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Do Working and Parenting Trajectories Influence Retirement Timing? Evidence From Spain, Using a Sequence Analysis Approach and Focusing on Women

Elisa Tambellini^{1,2}, Mirkka Danielsbacka^{1,2}, and Anna Rotkirch¹

¹Population Research Institute of Väestöliitto, Helsinki, Finland

²INVEST Research Flagship Centre, University of Turku, Turku, Finland

Abstract

This paper investigates the association between accumulated experiences in the working and parenting spheres and retirement timing among Spanish women, utilizing data from the Survey of Health, Ageing and Retirement in Europe (SHARE). The study examines whether labor market attachment or cumulative disadvantage characterizes women's retirement and how these factors relate with the number of children. Firstly, multichannel sequence analysis and cluster analysis were employed to identify distinct work–family life courses from ages 20 to 50. Seven clusters were identified: “Full-time work with 2+ children,” “Out of the labour force and 2+ children,” “Mid-life discontinuity and 2+ children,” “Full-time work and 1 child,” “Full-time work and childless,” “Part-time work and 2+ children,” and “Part-time work or out of the labor force and 1 child.” Secondly, the study examines the association between these identified groups and retirement timing. The results indicate that Spanish women who have experienced more unstable careers characterized by extended periods of inactivity or part-time work, particularly in combination with having 2 or more children, are more likely to retire at a later age compared with women with continuous careers, with or without children. These findings underscore the ongoing challenges of balancing unpaid care work and wage work in Spain, while also revealing notable variations among women.

Keywords: retirement timing, working–parenting trajectories, fertility, Spain, women, SHARE data

Retirement timing is a complex phenomenon influenced by various individual factors. Understanding the determinants of retirement decisions is crucial, not only for individuals' financial security and well-being but also for the broader implications on social policies and the labor market. Particularly, understanding how working and parenting trajectories shape retirement timing has become crucial as societies continue to evolve, placing increased emphasis on gender equality and work–life balance. Indeed, in nearly all OECD countries, there has been a significant increase in female labor force participation over the past few decades (OECD, 2021). The average rate has risen from 48% in 1970 to 65% in 2021. This rise has been accompanied by a decline in total fertility rates, dropping from 2.8 in 1970 to 1.59 in 2020 (OECD, 2020), indicating notable changes in women's lives during their reproductive years. Remarkably, older women have shown higher labor participation rates, either by staying in the workforce after childbirth or reentering it following a period of inactivity (Damman et al., 2015; Rubery et al., 2003). Extensive literature has documented this phenomenon (Jaumotte, 2003, 2004), highlighting the significant increasing presence of women in the older working population. For instance, in Spain, employment rate for women aged 55 to 64

increased from 30% in 2005 to 56% in 2020 (OECD, 2021).

In recent years, there has been a growing interest in investigating the dynamic that could influence the timing of the transitions to retirement, particularly with a focus on women. As gender roles and societal expectations evolve, women's labor force participation and their dual roles as workers and caregivers have become pivotal aspects that shape their retirement decisions. The examination of the interplay between paid and unpaid work and its impact on retirement timing has become increasingly relevant. Previous research has identified several push and pull factors, including job conditions, economic incentives, health, leisure attitudes, social activities, family experiences or transitions, and partner influence (August & Quintero, 2001; Blöndal & Scarpetta, 1999; Duval, 2003; Esser, 2005; Everingham et al., 2007; Hank, 2004; Hank & Korbmacher, 2013; Henkens, 1999; Pienta, 1999; Smith & Moen, 1998; Soidre, 2005; Stattin, 2005; Svensson et al., 2015; Szinovacz et al., 2001; Szinovacz & Ekerdt, 1996). However, limited research has explored the relationship between combined female working–parenting trajectories and retirement timing (Armstrong-Stassen & Cameron, 2005; Price, 2002).

However, gender inequality in the division of domestic labor persists and significantly influences women's work-force participation. Consequently, women tend to work fewer paid hours per week than men and often have shorter or interrupted work histories (Han & Moen, 1999; Henretta & O'Rand, 1980). Moreover, women frequently engage in part-time work or experience periods of inactivity due to maternity or caregiving responsibilities (Hakim, 1996; Quick & Moen, 1998; Schils, 2005). It is important to note that not all women become mothers, and among those who do, the level of attachment to the labor market varies, leading to substantial differences among women.

The existing literature on work/family models, such as the separate sphere model, traditionally treated work and family roles as distinct domains with women primarily fulfilling family responsibilities (Chow & Berheide, 1988). However, the increase in female labor force participation has highlighted the need for a model that better captures the overlap between work and family spheres and recognizes differences among women. The interactive model proposed by Hatch (1990) considers both areas and their interdependence in relation to labor force participation. This model suggests a combined effect of childbearing and employment history to reflect the long-term impact on labor force participation, rather than viewing each factor in isolation (Pienta, 1999). Similarly, the life-course perspective emphasizes the interconnection of life paths (Elder, 1985, 1994) and highlights how events throughout the life course can influence choices and circumstances in later life (Mortimer & Shanahan, 2003). This approach focuses on individual life-course transitions, trajectories, and turning points, highlighting the interconnections between roles within individuals and the links between individuals' life paths and those of others around them (e.g., Elder, 1999). Therefore, we wish to analyze how the interweaving of two life domains, wage work, and parenting, is distributed across the life course and how it influences retirement timing for women.

To investigate this issue, we will focus on Spain, a country where both women's working lives and childbearing have undergone rapid changes compared with other developed countries in recent decades. Examining one country allows us to distinguish different trajectories of women's life paths within the same family and retirement policy context. Each new cohort in Spain has achieved higher levels of education than the previous one, resulting in a delayed entry into the first job (Chuliá, 2005). Despite the pace of structural change and educational expansion, the skills profile of the Spanish workforce remains relatively low compared with that of other developed societies (Radl & Bernardi, 2011), and female workforce participation is lower compared with international standards (e.g., 51% in Spain in 2021 compared with 71% in Sweden). Moreover, there are significant generational differences in the increase of women's workforce participation, with the fastest rise observed among women aged 25–54 (from 11% in 1990 to 21% in 2021) (OECD, 2021), which corresponds to the period when women are most likely to have children. The employment rate of married women has increased at a faster pace than that of single women, partly because single women are less likely to leave their jobs upon marriage (Cebrián et al., 1997; Carrasco &

Rodríguez, 2000). Due to the persistence of the male breadwinner model in Spain (Mínguez, 2005), care responsibilities are often assigned to the domestic sphere, emphasizing intergenerational solidarity (Albertini & Kohli, 2013). Women do not relinquish their caregiving responsibilities when they enter the labor market. As a result, women in such situations often face the double burden of balancing paid work and domestic labor, delay their plans for childbearing, or even forgo having children altogether. Spain's fertility rate fell from 2.9 in 1970 to 1.2 in 2021 and is currently among the lowest in Western countries, with a mean age of childbearing at 32.3 years in 2020 (Eurostat, 2021). However, due to variations in working life careers and the number of children, there may be significant differences in how women end their working lives and transition into retirement.

