Middle-aged adults’ career trajectories and later-life financial security: evidence from Korea

Seong Ji Jeong, jeong.419@osu.edu
The Ohio State University, USA

Su Jung Choi, shizu@snu.ac.kr
Seoul National University, Republic of Korea

Joshua Hawley, hawley.32@osu.edu
The Ohio State University, USA

This study explored how middle-aged workers’ career trajectory patterns were associated with their financial security later in life. Grounded by a life course perspective, we approached their career trajectories by considering a ‘human agency within structure’ framework. We explored sequences of employment status, starting with their lifetime main job to subsequent jobs after contractual retirement, using data from 1,010 middle-aged adults in Seoul, South Korea. The sequence analysis identified six career trajectory patterns. Stable career patterns included the Permanent to permanent trajectory as well as the Permanent to self-employment trajectory and these were most common among males with higher education degrees, higher earnings and better career alignment. Unstable career patterns such as the Temporary to temporary trajectory, the Permanent to temporary trajectory or the Churning trajectory were most common among those who were female, had lower levels of education lower earnings or had retired involuntarily. Further results showed that unstable career patterns were associated with lower levels of monthly earnings and total assets post–contractual retirement. Individuals with unstable career patterns were also less likely to be financially prepared for retirement. We suggest individualising education programmes for retirement preparation based on various career trajectories and demographic attributes to aid middle-aged adults in preparing for financial security later in life.

Key words career trajectories • middle-aged adults • life course theory • financial security • South Korea

Key messages

• This study explored Korean mid-aged adults’ career trajectories from their main to post-main jobs.
• Stable career patterns had males with more education, greater earnings, and better career alignment.
Middle-aged adults’ career trajectories and later-life financial security

- Precarious career patterns were prevalent among females and those with lower levels of education.
- Precarious career trajectory patterns were associated with later-life financial insecurity.

To cite this article: Jeong, S., Choi, S. and Hawley, J. (2023) Middle-aged adults’ career trajectories and later-life financial security: evidence from Korea, Longitudinal and Life Course Studies, 14(4): 566–591, DOI: 10.1332/175795921X16843342371110

Introduction

The rapid ageing of the population has influenced the structure of the workforce, employment patterns and even the definition of work and retirement (Calvo et al, 2018; Henkens and van Solinge, 2021). The International Labour Organization projects that 55- to 64-year-olds will make up more than a quarter of the global workforce by 2030 (Harasty and Ostermeier, 2020). A rising number of older adults are continuing employment in paid positions after retirement. Older workers’ post-retirement employment (Maestas, 2010; Beehr and Bennett, 2015) becomes dynamic, complicated and varies across individual, social and national contexts (Fisher et al, 2016).

South Korea, a country with a low fertility rate, high life expectancy and a high elderly poverty rate, is currently leading this transition among the most rapidly growing Organisation for Economic Co-operation and Development (OECD) countries (Jun, 2020). Retirement patterns in South Korea have distinct features in that contractual retirement from one’s main job occurs at an early stage, on average at 49.3 years old. At the same time, 70% of the economically active population aged 55–79 said they would continue to work, on average, until age 73 (Korea Statistics, 2021b). Therefore, for a variety of reasons older adults expect to continue working after the end of contractual employment in self-employment, manual work or contract work (Chae and Heshmati, 2017; Jun, 2020).

Extended employment after retirement is common among countries that have large numbers of older workers (Henkens and van Solinge, 2021). Post-retirement employment is also influenced by prior careers (Bennett and Möhring, 2015). Researchers have previously examined career development precursors (for example, education, employment) that influence late-career employment (Singh and Verma, 2003; Ponomarenko, 2016; Wahrendorf et al, 2018). However, there have been few studies that specifically examine the career trajectory patterns extended to workers’ late-life employment (Biemann et al, 2012). In this regard, exploring older workers’ career patterns over their lifetimes is critical to giving a comprehensive overview of career dynamics in the context of an ageing population.

The study of career patterns is also of vital interest due to rising rates of poverty among older adults (Burkert and Hochfellner, 2017; Dingemans and Möhring, 2019). The poverty rate for elderly Koreans (45%) is much higher than that of other OECD countries (for example, 20% in Japan, 23% in the US) and approximately four times higher than that of Koreans between the ages of 18 and 64 (11.7%) (OECD, 2021). Several studies emphasise differences in early- and midlife work environments that are linked to disparities in financial security later in life (Damman et al, 2011; Raymo et al, 2011). Although there is some research on the relationship between a single retirement transition and financial security (Phang and Shin, 2011; Jeong and Choi, 2021), little
research has examined associations with entire career trajectory patterns and later-life financial security. Having a deep understanding of how cumulative employment patterns influence late-life economic safety could potentially provide suggestions for individualised interventions to prevent elder poverty as well as a deeper understanding of its implications.

Therefore, this study explores Korean middle-aged adults’ career trajectory patterns and their association with later-life financial security. Our theoretical perspective is based on a ‘human agency within structure’ framework, which views career paths as a synthesis of local labour market structure, human capital accumulation and psychological mechanisms (Elder et al, 2003). Career sequences are formed by individual-level career agency at the micro level, as well as the structure of institutional policy and the labour market at the macro level (Henkens and van Solinge, 2021). Given that life courses are path-dependent in that prior life events or decisions affect subsequent experiences, we explored how middle-aged adults’ career pathways are intertwined with their prior work experiences, family backgrounds and institutional contexts.

Our study used sequence analysis in conjunction with optimal matching methods to identify how middle-aged adults’ careers unfold over their lifetimes. As older workers demonstrate extended employment history, we focused on their career sequences in transition from their main job to post-main jobs in the context of contractual retirement. Second, we examined the demographic, job and career-related factors affecting career trajectory patterns. Lastly, we looked at how these career trajectory patterns influenced later-life financial security.

**Literature review**

*Korean middle-aged workers’ career trajectories and contractual retirement*

Career trajectories from the life course perspective

A career is defined as a progression of an individual’s job experiences that occurs over extended periods of time in the labour force (Arthur et al, 1989; Gunz and Peiperl, 2007; Biemann et al, 2012). Evaluating career trajectories over the life course gives a comprehensive picture of an individual’s career and a better understanding of how people achieve career success rather than evaluating specific career transitions such as a job change or entrepreneurship (Biemann et al, 2012).

Individuals’ job choices are not only impacted by their inherent characteristics, but also by the opportunities and limits in their work contexts (Grandjean, 1981). Life course theory uses a multidisciplinary perspective to address the importance of situational context, life sphere interconnectivity, life event transition timing and human agency with the dynamics of structural, social and psychological influences (Settersten, 2003). This theory is associated with the concept of path dependency, in which individual histories are linked and shaped by a variety of mechanisms that relate earlier life stages to later outcomes (Elder et al, 2003). Previous studies have found that past labour market experiences, such as years of employment, occupational status and career path discontinuity, gathered over a career, create opportunity structures for later career patterns, including retirement choice (Damman et al, 2011; Bennett and Möhring, 2015).

Retirement is typically viewed as a process of gradually exiting from a labour market while continuing post-retirement jobs, rather than a single event (Fisher et al, 2016). The phrase *gradual retirement* encompasses working after retirement in many forms. For example, some late-career workers continue to have temporary or part-time
work after retirement to secure a stable income, while others may pursue it for the psychological satisfaction and autonomy which comes from work (Quinn and Kozy, 1996; Zhan et al, 2009). This repeating event of entry and exit between the labour market and retirement need a holistic approach due to its linkage with diverse social and personal contexts, including flexible work structures, various job histories and different stages of life (Henkens and van Solinge, 2021).

