The impact of Family Characteristics on Timing of Retirement. A longitudinal analysis of the HRS in the United States between 1992 and 2006.

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1. Introduction

The demographic profile of both the European and U.S. workforce is facing a substantial shift now that members of the baby boom generation are approaching retirement (Purcell, 2008). Population aging combined with a significant trend of early exit from work, common to all advanced economies since the 1970s, has resulted in anxiety among scientists and policy makers for the potential pressure on social security systems. By the end of the 20th century, prolonging working life was therefore promoted (Ebbinghaus, 2006; Saurama, 2004; van den Heuvel, Herremans, van der Hallen, Erhel, Courtioux, 2006). The scientific community devoted an increasing amount of research to the determinants of retirement behaviour in order to inform policymakers about ways to foster activity among older workers.

These studies, however, mainly focused on individual predictors such as age, gender, health and economic well-being. The influence of job-related variables and retirement planning was extensively examined as well (e.g. Dwyer, Mitchell, 1999; Heyma, 2004; Shultz, Wang, 2007). The current research aims at contributing to the existing literature by studying the influence of family obligations and relationships on the timing of retirement. After all, as was already emphasized by Szinovacz, DeViney and Davy (2001: S20): "*Models of retirement should pay greater attention to the interdependence of work and family spheres"*. The studies that do explicitly incorporate family-related variables into their analysis mainly centre on the influence of the partner's health and retirement and the quality of the relationship (e.g. Wang, Zhan, Liu, Shultz, 2008). Some studies focus on the number of dependents in the household and on the care provided to them (e.g. Talaga, Beehr, 1995). Only few researchers pay attention to the broader family context. This study does so by paying special attention to the presence of and care for (grand)children and parents.

The influence of the family structure on the timing of retirement is likely to differ cross-nationally due to various ways in which care demands are addressed. In general, there are three sources of support: the state, the labour market (i.e. private provisions) and the family (Esping-Andersen, 1996). The relative importance of the three varies widely across countries. In the United States, public provision of care for either elderly, ill adults or children is limited (Daly, Rake, 2003). This increases the importance of the two remaining sources of support. While private provisions are a significant provider of care in the United States, there is a price tag attached to these facilities (Esping-Andersen, 1996; Council of Economic Advisors, 1997; Wiener, Stevenson, 1998). When high-quality care does not suit one's budget, the family may become a central care provider. Since pensioners overall are the main beneficiaries of any welfare state redistribution that takes place, older workers might be more inclined to leave the workforce and ease the pressure on their children, who often need to live in two-income families as a result of low-wage policy (Daly, Rake, 2003; Esping-Andersen, 1997).
In addition to the provision of care, older workers with a large family network potentially experience less difficulty in making the retirement decision. After all, the fear of social isolation is one of the main inhibiting factors to early retirement (Walker, Price, 1976).

2. Data and Methods

Data Source

Data will be drawn from eight biennial waves of the Health and Retirement Study (HRS) database, a multidisciplinary panel research launched in 1992 which represents all persons over 50 in the United States. The wave of 2006 is the last wave incorporated in our study since only early release data are currently available for 2008.

To focus on those near or in their retirement years, new sub-samples are added every six years. The Health and Retirement Study database therefore consists of several 'cohorts'. The present study will mainly focus on retirement behaviour of the so-called HRS-cohort (n = 6603). This group comprises respondents born between 1931 and 1941, who were already included in the first wave of the survey in 1992. Extensions are possible towards cohorts added at later waves. Two consecutive groups are of particular interest: the War Baby cohort added to the database in 1998 which consists of respondents born between 1942 and 1947 and the Early Baby Boomer-cohort born 1948-1953 which entered the study in 2004.

Statistical analysis

Many labour market studies based on the HRS are restricted to one or two data waves and apply logistic regression analysis (e.g. Choi, 2002; Kim, DeVaney, 2005; Peters, 2006). Using this technique results in a loss of information. Respondents are classified into groups according to their state at some arbitrary point in time. For persons who made the transition from working to retirement, the length of time spent in the working state is not taken into account. In such way, research questions concerning the *timing* of retirement cannot be adequately addressed. We overcome the limitations inherent to this analysis strategy by applying event history analysis (Allison, 1984: 10-11).

