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Retirement in the Context of Intergenerational Transfers

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Abstract

The literature examining the motivation for, and consequences of, retirement has tended to focus primarily on retirees and their spouses. However, since the decision to retire is deeply rooted in extended family dynamics—especially the exchange of economic and instrumental support across generations—the standard individual and couple-based approaches may be limited. This study aims to assess the dynamic relationship between retirement and two broad dimensions of social and family lives—*important-matter discussion networks* and *intergenerational transfers*—and characterize heterogeneity by gender and socioeconomic status in US and European countries. We summarize our findings in four regards. First, retirees who are men are more likely to discuss important matters with kin members—especially with non-resident children—after retirement. On the contrary, women retirees experience little change in important-matter discussions after retirement. Second, the change of discussion networks is observed only among men retirees with higher levels of education and assets. Third, men retirees are more likely to activate economic transfers with kin members after retirement, whereas women retirees are more involved in care work for grandchildren. Fourth, both men and women gradually increase their dependence on children by living together or moving closer to their children after retirement. We discuss gender-specific policy implications on social and family lives after retirement.

Keywords: retirement, social networks, intergenerational transfers, gender
JEL Codes: D19, J13, J14, J22, J26

1. Introduction

Retirement is one of the major later life events causing a fundamental reorganization of social and family lives. Changing dynamics within and beyond family are important not only for older adults' well-being but also for the intergenerational resource allocation and offspring's economic prospects. Despite this topic's significance, previous studies have focused more on retirees and their spouses, and paid less attention to extended family members and broader social networks outside of the family. A burgeoning literature suggests that the retirement process is closely intertwined with various dimensions of social networks and intergenerational transfers (Szinovacz, DeViney, and Davey 2001; Brown, Coile, and Weisbenner 2010; Litwin and Tur-Sinai 2015; Miller, Tamborini, and Reznik 2018), requiring a deeper understanding of social and family dynamics in the context of retirement.

How do social and family relationships change throughout the life course? Whereas the early theory assumes that the "disengagement" from social positions and activities in middle-age life is a part of the natural and desirable aging process (Cumming and Henry 1961), there has been a consistent backlash to such illustration of aging as a monotonic regression from early lifestyles. For example, the activity theory posits that successful aging has a variety of dimensions, one of which would be the maintenance of active engagement in social activities rather than the withdrawal from society (Havighurst 1961). Recent studies show that changes in social relationships reflect coping strategies employed in reaction to the decrease in physical ability and various life events; some try to compensate for the decrease in size of social networks by concentrating their energy on important relationships (Carstensen 1992), and others increase their participation in religious activities and volunteering as compensation for their losses of social networks (Cornwell, Laumann, and Schumm 2008). Antonucci and Akiyama (1987) coined the term "convoy" to explain such transitions: an individual is always embedded in a group of people who provide essential support for continuing one's everyday life, and the aging process can be described as a continuous modification of those support networks by one's changing needs. From this perspective, late-life transitions in social relationships seem to be more dynamic and contextual than early theoretical frameworks expected.

2. Background

2.1. Endogeneity of Retirement

One methodological hurdle is the endogeneity of retirement (i.e., the impact of retirement on social networks may be biased due to the correlation of retirement with other unobserved determinants of social networks). The decision of retirement itself is deeply rooted in within- and beyond-family interactions, increasing the possibility of reverse causation. For example, previous studies show that older adults with higher financial obligations for family members are less likely to decide on retirement (Szinovacz, DeViney, and Davey 2001), whereas the probability of retirement increases with the level of social connectedness, possibly due to the increased need for time to enjoy already rich social connections (Litwin and Tur-Sinai 2015). When depending on analytic models that do not fully consider these pre-retirement conditions, the estimate of retirement effects on family networks may be downward biased (i.e., early retirees may already be weakly connected with family members). Additionally, the timing of retirement may be conditional on unobserved factors such as time preferences of retirement (Miller, Tamborini, and Reznik 2018), leading to bias when correlated with social or family outcomes of interest.

To address the issue of endogeneity, this study adopts country-specific old-age pension eligibility as an instrumental variable (IV) for retirement (Coe et al. 2012; Börsch-Supan and Schuth 2014; Mazzonna and Peracchi 2017; Gorry, Gorry, and Slavov 2018). Using the exogenous variation of pension eligibility ages, we estimate the causal effect of retirement on various dimensions of social networks and intergenerational transfers.

2.2. Heterogeneous Retirement Trajectories

Another way to delve into the mechanism of retirement is to check the heterogeneity of retirement trajectories. Previous studies report that retirement effects differ by occupational characteristics (e.g., blue-collar occupation, physical burden) and country (Coe et al. 2012; Mazzonna and Peracchi 2017). The level of heterogeneity is expected to be more substantial for social and family environments than for health, considering significant differences in cultural backgrounds of social roles and network formation by gender, socioeconomic status, and national context. Using a rich repository of background characteristics from nationally representative surveys, this study delineates for whom retirement matters and for which dimension of social and family dynamics.

2.2.1. Gender

Gender differences in social roles have been well reported in previous studies. Older adult women are often referred to as “kin keepers” who take responsibility for support provision and relationship management in kinship (Rosenthal 1985; Hagestad 1986). Retirement may be related to a critical shift in social roles in the family, especially as a trigger of gendered family obligations in later life (Leopold and Skopek 2014). Despite the importance of gender-specific later life trajectories, there has been no study focusing on the causal impact of retirement on social and family lives of older adult men and women. This study extends previous literature by examining gendered treatment effects of retirement on social networks and intergenerational transfers in more detail.

2.2.2. Socioeconomic status.

Reaction to life events may differ by socioeconomic status. Older adults with higher education are better at maintaining their social networks and leveraging social resources (Cornwell 2015; Goldman and Cornwell 2018), which may be related to the heterogeneous reaction to later life events such as retirement. Specifically, we observe that economic dependence of the younger generation on parents is consistently increasing in the US (Kahn, Goldscheider, and García-Manglano 2013; Henretta, Van Voorhis, and Soldo 2018), implying the importance of socioeconomic resources in building and maintaining social relationships and intergenerational transfers in later life. In this study, we test heterogeneous effects of retirement by the level of education and asset by considering separate IV regression models for each educational and asset group.

2.2.3. Region.

Social network changes in response to retirement may show different patterns by regional context. Since the pension system is country-specific and designed to provide economic support to its citizens, retirement may put older adults into economic and social situations that vary systematically across countries. Previous studies emphasize that social networks in Mediterranean countries are more family-based than their counterparts in Europe (Kalmijn and Saraceno 2008; Litwin 2009), which may shape different “convoys” in later life. We consider such heterogeneity in retirement effects by examining our IV regression models separately by country and region (i.e., America, Western Europe, Southern Europe, Eastern Europe) and comparing how the effects of retirement differ across pension regimes.

3. Data and Methods

This project estimates the impact of retirement on changes in social and family relationships in later life. The analytic strategy focuses on dealing with the endogeneity of retirement—the decision of retirement is not random and largely depends on individual and family characteristics that are not fully observable to researchers—by leveraging the exogenous variation of pension eligibility. For this purpose, this study requires comprehensive information about older adults' social and family lives and working history, from multiple countries and cohorts where pension eligibility ages vary by policy regime.

Data for the proposed analyses comes from three nationally representative longitudinal studies. The National Social Life, Health, and Aging Project (NSHAP) and the Health and Retirement Study (HRS) are representative of the US older population. The Survey of Health and Retirement in Europe (SHARE) provides additional data for cross-national comparisons with 28 European countries. The NSHAP and SHARE surveys adopted the same module for social networks, based on which we assess the impact of retirement on various dimensions of family and non-family networks. Additionally, using the harmonized survey items for intergenerational exchange of economic resources and social support in the HRS and SHARE, we explore whether and how the direction and amount of intergenerational transfers change after retirement.

3.1. Social Networks

The analysis of social networks after retirement is based on data from the NSHAP Waves one (2005—2006), two (2010—2011), and three (2015—2016), and the SHARE Waves four (2010—2012), six (2015), and eight (2019—2020), where extensive information about social networks was collected using the social network model "name generator" (Cornwell et al. 2009; Litwin et al. 2013). The analysis includes countries where the three waves of surveys with the social network module were conducted and respondents who participated at least two among these surveys, resulting in 41,562 person-years and 18,572 persons from the US, Western Europe (Austria, Belgium, Switzerland, Germany, and France), Southern Europe (Spain and Italy), Northern Europe (Denmark and Sweden), Eastern Europe (Czech Republic, Estonia, Poland, and Slovenia).

The social network module starts with the following question:

"From time to time, most people discuss things that are important to them with others. For example, these may include good or bad things that happen to you, problems you are having, or important concerns you may have. Looking back over the last 12 months, who are the people with whom you most often discussed things that were important to you?"

After revealing up to five social network members with whom the respondents often discussed "important matters," the module probes additional information about members (e.g., gender, kinship, co-residence) and relational characteristics with each (e.g., contact frequency). Based on these responses, we measure *social network size* by counting the total number of network members and *contact frequency* by averaging days of contact with network members in the past year. By separately measuring social network size and contact frequency of each network type, we estimate quantitative and compositional changes in social networks and check if retirement increases the dependence on intergenerational social interactions.

3.2. Intergenerational Transfers

In the next section, we limit our attention to the exchange of economic resources and social support between children and parents. The analyses are based on the HRS and SHARE data, where various dimensions of intergenerational transfers have been longitudinally followed up. Despite comparable survey questions for assessing intergenerational transfers, we conduct separate analyses in the US and European countries due to significant differences in measurement.

As for *economic transfers*, the HRS collected the amount of financial help provided to or received from children and other kin members since the previous interview (two years on average) only when it exceeded \$500. On the other hand, the SHARE probed the exact amount of financial transfers in Waves one (2004—2005) and two (2006—2007), when it exceeded €250 in the previous year. A shorter version was included in the following SHARE surveys to check whether there was a €250 or more transfer. Using these survey items, we assess the impact of retirement on both the indicator of ≥\$500 (or ≥€250) transfer and the amount of transfer.

Grandchild care in HRS is measured by an indicator for whether the respondent spent ≥100 hours and the total hours spent for grandchild care in the last two years. The SHARE Waves one and two collected hours spent for grandchild care for each recipient in the previous year, whereas the later surveys adopted simplified questions for revealing only the total frequency of care with a four-level scale (daily; every week; every month; less often). We converted the survey response to an indicator for any grandchild care and the total days spent for grandchild care in the previous year. *Living arrangement* is included as a basic dimension for coordinating intergenerational contact and support exchange, which is assessed by two indicators for co-residence and living in proximity (i.e., within 10 miles in HRS, and five kilometers in SHARE). Lastly, *contact frequency* in SHARE is measured by the frequency of contact with each child either in person, by phone, or mail in the past year. The survey questions in HRS are more flexible in revealing the frequency of contact, based on which we make a comparable measure of day-per-year contact.

3.3. Other Covariates

Education in the SHARE data is measured by the ISCED-1997 code. We combined seven levels of education into three educational groups: lower secondary or less (≤lower secondary), upper secondary, and post-secondary or more (≥post-secondary) education. As for the NSHAP and HRS, we used years of education for making a comparable measure for education (0—11 years, 12 years, and 13 or more years). *Assets* are assessed by one survey question about the value of total assets in NSHAP, and the imputed sum of household real assets and net financial assets in SHARE. Since our goal is to assess general socioeconomic position rather than the exact amount of assets, we converted the value of assets to 2015 currencies, calculated averages over the survey waves, and differentiated three asset groups based on asset tertiles.