**Main jobs, post-main jobs and contractual retirement in Korea**

In South Korea and Japan, it is common for middle-aged workers to have a *main job*, which is defined as a job with the longest duration within one’s lifetime (Phang and Shin, 2011; Kang et al, 2019), rather than frequently switching between jobs. The main job is characterised by contractual retirement, in which they are obligated to leave the job upon reaching a certain age. Particularly in South Korea, contractual (and often involuntary or mandatory) retirement occurs at young to middle age, as early as the mid-40s (Klassen, 2011; Kim and Klassen, 2015). For example, contractual retirement occurs on average at the age of 47.7 for females and 51.2 for males (Korea Statistics, 2021b). Another survey of 534 paid workers conducted by a domestic employment website revealed that contractual retirement occurs on average at the age of 49.5 for large firms, 51.7 for small and medium enterprises (SMEs), and 53.8 for public firms (JobKorea, 2021).

It is common that, even after contractual retirement, most adults will continue to do paid work, whether to cover living expenses (59%) or for career fulfilment (34%) (Korea Statistics, 2021b). These jobs post-contractual retirement (post-CR) are distinct from the initial career jobs in that they are marked by lower earnings, part-time work, contract work, manual work or self-employment (Phang and Shin, 2011; Chae and Heshmati, 2017). Even though these jobs are insecure the elderly continue to work, particularly those without sufficient accumulated wealth or private income transfers – primarily from their children. Workers do not actually retire (or effectively exit the labour market) until they are in their early 70s (OECD, 2019), which is older than the public pension qualifying age of 65 (NPS, 2021).

In this article, to clarify the Korean context, the term *the main job* is used to refer to the job with the longest time spent in one’s lifetime and *post-main jobs* to refer to the subsequent jobs after the contractual retirement, which is different from actual retirement. Figure 1 illustrates these terminologies in the context of contractual retirement in Korea.

**Factors affecting Korean middle-aged adults’ career trajectory patterns**

The human agency within structure framework, a central part of the life course perspective, suggests that older adults create plans, make decisions and implement actions based on the opportunities and restrictions of their social environments (Elder et al, 2003; Settersten, 2003; Settersten and Gannon, 2005). Following this framework, individuals have higher levels of agency in the career decision-making process during a transition period within the bounds of the relevant policy and labour market structure (Dingemans and Möhring, 2019).

Career pathways have been influenced by increasing stratification in domestic labour market structures since the rapid economic development of the 1960s (Kim and Han, 2012). After the great economic recession in the 1990s, structural downsizing and
Figure 1: The main job, post-main jobs and retirement in Korea

Notes:
* Contributory pension programme, the eligible age gradually increased from 60 to 65 depending in birth cohort.
** Non-contributory pension programme for lower-income older adults aged 65 and above.
layoffs that reduced the size of the workforce and increased the quantity of outsourced, temporary or irregular workers led to a decline in social mobility capabilities of the younger generation (Kye et al., 2022). Due to these remarkable economic changes, the Korean labour market is characterised by a segmented labour market structure. Korean middle- to old-aged workers who experienced this economic shift at earlier ages are more likely to face a later-life precarious employment situation (Kim and Joung, 2015).

Career trajectory pathways are closely related to labour market segmentation in terms of gender and educational level (Kye et al., 2022). Workers without a bachelor's degree or higher are typically faced with a lack of job opportunities, increasing their chances of being trapped in low-wage careers (Kim et al., 2016). Workers with higher credentials, on the other hand, are less likely to be stuck in low-wage jobs because their degrees signal that they are qualified for occupations that require autonomy, responsibility and higher-level abilities (Fuller and Stecy-Hildebran, 2015). In terms of gender and education status, educated men are more likely to have a longer career pattern in later life, either as wage earners or in self-employment (Beehr and Bennett, 2015; Alcover, 2017). Separately, the separation of paid and unpaid work for women within marital partnerships may result in more women working in temporary jobs than men, or in women focusing solely on domestic duties due to cultural norms (Hoven et al., 2018; Kye et al., 2022).

Furthermore, the employment status of entry-level workers has a significant impact on mid- and late-career decisions (Kim and Joung, 2015). Some 38% of the economically active population holds only temporary employment in Korea, which is around 2.5 times the OECD average (OECD, 2023). Working in an entry-level job on a temporary or part-time basis increases the likelihood of switching to another unstable job. Additionally, older adults who have worked a considerable number of years in temporary jobs are likely to remain in precarious jobs until their late career (Park, 2003; Phang and Shin, 2011; Jeong and Choi, 2021).

Self-employment has been found to be prevalent among domestic older workers (Lee and Lee, 2013). Numerous older wage-and-salary employees transition to self-employment as a last resort after leaving their main jobs (Jun, 2020). Indeed, among adults aged between 40 and 64, 22.4% are self-employed (Korea Statistics, 2021a). This trend has been consistent over the years, resulting in highly competitive the self-employment labour market in Korea.

Focusing on human agency, human capital, which is characterised by labour force experience and education, on-the-job training and tenure, causes better job performance and/or retention. It is also associated with an upward career trajectory (Fuller and Stecy-Hildebran, 2015). Employers may hire people with more human capital since their abilities may increase productivity (Becker, 2009). Generally, the longer people have been in the labour force, the more likely they will be to maintain stable employment in their late-career phase. Additionally, some career-related psychological attributes, such as work commitment, satisfaction or voluntary turnover, influence subsequent career choices from a human agency perspective (Zhan et al., 2013). A potential mechanism to improve career alignment is by incorporating previous skills or knowledge into a new form of employment (Jeong and Choi, 2021).

Taken together, these studies demonstrate that predictors at the institution level as well as the individual agency level integrally contribute to the patterning of middle-aged adults’ career trajectories. We identified employment characteristics such as
starting and ending age, earnings, occupations and firm sizes, as well as demographic attributes such as age, location, gender, education status, marital status and parental status. The effects of career-related characteristics were also looked at by adding voluntary retirement, and main and post-main job alignment.

Career trajectories and later-life financial security

Another aim of the paper is to deepen our understanding of the link between work histories and later life financial security. Learning about the accumulated work experiences over one’s lifetime sheds light on their social and financial security later in life (Chae and Heshmati, 2017; Iveson et al, 2020). Financial constraints are one of the key factors explaining one’s late-life opportunity structure. Workers with discontinuous work experience or who are engaged in lower-skilled occupations are likely to engage in paid work after retirement, mainly due to financial concerns (Dingemans and Möhring, 2019). Lifetime earnings and pension benefits are much lower among these workers, while one option for improving one’s quality of life is to seek financial security by remaining engaged in the labour market regardless of precarious employment (Burkert and Hochfellner, 2017).

For elders’ social security, there is a public pension system with universal coverage in Korea. The National Pension Service (NPS), founded in 1988, attained universal coverage of the contributory National Pension Plan in 1999. Due to the limited history, there is an exception of five years for certain cohort groups that began contributing at a later age, despite the ten-year minimum contribution requirement. In 2014, the NPS enacted a non-contributory Basic Pension Plan for lower-income seniors 65 and older (NPS, 2021). Above half of the population 65 and older (55%) in Seoul received Basic Pension benefits in 2021 (Seoul City, 2021), but the monthly benefits accounted for only a quarter of a single household’s minimum cost of living (₩300,000 or $250). Lower-income adults may not be able to maintain their financial security without other sources, such as savings or private transfers (Jun, 2020).

On the other hand, individuals without significant financial constraints or with higher-skilled occupations have greater choices and agency during the retirement transition (Dingemans and Möhring, 2019). Having accumulated skills, social networking and job experience, there is increased potential to find a job aligned with their prior career (Jeong and Choi, 2021), which may promise financial security later in life. These groups are likely to fund their retirement with assets, savings or private pensions (Jun, 2020). Likewise, it is likely that late-life financial security is closely associated with individual career trajectories, including prior career experiences and engagement in bridge employment. Hence, our third aim in this article is to examine how these career trajectory patterns are linked to later-life financial security.

