hours as a function of his and her age.
Week hours of work in the past week (bins of ten months)

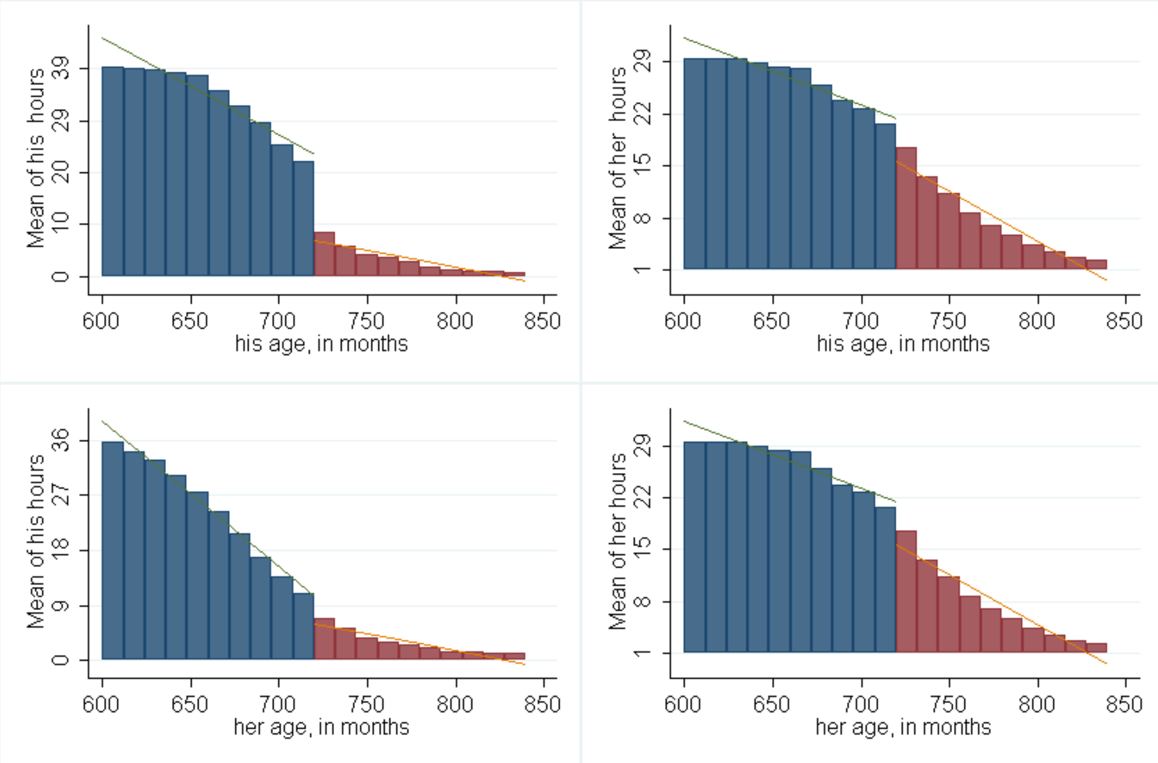

Table 3. Employment and hours effects of spousal retirement. Fuzzy Regression discontinuity estimates (2SLS models). Outcome variable: Hours of work in the past week. Sample of couples in which both spouses are aged 50-70: 85473 couples.

Hours past week	**His Hours (1)**	**Her Hours (2)**	**His Hours (3)**	**Her Hours (4)**	**His Hours (5)**	**Her Hours (6)**
He Retires	**-35.667*** **		**-35.909*** **		**-35.580*** **	-0.632
	(0.8045)		(0.8066)		(0.8148)	(0.8650)
She Retires		**-25.603*** **		**-25.771*** **	-1.411**	**-25.625*** **
		(0.7199)		(0.7131)	(0.6212)	(0.7237)
His Age polynomial	**YES**	**NO**	**YES**	**NO**	**YES**	**YES**
Her Age polynomial	**NO**	**YES**	**NO**	**YES**	**YES**	**YES**
Year,day, birth cohorts	**NO**	**NO**	**NO**	**NO**	**YES**	**YES**
His Covariates (Zm)	**NO**	**NO**	**YES**	**NO**	**YES**	**YES**
Her Covariates (Zf)	**NO**	**NO**	**NO**	**YES**	**YES**	**YES**
First Stage Estimates	He Retires	He Retires	He Retires	He Retires	He Retires	He Retires
He Age 60 and above, Dm	0.3136***		0.3142***		0.3113***	0.3113***
	(0.0075)		(0.0075)		(0.00751)	(0.00751)
She Age 60 and above, Df					**0.0157** **	**0.0157** **
					(0.00548)	(0.00548)
	She Retires	She Retires	She Retires	She Retires	She Retires	She Retires
He Age 60 and above, Dm					**0.01315** **	**0.01315** **
					(0.00653)	(0.00653)
She Age 60 and above, Df		0.3180***		0.3227***	0.3211***	0.3211***
		(0.0076)		(0.0075)	(0.00759)	(0.00759)
R2	0.7088	**0.5877**	0.7111	**0.5909**	0.6929	**0.5920**

*** stands for statistical significance at the 1 per cent level; ** at the 5 per cent and * at the 10 per cent. The covariates included are spouses' French nationality and education dummies, number of children, local unemployment rate, day of the interview, year and cohort dummies.

