



Retirement coordination among married couples:

An analysis using Swedish administrative
registers from 1990-2012

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Abstract: The study examines how married couples' age differences influence retirement coordination in Sweden. High-quality longitudinal administrative registers allow us to study all marital opposite-sex and same-sex couples in Sweden in relation to labor market outcomes. With means of regression analysis, we find that the likelihood of couples retiring close in time decreases as their age difference increases but that age differences have a similar effect on retirement coordination for couples with larger age differences. Additionally, retirement coordination is largely gender neutral in opposite-sex couples with age differences regardless of whether the male spouse is older. Also, male same-sex couples retire closer in time than both opposite-sex couples and female same-sex couples. The definition of retirement coordination as the number of years between retirements contributes to the literature on couples' retirement behavior and allows us to study the degree of retirement coordination among all couples, including those with larger age differences.

Keywords: retirement coordination, joint retirement, couples, Sweden, registers

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INTRODUCTION

For dual-earner couples, the retirement of one partner is an important determinant of retirement decisions, and numerous studies offer substantial evidence that spouses retire jointly or close in time (An et al., 2004; Blau, 1998; Henkens, 1999; Henretta and O’Rand, 1983; Ho and Raymo, 2009; Hurd, 1990). Couples who are the same age or are close in age are the most likely to retire jointly. Nonetheless, few studies have closely examined how age differences influence couples’ retirement synchronization (see exceptions Gustafson, 2017; Hurd, 1990).

The study of retirement coordination is important for understanding and projecting individuals’ retirement behavior, which is of major interest not only to labor market and pension policy makers but also to individuals and their spouses. For instance, coordination can produce a variety of positive or negative consequences related to personal and household earnings, particularly for couples with larger age differences. The size of the age gap becomes an important factor in determining the distribution of economic resources in the years following the older spouse’s retirement. For example, the younger spouse may be required to financially support the older spouse’s retirement for an extended time in cases involving a larger age difference. However, if the younger spouse retires earlier, the couple will lose his or her potential labor income. Because women are typically younger than their male spouses and typically have lower earnings, the greatest financial losses from retirement coordination are most likely borne by women.

The purpose of this paper is to investigate the association between age differences and retirement coordination among couples using administrative population registers that cover the entire married Swedish population born from 1930 to 1947. We argue that the previously applied binary definitions of joint retirement (An et al., 2004; Blau, 1998; Gustafson, 2017; Henretta and O’Rand, 1983; Ho and Raymo, 2009; Hurd, 1990; O’Rand and Farkas, 2002) are too narrow and limit our understanding of retirement coordination, particularly among couples with large age differences. Instead of the term “joint retirement”, we introduce the term “retirement coordination”, which measures the degree to which couples coordinate their retirement to minimize the gap between their retirement years. It is critical to adopt a wider definition of retirement coordination given that age difference is an important predictor for all retiring couples. This is particularly important for unions with a larger age difference in which retirement coordination is common but joint retirement is rare. For instance, couples may retire within three years of each other, which would be considered coordinated retirement if their age difference is substantial. Studying the gap in retirement timing relative

to couples' age differences is also important given that a large proportion of married couples have an age difference of more than a few years (Kolk, 2015), and with an increasing number of re-partnering later in life, an increasing number of couples have large age differences (Berardo et al., 1993; Ní Bhrolcháin, 2008).

Theories and previous research have indicated that both gender role orientations and bargaining power in the form of economic resources have an impact on the division of paid and household labor and decision-making within couples (Greenstein, 1996; Ott, 1992; West and Zimmerman, 1987). In most couples, the older spouse is the husband, and the older spouse often has the most power (Bozon, 1991). As not all couples follow traditional gendered patterns in which the man is the older spouse, we also study retirement coordination in relation to age difference separately among couples in which the husband is older and among couples in which the wife is older. This is important because it shows whether retirement coordination is gender neutral or follows systematic gendered structures.

One interesting gendered aspect of retirement coordination may also be studied by contrasting opposite-sex and same-sex couples who do not necessarily share identical gender role orientations or socioeconomic and demographic characteristics; accordingly, their retirement coordination may differ. In addition, previous studies have found that same-sex couples tend to have a greater age difference than opposite-sex couples (Andersson et al., 2006). Differences in retirement ages could potentially be substantially larger in same-sex couples if those couples do not aim to coordinate their retirement. We also examine retirement coordination among same-sex couples, taking advantage of the fact that Swedish civil status registers have recognized same-sex unions since 1995. To our knowledge, our study is the first to examine retirement coordination among same-sex couples alongside opposite-sex couples. Overall, the lack of knowledge concerning same-sex couples is related to the fact that few countries had legalized marriages or partnerships until very recently and to this lack of a large enough representative sample of same-sex couples (Umberson et al., 2015).

THE SWEDISH PENSION SYSTEM

The structure of the Swedish universal individual-based public pension system allows spouses to coordinate retirement and retire close in time to each other. This also applies to couples with large age differences. Additionally, access to individual pension plans makes it relatively easy for couples to calculate their future pensions and joint economic resources (Sundén, 2008). Both the pre-reform system and the new system, which was fully

implemented in 2003, gives employees the flexibility to decide when to retire. For instance, until 2003, the mandatory pension age was 65, but a large proportion of employees retired earlier in response to generous retirement incentives offer through early retirement options and occupational pensions (Palme and Svensson, 1999). In the new system, the mandatory retirement age was abolished, and employees have the flexibility to decide whether to retire full-time or part-time from ages 61 to 67. The option to retire early through occupational pensions is still available and in some occupations, the youngest permissible age of retirement is 55. Almost all workers in Sweden are entitled to occupational pensions; up to 95 percent of people employed in the Swedish labor market are covered by some kind of occupational pension schema. Through an agreement with an employer, it is also possible to continue to work past age 67. Overall, the average retirement age increased for both men and women after 2003, as the new pension system offers more resources for the continuation of work (OECD, 2017; Sundén, 2006)

THEORETICAL PERSPECTIVES ON COUPLES' DECISION-MAKING

Labor markets are strongly gender-segregated in all Western societies, and family sociologists have repeatedly shown the importance of gender in the division of household work, paid work, and other aspects of family organization (Nermo, 1996; Reskin, 1993). The family's division of household and paid work is a typical area in which men and women "do" and reproduce gender (West and Zimmerman, 1987). The stronger a couple's endorsement of traditional roles (where the husband is the main breadwinner and the wife does household work), the more unequal the couple's division of household and paid work (Greenstein, 1996; Shelton and John, 1996). Gender role ideology may serve as a proxy for marital power, such as which of the spouses has the greatest influence on decisions, and also how the couple has previously made decisions, which has been argued to be constant across decision areas (Corfman and Lehmann, 1987). In relation to retirement decisions, it has been suggested that it is the wife who follows her husband's retirement, because women's employment is not valued as equal to men's employment (Smith and Moen, 1998).

Bargaining power is also influenced by a couple's age differences. In particular, because, in couples, men tend to be older than women (Berardo et al., 1993; Bozon, 1991; Kolk, 2015), age difference has been suggested as one of the major phenomena that reinforce male economic advantage both in unions and in society (Bozon, 1991; Rothstein, 2010). In same-age couples, spouses have more equal influence in decision-making, whereas in dissimilar-age couples, the oldest spouse has the greatest influence (McKenzie, 2015). It has

been argued that the overall increase in the proportion of wives who are older than their husbands is an indication of increasingly egalitarian societies (Grøntvedt and Kennair, 2013; McKenzie, 2015; Mensch, 1986; Wheeler and Gunter, 1987). Couples in which the woman is older might be more egalitarian than couples in which the man is older. Therefore, one interesting research question is whether retirement coordination as a phenomenon is similar between couples in which the man is older and couples in which the woman is older. Previous research has found egalitarian couples to be more likely to retire closely in time (Ho and Raymo, 2009). Therefore, retirement coordination can be expected to be smaller in couples with traditional gender roles in which the male spouse is older than that in couples where the female spouse is older. However, such differences might also be attributable to other factors, such as the lower earnings of the women in these couples.

