

## Using occupational history calendars to capture lengthy and complex working lives: a mixed method approach with older people.

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**Word Count: 7965**

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57 **Abstract (159 words)**

58 Accurately documenting the occupational biographies of older people can be challenging given their  
59 lengthy duration and the complexity of contemporary employment. This paper shows how a  
60 traditionally quantitative occupational history calendar (OHC) instrument can be adapted for use in a  
61 in a mixed methods research design, to gather in-depth information about long working lives. The  
62 OHCs were embedded within semi-structured interviews and recorded lifetime work histories of  
63 between 33 and 53 years for 56 participants. Sequence analysis of the calendar data was undertaken  
64 in parallel to thematic analysis of interview transcripts. This included in-depth exploration of the  
65 factors motivating occupational changes and transitions and their impact in older age. Mixing  
66 methods allowed us to collate data over relatively long periods of time and enabled an examination  
67 of the complex interplay between work, family and personal circumstances that shapes employment  
68 histories. Selected research findings are used to demonstrate how this tool can effectively facilitate  
69 the exploration of long working lives.

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71 **Key Words:** occupational history calendars, work histories, older people, mixed methods research,  
72 sequence analysis

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## 74 Introduction

75 Population ageing is a global phenomenon which poses significant social, economic and political  
76 challenges coupled with opportunities as well as pressures for labour market participation (Green,  
77 2009). Longevity, longer working lives and in some countries the abolishment of a default retirement  
78 age also poses methodological challenges for research requiring a lifecourse perspective on  
79 employment. Green (2009) purports 'a need for more research on how the life course varies for  
80 different subgroups in different regions and local areas and how the employment to non-  
81 employment transition of older people fits alongside other life course transitions' (p.57).  
82 Nevertheless, accurately documenting patterns and transitions in the occupational biographies of  
83 the elderly can be difficult, given their long duration and the transient and multifarious nature of  
84 contemporary employment (Lilley, Cryer, Firth, Herbison & Feyer, 2011).

85 Employment patterns and transitions involve complex processes that are socially determined;  
86 shaped by personal and contextual factors (Wiseman and Whiteford, 2009). Decisions about  
87 retirement are similarly embedded in historical, cultural and social contexts (Kim and Moen, 2002)  
88 and careers are becoming increasingly discontinuous and characterised by instability (Tams and  
89 Arthur, 2010). Longer working lives will reflect multiple shifts in occupational and social patterns  
90 and changes in labour market conditions associated with wider institutional, demographic and  
91 macroeconomic change. The impacts of these changes are not distributed equally. For instance, the  
92 current cohort of older workers appears to be particularly vulnerable to the increasing competitive  
93 pressures associated with globalisation (Blossfeld, Buchholz & Kurz, 2011) especially in the UK where  
94 the employment system is relatively uncoordinated by European standards (Schmelzer, 2011).  
95 Capturing such variety and complexity is important to understanding how micro and macro level  
96 factors impact on older people within the context of their working lives. This requires a method of  
97 data collection that optimizes occupational recall and quality of recalled information (Lilley et al.,  
98 2011). For older people, the need is paramount. Recalling work histories over an extended  
99 trajectory can prove difficult, potentially leading to inaccurate reporting, recall bias and issues with  
100 reliability, validity and credibility. Past experiences may be distorted or merge together into partial  
101 truths. According to Parry, Thomson and Fowkes (1999), a significant factor in minimising recall  
102 problems is the manner in which the data is collected.

103 A variety of methodological techniques have been developed to facilitate recall and collect accurate  
104 retrospective data on employment histories. One such method is the occupational history calendar  
105 (OHC); a grid based instrument developed by occupational epidemiologists which uses multiple  
106 recall cues such as historical markers and visual aids to facilitate recall and enhance accuracy of data  
107 (Engel, Keifer & Zahm, 2001; Hoppin, Tolbert, Flagg, Blair & Zahm, 1998; Lilley et al., 2011; Zahm et  
108 al., 2001). Modelled on the Life Event Calendar (LEC) approach (Axinn, Pearce & Ghimire, 1999;  
109 Caspi et al., 1996), the OHC provides researchers with an ideal platform to capture transitions and  
110 multiple changes over the lifecourse (Scott-Ricks & Harrison, 2011; Sutton, 2010). Engel et al. (2001)  
111 used an icon calendar-based questionnaire to assess the occupational histories of farm workers and  
112 concluded that the grid based questionnaire was more effective in obtaining a complete picture of  
113 occupational histories than traditional methods. Zahm et al. (2001) adapted Engel et al.'s (2001)  
114 method in their study ascertaining occupational histories and other characteristics of migrant farm  
115 workers. Results demonstrated that it was feasible to use OHCs to capture complex work histories.  
116 Both studies corroborated previous work by Hoppin et al. (1998) who introduced the use of

personal and historical landmark events in the calendars, to anchor work activities in time and facilitate the recall over the life course. More recently, Lilley et al. (2011) used an OHC with the working population in New Zealand and concluded that a calendar approach was appropriate for collecting occupational histories with the general public although cautioned that it was rather resource intensive for large scale population surveys.