This study aims to investigate the interconnection between wage work careers and childbearing, utilizing an advanced methodological approach and relying on the life-course perspective. We will analyze the distribution of accumulated experiences in both life spheres within the sample and examine how they relate to different retirement timing. Specifically, we will analyze the working and parenting life paths of cohorts born between 1930 and 1965. To achieve this, we will employ multichannel sequence analysis and event history analysis techniques.

THEORY AND HYPOTHESIS

Currently, the knowledge of the relationship between women's retirement process and work–family trajectories is relatively limited. Among the studies that have linked the working career and reproductive history with retirement timing, two main mechanisms have been identified: one relating to gender differential norms and preferences (choice) (Radl, 2013) and another relating to structural opportunities (constraints) (Tambellini, 2022).

The choice mechanism suggests that labor market attachment and status maintenance (Hardy, 1991) are of particular importance. Decisions made early in life (e.g., the decision to be a full-time caregiver) can be reproduced even in later life, due to the stability of preferences (Finch, 2014; Hank, 2004; Hank & Korbacher, 2013; Pienta, 1999; Pienta et al., 1994; Tambellini, 2022). The priority given to work or family throughout the life course is approached here as an indicator of orientations and preferences toward one of the two life spheres. Studies using these theoretical approaches indicate that participation in paid work in early adulthood is positively associated with late-life labor force participation (Blekesaune et al., 2008; Finch, 2014; Pienta, 1999) and that continuing and full-time careers lead to a belated exit from the labor market (Finch, 2014; König, 2017; Pienta, 1999; Pienta et al., 1994; Soidre, 2005). The key mechanism is explained by these studies through the utilization of the “labour market attachment” hypothesis: women who have invested in their personal fulfillment and accumulation of human capital will maintain stronger links with the labor market and opt for a higher retirement age (Hank, 2004; Pienta, 1999; Tambellini, 2022; Zanasi et al., 2020). Therefore, it is expected that women who have had a continuous working career will be less likely to withdraw from the labour market in the last stage of their working life because they are more attached to their work, compared

with women who have had a discontinuous working career (Hypothesis 1a).

The second theory stresses that the intertwining of family care and work throughout the life course may lead to cumulative advantages and disadvantages, particularly in terms of eligibility criteria for retirement (Finch, 2014). According to cumulative disadvantage theory (CAD), work and family experiences cumulatively stratify people based on socioeconomic resources and job opportunities and guide their decisions in old age (Dannefer, 2003). The basic idea is that later life outcomes are the product of experiences reinforced and accumulated over time (Han & Moen, 1999; Hayward et al., 1998) and inequalities at older ages result from long-term social processes (DiPrete & Eirich, 2006). These processes of cumulative advantages and disadvantages place people on different trajectories that influence economic well-being and, consequently, later-life decisions (DiPrete & Eirich, 2006; Hardy, 1991). The process of “cumulative stratification” (O’Rand, 1996; O’Rand & Henretta, 1999) can be particularly important for women approaching the retirement process with heterogeneous working histories (Han & Moen, 1999; Moen & Roehling, 2005; Raymo et al., 2010; Tambellini, 2022). In line with cumulative disadvantage theory, we also find in the literature the theories of the “compensation hypothesis” and “opportunity costs.” They underline how trajectories involving career breaks, part-time work, and atypical employment can be linked to low earnings and low pensions (Hinrichs, 2012; Pienta, 1999; Tambellini, 2022). These elements are more common in female careers and could impede women from leaving the labor market when desired. The “compensation hypothesis,” induces workers to remain in the labor market in old age, because they try to compensate for the accumulated “opportunity costs” (Pienta et al., 1994). These costs include a reduction in skills and accumulated experience, low earnings and savings, and little pension coverage, which may result from individual choices and family obligations and/or market discrimination (Pienta et al., 1994): some women may be forced to continue working out of economic necessity. In support of this theory, periods of discontinuity or part-time work have been found to lead to a higher retirement age than having a stable working history (Bardasi & Jenkins, 2002; O’Rand & Henretta, 1999; Pienta, 1999; Raymo et al., 2010; Hinrichs, 2012; Radl, 2013; König, 2017; Tambellini, 2022). In other words, at least in some policy contexts, women with continued and stable participation in the labor market retire before women with unstable careers (O’Rand & Henretta, 1982; O’Rand et al., 1992; Tambellini, 2022). In accordance with this perspective, it is expected that *women who have had an intermittent working career are less likely to withdraw from the labour market than women who have had a continuous working career* (Hypothesis 1b).

Finally, family histories are known to be linked to retirement timing: Prior family roles can be associated with one’s employment in old age, and the combination of work and caring for young children (both one’s own children and grandchildren or children of other relatives) have been found to influence work and retirement decisions in later life (O’Rand et al., 1992; Pienta et al., 1994). While there is debate on the direction of the causality between occupation and fertility, it is plausible that these two experiences have an effect on each other: Fertility behavior can influence

employment decisions, and employment decisions also contribute to fertility behavior (Pienta, 1999).

Also, the timing of childbearing may influence the timing of retirement, although it is not the focus of our study. Women who had their first children early are more likely to have young grandchildren earlier. In contrast, women who had their first birth relatively late will be more likely, compared with mothers who had their first birth early, to have dependent children when they are approaching retirement (Damman et al., 2015). Having children at home delays women’s retirement (Pienta, 2003; Szinovacz & DeViney, 2000; Szinovacz et al., 2001) as the financial needs of dependent children may be an obstacle for women to stop working (Hank, 2004; Szinovacz et al., 2001).

To conclude, one of the main determining factors in postponing retirement is the time spent looking after children (Hank & Korbmacher, 2013; Madero-Cabib, 2015). In general, having children is associated with a greater probability of working at an older age than having none (Blekesaune et al., 2008; Fasang et al., 2013; Hank, 2004; Madero-Cabib, 2015; Pienta, 1999; Tambellini, 2022). In line with these studies, we assume that family trajectories characterized by *having children, and especially having several children, are expected to lead to late retirements compared with family trajectories characterized by childlessness or only one child* (Hypothesis 2).