Retirement decisions may also be influenced by the couple's sex composition. For instance, gender roles, gender norms, expectations and bargaining power differ between same-sex and opposite-sex couples, and there is also significant variation among same-sex couples (Goldberg et al., 2012; Kurdek, 1993; Marecek et al., 1982). Empirical findings have shown that, compared to opposite-sex couples, female and male same-sex couples tend to be more egalitarian when dividing household labor and finances (Balsam et al., 2008; Kurdek, 2007; Lam et al., 2012; Patterson, 2000; Peplau et al., 1996; Peplau and Spalding, 2000; Solomon et al., 2005) and making decisions (Goldberg, 2013; Kurdek, 1993; Kurdek and Schmitt, 1986). The partner with the greatest socioeconomic resources is often the one who has the most power in same-sex couples (Caldwell and Peplau, 1984; Peplau et al., 1996). Additionally, same-sex couples work in the same gender-segregated labor market as opposite-sex couples, and therefore, career and employment opportunities may be different for couples with different sex compositions.

In addition, social exchange theory and bargaining theory have aimed to explain how both opposite-sex and same-sex couples may choose their retirement transitions. It has been suggested that household labor is less attractive than paid labor, whereof both partners aim to minimize time dedicated to household work and maximize time in paid work (Ott, 1992). Bargaining power, i.e., who does what and what decisions are made, increases with resources, such as employment income. In this view, engaging in household work and unpaid work rather than paid work weakens bargaining power (Maret and Finlay, 1984). Thus, gender differences might arise from the different bargaining position of men and women in relationships where men – even in contemporary Sweden – earn and work more on average and have occupations that are more prestigious. In opposite-sex couples, gender differences

and the relative share of household income will generally, but not always, reinforce each other.

In sum, the intersection of gender roles, bargaining power, and age differences offer an important rationale for a more precise study of how spouses coordinate their retirement, addressing both opposite- and same-sex couples and opposite-sex couples in which the female spouse is older: all of the above-referenced aspects are expected to play important roles.

PREVIOUS EMPIRICAL RESEARCH ON JOINT RETIREMENT

Individuals' retirement decisions are often significantly impacted by their spouse's retirement, support and opinions (Henkens, 1999; Szinovacz and Deviney, 2000). For instance, the probability of one spouse retiring is greater if the other spouse is not participating in the labor force than it is if the other spouse is employed (Blau and Riphahn, 1999). However, Selin (2017) did not find that husbands were influenced by their wives' retirement when studying retirement transition among a small subgroup of Swedish female workers.

Moreover, joint-retirement couples are often older (O'Rand and Farkas, 2002), and the older the spouse, the more likely the couple is to retire jointly (Henretta and O'Rand, 1983). Spousal age difference has also been shown to predict couples' retirement behavior. Using a non-representative sample of American couples from 1982, Hurd (1990) found that age difference explains much of the variation in retirement ages. Additionally, Ho and Raymo (2009) studied American couples and found that the larger the age difference, the less likely the couple is to retire jointly. Gustafson (2017) explored the extent to which and circumstances in which married dual-earner couples retire within the same year using Swedish data from 2002 to 2010. He found that same-age couples are more likely to retire within the same year than dissimilar-age couples, and synchronization is less likely as the age difference grows larger. In contrast, other studies from the U.S. have failed to find support for age difference as central to retirement coordination (O'Rand and Farkas, 2002; Pienta, 2003; Szinovacz, 2002).

Moreover, economic resources matter for joint retirement (Blau and Riphahn, 1999; Ho and Raymo, 2009), where more economically advantaged couples are more likely to retire together (O'Rand and Farkas, 2002). When one spouse has a low income, that spouse continues to work rather than retiring jointly (Henretta and O'Rand, 1983). Wives whose husbands has a higher income are more likely to synchronize retirement, whereas wives

whose husbands have a low income are less likely to do so (Henretta et al., 1993). Similarly, spouses' high pension benefits may also enhance their labor market exit (Blau and Riphahn, 1999).

Previous findings on the association between spouses' education levels and retirement coordination have been contradictory. For instance, Blau (1998) did not find any significant association, whereas Ho and Raymo (2009) found that wives who have graduated high school are more likely to retire together with their husbands than both more highly and less highly educated wives. Moreover, long-term unemployment has an enhancing impact on early retirement, which may lead to poor spousal coordination (Hayward et al., 1998; Szinovacz and Deviney, 2000). Other factors related to lifelong earnings, particularly in relation to women's retirement, is the division of labor during the childrearing years and the number of children, which may delay labor force exit (Henretta et al., 1993; Pienta, 1999; Pienta et al., 1994) and reduce spousal coordination. The presence of children has not been shown to influence joint retirement among couples (O'Rand and Farkas, 2002).

Health has been shown to be a strong household predictor of couples' retirement behavior (Blau and Riphahn, 1999; Ho and Raymo, 2009). For instance, a disabled spouse may enhance the likelihood of early retirement (Lumsdaine and Mitchell, 1999; Pozzoli and Ranzani, 2009) but may also delay retirement, as the couple may need extra financial resources (Johnson and Favreault, 2001; Talaga and Beehr, 1995). However, a study from Norway, where, like Sweden, the vast majority of citizens are covered by national insurance schemas that include sickness and disability benefits, has shown that a spouse's ill health is not central to older employees' labor market participation (Syse et al., 2014).

PREVIOUS RESEARCH ON HOW SAME-SEX AND OPPOSITE-SEX COUPLES DIFFER

The literature has shown that opposite-sex and same-sex couples differ with respect to several demographic and socioeconomic aspects. For instance, same-sex couples generally have higher education levels, larger earnings, higher divorce rates, and are less likely to have children (Aldén et al., 2015; Andersson et al., 2006; Balsam et al., 2008; Black et al., 2000; Smith and Moen, 1998; Solomon et al., 2005). Female same-sex couples have also been shown to have higher levels of intimacy as well as homogamy across the domains of relationship quality, relationship investment, attachment and autonomy (Kurdek and Schmitt, 1986). Additionally, female same-sex couples are more likely to plan to retire jointly than opposite-sex couples (Mock and Cornelius, 2007). Same-sex couples and opposite-sex

couples are similar in many respects. For instance, same- and opposite-sex couples report being similarly satisfied with their relationships, and relationship quality decreases over time in same- and opposite-sex couples (Kurdek, 1998).

THE STUDY'S HYPOTHESES

Based on theoretical and empirical findings from previous literature, we derive three hypotheses:

1. (a) Couples with large age differences retire further apart than couples with smaller age differences, but (b) couples with large age differences also coordinate their retirement to some extent, although (c) a one-year age difference impacts retirement coordination more for couples of a similar age than a one-year age difference for couples with larger age differences.
2. Couples in which the husband is the older spouse retire further apart from each other than couples in which the wife is the older spouse.
3. The propensity to coordinate retirement is greater among same-sex couples than that among opposite-sex couples.

DATA AND METHODS

The study uses Swedish administrative registry data from the Annual Total Population Registers, which includes the year of registration of all opposite and same-sex marriages and registered partnerships. The registers include demographic information of the complete population of Sweden, and we link to this information from the Swedish tax authorities by means of a unique personal identification number. Our study population consists of unions in which both spouses are born between 1930 and 1947 and who married after 1967. The marriage records cover the period 1968-2012. In order to see the cohort distribution, we did a heat map by cross-tabulating years of birth of the spouses (Figure 1 in Appendix). The map reveal that our study population primarily consists of individuals born in the 1940s, as a large proportion of those born in the 1930s married before 1968. Thus, we exclude a large selection of lifelong unions formed early in life among our first cohorts. The mean age at first marriage in 1950 was 28.3 for men and 25.6 for women, and the mean age at first marriage in 1960 was 27.3 for men and 24.3 for women (Statistics Sweden, 2017). Moreover, it is necessary to set the cut-off at the 1947 cohort, as both spouses must have reached the age when retirement is possible for us to analyze the prevalence of retirement coordination. The study period is 1990-2012. Additional exclusion criteria are all unions in which at least one of the spouses

retired before the year of marriage or died or divorced before retirement. We limited our analysis to individuals who retired after the age 57 in order to include individuals who are eligible for pensions and to exclude those who retire very early. The total number of marriages (formed after 1968) where both spouses were born between 1930 and 1947 is 185,335. Considering all the restrictions mentioned above, this population consists of 103,828 marriages (207,656 individuals), of which 105 (210 individuals) are same-sex partnerships/marriages.¹ The total number of excluded unions and the exclusion criteria are presented in Table A1 of the Appendix.