Methods

Data source

The data come from a survey of occupational careers and economic activities of middle-aged adults. Funded by the City of Seoul, the Seoul 50 Plus Foundation designed and collected survey data in 2019 (Kang et al, 2020). The survey includes employment history, financial status, health, well-being and psychological state among
representative samples of contractually retired adults aged between 45 and 70 in Seoul. This retrospective survey collects occupational history data including starting age, ending age, employment status, workplace types, earnings and work satisfaction from individual’s main jobs and post-main jobs. The main job in this survey is again referring to the lifetime main job with the longest duration or highest pay (if the number of work years is the same) since age 15 (Kang et al, 2019).

Respondents

We used the data of 1,010 participants for whom we had complete records of their employment history. In the sample, gender is relatively equally distributed, with 52.2% of the sample being women (n = 527) and 47.8% being men (n = 483). Of the respondents, 10% are aged 45–49; 25% aged 50–54; 26% aged 55–59; 29% aged 60–64; and 10% aged 65–69. Some 64% (n = 641) had a high school diploma or less as their highest level of education, and 37% (n = 369) had at least one undergraduate degree or higher. Wage earning was cited as the top primary source of income for living expenses by 96.2% of respondents, indicating most respondents were still working post-CR. Savings (49.8%) and severance pay or pensions (24.5%) were the most common secondary sources of income. All respondents had both a main job and first post-main job experience, followed by 20% (n = 200) having a second post-main job and 2% (n = 19) having a third post-main job.

Measures

We demonstrate measures of career trajectory patterns, socio-demographic, occupational and career-related predictors, and late-life financial security in Table 1.

Measures of career trajectory patterns

We identified a coding scheme to measure career trajectory by using employment status at each age. For older individuals, this calculation was more complicated, as individuals could have experienced various kinds of job experience and longer employment. However, for the purposes of this analysis, this procedure helped to identify career trajectory patterns. Using starting age and ending age, we determined employment status at each age. Age 17 was used to mark the beginning of the age matrix, as it was the earliest observation of a ‘main job’ occurrence from the sample. Employment status was coded at each age reaching until 70 to match with the oldest respondents’ age.

It is critical to clarify the operational definitions of ‘temporary’ and ‘permanent’ employment. Korean society has its own definition of employment status that reflects a segmented labour market, translated as (non-) regular job, (non-) standard job or permanent/temporary job and so on (Grubb et al, 2007). The terms ‘permanent/temporary’ are often used to convey the designations, and may not perfectly correspond to the conventional meaning in Western countries (Jang, 2011). In this study we operationally define permanent jobs as those with unlimited duration (until contractual retirement), full-time work and full employee benefits, and temporary jobs as those without these guarantees. Thus, the operational
definition of ‘temporary’ jobs includes jobs that last through several renewals of the contract but with limited promotion opportunities and reduced benefits until the contractual retirement.

Additionally, we also identified sequences of jobs (‘Main job’, ‘Post-main job’, and ‘Other’) as differentiation between main jobs and post-main jobs gives an insight into the job mobility in the labour market. It captures how individual main jobs are transitioned to corresponding post-main jobs over a career. Lastly, we tried to differentiate unemployment from economically inactive status by using gender and the highest education degree, even though out-of-labour force data was not collected. Appendix A provides details on the whole approach.
Overall, the coding scheme for career trajectories consists of ten states combining employment status (permanent, temporary or self-employed) and job sequence indicators (main, post-main or other): (1) Main-Permanent, (2) Main-Temporary, (3) Main-Self-employed, (4) Post-Permanent, (5) Post-Temporary, (6) Post-Self-employed, (7) Other (subsequent post-main jobs), (9) Inactive, (9) Unemployed + Inactive, and (10) Censored.

Later-life financial security

To measure later-life financial security, we identified objective and subjective methods. We used (1) average logged monthly earnings from post-main jobs after contractual retirement. Some respondents had three post-main job experiences, and we calculated the average earnings across these jobs. Second, we assessed (2) total logged assets by summing real estate assets, financial assets and miscellaneous assets post-CR. Both (1) and (2) were adjusted for the 2020 consumer price index. Finally, we investigated (3) respondents’ perceptions of financial preparedness in old age as an outcome indicator.

Analytical strategy

We applied a sequence analysis to create typologies of career trajectories. Data were calculated using a sequence analysis using optimal matching (Studer et al, 2011; Halpin, 2012). This method examines the degree of similarity or dissimilarity between complex sequences of duration, timing and ordering when comparing sequences to one another based on the number of substituting, inserting and deleting states. Likewise, each history of employment status was rearranged into empirically distinct clusters with similar patterns.

After the analysis, we determined the number of clusters of sequence patterns according to cluster analysis. We used Ward's AGNES-algorithm (Kaufman and Rousseeuw, 1990) which constructs a hierarchy of clustering. Each observation initially is a small cluster of its own, and the two nearest clusters are merged to form one larger cluster at each stage. To determine the most appropriate number of clusters, we compared two to eight cluster solutions based on the following validation statistics: cluster sizes, average distances within and between clusters, and internal clustering validation measures such as average silhouette width, $d$ and $d^2$ (Studer, 2013; Hennig, 2015). The final step included cluster analysis, using the distance matrix to group the most similar trajectories.

We computed the clustering quality statistics for agglomerative nesting hierarchical clustering using the ward method (Hennig, 2015), the most commonly used algorithm in sequence analysis (Fuller and Stecy-Hildebrandt, 2015). At various levels of aggregation, we looked at the quality of partitions as well as their theoretical clarity when certain types of trajectories were aggregated or broken up into separate clusters. We learned that solely considering the quality of partitioning statistics results in a small number of clusters representing stability (Borg et al, 2022). As we are interested in identifying middle-aged workers’ career dynamics over their lifetimes, we chose a solution that uses numerous clusters while preserving enough partitioning quality. We decided to adopt a six-cluster approach as the most theoretically meaningful distinction and the most informative compromise between several metrics. Each of the six clusters follows a general pattern and includes a variety of distinct career trajectories in detail.
(see Appendix B). Sequence analysis was performed using the packages TraMineR (Gabadinho et al, 2011), and cluster analysis was performed using the packages cluster (Maechler, 2022) and fpc (Hennig, 2015). This procedure was done in R 4.2.0.

To further our understanding of the career trajectory patterns, we conducted analyses of variance and chi-squared analysis. A multinomial logistic regression model was then tested to explore the effects of demographic, occupational and career-related psychological variables on career trajectory patterns. Finally, we examined the effect of the patterns on their later-life financial security. All these analyses were performed in Stata 17.0.

**Results**

_Clustering career trajectories in terms of employment_

_Figure 2_ illustrates the six career trajectory patterns as state distribution plots and the sequence index plots. The respective sequence states, such as ‘Main_Perm (permanent as a main job)’ and ‘Post_Temp (temporary as a post-main job)’, are indicated by different colours. The chronograms of each trajectory pattern (A) illustrate the sequence of the cross-sectional state frequencies for each time unit. The sequence index plots (B) indicate individual sequences with horizontal stacked bars reflecting the states over time. For example, Cluster 1 tends to follow the ‘Main_Perm’ state for relatively long time and transitions to ‘Post_Self-employed’ or ‘Post_Perm’ state. Cluster 5 tends to show ‘Main_Temp’ as well as ‘Main_Perm’ in the beginning and transitions to various states including ‘Post_Temp’, ‘Post_Self-employed’, ‘Post_Perm’, or ‘Other’ states. The exact number of average years in each employment state by cluster is described in _Table 2_. All this information was used to label each trajectory pattern.