INSTITUTIONAL CONTEXT

Retirement timing results from the interplay of individual decisions and resources, as well as institutional factors. The institutional context, including labor market conditions, family leave policies, production systems, and pension systems, influences the expectations, intentions, and preferences of workers, thereby shaping their attitudes toward work and retirement (Struffolino & Zaccaria, 2020). Specifically, the welfare state plays a critical role in integrating women and mothers into the workforce (e.g., through childcare and elderly care services, and regulation of maternity protection) and molding their transition into retirement.

Spain is an example of the Mediterranean welfare regime, for a long time characterized by a comparatively low participation of women in the labor market, low levels of spending on families, weak social service provision, and a significant gender pay gap (Ferrera, 1996). Although women’s labor force participation and family policies have changed, Spain can still be considered a familistic welfare system (León & Migliavacca, 2013), at least for the cohort analyzed in the study.¹ The “unsupported familism” welfare system (Saraceno, 1994) denotes scarce development of childcare and long-term care services and few measures facilitating the balance of work and family life, and the family is recognized as the main institution providing (unpaid) care. In the case

¹Indeed, the massive incorporation of women into the labor market, particularly among younger cohorts, and changes in expectations and perceptions of traditional gender roles have increased the need for new policy measures, both in the field of work and social policies, and of the life/work reconciliation mechanisms. Therefore, recent political initiatives have gone in the direction of overcoming the “male bread-winner model” and the familistic welfare system, for which it is very likely that future cohorts of women can take advantage of better work–life balance policies and do not interrupt working careers for (unpaid) care reasons (see León & Migliavacca, 2013).

of Spain, women's labor force participation, especially during family-related events such as the birth of children and grandchildren, is hampered by the lack of public care services for children (e.g., low coverage of formal childcare services for children under 3 years old) and/or the elderly (Baizán, 2009; Radl & Bernardi, 2011). Although social norms governing the gendered division of labor have decreased over the past two decades (Carrasco, 1997), the proportion of women's time devoted to unpaid family work, which in turn affects their rates of participation in the workforce, is largely determined by the presence of dependents in the household. For instance, in 2018, around 28% of people who had a child under the age of 15 stopped working to care for them, and of this 28%, 87% were women (Dominguez Fabian et al., 2022). Tellingly, men's time usage patterns are not significantly influenced either by their marital status or by the presence of children. In contrast, the use of female time varies considerably by age and marital status, and the amount of housework varies by social class, with high-income families buying more cleaning and care services from the private market (Carrasco & Rodríguez, 2000).

To this day, many women in Spain opt for part-time work, which is predominantly female and has increased among young women. Within the part-time category in Spain in 2021, 75% were women compared with 25% men. Part-time jobs often have poor quality in terms of working hours, pay, and social protection (Carrasco & Rodríguez, 2000). For Spanish women, part-time employment has a detrimental impact on professional development, training, pension rights, and eventually equal income possibilities, particularly as they age (Dominguez Fabian et al., 2022), suggesting that part-time work contributes to cumulative disadvantages. Women's lower lifetime earnings result in lesser pensions and a higher probability of aging in poverty (OECD, 2013).

These disadvantaged conditions of some women due to gender differences in the labor market can be exacerbated by the rules on retirement (Dessimirova & Bustamante, 2019). Indeed, the gender disparity in pensions is the result of a confluence of two sets of variables: those pertaining to the divergent paths taken by men and women in the labor market, on the one hand, and those pertaining to the pension system's rules, on the other (Arza, 2015).

The Spanish public pension scheme is a pay-as-you-go financed, defined benefit scheme, and the pension that participants receive depends on their lifelong salary (Alonso-García & Rosado-Cebrian, 2021). In the last decades, Spain has undergone different reforms. The most recent, implemented through Law 27/2011, introduced significant changes in the conditions of access to retirement provision. Specifically, this reform implied a gradual increase in the retirement age from 65 to 67 years; an increase in the period considered for computing the wage base used to calculate contributions (regulatory base) of the retirement pension (from 15 to 25 years); the condition to prove at least 37 years of contributions to access 100% of the pension provision (Vivel-Búa et al., 2019); restrictions on early retirement, and the minimum integrations (Dominguez Fabian et al., 2022). This reform has attracted criticism because of the effects it will have on older women's financial security. Indeed, especially the extension of the contribution period runs the risk of substantially reducing the pension benefits of women (Radl, 2013) and it could push women with interrupted careers to extend their working lives to be able to receive a full pension.

MATERIALS AND METHODS

Data and sample selection

This study utilizes data from the Survey of Health, Ageing and Retirement in Europe (SHARE), which is a longitudinal survey examining the lives of older individuals across 27 European countries. SHARE has been conducted in eight waves since 2004 (Börsch-Supan et al., 2005). The SHARELIFE surveys, carried out during the third wave (2008/09) and the seventh wave (2017), are particularly relevant to this study. These surveys deviate from the regular modules and focus on retrospectively capturing the life histories of the respondents. To facilitate the analysis, Brugiavini et al. (2019) transformed employment history variables into a separate data file known as the Job Episodes Panel (JEP), utilizing information from SHARELIFE. In this study, the JEP data were used to reconstruct work sequences, while SHARELIFE data were used to reconstruct parenting trajectories. For the event history analysis, we leveraged data from the other five waves (1, 2, 4, 5, and 6) and the regular part of the panel from the seventh wave (it includes a retrospective questionnaire for respondents who did not participate in SHARELIFE-Wave 3 and a regular panel questionnaire for those who did).

The initial sample consisted of 4,676 Spanish women. The first step involved selecting individuals who were at risk of transitioning to retirement during the observation period (from wave 1 to wave 7). While there are various definitions of a retirement transition (e.g., Ekerdt & Deviney, 1990), in this study, it is defined as complete cessation of work, based on respondents' self-classifications of their employment status (those individuals who did not transition into retirement during the observation period were treated as censored cases). To be included in the population of interest, respondents had to enter the survey as employed, inactive, or unemployed. Those who reported being already retired ($N = 1,156$) or permanently ill or disabled during their first interview ($N = 197$) were excluded. Additionally, participants had to have at least one working episode after the age of 50, resulting in the exclusion of 1,231 cases. The analysis sample also excluded observations with missing data on the dependent variable (21 cases) and interviewees with less than 5 years of working life between the ages of 20 and 50 (266 cases). This exclusion is common in retirement studies, as the concept of retirement assumes prior work experience (Radl, 2014). Next, employment and family history information were added to this sample. Once this information was combined, 922 cases were not matched. Ultimately, the final sample consisted of 883 women.