Dependent variable

The dependent variable is the number of years separating the retirement of the respective spouses. To define this variable, annual earnings information is derived from the population's administrative records in the Sickness Insurance and Labor Market Studies Database. As a first step, we established the year of the retirement of both spouses, separately. Our definition of year of retirement is the first year in which the individual receives old-age pension benefits and early retirement benefits that exceed 49 percent of the total earnings received in a given year. Total earnings include old-age pension benefits, early retirement benefits, employment income and unemployment benefits. Because all earnings are summarized annually (measured on December 31), the month of retirement is unknown, as is the length or period of receiving a pension. This definition has previously been applied in studies based on Swedish register data (Kridahl, 2017; Statistics Sweden, 2011). Palme and Svensson (Palme and Svensson, 2004) used a similar definition, but employed an 80 percent threshold. Our argument for using the 50 percent threshold is that most people do not retire as of January 1st but sometime over the year, meaning that they may receive both employment income (and other income sources) and their pension. The 50 percent threshold better approximates the actual year of retirement because the data show that the vast majority of individuals who take at least 50 percent receive a much larger share the following year (Kridahl 2017).

Previous studies have operationalized joint retirement as similar patterns of work and non-work over a period of two years (Henretta and O'Rand, 1983), both spouses not working during the same calendar year (Gustafson, 2017; Hurd, 1990), a joint exit from the labor force

¹ On a practical note, since the legislation in 1995 establishing registered partnerships as a form of civil status nearly identical to marriage (Andersson and Noack, 2010), the pension system has treated registered partnerships and marriages very similarly, and this form of civil status is thus largely equivalent for the purpose of this study. As such, we treat partnerships and same-sex marriages identically in our study.

in the same quarter of a given year (Blau, 1998) or within 12 months (Ho and Raymo, 2009; O’Rand and Farkas, 2002), and tied durations in hazard models (An et al., 2004). This study extends the previous research by applying a research design with a continuous variable measuring the difference in the total number of years between the spouses’ retirements. The spouses’ year of retirement is independently estimated by the definition discussed above. As a robustness measure and to present results comparable to previous literature, we also use a second dependent variable, which is whether the union retires jointly up to one year apart or separately, i.e., more than one year apart. The motivation to define joint retirement as up to one year apart is that the retirement transition is defined by years and not months in the data, which suggests that couples retiring within a few months of each other but in different years would be otherwise considered as retiring more than one year apart. Descriptive statistics of the outcome variables can be found in Table 1.

Independent Variables

The models include a set of independent variables at the couple level, most of which have been shown to be central to couples’ retirement decision-making and retirement timing in general: *age difference between the spouses*, *sex composition*, *mean age of retirement*, *mean year of retirement*, *union’s disposable income level*, and *union’s highest achieved education level*. *Age difference* is the main independent variable and is the oldest spouse’s age minus the youngest spouse’s age. We include age difference as a both a categorical and continuous measure. The categorization is based on the distribution of the age differences and is categorized as follows: no age difference, 1-2 years of age difference, 3-4 years of age difference, 5-6 years of age difference, and equal to or more than a 7-year age difference.

We derive the *sex composition* of the union from civil status registers.² We include covariates on the *mean retirement year* of the couple and their *mean age at retirement*. Spouses’ retirement age and year of retirement are important predictors of retirement. However, including variables such as the age of retirement of the youngest spouse in the couple results in high collinearity with the dependent variable. To prevent collinearity from biasing the results with the dependent variable, we apply the mean characteristics of the union. For instance, difference in years in retirement timing would have been highly correlated with year of retirement and/or age of retirement if we had not used the mean of the

² As our population of same-sex unions is small, we will only present basic descriptive information for the population of same-sex unions to comply with ethical protocols. For the same reasons, we cannot run separate regressions only for our same-sex population.

spouses. Our variables were tested for multicollinearity with the variation inflation factor, which did not indicate any substantially high collinearity between the variables. In addition, Pearson's r did not exceed ± 0.6 for any of the control variables.

Union's disposable income level is based on the mean disposable income over the ages 55-57 for each spouse. The variable is categorized as follows: 1) low incomes, 2) medium incomes, 3) high incomes, 4) one low, one medium, 5) one low, one high, 6) one medium, one high, and 7) one or both missing income. The cut-offs are equivalent to "low income" being below 250.001 SEK/year, "medium income" being 250.001-350.000 SEK/year and "high income" being 350.001 SEK/year or more. The mean income in our data was approximately 240.000 SEK/year. Other categorizations of disposable income have been tested, and regression models produced similar results as the models with the chosen categorization. The motivation for using disposable income rather than labor market income is that in addition to labor market income (including self-employment), disposable income includes, e.g., capital profits, social insurance benefits, and housing allowances. The variable contains income net of taxes, and is inflation adjusted to the year 1990. Three percent of the unions have no earnings information, as they most likely were not in Sweden during those years. Five percent of unions only have information about one of the spouses. Moreover, the categorization of *union's highest achieved education levels* follows the international education classifications ISCED 97. All independent variables are presented in Table 1.

Methods of Analyzing

In our study, we use linear regression both on the continuous variable (difference in years between the partners' retirements) and on our binary outcome variable. Logistic regression would be an alternative method for the binary outcome, but linear models with robust standard errors (often referred to as linear probability models) present coefficients that are easier to compare across models (Mood, 2010).

RESULTS

Descriptive Data

Table 1 displays descriptive information for all married unions registered in the period 1990-2012 in Sweden where both spouses are born in the period 1930-1947. The descriptive statistics show that 17 percent of couples retire in the same year, and 31 percent retire within 1-2 years of each other. Table 2 displays the percentage and number of unions that retired

jointly (0-1 years apart) and separately (2 years or more). Joint retirement is most prevalent among those born in the same year or one or two years apart; to a lesser degree, it appears among those with age differences of 3-4 years. Unions with large age differences (more than 5 years difference) seldom retire jointly. Table 3 presents additional information on the age differences and retirement coordination by sex composition. The table also presents separate results for opposite-sex unions in which spouses are the same age and for unions in which the female spouse and the male spouse are older. The age difference is highest among opposite-sex unions where the man is older, but male same-sex unions have a very similar age difference. Additionally, age differences are larger in male same-sex unions than in female same-sex unions, and the latter also have lower age differences than all opposite sex unions. Same-age unions retire closest in time, and opposite-sex unions in which the man is older have the most substantial difference in retirement timing. The prevalence of joint retirement is highest among same-age unions, and second highest among female same-sex unions. Opposite-sex unions in which the husband is older and male same-sex unions have a similar share of joint retirement.

