REPORT

Working paper: Life course employment patterns and resilient adult-stage life courses in selected European countries

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Introduction

The EU and its institutions are increasingly using the concept of resilience. They consider it both as a desirable outcome of policy, so as a mean to achieve this outcome (Bartova, Thaning, van Lancker, Backman, & Nieuwenhuis, 2023). Resilience itself has a complex and dynamic meaning that extends beyond individual traits or predetermined characteristics. On the one hand, its social and economic dimension was defined as “the ability to tackle economic shocks and achieve a long-term structural change in a fair and inclusive way” (European Commission, 2020). It can also be seen as a social construction shaped by political and discursive processes, with its meaning and application co-created by various stakeholders in an almost performative manner (Herrman et al., 2011; Reghezza-Zitt, 2021).

The development of the resilience of society can be viewed as an integral component of a broader fair transition strategy, aimed at enhancing overall well-being and promoting sustainable development (Reghezza-Zitt, 2021). This aligns with the European Commission's advocacy for a comprehensive approach to measuring societal resilience that goes beyond traditional economic metrics like GDP. By integrating resilience into the broader framework of well-being and sustainability, the Commission acknowledges the importance of addressing the complex interactions among social, economic, and environmental systems. This approach not only supports a fair transition but also ensures that policies are geared towards improving the quality of life for current and future generations (European Commission, 2020).

At the individual level, resilience is defined as well-being in the face of adversity (Masten, 2001). In psychiatry, resilience is understood as referring to positive adaptation, or the ability to maintain or regain mental health, despite experiencing adversity. The personal, biological, and environmental or systemic sources of resilience and their interaction are considered (Herrman et al., 2011). It is also seen as a process by which individuals, families or communities face initially adverse changes in a positive way and adapt to a new situation. Research has shown that resilience can be shaped by different events and situations in the life course and that it can influence different life outcomes (in terms of educational attainment, employment or health status) (Clark, Burbank, Greene, & Riebe, 2018; Wahrendorf, 2015; Windle, Bennett, & MacLeod, 2020; Hannes Zacher & Rudolph, 2017). In particular, employment

biographies are important for the situation in old age in terms of financial resources, health status, cognitive and social functioning and thus subjective well-being, which can also be seen as components of successful ageing (Kok, Aartsen, Deeg, & Huisman, 2017). In addition, socio-economic inequalities that accumulate over the life course can result from the type of economic activity.

The main aim of the paper is therefore to present the results of the analysis of the determinants of belonging to a group that have different resilience level, taking into account both individual characteristics and employment history. Resilience can be measured through various indicators and scales (Asheim, Bossert, D'Ambrosio, & Vögele, 2020; European Commission, 2020), however in this paper we approached it by the set of individual characteristics describing health status, mental and financial well-being. Thus, we follow the theoretical framework on resilience proposed by (Aassve & Bastianelli, 2024), and followed by (Chłoń-Domińczak et al., 2024).

The working paper is structured as follows. The next part presents the literature review on resilience, how it can be measured and what are its determinants, especially from the perspective of employment history. The third section presents the data, the variables used in the analyses and the analytical approach. The fourth part presents the results, followed by the conclusions.

Literature review

Measurement of resilience

Resilience is a multifaceted construct that has gained significant attention across various disciplines. In the scientific literature, resilience has been defined, conceptualized, and measured in numerous ways, often with field-specific characteristics (Olsson, Jerneck, Thoren, Persson, & O'Byrne, 2015). Resilience, defined as well-being despite adversity (Masten, 2001) is a useful—though narrow—starting point, as it connects risks and adversity to inequalities in socio-economic outcomes, emphasizing that resilience cannot be understood by analyzing outcomes or risks in isolation. Drawing an analogy from materials science in engineering physics, resilience can be conceptualized as a dynamic process in which an individual's state or functioning rebounds to its previous level after experiencing a stressor. This

conceptualization implies that any meaningful measurement of resilience should capture the individual's capacity to return to their baseline state or level of functioning following adverse events. It's crucial to distinguish resilience from related but distinct processes such as resistance to stress (analogous to stiffness in materials) or post-stress growth (comparable to plasticity in materials). These distinctions are important because individuals who demonstrate high resilience may not necessarily exhibit high stress resistance or significant post-stress growth, and vice versa (Hartigh & Hill, 2022). Also, to connect the concept of resilience with social policy discussions, it's crucial to recognize that resilience is not merely an individual characteristic. Instead, there are often structural factors that can limit or enhance a person's or family's ability to be resilient. This perspective acknowledges the broader societal and institutional contexts that influence resilience (Bartova et al., 2023).