In line with positivist dominated lifecourse research (Verd and Lopez, 2011), the OHC approach traditionally generates quantitative data and is typically analysed using statistical methods such as event history analysis or more recently, life sequence analysis (Eerola & Helske, 2012; Pollock, Antcliff & Ralphs, 2002; Wiggins, Erzberger, Hyde, Higgs, & Blane, 2007). This particular procedure uses optimal matching and cluster analysis to identify the differences and similarities between the individual work histories and groups them in a systematic way taking account of different employment states and transitions between them. According to Eerola and Helske (2012), the analysis of event sequences to describe life trajectories such as employment histories provides detailed information about 'how things are' but not necessarily why they happen? Whilst event history analysis may address this, 'why' questions are often best answered using qualitative approaches.

To this end, some researchers have started to use calendar based life history review instruments qualitatively (Harris & Parisi, 2007; Martyn & Martin, 2003; Nelson, 2010). The appeal of using calendars in a qualitative context not only lies in their capacity to foster insights (Belli & Callegaro, 2009) but can lead to enhanced researcher – participant interaction and better understanding of the issues under investigation (Harris & Parisi, 2007). Nelson (2010) considered the methodological adaptation as good as the traditional quantitative method for capturing processes and complex patterns and had the added advantage of capturing explanatory data to inform the 'hows and whys' (p.42) of the transitions.

This interpretative approach has been successfully used in different permutations with older participants across a range of disciplines. Berney and Blane (2003) developed the Lifegrid Method which was shown to collect socio-demographic information with useful accuracy after 50 years. Holland et al. (2000) used this method to collect full occupational, residential and household histories, from which accumulated lifetime exposures to a range of environmental hazards were estimated. Parry et al. (1999) also used the Lifegrid Method to explore associations between life experiences and smoking; to gauge life course influences on patterns of persistent smokers aged 65-85 years. Although Bell (2005) challenges the utility of the Lifegrid Method for qualitative researchers, considering it 'non-reflective and too date and event centred'(p.65), he contends that it encourages participants to address the issue of change over time and may prove suitable when collecting relatively factual data. Meltzer (2001) developed the Self Discovery Tapestry to explore the occupational careers of mature women. Although not specifically designed for older people, she concluded that the tool was suitable for use with an elder population. This was borne out in the work of Feldman and Howie (2009) who used her Self Discovery Tapestry with people aged 80 years and over in Australia.

To date, the traditional OHC has yet to be used qualitatively or exclusively with older people but a number of methodological and practical considerations makes it a uniquely valuable tool for conducting research with an elder cohort. Given the tendency of older people to 'construct their

biographies using a range of meaningful reference points' (Parry *et al.*, 1999, p. 2), the matrix design provides an explicit framework that enables older participants to focus their attention on specific topics and acts as a stimulus for dialogue (Feldman & Howie, 2009). Calendar methodology also draws on reminiscence and potentially has therapeutic value (Berney & Blane, 2003). Importantly, the OHC is a visual tool providing a graphic representation of the participants' occupational history that enables gaps and contradictions to be easily determined (Freedman, Thornton, Camburn, Alwin & Young-DeMarco, 1988). This visualisation not only supports recall of previous work experiences (Meltzer, 2001) but provides opportunity for reflection and analysis of one's own occupational biography (Feldman & Howie, 2009).

Exploring complex social phenomenon such as occupational or career transitions over long working lives is difficult to do within a single paradigm; "the messiness of complexity demands multiple investigative tools" (De Lisle 2011:89). Verd and Lopez (2011) similarly suggest that the combined use of qualitative and quantitative data provides a holistic perspective that substantially improves lifecourse research. Given the demonstrable reliability of the OHC approach in capturing lifetime occupational histories and the acknowledged value of adopting a qualitative approach to lifecourse data collection, in particular when working with older participants, both tools were selected for use in an European Social Funded project on discrimination and older workers in the North West of England (Carmichael, Hulme, Porcellato, Ingham & Prashar, 2011; Porcellato, Carmichael, Hulme, Ingham & Prashar, 2010).