Table 1. *Descriptive Characteristics of the Unions*

| Variable | All unions (%) | |
|--|-----------------------------------|------|
| Year difference in retirement | Same year | 16.6 |
| | 1 year apart | 17.1 |
| | 2 years apart | 13.7 |
| | 3 years apart | 11.2 |
| | 4 years apart | 9.1 |
| | 5 years apart | 7.4 |
| | 6 or more years apart | 24.9 |
| Age difference | No age difference | 12.8 |
| | 1-2 years of age difference | 39.1 |
| | 3-4 years of age difference | 22.9 |
| | 5-6 years of age difference | 12.2 |
| | 7 years of age difference or more | 12.9 |
| Sex composition of the couple | Opposite-sex unions | 99.9 |
| | Same-sex unions, female | 0.02 |
| | Same-sex unions, male | 0.08 |
| Union's mean age at retirement | 58-63 | 31.6 |
| | 64-65 | 38.8 |
| | 66-67 | 20.4 |
| | 68 or older | 9.2 |
| Union's mean year of retirement | 1990-1994 | 1.8 |
| | 1995-1999 | 1.4 |
| | 2000-2004 | 21.1 |
| | 2005-2009 | 45.2 |
| | 2010-2012 | 23.9 |
| Union's highest achieved education level | Both tertiary | 19.7 |
| | Both secondary | 18.9 |
| | Both primary | 10.9 |
| | Secondary and tertiary | 19.2 |
| | Secondary and primary | 21.3 |
| | Tertiary and primary | 6.7 |
| | Missing | 3.3 |
| Union's disposable income level | Both low | 41.8 |
| | Both medium | 5.3 |
| | Both high | 2.6 |
| | Low and medium | 22.7 |
| | Low and high | 12.9 |
| | Medium and high | 6.6 |
| | Either one or both missing | 8.2 |
| Number of unions | 103,828 | |

Table 2. *Joint Retirement (0-1 years apart) or Separate Retirement (2 years or more apart) by Union Age Difference, Number of Unions*

| | Jointly | | Separately | |
|------------------------|---------|-----|------------|-----|
| | N | % | N | % |
| No age difference | 7,602 | 21 | 5,725 | 8 |
| 1 year of age | 11,460 | 33 | 11,001 | 16 |
| 2 years of age | 7,152 | 20 | 10,988 | 16 |
| 3 years of age | 3,862 | 11 | 9,944 | 14 |
| 4 years of age | 2,185 | 6 | 7,802 | 11 |
| 5 years of age | 1,128 | 3 | 6,287 | 9 |
| 6 years of age | 687 | 2 | 4,637 | 7 |
| 7 years of age or more | 905 | 3 | 12,463 | 18 |
| Number of unions | 34,982 | 100 | 68,847 | 100 |

Table 3. *Mean Age Difference, Mean Difference in Years in Retirement Timing, and Prevalence of Joint Retirement (0-1 Years Apart) Among all Unions, Opposite-Sex Unions in which the Man or the Woman is the Older Spouse and all Same-Sex Unions Separately*

| Type of union | | Mean age difference | Mean difference in years in retirement timing | Percent with a joint retirement |
|----------------------|--------------------------|---------------------|---|---------------------------------|
| Opposite-sex couples | All opposite-sex couples | 3.2 | 3.7 | 34 |
| | Same-age couples | 0 | 1.9 | 57 |
| | Man is older | 3.9 | 4.2 | 29 |
| | Woman is older | 2.9 | 3.5 | 33 |
| Same-sex couples | Female | 2.4 | 3.5 | 47 |
| | Male | 3.8 | 4.3 | 28 |

Regressions Analyses

Table 4 displays the results from linear regression models using the continuous measure of retirement coordination with difference in retirement timing in years, introduced stepwise (Models 1-4). The results are presented as coefficients that should be interpreted as a change in the independent variables that either increase or decrease the difference in years in retirement timing by one unit (year). For instance, the results from Model 1c (Table 4) on mean retirement age show a coefficient of -0.402. This means that for each additional increase in the mean retirement age of the couple, the difference in years in retirement timing decreases by 4.8 months. If the coefficient were to be positive (i.e., 0.402), the interval would instead be increasing, and the couple would retire further apart from each other by 4.8 months. To illustrate the potential effect of the findings, we have calculated the difference in months or years for some variables.

Table 4. OLS Regression of the Difference in Years in Retirement Timing among all Unions with Two Spouses Born in the Period 1930-1947

| | Bivariate models 1a-1f ¹⁾ | | Demographic model 2 | | Socioeconomic model 3 | | All covariates model 4 | |
|---|--------------------------------------|----------------|---------------------|---------------|-----------------------|----------------|------------------------|---------------|
| | Coef. | 95% C.I. | Coef. | 95% C.I. | Coef. | 95% C.I. | Coef. | 95% C.I. |
| Age difference | | | | | | | | |
| No years of age difference (<i>ref</i>) | 0 | | 0 | | | | 0 | |
| 1-2 years of age difference | 0.444 | 0.389; 0.499 | 0.418 | 0.365; 0.470 | | | 0.413 | 0.361; 0.466 |
| 3-4 years of age difference | 1.631 | 1.572; 1.691 | 1.523 | 1.466; 1.581 | | | 1.521 | 1.464; 1.578 |
| 5-6 years of age difference | 3.276 | 2.207; 3.344 | 3.065 | 2.998; 3.131 | | | 3.063 | 2.997; 3.129 |
| 7 years of age difference or more | 6.817 | 6.750; 6.884 | 6.483 | 6.416; 6.551 | | | 6.487 | 6.419; 6.554 |
| Sex composition | | | | | | | | |
| Opposite-sex unions (<i>ref</i>) | 0 | | 0 | | 0 | | 0 | |
| Same-sex unions, female | -0.225 | -1.816; 1.366 | 0.218 | -0.986; 1.422 | -0.312 | -1.873; 1.249 | 0.105 | -1.096; 1.307 |
| Same-sex unions, male | 0.529 | -0.211; 1.268 | -0.359 | -0.919; 0.201 | 0.553 | -0.173; 0.278 | -0.389 | -0.947; 0.169 |
| Mean retirement age (cont.) | -0.402 | -0.412; -0.392 | -0.296 | -0.305; - | | | -0.260 | -0.271; - |
| Mean retirement year (cont.) | -0.291 | -0.295; -0.286 | -0.072 | -0.077; - | | | -0.072 | -0.078; - |
| Union's disp. income level | | | | | | | | |
| Both low (<i>ref</i>) | 0 | | | | 0 | | 0 | |
| Both medium | -1.453 | -1.552; -1.355 | | | -1.509 | -1.611; -1.407 | -0.226 | -0.335; - |
| Both high | -1.427 | -1.562; -1.292 | | | -1.488 | -1.629; -1.348 | -0.179 | -0.286; - |
| Low and medium | -0.686 | -0.741; -0.630 | | | -0.712 | -0.768; -0.655 | 0.058 | 0.013; 0.103 |
| Low and high | -0.934 | -1.002; -0.866 | | | -0.973 | -1.044; -0.901 | -0.004 | -0.052; 0.061 |
| Medium and high | -1.459 | -1.548; -1.370 | | | -1.519 | -1.613; -1.423 | -0.181 | -0.256; - |
| Either one or both missing | -1.259 | -1.340; -1.178 | | | -0.209 | -0.309; 0.107 | 0.148 | 0.069; 0.226 |
| Union's education levels | | | | | | | | |
| Both tertiary | -0.279 | -0.348; -0.210 | | | 0.256 | 0.183; 0.328 | 0.136 | 0.081; 0.193 |
| Both secondary (<i>ref</i>) | 0 | | | | 0 | | 0 | |
| Both primary | 0.481 | 0.401; 0.562 | | | 0.251 | 0.169; 0.332 | -0.031 | -0.094; 0.031 |
| Secondary and tertiary | 0.069 | 0.001; 0.139 | | | 0.324 | 0.254; 0.393 | 0.127 | 0.073; 0.181 |
| Secondary and primary | 0.315 | 0.248; 0.382 | | | 0.176 | 0.109; 0.243 | -0.008 | -0.059; 0.043 |
| Tertiary and primary | 0.426 | 0.331; 0.522 | | | 0.498 | 0.403; 0.593 | 0.115 | 0.042; 0.188 |
| Both missing | -2.245 | -2.372; -2.118 | | | -2.461 | -2.618; -2.304 | -1.107 | -1.125; - |
| R-square | | | 0.427 | | 0.037 | | 0.430 | |
| Number of unions | 103,828 | | 103,828 | | 103,828 | | 103,828 | |

¹⁾ Bivariate models: 1a – OLS age difference and year difference, 1b – OLS sex composition and year difference, 1c – OLS mean retirement age and year difference, 1d – OLS mean retirement year and year difference, 1e – OLS union's disposable income level and year difference, 1f – OLS union's highest education and year difference.