According to research, resilience can be measured through various indicators and scales. For instance, Asheim et al. (2020) proposed a resilience measure focused on health trajectories, emphasizing the significance of the depth of decline rather than its duration during adverse periods. The proposal was to calculate a weighted average that considers the inverse of resilience and vulnerability, with weights corresponding to the amplitudes of the down spells. They suggest that the measure is suitable for large populations, particularly in assessing the impact of interventions aimed at improving psychological resilience. Although the measure has limitations, particularly in individual-level applications, it is considered general enough to be applicable across different variables, such as household income or unemployment rates. Also, European Commission (2020) in the Strategic Foresight Report emphasized the need for close monitoring of resilience across the EU and its Member States. To achieve this, they suggested the development of resilience dashboards that would assess vulnerabilities and capacities within four key dimensions: social and economic, geopolitical, green, and digital. These dashboards, still in the prototype phase[1], use a color-coded system to indicate each country's relative position based on recent data compared to historical trends since 2007. The aim is to assess whether current policies and recovery strategies are effective in building resilience in the EU, going beyond existing tools that tend to be sectoral or focused on single issues or policies. Thanks to the dashboards

[1] https://commission.europa.eu/strategy-and-policy/strategic-foresight/2020-strategic-foresight-report/resilience-dashboards_en

it will be possible to focus on multiple dimensions of resilience and their interlinkages, providing a holistic picture. However, it must be remembered that resilience measures are complex. In the family resilience context, Bartova et al. (2023) demonstrated the complexity of studying it in the European settings and indicated the need to improve methods of data collection and analysis to better understand the situation of various types of families and households remembering also about needed long-term adjustments, ideally using longitudinal data to observe changes over time, such as shifts in household activities.

Emotional, Personal, and Social Factors related to resilience

Research on resilience among older adults has highlighted the importance of integrating emotional, personal, and social factors (Ong, Bergeman, & Boker, 2009). Building on this integrative approach, research by Ong et al. (2009) examined the complex nature of resilience through the lens of daily processes in late adulthood. The findings suggest that resilience to daily stress is influenced by multiple protective pathways. Positive emotions emerge as a critical factor, potentially mitigating the impact of stressors and facilitating more rapid adaptation to subsequent challenges. Individual differences in trait resilience, encompassing constructs such as personality hardiness and ego resilience, appear to play a significant role in stress resistance and recovery among older adults.

Furthermore, the same study by Ong et al. (2009) underscores the importance of social support in developing resilient qualities. The data indicate that resilience does not manifest itself in isolation, but rather is scaffolded by high-quality social connections. This finding supports research emphasizing the role of the social context in psychological adaptation.

Life Course Resilience Determinants

The life course perspective suggests that experiences and events occurring throughout an individual's lifespan play a crucial role in shaping outcomes during later stages of life. Within this framework, remembering the fact that employment is linked to positive later life outcomes, labor market history emerges as a crucial factor in

understanding resilience among older adults. In particular, employment brings a sense of belonging to a social network (Wahrendorf, 2015), a sense of control and autonomy (Haidt & Rodin, 1999) and a sense of reward (Siegrist & Marmot, 2004). This study seeks to address a fundamental question regarding how individuals' work-life trajectories may impact their capacity for resilience in later life.

While the importance of employment history in shaping later-life outcomes is evident, research has shown that this relationship is far from simple. This complexity was highlighted in the work of (Hannes Zacher & Rudolph, 2017) who reviewed various theories of successful aging at work. They noted significant differences in how success is defined in the context of aging, ranging from subjective well-being to more objective outcomes such as health status or job performance.

Zacher & Rudolph (2017) also pointed out that theories differ in their conceptualization of the aging process itself. While some focus exclusively on older adults, others adopt a lifespan developmental approach. For instance, Zacher (2015) proposed that successful aging at work is demonstrated by an interaction between age, personal, and contextual resources. Moreover, these factors explain more variance in work outcomes for older than younger workers.

The mechanisms leading to successful aging at work also vary across theories. These include maintaining social relationships, withdrawal from society, continuity of activities, personal resources, action regulation strategies, future time perspective, and accumulated experience. The approach of Zacher (2015) stands out by including both personal and contextual factors.

To better understand the long-term effects of employment history on resilience, researchers have turned to broader theoretical frameworks. Life course theory and cumulative (dis)advantage theory provide valuable context through which to examine the long-term effects of employment history. These theories suggest that advantages or disadvantages accumulated over time can significantly impact an individual's resources and ability to cope with challenges in later life (Ferraro & Shippee, 2009). Likewise, the same applies to the more specific topic of socioeconomic status. The socioeconomic position‘s (SEP) advantages and disadvantages act and accumulate across the life-course, resulting in widening socioeconomic inequalities in successful aging in later life (Whitley, Benzeval, & Popham, 2018). Authors found that all SEP indicators were positively associated with overall successful aging score and that the

relationships between SEP and successful aging were generally consistent across genders and age groups. However, subtle variations suggested that early life SEP might have a slightly smaller influence on men and younger older adults. It is important to emphasize that most SEP-successful aging associations remained consistent across age cohorts, indicating that socioeconomic factors play a significant role even in the initial phases of the aging process.