The empirical analysis is divided into two parts. In the first part, we used the analysis of multichannel sequences and optimal matching techniques (Abbott, 1995; Abbott & Tsay, 2000) to identify clusters that highlight the interlocked trend of work and parenting trajectories. In the second part of the analysis, we related the clusters found with retirement timing, using survival analysis techniques (discrete-time logistic regression).

Measures

As the dependent variable of the event history analysis, we used the conditional risk of experiencing (or not experiencing) a retirement transition during the observation period. We represented this variable using a dummy variable: "not retire/retire," based on the self-definition of retirement.

The main independent variables were the clusters of occupational and parenting trajectories, measured as longitudinal sequences at annual intervals spanning 20–50 years. We included control variables related to retirement timing, namely age, marital status, birth cohorts, type of occupation/last occupation, having or not having grandchildren, and health status. Age was included in the model with six classes: up to 59, 60, 61–62, 63–64, 65, and 66 years or older. The choice of age groups follows conceptual considerations regarding the most common age limits in pension systems (Radl, 2014).

Marital status was represented as a dummy variable that accounted for married and cohabiting couples, coded as “lives with partner” or “does not live with partner.” The birth cohort was classified into two categories: born before or after 1950. The presence of grandchildren was codified into two categories: having no grandchildren or having one or more grandchildren. The current/last job was classified into four categories: legislator, professional and technical; clerk or service worker; skilled worker; unskilled worker. Finally, health status was controlled using two dummy variables: one referring to self-perceived health status (excellent or very good/less than very good), and the other indicating the presence of limitations regarding instrumental activities of daily life. Living with a partner, the presence of grandchildren, occupation, and health variables are time-varying variables.²

Sequence analysis

Most of the classical methodological tools for studying longitudinal data focus on a single event, rather than on trajectories (Scherer, 2001). Sequence analysis, by contrast, takes into account life trajectories (entirely or in part) and allows to treat data holistically. It allows for a reduction of complexity from a large variety of single sequences to a few clusters (Hansen & Lorentzen, 2018). Multichannel sequence analysis (Gauthier et al., 2010; Pollock, 2007) is an expansion of sequence analysis (Abbott, 1995; MacIndoe & Abbott, 2004), which permits quantifying the distance between pairs of sequences in multiple domains (Gauthier et al., 2010; Pollock, 2007). Two individual sequences are considered similar if they are composed of similar states—experienced at similar times—in at least two spheres of life (Madero-Cabib & Fasang, 2016).

In this study, we used optimal matching with replacement costs derived from the transition rates between states (Aisenbrey & Fasang, 2017). To explore the robustness of the results, we tried another cost specification (optimal matching with constant substitution costs equal to 2 and indel cost equal to 1), choosing the one described above because it generated the most distinct cluster specification, indicated from different cutoff criteria. Subsequently, to identify homogeneous groups of sequences that represent typical

life-course profiles, we use the Ward hierarchical clustering algorithm (Ward, 1963) on the distance matrix resulting from multichannel sequence analysis. To determine the most appropriate number of clusters, we considered several cluster cutoff criteria, including Average Silhouette Width (ASW)³ and Hubert’s Gamma (HG)⁴ (Studer, 2013) which identifies the most discriminating number of groups (Studer, 2013)⁵ (the plot of the cluster fit comparison can be found in the Appendix).

The respondents enter the sequence analysis at their twentieth year of age and are followed up to the fiftieth year of age. Four distinct and mutually exclusive employment statuses and three parenting statuses were defined each year, for a total of 31 years. The variables used to define the status alphabet collect information on work status and hours worked (part-time or full-time) and the number of children. Therefore, the employment status alphabet is coded into these categories: still in education, part-time worker, full-time worker, and unemployed/inactive. Family status is codified as follows: no child, one child, two or more children. We decided to distinguish one child from 2+ children and not to include only the presence of parenting for both substantive and empirical reasons. Substantially, it is well documented by international studies that women are more likely to reenter the workforce and suffer lower career penalties if they have no or only one child instead of two or more children (Aisenbrey et al., 2009; Madero-Cabib & Fasang, 2016). Empirically, distinguishing only between parenthood and childlessness, we would lose several work–family clusters associated with retirement timing.

Discrete-time event history analysis

Event history analysis allows for the longitudinal study of the occurrence of events throughout an individual’s life (Allison, 1984). It is a method designed to investigate the likelihood, or risk, of experiencing (surviving) certain events throughout life, taking into account the impact of different covariates (Mills, 2011). Since the time scale in SHARE is annual, discrete models (Yamaguchi, 1991) are preferred here to continuous models. In particular, the discrete variable of this study corresponds to the conditional risk of experiencing (or not experiencing) a withdrawal from the labor market during the observation period. In this analysis, the risk set begins at the age of 50⁶ (De Preter et al., 2013; Radl, 2014). From then

³The “Average Silhouette Width” is an index that estimates the best data partition and, therefore, the best number of clusters. It is based on the consistency of assigning an observation to a given group by comparing the weighted average distance of that observation from the other members of its group and the closest (Studer, 2013). The ASW varies between 0 and 1. Higher values indicate more discriminating grouping. Values above 0.25 support the existence of a meaningful structure in the data captured by the respective grouping.

⁴perHubert’s Gamma is a measure of the capacity of the clustering to reproduce the distance matrix. According to it, a partition is good if the distances between the groups are greater than those within the groups (Studer, 2013).

⁵All the analysis for this part was conducted using the R statistical software (R Core Team, 2020) together with the TraMineR and TraMineRextras libraries for sequence analysis (Gabadinho et al., 2011) and WeightedCluster for cluster analysis (Studer, 2013).

⁶As Radl (2013) suggests, the target population for retirement studies is often restricted to people 50 and older. The usual age cutoff of 50 is almost the norm, and Eurostat uses it to determine the “average age of retirement.” The target population sampled by several data sources that provide empirical research on retirement in Europe and the United States (e.g., the Health and Retirement Study, English Longitudinal Study of Ageing, and Survey of Health, Ageing and Retirement in Europe), is also made up of people aged 50 and older.