Table 4. Employment and hours effects of spousal retirement. Fuzzy Regression discontinuity estimates (2SLS models). Outcome variable: Hours of work in the past week. Sensitivity of the estimates to narrowing the sample bounds.

	Spouses 52-68 : 61593 couples		**Spouses 54-66 : 39739 couples**		**Spouses 56-64 : 20836 couples**	
	His Hours	**Her Hours**	**His Hours**	**Her Hours**	**His Hours**	**Her Hours**
He Retires	-36.023***	0.6474	-37.2575***	-1.079	-36.581***	-4.297**
	(1.0347)	(1.0889)	(1.300)	(1.345)	(1.959)	(1.944)
She Retires	-1.358*	-26.331***	0.113	-27.029***	0.729	-26.470***
	(0.7274)	(0.8454)	(0.880)	(0.994)	(1.406)	(1.533)
His Age polynomial	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
Her Age polynomial	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
Year, day, birth cohorts	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
His Covariates (Zm)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
Her Covariates (Zf)	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**
First Stage Estimates	He Retires	He Retires	He Retires	He Retires	He Retires	He Retires
He Age 60 and above, Dm	0.2854***	0.2854***	0.2792***	0.2792***	0.2570***	0.2570***
	(0.0089)	(0.0089)	(0.0113)	(0.0113)	(0.0163)	(0.0163)
She Age 60 and above,Df	0.0156**	0.0156**	0.019**	0.019**	0.0244**	0.0244**
	(0.0064)	(0.0064)	(0.008)	(0.008)	(0.0125)	(0.0125)
	She Retires	She Retires	She Retires	She Retires	She Retires	She Retires
He Age 60 and above, Dm	0.009	0.009	0.008	0.008	0.007	0.007
	(0.0078)	(0.0078)	(0.010)	(0.010)	(0.015)	(0.015)
She Age 60 and above, Df	0.3167***	0.3167***	0.326***	0.326***	0.2941***	0.2941***
	(0.0089)	(0.0089)	(0.0112)	(0.0112)	(0.0160)	(0.0160)
R2	0.7044	**0.5811**	0.6952	**0.5769**	0.6929	**0.5701**

*** stands for statistical significance at the 1 per cent level; ** at the 5 per cent and * at the 10 per cent. The covariates included are spouses' French nationality and education dummies, number of children, local unemployment rate, day of the interview, year and cohort dummies.

Table 5. Employment and hours effects of spousal retirement. Fuzzy Regression discontinuity estimates (2SLS models).

Outcome variable	Spouses 50-70: 85473 couples.		Spouses 50-70: 85473 couples		Spouses 52-68: 61593 couples	
Usual hours of work	His usual hours	Her usual hours	His usual hours	Her usual hours	His usual hours	Her usual hours
He Retires	-32.087***	-0.776	-31.7710***	-0.7267	-32.1462***	-0.2218
	(0.8749)	(0.8351)	(0.8750)	(0.8349)	(1.1094)	(1.0457)
She Retires	-1.2011*	-24.442***	-1.4698**	-24.4816***	-1.1075	-25.122***
	(0.6561)	(0.709)	(0.6488)	(0.7017)	(0.7590)	(0.8179)
His Age polynomial	YES	YES	YES	YES	YES	YES
Her Age polynomial	YES	YES	YES	YES	YES	YES
Year, day, birth cohorts	NO	NO	YES	YES	YES	YES
His Covariates (Zm)	NO	NO	YES	YES	YES	YES
Her Covariates (Zf)	NO	NO	YES	YES	YES	YES
First Stage Estimates	He Retires	He Retires	He Retires	He Retires	He Retires	He Retires
He Age 60 and above Dm	0.31***	0.31***	0.3113***	0.3113***	0.2854***	0.2854***
	(0.0075	(0.0075	(0.00751)	(0.00751)	(0.0089)	(0.0089)
She Age 60 and above Df	0.0206***	0.0206***	0.0157**	0.0157**	0.0156**	0.0156**
	(0.005)	(0.005)	(0.00548)	(0.00548)	(0.0064)	(0.0064)
	She Retires	She Retires	She Retires	She Retires	She Retires	She Retires
He Age 60 and above Dm	0.0116*	0.0116*	0.01315**	0.01315**	0.009	0.009
	(0.0065)	(0.0065)	(0.00653)	(0.00653)	(0.0078)	(0.0078)
She Age 60 and above Df	0.3167***	0.3167***	0.3211***	0.3211***	0.3167***	0.3167***
	(0.0076)	(0.0076)	(0.00759)	(0.00759)	(0.0089)	(0.0089)
R2	0.5990	0.5873	0.6017	0.5899	0.5917	0.5779

*** stands for statistical significance at the 1 per cent level; ** at the 5 per cent and * at the 10 per cent. The covariates included are spouses' French nationality and education dummies, number of children, local unemployment rate, day of the interview, year of the survey and cohort dummies.