3.4. Analytic Strategy

For estimating the impact of retirement on social networks and intergenerational transfers, we adopt two analytic strategies. First, we start from an ordinary least squares (OLS) regression with individual fixed effects (FE). The model specification is as follows:

$$S_{it} = \beta_1 RI_{it} + \boldsymbol{\beta}_2 \boldsymbol{T}_{it} + \sigma_i + \varepsilon_{it}$$

S_{it} and RI_{it} denote one of the social network (or intergenerational transfer) dimensions and an indicator for the retirement of individual i at survey year t, respectively. The main interest is in the size of β_1 after controlling for time trends $\boldsymbol{T}_{it}$ (i.e., linear and quadratic aging trends that are specific to country and gender, survey year dummies). Additionally, this model incorporates an individual-specific intercept σ_i for accounting for time-invariant unobserved factors of individuals. Since the analysis is based on the data from two survey waves, this FE estimator is the same as the first-difference estimator.

We expect two advantages from the inclusion of individual FE. First, this model purges out potential confounding bias due to the unobservable time-invariant. For example, the exclusion of detailed information about childhood environments—expected to have influenced the early development of skills for career building and social network formation—would result in a spurious relationship between social networks and retirement. Since early experiences are already fixed in examining later life outcomes, the inclusion of individual FE largely accounts for the unobserved heterogeneity in childhood environments. Second, there can be additional bias due to sample attrition during the two waves of the survey. By incorporating individual FE, this model partly eliminates bias that originates from individual-specific and time-fixed characteristics.

Second, we adopt pension eligibility as an IV for retirement and estimate a two-stage least squares regression with individual fixed effects (2SLS-FE). The FE estimator may still yield a non-zero correlation between the regression error term ε_{it} and RI_{it}, potentially due to confounding from the time-varying unobservable (e.g., life events other than retirement) and reverse causation (i.e., effects of past social networks on the decision of retirement). The variation in pensionable ages is exclusively determined by country, cohort, and gender of individuals, and not influenced by any confounding factors of retirement and social networks changes. The validity of these measures as instruments for retirement has been well proved in previous studies (Coe et al. 2012; Börsch-Supan and Schuth 2014; Mazzonna and Peracchi 2017; Gorry, Gorry, and Slavov 2018). Based on this literature, we estimate the following two-stage models:

$$RI_{it} = \alpha_1 FI_{it} + \alpha_2 EI_{it} + \boldsymbol{\alpha}_3 \boldsymbol{T}_{it} + \delta_i + e_{it}$$

$$S_{it} = \beta_1 \widehat{RI}_{it} + \beta_2 \boldsymbol{T}_{it} + \tau_i + u_{it}$$

In the first stage regression, RI_{it} is regressed on two binary indicators of full pension eligibility FI_{it} and early pension eligibility EI_{it} with other covariates. Pension eligibility ages FA_{bgc} and EA_{bgc} are for minimum ages when older adults from cohort b, gender g, and country c can claim full pension or early pension with a reduced rate. FI_{it} and EI_{it} are set to 1 when the current age A_{it} is equal to or older than eligibility ages (i.e., $EI_{it} = I(A_{it} \geq EA_{bgc})$ and $FI_{it} = I(A_{it} \geq FA_{bgc})$ where I is for an indicator function). For example, FI_{it} is set to 1 for genders in the US in 2015 when their ages are equal to or older than 66 at the time of the survey. In the second stage regression, we incorporate the fitted value $\widehat{RI}_{it}$ instead of RI_{it} and estimate β_1.

When satisfying the assumptions of a strong first stage (i.e., pension eligibility is strongly associated with retirement) and exclusion restriction (i.e., pension eligibility influences social networks only through the decision of retirement), β_1 provides an unbiased estimate for the causal effect of retirement. These assumptions will be checked through test statistics from the first stage regression and overidentifying restriction tests.

Using detailed information about job history, we additionally examine the immediate and duration effects of retirement by estimating the effects of both the indicator for retirement RI_{it} and years spent in retirement RD_{it}. We adopt four IVs from pension eligibility (i.e., FI_{it} and EI_{it}) and years since the pension has first been eligible for each individual (i.e., $FD_{it} = max(0, A_{it} - FA_{bgc})$ and $ED_{it} = max(0, A_{it} - EA_{bgc})$) as follows:

$$RI_{it} = \alpha_1 FI_{it} + \alpha_2 FD_{it} + \alpha_3 EI_{it} + \alpha_4 ED_{it} + \boldsymbol{\alpha}_5 \boldsymbol{T}_{it} + \delta_i + e_{it}$$

$$RD_{it} = \gamma_1 FI_{it} + \gamma_2 FD_{it} + \gamma_3 EI_{it} + \gamma_4 ED_{it} + \gamma_5 \boldsymbol{T}_{it} + \delta_i + e_{it}$$

$$S_{it} = \beta_1 \widehat{RI}_{it} + \beta_4 \widehat{RD}_{it} + \beta_3 \boldsymbol{T}_{it} + \tau_i + u_{it}$$

The FE and 2SLS-FE models are separately estimated by gender, socioeconomic status (i.e., education, asset), and regional context (i.e., the US, Western Europe, Southern Europe, Northern Europe, Eastern Europe) for assessing heterogeneous effects of retirement.

4. Results

4.1. Social Network Changes after Retirement

4.1.1. Descriptive statistics.

Table 1 contains descriptive statistics of social networks and covariates from the NSHAP and SHARE data. Older adults had 2.5 social network members—mostly consisting of kin networks (1.9)—and talked with them two-thirds of a year (i.e., 242 days) on average. We found a clear gender difference: older adult women had larger social networks (2.7) than men (2.3), both with non-kin (0.8 vs. 0.5) and kin members (1.9 vs. 1.7). Larger kin networks for women were mainly attributable to more non-resident offspring (0.6 vs. 0.4) and other non-resident kin members (0.5 vs. 0.3). Women were less likely to include a spouse or partner (0.6 vs. 0.8)—partly due to a lower proportion of being partnered (0.7 vs. 0.8)—which did not overturn the gender difference in kin network size. Larger networks with people out of the household led to fewer contacts with network members for women than men (233 vs. 254). In sum, older adult women were more likely to discuss important matters with diverse types of discussants, not confined to resident family members but extending to non-resident kin and non-kin.

Table 2 contains the results showing educational differences in social networks. Older adults with post-secondary education had larger social networks than the lower educated regardless of the type of relationship, except for smaller networks with resident offspring. These results are consistent with previous findings that higher education provides more socioeconomic resources for establishing and maintaining networks throughout the lifetime.

Table 1. Descriptive Statistics of Social Networks: Gender Differences

		Full sample (N=41,560)				Men (N=18,627)	Women (N=22,933)
Variable		Mean	SD	Min	Max	Mean	Mean
Network size	Overall	2.54	1.44	0	5	2.28	2.74
	Non-kin	0.68	1.02	0	5	0.54	0.79
	Kin	1.86	1.27	0	5	1.74	1.95
	Spouse/partner	0.66	0.48	0	5	0.76	0.59
	Resident child/grandchild	0.10	0.35	0	4	0.08	0.11
	Non-resident child/grandchild	0.53	0.86	0	5	0.40	0.63
	Other kin	0.40	0.72	0	5	0.32	0.47
Network contact		242.47	113.47	0	365	253.70	233.35
Household structure	Spouse/partner	0.78	0.42			0.84	0.73
	No. of residents	1.19	0.94	0	10	1.28	1.11

Age		62.20	4.39	50	72	62.76	61.75
Woman		0.55	0.50				
Education	≤Lower secondary	0.28	0.45			0.28	0.28
	Upper secondary	0.38	0.49			0.39	0.38
	Post-secondary	0.33	0.47			0.33	0.33
	Missing	0.01	0.08			0.01	0.01

Data: National Social Life, Health, and Aging Project (NSHAP) Waves 1—3 & Survey of Health, Ageing and Retirement in Europe (SHARE) Waves 4, 6, and 8.
Note: Minimums and maximums are not reported for categorical variables.

Table 2. Descriptive Statistics of Social Networks: Educational Differences

		≤Lower secondary (N=11,671)	Upper secondary (N=15,932)	Post secondary (N=13,681)
Variable		Mean	Mean	Mean
Network size	Overall	2.26	2.45	2.88
	Non-kin	0.46	0.60	0.96
	Kin	1.80	1.85	1.92
	Spouse/partner	0.62	0.68	0.69
	Resident child/grandchild	0.13	0.10	0.08
	Non-resident child/grandchild	0.50	0.52	0.56
	Other kin	0.36	0.39	0.45
Network contact		261.96	246.38	221.17
Household structure	Spouse/partner	0.77	0.78	0.78
	No. of residents	1.30	1.16	1.12
Age		62.44	61.88	62.39
Woman		0.56	0.54	0.56

Data: National Social Life, Health, and Aging Project (NSHAP) Waves 1—3 & Survey of Health, Ageing and Retirement in Europe (SHARE) Waves 4, 6, and 8.
Note: Minimums and maximums are not reported for categorical variables.

Table 3 shows the percentage of retirees by pension eligibility. The percentage of retirees steeply increased around each age threshold, from 11 percent to 40 percent after early pension ages, and to 72 percent after full pension ages. These trends imply that older adults considered pension eligibilities as essential conditions for deciding on retirement. This variation in retirement ages induced by pension laws—which are exclusively based on country, cohort, and gender of individuals, and not influenced by any confounding factors of retirement and social networks changes—is a key for assessing the consequences of retirement for the reorganization of social and family networks.

According to the descriptive statistics of longitudinal transition in retirement status, 35 percent remained in the labor force, 29 percent exited from the labor force, and 35 percent remained out of the labor force. Even though our fixed effect models in the following sections incorporate any transitions in retirement status between survey waves, they mostly capture the impact of transition from working to retired status and the contribution of transition from retirement to working—which accounts for only 2 percent of the transition in our study sample—would be minimal.

Table 3. Percentage of Retirees by Pension Eligibility

Region	Country	<Early pension age	≥Early pension age & <Full pension age	≥Full pension age
USA		22	48	72
Western Europe	Austria	21	53	88
	Belgium	15	51	92
	Switzerland	8	27	79
	Germany	9	38	82
	France	5	19	86
Southern Europe	Spain	10	33	79
	Italy	10	55	80
Northern Europe	Denmark	2	34	85
	Sweden	6	23	85
Eastern Europe	Czech Republic	11	34	90
	Estonia	5	22	66
	Poland	9	35	91
	Slovenia	25	76	96
Total		11	40	83

Data: National Social Life, Health, and Aging Project (NSHAP) Waves 1—3 & Survey of Health, Ageing and Retirement in Europe (SHARE) Waves 4, 6, and 8.

4.1.2. Baseline results.

Table 4 shows the results from first-stage regression, where retirement is regressed on early and full pension eligibilities with the country- and gender-specific aging trends, survey year, and individual fixed effects. Model (1) for the full sample shows that older adults were 31 percent and 13 percent more likely to retire when exceeding full and early pension ages. Models (2) and (3) are separate models for men and women, showing a stronger effect of full pension eligibility on women than men. Models (4)—(6) for the three educational groups show no meaningful difference by education. Despite some gender differences, F-statistics for joint effects of early and full pension eligibilities were far above 150 in every model, suggesting no concern for weak instruments.