Despite evidence that calendar based instruments provide an ideal framework for collecting multiple forms of data (Creswell & Plano Clark, 2007) and thus are amenable to mixed method research (Sutton, 2010), there is a dearth of such studies. Scott-Ricks and Harrison (2011) attribute this paucity to a 'lack of epistemologic clarity on how to use the tool' (p. 263). This paper seeks to address this gap in procedural knowledge by discussing the development and application of our mixed method OHC. Selected research findings will be used to illustrate how this tool can effectively facilitate the exploration of the long working lives of older people. Advantages and limitations of using this pragmatic approach will be considered.

## **Development and application of the OHC**

A number of modifications to the conventional OHC (Engel *et al.*, 2001; Hoppin *et al.*, 1998; Lilley *et al.*, 2011 & Zahm *et al.*, 2001) were required to accommodate our research. Similar to Lilley *et al.* (2011), A3 sheets in a landscape orientation were used and space to record demographic data (age, ethnicity, date of birth, gender, marital status and current employment status) was earmarked at the top of the first sheet. This size was considered large enough to clearly record data without being too cumbersome to populate and transport to interview locations. Moreover, when spread out in front of participants, the sheets emulated a timeline which provided a focal point for the interviews. As shown in Figure 1., there were seven fixed columns from left to right: age, year, months on a quarterly basis and significant historical events across time. Unlike traditional life event calendars, only one central domain (employment) was used and each row of the grid was one year in the work life of the participant. A time frame of at least 56 years set out in tri-monthly increments was needed, to span lifetime employment of all the participants. Similar to Hoppin *et al.* (1998), a series of computer generated stickers was used to represent other important domains (e.g. key life events such as first job, leaving education, graduation, marriage, births, divorce, relocation). Open ended

interview questions were developed and asked upon completion of the OHC. Participants were encouraged to reflect on their employment history as documented on the OHC and to consider factors (both positive and negative) that they perceived influenced their employment experience over time.

*Figure 1 about here*

Fifty-six men and women domiciled in North West England were interviewed in 2006-7. Participants had responded to information flyers distributed at various publicity events for older people. The sample was selected purposefully to reflect a range of ages 50 and over, different occupations and comprise both men and women. The lower threshold of 50 years was selected to reflect existing research and policy statements which generally consider those 50 and older as the demographic group of interest (Khan, 2009; OECD, 2004; 2005; 2006). Table 1. summarises characteristics of the sample at the time of the interview. An interview schedule informed by the review of literature was developed to ensure consistency amongst four interviewers. Interviews were held at a location of convenience for participants. Permission to audio record the dialogue during the completion of the OHC and the follow on interview was obtained. Ethical approval for this study was obtained from the University of Salford Ethics Committee.

*Table 1 about here*

The OHC was introduced at the beginning of each face to face interview and positioned between the interviewer and interviewee. Not only did this provide a central focus for the process but it signified that populating the calendar was meant to be a collaborative effort and encouraged the narrative exchange of information while collecting objective data. To begin with, demographic details were recorded on the OHC and then important life events (graduation, first job, marriage, births, relocation) based on month and year were mapped using the computer generated stickers. The stickers, in conjunction with the historical markers listed on the side of the grid provided 'anchors' to help participants logically sequence their work histories ( Figure 1).

There is little evidence about the best way to move through the calendar, but Bradburn, Rips and Shevel (1987) suggest that better levels of recall are achieved when individuals move backwards from the present to the past. As such, detailed work histories (type of job, employment status, location, duration on a job) were recorded as horizontal lines on the OHC, on a job by job basis in reverse order from present day to first ever job (Engel et al., 2001). Different colours were used for different employment states (e.g. black for unemployment, pink for part time employment). A change in job or status was signalled by a short vertical line (Figure 2). With each new job recorded, participants were asked the reasons for taking the new job, the reasons for leaving/ changing the previous job and if they had remained in a job long term, the reasons for staying in this job. This information was recorded on the calendar and captured in full on the audio recording as well. Once the calendar was completed, it was spread out in front of the interviewee and used as a prompt for a series of follow on questions to collect in-depth retrospective data relating to participants' employment experiences, the barriers they may have faced in employment, particularly in later life and perceptions about how the working environment had changed over the course of their lives. The interview concluded with 3 standard demographic questions relating to educational attainment, health status and household income.