Table 6. Employment and hours effects of spousal retirement. Fuzzy Regression discontinuity estimates (2SLS models).

Outcome variable: past-week hours of work. Couples in which spouses have at most primary education.

Outcome variable	Spouses 50-70: 34616 couples.		Spouses 50-70: 34616 couples.		Spouses 52-68: 25014 couples.	
Past-week hours	His Hours	Her Hours	His Hours	Her Hours	His Hours	Her Hours
He Retires	-37.043***	-1.767	-37.033***	-1.769	-36.831***	0.209
	(1.364)	(1.460)	(1.361)	(1.456)	(1.682)	(1.784)
She Retires	-1.773***	-26.414***	-1.843**	-26.476***	-2.553**	-27.298***
	(0.817)	(1.040)	(0.816)	(1.040)	(0.953)	(1.217)
His Age polynomial	YES	YES	YES	YES	YES	YES
Her Age polynomial	YES	YES	YES	YES	YES	YES
Year,day, birth cohort dummies	YES	YES	YES	YES	YES	YES
His Covariates (Z)	NO	NO	YES	YES	YES	YES
Her Covariates (Z)	NO	NO	YES	YES	YES	YES
First Stage Estimates	He Retires	He Retires	He Retires	He Retires	He Retires	He Retires
He Age 60 and above= Dm	0.330***	0.330***	0.330***	0.330***	0.3133***	0.3133***
	(0.0125)	(0.0125)	(0.0125)	(0.0125)	(0.0148)	(0.0148)
She Age 60 and above=Df	0.023**	0.023**	0.022**	0.022**	0.019**	0.019**
	(0.007)	(0.007)	(0.007)	(0.007)	(0.009)	(0.009)
	She Retires	She Retires	She Retires	She Retires	She Retires	She Retires
He Age 60 and above= Dm	0.011	0.011	0.011	0.011	0 .007	0 .007
	(0.010)	(0.010)	(0.010)	(0.010)	(0.0121)	(0.0121)
She Age 60 and above=Df	0.389***	0.389***	0.389***	0.389***	0.381***	0.381***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.0137)	(0.0137)
R2	0.7234	0.6028	0.7248	0.6041	0.7112	0.5824

*** stands for statistical significance at the 1 per cent level; ** at the 5 per cent and * at the 10 per cent. The covariates included are spouses' French nationality and education dummies, number of children, local unemployment rate, day of the interview, year and cohort dummies. Individuals with at most primary education are likely to have entered the labor market earlier and thus are likely to have accumulated enough pension contributions to retire with maximum benefits at the legal early retirement age.

Table 7 Employment and hours effects of spousal retirement. Fuzzy Regression discontinuity estimates (2SLS models).

Outcome variable: past-week hours of work. Couples in which both spouses have college education.

Outcome variable	Spouses 50-70: 4557 couples.		Spouses 50-70: 4557 couples.		Spouses 52-68: 3246 couples.	
Past-week hours	His Hours	Her Hours	His Hours	Her Hours	His Hours	Her Hours
He Retires	-23.56***	-14.05*	-27.350***	-18.59**	-32.33***	-17.055*
	(9.139)	(8.40)	(8.838)	(8.58)	(10.544)	(9.65)
She Retires	-2.107	-5.88	-2.568	-5.81	-3.00	-14.948*
	(10.438)	(10.420)	(10.163)	(10.79)	(9.10)	(8.58)
His Age polynomial	YES	YES	YES	YES	YES	YES
Her Age polynomial	NO	YES	YES	YES	YES	YES
Year,day, birth cohort dummies	NO	YES	YES	YES	YES	YES
His Covariates (Z)	NO	NO	YES	YES	YES	YES
Her Covariates (Z)	NO	NO	YES	YES	YES	YES
First Stage Estimates	He Retires	He Retires	He Retires	He Retires	He Retires	He Retires
He Age 60 and above= Dm	0.154***	0.154***	0.156***	0.156***	0.147***	0.147***
	(0.345)	(0.345)	(0.034)	(0.034)	(0.040)	(0.040)
She Age 60 and above=Df	0..031	0..031	0.028	0.028	0.039	0.039
	(0.033)	(0.033)	(0.033)	(0.033)	(0.039)	(0.039)
	She Retires	She Retires	She Retires	She Retires	She Retires	She Retires
He Age 60 and above= Dm	0..023	0..023	0.027	0.027	0.033	0.033
	(0..32)	(0..32)	(0.032)	(0.032)	(0.038)	(0.038)
She Age 60 and above=Df	0.121***	0.121***	0.119***	0.119***	0.155***	0.155***
	(0.037)	(0.037)	(0.037)	(0.037)	(0.043)	(0.043)
R2	0.516	0.336	0.5555	0.3542	54.50	0.4202

*** stands for statistical significance at the 1 per cent level; ** at the 5 per cent and * at the 10 per cent. The covariates included are spouses' French nationality and education dummies, number of children, local unemployment rate, day of the interview, year and cohort dummies. Individuals with college education are likely to have entered the labor market later and thus are less likely to have accumulated enough pension contributions to retire with maximum benefits at the legal early retirement age.