Overall characteristics of each cluster are described in _Table 3_. Specifically, the first type is named _permanent to self-employment trajectory (Perm to SE trajectory)_ which is the most prevalent pattern, containing 32.3% of the records. More than half of male respondents belong to this group (55.1%). They started a main job as permanent workers at a relatively earlier age on average (28.4), continued it until around age 50.1, and switched to another job as self-employment later. The main job retention of the _Perm to SE trajectory_ is the longest among the groups (5.6 years), which indicates the most stable group of all.

The second cluster is named _self-employment to self-employment trajectory (SE to SE trajectory)_ (14.9%) as the group shows self-employment status from a main job (19.5 years) to another self-employment in a post-main job (3.8 years). The gender composition is quite equally distributed (men 47%, women 53%). Monthly average earnings in post-main jobs are lower (₩2,481,500 or $2,069) than their average earnings in their main jobs (₩3,992,800 or $3,329).

The third cluster is _permanent to permanent trajectory (Perm to perm trajectory)_ (17.3%). Around 60% of highly educated people belong to this group. They started as permanent workers at an earlier age (31.8) and switched to another permanent career at age 45, which is considerably earlier than other groups. Their post-main job earnings (₩3,062,200 or $2,553) are comparable to their main job earnings (₩3,187,800 or $2,658). This cluster demonstrates a unique pattern in terms of transition timing and outcomes, which can be seen in earlier career transitions.
Figure 2: Chronograms and sequence index plots of career trajectory patterns among middle-aged adults in Seoul (n = 1,010)

A. Chronograms

(1) Perm to SE trajectory (32.3%)

(2) SE to SE trajectory (14.9%)

(3) Perm to Perm trajectory (17.3%)

(4) Perm to Temp trajectory (9.3%)

(5) Temp to Churning trajectory (10.5%)

(6) Churning trajectory (15.7%)

B. Sequence index plots

(1) Perm to SE trajectory (32.3%)

(2) SE to SE trajectory (14.9%)

(3) Perm to Perm trajectory (17.3%)

(4) Perm to Temp trajectory (9.3%)

(5) Temp to Churning trajectory (10.5%)

(6) Churning trajectory (15.7%)

Note:
The career trajectory consists of the main job and the corresponding post-main job, with permanent, temporary, or self-employed status (see Appendix A for the coding scheme).
The fourth cluster was labelled *permanent to temporary trajectory* (*Perm to temp trajectory*, 9.3%), as the majority were permanent workers as their main jobs and switched to a temporary job post-CR. The *Perm to temp trajectory* is dominated by women (75.5%) and those who have a high school diploma or less (88.3%). Their main job starting age is the most delayed (37.3) among all clusters. Post-main job earnings are the lowest of all clusters (₩1,963,600 or $1,637). The fifth cluster was named *temporary to churning* (*Temp to churning trajectory*, 10.5%). A decent portion of this group held temporary jobs as their main jobs, relative to the previous groups. Most of this group transitioned to various employment statuses after their main jobs. Similar to the *Perm to temp trajectory*, this group is dominated by females (86.8%) and high school graduates or lower (63.2%). Their main job starting age is the earliest among the groups, but the job retention is comparatively short (10.0 years).

Finally, the *churning trajectory* (15.7%) indicates the greatest variety in switching jobs and the longest duration of inactivity and unemployment (27.1 years) among all clusters. This group was dominated by women (96%) and those with a high school or lower education status (94%), with the shortest job retention (8.4 years) and the lowest earnings (₩2,742,000~₩2,038,600 or $2,286~$1,700) over the life course of the groups.

### Predicting career trajectory types

In the next step, a multinomial logistic regression analysis was used to see how demographic, occupational and career-related attributes are likely to follow each of these career trajectory types. Table 4 illustrates marginal effects, which are the impact of a variable on the independent likelihood of being detected in a certain trajectory at specified covariate values. We demonstrate average marginal effects as it is easier and more intuitive to interpret the results than odds ratio (Hoven et al, 2018).

The *Perm to SE trajectory* and the *Perm to perm trajectory* show relatively stable career patterns that share some similar distributions in terms of gender, education status and main job occupation. The probability of following *Perm to SE trajectory* decreases...
Table 3: Descriptive characteristics of career trajectory patterns

<table>
<thead>
<tr>
<th></th>
<th>Perm to SE trajectory</th>
<th>SE to SE trajectory</th>
<th>Perm to perm trajectory</th>
<th>Perm to temp trajectory</th>
<th>Temp to churning trajectory</th>
<th>Churning trajectory</th>
<th>x2or F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. respondents</td>
<td>326 (32.28)</td>
<td>150 (14.85)</td>
<td>175 (17.32)</td>
<td>94 (9.31)</td>
<td>106 (10.49)</td>
<td>159 (15.74)</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>266 (81.60)</td>
<td>70 (46.67)</td>
<td>103 (58.56)</td>
<td>23 (24.47)</td>
<td>14 (13.21)</td>
<td>7 (4.40)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>60 (18.40)</td>
<td>80 (53.33)</td>
<td>72 (41.14)</td>
<td>71 (75.53)</td>
<td>92 (86.79)</td>
<td>152 (95.60)</td>
</tr>
<tr>
<td>Age</td>
<td>59.58</td>
<td>59.86</td>
<td>51.92</td>
<td>60.70</td>
<td>53.83</td>
<td>61.35</td>
<td>116.63***</td>
</tr>
<tr>
<td>Marital status</td>
<td>No</td>
<td>8 (2.45)</td>
<td>26 (17.33)</td>
<td>3 (1.71)</td>
<td>10 (10.64)</td>
<td>5 (4.72)</td>
<td>14 (8.81)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>318 (97.55)</td>
<td>124 (82.67)</td>
<td>172 (98.29)</td>
<td>84 (89.36)</td>
<td>101 (95.28)</td>
<td>145 (91.19)</td>
</tr>
<tr>
<td>Parental status</td>
<td>No children</td>
<td>97 (29.75)</td>
<td>62 (41.33)</td>
<td>10 (5.71)</td>
<td>44 (46.81)</td>
<td>13 (12.26)</td>
<td>61 (38.36)</td>
</tr>
<tr>
<td></td>
<td>Children</td>
<td>229 (70.25)</td>
<td>88 (58.67)</td>
<td>165 (94.29)</td>
<td>50 (53.19)</td>
<td>93 (87.74)</td>
<td>98 (61.64)</td>
</tr>
<tr>
<td>Education status</td>
<td>High school or lower</td>
<td>163 (50.00)</td>
<td>112 (74.67)</td>
<td>66 (37.71)</td>
<td>83 (88.30)</td>
<td>67 (63.21)</td>
<td>150 (94.34)</td>
</tr>
<tr>
<td></td>
<td>Undergraduate or higher</td>
<td>163 (50.00)</td>
<td>38 (25.33)</td>
<td>109 (62.29)</td>
<td>11 (11.70)</td>
<td>39 (36.79)</td>
<td>9 (5.66)</td>
</tr>
<tr>
<td>Main job characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start/ending age</td>
<td>Starting age</td>
<td>28.36</td>
<td>32.88</td>
<td>31.8</td>
<td>37.26</td>
<td>26.24</td>
<td>36.72</td>
</tr>
<tr>
<td></td>
<td>Ending age</td>
<td>50.13</td>
<td>51.67</td>
<td>43.47</td>
<td>51.26</td>
<td>36.09</td>
<td>45.12</td>
</tr>
<tr>
<td>Occupation</td>
<td>Manager/professional</td>
<td>84 (25.77)</td>
<td>18 (12.00)</td>
<td>37 (21.14)</td>
<td>6 (6.38)</td>
<td>10 (9.43)</td>
<td>8 (5.03)</td>
</tr>
<tr>
<td></td>
<td>Office worker</td>
<td>94 (28.83)</td>
<td>4 (2.67)</td>
<td>61 (34.86)</td>
<td>22 (23.40)</td>
<td>57 (53.77)</td>
<td>44 (27.67)</td>
</tr>
<tr>
<td></td>
<td>Service/sales</td>
<td>47 (14.42)</td>
<td>106 (70.67)</td>
<td>37 (21.14)</td>
<td>44 (46.81)</td>
<td>23 (21.70)</td>
<td>83 (52.20)</td>
</tr>
<tr>
<td></td>
<td>Farming/craft/manipulation</td>
<td>101 (30.98)</td>
<td>22 (14.67)</td>
<td>40 (22.86)</td>
<td>22 (23.40)</td>
<td>16 (15.09)</td>
<td>24 (15.09)</td>
</tr>
<tr>
<td>Firm size</td>
<td>SME</td>
<td>277 (84.97)</td>
<td>147 (98.00)</td>
<td>142 (81.14)</td>
<td>83 (88.30)</td>
<td>89 (83.96)</td>
<td>139 (87.42)</td>
</tr>
<tr>
<td></td>
<td>Large</td>
<td>49 (15.03)</td>
<td>3 (2.00)</td>
<td>33 (18.86)</td>
<td>119 (11.70)</td>
<td>17 (16.04)</td>
<td>20 (12.58)</td>
</tr>
<tr>
<td>Voluntary retirement</td>
<td>Involuntary</td>
<td>245 (72.15)</td>
<td>106 (70.67)</td>
<td>102 (58.29)</td>
<td>77 (81.91)</td>
<td>86 (81.33)</td>
<td>126 (79.25)</td>
</tr>
<tr>
<td></td>
<td>Voluntary</td>
<td>81 (24.85)</td>
<td>44 (29.33)</td>
<td>73 (41.71)</td>
<td>17 (18.09)</td>
<td>20 (18.87)</td>
<td>33 (20.75)</td>
</tr>
<tr>
<td>Start/ending age (post-main)</td>
<td></td>
<td>51.98</td>
<td>53.73</td>
<td>45.08</td>
<td>54.35</td>
<td>46.45</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Ending age</td>
<td>57.56</td>
<td>58.56</td>
<td>49.25</td>
<td>59.21</td>
<td>49.79</td>
<td>58.13</td>
</tr>
</tbody>
</table>