Table 4. First Stage Regression of Retirement

Variable	(1) Full sample	(2) Man	(3) Woman	(4) ≤Lower secondary	(5) Upper secondary	(6) ≥Post-secondary
≥Full pension age	0.314***	0.283***	0.340***	0.323***	0.319***	0.296***
	(0.013)	(0.017)	(0.018)	(0.017)	(0.018)	(0.016)
≥Early pension age	0.128***	0.136***	0.120***	0.125***	0.138***	0.113***
	(0.012)	(0.017)	(0.016)	(0.019)	(0.017)	(0.017)
F (excluded instruments)	384.699***	169.433***	226.290***	199.626***	209.759***	168.729***
F (full pension)		5.468*			0.896	
F (early pension)		0.443			0.737	
Mean(retired)	0.107	0.134	0.087	0.133	0.113	0.083
N	41562	18629	22933	11671	15934	13681

Data: National Social Life, Health, and Aging Project (NSHAP) Waves 1—3 & Survey of Health, Ageing and Retirement in Europe (SHARE) Waves 4, 6, and 8.
Note: Standard errors in parentheses, clustered at the level of country-gender-cohort. All models are adjusted for country- and gender-specific linear and quadratic aging trends, survey year, and individual fixed effects.
[a] Measured among the respondents aged younger than early pension age.
† p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

Table 5 contains the results from baseline regression models examining retirement effects on social networks. Panels [a] and [b] contain regression coefficients for retirement from FE and 2SLS-FE models respectively. According to the results from FE models in Panel [a], retirement led to an increase in social networks (β=0.04), especially due to the extension of kin networks with non-partner and non-offspring kin members. Compared to the baseline network size of non-retirees, it corresponds to a 2 percent increase in overall and kinship networks. More discussions with non-resident kin members led to fewer contacts with network members (β=-5). Models (9) and (10) show that the changes in social networks did not coincide with any shifts in partnered status or the number of residents in the household, suggesting that the mechanism for social network organization is independent from that for the household structure.

As discussed in our methods section, FE models may be vulnerable to confounding bias from the time-varying unobservable and reverse causation. For addressing these issues, 2SLS-FE models in Panel [b] used country-gender-cohort-specific pension eligibilities as instruments for retirement. We generally observed no change in the direction of coefficients, but an increase in both effects size and standard errors, leading to no statistically significant results at the level of 0.05. Overidentification tests show no evidence for violation of the exclusion restriction.

In sum, both the FE and 2SLS-FE models demonstrate that older adults experienced an increase in kinship networks after retirement. However, the effect was practically small and not robust compared to the 2SLS estimation. These results imply that changes in social networks at retirement may not be substantial on average.

Table 5. FE and 2SLS-FE Regression of Retirement on Social Networks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Network size							Network contact	Household structure	
	Overall	Non-kin	Kin	Kin Partner	Kin R Child	Kin NR Child	Kin Others		Partner	No. of Rs
[a] FE	0.042*	0.002	0.041*	-0.011†	-0.004	-0.003	0.045***	-5.180**	0.005	0.014
	(0.021)	(0.014)	(0.020)	(0.006)	(0.006)	(0.015)	(0.010)	(1.721)	(0.004)	(0.010)
[b] 2SLS-FE	0.088	0.017	0.081	-0.005	-0.034†	0.066	0.043	-5.613	0.014	-0.012
	(0.070)	(0.050)	(0.066)	(0.022)	(0.020)	(0.048)	(0.034)	(5.869)	(0.011)	(0.032)
Overidentification test	0.103	0.071	0.007	0.421	0.035	0.060	0.006	0.860	0.718	1.967
Mean[a]	2.469	0.696	1.767	0.698	0.129	0.416	0.413	250.287	0.800	1.388

Data: National Social Life, Health, and Aging Project (NSHAP) Waves 1—3 & Survey of Health, Ageing and Retirement in Europe (SHARE) Waves 4, 6, and 8.
Note: Standard errors in parentheses, clustered at the level of country-gender-cohort. All models are adjusted for country- and gender-specific linear and quadratic aging trends, survey year, and individual fixed effects.
[a] Measured among the respondents aged younger than early pension age and not retired yet.
FE individual fixed effects; 2SLS-FE two stage least squared with individual fixed effects; R resident; NR non-resident.
† p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

4.1.3. Heterogeneous effects by gender.

We investigated the heterogeneous patterns by gender in more detail. In Table 6, we have four panels containing the coefficients of retirement from separate FE and 2SLS-FE models by gender. We additionally provided Chi^2 statistics for the equality of coefficients across gender.

In Panels [a] and [b] from FE models, we observed a general increase in kin networks for both men and women. The increase was larger for women retirees, whereas the gender difference was not statistically significant at the level of 0.05. On the other hand, 2SLS-FE models in Panels [c] and [d] show distinctive gender patterns: the increase in network size was more pronounced for men (β=0.24) than women (β=-0.01), mainly due to the increase in kin networks (β=0.21), especially with non-resident children (β=0.18). Compared to the baseline network size of men non-retirees, the increase for men retirees corresponds to an 11 percent increase in overall networks, a 13 percent increase in kin networks, and a 60 percent increase in non-resident kin networks. Again, these patterns had no correspondence with change in household structure in both FE and 2SLS-FE models.

Table 6. FE and 2SLS-FE Regression of Retirement on Social Networks: Gender Differences

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		Network size							Network contact	Household structure	
		Overall	Non-kin	Kin	Kin Partner	Kin R Child	Kin NR Child	Kin Others		Partner	No. of Rs
FE	[a] Man (N=18,629)	0.027	0.003	0.024	-0.024**	-0.009	0.002	0.037**	-6.192*	0.001	0.021
		(0.032)	(0.019)	(0.031)	(0.009)	(0.008)	(0.021)	(0.014)	(2.618)	(0.005)	(0.017)
	[b] Woman (N=22,933)	0.053†	0.001	0.054*	-0.000	0.001	-0.007	0.052***	-4.434†	0.009†	0.008
		(0.028)	(0.020)	(0.027)	(0.009)	(0.008)	(0.020)	(0.015)	(2.276)	(0.005)	(0.013)
	Chi^2	0.375	0.005	0.539	3.466†	0.749	0.084	0.518	0.257	1.325	0.382
2SLS-FE	[c] Man (N=18,629)	0.243*	0.058	0.206*	-0.046	-0.045	0.182*	0.079	-17.011†	-0.021	-0.035
		(0.111)	(0.073)	(0.103)	(0.034)	(0.030)	(0.073)	(0.058)	(9.369)	(0.017)	(0.055)
	[d] Woman (N=22,933)	-0.014	-0.006	-0.004	0.018	-0.023	-0.011	0.018	0.801	0.037**	0.005
		(0.090)	(0.067)	(0.084)	(0.027)	(0.026)	(0.063)	(0.041)	(7.391)	(0.014)	(0.039)
	Chi^2	3.251†	0.421	2.479	2.156	0.293	3.967*	0.746	2.228	6.926**	0.340
Mean[a]	Man	2.142	0.534	1.602	0.782	0.105	0.284	0.329	262.867	0.841	1.499
	Woman	2.708	0.814	1.889	0.636	0.146	0.513	0.474	241.097	0.770	1.307

Data: National Social Life, Health, and Aging Project (NSHAP) Waves 1—3 & Survey of Health, Ageing and Retirement in Europe (SHARE) Waves 4, 6, and 8.
Note: Standard errors in parentheses, clustered at the level of country-gender-cohort. All models are adjusted for country- and gender-specific linear and quadratic aging trends, survey year, and individual fixed effects.
[a] Measured among the respondents aged younger than early pension age and not retired yet.
FE individual fixed effects; 2SLS-FE two stage least squared with individual fixed effects; R resident; NR non-resident.
† p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

As for older adult women, we find no meaningful change in social networks after retirement in 2SLS-FE models. These findings imply that the positive association between kin networks and retirement in FE models for women may not represent the causal impact of retirement on social networks, but indicate (i) earlier retirement of older adult women with larger kin networks, or (ii) general life course trends of getting old and organizing more kin-focused networks. Models for men consistently show an increase in kin networks, specifically with non-resident children in 2SLS-FE models. However, these trends do not imply that men have larger kin networks than women after retirement. As shown in the bottom row in Table 6, the baseline gender gap in the overall (2.1 for men vs. 2.7 for women) and kin networks (1.6 vs. 1.9) was substantial, which narrowed but was not reversed after retirement (overall networks: 2.4 vs. 2.7; kin networks: 1.8 vs. 1.9). In some, women discussed important matters with more non-kin and kin members than men regardless of retired status, whereas men narrowed the gap by increasing discussion with non-resident offspring after retirement.

We tested several hypotheses that can explain the little change in social networks after retirement for women. First, fewer working hours for women may provide more room for cultivating social networks before retirement, resulting in smaller effects of retirement on network changes. In Table 7, we estimated separate 2SLS-FE models by gender and weekly working hours at baseline (<40 vs. ≥40). As shown in the table, we find no evidence for the effect heterogeneity by baseline working hours for women. As for men, retirement effects were stronger for those with fewer working hours at baseline, and the difference was marginally significant at the level of 0.1.

Second, little change in women's social networks after retirement can be attributable to the difference in retirement timing between partners. Due to the age gap between partners, workers who are men are more likely to retire earlier and start to change their social networks earlier than their partners who are women. If a man retiree's social and family lives affect a woman partner's social networks before retirement, the impact of women's retirement can be weaker than that of men workers. In our study sample, man partners were 2.7 years older than woman partners on average. Based on this information, we differentiated five groups by partner age gap—a man partner is ≥3 years older, a man partner is <3 years older, partners are the same age (<1 year age gap), a woman partner is older, and no partner—and tested heterogeneous effects of retirement.