We use discrete-time late entry models with age as timing dimension. All analyses are stratified by gender since we presume that the effect of family structure is different for men and women. In addition, stratification by gender prevents underestimation of standard errors caused by clustering at the household-level.

Timing of retirement

The retirement status was measured by questioning respondents in each wave under consideration: "At this time do you consider yourself completely retired, partly retired, or not retired at all?". Four substantial answering categories were distinguished: completely retired, partly retired, not retired at all and 'question not relevant to R, doesn't work for pay or is homemaker'. Cases containing an 'irrelevant'-code in every completed interview were excluded from analysis: as far as we know, these respondents do not work for pay and are therefore not part of our target population. For the analysis of retirement, two main groups were created: those who consider themselves as not retired in each of the completed interviews (i.e. "the not-retired") and those reporting complete or partial retirement (i.e. "the retired").

To determine respondents' date of retirement, we used year and month of retirement as it was reported in the wave in which the respondent indicated retirement for the first time. Cases with a missing year of retirement or ambiguous data on year of retirement were excluded from the analysis (8.6% of the initial sample).

Family structure

Variables relating to both the presence of a family network and the care provided to family members are included in the analysis. The HRS dataset provides detailed information on (grand)children and parents. These family members are our focal point of interest. Sibling information is included in the HRS dataset as well. However, only limited information is available if both parents are deceased.

For the first round of the analysis, we restrict ourselves to the inclusion of general variables on the presence of family members. The *number of living children*, the *number of grandchildren* and the *number of living parents* are addressed. In a second stage of the analysis, more detailed family-related variables are introduced where the potential of the HRS to construct more detailed indicators is exploited.

Control variables

The effect of family structure on timing of retirement is assessed in a multivariate model containing the necessary control variables. Variables from 5 domains are considered:

1) **Socio-demographic factors:** variables such as gender and ethnicity are frequently included in analyses on the transition to retirement (Heyma, 2004; Boumans, de Jong, Vanderlinden, 2008; Shultz et al., 2007).
2) **Socio-economic factors:** previous research points to the importance of education and income and job-related characteristics such as physical circumstances, workload etc. (Heyma, 2004; Boumans, et al., 2008; Szinovacz, DeViney, 2000).
3) **Health:** earlier studies indicate the significance of both subjective and objective health measures (Boumans, et al., 2008; Szinovacz et al., 2000; Dwyer et al., 1999; Kalwij, Vermeulen, 2008).
4) **Retirement planning – expectations about retirement:** one's expectations of the post-retirement period are a following group of variables. For instance, Szinovacz et al. (2001) point to the potential importance of anticipated pension wealth.
5) **Institutional determinants – Pension-related characteristics:** pension eligibility and the difference between defined benefit and defined contribution plans are just two of the many institutional factors that previous research has drawn attention to (Hong, 2006; Talaga et al., 1995; Szinovacz et al., 2001).

3. Preliminary results

Age pattern at retirement

To explore the age pattern at retirement in the HRS-cohort, late entry models are used with age as the timing dimension. Of the 6603 respondents retained in our dataset, 4557 experience retirement throughout the observation period. The upper panel of Figure 1 plots the observed hazard function against age for men, the panel at the bottom presents the plot for women. For both men and women, the hazard of retirement remains relatively low until age 62. At that age, a first sharp rise in the conditional probability of retiring can be noticed. This finding is consistent with previous studies (Coile, Gruber, 2004) and corresponds to the early retirement age in the United States (Duval, 2003: 29). The following notable peak is situated around age 65, which historically has been the normal or full retirement age in the United States, but which is scheduled to rise gradually to age 67 over the 2000-2022 period (Social Security US Government, 2009; Duval, 2003: 29). Some peaks occur after age 65. The peaks until age 71 are still based on a relatively large risk set and thus not due to sampling variation. This finding is consistent with the labour market situation in the United States where a substantial part of the population is still at work after the age of 65 (Purcell, 2008).