(Continued)
### Table 3: Continued

<table>
<thead>
<tr>
<th>Career alignment (Main vs post-main)</th>
<th>Perm to SE trajectory</th>
<th>SE to SE trajectory</th>
<th>Perm to perm trajectory</th>
<th>Perm to temp trajectory</th>
<th>Temp to churning trajectory</th>
<th>Churning trajectory</th>
<th>x^2 or F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aligned</td>
<td>180 (55.21)</td>
<td>94 (62.67)</td>
<td>101 (57.71)</td>
<td>66 (70.21)</td>
<td>65 (61.32)</td>
<td>104 (65.41)</td>
<td>10.00</td>
</tr>
<tr>
<td>Not aligned</td>
<td>146 (44.79)</td>
<td>56 (37.33)</td>
<td>74 (42.29)</td>
<td>28 (29.79)</td>
<td>41 (38.68)</td>
<td>55 (34.59)</td>
<td></td>
</tr>
</tbody>
</table>

#### Financial security

<table>
<thead>
<tr>
<th>Monthly earnings</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Main job</td>
<td>405.93</td>
<td>399.28</td>
<td>318.78</td>
<td>274.28</td>
<td>261.03</td>
<td>274.20</td>
<td>37.95**</td>
</tr>
<tr>
<td>Post-main job</td>
<td>321.51</td>
<td>248.15</td>
<td>306.22</td>
<td>196.36</td>
<td>224.19</td>
<td>203.86</td>
<td>32.05**</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total assets post-contractual retirement</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50,616.29</td>
<td>42,686.69</td>
<td>44,373.00</td>
<td>39,458.27</td>
<td>53,042.47</td>
<td>42,297.98</td>
<td>3.35**</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Financially preparedness</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepared</td>
<td>179 (54.91)</td>
<td>80 (53.33)</td>
<td>115 (65.71)</td>
<td>71 (75.53)</td>
<td>76 (71.70)</td>
<td>117 (73.58)</td>
<td>33.19***</td>
</tr>
<tr>
<td>Not prepared</td>
<td>147 (45.09)</td>
<td>70 (46.67)</td>
<td>60 (34.29)</td>
<td>23 (24.47)</td>
<td>30 (28.30)</td>
<td>42 (26.42)</td>
<td></td>
</tr>
</tbody>
</table>

Notes:

** *p < .001, ** p < .01, * p < .05, + p < .1

Percentages in parenthesis.

Monthly earnings and total assets were adjusted to CPI in 2020 and the unit in this table is ₩10,000 (≈ US$8.34 or US$1 ≈ ₩1,200).
for females decreases by 19.8 percentage points and *Perm to perm trajectory* by 5.8 percentage points. Similarly, higher education degree holders are considerably more likely to follow these trajectories (*Perm to SE trajectory* by 5.1 percentage points and *Perm to perm trajectory* by 6.7 percentage points). Overall, this tendency illustrates a segmented labour market in terms of gender and education. Women and lower-educated people have more precarious employment over their lifetimes. When it comes to job characteristics, the probability of following these patterns is lower for workers in service or sales areas than for those in other occupations. The probability of following the *Perm to SE trajectory* is greater for office workers (by 16.5 percentage points), managers or professionals (by 12.8 percentage points), or farming/craft/manipulation workers (13.8 percentage points) compared to service or sales workers. Similarly, the probability of following *Perm to perm trajectory* is greater for managers or professionals (8.5 percentage points), office workers (5.3 percentage points), and farming/craft/manipulation workers (5.2 percentage points) compared to service or sales workers.