The impact of socioeconomic status (SES) trajectories over the life course has also been examined in relation to cognitive function, an important aspect of resilience in older age. Lyu and Burr (2016) found that older adults who experienced a decline in SES or maintained a stable low SES throughout life had significantly lower cognitive function in later years. In contrast, those who experienced upward social mobility or maintained a stable high SES demonstrated better cognitive outcomes. These findings suggest that stable and improving SES across the life course may play a crucial role in supporting cognitive function in later life. Additionally, the relationship between education pathways and overall resilience can be more complex. Educational interventions aimed at enhancing resilience have shown mixed results. For instance, Galante et al. (2018) demonstrated in their study that mindfulness techniques' knowledge can effectively increase students' resilience to stress. This suggests that specific knowledge about stress management can contribute to greater resilience. However, the impact is not always straightforward. Dyrbye et al. (2017) in their study found that a dedicated resilience training course for medical students did not significantly improve their resilience scores. These contrasting findings highlight that the relationship between education and resilience is multifaceted, potentially influenced by factors such as the type of educational intervention, the context in which it's delivered, and individual differences among learners. Greater resilience can be associated with a higher degree of psychological awareness, effective stress management strategies or healthy lifestyle choices. Conversely, increased education or work related stress and its negative impact on physical (Kivimäki & Kawachi, 2015) and mental health (Lunau, Wahrendorf, Muller, Wright, & Dragano, 2018) could even lead to a reduced or low resilience. These factors interact dynamically, influencing an individual's capacity to adapt and cope with adversity.

Recent studies have commenced an exploration of the intricacies of employment patterns in later life and their association with resilience. Study of Madero-

Cabib, Corna, and Baumann (2020) identified five distinct patterns of employment in later life: *early retirement, conventional retirement, predominantly part-time, not in the labor market, and partial retirement*. Other studies also mention the phenomenon of *unretirement* - returning to work after retirement. Especially the ability to unretire could be seen as a potential indicator of resilience. Research suggests the diverse factors influencing work decisions in later life. They give ideas about potential work concerning factors of resilience. Platts et al. (2019) examined the phenomenon of unretirement in an UK general population sample. The likelihood of unretirement was highest soon after retirement and decreased over time, becoming negligible after about ten years. The authors found that certain groups were more likely to unretire. Men (25% more likely than women), those with post-secondary qualifications (almost twice as likely as those with no qualifications), those in excellent or good health (around 25% more likely than those in fair, poor or very poor health), those with a mortgage (over 50% more likely than those who owned their own home) and those whose spouses were employed were more likely to be unretired. Interestingly, most financial factors, including perceptions of financial situation, household income, or having an occupational pension, were not significantly associated with unretirement. This suggests that the relationship between employment history, financial factors, and later-life work decisions is not straightforward. In the subject of who exactly decides to unretire, basing on the Survey of Health, Ageing and Retirement it was found that individuals engaged in paid work between ages 65 and 80 are more likely to be self-employed and employed in higher-status occupational positions (Wahrendorf, Akinwale, Landy, Matthews, & Blane, 2017). Additionally, the study reveals that there is a marked difference in health status between working and retired individuals in this age group. Those who continue to work tend to report better health outcomes than their retired peers.

While much research focuses on employment histories, the transition to retirement itself has been found to significantly impact health and well-being in later life. Overall, transitioning into retirement tends to have positive effects on health (Fleischmann, Xue, & Head, 2020). However, the impact of retirement on mental well-being was influenced by the pre-retirement work environment. Upon retiring, individuals typically experienced a rapid and substantial enhancement in their mental health. This improvement was particularly pronounced in the short term, while long-

term effects were less significant. The magnitude of mental health improvements varied based on the quality of the work conditions individuals left behind. Those who retired from jobs characterized by higher levels of stress, less autonomy and weaker social support systems at work generally exhibited more noticeable improvements in their mental health after retirement. What is more, Madero-Cabib et al. (2020) indicate that early retirement is associated with positive health outcomes in social-democratic and corporatist countries but not in liberal and liberal-corporatist countries. For people in the *not in the labor market* trajectory, poor self-rated health is more frequent in liberal and southern, and less frequent in corporatist countries. The research findings illustrate the importance of both generous public benefits in old age and later-life employment trajectories for older individuals' health. Another study concerning cognitive function showed that retirement's impact on cognitive aging varies across different cognitive abilities (Denier, Clouston, Richards, & Hofer, 2017). Understanding cognitive function in older adults requires consideration of the circumstances surrounding the decision to retire. When researchers examined the reasons for leaving pre-retirement employment, they found distinct cognitive outcomes. Individuals who retired due to health issues showed decreased cognitive tests results. In contrast, those who chose to retire voluntarily or for family-related reasons demonstrated improved cognitive scores.