Table 7. 2SLS-FE Regression of Social Networks on Retirement: Differences by Gender and Weekly Working Hours

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
					Network size				Network contact	Household structure	
		Overall	Non-kin	Kin	Kin Partner	Kin R Child	Kin NR Child	Kin Others		Partner	No. of Rs
Man	[a] <40 (N=3,352)	0.635*	-0.083	0.743*	-0.010	-0.070	0.265	0.424*	-26.322	0.002	-0.025
		(0.309)	(0.220)	(0.297)	(0.079)	(0.077)	(0.176)	(0.168)	(26.104)	(0.040)	(0.132)
	[b] ≥40 (N=6,884)	0.192	0.060	0.157	-0.049	-0.098*	0.159	0.089	-23.561†	-0.029	-0.074
		(0.179)	(0.109)	(0.156)	(0.046)	(0.048)	(0.104)	(0.082)	(13.371)	(0.026)	(0.074)
	Chi^2	1.446	0.342	2.942†	0.196	0.081	0.255	3.014†	0.008	2.699	0.985
Woman	[c] <40 (N=6,326)	0.214	-0.023	0.223	0.037	0.017	-0.020	0.019	3.965	0.033	0.053
		(0.183)	(0.139)	(0.155)	(0.044)	(0.036)	(0.116)	(0.088)	(11.860)	(0.023)	(0.066)
	[d] ≥40 (N=5,464)	0.335	0.243	0.106	0.111	0.035	-0.017	0.071	9.687	0.069†	-0.109
		(0.237)	(0.158)	(0.237)	(0.068)	(0.065)	(0.138)	(0.105)	(20.837)	(0.036)	(0.094)
	Chi^2	0.151	1.787	0.156	0.944	0.070	0.000	0.140	0.057	0.850	3.554†

Note: Standard errors in parentheses, clustered at the level of country-gender-cohort. All models are adjusted for country- and gender-specific linear and quadratic aging trends, survey year, and individual fixed effects.
2SLS-FE two stage least squared with individual fixed effects; R resident; NR non-resident.
† p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

Table 8. 2SLS-FE Regression of Social Networks on Retirement: Differences by Gender and Partner Age Gap

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Network size				Network contact	Household Structure
		Overall	Non-kin	Kin	Kin Partner	Kin R Child	Kin NR Child	Kin Others		No. of Rs
Man	[a] Man partner is older (≥3 year) (N=5,916)	0.221	-0.087	0.321	-0.031	-0.096	0.426***	-0.009	-34.420*	-0.171*
		(0.242)	(0.126)	(0.200)	(0.053)	(0.061)	(0.129)	(0.096)	(16.276)	(0.082)
	[b] Man partner is older (<3 year) (N=3,527)	0.502*	0.236	0.275	-0.051	0.052	0.177	0.176	-26.606	0.161
		(0.228)	(0.167)	(0.237)	(0.068)	(0.060)	(0.147)	(0.125)	(23.767)	(0.114)
	[c] Same age (<1 year age gap) (N=2,704)	0.252	-0.257	0.599*	-0.027	-0.070	0.176	0.216	-16.834	-0.043
		(0.284)	(0.220)	(0.281)	(0.084)	(0.068)	(0.202)	(0.139)	(23.782)	(0.096)
	[d] Woman partner is older (N=1,891)	-0.326	-0.212	-0.107	0.009	-0.061	0.174	-0.077	18.680	0.127
		(0.387)	(0.198)	(0.341)	(0.075)	(0.075)	(0.228)	(0.140)	(27.951)	(0.127)
	[e] No partner (N=2,604)	-0.173	0.300	-0.463	-0.010	-0.048	-0.268	-0.146	24.382	0.059
		(0.352)	(0.292)	(0.328)	(0.082)	(0.063)	(0.177)	(0.223)	(32.609)	(0.094)
	Chi^2	4.194	5.873	7.343	0.443	3.996	9.802*	4.077	4.947	8.278†
Woman	[f] Man partner is older (≥3 year) (N=6,440)	-0.013	-0.048	0.064	0.026	-0.073	0.092	-0.019	-5.831	-0.100
		(0.175)	(0.099)	(0.177)	(0.052)	(0.048)	(0.113)	(0.091)	(11.986)	(0.070)
	[g] Man partner is older (<3 year) (N=3,707)	-0.215	-0.055	-0.162	-0.094	-0.139*	-0.032	0.043	-21.730	0.056
		(0.234)	(0.135)	(0.213)	(0.067)	(0.062)	(0.142)	(0.109)	(15.764)	(0.080)
	[h] Same age (<1 year age gap) (N=2,728)	-0.235	-0.091	-0.151	-0.100	0.048	0.008	0.057	8.392	-0.040
		(0.232)	(0.148)	(0.236)	(0.086)	(0.060)	(0.173)	(0.120)	(19.701)	(0.081)
	[i] Woman partner is older (N=1,975)	-0.095	-0.054	-0.055	0.113	0.017	0.015	-0.133	8.568	0.050
		(0.276)	(0.165)	(0.249)	(0.085)	(0.074)	(0.184)	(0.137)	(18.499)	(0.108)
	[j] No partner (N=5,536)	0.389*	0.276	0.101	0.025	0.033	-0.068	0.112	15.378	-0.027
		(0.194)	(0.168)	(0.148)	(0.030)	(0.040)	(0.106)	(0.099)	(16.597)	(0.067)
	Chi^2	6.173	3.351	1.734	7.114	8.236†	1.215	2.395	4.220	2.729

Note: Standard errors in parentheses, clustered at the level of country-gender-cohort. All models are adjusted for country- and gender-specific linear and quadratic aging trends, survey year, and individual fixed effects.
2SLS-FE two stage least squared with individual fixed effects; R resident; NR non-resident.
† p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

The results from Panels [a]—[e] in Table 8 show that men with younger or same-aged woman partners were more likely to increase social networks after retirement, and the difference by age gap was significant for the effects on networks with non-resident children. As for women in Panels [f]—[j], we found no noticeable difference in retirement effects among partnered women, whereas only those with no partner experienced the increase in social networks after retirement (β=0.4). Despite no significant effects in separate models for each network type, the effect size was larger for non-kin networks (β=0.3) than for kin networks (β=0.1).

Next, we directly tested if the difference in retirement timing explains the gender difference in retirement effects on social networks. In Table 9, we estimated the effects of three different retirement statuses—only the partner is retired, only the respondent is retired, both partners are retired—by using the combination of both partners' pension eligibilities as instruments. The analyses were limited to those who were partnered and had valid information about retirement for both partners. As shown in the table, we could not find any clear pattern based on both partners' retirement status. However, it was worth noting that there was a significant decrease in overall (β=-0.7) and kin networks (β=-0.6) for woman retirees whose partners were still working, which was not consistent with our hypothesis that having no increase in kin networks for women would be due to their later retirement than their partners.

Table 9. 2SLS-FE Regression of Social Networks on Respondent's and Partner's Retirement

		(1)	(2)	(3)	(4) Network size	(5)	(6)	(7)	(8) Network contact	(9) Household Structure
		Overall	Non-kin	Kin	Kin Partner	Kin R Child	Kin NR Child	Kin Others		No. of Rs
[a] Man	Partner is retired	0.065	0.192	-0.121	-0.039	0.113	0.113	-0.263†	-5.618	-0.203†
		(0.333)	(0.175)	(0.299)	(0.092)	(0.072)	(0.184)	(0.143)	(28.078)	(0.115)
	Respondent is retired	0.266	-0.000	0.295	-0.074	-0.015	0.280*	0.055	-31.747*	-0.072
		(0.210)	(0.126)	(0.187)	(0.048)	(0.050)	(0.123)	(0.090)	(15.319)	(0.071)
	Both are retired	0.202	-0.013	0.249	-0.050	-0.017	0.076	0.165	-20.840	-0.075
		(0.191)	(0.113)	(0.184)	(0.057)	(0.043)	(0.133)	(0.108)	(15.883)	(0.078)
	Chi^2	0.475	1.349	2.176	0.376	4.012	2.577	7.570*	1.334	1.302
[b] Woman	Partner is retired	-0.022	0.019	-0.030	-0.140*	-0.012	-0.039	-0.033	-0.426	-0.097
		(0.202)	(0.135)	(0.203)	(0.066)	(0.061)	(0.143)	(0.101)	(15.426)	(0.078)
	Respondent is retired	-0.700*	-0.090	-0.609*	-0.124	-0.097	-0.165	-0.225	-5.755	-0.233†
		(0.335)	(0.196)	(0.310)	(0.094)	(0.081)	(0.201)	(0.152)	(23.135)	(0.127)
	Both are retired	-0.114	-0.138	0.037	-0.135*	-0.082	0.079	0.049	-15.962	-0.077
		(0.201)	(0.127)	(0.199)	(0.066)	(0.055)	(0.132)	(0.103)	(15.422)	(0.073)
	Chi^2	4.651†	0.509	0.337	0.829	0.135	0.276	0.023	0.513	0.522

Note: Standard errors in parentheses, clustered at the level of country-gender-cohort. All models are adjusted for country- and gender-specific linear and quadratic aging trends, survey year, and individual fixed effects.
2SLS-FE two stage least squared with individual fixed effects; R resident; NR non-resident.
† p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

In summary, our supplementary analyses show that the little change in social networks after woman workers' retirement is not fully explained by age difference or retirement timing between partners. These findings imply that for women, retirement may not be an event for making a significant shift in important matter discussions, whereas mene become more dependent on family members for discussing important matters after retirement.

4.1.4. Heterogeneous effects by education and asset.

We investigated the heterogeneous patterns by socioeconomic status. Table 10 contains the coefficients for retirement from separate FE and 2SLS-FE models for three educational groups: ≤Lower secondary, upper secondary, and ≥post-secondary education. Panels [a]—[c] from FE models show no meaningful educational differences. According to the results from 2SLS-FE models in Panels [d]—[f], older adults with higher education generally experienced a larger increase in social networks, whereas the educational differences were statistically significant only for the effects on partner networks.

Table 10. 2SLS-FE Regression of Retirement on Social Networks: Educational Differences

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		Network size							Network contact	Household structure	
		Overall	Non-kin	Kin	Kin Partner	Kin R Child	Kin NR Child	Kin Others		Partner	No. of Rs
FE	[a] ≤Lower secondary (N=11,671)	0.023	-0.033	0.055	-0.015	0.001	0.017	0.035†	-6.116	0.012†	-0.003
		(0.040)	(0.024)	(0.040)	(0.013)	(0.012)	(0.029)	(0.021)	(3.778)	(0.006)	(0.021)
	[b] Upper secondary (N=15,932)	0.034	-0.013	0.049	-0.001	-0.006	0.018	0.029	-4.536†	0.005	0.012
		(0.037)	(0.022)	(0.032)	(0.011)	(0.010)	(0.022)	(0.019)	(2.673)	(0.006)	(0.015)
	[c] ≥Post-secondary (N=13,681)	0.058	0.047	0.012	-0.020†	-0.005	-0.042	0.069***	-6.009*	-0.001	0.035†
		(0.037)	(0.030)	(0.033)	(0.010)	(0.009)	(0.026)	(0.017)	(2.687)	(0.006)	(0.018)
	Chi²	0.485	4.383	0.997	1.764	0.201	3.556	2.923	0.199	2.422	2.087
2SLS -FE	[d] ≤Lower secondary (N=11,671)	-0.033	-0.008	-0.024	-0.091*	-0.085*	0.125	0.046	-33.494**	0.012	0.044
		(0.133)	(0.087)	(0.127)	(0.042)	(0.040)	(0.094)	(0.066)	(12.634)	(0.019)	(0.073)
	[e] Upper secondary (N=15,932)	0.118	0.064	0.072	0.031	-0.038	0.022	0.042	-3.035	0.018	-0.086*
		(0.113)	(0.077)	(0.107)	(0.032)	(0.029)	(0.072)	(0.059)	(7.793)	(0.017)	(0.042)
	[f] ≥Post-secondary (N=13,681)	0.176	-0.023	0.204†	0.022	-0.001	0.077	0.064	11.641	0.012	0.027
		(0.129)	(0.107)	(0.110)	(0.038)	(0.032)	(0.084)	(0.063)	(9.633)	(0.022)	(0.057)
	Chi²	1.353	0.614	2.062	6.187*	2.775	0.842	0.062	8.235*	0.059	4.127
Mean[a]	≤Lower secondary	2.164	0.468	1.692	0.645	0.166	0.387	0.368	271.594	0.807	1.536
	Upper secondary	2.367	0.610	1.749	0.701	0.121	0.415	0.396	253.499	0.803	1.346
	≥Post-secondary	2.792	0.945	1.843	0.729	0.112	0.439	0.463	232.125	0.791	1.333

Note: Standard errors in parentheses, clustered at the level of country-gender-cohort. All models are adjusted for country- and gender-specific linear and quadratic aging trends, survey year, and individual fixed effects.
[a] Measured among the respondents aged younger than early pension age and not yet retired.
2SLS-FE two stage least squared with individual fixed effects; R resident; NR non-resident.
† p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

In Table 11, we reported the results from separate 2SLS-FE models by gender and education. As shown in Panels [a]—[c] for male educational groups, the increase in kin networks was more pronounced for those with post-secondary or higher education (β=0.6) than for the lower educated, mainly due to the increase in networks with non-resident children (β=0.3) and other kin members (β=0.2). According to the results from Panels [d]—[f], there was no meaningful educational heterogeneity among older adult women.