Table 4: Factors affecting career trajectory patterns

<table>
<thead>
<tr>
<th>Variables</th>
<th>Perm to SE trajectory</th>
<th>SE to SE trajectory</th>
<th>Perm to perm trajectory</th>
<th>Perm to temp trajectory</th>
<th>Temp to churning trajectory</th>
<th>Churning trajectory</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographic characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.009***</td>
<td>−0.003</td>
<td>−0.021***</td>
<td>0.003</td>
<td>−0.005**</td>
<td>0.017***</td>
</tr>
<tr>
<td>Location (ref. non-Gangnam)</td>
<td>−0.057*</td>
<td>0.026</td>
<td>0.045</td>
<td>0.021</td>
<td>−0.018</td>
<td>−0.016</td>
</tr>
<tr>
<td>Gender (ref. male)</td>
<td>−0.198***</td>
<td>0.087***</td>
<td>−0.058*</td>
<td>0.033</td>
<td>0.050*</td>
<td>0.086***</td>
</tr>
<tr>
<td>Education status (ref. high school or lower)</td>
<td>0.051*</td>
<td>−0.034</td>
<td>0.067**</td>
<td>−0.034</td>
<td>0.016</td>
<td>−0.065**</td>
</tr>
<tr>
<td>Marital status (ref. no)</td>
<td>0.026</td>
<td>−0.091*</td>
<td>0.067</td>
<td>0.006</td>
<td>−0.053</td>
<td>0.045*</td>
</tr>
<tr>
<td>Parental status (ref. no)</td>
<td>0.003</td>
<td>−0.011</td>
<td>0.021</td>
<td>0.003</td>
<td>−0.03</td>
<td>0.012</td>
</tr>
<tr>
<td><strong>Main job characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monthly earnings</td>
<td>−0.022</td>
<td>0.123***</td>
<td>−0.029</td>
<td>−0.063**</td>
<td>−0.022</td>
<td>0.015</td>
</tr>
<tr>
<td>Manager/professional (ref. service/sales)</td>
<td>0.128***</td>
<td>−0.225***</td>
<td>0.085**</td>
<td>−0.003</td>
<td>0.009</td>
<td>0.005</td>
</tr>
<tr>
<td>Office worker (ref. service/sales)</td>
<td>0.165***</td>
<td>−0.281***</td>
<td>0.053*</td>
<td>0.059*</td>
<td>0.025</td>
<td>−0.021</td>
</tr>
<tr>
<td>Farming/craft/manipulation (ref. service/sales)</td>
<td>0.138***</td>
<td>−0.195***</td>
<td>0.052*</td>
<td>0.010</td>
<td>0.017</td>
<td>−0.022</td>
</tr>
<tr>
<td>Firm size (ref. SMEs)</td>
<td>0.016</td>
<td>−0.127***</td>
<td>0.055*</td>
<td>0.034</td>
<td>0.013</td>
<td>0.006</td>
</tr>
<tr>
<td>Average starting age</td>
<td>−0.034***</td>
<td>−0.008***</td>
<td>0.014***</td>
<td>0.001</td>
<td>−0.002</td>
<td>0.029***</td>
</tr>
<tr>
<td>Average ending age</td>
<td>0.017***</td>
<td>0.012***</td>
<td>−0.005**</td>
<td>0.006***</td>
<td>−0.005**</td>
<td>−0.025***</td>
</tr>
<tr>
<td>Financial satisfaction</td>
<td>−0.021</td>
<td>0.026+</td>
<td>−0.021+</td>
<td>0.017</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Work satisfaction</td>
<td>−0.005</td>
<td>0.012</td>
<td>0.01</td>
<td>−0.023*</td>
<td>0.002</td>
<td>−0.001</td>
</tr>
<tr>
<td>Voluntary retirement</td>
<td>−0.025</td>
<td>0.034+</td>
<td>0.055**</td>
<td>−0.036*</td>
<td>−0.018</td>
<td>−0.010</td>
</tr>
<tr>
<td>Career alignment</td>
<td>0.061**</td>
<td>−0.048**</td>
<td>−0.003</td>
<td>−0.018</td>
<td>0.016</td>
<td>−0.007</td>
</tr>
</tbody>
</table>

Notes: *** p < .001, ** p < .01, * p < .05, + < .1

The multinomial logistic analysis was used in this model and the average marginal effects are presented in this table.
sales workers. Managers, professionals and office workers as main career jobs have relatively stable career trajectory patterns.

The Perm to perm trajectory is distinguished from the Perm to SE trajectory regarding age, especially in terms of the starting age and ending age of the main job. Those who initiated their main job at a later age are less likely to follow the Perm to SE trajectory by 3.4 percentage points, while they are more likely to pursue the Perm to perm trajectory by 1.4 percentage points. On the other hand, workers who retired from their main job at a later age are more likely to be in the Perm to SE trajectory by 1.7 percentage points, while less likely to belong to the Perm to perm trajectory by 0.5 percentage points. In summary, the main job duration was a contributing factor in determining the Perm to SE trajectory or the Perm to perm trajectory. One of the main reasons comes from the different age distribution. The Perm to SE trajectory demonstrates a considerably older age cohort (59.6) that tends to show longer engagement in their prior main job and a transition to self-employment that requires less age restriction in job searching. On the other hand, the Perm to perm trajectory mostly consists of relatively younger (51.9) permanent workers. Additionally, the probability of following this pattern is greater for workers in large-sized enterprises by 5.5 percentage points and for voluntary retirees by 5.5 percentage points. It is understood that they have a considerably stable main job, but their motive to leave the main jobs at an earlier age is possibly due to searching for a better work environment.

A different pattern can be seen in the SE to SE trajectory, in which a significant number of individuals remain in self-employment and transition to another self-employment job. The probability of pursuing this trajectory is higher for female workers by 8.7 percentage points and for those with no married status by 9.1 percentage points. Service and sales occupations are more likely to pursue this career trajectory type by 22.5 percentage points, office workers by 28.1 percentage points, and farming/craft/manipulation occupations by 19.5 percentage points, compared to manager/professional occupations. The SE to SE trajectory is characterised by longer retention with an earlier starting age and a later ending age. Log monthly earnings increase the probability of following this cluster by 12.3 percentage points. This implies that the SE to SE career trajectory exhibits a relatively stable career pattern and that the gender-segmented labour market plays a limited role, at least in the self-employment career trajectory. Additionally, career alignment between main and post-main jobs decreases the probability of following this SE to SE trajectory by 4.8 percentage points, while it increases the probability of pursuing the Perm to SE trajectory by 6.1 percentage points.

The Perm to temp trajectory, Temp to churning trajectory and Churning trajectory represent unstable employment status compared to other career types. We found that being female increases the probability of following the Temp to churning trajectory by 5 percentage points and Churning trajectory by 8.6 percentage points more than being male does. Additionally, having a bachelor’s degree or higher decreases the probability of pursuing this cluster by 6.5 percentage points. The Perm to temp trajectory shows precarious employment in terms of objective and subjective labour market outcomes. Workers with lower earnings are more likely to follow this pattern by 6.3 percentage points. Work satisfaction decreases the probability of following this cluster by 2.3 percentage points. Similarly, voluntary retirees are 3.6 percentage points less likely to pursue this pattern compared to involuntary retirees. In the long term, people in this group tend to continue their career post-CR as temporary workers, which is a distinct pattern from the Perm to perm trajectory or Perm to SE trajectory. The Perm to temp trajectory’s involuntary contractual retirement

582

Unauthenticated | Downloaded 04/17/24 05:44 AM UTC
may be interrelated with their family history, including parenting and housework, and they may seek a temporary job to secure household income once their children become adults.

Finally, lower retention and lower earnings in their main job characterise the Temp to churning trajectory and the Churning trajectory. Delayed starting age in a main job increases the probability of following the Churning trajectory by 2.9 percentage points. Additionally, as the ending age increases by a year, the chance of following the Temp to churning trajectory drops by 0.5 percentage points and the Churning trajectory drops by 2.5 percentage points. Marital status, in particular, increases the probability of pursuing a Churning trajectory, implying their discontinuous career pattern is intertwined with marital status.

The effect of career trajectory patterns on later-life financial security

Additionally, we examined the effects of career trajectory patterns on financial security and psychological preparedness post-contractual retirement (post-CR). Regression analysis was used to examine (1) monthly earnings post-CR and (2) total assets post-CR, and logistic regression was used to explore (3) financial preparedness post-CR (see Table 5).

First, monthly earnings post-CR (or post-main job) was used as an outcome indicator. The Perm to SE trajectory is associated with considerably higher monthly earnings post-CR compared to other clusters. The SE to SE, Perm to temp, Temp to churning and Churning trajectories all result in lower monthly earnings post-CR than the Perm to SE trajectory. The Perm to temp trajectory earned the least post-CR among all clusters, according to the comparing coefficient. Additionally, we furthered our analysis by changing the reference categories to see a significant difference among other clusters. The result additionally shows that the Perm to temp trajectory has a lower impact on monthly earnings post-CR compared to the SE to SE trajectory. Compared to the Perm to perm trajectory, the Perm to temp, Temp to churning and Churning trajectories have lower effects on monthly earnings post-CR. The results of the analysis by changing the reference category can be found in Appendix C.