Life course employment history plays a significant role in shaping resilience in older age, and while employment generally promotes resilience, the relationship is complex and influenced by various individual and societal factors. Different types of work may influence resilience in distinct ways, depending on the nature of stressors and challenges faced within each profession. While much of the research on resilience has focused on military personnel, whose unique organizational culture and extreme stressors may not fully represent the experiences of the broader workforce, there is a need to explore resilience across a wider range of occupations (Britt, Shen, Sinclair, Grossman, & Klieger, 2016). For example, first responders, such as emergency medical personnel and firefighters, often face immediate, life-threatening situations, while workers in construction and rebuilding roles may experience prolonged exposure to adversity as they help communities recover from disasters. Investigating resilience across these diverse work environments can provide a more comprehensive

understanding of how different job types shape adaptive responses to adversity, which may vary significantly based on the context and nature of the stressors involved.

Research questions

Based on the above literature review we propose the following research questions/ hypotheses:

(1) People who have worked full-time throughout their lives tend to be the most resilient at older ages.

(2) People who have spent most of their lives out of work have the worst characteristics of resilience in old age.

(3) Less typical employment histories are associated with the worst resilience characteristics.

Data and method

Data

We used the 9th wave of the Survey of Health, Ageing and Retirement in Europe (SHARE) conducted in 2021/2022 and the SHARELife module which includes employment histories (Bergmann, Wagner, & Börsch-Supan, 2024; Börsch-Supan et al., 2013; Brugiavini, Orso, Genie, Naci, & Pasini, 2019; SHARE-ERIC, 2024). The original database contained information on 72,596 respondents aged 50 and over and their partners. For purposes of our analysis we limited the sample to individuals aged 50+ with no missing values and the final analytical sample included 39,982 respondents in 28 countries, including 27 European countries: Austria, Germany, Sweden, Netherlands, Spain, Italy, France, Denmark, Greece, Switzerland, Belgium, Czech Republic, Poland, Luxembourg, Hungary, Portugal, Slovenia, Estonia, Croatia, Lithuania, Bulgaria, Cyprus, Finland, Latvia, Malta, Romania, Slovakia, as well as Israel.

Variables

Variables in Latent Class Model. To group individuals into homogeneous classes describing resilience, we used the following variables describing psychological well-being (CASP-12 measure, short version of the UCLA loneliness scale, and depression level based on the EURO-D scale), health status (1+ ADL limitations, having at least two chronic diseases, having limitations in activities (GALI)), and subjective financial situation based on the household's ability to make ends meet.

Variables in Regression Modelling. We controlled for basic socio-demographic characteristics of the respondents (such as gender, age, presence of a cohabiting partner, level of education, presence of children in the social network, household size), variables describing social connectedness and satisfaction with the social network and European region (Northern Europe, Western Europe, Southern Europe and Central-Eastern Europe). The key explanatory variable describing life course employment history was based on the results of the sequence analysis, which allowed us to assess the extent to which people's life courses are similar in terms of changes in respondents' employment history. The most typical sequences of events in people's life courses were selected, and then the differences in these sequences compared to the chosen employment history were assessed. The next step was to group individuals into clusters (based on quintiles), using the assessed differences between individuals. As a result, five clusters of employment histories were identified (from stable full-time employment to high non-employment over the life course)[2].

Method

We applied Latent Class Modelling (Collins & Lanza, 2010; Lanza, Patrick, & Maggs, 2010) to group observations into homogenous sub-groups, or latent classes, based on observed measures of physical health, subjective well-being, and financial situation (i.e., the observed endogenous variables).

The Latent Class Model can be specified as follows:

$$P(Y = y|x_i) = \sum_{c=1}^{C} \gamma_c(x_i) \prod_{m=1}^{M} \prod_{k=1}^{r_m} \rho_{mk|c}^{I(y_{im}=k)} \qquad (1)$$

In this equation, C represents the number of estimated classes based on *m* categorical items. Y_i is a vector of individual *i's* responses to *M* items, where Y_{iM} = 1, 2, …, r_m, and c_i = 1, 2, …, C denotes individual *i*'s latent class membership. The

[2] The clusters of employment histories obtained are presented in the Appendix.

indicator function $I(y = k)$ equals 1 if response y is k, and 0 otherwise. The covariate x for individual i is related to the probability of class membership (γ), and the ρ's represent item-response probabilities (or means for continuous items) conditioned on latent class membership, reflecting the relationship between observed items and latent classes. A multinomial logit model is estimated simultaneously, where latent class membership is predicted by observed exogenous variables. Logistic regression parameters (β) estimate class membership, with γ parameters expressed for a single covariate x as:

$$\gamma_c(x_i) = P(C_i = c|x_i) = \frac{\exp(\beta_{0c}+x_i\beta_{1c})}{1+\sum_{j=1}^{C-1}(\beta_{0j}+x_i\beta_{1j})} \quad (2)$$

for $c = 1, \ldots, C\text{-}1$ where class C is the reference class in the multinomial logistic regression.