*Figure 2 about here*

## **Analysis**

The data from the occupational history calendars was collated in several ways and in different stages; to facilitate a multi-method analysis of whole trajectories as well as individual transitions. Initially, the data on individual work histories were input into an Excel file (see Figure 3) where we recorded the employment status of each participant from the age they started their first job to their age at the interview using colour and numerical codes for different broadly defined occupations and employment status: professional/managerial; skilled; semi-skilled; unskilled; education/training; not in paid work; child/family care. We experimented with narrower ways of coding the data including differentiating part and full-time employment, but these alternatives suffered from infrequent observations in some categories. The coded data were input into Stata 13 and we used the SQ-Ados scripts (Brzinsky-Fay, Kohler, and Luniak *et al.* 2006) to analyse each of the 56 employment histories or careers as a sequence or string of employment activity states over the lifecourse of the individual.

*Figures 3 and 4 about here*

Figure 4 provides a broad picture of life-history data using a state distribution plot. This plots the distribution of employment states by age and represents aggregated views of successive slices of time. The height of each of the coded segments at each observation is proportional to the frequency of each state at each age. The graph usefully shows how the distribution of the states changes over life histories. For example, as the sample age, incidences of time out of paid work for reasons other than family care and time in managerial/professional employment both increase. After exploring the raw sequence data we used optimal matching and cluster analysis to create a typology of the employment histories of the sample members (Anyadike-Danes & McVicar, 2010, p. 486). The optimal matching procedure compares all pairs of sequences and uses a non-parametric algorithm to compute the minimum distance, in terms of costly operations, to turn one sequence into another. The substitution costs were generated using a symmetric transition frequency-based substitution cost matrix and insertion/deletion (indel) costs were fixed at half the maximum substitution cost and standardised by the length of the longer sequence (Brzinsky-Fay *et al.* 2006; Potârca, Mills and Lesnard, 2013). The resulting distance matrix was used in the cluster analysis with the widely used Ward's algorithm. Using an iterative process (Potârca *et al.* 2013) five distinct employment patterns were identified. Table 2 provides illustrative data on the five clusters which were characterised by the predominance of: 1. unskilled career paths; 2. a patch worked mix of employment states indicating varied careers with early periods as a child/family carer and higher incidences of time out of paid employment with age; 3. skilled careers with some earlier employment in semi-skilled posts; 4. skilled employment with transitions into professional/managerial careers or, alternatively non-employment (upward or out) and; 5. mainly professional and managerial careers with some early skilled employment.

*Table 2 about here*



Parallel to the sequence analysis of the calendar data, recorded interviews were transcribed verbatim and identifiable data was anonymised. Data management and thematic analysis was done using QSR International's NVivo 2 qualitative data software. Data was analysed using a staged thematic content analysis method espoused by Burnard (1991) and Burnard, Gill and Stewart (2008). Based on grounded theory (Glaser and Strauss, 1967), this pragmatic approach involves the systematic process of coding transcripts and identifying themes and patterns across the data set. The first stage involved reading the transcripts and allocating open codes to individual concepts. In the second stage, similar codes were collated together into a smaller number of conceptual categories. In the third stage, themes were identified in relation to the coded extracts and the entire data set. Saturation was assumed to be reached as no new codes were identified in the final transcripts analysed. To establish trustworthiness of the analysis, a sample of the transcripts were also analysed manually by the other researchers and cross checked with the computer- assisted analysis to ensure congruence.

The two approaches were then integrated by using the employment trajectories embodied in the cluster groupings to explore how different career paths were associated with the themes that emerged from the qualitative analysis. One illustration is that in the thematic analysis of health and ageing, there were different experiences of mental and physical ill-health over lifecourses and in later life depending on different career trajectories. For example, people on unskilled and patchwork career paths in clusters 1 and 2 were observed to have experienced more incidences of ill-health than others with prolonged ill-health precipitating early retirement in some cases (Carmichael, Hulme, Porcellato, 2013). People in cluster 1 also tended to view today's labour market more negatively than the labour market which had shaped their early careers in the 1960s and early 1970s. In another example, the thematic analysis of education and training revealed that transitions into professional/managerial careers in cluster 4 were linked to time spent in full-time education mid-career. Interestingly, members of cluster 4 were also particularly vocal in the thematic exploration of age discrimination.