- FIGURE 1 ABOUT HERE -

Discrete-time models

The effect of other predictors on retirement in addition to one's age is illustrated in Table 1. The parameter estimates (logit coefficients) of ethnicity and education stem from models containing only the main effect of age and the variable under consideration. The variable health reflects health as reported by respondents in the 1992-interview. This model additionally incorporates birth year as independent variable to account for the fact that people enter the initial data collection period at different ages and that some variation in self-report of health is merely a consequence of these age differences.

- TABLE 1 ABOUT HERE -

We find no significant effect of ethnicity for males. For women, the p-value associated with the Wald Chi-Square statistic is just above the critical 0.05-value (0.057). The likelihood ratio test, however,

points to a significant effect for women. These results are in line with previous research. Brougham and Walsh (2005), for instance, found no significant relationship between race and intent to retire. As in our study, Zissiniopoulus and Karoly (2007) failed to find a significant relationship for males, but did find a significant effect for females.

The effects of both educational level and self-reported health are significant for males as well as females. Respondents who have completed college or university are less likely to retire at each age as their lower-educated counterparts. Williamson and McNamara (2001: 8) also found a positive relationship between educational level and the likelihood of remaining in the workforce. The worse one's health, the larger the chance (s)he will retire, a finding consistent with studies of McGarry (2004) and Dwyer and Mitchell (1999).

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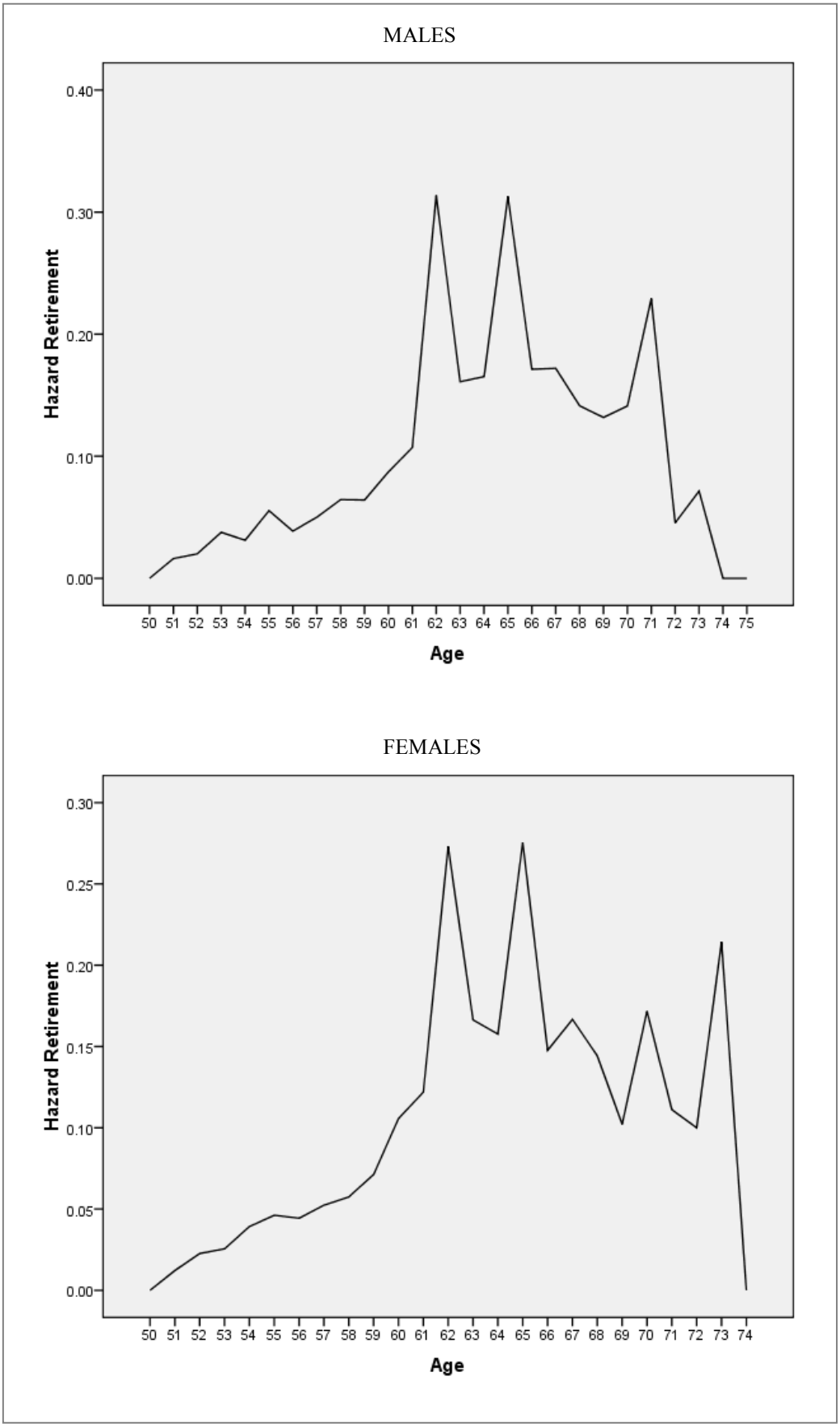
Figure 1: Observed hazard of retirement by age and gender, United States, HRS-cohort (born 1931-1941)