Results of the analysis

Model Fit Statistics

Table 1 presents fit statistics for models with varying numbers of latent classes, used to identify the optimal number of classes. The five-class model provided the best fit, with the lowest values for log likelihood, Akaike's Information Criterion (AIC), and Bayesian Information Criterion (BIC).

Table 1 Fit Statistics for Model Selection

		LL	df	AIC	BIC
1	Class	-406689	12	813401.7	813504.7
2	Classes	-386592	22	773227.3	773416.2
3	Classes	-380519	32	761101.2	761375.9
4	Classes	-374899	42	749882.2	750242.8
5	Classes	-373442	52	746987.4	747433.9

Source: Authors' calculations based on SHARE data.

Item Response Statistics

Table 2 presents descriptive statistics for the full sample and by latent class, showing distinct characteristics across the five classes. These classes represent, respectively:

- Class 1: Best overall health, well-being, and financial situation;
- Class 2: Second best overall, but worse physical health;
- Class 3: Good physical and mental health but worse financial situation;
- Class 4: Bad physical health, activity limitations and chronic diseases, combined with poorer financial situation and low quality of life;
- Class 5: Difficult financial situation, limitations in activities, the highest depression and loneliness scale and the lowest quality of life.

Class 1 reports the greatest financial ease, with more than a half of people "easily making ends meet". In in the most financially challenged classes (3, 4, and 5) around 60% of respondents make ends meet with difficulty or some difficulty. Health status is measured by several indicators. When looking at activity limitations, only one out of 7 people in Class 1 reports such limitations, compared to more than 9 out of 10 in Class 4. High shares of people with activity limitations are also observed in Class 2 and 5. Moreover, the share of respondents with two or more chronic diseases is the smallest in the Class 1, while it is the highest in Class 2. Virtually no one in Class 1 reports ADL limitations, while a third of those in Class 3 have such limitations, and more than a fourth in Class 5. Class 1 also scores highest on the CASP quality of life scale,, this indicator declines in the following Classes, down to below 30 in Class 5. Similarly, On the EURO depression scale, Class 1 reports the lowest score, it is also relatively low in Class 3, while the highest in Class 5. Similarly, Class 1's UCLA loneliness score (is lower in Classes 1, 2 and 3, while very high (more than double of the Class 1 value), in Class 5.

Table 2 Item Responses in LCA

	Latent Classes				
	1	2	3	4	5
Household Ability to Make Ends Meet					
Great Difficulty	0.01	0.01	0.17	0.17	0.26
Some Difficulty	0.11	0.13	0.51	0.41	0.36
Fairly Easily	0.36	0.39	0.30	0.31	0.25
Easily	0.52	0.46	0.03	0.11	0.14
Limitation with activities	0.14	0.79	0.34	0.93	0.79
2+ Chronic Diseases	0.29	0.78	0.48	0.87	0.75
1+ Activity of Daily Living Limitation	0.00	0.15	0.01	0.33	0.28
CASP index: Quality of Life and Well-Being	42.31	38.91	35.03	31.28	28.80
EURO Depression Scale	1.25	2.43	1.63	4.80	5.45
UCLA Loneliness Scale (Short Version)	3.36	3.72	3.89	4.12	7.09

Source: Authors' calculations based on SHARE data.

Table 3 shows that the classes differ notably in demographics, household size, social networks, and regional residence across Europe. While all classes had an average age of 70 or older, Classes 4 and 5 are slightly older, with an average of 75 years. Classes 1 and 2 are made up of the most highly educated individuals (around a third had tertiary education, and those with the lowest rates of non-employment histories (15% or less). Members of Class 3 tend to live in larger households, with more than a fifth having three or more people. Classes 3 and 5 are characterised by the weakest social ties and the lowest satisfaction with social network. Classes 1 and 3 have the highest percentages of children absent from their social networks, likely reflecting their younger ages. In terms of regional distribution, classes 1 and 2 are most common in Western Europe, while classes 3 and 5 are evenly distributed between Central-Eastern Europe and Southern Europe. Class 4 is mainly found in Central-Eastern Europe and Northern Europe.