Table 8. Employment and hours effects of spousal retirement. Fuzzy Regression discontinuity estimates (2SLS models).

Couples in which both spouses have completed intermediary education (nine years of schooling).

Outcome variable		Spouses 50-70: 10520 couples.		Spouses 50-70	Spouses 52-68: 7617 couples.	
	her past-week hrs	his past-week hrs	her past-week hrs	her usual hours	her past-week hrs	her usual hours
He Retires	5.288**	-33.021***	5.236**	3.585*	5.358**	5.063**
	(2.139)	(1.912)	(2.150)	(1.991)	(2.599)	(2.434)
She Retires	-27.250***	-2.034	-27.242***	-27.277***	-27.296***	-26.740***
	(1.829)	(1.659)	(1.830)	(1.728)	(2.195)	(2.092)
His Age polynomial	YES	YES	YES	YES	YES	YES
Her Age polynomial	YES	YES	YES	YES	YES	YES
Year,day, birth cohort dummies	YES	YES	YES	YES	YES	YES
His Covariates (Z)	NO	YES	YES	YES	YES	YES
Her Covariates (Z)	NO	YES	YES	YES	YES	YES
First Stage Estimates	He Retires	He Retires	He Retires	He Retires	He Retires	He Retires
He Age 60 and above= Dm	0.327***	0.326***	0.326***	0.326***	0.305***	0.305***
	(0.020)	(0.020)	(0.020)	(0.020)	(0.024)	(0.024)
She Age 60 and above=Df	0.010	0.009	0.009	0.009	0.012	0.012
	(0.016)	(0.016)	(0.016)	(0.016)	(0.019)	(0.019)
	She Retires	She Retires	She Retires	She Retires	She Retires	She Retires
He Age 60 and above= Dm	0.008	0.008	0.008	0.008	-0.006	-0.006
	(0.018)	(0.018)	(0.018)	(0.018)	(0.022)	(0.022)
She Age 60 and above=Df	0.335***	0.335***	0.335***	0.335***	0.325***	0.325***
	(0.022)	(0.022)	(0.022)	(0.022)	(0.026)	(0.026)
R2	0.5845	0.699	0.5847	0.6183	0.596	0.6250

*** stands for statistical significance at the 1 per cent level; ** at the 5 per cent and * at the 10 per cent.

Table 9. Employment and hours effects of spousal retirement. Fuzzy Regression discontinuity estimates (2SLS models).

Outcome variable: past-week hours of work. Couples in which the father of the groom was a self-employed.

Outcome variable	Spouses 50-70: 34907 couples.		Spouses 50-70: 34907 couples.		Spouses 52-68: 25300 couples.	
Past-week hours	His Hours	Her Hours	His Hours	Her Hours	His Hours	Her Hours
He Retires	-39.151***	-.0127	-39.149***	-0.1062	-39.640***	0.669
	(1.192)	(1.242)	(1.185)	(1.236)	(1.480)	(1.530)
She Retires	-3.285**	-27.543***	-3.493**	-27.863***	-3.399**	-29.507***
	(1.042)	(1.193)	(1.038)	(1.190)	(1.259)	(1.423)
His Age polynomial	YES	YES	YES	YES	YES	YES
Her Age polynomial	YES	YES	YES	YES	YES	YES
Year,day, birth cohort dummies	YES	YES	YES	YES	YES	YES
His Covariates (Z)	NO	NO	YES	YES	YES	YES
Her Covariates (Z)	NO	NO	YES	YES	YES	YES
First Stage Estimates	He Retires	He Retires	He Retires	He Retires	He Retires	He Retires
He Age 60 and above= Dm	0.3773***	0.3773***	0.377***	0.377***	0.353***	0.353***
	(0.0119)	(0.0119)	(0.011)	(0.011)	(0.014)	(0.014)
She Age 60 and above=Df	0.023**	0.023**	0.018**	0.018**	0.022**	0.022**
	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)
	She Retires	She Retires	She Retires	She Retires	She Retires	She Retires
He Age 60 and above= Dm	0.022**	0.022**	0 .022**	0 .022**	0.019*	0.019*
	(0.009)	(0.009)	(0.0098)	(0.0098)	(0.011)	(0.011)
She Age 60 and above=Df	0.328***	0.328***	0.327***	0.327***	0.316***	0.316***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.0138)	(0.0138)
R2	0.7041	0.5761	0.7066	0.5785	0.6950	0.566

*** stands for statistical significance at the 1 per cent level; ** at the 5 per cent and * at the 10 per cent. The covariates included are spouses' French nationality and education dummies, number of children, local unemployment rate, day of the interview, year and cohort dummies. Grooms whose father was a self-employed are more likely to be self-employed than other grooms are.