²As a robustness check, we also ran a model containing education as a control variable, and the results are consistent. Education was measured according to the 1997 International Standard Classification of Education (ISCED-97 codes) and is coded into three categories (ISCED 0 and 1 and 2; ISCED 3 and 4; ISCED 5 and 6). The educational level is entered only as a robustness check because a part of the sample could still have been in education at the time of starting the trajectories’ observation (e.g., women who were getting tertiary education). This variable would therefore have been measured along the trajectory and, potentially, one of the determining factors of the working pathways themselves.

on, respondents are considered “at risk” of experiencing the transition to retirement. They leave the analysis at their retirement/censored age.

RESULTS

Sequence analysis

We detected a 7-cluster solution for the working and parenting trajectories of women aged 20 to 50, coded on the basis of the four possible working states and the three possible parental statuses. Each graph in [Figure 1](#) shows 50 representative trajectories for individuals belonging to each cluster ([Fasang & Liao, 2014](#)): in the right part of each group, we find the working sequences, and in the left part we find the parenting sequences.

The first cluster, “Full-time/2+ children,” is characterized by work trajectories marked by periods of continuous full-time work, combined with having two or more children. This cluster represents 32.5% of the sample. The second cluster, “Full-time/No children,” which accounts for 11.9% of the sample, includes women with mostly continuous and full-time careers who have not had children. The third cluster, “Out of the labour force/2+ children,” consists of mothers with at least two children who have had a work history primarily characterized by inactivity, with some years of full-time work, particularly at the beginning of their careers. Around 17% of the women in the sample followed this trajectory. Cluster 4, “Part-Time-Out of the labour force/1 child,” is the smallest group, representing 5.1% of the sample. It comprises women who have had one child and have either pursued a career characterized by part-time work or experienced periods outside the labor market. Cluster 5, “Full-time/1 child,” demonstrates work trajectories similar to the first group, mostly characterized by continuous periods of full-time work but in combination with only one child. Approximately 13.1% of women followed this trajectory. The sixth cluster, “Mid-life discontinuity/2+ children,” which accounts for 12.8% of the sample, is characterized by periods of labor market absence starting with motherhood, interrupted by a return to the labor market (with a full-time job) around the age of 30–35. The parenting trajectory is characterized by the presence of two or more children. The seventh cluster, “Part-time/2+ children,” comprising 7.4% of the sample, consists of part-time work trajectories (with some periods of discontinuity) and parenting trajectories characterized by having two or more children.

[Table 1](#) presents the descriptive information of the sample, divided by family–work trajectories (based on the last individual observation for the time-varying variables). It is evident that the distribution of education levels and job types differs among clusters. Clusters 1, “Full-time/2+ children,” 2, “Full-time/No children,” and 5, “Full-time/1 child,” have a high percentage of women with a medium or high educational level. In contrast, clusters 3, “Out of the labour force/2+ children,” 4, “Part-time-Out of the labour force/1 child,” and 6, “Mid-life disc./2+ children,” exhibit a high

percentage of women with low education (between 70% and 80%). Regarding employment types, unskilled workers are again mostly represented in groups 3, “Out of the labour force/2+ children,” 4, “Part-time-Out of the labour force/1 child,” and 6, “Mid-life discontinuity/2+ children.” In summary, for this Spanish age cohort, fragmented working histories are associated with larger families and lower levels of education.

Discrete-time event history analysis

[Figure 2](#) displays the Kaplan–Meier survival curves for women undergoing the transition to retirement between the ages of 50 and 80, divided by cluster. The trajectories appear quite similar until the age of 60. At this point, a gap emerges, particularly between clusters 1, “Full-time/2+ children,” 2, “Full-time/No children,” and 6, “Mid-life discontinuity/2+ children,” which exhibit “faster” curves indicating earlier retirement. In contrast, clusters 3, “Out of the labour force/2+ children,” 4, “Part-time-Out of the labour force/1 child,” and 7, “Part-time/2+ children,” start to exit the labor market at a slower rate. Around the age of 66, cluster 4, “Part-time-Out of the labour force/1 child,” and 7, “Part-time/2+ children,” also demonstrate an accelerated transition to retirement, while cluster three, “Out of the labour force/2+ children,” has the slowest curve, with a proportion of individuals continuing wage work well beyond age 70.

[Figure 3](#) presents the results of the discrete-time logistic regression model on the probability of retiring after 50. The average marginal effects are displayed, and the complete model can be found in the [Appendix](#). We included the main independent variables (career trajectories) in the model and controlled for individual characteristics, such as current/last job, cohabitation with a partner, age groups, having grandchildren, birth cohort, and health status. The cluster “(1) full-time/2+ children” was chosen as the reference category, as it aligns with the more normative work and family models ([Madero-Cabib et al., 2016](#)), and it represents the largest cluster in terms of size. Consequently, we can assess the impact of groups that deviate from the normative life-course category.

As depicted in [Figure 3](#), the trajectory represented by cluster 3, “Out of the labour force/2+ children,” is associated with a later exit from the workforce compared with the reference category, which consists of full-time mothers with two children. Women in cluster 3 have approximately a 10% probability of remaining in the labor market within the given time window compared with those in cluster one. Additionally, cluster 4, “Part-time-Out of the labour force/1 child,” and cluster 7, “Part-time/2+ children,” are also associated with a delayed exit from the workforce compared with the reference category. These associations are statistically significant, with slightly lower coefficients of around -0.7 and -0.9 , respectively.

On the other hand, the full-time trajectory without children (cluster 2) indicates a higher probability of transitioning to retirement than the reference category. However, these results are not statistically significant. Clusters 5, “Full-time/1 child,” and 6, “Mid-life discontinuity/2+ children,” show a slightly lower probability of transitioning to retirement than the reference category, but again, these results are not statistically significant.

⁷The relative frequency sequence index plots in [Figure 1](#) were generated for each cluster as follows: we ordered the sequences using multidimensional scaling; we divided the sample into 50 subgroups, chose one medoid sequence per subgroup as the representative sequence, and plotted the medoid sequences. The original seqplot.rf function implemented in the R TraMineR package was edited by Emanuela Struffolino. In the [Appendix](#), you can also find the state distribution plots.