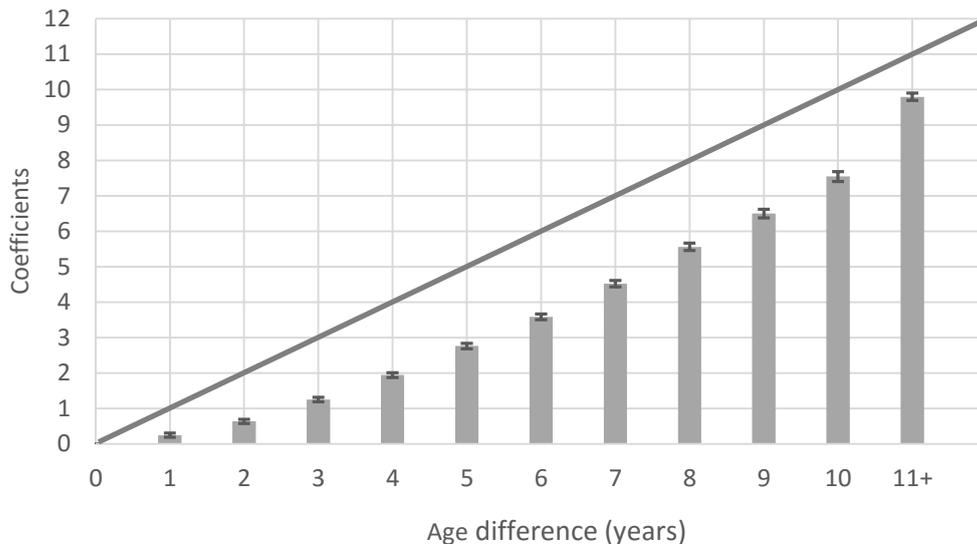
In the first column of Table 4, we present bivariate relationships between the six different independent variables in six different models. In the bivariate Model 1a for age difference, we find a strong and gradually increasing effect in the difference in years in retirement timing by increasing age difference. In Model 2, we introduce demographic covariates and find a similarly increasing pattern, and in Model 4, all independent variables are included and the pattern for age difference is the same as in Model 2. Not surprisingly, the pattern suggests that spouses who are closer in age are more likely to retire close in time to each other. However, the results indicate that the increase is not the same as it is for age difference (e.g., those with 1 year of age difference retire 1 year apart, and those with age

difference of 2 years retire 2 years apart, etc.) but that the difference in years in retirement timing is smaller than the age difference between the spouses even at large age differences. For instance, those with 1-2 years of age difference retire 5 months further apart from each other than those of the same age, and those with 3-4 years of age difference retire 1.6 years apart from each other. This indicates that spouses coordinate their retirement at all age differences. The second and final model has a strong explanatory power of the difference in years in retirement timing ($R^2=0.430$). The low R^2 ($R^2=0.037$) in the socioeconomic model, Model 3, in which age difference was excluded, suggests that age difference explains most of the variation in the differences in years in retirement timing. This is consistent with the importance of including age differences in understanding retirement coordination among unions.

To further examine the relationship between age differences and the difference in years in retirement timing, we analyzed age difference as a continuous measure (model not presented), which revealed an increasing difference in retirement timing with increasing age difference (coefficient: 0.757, approximately 9 months). However, using a linear covariate for age differences assumes that the effect of age differences is linear with respect to age. Therefore, we have also calculated a model in which each year of age difference is included as dummies in a model otherwise similar to Model 4 in Table 4. We present this model in Figure 1, in which we also include a line to indicate a linear correspondence between age differences and the difference in years in retirement timing (see also Table A2 in the Appendix). We find only a small difference in years of retirement when comparing no age difference with a one-year age difference. From an age difference of 2 years and onwards, there is a gradual increase in retirement differences. The figure shows an overall increasing pattern for every additional year of age (as the coefficients are compared to the previous years), and the difference between the gap in years of retirement and age differences are quite stable after approximately a 4-year age difference. If the relationship was perfectly linear, the figure would show that, e.g., a one-year age difference would correspond to one year's difference in retirement timing and so on. The gap between the line and the coefficients corresponds to the time that one of the partners may potentially be losing in the labor force, given that they aim to coordinate retirement. For example, if a union has a four-year age difference, the difference in retirement timing is 1.9 years (a gap of 2.1 years), and if a couple has a five-year age difference, the difference in retirement timing is 2.7 years (a gap of 2.3 years). The overall similar effect on retirement timing of every additional year of age difference suggests that the strength of retirement timing occurs regardless of the age

difference and that retirement coordination is also an important phenomenon when it is not expressed as joint retirement. The effect of an additional year of age difference becomes slightly stronger at a high age difference, suggesting slightly lower degrees of retirement coordination for these age differences.

FIGURE 1. REGRESSION COEFFICIENTS FROM ONE AGE DIFFERENCE TO THE PRECEDING, WHOLE POPULATION



Note: OLS model including sex composition, mean retirement age, mean retirement year, union’s disposable income level, and union’s highest education levels.

As a robustness check for our operationalization of retirement coordination, we also ran analyses with a variable measuring whether the union retired jointly or separately. The results are presented in Appendix Table A3 (a model otherwise similar to Model 4, Table 4). Joint retirement is defined as spouses retiring up to one year apart, while retirement two years apart or more is not considered joint retirement. Here, we use linear models with robust standard errors on the binary outcome. The results confirm the descriptive findings in Table 2, where the larger the age difference is, the less likely the union is to retire jointly. Here, we may also note that unions with couples that have 1-2 years of age difference are 11 percent less likely to retire jointly compared to unions of couples born the same year. Contrary to our measure of retirement coordination, we find relatively small differences between 5-6 years of age difference and 7+ years because at such high age differences, joint retirement is very rare for both groups, while our other models suggest substantial retirement coordination. To retire

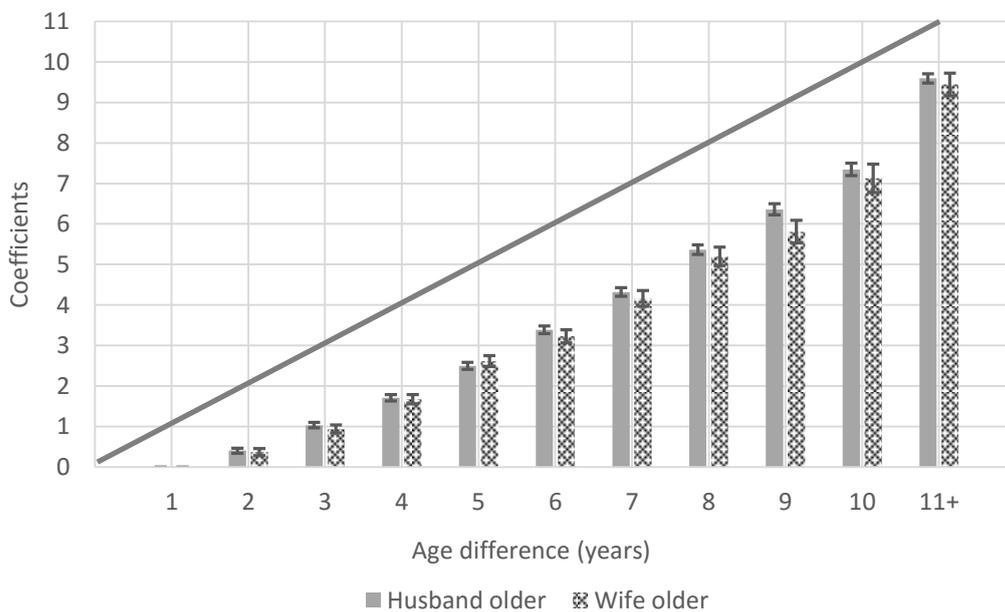
within one year, the spouses must be close in age, otherwise the likelihood of retiring in the same year or an adjacent year strongly decreases.