Source: Health and Retirement Study, Waves 1 – 8 (1992-2006)

Table 1: Results of discrete-time hazard models of retirement by ethnicity, education and health, United States, HRS-cohort (born 1931-1941)

	Model 1		Model 2		Model 3	
	Male	Female	Male	Female	Male	Female
AGE						
50-51	---	---	---	---	---	---
52	0,398	0,858	0,385	0,857	0,385	0,843
53	1.047*	0.982*	1.032*	0.980*	1.021*	0.908*
54	0.849*	1.424***	0.831*	1.421**	0.817*	1.364**
55	1.452***	1.596***	1.435***	1.592***	1.404***	1.511***
56	1.073**	1.554***	1.055**	1.549***	1.015*	1.449***
57	1.343***	1.728***	1.313***	1.724***	1.262**	1.580***
58	1.604***	1.826***	1.585***	1.823***	1.487***	1.663***
59	1.606***	2.055***	1.588***	2.051***	1.503***	1.875***
60	1.938***	2.488***	1.921***	2.479***	1.823***	2.275***
61	2.166***	2.650***	2.143***	2.644***	2.038***	2.422***
62	3.503***	3.645***	3.490***	3.642***	3.373***	3.427***
63	2.636***	3.013***	2.642***	3.010***	2.533***	2.809***
64	2.666***	2.950***	2.679***	2.946***	2.563***	2.742***
65	3.500***	3.659***	3.526***	3.656***	3.396***	3.480***
66	2.710***	2.874***	2.736***	2.870***	2.499***	2.623***
67	2.713***	3.023***	2.752***	3.018***	2.565***	2.815***
68	2.478***	2.852***	2.524***	2.852***	2.341***	2.572***
69	2.398***	2.459***	2.446***	2.467***	2.318***	2.122***
70	2.478***	3.047***	2.497***	3.068***	2.367***	2.779***
71	3.067***	2.541***	3.085***	2.563***	2.923***	2.079***
72-75	1.207	2.650***	1,215	2.668***	1,074	2.275***
BIRTHYEAR					-0.025**	-0.046***
ETHNICITY						
Black/African American	0,047	0.064				
Other	-0.145	-0.248				
White/Caucasian	---	---				
EDUCATION						
Lt High-school			---	---		
GED			0,166	0,107		
High-school graduate			0,098	-0.036		
Some college			-0.036	-0.194**		
College and above			-0.326***	-0.024		
HEALTH						
Excellent					---	---
Very good					0.197**	0.171**
Good					0.312***	0.260***
Fair					0.442***	0.463***
Poor					0.856***	0.629***
GOODNESS-OF-FIT						
Difference in deviance	2,074	5,993	49,077	12.236	51,927	47,138
Difference in degrees of freedom	2	2	4	4	4	4
P-value on deviance based approach	0,355	0.04996 *	0.000 ***	0.016 *	0.000 ***	0.000 ***
N Person Periods	19864	23573	19838	23569	21823	23346
N Events	2245	2307	2241	2306	2191	2273

< 0.05: *; < 0.01: **; < 0.001: ***

Source: Health and Retirement Study, Waves 1 – 8 (1992-2006)