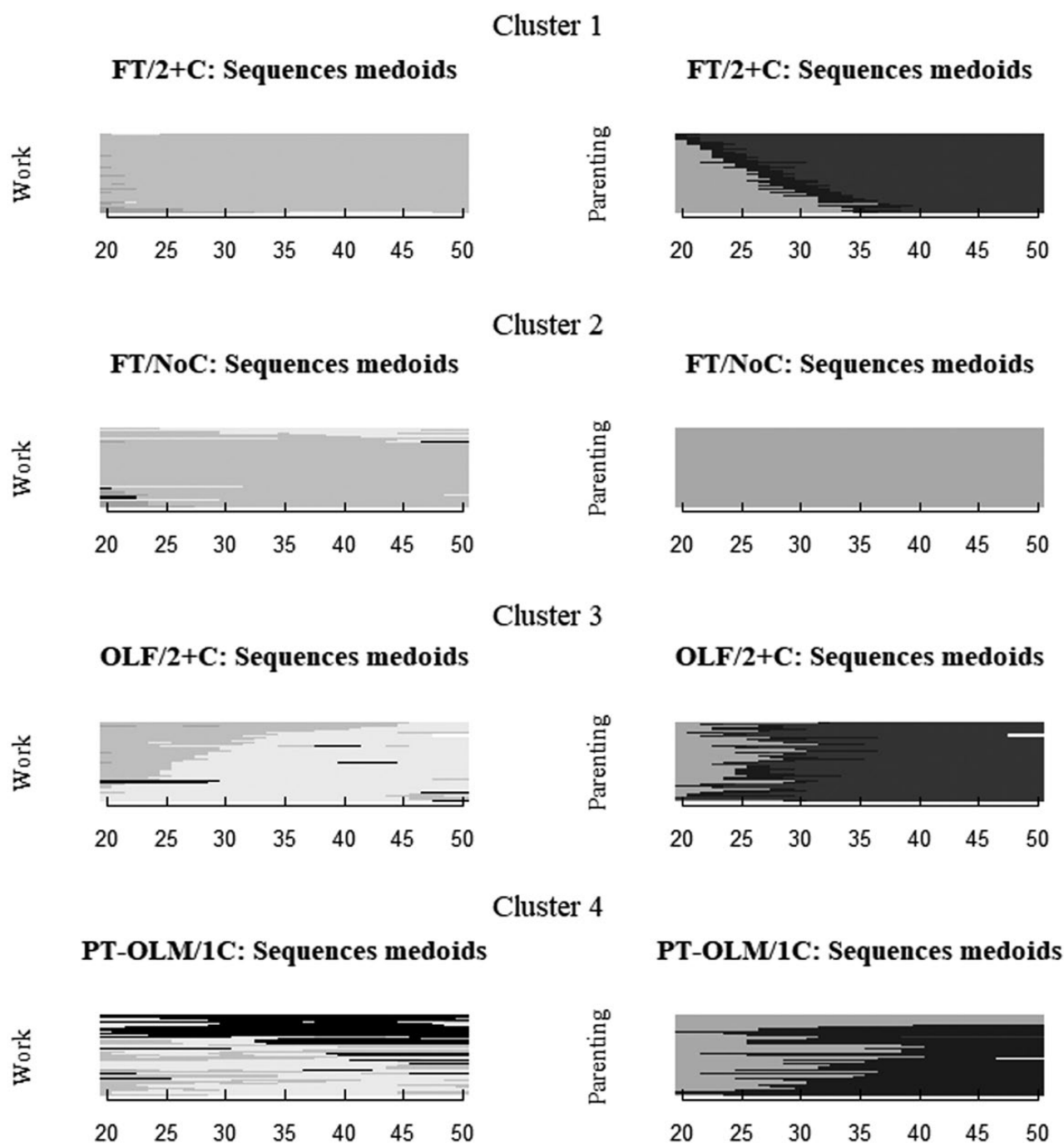


Figure 1. Working–parenting history clusters as relative frequency index plot for Spanish women at the age of 20–60.

In summary, women who have not exited the labor market and have had continuous careers tend to retire earlier than women in discontinuous/part-time clusters. Additionally, women who interrupted their careers early and later returned to full-time work in their thirties/forties (cluster 6) are in line with other full-time working mothers regarding the timing of retirement, although cluster 6 is characterized by mothers with lower levels of education compared with other full-time clusters. Interestingly, not only mothers but also childless women with full-time work trajectories retire earlier than other women. This is contrary to what was expected based on the labor market attachment hypothesis (H1a), but it aligns

with our assumption that motherhood delays the exit from the labor market (H2). Moreover, in line with hypothesis 2, women with one or more children who have been out of the labor force or have predominantly worked part-time retire later than women working full-time.

Our results provide clear support for the cumulative disadvantage theory in contemporary Spain (hypothesis 1b). The disadvantages accumulated during the career trajectory, intertwined with periods of caring for at least one child (hypothesis 2), are reflected in a delayed exit from the labor market to compensate for the opportunity costs associated with skill reduction, limited earnings, and insufficient or no pension coverage.