Table 10. Employment and hours effects of spousal retirement. Fuzzy Regression discontinuity estimates (2SLS models).

Couples in which the father of the bride was a self-employed but the father of the groom was not self-employed.

Outcome variable	Spouses 50-70: 13645 couples.		Spouses 50-70: 13645 couples.		Spouses 52-68: 9733 couples.	
Past-week hours	His Hours	Her Hours	His Hours	Her Hours	His Hours	Her Hours
He Retires	-32.258***	-0.789	-32.629***	-1.398	-34.323***	-0.407
	(2.267)	(2.382)	(2.284)	(2.400)	(2.886)	(3.047)
She Retires	0.679	-24.68***	0.788	-24.541***	0.789	-23.854***
	(1.545)	(1.867)	(1.55)	(1.874)	(1.681)	(2.101)
His Age polynomial	YES	YES	YES	YES	YES	YES
Her Age polynomial	YES	YES	YES	YES	YES	YES
Year,day, birth cohort dummies	NO	NO	YES	YES	YES	YES
His Covariates (Z)	NO	NO	YES	YES	YES	YES
Her Covariates (Z)	NO	NO	YES	YES	YES	YES
First Stage Estimates	He Retires	He Retires	He Retires	He Retires	He Retires	He Retires
He Age 60 and above= Dm	0.275***	0.275***	0.273***	0.273***	0.252***	0.252***
	(0.019)	(0.019)	(0.0188)	(0.0188)	(0.022)	(0.022)
She Age 60 and above=Df	0.014	0.014	0.009	0.009	0.014	0.014
	(0.014)	(0.014)	(0.0145)	(0.0145)	(0.017)	(0.017)
	She Retires	She Retires	She Retires	She Retires	She Retires	She Retires
He Age 60 and above= Dm	-.0034**	-.0034**	-0.031*	-0.031*	-0.040*	-0.040*
	(0.017)	(0.017)	(0.017)	(0.017)	(0.020)	(0.020)
She Age 60 and above=Df	0.316***	0.316***	0.317***	0.317***	0.330***	0.330**
	(0.019)	(0.019)	(0.019)	(0.019)	(0.022)	(0.022)
R2	0.709	0.591	0.7133	0.595	0.710	1.681

*** stands for statistical significance at the 1 per cent level; ** at the 5 per cent and * at the 10 per cent. The covariates included are spouses' French nationality and education dummies, number of children, local unemployment rate, day of the interview, year and cohort dummies. Individuals with at most primary education are likely to have entered the labor market earlier and thus are likely to have accumulated enough pension contributions to retire with maximum benefits at the legal early retirement age.

Table11. Employment and hours effects of spousal retirement. Fuzzy Regression discontinuity estimates (2SLS models).

Outcome variable: past-week hours of work. Couples in which the wife is at least one month older than the husband.

Outcome variable	Spouses 50-70: 21908 couples.		Spouses 50-70: 21908 couples.		Spouses 52-68: 16264 couples.	
Past-week hours	His Hours	Her Hours	His Hours	Her Hours	His Hours	Her Hours
He Retires	-36.078***	-2.397**	-36.165***	-2.505**	-36.567***	-1.745
	(1.640)	(1.264)	(1.651)	(1.273)	(2.015)	(1.583)
She Retires	0.7809	-23.359***	0.812	-23.563***	1.373	-22.677***
	(2.077)	(1.714)	(2.064)	(1.704)	(2.234)	(1.881)
His Age polynomial	YES	YES	YES	YES	YES	YES
Her Age polynomial	YES	YES	YES	YES	YES	YES
Year,day, birth cohort dummies	YES	YES	YES	YES	YES	YES
His Covariates (Z)	NO	NO	YES	YES	YES	YES
Her Covariates (Z)	NO	NO	YES	YES	YES	YES
First Stage Estimates	He Retires	He Retires	He Retires	He Retires	He Retires	He Retires
He Age 60 and above= Dm	0.278***	0.278***	0.276***	0.276***	0.252***	0.252***
	(0.0148)	(0.0148)	(0.0147)	(0.0147)	(0.016)	(0.016)
She Age 60 and above=Df	0.0750***	0.0750***	0.072***	0.072***	0.048**	0.048**
	(0.0161)	(0.0161)	(0.0160)	(0.0160)	(0.018)	(0.018)
	She Retires	She Retires	She Retires	She Retires	She Retires	She Retires
He Age 60 and above= Dm	0.021*	0.021*	0.021*	0.021*	0.028**	0.028**
	(0.0126)	(0.0126)	(0.012)	(0.012)	(0.014)	(0.014)
She Age 60 and above=Df	0.329***	0.329***	0.329***	0.329***	0.341***	0.341***
	(0.016)	(0.016)	(0.0168)	(0.0168)	(0.019)	(0.019)
R2	0.7038	0.6301	0.7049	0.6326	0.6982	0.6239

*** stands for statistical significance at the 1 per cent level; ** at the 5 per cent and * at the 10 per cent. The covariates included are spouses' French nationality and education dummies, number of children, local unemployment rate, day of the interview, year and cohort dummies.