Table 3 Descriptive Statistics

	Class 1		Class 2		Class 3		Class 4		Class 5		Total	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age (in Yrs)	69.03	7.39	74.91	8.19	69.34	7.70	75.06	8.97	75.28	9.31	71.78	8.57
Sex (male)	0.47		0.41		0.45		0.30		0.29		0.41	
Has Coresident Partner	0.74		0.65		0.70		0.56		0.42		0.66	
Highest Degree Earned												
Primary or Less	0.07		0.12		0.21		0.25		0.31		0.16	
Lower Secondary	0.11		0.15		0.23		0.24		0.21		0.17	
Upper-Post Secondary	0.45		0.45		0.45		0.38		0.34		0.43	
Tertiary	0.36		0.29		0.11		0.12		0.15		0.24	
Employment History Clusters												
Stable Full-Time	0.36		0.35		0.35		0.34		0.29		0.35	
Mostly Full-Time	0.08		0.08		0.08		0.07		0.06		0.08	
Full-Time with Gaps	0.23		0.20		0.18		0.18		0.17		0.20	
Part-Time Prevalence	0.21		0.21		0.18		0.21		0.19		0.20	
High Non-Employment	0.11		0.15		0.21		0.21		0.29		0.17	
Household Size												
1 Person	0.20		0.31		0.23		0.32		0.50		0.28	
2 People	0.65		0.61		0.55		0.52		0.39		0.58	
3+ People	0.14		0.09		0.22		0.16		0.11		0.15	
Scale of Social Connectedness	2.27	0.86	2.37	0.83	1.84	0.78	2.04	0.82	1.83	0.78	2.12	0.85
Social Network Satisfaction	9.32	0.92	9.13	1.08	8.89	1.33	8.94	1.29	8.42	1.68	9.04	1.23
Children in Social Network												
No Children	0.08		0.09		0.09		0.07		0.13		0.09	
Has Children in Social Network	0.61		0.69		0.61		0.68		0.64		0.64	
Has Children, not in Social Network	0.30		0.23		0.30		0.25		0.23		0.27	
Region												
Central and Eastern	0.25		0.22		0.48		0.42		0.35		0.33	
Northern	0.25		0.27		0.08		0.23		0.14		0.20	
Southern	0.12		0.05		0.42		0.19		0.32		0.20	
Western Europe	0.38		0.46		0.02		0.16		0.19		0.28	
N	13249		9165		8901		4390		4277		39982	

Source: Authors' calculations based on SHARE data.

Determinants of Class Membership

Table 4 presents results from a multinomial logistic regression analysis, explaining belonging to a selected class. It shows that demographic, economic, and sociological factors differentiate assignment to one of the selected classes. Compared to Class 1 (best overall profile), Classes 2, 4, and 5 members are significantly older and more likely to be female. This finding may also reflect differences in life expectancy between men and women. Having a co-resident partner reduces the likelihood of being in Classes 3, 4, and 5 relative to Class 1, which is in line with previous research showing for example that partnered individuals are more likely to have better health status and subjective well-being (Abramowska-Kmon, 2022; Blanchflower & Oswald, 2004; Böhnke & Kohler, 2010; Robards, Evandrou, Falkingham, & Vlachantoni, 2012;

Somarriba Arechavala & Zarzosa Espina, 2019). Higher education levels generally make it less likely to belong to less resilient class, based on the proposed approach. This finding supports previous evidence on the impact of education on health, subjective quality of life and financial situation (Abramowska-Kmon, 2022; Blanchflower & Oswald, 2004; Böhnke & Kohler, 2010; Card, 1999; Fonseca, Michaud, & Zheng, 2020; OECD, 2024; Tamborini, Kim, & Sakamoto, 2015). Employment histories marked by part-time work or high non-employment rates increase the likelihood of being in a class that is less resilient that Class 1. Except for Class 2, this also applies to full-time work histories with many gaps. This finding may support the theory of the accumulation of advantages and disadvantages of employment over the life course (Ferraro & Shippee, 2009; Whitley et al., 2018). Two-person households are less likely to belong to Classes 3 or 5, but more likely to be in Class 4. Larger households (3+ people) are more likely to be in Class 4, but less likely to be in Class 5 (relative to Class 1). This finding may indicate that people with poorer physical and mental health, as well as poorer financial circumstances, are more likely to live with someone other than their partner. Social network connectedness is associated with a lower likelihood of being in Classes 3, 4, and 5, but a higher likelihood for Class 2 (compared to Class 1). Social network satisfaction is negatively associated with membership in all classes relative to Class 1. This finding suggests that having good relationships with others, feeling connected to other people and being more satisfied with social networks are crucial for resilience in later life. Having children in one's social network increases the likelihood of being in Classes 2 and 3, while their absence is associated with a lower likelihood of being in Class 4 (compared to Class 1). Regionally, compared to Central and Eastern Europe, Classes 3–5 are less likely to be in Northern or Western Europe. For Southern Europe, Classes 2 and 4 have a negative association, while Classes 3 and 5 are more likely to be found there. This finding is in line with previous analyses showing differences between European regions, for example in the subjective well-being of older adults (Cordero, Salinas-Jiménez, & Salinas-Jiménez, 2017; Ferring et al., 2004; Ploubidis & Grundy, 2009).