Women see greater decreases in earnings than men in their post-CR. Lower education attainment negatively affects post-main job earnings at a 90% confidence interval. Meanwhile, parental status increases monthly earnings in post-main job employment, reflecting that older workers’ responsibility for parenting children influences them to continue to work after contractual retirement. In terms of career-related characteristics, both voluntary retirement and career alignment between a pre- and post-CR job have a positive impact on post-retirement job earnings. Voluntary retirement, such as turnover and pursuing entrepreneurship, enables older workers to proactively prepare for post-CR employment more than involuntary retirement. Additionally, having a subsequent career aligned with a former job gains more earnings post-CR as they could make use of their prior labour experience, skills and social networking.

In the second model, we used the total assets post-CR (or post-main job) as another dependent variable. The result shows that the effect of career trajectory patterns is not significant. When changing the reference group, however, the SE to SE, Perm to temp and Churning trajectories show lower effects on total assets post-CR compared to the Perm to perm trajectory (see Appendix C). In terms of covariates, marital status and health status have significant positive effects on total assets post-CR.
Table 5: Effect of career trajectory patterns on later-life financial security

<table>
<thead>
<tr>
<th>Variables</th>
<th>Monthly earnings post-CR</th>
<th>Total assets post-CR</th>
<th>Financially preparedness post-CR 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Career trajectory patterns (ref. Perm to SE trajectory)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE to SE trajectory</td>
<td>−0.136** (0.045)</td>
<td>−0.116 (0.110)</td>
<td>−0.006</td>
</tr>
<tr>
<td>Perm to perm trajectory</td>
<td>−0.070 (0.048)</td>
<td>0.173 (0.120)</td>
<td>0.059</td>
</tr>
<tr>
<td>Perm to temp trajectory</td>
<td>−0.293*** (0.056)</td>
<td>−0.131 (0.139)</td>
<td>−0.173**</td>
</tr>
<tr>
<td>Temp to churnning trajectory</td>
<td>−0.209*** (0.056)</td>
<td>0.080 (0.139)</td>
<td>−0.011</td>
</tr>
<tr>
<td>Churning trajectory</td>
<td>−0.233*** (0.06)</td>
<td>−0.134 (0.148)</td>
<td>−0.147*</td>
</tr>
<tr>
<td><strong>Demographic characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.127** (0.044)</td>
<td>0.371*** (0.107)</td>
<td>0.016***</td>
</tr>
<tr>
<td>Age-squared</td>
<td>−0.001** (0.000)</td>
<td>−0.003** (0.001)</td>
<td>−</td>
</tr>
<tr>
<td>Location</td>
<td>−0.059 (0.037)</td>
<td>0.089 (0.091)</td>
<td>−0.041</td>
</tr>
<tr>
<td>Gender (ref. male)</td>
<td>−0.375*** (0.032)</td>
<td>−0.002 (0.078)</td>
<td>0.016</td>
</tr>
<tr>
<td>Education status (ref. high school or lower)</td>
<td>0.059+ (0.032)</td>
<td>0.100 (0.078)</td>
<td>0.090*</td>
</tr>
<tr>
<td>Marital status (ref. no)</td>
<td>0.019 (0.052)</td>
<td>1.056*** (0.130)</td>
<td>0.048</td>
</tr>
<tr>
<td>Parental status (ref. no)</td>
<td>0.107** (0.033)</td>
<td>0.024 (0.080)</td>
<td>0.005</td>
</tr>
<tr>
<td>Health status</td>
<td>0.030+ (0.018)</td>
<td>0.079+ (0.045)</td>
<td>0.054*</td>
</tr>
<tr>
<td><strong>Main job characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manager/professional (ref. service/sales)</td>
<td>0.084+ (0.043)</td>
<td>0.289** (0.104)</td>
<td>−0.009</td>
</tr>
<tr>
<td>Office worker (ref. service/sales)</td>
<td>0.033 (0.037)</td>
<td>0.132 (0.090)</td>
<td>−0.056</td>
</tr>
<tr>
<td>Farming/craft/manipulation (ref. service/sales)</td>
<td>−0.091* (0.037)</td>
<td>−0.095 (0.091)</td>
<td>−0.005</td>
</tr>
<tr>
<td>Workplace size (ref. SMEs)</td>
<td>0.104** (0.037)</td>
<td>−0.030 (0.091)</td>
<td>−0.118**</td>
</tr>
<tr>
<td>Average starting age</td>
<td>0.009** (0.003)</td>
<td>−0.001 (0.008)</td>
<td>−0.074+</td>
</tr>
<tr>
<td>Average ending age</td>
<td>−0.009** (0.003)</td>
<td>−0.006 (0.007)</td>
<td>−0.002</td>
</tr>
<tr>
<td>Financial satisfaction</td>
<td>−0.027 (0.018)</td>
<td>0.158*** (0.045)</td>
<td>−0.012</td>
</tr>
<tr>
<td>Work satisfaction</td>
<td>−0.015 (0.018)</td>
<td>0.146** (0.044)</td>
<td>0.005</td>
</tr>
<tr>
<td>Voluntary retirement</td>
<td>0.124*** (0.029)</td>
<td>0.237*** (0.070)</td>
<td>0.050*</td>
</tr>
<tr>
<td>Career alignment</td>
<td>0.058+ (0.026)</td>
<td>−0.080 (0.063)</td>
<td>0.003</td>
</tr>
<tr>
<td>Monthly earnings</td>
<td>−</td>
<td>−</td>
<td>0.094**</td>
</tr>
<tr>
<td>Constant</td>
<td>1.985 (1.272)</td>
<td>−3.816 (3.101)</td>
<td>−</td>
</tr>
<tr>
<td>Observations</td>
<td>964</td>
<td>1,008</td>
<td>1,008</td>
</tr>
<tr>
<td>R-squared (or Pseudo R2)</td>
<td>0.358</td>
<td>0.188</td>
<td>0.089</td>
</tr>
</tbody>
</table>

Notes:
1 Calculated as average mean estimates
*** p < .001, ** p < .01, * p < .05, + < .1
Post-CR = post-contractual retirement.

and professional jobs as one’s main job, compared to service and sales jobs, have a significant impact on total assets post-CR. Financial satisfaction, work satisfaction and voluntary retirement are also contributing factors to increasing total assets post-CR.

Finally, we used a binary indicator that examines the respondents’ perception of financial preparedness post-CR. Compared to the Perm to SE trajectory, the Perm to temp trajectory decreases the probability of perceiving financial preparedness by 17.3 percentage points, and the Churning trajectory decreases it by 14.7 percentage points. Having a higher
Middle-aged adults’ career trajectories and later-life financial security

educational degree and better health status increases the probability of perception of financial preparedness by 9 and 5.4 percentage points, respectively. These results are still significant even when financial satisfaction and log earnings were used as controls.

Overall, the results from the three models show that the Perm to temp trajectory and Churning trajectory experience financial insecurity in terms of monthly earnings, total assets and psychological preparedness post-CR. Their insecurity is associated with a precarious employment history. Distinctively, the Perm to SE and Perm to perm trajectories consistently showed higher monthly earnings post-CR than the Perm to temp and Churning trajectories. The Perm to perm trajectory, in particular, also recorded significantly greater total assets post-CR compared to these trajectory patterns.

Discussion and conclusion

This study aimed to explore how middle-aged workers’ career trajectory patterns were associated with their later-life economic security. While previous studies have concentrated on predictors in either early career transition or retirement transition, we focused on older workers who have extensive careers after contractual retirement from their primary job. Our findings indicate that career trajectories are described through the ‘human agency within structure’ framework, considering human capital accumulation, psychological characteristics and the labour market structure. The results of sequence analysis of career data from a representative sample of middle-aged adults in Seoul, South Korea show that six career patterns can be identified: (1) Perm to SE trajectory, (2) SE to SE trajectory, (3) Perm to perm trajectory, (4) Perm to temp trajectory, (5) Temp to churning trajectory and (6) Churning trajectory. Stable career patterns are likely to demonstrate a Perm to SE trajectory, and Perm to perm trajectory among males with a higher education degree, higher earnings and longer work retention. On the other hand, unstable career patterns such as Perm to temp trajectory, Temp to churning trajectory and Churning trajectory are likely to be found in lower-educated women with lower earnings and discontinuous careers. These patterns were linked to late-life financial insecurity in terms of monthly earnings, total assets and psychological preparedness post-CR.