In sum, our stepwise approach indicates that age difference is strongly associated with retirement coordination, both when using it as a continuous measure and as the dichotomous measure according to which spouses retire with one year apart. The likelihood of couples retiring close in time predominately occurs among couples closer in age, but the likelihood does not proportionally increase with increasing age difference. A potential explanation for this pattern is that unions with both small and large age differences are coordinating retirement and retiring closer in time than their age difference. These findings confirm the first of our two hypotheses in which we expected couples with smaller age differences to retire more closely together than couples with larger age differences but that couples with large age differences would coordinate their retirement, at least to some extent. We also expected that for couples with smaller age differences, a one year age difference would impact retirement coordination more than a one year age difference for couples with larger age differences. This was largely unconfirmed; instead, we found a largely similar effect of age differences on retirement coordination regardless of the magnitude of the age difference. Another important finding from this study is the importance of using wider definitions of retirement coordination rather than using dichotomous measures.

Proceeding to the analyses of unions' retirement coordination in the two subpopulations in which the husband is the older spouse and where the wife is the older spouse. In initial models (see Table A4 in Appendix) in which the age difference was continuous (separated models for the two subsamples), the results show that in unions in which husbands are the older spouses, each additional year in age difference increases the year interval by 9.8 months. When the wife is older, it increases by 8.9 months. The slightly stronger impact of age differences on retirement differences in unions where the man is older suggests that retirement is less coordinated in these unions. To determine whether there is any difference by different age differences, we also included a similar figure (Figure 2) as the previously presented one to include the whole population. As the study mainly focuses on age difference, we have included the coefficients for age difference in the two subpopulations in Figure 2, but the models are otherwise similar to Model 4, Table 4 (see Models 1-2 in Table A5 in the Appendix). The results for the difference in years in retirement timing largely indicate that age differences had a similar effect on retirement timing regardless of which spouse was older. Here, we see that there is a small difference among unions who are close in age, but when the age differences increased, unions in which the wife is the older spouse

retire slightly closer together compared to unions in which the husband is the older spouse. We also notice that the confidence intervals overlap for all age differences except for the 9 years age difference, which suggests that the difference we see between the subpopulations is not statistically significant. In sum, the results did not support the hypothesis in which we expected couples in which the husband is the older spouse to retire further apart from each other than couples in which the wife is the older spouse. The difference between the two populations is not large, and the similarities are more striking than the differences.

FIGURE 2. REGRESSION COEFFICIENTS FROM ONE AGE DIFFERENCE TO THE PRECEDING AMONG UNIONS WHERE 1) HUSBAND IS OLDER, AND 2) WIFE IS OLDER



Note: OLS model including mean retirement age and mean retirement year, union’s disposable income level, union’s highest education levels.

We also examined whether the degree of retirement coordination was different for same-sex unions relative to opposite-sex unions. In the bivariate model 1b (Table 4), we find that female same-sex unions retire closer in time than opposite-sex unions (approximately 3 months) and male same-sex unions (a little more than 6 months). In the stepwise approach from Models 1 to 4, we find that male same-sex couples retire closer in time than opposite-sex couples, and female same-sex couples. Due to our small population, this is not statistically significant, but as we include the complete population of same-sex couples, it is an accurate descriptive result of same-sex couples that married at a relatively old age in Sweden. Overall, the hypothesis on same-sex unions, the propensity to coordinate retirement

is greater among same-sex couples than opposite-sex couples, is largely supported by the results presented here. However, because the number of same-sex unions is small, the results should be treated with caution, and although they represent the complete population of older same-sex couples in Sweden, they do not satisfy statistical significance tests based on sampling statistics.

Sensitivity Analyses with Restricted Sub-Population

To further investigate whether the results for same-sex unions are robust, we did additional analyses on a comparable subgroup of marriages. As same-sex unions have only been legal since 1995 and our earlier analysis also includes opposite-sex unions formed much earlier, we created a comparable sample of opposite-sex unions. We include all opposite-sex and same-sex unions that registered a marriage or partnership during the 1995-2012 period. This restriction of year of birth and year of marriage means that we only show results that are representative for couples that marry at a relatively old age, i.e., after age 46. Consequently, this leads to long-lasting opposite-sex marriages not being observed. The subpopulation corresponds to 10,114 partnerships/marriages (where 105 unions, or 210 men and women, are same-sex unions). The results (Table A6 in the Appendix) for the difference between male same-sex unions and opposite-sex unions are very similar to those presented for the larger population (see Models in Table 4). An interesting finding from these results is that all of our covariates are nearly identical to our models with couples marrying earlier in life. This hints that the correlates of retirement coordination are very similar for couples marrying early and late in life, however, further sensitivity analyses would be needed to test this assumption.

CONCLUSION

The study investigates how age differences are associated with the difference in years in retirement timing among married couples in Sweden. Our results are consistent with previous studies on joint retirement defined as a binary phenomenon by showing that retiring in 0 to 1 year is common in Sweden and that one in three married couples retires within this span. Unlike some earlier studies (O’Rand and Farkas, 2002; Pienta, 2003; Szinovacz, 2002) and consistent with Ho and Raymo (2009), Hurd (1990), and, in particular, the Swedish study by Gustafson (2017), we found that age difference is very important for retirement coordination. Our definition of retirement coordination, the difference in years in retirement timing, is an important contribution to the literature on couples’ retirement behavior and allows us to study the degree of retirement coordination among all couples, including those with larger age

differences. Interestingly, this study can conclude that retirement coordination is not only occurring in couples of the same ages or with small age differences. We find that the degree of adjustment or retirement coordination needed to allow couples to retire close in time decreases slightly for every year of increasing age difference, although there is also a substantive degree of retirement coordination at high age differences.

We examined gender dynamics by separately analyzing couples in which the husband was older and couples in which the wife was older. The difference we found was not large, and thus, retirement coordination appears to be largely gender neutral in couples with age differences, regardless of whether the man is older. This is an interesting finding in that it suggests that it is age differences alone that explain many of the gendered outcomes in retirement timing described in the previous literature. In other words, if age differences were not systemically gendered in society, many gendered differences in retirement outcomes within couples would likely disappear.

Our study also provides the first evidence of retirement coordination among same-sex couples. Previous research has found that opposite-sex and same-sex couples do not share similar gender role orientations or socioeconomic and demographic characteristics. Against this background, we hypothesized that same-sex couples would coordinate retirement to a greater extent than opposite-sex couples. We find that male same-sex couples retire closer in time than opposite-sex couples. The results should be considered with caution because of the small number of same-sex couples. For our bivariate association, when age differences are not accounted for, we find the opposite results, with same-sex men retiring the furthest apart.

The study provides several useful insights on retirement behavior among married couples. First, we find that it is important to use a wider definition of retirement coordination, as a narrower definition may miss couples with large age differences but who still coordinate retirement. Second, we demonstrate the importance of age differences to understanding the phenomenon of retirement coordination. Third, it is important to incorporate couples with different sex compositions, as same-sex unions are increasing and gaining rights in many family-related areas around the world. The study is based on a small population of same-sex couples despite the fact that we include all eligible individuals in Sweden. Future research will have to confirm this study's findings using larger statistical samples as well identifying whether the patterns we have found are unique to our pioneer population of older married same-sex couples.

Finally, we put the study's findings into a broader context. Increasing flexibility in pension withdrawals has increased the opportunities for couples to coordinate their

retirements. Coordinated retirement may have negative consequences on both employment income and pension benefits, especially for the younger spouse, who might lose both employment income and pension benefits. For the pension system and the labor market, retirement coordination consequently leads to a loss of experienced employees who could have continued to work. The financial impact of early retirement and the impact of the reduced labor force on the employer is stronger in female-dominated occupations in the public sector. These negative effects should be weighed against the advantages of an increasingly flexible retirement system in which couples can choose their retirement ages to maximize their shared time in retirement, which is likely associated with a higher quality of life in retirement. Moreover, because the future holds more complex marriage and family worlds, such as an increasing number of long-term cohabiting unions, remarriages and couples with different sex compositions, studies on policy systems, pension systems and retirement behavior will increasingly face pressure to incorporate different types of couples. Knowing the demographic characteristics of older couples, especially considering age differences, make it possible for researchers and policy makers to more accurately predict labor force exits.