Table 11. 2SLS-FE Regression of Retirement on Social Networks: Gender and Educational Differences

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		Network size							Network contact	Household structure	
		Overall	Non-kin	Kin	Kin Partner	Kin R Child	Kin NR Child	Kin Others		Partner	No. of Rs
Man	[a] ≤Lower secondary (N=5,165)	0.141	-0.015	0.163	-0.137*	-0.060	0.208	0.079	-45.327*	-0.022	0.114
		(0.218)	(0.129)	(0.198)	(0.062)	(0.064)	(0.151)	(0.098)	(20.577)	(0.026)	(0.108)
	[b] Upper secondary (N=7,262)	0.056	0.101	-0.010	0.047	-0.082†	0.091	0.022	-9.174	-0.014	-0.104
		(0.190)	(0.122)	(0.169)	(0.056)	(0.047)	(0.119)	(0.103)	(13.567)	(0.028)	(0.074)
	[c] ≥Post-secondary (N=6,064)	0.607**	0.048	0.573**	-0.074	-0.006	0.307*	0.166†	-5.805	-0.028	-0.119
		(0.231)	(0.154)	(0.180)	(0.056)	(0.053)	(0.137)	(0.098)	(16.057)	(0.035)	(0.107)
	Chi²	3.800	0.383	6.690*	5.929†	1.014	1.293	1.182	2.755	0.114	3.081
Woman	[d] ≤Lower secondary (N=6,506)	-0.137	0.010	-0.150	-0.062	-0.102*	0.083	0.022	-28.815†	0.041	0.012
		(0.163)	(0.114)	(0.161)	(0.057)	(0.051)	(0.115)	(0.088)	(15.528)	(0.029)	(0.096)
	[e] Upper secondary (N=8,670)	0.154	0.047	0.114	0.016	-0.007	-0.020	0.050	-0.049	0.035†	-0.076
		(0.140)	(0.097)	(0.135)	(0.038)	(0.035)	(0.090)	(0.069)	(9.318)	(0.020)	(0.050)
	[f] ≥Post-secondary (N=7,617)	-0.118	-0.069	-0.049	0.089†	0.005	-0.083	-0.008	24.963*	0.037	0.127*
		(0.157)	(0.148)	(0.137)	(0.051)	(0.039)	(0.105)	(0.083)	(11.930)	(0.028)	(0.061)
	Chi²	2.317	0.401	1.643	4.215	3.368	1.144	0.238	8.635*	0.025	7.931*

Data: National Social Life, Health, and Aging Project (NSHAP) Waves 1—3 & Survey of Health, Ageing and Retirement in Europe (SHARE) Waves 4, 6, and 8.
Note: Standard errors in parentheses, clustered at the level of country-gender-cohort. All models are adjusted for country- and gender-specific linear and quadratic aging trends, survey year, and individual fixed effects.
2SLS-FE two stage least squared with individual fixed effects; R resident; NR non-resident.
† $p<0.1$ * $p<0.05$ ** $p<0.01$ *** $p<0.001$.

In Tables 12 and 13, we examined asset differences in retirement effects. The results were very similar to those from models for educational differences, showing a larger increase in kin networks for those with higher levels of assets, especially among man retirees.

Summing up, the increase in kin networks was a unique trend for man retirees from higher socioeconomic strata. Considering the trend of increasing economic transfer for the offspring generation, these findings imply the importance of socioeconomic resources in the enhancement of intergenerational relationships after retirement. Specifically, the gender difference in network reorganization suggests that socioeconomic resources matter for only man retirees, possibly due to different social roles expected for older adult men and women. We delve into these differences in more detail in the later sections on intergenerational transfers.

Table 12. 2SLS-FE Regression of Social Networks on Retirement: Asset Differences

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Network size							Network contact	Household structure	
	Overall	Non-kin	Kin	Kin Partner	Kin R Child	Kin NR Child	Kin Others		Partner	No. of Rs
[a] Bottom quartile (N=10,810)	0.059	-0.017	0.079	-0.075†	-0.066†	0.043	0.125†	-23.031*	0.006	-0.021
	(0.127)	(0.097)	(0.116)	(0.045)	(0.034)	(0.086)	(0.068)	(11.693)	(0.023)	(0.058)
[b] Middle (N=21,846)	0.045	0.076	-0.014	0.017	-0.012	0.022	-0.043	7.703	0.016	0.014
	(0.100)	(0.068)	(0.095)	(0.031)	(0.026)	(0.068)	(0.051)	(8.467)	(0.016)	(0.042)
[c] Top quartile (N=10,905)	0.240	-0.039	0.294†	-0.002	-0.054	0.189†	0.183**	-18.241	0.014	-0.036
	(0.174)	(0.109)	(0.156)	(0.045)	(0.047)	(0.103)	(0.070)	(12.023)	(0.022)	(0.069)
Chi2	0.455	0.505	1.390	1.389	0.852	0.983	3.795*	2.955†	0.063	0.257

Data: National Social Life, Health, and Aging Project (NSHAP) Waves 1—3 & Survey of Health, Ageing and Retirement in Europe (SHARE) Waves 4, 6, and 8.
Note: Standard errors in parentheses, clustered at the level of country-gender-cohort. All models are adjusted for country- and gender-specific linear and quadratic aging trends, survey year, and individual fixed effects.
2SLS-FE two stage least squared with individual fixed effects; R resident; NR non-resident.
† p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

Table 13. 2SLS-FE Regression of Social Networks on Retirement: Gender and Asset Differences

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		Network size							Network contact	Household structure	
		Overall	Non-kin	Kin	Kin Partner	Kin R Child	Kin NR Child	Kin Others		Partner	No. of Rs
Man	[a] Bottom quartile (N=4,618)	0.014	-0.051	0.067	-0.146*	-0.047	0.110	0.173	-56.132*	-0.063†	0.087
		(0.236)	(0.173)	(0.189)	(0.068)	(0.064)	(0.142)	(0.115)	(22.440)	(0.036)	(0.101)
	[b] Middle (N=9,889)	0.231	0.156	0.095	-0.061	0.017	0.160	-0.018	2.930	0.018	0.014
		(0.159)	(0.114)	(0.145)	(0.049)	(0.044)	(0.103)	(0.079)	(13.745)	(0.024)	(0.074)
	[c] Top quartile (N=5,154)	0.473	-0.121	0.631*	0.009	-0.113†	0.324†	0.239*	-26.225	-0.037	-0.124
		(0.291)	(0.167)	(0.245)	(0.065)	(0.067)	(0.168)	(0.113)	(19.987)	(0.033)	(0.109)
	Chi^2	0.779	0.999	1.826	1.272	1.353	0.460	1.990	2.532†	2.197	1.186
Woman	[d] Bottom quartile (N=6,160)	0.144	0.020	0.126	-0.028	-0.060	0.037	0.113	1.511	0.029	-0.068
		(0.155)	(0.121)	(0.139)	(0.055)	(0.041)	(0.103)	(0.084)	(12.905)	(0.029)	(0.071)
	[e] Middle (N=11,930)	-0.096	0.015	-0.098	0.045	-0.017	-0.033	-0.072	6.660	0.014	0.039
		(0.123)	(0.090)	(0.120)	(0.039)	(0.033)	(0.089)	(0.069)	(10.912)	(0.021)	(0.054)
	[f] Top quartile (N=5,716)	0.078	0.016	0.059	-0.004	0.028	0.038	0.101	-7.836	0.045	0.115
		(0.196)	(0.137)	(0.187)	(0.060)	(0.063)	(0.124)	(0.089)	(13.854)	(0.029)	(0.089)
	Chi^2	0.869	0.001	0.770	0.693	0.757	0.187	1.727	0.347	0.322	1.634

Data: National Social Life, Health, and Aging Project (NSHAP) Waves 1—3 & Survey of Health, Ageing and Retirement in Europe (SHARE) Waves 4, 6, and 8.
Note: Standard errors in parentheses, clustered at the level of country-gender-cohort. All models are adjusted for country- and gender-specific linear and quadratic aging trends, survey year, and individual fixed effects.
2SLS-FE two stage least squared with individual fixed effects; R resident; NR non-resident.
† p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

4.1.5. Heterogeneous effects by region.

In Table 14, we estimated separate models by gender and continental region—the US, Western Europe, Southern Europe, Northern Europe, and Eastern Europe—to examine the regional difference in social network changes after retirement. Panels [a]—[e] for men show that the increase in kin networks was a general trend over the regions. Interestingly, we observed heterogeneity in the type of increasing networks; US retirees experienced an increase in resident kin networks (β=0.4), networks with non-partner and non-offspring kin increased in Western (β=0.2) and Southern Europe (β=0.3), and non-resident kin networks increased in Northern (β=0.3) and Eastern Europe (β=0.3). Network dynamics limited to in-household kin networks may reflect higher geographic dispersion of family members in the US. We did not delve into this possibility in detail due to limited data, but it is worth noting that the gender difference in the extension of kin networks was not specific to certain regions in Western society.