Table 12. Employment and hours effects of spousal retirement. Fuzzy Regression discontinuity estimates (2SLS models).

Outcome variable: past-week hours of work. Couples in which both spouses are (not) affected by the 1993-94 reform of social security.

Outcome variable	Both affected: 37429 couples.		Neither affected: 37003 couples.		All couples: 85473 couples.	
Past-week hours	His Hours	Her Hours	His Hours	Her Hours	His Hours	Her Hours
He Retires	-36.354***	-1.048	-35.71***	2.101	-35.615***	-0.411
	(1.176)	(1.347)	(1.409)	(1.493)	(0.812)	(0.861)
She Retires	-0.514	-25.217***	-1.814*	-28.79***	-1.344**	-25.512***
	(1.062)	(1.146)	(1.128)	(1.302)	(0.619)	(0.723)
His Age polynomial	YES	YES	YES	YES	YES	YES
Her Age polynomial	YES	YES	YES	YES	YES	YES
Year,day, birth cohort dummies	YES	YES	YES	YES	YES	YES
His Covariates (Z)	YES	YES	YES	YES	YES	YES
Her Covariates (Z)	YES	YES	YES	YES	YES	YES
Reform and treated dummies	NO	NO	NO	NO	YES	YES
First Stage Estimates	He Retires	He Retires	He Retires	He Retires	He Retires	He Retires
He Age 60 and above= Dm	0.281***	0.281***	0.349**	0.349**	0.325***	0.325***
	(0.0107)	(0.0107)	(0.013)	(0.013)	(0.011)	(0.011)
She Age 60 and above=Df	0.0188*	0.0188*	0.020**	0.020**	0.027**	0.027**
	(0.010)	(0.010)	(0.010)	(0.010)	(0.008)	(0.008)
He Age 60 and above*93 reform					-0.020*	-0.020*
					(0.011)	(0.011)
She Age 60 and above*93 reform					-0.017*	-0.017*
			0.735	0.735	(0.009)	(0.009)
	She Retires	She Retires	She Retires	She Retires	She Retires	She Retires
He Age 60 and above= Dm	0.008	0.008	0.017	0.017	0.009	0.009
	(0.009)	(0.009)	(0.011)	(0.011)	(0.009)	(0.009)
She Age 60 and above=Df	0.314***	0.314***	0.350***	0.350***	0.323***	0.323***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.011)	(0.011)
He Age 60 and above*93 reform					0.005	0.005
					(0.010)	(0.010)
She Age 60 and above*93 reform					-0.003	-0.003
					(0.012)	(0.012)
R2	0.646	0.475	0.735	0.645	0.7129	0.5912

*** stands for statistical significance at the 1 per cent level; ** at the 5 per cent and * at the 10 per cent. The covariates included are spouses' French nationality and education dummies, number of children, local unemployment rate, day of the interview, year and cohort dummies. The 1993-94 reform increased the lenght of the contribution periodrequired to receive maximum pension benefits upon retirement for the younger cohorts.

Table 13. Employment and hours effects of spousal retirement. Fuzzy Regression discontinuity estimates (2SLS models).
Placebo test: testing for a discontinuity in the retirement probability at age 40. Both spouses aged 30 to 50 years: 128 026 couples.

	his past wk hrs	her past wk hrs	his past wk hrs	her past wk hrs	his usual hrs	her usual hrs
He Retires	-252.698	888.224	-287.626	1001.24	166.774	-266.63
	(583.75)	(1172.16)	(634.261)	(1362.107)	(873.940)	(633.92)
She Retires	20.425	147.219	(11.192)	156.149	264.765	-152.948
	(160.116)	(323.740)	(171.076)	(369.476)	(245.799)	(174.125)
His Age polynomial	YES	YES	YES	YES	YES	YES
Her Age polynomial	YES	YES	YES	YES	YES	YES
His Covariates (Zm)	NO	NO	YES	YES	YES	YES
Her Covariates (Zf)	NO	NO	YES	YES	YES	YES
Year, day dummies	YES	YES	YES	YES	YES	YES
First Stage Estimates	He Retires	He Retires	He Retires	He Retires	He Retires	He Retires
He Age 60 and above= Dm	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
She Age 60 and above=Df	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
	She Retires	She Retires	She Retires	She Retires	She Retires	She Retires
He Age 60 and above= Dm	-0.00128	-0.00128	-0.0013	-0.0013	-0.0013	-0.0013
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0008)
She Age 60 and above=Df	-0.0012	-0.0012	-0.001	-0.001	-0.001	-0.001
	(0.0009)	(0.0009)	(0.0009)	(0.0009)	(0.0009)	(0.0009)

*** stands for statistical significance at the 1 per cent level; ** at the 5 per cent and * at the 10 per cent. The covariates included are spouses' French nationality and education dummies, number of children, local unemployment rate, day of the interview, year and cohort dummies.