The conclusions are as follows: first, middle-aged adults mostly experience precariousness in extended employment after contractual retirement in social structures. The majority of those who experienced the Perm to temp, Temp to churning or Churning trajectories were female and lower-educated, as shown in prior literature (Kim and Han, 2012; Calvo et al, 2018; Kye et al, 2022). The Perm to temp and Churning trajectories demonstrate old age distribution (age 60.7) and the most delayed starting age of a main job (age 37.3) and lowest lifetime earnings (₩1,963,600~₩2,742,800 or $1,637~$2,287). The Churning trajectory also reveals vulnerabilities in terms of job retention discontinuity (9.5 years on average), longer career breaks (ten years) and lower earnings (₩2,038,600~₩2,742,000 or $1,700~$2,286) over the life course. This is consistent with earlier studies that retirees with limited work experience are more likely to wind up in low-quality and insecure occupations following retirement (Lain, 2012).

Second, women experience greater discontinuity in work history over their career, and this continues into employment after contractual retirement. They tend to have devoted themselves to housework and childcare rather than continuing a job (Hoven et al, 2018). Many may attempt to search for a job again as their children grow, but a longer career break and a hierarchical social atmosphere may prevent them from entering the labour market (Kye et al, 2022). Interestingly, the Perm to temp trajectory
shows continuity of a main job until age 51 while their starting age (37) is delayed. On the other hand, the Temp to churning trajectory has a longer career break after age 36, which is interpreted as their post-marriage period. This tendency is likely to originate from their employment status and parental status, as supported by Lee and Yeung (2021). The Perm to temp trajectory shows the majority of females initiating a permanent work career and a relatively low parental rate (53.2%), while the Temp to churning trajectory shows highly distributed female temporary workers and a high parental rate (87.8%).

Third, self-employment is a dominant trend that is captured in the later career stages of middle-aged adults who have relatively stable main jobs. Permanent workers or self-employment workers tend to transition in their late career to self-employment (Perm to SE and SE to SE trajectories). One of the interesting results is that the SE to SE trajectory is distinguished from the Perm to SE trajectory by less career alignment between the main job and the post-main job. A lack of career consistency in this group implies some degree of instability and uncertainty in the intensely competitive self-employment labour market (Grubb et al, 2007; Jun, 2020). This absence of career alignment may cause lower earnings in later life. On the other hand, the Perm to SE trajectory tends to accumulate professional skills during their prior permanent or full-time career. They are more likely to pursue self-employment using their job experience or social networking, which brings considerable earnings post-CR.

Our results show that the SE to SE trajectory is more likely to be found among women when controlling for other covariates. Given the gender-segmented labour market structure in Korea (Kye et al, 2022), this implies that self-employment can be a decent option for women, enabling them to prevent late-life financial insecurity. Meanwhile, it should be considered that self-employment in Korea has been oversupplied with older adults (Jun, 2020). In this regard, education programmes for retirement preparation should be designed with a thorough understanding of market, region and profitability analysis as well as policy recommendations.

Fourth, career-related characteristics also have an influence in determining career trajectory patterns. The Perm to perm trajectory is more likely to experience voluntary retirement than the Perm to SE trajectory. The former group, which is relatively younger (51.9), tends to leave their main job in their early 40s but rapidly switched to another permanent job with a similar level of earnings. Their voluntary retirement implies upward career mobility, or that they are seeking better work conditions with accumulated human capital. Additionally, lower work satisfaction increases the probability of following the Perm to temp trajectory, which consists of lower-educated women, mostly distributed in service and sales occupations. It should be considered that their career transition might be intertwined with their marriage as well as work satisfaction.

Fifth, middle-aged workers with a history of precarious employment are more likely to face financial uncertainty later in life. Our results found that, compared to the Perm to temp and Churning trajectories, stable career trajectories, such as the Perm to SE or the Perm to perm trajectory, are more likely to have monthly earnings and total assets post-CR. Comparing coefficients, the greatest disparity was found in earnings between the Perm to SE and Perm to temp trajectories and in total assets between the Perm to perm and Churning trajectories. The stable career patterns may also benefit from higher contributions to pensions once they reach pension-eligible age due to the consistency and stability of their previous careers. On the other hand, those in the Perm to temp and Churning trajectories are more likely to perceive
themselves as financially insecure in old age than those in the Perm to SE trajectory. Given their inconsistent career histories, their savings or pension benefits may not be sufficient, which may lead to elderly poverty unless they have other means, such as private support or sufficient savings (Jun, 2020). They may feel compelled to work in precarious jobs to make a living rather than retire completely (Dingemans and Möhring, 2019). This result confirms that financial security in old age is related to individual prior career trajectories (Chae and Heshmati, 2017).

Given these findings, it is recommended that contractual retirement preparation programmes and social services be individualised according to workers’ prior career trajectory patterns. Additional attention should be given to the options for accumulating pension entitlements and savings across different career trajectories, for single female seniors, or those on lower incomes. Consideration should be given to the opportunities and quality of work post-CR for the target group (Dingemans and Möhring, 2019). Elders’ employment services should help contractual retirees find post-CR jobs that make optimal use of their accumulated skills and work experience. At the firm level, organisational support to help them proactively prepare for a post-CR job aligned with their main career is needed ahead of their age of contractual retirement. Furthermore, expanding the contractual retirement age at firms should be considered in the long run, as should relaxing the existing age-discriminatory atmosphere and providing employers with incentives to make this change.

**Limitations and future research**

The following limitations should be considered in analysis of this study as well as the questions it poses for further research. Measures of household total income data, aggregated using earned income, financial income, real estate, public transfer payments (for example, public pensions, unemployment insurance benefits), private transfer payments (for example, financial support from children or family) and miscellaneous income, were restricted due to the low response rate of each item (4~15%) except earned income. Missing data from participants who elected not to respond could have created differences in the results found. Additionally, pension was not included in the model as the survey failed to distinguish public pensions from public transfer payments and private pensions from financial income in the survey items. We also recognise that almost all the respondents at the time of contractual retirement did not meet the minimal age requirement for public pensions. Further study, however, can consider the impact of pension benefits, especially at the point of actual retirement. Second, the fact the respondents (aged between 45 and 70) represented several generations creates potential differences in their social experiences on later-life financial securities. Third, an endogeneity issue may arise when the career trajectory patterns predict late-life financial security indicators. Workers with higher earnings or total assets post-CR may be better able to afford stable career trajectory patterns. Lastly, by aggregating average patterns and outcomes for various trajectory patterns, we eliminate a large variance within trajectories. Future research can differentiate temporary full-time jobs from temporary part-time jobs to give a deeper understanding of interpreting different dynamics within a related temporary career trajectory pattern.

**Funding**

This study was funded by Seoul National University for the Open Access publication fee.
Acknowledgements

We thank the two anonymous referees, the journal’s editors, Randy Olsen, Tian Lou, and the participants at the Consumer Science Research Seminar 2022 at the Ohio State University, and the SLLS International Conference 2022 for their helpful comments and discussions. This paper is the result of a collaboration with the City of Seoul’s 50 Plus Foundation. This study represents the authors’ independent research and does not necessarily reflect the opinions of the foundation.

Conflict of interest

The authors declare that there is no conflict of interest.

References