Table 14. 2SLS-FE Regression of Social Networks on Retirement: Gender and Regional Differences

		(1)	(2)	(3)	(4) Network size	(5)	(6)	(7)	(8) Network contact	(9) Household structure	(10)
		Overall	Non-kin	Kin	Kin Partner	Kin R Child	Kin NR Child	Kin Others		Partner	No. of Rs
Male	[a] US (N=1,379)	1.223	1.101†	0.122	-0.529*	0.382**	0.373	-0.104	-84.705***	-0.153	0.504
		(0.747)	(0.562)	(0.615)	(0.227)	(0.133)	(0.523)	(0.336)	(20.760)	(0.127)	(0.357)
	[b] Western Europe (N=7,071)	0.119	-0.079	0.227	-0.076	-0.105**	0.064	0.220*	-31.622*	-0.044	-0.145†
		(0.194)	(0.136)	(0.185)	(0.054)	(0.038)	(0.122)	(0.107)	(15.656)	(0.030)	(0.077)
	[c] Southern Europe (N=2,699)	0.172	-0.180	0.346	-0.000	-0.159	-0.032	0.281*	3.329	0.024	-0.014
		(0.297)	(0.209)	(0.313)	(0.114)	(0.157)	(0.252)	(0.134)	(32.047)	(0.035)	(0.186)
	[d] Northern Europe (N=2,278)	0.174	0.089	0.108	-0.086	0.003	0.259*	-0.018	-9.078	0.010	0.028
		(0.256)	(0.161)	(0.227)	(0.066)	(0.031)	(0.125)	(0.097)	(16.406)	(0.033)	(0.076)
	[e] Eastern Europe (N=5,202)	0.332†	0.119	0.234	0.041	0.007	0.337**	-0.085	-3.471	-0.013	0.008
		(0.175)	(0.094)	(0.154)	(0.056)	(0.049)	(0.105)	(0.077)	(16.624)	(0.027)	(0.104)
	Chi^2	2.515	6.183	0.435	7.756	15.816**	4.037	9.199†	11.851*	3.823	5.176
Female	[f] US (N=1,664)	-1.120†	-1.528**	0.408	0.338†	-0.126	0.159	0.037	-60.560	0.230*	-0.337
		(0.572)	(0.506)	(0.796)	(0.174)	(0.242)	(0.489)	(0.433)	(38.499)	(0.111)	(0.266)
	[g] Western Europe (N=8,839)	0.051	-0.091	0.130	0.024	0.045	-0.007	0.036	4.972	0.045*	0.092*
		(0.115)	(0.085)	(0.110)	(0.034)	(0.029)	(0.088)	(0.052)	(9.181)	(0.020)	(0.042)
	[h] Southern Europe (N=2,695)	-0.362	0.116	-0.459	-0.032	-0.242*	0.055	-0.083	-60.179*	-0.026	-0.305
		(0.397)	(0.181)	(0.314)	(0.101)	(0.104)	(0.200)	(0.238)	(26.143)	(0.054)	(0.196)
	[i] Northern Europe (N=2,784)	-0.047	0.085	-0.110	0.044	-0.017	-0.059	-0.051	27.334*	-0.008	0.064
		(0.191)	(0.147)	(0.153)	(0.052)	(0.031)	(0.148)	(0.094)	(12.877)	(0.028)	(0.052)
	[j] Eastern Europe (N=6,951)	0.032	0.175	-0.123	-0.030	-0.116†	-0.046	0.076	-5.323	0.053*	-0.127
		(0.194)	(0.127)	(0.176)	(0.052)	(0.062)	(0.127)	(0.075)	(17.035)	(0.026)	(0.086)
	Chi^2	4.912	12.911*	4.778	4.770	11.895*	0.408	1.349	12.420*	7.276	10.567*

Data: National Social Life, Health, and Aging Project (NSHAP) Waves 1—3 & Survey of Health, Ageing and Retirement in Europe (SHARE) Waves 4, 6, and 8.
Note: Standard errors in parentheses, clustered at the level of country-gender-cohort. All models are adjusted for country- and gender-specific linear and quadratic aging trends, survey year, and individual fixed effects.
2SLS-FE two stage least squared with individual fixed effects; R resident; NR non-resident.
† $p<0.1$ * $p<0.05$ ** $p<0.01$ *** $p<0.001$.

4.1.6. Immediate and duration effects of retirement.

As discussed in the methods section, we could separately examine the immediate and duration effects of retirement using pension eligibilities and years since being eligible as instruments. Since the NSHAP data do not include information about retirement years, these analyses were done using the SHARE data from European countries. Table 15 shows the results from the first stage regression of retirement and years since retirement. Panel [a] shows that retirement was positively associated with early and full pension eligibilities and years to early pension age. Only the years to full pension age were negatively associated with retirement, implying that the likelihood of retirement steeply increased after being eligible for pension and gradually decreased as fewer people remained in the labor force with aging. According to Panel [b], years to the earliest pension ages were strongly associated with years since retirement. Early and full pension eligibilities slightly reduced the duration of retirement, which was entirely compensated by the effects of pension-eligible years. The patterns did not meaningfully differ across the subsamples. F statistics for the excluded instruments were large enough to rule out the concern for weak instruments in all models.

Table 15. First Stage Regression of Retirement and Years Since Retirement

		(1) Full sample	(2) Male	(3) Female	(4) ≤Lower secondary	(5) Upper secondary	(6) ≥Post-secondary
[a] Retired	≥Full pension age	0.292***	0.250***	0.332***	0.332***	0.281***	0.272***
		(0.017)	(0.024)	(0.023)	(0.020)	(0.024)	(0.022)
	Years to full pension age	-0.031***	-0.043***	-0.021**	-0.030***	-0.035***	-0.024**
		(0.005)	(0.007)	(0.007)	(0.006)	(0.008)	(0.008)
	≥Early pension age	0.101***	0.099***	0.095***	0.097***	0.118***	0.084***
		(0.016)	(0.022)	(0.022)	(0.023)	(0.022)	(0.020)
	Years to early pension age	0.042***	0.043***	0.039***	0.027***	0.044***	0.050***
		(0.005)	(0.007)	(0.006)	(0.007)	(0.008)	(0.007)
	F (excluded instruments)	263.021***	117.796***	166.550***	124.087***	132.563***	179.893***
[b] Years since retired	≥Full pension age	-0.154**	-0.120	-0.189*	-0.237*	-0.097	-0.131†
		(0.059)	(0.074)	(0.088)	(0.116)	(0.083)	(0.078)
	Years to full pension age	0.482***	0.478***	0.489***	0.442***	0.485***	0.539***
		(0.023)	(0.028)	(0.034)	(0.035)	(0.032)	(0.029)
	≥Early pension age	-0.148**	-0.158*	-0.127†	-0.177†	-0.141†	-0.123†
		(0.051)	(0.071)	(0.071)	(0.097)	(0.078)	(0.072)
	Years to early pension age	0.306***	0.332***	0.286***	0.305***	0.339***	0.241***
		(0.021)	(0.027)	(0.031)	(0.034)	(0.029)	(0.028)
	F (excluded instruments)	936.066***	549.841***	465.916***	278.462***	526.909***	505.023***
N		35134	15583	19551	9848	14018	11020

Data: National Social Life, Health, and Aging Project (NSHAP) Waves 1—3 & Survey of Health, Ageing and Retirement in Europe (SHARE) Waves 4, 6, and 8.
Note: Standard errors in parentheses, clustered at the level of country-gender-cohort. All models are adjusted for country- and gender-specific linear aging trends, survey year, and individual fixed effects.
2SLS-FE two stage least squared with individual fixed effects; R resident; NR non-resident.
† p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

Table 16 contains the results from gender-specific 2SLS-FE regression for immediate and duration effects of retirement on social networks. As shown in Panel [a], the increase in overall and kin networks for man retirees was attributable to both the immediate and duration effects of retirement. It is noteworthy that a longer duration of retirement resulted in larger networks with resident children, which coincided with the increase in the number of residents in the household. As shown in Table 17, we found no strong evidence for heterogeneous effects by education.

Table 16. 2SLS-FE Regression of Social Networks on Retirement: Gender Differences in Immediate and Duration Effects of Retirement

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
					Network size				Network contact	Household structure	
		Overall	Non-kin	Kin	Kin Partner	Kin R Child	Kin NR Child	Kin Others		Partner	No. of Rs
[a] Man (N=15,581)	Retired	0.326**	0.074	0.266**	-0.028	-0.038	0.134*	0.118*	-9.263	-0.028†	-0.053
		(0.107)	(0.069)	(0.097)	(0.030)	(0.028)	(0.062)	(0.057)	(8.818)	(0.016)	(0.051)
	Years since retired	0.028*	0.003	0.023*	0.001	0.009**	-0.011	0.003	0.568	-0.003	0.039***
		(0.013)	(0.009)	(0.011)	(0.003)	(0.003)	(0.007)	(0.006)	(0.977)	(0.002)	(0.006)
[b] Woman (N=19,551)	Retired	0.014	0.036	-0.017	0.005	-0.017	-0.017	0.020	2.564	0.032*	0.044
		(0.086)	(0.062)	(0.080)	(0.025)	(0.024)	(0.061)	(0.040)	(6.721)	(0.013)	(0.036)
	Years since retired	-0.002	0.007	-0.008	-0.007*	0.012***	-0.013†	0.005	-0.620	-0.007***	0.038***
		(0.011)	(0.008)	(0.010)	(0.003)	(0.003)	(0.008)	(0.005)	(0.900)	(0.002)	(0.004)
Chi2 (retired)		5.158*	0.166	5.076*	0.714	0.338	3.014†	2.002	1.138	8.527**	2.397
Chi2 (years since retired)		2.993†	0.684	0.024	0.398	0.561	0.083	0.157	0.286	0.003	0.122

Note: Standard errors in parentheses, clustered at the level of country-gender-cohort. All models are adjusted for country- and gender-specific linear aging trends, survey year, and individual fixed effects.
2SLS-FE two stage least squared with individual fixed effects; R resident; NR non-resident.
† p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

Table 17. 2SLS-FE Regression of Social Networks on Retirement: Educational Differences in Immediate and Duration Effects of Retirement

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
					Network size				Network contact	Household structure	
		Overall	Non-kin	Kin	Kin Partner	Kin R Child	Kin NR Child	Kin Others		Partner	No. of Rs
[a] ≤Lower secondary (N=9,848)	Retired	0.120	0.058	0.058	-0.059	-0.015	0.076	0.089	-23.982*	0.004	0.098
		(0.124)	(0.078)	(0.120)	(0.040)	(0.039)	(0.081)	(0.062)	(11.347)	(0.018)	(0.062)
	Years since retired	0.005	0.016†	-0.012	-0.005	0.006	0.003	-0.008	-2.237†	-0.004†	0.033***
		(0.015)	(0.010)	(0.014)	(0.005)	(0.006)	(0.010)	(0.007)	(1.314)	(0.002)	(0.008)
[b] Upper secondary (N=14,016)	Retired	0.143	0.078	0.083	0.015	-0.039	0.015	0.051	-1.507	0.009	-0.092*
		(0.107)	(0.071)	(0.102)	(0.030)	(0.029)	(0.066)	(0.057)	(7.682)	(0.016)	(0.041)
	Years since retired	0.001	-0.003	0.003	-0.005	0.012***	-0.017*	0.006	-0.639	-0.006**	0.031***
		(0.012)	(0.008)	(0.011)	(0.004)	(0.003)	(0.008)	(0.006)	(0.980)	(0.002)	(0.005)
[c] ≥Post-secondary (N=11,020)	Retired	0.221†	0.031	0.190†	0.008	-0.044	0.061	0.077	11.459	0.012	0.051
		(0.115)	(0.093)	(0.104)	(0.034)	(0.029)	(0.075)	(0.057)	(9.157)	(0.019)	(0.050)
	Years since retired	0.016	0.011	0.007	-0.002	0.013***	-0.024**	0.012†	1.626	-0.003	0.050***
		(0.014)	(0.011)	(0.013)	(0.004)	(0.003)	(0.009)	(0.006)	(1.259)	(0.003)	(0.006)
Chi2 (retired)		0.450	0.161	0.908	2.332	0.392	0.432	0.214	5.780†	0.098	9.050*
Chi2 (years since retired)		0.706	0.923	0.635	0.312	0.822	0.806	0.899	0.056	0.952	0.011

Note: Standard errors in parentheses, clustered at the level of country-gender-cohort. All models are adjusted for country- and gender-specific linear aging trends, survey year, and individual fixed effects.
2SLS-FE two stage least squared with individual fixed effects; R resident; NR non-resident.
† p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

4.2. Intergenerational Transfers after Retirement

4.2.1. Descriptive statistics.

Next, we tested the impact of retirement on intergenerational transfers of economic and non-economic resources. Due to the significantly different data structure of the HRS and SHARE, we conducted separate analyses for the two different datasets. Tables 18 and 19 provide descriptive statistics from the HRS and SHARE data. As discussed in the methods section, each dataset has limitations. As for the HRS, intergenerational transfers were collected at the level of family, except for hours spent for grandchild care. Due to this reason, the gender differences in descriptive statistics arise from older adults who had no partner and reported the information about their own transfer activities. On the other hand, the SHARE data were measured at the level of individuals, whereas the amount of economic transfer was collected only in the first two survey waves. Despite the differences in the data structure, we generally observed that older adult men provided more economic resources to children and other kin members, whereas women contributed more care work to grandchildren.