Table 14. Employment and hours effects of spousal retirement. Fuzzy Regression discontinuity estimates (2SLS models).

Outcome variable: past-week hours of work. Allowing for an additional discontinuity in the retirement probability at age 65.

Outcome variable	Spouses 50-70: 85473 couples.		Spouses 50-70: 85473 couples.		Both intermed. educ: 10520 couples.	
Past-week hours	His Hours	Her Hours	His Hours	Her Hours	His Hours	Her Hours
He Retires	-35.650***	-0.616	-35.655***	-0.6409	-33.339***	5.244**
	(0.812)	(0.867)	(0.810)	(0.8649)	(1.890)	(2.150)
She Retires	-1.116*	-25.592***	-1.194**	-25.771***	-1.994	-27.202***
	(0.616)	(0.719)	(0.613)	(0.716)	(1.657)	(1.830)
His Age polynomial	YES	YES	YES	YES	YES	YES
Her Age polynomial	YES	YES	YES	YES	YES	YES
Year,day, birth cohort dummies	YES	YES	YES	YES	YES	YES
His Covariates (Z)	NO	NO	YES	YES	YES	YES
Her Covariates (Z)	NO	NO	YES	YES	YES	YES
First Stage Estimates	He Retires	He Retires	He Retires	He Retires	He Retires	He Retires
He Age 60 and above= Dm	0.313***	0.313***	0.313***	0.313***	0.3298***	0.3298***
	(0.0078)	(0.0078)	(0.007)	(0.007)	(0.021)	(0.021)
She Age 60 and above=Df	0.020***	0.020***	0.016***	0.016***	0.009	0.009
	(0.005)	(0.005)	(0.005)	(0.005)	(0.017)	(0.017)
He Age 65 and above= Dm'	0.006	0.006	0.006	0.006	0.014	0.014
	(0.004)	(0.004)	(0.004)	(0.004)	(0.013	(0.013
She Age 65 and above=Df'	0.0004	0.0004	0.002	0.002	-0.002	-0.002
	(0.004)	(0.004)	(0.004)	(0.004)	(0.0138)	(0.0138)
	She Retires	She Retires	She Retires	She Retires	She Retires	She Retires
He Age 60 and above= Dm	0.0098	0.0098	0.010	0.010	0.005	0.005
	(0.0069)	(0.0069)	(0.006)	(0.006)	(0.019)	(0.019)
She Age 60 and above=Df	0.327***	0.327***	0.327***	0.327***	0.3381***	0.3381***
	(0.0080)	(0.0080)	(0.008)	(0.008)	(0.023)	(0.023)
He Age 65 and above= Dm'	-0.010*	-0.010*	-0.0100*	-0.0100*	-0.009	-0.009
	(0.006)	(0.006)	(0.006)	(0.006)	(0.018)	(0.018)
She Age 65 and above=Df'	0.0261***	0.0261***	0.025***	0.025***	0.011	0.011
	(0.005)	(0.005)	(0.005)	(0.005)	(0.015)	(0.015)
R2		0.5904	0.7127	0.5923	0.6998	0.584

*** stands for statistical significance at the 1 per cent level; ** at the 5 per cent and * at the 10 per cent. The covariates included are spouses' French nationality and education dummies, number of children, local unemployment rate, day of the interview, year and cohort dummies.