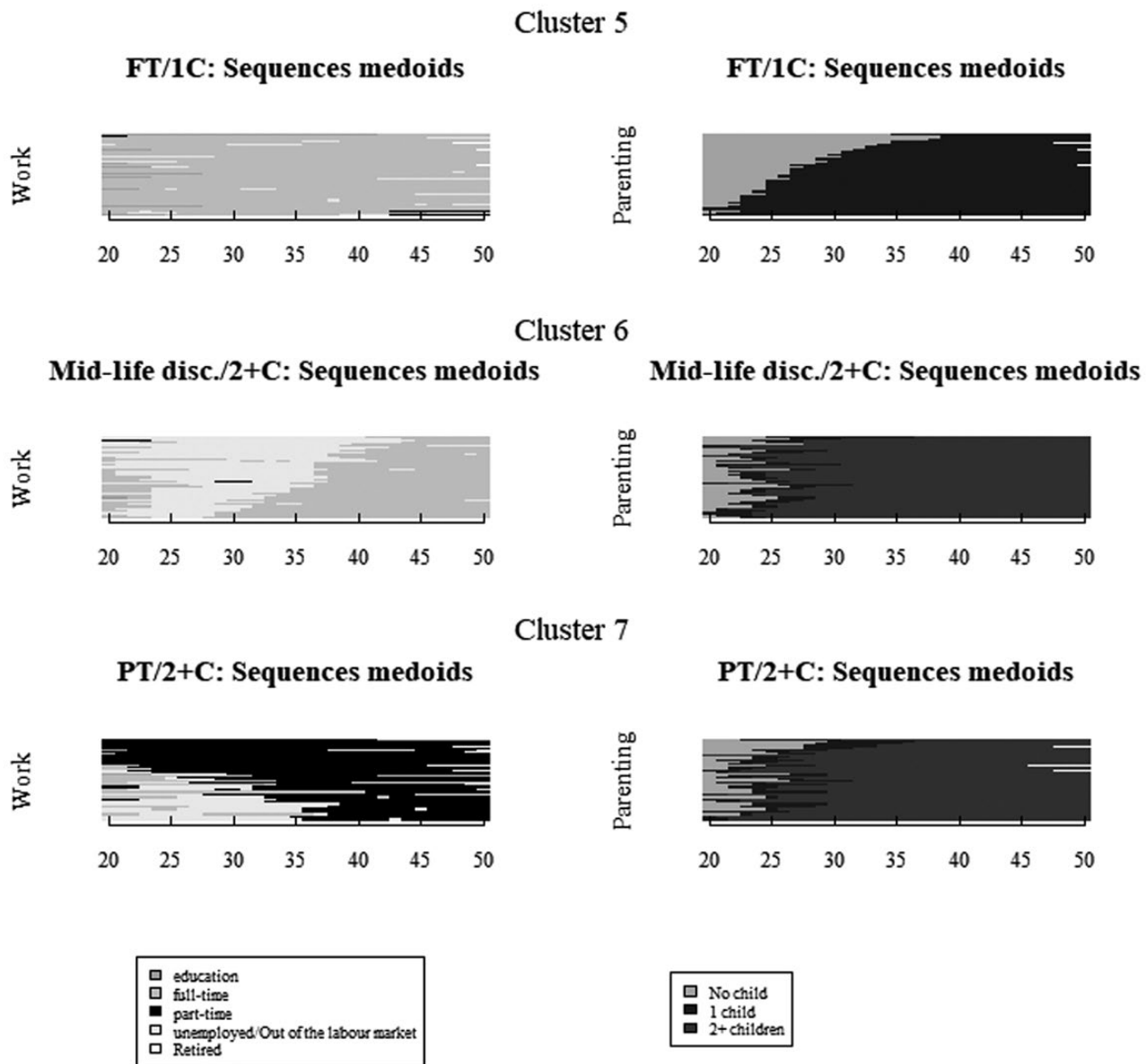


Figure 1. Continued

DISCUSSION

This article analyzed the retirement timing of Spanish women. Adopting a life-course approach, our main goal was to analyze how life trajectories (both working and parenting from 20 to 50 years old) are associated with a different probability of retiring after age 50. By using multichannel sequence analysis and discrete-time regression models, we were able to show how different accumulated statuses in these two life domains create variations in retirement timing.

In particular, we observed that labor market participation and parenting responsibilities together play a significant role in the timing of retirement. Our results highlight the persisting difficulties of combining unpaid care work with wage work in Spain, as well as notable differences among women.

We identified seven clusters: “Full-time work with 2+ children” (32.5% of the sample), “Out of the labour force and 2+ children” (17%), “Mid-life discontinuity and 2+ children”

(13%), “Full-time work and 1 child” (13%), “Full-time work and childless” (12%), “Part-time work and 2+ children” (7%), and “Part-time work or out of the labour force and 1 child” (5%). These findings highlight the importance of accumulated and interconnected experiences in family and work domains for subsequent outcomes. As can be seen from the results, women who have remained out of the labor market for the long term or who have had a part-time career, concentrating on childcare, are more likely to retire later (see clusters “Out of labour force/2+ children,” “Part-time—Out of labour force/1 child,” and “Part-time/2+ children”).

The first study hypothesis asked whether retirement timing among Spanish women born between 1930 and 1965 showed signs of labor market attachment and choice or rather of opportunity costs and cumulative disadvantage. Our results support the latter conclusion: Spanish women who have mostly worked full-time retire earlier than other women. This effect is little affected by the number of children, so that

Table 1. Descriptive statistics by clusters (for time-varying variables, values observed the last year of observation).

	1	2	3	4	5	6	7	Tot
	FT/2+C	FT/NoC	OLF/2C	PT-OLM/1C	FT/1C	Mid-life disc./2+C	PT/2+C	
%	32.5	11.9	17.2	5.1	13.1	12.8	7.4	100
Education								
ISCED 0/1/2	53.5	57.7	80.1	68.2	60.2	76.1	80.0	64.9
ISCED 3 and 4	19.2	21.1	11.3	25.0	21.2	17.7	13.8	18.5
ISCED 5 and 6	27.3	21.1	8.6	6.8	18.6	6.2	6.1	16.9
Partner in hh	81.2	46.7	71.1	68.9	81.0	88.5	72.3	75.1
Having grandchildren	56.4	23.8	75.0	44.4	33.6	70.8	69.2	54.9
1+ iadl	8.4	9.6	22.5	11.1	3.5	4.4	16.9	10.6
Health: less than very good	67.6	64.8	82.9	68.9	72.4	77.9	83.1	73.1
Job								
Legislators/professionals/technicians	36.3	18.9	9.9	7.1	19.2	18.3	15.4	23.1
Clerk or service workers	31.3	36.5	31.0	28.6	50.6	39.4	28.2	35.5
Skilled workers	12.1	16.2	14.1	21.4	8.4	8.4	15.4	12.6
Unskilled workers	20.2	28.4	45.1	42.9	21.7	33.8	41.0	28.9
Birth cohort								
1930–1950	18.8	28.6	51.3	33.3	11.2	27.4	30.8	27.3
1951–1965	81.2	71.4	48.7	66.7	88.8	72.6	69.2	72.7
Tot	100	100	100	100	100	100	100	100
Age	61.2	63.5	68.4	63.4	59.6	62.5	64.5	63.0
% Retirement transition	27.5	40.9	30.3	24.4	23.3	37.2	20.0	29.6
Duration in each working state								
Education	0.4	0.5	0.7	0.5	0.3	0.7	0.6	0.7
FT	14.4	14.5	16.9	16.2	14.2	16.1	17.8	20.3
PT	1.9	1.9	2.4	2.7	0.7	2.2	1.8	2.6
Unempl./OLF	5.3	5.6	6.4	5.4	2.3	5.0	5.4	7.3
Duration in each family state								
No children	6.0	7.6	7.4	7.5	5.6	8.5	5.9	9.0
1 child	4.4	6.0	5.8	4.2	4.7	3.4	7.2	6.5
2+ children	11.5	9.0	13.2	13.2	10.1	12.2	12.4	15.5
N	287	105	152	45	116	113	65	883

Note. Cluster 1, “Full-Time/2+ Children”; cluster 2, “Full-Time/No Child”; cluster 3, “Out Labour Force/2+ Children”; cluster 4, “Part-Time-Out Labour Force/1 Child”; cluster 5, “Full-Time/1 Child”; cluster 6, “Mid-life disc./2+ Children”; cluster 7, “Part-Time/2+ Children.”