Table 18. Descriptive Statistics of Intergenerational Transfers, US

	Full (N=77,372)					Male (N=33,979)	Female (N=43,393)
Variable	N	Mean	SD	Min	Max	Mean	Mean
Transfer to children (≥$500)	71,816	0.37	0.48			0.41	0.35
Transfer to children ($)	71,121	4887.71	30324.73	0	2222000	5443.25	4462.45
Transfer to other kin (≥$500)	76,400	0.09	0.29			0.10	0.08
Transfer to other kin ($)	75,591	382.98	5935.76	0	700000	473.85	312.81
Transfer from children (≥$500)	72,219	0.05	0.23			0.04	0.07
Transfer from children ($)	72,074	356.59	4318.85	0	574750	220.50	461.29
Transfer from other kin (≥$500)	76,501	0.02	0.15			0.02	0.03
Transfer from other kin ($)	76,275	165.96	4865.17	0	530000	159.51	170.97
Care for grandchildren (≥100 hours)	62,908	0.39	0.49			0.39	0.39
Care for grandchildren (hours)	53,706	357.60	1370.17	0	7300	271.09	424.61
Any child living together	77,372	0.22	0.42			0.22	0.23
Any child living ≤10 miles	68,521	0.68	0.47			0.66	0.69
Contact with children (day/year)	33,999	260.95	128.50	0	365	251.19	268.66
Retired	77,372	0.53	0.50			0.58	0.49
Years since retired	77,372	3.48	5.55	0	51.6	3.68	3.33
Age	77,372	65.98	3.64	60	72.9	66.02	65.95
Female	77,372	0.56	0.50				

Note. Minimums and maximums are not reported for categorical variables.
Data: Health and Retirement Study (HRS) Waves 3—14.

Table 19. Descriptive Statistics of Intergenerational Transfers, Europe

	Full (N=97,750)					Man (N=45,789)	Woman (N=51,961)
Variable	N	Mean	SD	Min	Max	Mean	Mean
Transfer to children (≥€250)	72,203	0.27	0.45			0.29	0.26
Transfer to children (€)	13,863	1686.82	10128.28	0	500000	2043.40	1264.44
Transfer to other kin (≥€250)	72,203	0.04	0.18			0.04	0.03
Transfer to other kin (€)	13,863	173.45	2577.65	0	200000	206.84	133.91
Transfer from children (≥€250)	72,249	0.03	0.18			0.02	0.04
Transfer from children (€)	13,871	43.99	834.51	0	65146.6	52.15	34.32
Transfer from other kin (≥€250)	72,249	0.04	0.20			0.04	0.04
Transfer from other kin (€)	13,871	265.31	4369.53	0	274197.2	244.46	290.02
Care for grandchildren	50,394	0.66	0.47			0.60	0.71
Care for grandchildren (day/year)	50,151	58.83	111.49	0	365	48.15	66.81
Any child living together	47,432	0.30	0.46			0.32	0.28
Any child living ≤5km	47,432	0.64	0.48			0.64	0.63
Contact with children (day/year)	74,309	279.83	123.29	0	365	270.04	287.74
Retired	97,750	0.44	0.50			0.49	0.39
Years since retired	97,750	2.20	3.97	0	66.8	2.54	1.90
Age	97,750	61.86	4.63	49	75	62.56	61.25
Woman	97,750	0.53	0.50				

Note. Minimums and maximums are not reported for categorical variables.
Data: Survey of Health, Ageing and Retirement in Europe (SHARE) Waves 1—8.

4.2.2. Gender differences in intergenerational transfers after retirement.

Tables 20 and 21 show the results from the first stage regression of retirement and years since retirement. The results show similar patterns to those from the previous section for immediate and duration effects of retirement on social networks, and thus we do not go into detail on these patterns in this section.

Table 22 shows the results from FE and 2SLS-FE models using the HRS data. We did not find noticeable changes in economic transfers after retirement for either men or women in FE models. In 2SLS-FE models, we find distinctive gender patterns in several dimensions of transfers. As shown in Panels [c] and [d] for men and women, economic transfers became more active after men's retirement than that of women. Model (1) for ≥$500 transfer to children shows that retirement had both immediate (β=0.25) and duration effects on transfer (β=0.04). Models (4) and (8) for the amount of transfer to and from other kin members also show positive immediate and duration effects of retirement. On the contrary, as shown in Model (5), the likelihood of getting economic support from children immediately and gradually decreased after retirement. As shown in Panels [d]—Model [2], older adult women seemed to gradually increase the amount of economic transfer to children after retirement, whereas the effect was marginally significant at the level of 0.1.

We also observed gender-specific patterns in non-economic transfers. Panels [c] and [d] in Model (9) show that both older adult men and women were more likely to participate in grandparenting after retirement, whereas the increase in hours spent on care work was observed only for women in Panels [d]—Model (10). The likelihood of living together or within 10 miles gradually increased after retirement for men and women, whereas the duration effect was significantly larger for women. In general, changes in non-economic support exchange were more pronounced among woman retirees.

Table 23 with data from European countries provided less consistent evidence for gender differences. Models (1)—(8) for economic transfers to and from offspring and kin members suggest no clear gender-specific effects of retirement. Considering limited waves of data, however, it seems premature to conclude no significant change of economic transfers after retirement in European countries. As for non-economic support exchange, we observed positive immediate effects of retirement on hours spent on grandchild care (β=23) in Panels [d]—Model (10) and contact with children in Panels [d]—Model (13) for older adult women, but not for man retirees. The duration effects of retirement on non-economic transfers have similar patterns on men and women: Models (9) and (10) show that care work for grandchildren gradually decreased, and Models (11) and (12) show that the likelihood of living together or within five kilometers of children gradually increased after retirement for men and women.

In sum, we find suggestive evidence of gender-specific intergenerational transfers after retirement. In the US, man retirees were more likely to exchange economic resources with children and kin members after retirement than women. As for the non-economic transfer, the obligation of grandchild care was more focused on women than man retirees both in the US and European countries. One common trend for men and women in both the US and Europe was the gradual re-arrangement of household composition by moving closer to children after retirement, which was consistent with what we observed in the analyses of retirement effects on social networks.

Table 20. First Stage Regression of Retirement, US

		(1) Full sample	(2) Man	(3) Woman
[a] Retired	≥Full pension age	0.058***	0.071***	0.048***
		(0.006)	(0.009)	(0.008)
	Years to full pension age	-0.020***	-0.019***	-0.021***
		(0.002)	(0.003)	(0.003)
	≥Early pension age	0.088***	0.104***	0.077***
		(0.011)	(0.016)	(0.016)
	Years to early pension age	0.006	-0.006	0.016+
		(0.008)	(0.015)	(0.009)
	F (excluded instruments)	134.514	146.949	68.317
[b] Years since retired	≥Full pension age	0.096+	0.134*	0.071
		(0.054)	(0.055)	(0.082)
	Years to full pension age	0.200***	0.218***	0.187***
		(0.025)	(0.027)	(0.036)
	≥Early pension age	-0.084	-0.161	-0.026
		(0.073)	(0.104)	(0.100)
	Years to early pension age	0.168**	0.155	0.174*
		(0.059)	(0.096)	(0.076)
	F (excluded instruments)	46.745	53.171	17.967
N		77372	33979	43393

Data: Health and Retirement Study (HRS) Waves 3—14.
Note. Standard errors in parentheses, clustered at the level of gender-cohort. All models are adjusted for gender-specific linear aging trends, survey year, and individual fixed effects.

Table 21. First Stage Regression of Retirement, Europe

		(1) Full sample	(2) Man	(3) Woman
[a] Retired	≥Full pension age	0.248***	0.220***	0.280***
		(0.009)	(0.012)	(0.013)
	Years to full pension age	-0.034***	-0.040***	-0.030***
		(0.003)	(0.003)	(0.004)
	≥Early pension age	0.090***	0.099***	0.077***
		(0.008)	(0.010)	(0.011)
	Years to early pension age	0.036***	0.032***	0.038***
		(0.003)	(0.004)	(0.004)
	F (excluded instruments)	497.507	258.234	290.941
[b] Years since retired	≥Full pension age	-0.043	-0.050	-0.044
		(0.033)	(0.047)	(0.045)
	Years to full pension age	0.481***	0.502***	0.468***
		(0.016)	(0.020)	(0.024)
	≥Early pension age	-0.150***	-0.150***	-0.133***
		(0.028)	(0.041)	(0.039)
	Years to early pension age	0.310***	0.336***	0.288***
		(0.015)	(0.021)	(0.020)
	F (excluded instruments)	1306.871	911.124	620.426
N		77372	33979	43393

Data: Survey of Health, Ageing and Retirement in Europe (SHARE) Waves 1—8.
Note: Standard errors in parentheses, clustered at the level of country-gender-cohort. All models are adjusted for country- and gender-specific linear aging trends, survey year, and individual fixed effects.

Table 22. FE and 2SLS-FE Regression of Economic Transfers on Retirement: Gender Differences, US

			(1) To children (≥$500)	(2) To children ($)	(3) To other kin (≥$500)	(4) To other kin ($)	(5) From children (≥$500)	(6) From children ($)	(7) From other kin (≥$500)	(8) From other kin ($)
FE	[a] Man	Retired	-0.008	402.967	0.002	-20.676	0.005	50.522	0.001	-31.215
			(0.007)	(543.232)	(0.004)	(65.511)	(0.004)	(36.552)	(0.003)	(82.776)
		Years since retired	0.001	-73.652	-0.000	-6.454	-0.000	7.383	0.001+	11.669
			(0.001)	(47.029)	(0.000)	(8.703)	(0.000)	(4.567)	(0.000)	(9.511)
	[b] Woman	Retired	-0.011	402.557	0.011**	119.672*	0.002	79.366	0.001	-32.850
			(0.009)	(971.043)	(0.004)	(57.622)	(0.004)	(55.354)	(0.002)	(85.969)
		Years since retired	0.000	-125.625	-0.000	-8.465	-0.000	-8.959*	-0.000	0.932
			(0.001)	(104.991)	(0.000)	(5.348)	(0.000)	(4.531)	(0.000)	(8.235)
	Chi2	(retired)	0.055	0.000	2.264	2.588	0.207	0.189	0.032	0.000
	Chi2	(years since retired)	0.118	0.204	0.125	0.039	0.093	6.453*	4.259*	0.728
2SLS-FE	[c] Man	Retired	0.245*	2154.515	0.052	3273.729**	-0.082+	-625.830	0.017	1748.135*
			(0.110)	(9395.339)	(0.062)	(1104.915)	(0.042)	(859.105)	(0.026)	(755.768)
		Years since retired	0.037+	43.059	-0.001	447.317*	-0.015*	-89.824	0.009*	267.029*
			(0.021)	(1135.121)	(0.010)	(213.680)	(0.007)	(124.293)	(0.004)	(116.100)
	[d] Woman	Retired	-0.054	5942.417	0.082	2351.321	-0.002	-1028.899	-0.048	-1880.578
			(0.096)	(8528.243)	(0.073)	(1664.282)	(0.057)	(1326.186)	(0.035)	(1438.895)
		Years since retired	-0.005	2160.095+	0.009	346.695	0.009	-31.124	0.002	-209.936
			(0.013)	(1209.057)	(0.013)	(278.440)	(0.012)	(192.216)	(0.005)	(245.453)
	Chi2	(retired)	4.234*	0.089	0.097	0.213	1.267	0.065	2.211	4.985*
	Chi2	(years since retired)	2.860+	1.630	0.359	0.082	3.137+	0.066	1.100	3.086+
Mean[a]	Man		0.433	4893.511	0.114	405.200	0.038	202.446	0.034	178.304
	Woman		0.378	4611.567	0.086	241.679	0.070	380.869	0.036	235.709
N			71008	70206	75934	75049	71436	71269	76049	75797