Appendix

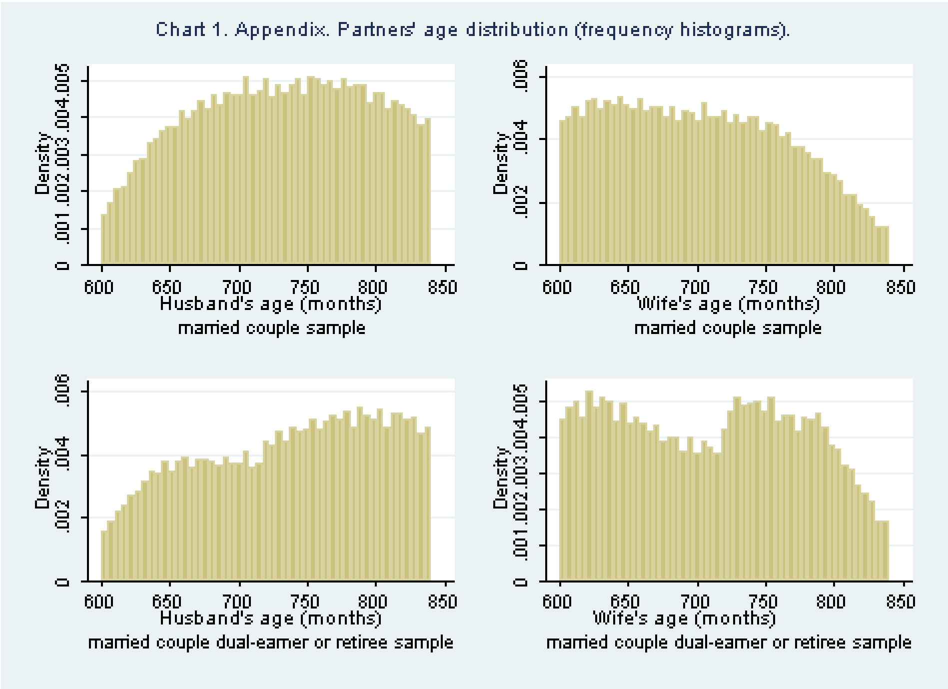

Chart 1. Appendix. Partners' age distribution (frequency histograms).
Density
0
.001
.002
.003
.004
.005
600
650
700
750
800
850
Husband's age (months)
married couple sample
Density
0
.002
.004
.006
600
650
700
750
800
850
Wife's age (months)
married couple sample
Density
0
.002
.004
.006
600
650
700
750
800
850
Husband's age (months)
married couple dual-earner or retiree sample
Density
0
.001
.002
.003
.004
.005
600
650
700
750
800
850
Wife's age (months)
married couple dual-earner or retiree sample

Table B. Descriptives: sample of dual-earner, retiree, other inactive, married couples with both spouses aged 50 to 70 included.

	Husband		Wife	
	Mean	Standard dev.	Mean	Standard dev.
Age	60.776	5.293	58.617	5.239
Age 60 and above	.553	.497	.403	.490
Elementary School	0.531	0.499	0.605	0.488
Middle School	0.292	0.454	0.252	0.434
High School	0.065	0.247	0.075	0.264
College	0.109	0.312	0.063	0.244
French	0.949	0.217	0.957	0.201
Retired	.598	.490	.308	.461
Employed	0.337	0.472	0.317	0.465
Other Inactive	0.063	0.244	0.373	0.483
Usual Hours	41.707	11.950	33.837	13.692
	Couple's characteristics			
	Mean	Standard dev.		
Married	0.970	0.169		
Children number	0.393	0.773		
Local U rate	9.368	2.429		
Observations no.	*148395*			

Note: The sample includes all active and inactive partners aged 50 to 70. It includes also cohabitant couples.
Hours are averaged over positive values of hours.

Table C. Sample descriptives by retirement status on the two sides of the age cut-off, larger sample

	Men in a Couple			
	Not Retired Age 50-59	Retired Age 50-59	Not Retired Age 60-70	Retired Age 60-70
Elementary School	0.415	0.494	0.454	0.623
	(0.492)	(0.499)	(0.497)	(0.484)
Middle School	0.353	0.364	0.180	0.245
	(0.478)	(0.481)	(0.384)	(0.430)
High School	0.077	0.068	0.080	0.055
	(0.267)	(0.251)	(0.271)	(0.228)
College	0.150	0.071	0.280	0.074
	(0.357)	(0.257)	(0.449)	(0.262)
French	0.944	0.970	0.877	0.962
	(0.228)	(0.170)	(0.327)	(0.192)
Children number	0.636	0.396	0.456	0.217
	(0.922)	(0.768)	(0.868)	(0.579)
Local U rate	9.274	9.494	9.301	9.419
	(2.44)	(2.429)	(2.409)	(2.419)
Observations no.	53943	*12271*	*5607*	*76574*
	Women in a Couple			
	Not Retired Age 50-59	Retired Age 50-59	Not Retired Age 60-70	Retired Age 60-70
Elementary School	0.560	0.424	0.723	0.668
	(0.496)	(0.494)	(0.447)	(0.470)
Middle School	0.280	0.303	0.183	0.223
	(0.449)	(0.459)	(.0387)	-0.416
High School	0.083	0.133	0.053	0.061
	(0.276)	(0.340)	(0.224)	(0.240)
College	0.074	0.137	0.036	0.044
	(0.261)	(0.344)	(0.188)	(0.205)
French	0.944	0.983	0.944	0.986
	-0.228	(0.126)	(0.228)	(0.114)
Children number	0.573	0.271	0.229	0.126
	(0.903)	(0.598)	(0.583)	(0.402)
Local U rate	9.324	9.236	9.639	9.338
	(2.4349)	(2.402)	(2.492)	(2.379)
Observations no.	*81619*	*6934*	*20972*	*38870*

Note: The sample includes all active and inactive partners aged 50 to 70, married or unmarried. The total sample size is 148 395 observations.