Table 4: Multinomial Logit of Latent Class Membership

	Latent Class[a]			
	Class2 β/SE	*Class3* β/SE	*Class4* β/SE	*Class5* β/SE
Age (in Yrs)	0.08***	−0.00	0.08***	0.07***
	0.00	0.00	0.00	0.00
Sex (male)	−0.18***	−0.02	−0.59***	−0.51***
	0.05	0.05	0.05	0.05
Has Coresident Partner	−0.10	−0.29***	−0.62***	−0.71***
	0.07	0.07	0.07	0.07
Highest Degree Earned				
Primary or Less				
	.ref	*.ref*	*.ref*	*.ref*
Lower Secondary	−0.25**	−0.01	−0.36***	−0.38***
	0.09	0.08	0.08	0.08
Upper-Post Secondary	−0.40***	−0.50***	−0.99***	−0.95***
	0.08	0.07	0.07	0.07
Tertiary	−0.68***	−1.46***	−1.86***	−1.60***
	0.08	0.09	0.09	0.09
Employment History Clusters				
Stable Full-Time				
	.ref	*.ref*	*.ref*	*.ref*
Mostly Full-Time	0.13	0.11	0.16	0.15
	0.08	0.08	0.09	0.10
Full-Time with Gaps	0.06	0.30***	0.28***	0.35***
	0.06	0.06	0.07	0.07
Part-Time Prevalence	0.21***	0.42***	0.50***	0.58***
	0.06	0.06	0.07	0.07
High Non-Employment	0.24***	0.57***	0.55***	0.89***
	0.07	0.07	0.07	0.07
Household Size				
1 Person				
	.ref	*.ref*	*.ref*	*.ref*
2 People	−0.02	−0.24**	0.20*	−0.54***
	0.07	0.08	0.08	0.08
3+ People	−0.01	−0.05	0.46***	−0.43***
	0.09	0.09	0.09	0.09
Scale of Social Connectedness	0.12***	−0.55***	−0.27***	−0.55***
	0.03	0.03	0.03	0.03
Social Network Satisfaction	−0.23***	−0.51***	−0.50***	−0.71***
	0.02	0.02	0.02	0.02
Children in Social Network				
No Children				
	.ref	*.ref*	*.ref*	*.ref*
Has Children in Social Network	−0.00	0.37***	0.25**	0.15
	0.07	0.09	0.09	0.08
Has Children, not in Social Network	−0.10	−0.05	0.02	−0.21*
	0.08	0.09	0.10	0.09
Region				
Central and Eastern				
	.ref	*.ref*	*.ref*	*.ref*
Northern	0.04	−1.44***	−0.58***	−1.03***
	0.06	0.07	0.06	0.07
Southern	−1.05***	0.44***	−0.58***	0.14*
	0.10	0.06	0.07	0.07
Western Europe	−0.01	−3.14***	−1.53***	−1.48***
	0.06	0.12	0.08	0.07
Intercept	−3.87***	6.70***	−0.01	3.57***
	0.32	0.33	0.36	0.32
N	39982			

Note: [a]Reference Category is Class 1

Source: Authors' calculations based on SHARE data.

Conclusions

The main aim of the paper was to propose the approach to identify resilience at the older age, that combines the aspects of financial well-being, physical and mental health, as well as identify which individual characteristics, as well a lifecourse developments, in particular employment history and family developments are associated with resilience characteristics. In the approach presented, as a result of latent class analysis, we obtained five latent classes of resilience. Class 1: characterised by best overall health, well-being and financial situation; Class 2: second best overall, but experiencing worse physical health; Class 3: good physical and mental health, but worse financial situation; Class 4: second worst, especially in physical health, but also suffering financial difficulties; Class 5: worst overall resilience profile, with the highest financial difficulties, as well as loneliness and depression scale.

Our results indicate, individual characteristics and past individual history are associated with belonging to the different groups with respect to their resilience. We find out that those who are less healthy, both in terms of physical health (members of classes 2,4 and 5), and mental health (especially class five), as well as those with a worse subjective financial situation, compared to those in class 1 (best resilience profile), are significantly older and more likely to be female. Having a cohabiting partner reduces the likelihood of being in classes 3, 4 and 5 compared to class 1. Educational attainment is a strong factor that increases resilience at the old age – people with higher levels of education are generally less likely to be in classes with lower resilience characteristics. Employment histories with less job-rich patterns, including part-time work or high inactivity rates increase the probability of being in a class with a worse resilience than class 1. With the exception of class 2, people with a full-time work history, but with many gaps are also less resilient in old age. This may indicate that the "scarring" of the employment breaks potentially may also affect later stages of the life course. Two-person households are less likely to be in classes 3 or 5, but more likely to be in class 4 (with largest activity limitations and chronic diseases). Larger households (3+ persons) are more likely to be in class 4, but less likely to be in class 5, characterized by higher risk of depression and loneliness (compared to class 1). Social network connectedness is associated with a lower likelihood of being in classes 3, 4 and 5, but a higher likelihood of being in class 2 (relative to class 1). Social network satisfaction is negatively associated with membership of all classes relative to class 1. Having children in one's social network increases the likelihood of being in classes 2