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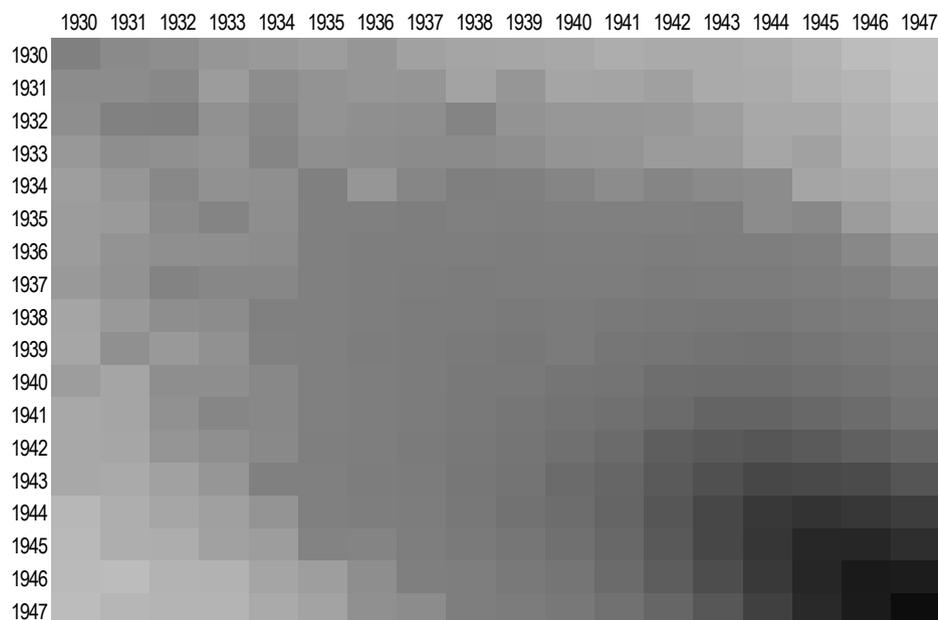
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APPENDIX

FIGURE A1. HEAT MAP REPRESENTING NUMBER OF UNIONS IN A GIVEN PAIR OF SPOUSES' YEARS OF BIRTH: THE DARKER CELL COLOR, THE HIGHER NUMBER OF UNIONS (N:103.828)



Note: cell numbers not presented due to low number of unions in some cells (range from 15 to 2664 unions)

Table A1. *Population and Exclusion Criteria*

| Population | Total | |
|--|------------------|---------------------------|
| Total number of men born 1930-1947 registered in the Swedish population register | 1,109,995 | |
| Total number of women born 1930-1947 registered in the Swedish population register | 1,042,768 | |
| Total number of ever-married men born 1930-1947 ¹⁾ | 404,700 | |
| Total number of ever-married women born 1930-1947 ¹⁾ | 294,551 | |
| Exclusion criteria in this study: | Number of unions | Number of unions excluded |
| Total number of married unions ²⁾ with both spouses born 1930-1947 | 185,335 | |
| 1. Divorced before either one or both spouses retire | 153,509 | 31,826 |
| 2. Married same year or after either one or both spouses retire | 148,284 | 5,225 |
| 3. At least one spouse died before either one or both spouses retire | 130,500 | 17,784 |
| 4. At least one spouse retired before age 58 | 106,859 | 23,643 |
| 5. One or both spouses not yet retired | 103,828 | 3,029 |
| <i>Total number of unions after exclusion criteria were applied</i> | 103,828 | |

¹⁾ Unions married 1968 and onwards. ²⁾ Unions married 1968 and onwards, only last observed marriage.

Table A2. OLS Regression of the Difference in Years in Retirement Timing within Retired Same-Sex and Opposite-Sex Unions, only Results for Age Difference as Dummies

| Age difference | Year difference | |
|------------------------------------|-----------------|--------------|
| | Coef. | 95% C.I. |
| No age difference (ref) | 0 | |
| 1 year of age difference | 0.248 | 0.193; 0.303 |
| 2 years of age difference | 0.638 | 0.580; 0.695 |
| 3 years of age difference | 1.255 | 1.194; 1.317 |
| 4 years of age difference | 1.945 | 1.879; 2.013 |
| 5 years of age difference | 2.762 | 2.689; 2.837 |
| 6 years of age difference | 3.584 | 3.502; 3.668 |
| 7 years of age difference | 4.522 | 4.428; 4.615 |
| 8 years of age difference | 5.561 | 5.457; 5.664 |
| 9 years of age difference | 6.499 | 6.379; 6.621 |
| 10 years of age difference | 7.543 | 7.406; 7.679 |
| 11 years of age difference or more | 9.793 | 9.687; 9.899 |
| R-square | 0.474 | |
| Number of unions | 103,828 | |

Note: Model control for sex compositions, mean retirement age, mean retirement year, unions' disposable income level and unions' highest education levels.

Table A3. OLS Regression of Joint Retirement Timing (within 0-1 year)

| | | All covariates model | |
|---------------------------------|------------------------------------|----------------------|----------------|
| | | Coef. | 95% C.I. |
| Age difference | No age difference (<i>ref</i>) | 0 | |
| | 1-2 age difference | -0.108 | -0.118; -0.099 |
| | 3-4 age difference | -0.305 | -0.314; -0.294 |
| | 5-6 age difference | -0.405 | -0.415; -0.395 |
| | 7 or more age difference | -0.469 | -0.478; -0.459 |
| Sex composition | Opposite-sex unions (<i>ref</i>) | 0 | |
| | Same-sex unions, female | 0.109 | -0.125; 0.344 |
| | Same-sex unions, male | 0.029 | -0.064; 0.123 |
| Mean retirement age | | 0.031 | 0.029; 0.032 |
| Mean retirement year | | 0.007 | 0.006; 0.008 |
| Union's income levels | Both low (<i>ref</i>) | 0 | |
| | Both medium | 0.044 | 0.031; 0.057 |
| | Both high | 0.040 | 0.022; 0.059 |
| | Low and medium | 0.004 | -0.007; 0.008 |
| | Low and high | 0.001 | -0.008; 0.011 |
| | Medium and high | 0.037 | 0.025; 0.049 |
| | Either one or both missing | 0.015 | 0.002; 0.027 |
| Union's education levels | Both tertiary | -0.005 | -0.014; 0.004 |
| | Both secondary (<i>ref</i>) | 0 | |
| | Both primary | 0.002 | -0.012; 0.008 |
| | Secondary and tertiary | -0.009 | -0.017; -0.001 |
| | Secondary and primary | 0.005 | -0.003; 0.013 |
| | Tertiary and primary | -0.003 | -0.014; 0.009 |
| | Both missing | 0.338 | 0.319; 0.358 |
| R-square | | 0.197 | |
| Number of unions | | 103,828 | |