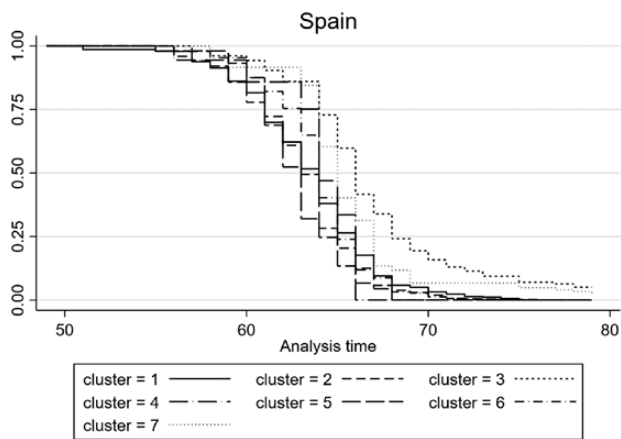


Figure 2. Survival curve of transition to retirement by working-parenting trajectory. Analysis time, 50–80 years of age. Note. Cluster 1, “Full-Time/2+ Children”; cluster 2, “Full-Time/No Child”; cluster 3, “Out Labour Force/2+ Children”; cluster 4, “Part-Time-Out Labour Force/1 Child”; cluster 5, “Full-Time/1 Child”; cluster 6, “Mid-life disc./2+ Children”; cluster 7, “Part-Time/2+ Children.”

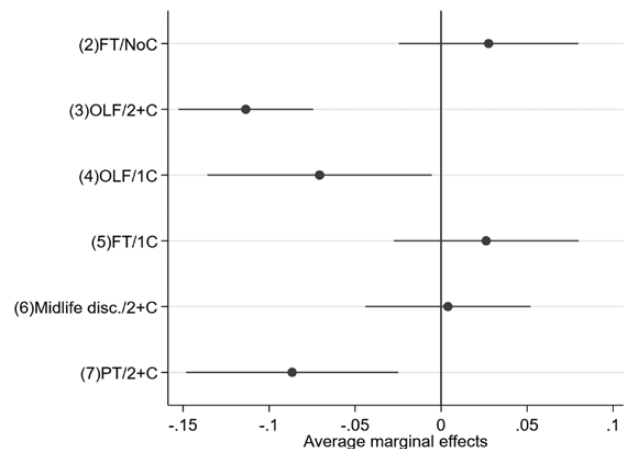


Figure 3. Discrete-time logistic regression that estimates the probability of retirement. Average marginal effects, 95% confidence interval.

childless and full-time working women retire comparatively early. Interestingly, the data included no cluster with childless part-time or inactive women, indicating a trade-off between the number of children and full-time work. We also investigated whether motherhood was related to later exits from the labor market and found support for this second research hypothesis. Clusters of women with at least one child, combined with career breaks or part-time work, were likely to retire later compared with other work–family trajectory clusters.

In other words, either low participation in the labor force over the life course or part-time participation associated with parenthood may produce few pension contribution opportunities or lead to insufficient wages to invest in savings for retirement (Madero-Cabib et al., 2016), resulting in a postponed exit from the labor market compared with having had a continuous and full-time career.

Our results are consistent with previous studies that have found evidence of opportunity costs, indicating that fragmented career pathways postpone retirement or exit from the workforce (Bardasi & Jenkins, 2002; Han & Moen, 1999; Hinrichs, 2012; König, 2017; O’Rand & Henretta, 1999; Pienta, 1999; Radl, 2013; Raymo et al., 2010; Tambellini, 2022). They are also in line with previous literature showing that one of the main determining factors in postponing retirement is the time spent looking after children (Hank & Korbmacher, 2013; Madero-Cabib, 2015) and with studies illustrating how having children is associated with a greater probability of working at an older age than having none (Blekesaune et al., 2008; Fasang et al., 2013; Hank, 2004; Madero-Cabib et al., 2016; Pienta, 1999).

Our results stress the need to tailor retirement incentives so that the most vulnerable groups of mothers are not penalized. While we did not investigate how voluntary the decision to retire was (the respondents’ perceptions of individual choice vs. constraint in the transition to retirement), it seems plausible that many, if not most, of the Spanish women who retire later do so out of financial necessity.

Our research has some limitations. One challenge concerns the selection of the sample. Indeed, we only considered the retirement process for those women who had participated in the labor market for at least 5 years over the course of their life and who experienced at least one work episode after the age of 50, and excluded all women who have never worked or stopped working before the age of 50. This selection is strongly associated with the level of education. Indeed, the level of education is related to participation in the labor market: the greater the cultural capital, the greater the probability of being employed and receiving a pension (Tambellini, 2022). In our data, if anything, the women entering the analysis are hence likely to be characterized by a pronounced attachment to work, and the educational level itself could be a predictor of discontinuous careers and/or full-time jobs (e.g., Struffolino & Zaccaria, 2020). Future research is needed to disentangle the development of work–family trajectories from the educational level.

Furthermore, while our sample included women born up to 1965, it would be interesting to study more recent female cohorts, who have participated to a greater extent in the labor market and been affected by the pension reforms of the last decade (Tambellini, 2022). Finally, the relationship between the timing of childbearing and the timing

of retirement and the differences between having young children and young grandchildren on retirement age merit future investigation.

Despite these limitations, this study has notable strengths. We detected patterns of employment and family trajectories from youth to middle age, showing how multichannel sequence analysis provides a rigorous methodology for visualizing and interpreting intertwined life trajectories. Moreover, due to the richness of the SHARE data, we were able to consider the retirement timing, controlling for important covariates. Working–parenting trajectories are multiple and affect retirement timing differently. We hope our results help focus attention on the relevant question of how women can both combine work and childbearing without some groups of mothers facing cumulative disadvantage well into old age.

SUPPLEMENTARY MATERIAL

Supplementary material is available online at *Work, Aging, and Retirement*.

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CONFLICT OF INTEREST

The authors report there are no competing interests to declare.

DATA AVAILABILITY

The data underlying this article are available at <https://share-eric.eu/data/data-access>.

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