and 3, while their absence is associated with a lower likelihood of being in class 4 (compared to class 1). Regionally, classes 3-5 are less likely to be found in Northern or Western Europe than in Central and Eastern Europe. For Southern Europe, classes 2 and 4 have a negative association, while classes 3 and 5 are more likely to be found there.

Our findings seem to confirm our hypotheses:

(1) People who have worked full-time throughout their lives tend to be the most resilient at older ages.

(2) People who have spent most of their lives out of work have the worst characteristics of resilience in old age.

(3) Less typical employment histories are associated with the worst resilience characteristics.

The findings may suggest that type of employment and employment history are important sources of resilience in later life. As different types of resources (such as health, social capital or financial resources) accumulate over the life course, it is important to support people to take up and continue economic activity throughout their lives. Our results confirm the role of investment in education, that has long-term effects, also through increased resilience at later stages of life. Another important finding is that social networks play an important role in building resilience, both with respect to the connectedness and satisfaction with the network.

Summing up, building individual resilience that supports quality of life at older age, requires an initial endowment, in the form of investment in education and skills, that help to build job-rich life courses. While the employment history plays an important role, it is also worth underlining the importance of social networks, that also support higher resilience of people at later stages of the life course.

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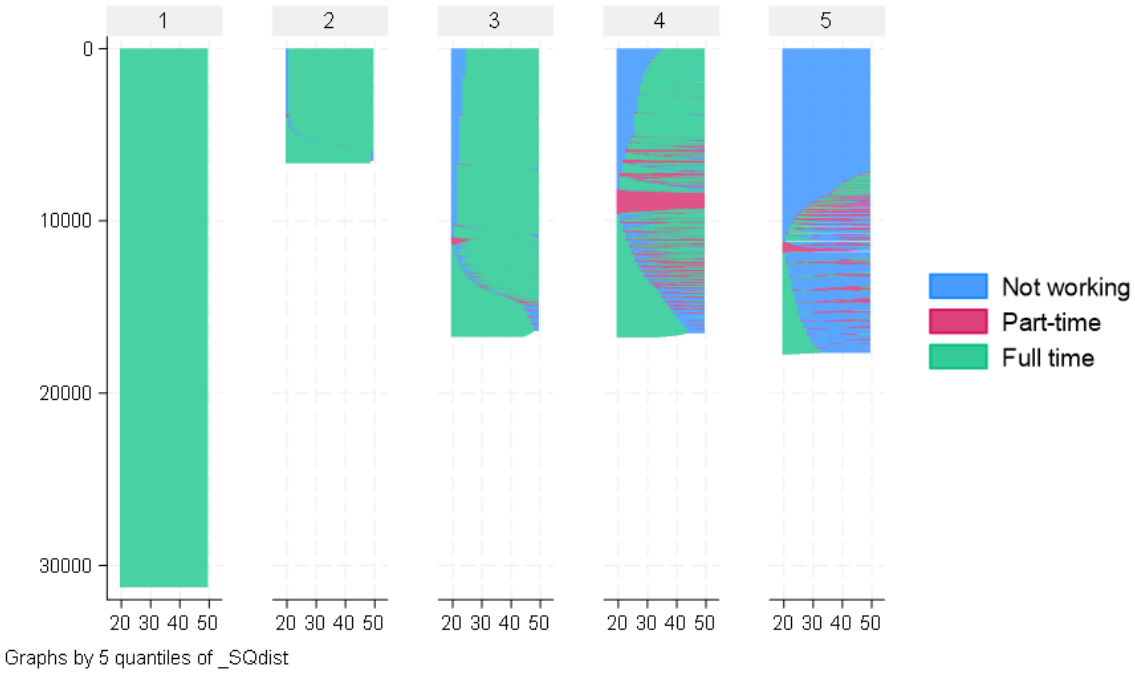
Appendix. The results of the sequence analysis

Figure A1. Graphical representation of the clustering of the employment histories into five clusters used regression models



Note: Interpretation of the employment history clusters is following: 1 - “stable full time”, 2 - “mostly full time”, 3 - “full time with gaps”, 4 - “part time prevalence”, 5 - “high non-employment". Source: own calculations using “SHARE job episodes panel” release 9.0.0 10.6103/SHARE.jep.900