Table A4. OLS Regression of the Difference in Years in Retirement Timing among Opposite-Sex Unions where Either the Man or the Woman was the Oldest Spouse; Separate Models

| | | Year difference | | | |
|---------------------------------|-------------------------------|--------------------------|----------------|-----------------------|----------------|
| | | Model 1 Husband older | | Model 2 Wife older | |
| | | Coef. | 95% C.I. | Coef. | 95% C.I. |
| Age difference | | 0.819 | 0.842; 0.855 | 0.749 | 0.759; 0.785 |
| Mean retirement age | | -0.302 | -0.333; -0.308 | -0.216 | -0.268; -0.231 |
| Mean retirement year | | 0.048 | 0.022; 0.032 | -0.055 | 0.007; 0.022 |
| Union's highest income | Both low (<i>ref</i>) | 0 | | 0 | |
| | Both medium | -0.224 | -0.419; -0.219 | -0.335 | -0.641; -0.273 |
| | Both high | -0.139 | -0.389; -0.106 | -0.329 | -0.708; -0.215 |
| | Low and medium | 0.017 | -0.048; 0.068 | 0.093 | -0.015; 0.160 |
| | Low and high | -0.030 | -0.145; 0.007 | 0.105 | -0.044; 0.164 |
| | Medium and high | -0.107 | -0.299; -1.103 | -0.294 | -0.594; -0.273 |
| | Either one or both missing | 0.062 | 0.039; 0.229 | 0.116 | -0.017; 0.283 |
| Union's education levels | Both tertiary | 0.259 | 0.203; 0.346 | -0.128 | -0.227; -0.005 |
| | Both secondary (<i>ref</i>) | 0 | | 0 | |
| | Both primary | -0.055 | -0.169; 0.017 | 0.112 | -0.083; 0.148 |
| | Secondary and tertiary | 0.212 | 0.156; -0.291 | -0.108 | -0.221; -0.011 |
| | Secondary and primary | -0.033 | -0.097; 0.032 | 0.072 | -0.054; 0.144 |
| | Tertiary and primary | 0.127 | 0.043; 0.223 | -0.088 | -0.170; 0.116 |
| | Both missing | -1.331 | -1.853; 1.528 | -1.210 | -1.598; -1.125 |
| R-square | | 0.485 | | 0.383 | |
| Number of unions | | 65,687 | | 24,814 | |

Table A5. OLS Regression of the Difference in Years in Retirement Timing among Opposite-Sex Unions where Either the Man or the Woman was the Oldest Spouse; Separate Models

| | | Year difference | | | |
|-------------------------|---|-----------------|--------------|---------|--------------|
| | | Model 1 | | Model 2 | |
| | | Coef. | 95% C.I. | Coef. | 95% C.I. |
| Age difference | 1 year of age difference (<i>ref</i>) | | | | |
| | 2 years of age difference | 0.401 | 0.336; 0.465 | 0.369 | 0.283; 0.455 |
| | 3 years of age difference | 1.034 | 0.965; 1.103 | 0.938 | 0.839; 1.037 |
| | 4 years of age difference | 1.709 | 1.634; 1.786 | 1.675 | 1.560; 1.791 |
| | 5 years of age difference | 2.498 | 2.414; 2.582 | 2.617 | 2.484; 2.751 |
| | 6 years of age difference | 3.387 | 3.292; 3.482 | 3.226 | 3.066; 3.387 |
| | 7 years of age difference | 4.321 | 4.214; 4.426 | 4.162 | 3.959; 4.347 |
| | 8 years of age difference | 5.363 | 5.245; 5.481 | 5.200 | 4.973; 5.426 |
| | 9 years of age difference | 6.361 | 6.225; 6.497 | 5.808 | 5.529; 6.087 |
| | 10 years of age difference | 7.346 | 7.193; 7.499 | 7.128 | 6.777; 7.479 |
| | 11 years of age difference or more | 9.592 | 9.475; 9.709 | 9.445 | 9.165; 9.725 |
| R-square | | 0.487 | | 0.383 | |
| Number of unions | | 65,68 | | 24,814 | |

Note: Model control for sex composition, mean retirement age, mean retirement year, unions' disposable income level and unions' highest education levels.

Table A6. OLS Regression of the Difference in Years in Retirement Timing. Restricted Population
Birth Cohorts 1930-1947, Opposite-Sex and Same-Sex Marriages after 1994

| | Bivariate models 1a-1f ¹⁾ | | Demographic model 2 | | Socioeconomic model 3 | | All covariates model 4 | |
|------------------------------------|---|---------------|---------------------|----------------|--------------------------|----------------|------------------------|---------------|
| | Coef. | 95% C.I. | Coef. | 95% C.I. | Coef. | 95% C.I. | Coef. | 95% C.I. |
| Age difference | | | | | | | | |
| No age difference (<i>ref</i>) | 0 | | 0 | | | | 0 | |
| 1-2 age difference | 0.329 | 0.134; 0.525 | 0.284 | 0.096; 0.472 | | | 0.292 | 0.105; 0.479 |
| 3-4 age difference | 1.484 | 1.276; 1.691 | 1.261 | 1.059; 1.462 | | | 1.269 | 1.068; 1.469 |
| 5-6 age difference | 3.187 | 2.956; 3.417 | 2.796 | 2.571; 3.023 | | | 2.787 | 2.562; 3.013 |
| 7 or more age difference | 6.932 | 6.711; 7.151 | 6.291 | 6.048; 6.494 | | | 6.254 | 6.032; 6.477 |
| Sex composition | | | | | | | | |
| Opposite-sex unions (<i>ref</i>) | 0 | | 0 | | 0 | | 0 | |
| Same-sex unions, female | -0.729 | -2.428; 0.971 | -0.073 | -1.337; 1.191 | -0.907 | -2.598; 0.783 | -0.104 | -1.367; 1.158 |
| Same-sex unions, male | 0.027 | -0.769; 0.824 | -0.875 | -1.458; -0.291 | -0.052 | -0.831; 0.726 | -0.908 | -1.491; - |
| Mean retirement age | -0.364 | -0.403; - | -0.164 | -0.199; - | | | -0.191 | -0.226; - |
| Mean retirement year | -0.419 | -0.437; - | -0.164 | -0.184; - | | | -0.163 | -0.183; - |
| Union's disp. income level | | | | | | | | |
| Both low (<i>ref</i>) | 0 | | | | 0 | | 0 | |
| Both medium | -1.152 | -1.485; - | | | -1.364 | -1.707; -1.023 | -0.143 | -0.402; 0.116 |
| Both high | -1.336 | -1.751; - | | | -1.625 | -2.057; - | -0.144 | -0.470; 0.182 |
| Low and medium | -0.402 | -0.594; - | | | -0.489 | -0.682; - | 0.192 | 0.045; 0.339 |
| Low and high | -0.745 | -0.978; - | | | -0.855 | -1.097; - | 0.029 | -0.153; 0.212 |
| Medium and high | -1.036 | -1.323; - | | | -1.264 | -1.567; - | 0.024 | -0.207; 0.256 |
| Either one or both missing | 0.241 | -0.051; 0.533 | | | 0.051 | -0.249; 0.352 | 0.608 | 0.382; 0.834 |
| Union's education levels | | | | | | | | |
| Both tertiary | 0.160 | -0.079; 0.399 | | | 0.626 | 0.492; 0.876 | 0.222 | 0.034; 0.409 |
| Both secondary (<i>ref</i>) | 0 | | | | 0 | | 0 | |
| Both primary | 0.632 | 0.329; 0.935 | | | 0.431 | 0.377; 0.876 | 0.116 | -0.109; 0.341 |
| Secondary and tertiary | 0.353 | 0.119; 0.587 | | | 0.548 | 0.129; 0.732 | 0.239 | 0.064; 0.414 |
| Secondary and primary | 0.256 | 0.026; 0.487 | | | 0.139 | -0.347; 0.815 | 0.015 | -0.156; 0.186 |
| Tertiary and primary | 0.648 | 0.342; 0.954 | | | 0.688 | 0.089; 0.369 | 0.240 | -0.014; 0.467 |
| Both missing | 1.631 | 0.692; 2.259 | | | 1.222 | 0.249; 2.991 | 1.851 | -1.121; 2.581 |
| R-square | | | 0.449 | | 0.019 | | 0.454 | |
| Number of unions | 10,114 | | 10,114 | | 10,114 | | 10,114 | |

1) Bivariate models: 1a – OLS age difference and year difference, 1b – OLS sex composition and year difference, 1c – OLS mean retirement age and year difference, 1d – OLS mean retirement year and year difference 1e – OLS union's disposable income level and year difference, 1f – OLS union's highest education and year difference.

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