(continued)

			(9) Care for grandchildren (≥100 hours)	(10) Care for grandchildren (hours)	(11) Any child living together	(12) Any child living ≤10 miles	(13) Contact with children (day/year)
FE	[a] Man	Retired	0.019*	-35.276+	-0.011*	-0.014*	3.961
			(0.009)	(19.076)	(0.005)	(0.007)	(2.520)
		Years since retired	-0.001*	3.691	0.002***	0.000	-0.165
			(0.001)	(3.567)	(0.000)	(0.001)	(0.282)
	[b] Woman	Retired	0.036***	21.043	-0.009*	-0.015**	2.728
			(0.007)	(20.972)	(0.004)	(0.005)	(1.761)
		Years since retired	-0.002*	-1.619	0.000	0.002***	0.120
			(0.001)	(2.307)	(0.000)	(0.000)	(0.228)
	Chi2	(retired)	2.289	3.947*	0.067	0.008	0.161
	Chi2	(years since retired)	0.342	1.563	4.596*	2.602	0.619
2SLS-FE	[c] Man	Retired	0.258**	40.445	-0.070	-0.029	-12.594
			(0.093)	(291.311)	(0.064)	(0.071)	(29.593)
		Years since retired	0.003	-45.194	0.022*	0.016	-10.662
			(0.016)	(43.290)	(0.011)	(0.010)	(6.620)
	[d] Woman	Retired	0.371*	706.310+	0.088	0.185	-4.533
			(0.148)	(423.471)	(0.093)	(0.122)	(63.862)
		Years since retired	0.012	29.268	0.057***	0.058***	-12.375
			(0.023)	(71.172)	(0.013)	(0.016)	(18.541)
	Chi2	(retired)	0.416	1.678	1.955	2.310	0.013
	Chi2	(years since retired)	0.091	0.799	3.991*	4.845*	0.008
Mean[a]	Man		0.416	261.746	0.304	0.700	245.937
	Woman		0.445	502.482	0.297	0.720	268.790
N			62128	52113	77047	67717	30603

Data: Health and Retirement Study (HRS) Waves 3—14.
Note: Standard errors in parentheses, clustered at the level of gender-cohort. All models are adjusted for gender-specific linear aging trends, survey year, and individual fixed effects.
[a] Measured among the respondents aged younger than early pension age and not yet retired.
FE individual fixed effects; 2SLS-FE two stage least squared with individual fixed effects.
+ p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

Table 23. FE and 2SLS-FE Regression of Economic Transfers on Retirement: Gender Differences, Europe

			(1) To children (≥€250)	(2) To children (€)	(3) To other kin (≥€250)	(4) To other kin (€)	(5) From children (≥€250)	(6) From children (€)	(7) From other kin (≥€250)	(8) From other kin (€)
FE	[a] Man	Retired	-0.007	1217.650	-0.004	-445.441	0.001	-29.235	-0.004	-69.079
			(0.009)	(1022.814)	(0.004)	(558.483)	(0.003)	(43.964)	(0.004)	(172.686)
		Years since retired	-0.002	-176.613+	0.001	17.088	-0.001	-12.257	0.001	27.891
			(0.002)	(99.538)	(0.001)	(30.061)	(0.001)	(11.826)	(0.001)	(28.828)
	[b] Woman	Retired	0.003	-196.901	-0.004	-19.074	0.002	3.577	0.001	289.503
			(0.010)	(349.850)	(0.003)	(99.627)	(0.004)	(43.713)	(0.004)	(436.570)
		Years since retired	-0.003+	29.498	-0.000	-20.532	-0.001*	3.479	0.001*	-96.960
			(0.002)	(54.391)	(0.001)	(21.400)	(0.001)	(2.397)	(0.001)	(60.652)
	Chi2	(retired)	0.581	1.712	0.000	0.565	0.054	0.280	0.754	0.583
	Chi2	(years since retired)	0.035	3.302+	0.693	1.039	0.828	1.701	0.008	3.456+
2SLS-FE	[c] Man	Retired	0.006	4465.968	0.007	-668.952	-0.006	-102.851	-0.020	1683.897
			(0.036)	(3421.321)	(0.019)	(856.325)	(0.013)	(278.642)	(0.015)	(1484.686)
		Years since retired	-0.005	-519.327	-0.001	37.797	-0.000	-60.394	0.003+	55.935
			(0.003)	(345.732)	(0.002)	(58.566)	(0.001)	(49.224)	(0.002)	(90.597)
	[d] Woman	Retired	0.046*	-1387.830	0.004	-308.770	-0.003	-172.856	0.006	-116.510
			(0.024)	(1197.563)	(0.012)	(574.675)	(0.013)	(120.177)	(0.013)	(843.457)
		Years since retired	-0.006+	27.494	-0.004**	159.022	0.001	36.175*	0.002	-376.406*
			(0.004)	(238.649)	(0.002)	(142.576)	(0.002)	(16.400)	(0.002)	(191.009)
	Chi2	(retired)	0.903	2.608	0.023	0.122	0.033	0.053	1.703	1.112
	Chi2	(years since retired)	0.087	1.694	2.091	0.619	0.180	3.464+	0.179	4.182*
Mean[a]	Man		0.280	1634.916	0.051	267.382	0.019	37.452	0.056	313.809
	Woman		0.265	1116.027	0.040	96.018	0.034	27.369	0.064	392.644
N			61650	8820	61650	8820	61700	8836	61700	8836

(continued)

			(9) Care for grandchildren	(10) Care for grandchildren (hours)	(11) Any child living together	(12) Any child living ≤5km	(13) Contact with children (day/year)
FE	[a] Man	Retired	0.055	2.023	-0.060	-0.066	-2.938
			(0.044)	(8.422)	(0.042)	(0.044)	(7.591)
		Years since retired	-0.016**	-2.187*	0.016***	0.017***	-1.477+
			(0.005)	(1.064)	(0.004)	(0.004)	(0.812)
	[b] Woman	Retired	0.030	23.168***	-0.043	0.001	13.867*
			(0.029)	(6.826)	(0.036)	(0.039)	(6.096)
		Years since retired	-0.019***	-4.838***	0.038***	0.019***	-0.868
			(0.004)	(1.045)	(0.004)	(0.005)	(0.820)
	Chi2	(retired)	0.229	3.804+	0.096	1.305	2.979+
	Chi2	(years since retired)	0.222	3.158+	15.897***	0.095	0.278
2SLS-FE	[c] Man	Retired	0.055	2.023	-0.060	-0.066	-2.938
			(0.044)	(8.422)	(0.042)	(0.044)	(7.591)
		Years since retired	-0.016**	-2.187*	0.016***	0.017***	-1.477+
			(0.005)	(1.064)	(0.004)	(0.004)	(0.812)
	[d] Woman	Retired	0.030	23.168***	-0.043	0.001	13.867*
			(0.029)	(6.826)	(0.036)	(0.039)	(6.096)
		Years since retired	-0.019***	-4.838***	0.038***	0.019***	-0.868
			(0.004)	(1.045)	(0.004)	(0.005)	(0.820)
	Chi2	(retired)	0.229	3.804+	0.096	1.305	2.979+
	Chi2	(years since retired)	0.222	3.158+	15.897***	0.095	0.278
Mean[a]	Man		0.578	36.665	0.463	0.697	277.244
	Woman		0.727	60.803	0.391	0.676	293.738
N			40395	40121	31915	31915	64508

Data: Survey of Health, Ageing and Retirement in Europe (SHARE) Waves 1—8.
Note: Standard errors in parentheses, clustered at the level of gender-cohort. All models are adjusted for gender-specific linear aging trends, survey year, and individual fixed effects.
[a] Measured among the respondents aged younger than early pension age and not yet retired.
FE individual fixed effects; 2SLS-FE two stage least squared with individual fixed effects.
+ p<0.1 * p<0.05 ** p<0.01 *** p<0.001.

5. Conclusion

This study aims to understand the reorganization of social and family lives after retirement in US and European countries. By using country-gender-age-specific pension eligibilities as instruments for retirement, this study estimates the causal effects of retirement on two broad dimensions of social lives: important-matter discussion networks and intergenerational transfers. We summarize our findings in four regards. First, man retirees are more likely to discuss important matters with kin members—especially with non-resident children—after retirement. On the contrary, woman retirees experience little change in important-matter discussants after retirement. Second, the change of discussion networks is observed only among man retirees with higher levels of education and assets. Third, man retirees are more likely to activate economic transfers with kin members after retirement, whereas woman retirees are more involved in care work for grandchildren. Fourth, men and women both gradually increased their dependence on children by living together or moving closer to their children after retirement. These patterns suggest that social and family lives after retirement are significantly heterogeneous by gender and socioeconomic status, and retirement policies may have a wide range of effects on the structure of social and family interactions.

This study shows that the association between retirement and changes in social networks and intergenerational transfers is generally small and potentially biased due to reverse causation and unserved time-varying covariates. By incorporating pension eligibilities as instruments, we estimate the policy-driven causal effects of retirement on social and family dimensions. This strategy helps clarify gender-specific trajectories after retirement, which is not observed in conventional models where the causal direction from retirement to outcomes is not guaranteed. Our findings show that woman retirees spend more time on care activities for kin members, but these activities do not have a significant impact on social network structure after retirement. These trends suggest that older adult women may be already deeply engaged in family matters regardless of their retired status, and retirement triggers only time investment but not change in important-matter discussion patterns. On the contrary, man retirees experience a shift in discussion networks toward kinship, which corresponds to their active engagement in economic transfers with kin members after retirement.

Despite the increase in kin networks for men, our findings suggest that the policy target for reducing the potential risk of social isolation after retirement should be men rather than women.

As shown in the analyses of heterogeneous retirement effects on social and family relationships, older adult men are more vulnerable to a shortage of socioeconomic resources in organizing social networks after retirement. On the contrary, older adult women maintain higher levels of solidarity with kinship members regardless of their retirement status and socioeconomic resources, possibly due to their social roles focusing on non-economic caregiving. These trends are consistent with previous literature showing the kin-keeping role of older adult women and the increasing disengagement of man kinship members in later life (Rosenthal 1985; Hagestad 1986). These findings suggest two different directions for policy for retirees: first, policy could support care work in the family by reducing the burden on older adult women; second, policy could focus on lower-class man retirees to address their higher risk of social disconnection.

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