Whilst the qualitative analysis enabled themes to be highlighted, the trajectories and time or career dependent elements were less evident. The quantitative analysis was able to bring out these more hidden nuances – in particular those that related to changes over time or were time dependent over employment histories that spanned up to 5 decades. The mixed method approach, given the individual participants were of different ages and each followed a unique employment path/trajectory, provided a systematic method which enabled patterns and trends to be identified and allowed us to explore the interrelationships between time in paid work, family commitments and other aspects of individuals' lives that underpinned their different career histories. In particular, the mix of methodologies facilitated an examination of the individual occupational histories over time, how they had evolved and how they had continued to shape the lives of the participants.

## **Discussion**

The focus of this article is on the application of a mixed methods research approach rather than study findings. The intention is to illustrate the utility of embedding an OHC into a semi-structured interview, to effectively capture data on the long working lives of older people in a systematic manner and in doing so, to address the dearth in research reporting on mixed methods studies using

time-line techniques as well as contribute to the burgeoning evidence base on mixed methods in gerontological research (Happ 2009).

Given the effect of ageing on memory recall and the lengthy, complex and often transient nature of contemporary employment, accurately documenting occupational biographies can be difficult for older people. To enhance the accuracy of self-reporting, it is imperative to use tools which optimise recall via visual and verbal cues. There is a substantive body of evidence that demonstrates the effectiveness of calendar based tools in systematically capturing high quality, time-based data, retrospectively (Freedman et al., 1988; Axinn et al., 1999; Caspi et al., 1996; Belli & Callegaro, 2009). OHCs in particular have been used successfully to elicit complex work histories from farm workers (Hoppin et al., 1998; Engel et al., 2001; Zahm et al., 2001) and the general working population (Lilley et al., 2011) but have yet to be used exclusively with an elder population. Traditional OHCs use empirical analysis of data to statistically explore patterns in data across the lifecourse. However, this quantitative approach does not allow for individual explanations of behaviour and decision-making (Harris & Parisi, 2007). Moreover, the highly structured nature of the OHC limits the type of data collected (timing and sequence of jobs). Although easier to analyse, the data lacks the depth and breadth needed for in-depth understanding of complex social phenomenon and cannot provide meaningful explanations of emergent patterns; in essence the 'whys' behind participants' trajectories.

There is an emerging body of work that has adopted a more interpretative stance and used life history calendar methods qualitatively which has greater scope for capturing explanatory data; allowing for greater insights and shedding light on patterns and employment transitions over the lifecourse. According to Harris and Parisi (2007), a qualitative approach contributes to explaining differences in work histories across people, places and time, illuminating interactions between history, biography and context. This ability to capture individual heterogeneity is vital, given that older workers form a very heterogeneous group in terms of health, skills, types of jobs, and the local labour market (OECD 2006). Some researchers have used life history calendar techniques in conjunction with interviews (e.g. Martyn & Martin, 2003; Harris & Parisi, 2007; Nelson, 2010; Scott-Ricks & Harrison, 2011). In these studies, priority was given to the qualitative data with basic descriptive statistics used to demonstrate trends in calendar data. But as far as we are aware no studies give equal priority to each paradigm, as is done in our study, where the integration of data enables a far richer analysis of the data collected than would be possible individually.

#### *Advantages of mixed-method OHCs*

Adopting a mixed methods design to obtain full work histories on a sample of older people and as part of this process to identify different career pathways and the factors shaping them, proved to be a sound methodological strategy. Taking this 'pragmatic' approach enabled the older participants to map out their work lives in a systematic and comprehensive fashion whilst at the same time enabled the research team to capture the participants' whole labour market career and explore the factors motivating occupational transitions and changes in employment status. In particular, we could explore the factors underlying individual occupational histories and how different pathways had impacted on the lives of the participants in older age including their perspectives on ageing, their wellbeing and transitions into retirement. The quantitative clustering of the sample according to their different work histories additionally lends itself to consideration of how perspectives on age and experiences of ageing are shaped by individual life courses. This fostered new insights and lines

of enquiry that would not have been possible using a single method. Overall, the integration of mixed methodologies enabled an in-depth examination of the complex interplay between work, family and personal circumstances that shapes employment histories.

In practical terms, the integrated approach was implemented by combining the typologies resulting from the sequence analysis with the qualitative methods by grouping sample members and comparing their experiences and observations. As an illustration, the use of the OHC nested within an interview facilitated the exploration of the multi-causal factors and underlying reasons for the identified transitions between employment states, including transitions into retirement, and career changes that were in themselves too disparate to model in a formal way. For example, the reasons for the changes in employment status and occupational transitions recorded in the calendars were scrutinised in the qualitative component of the interviews. In this way we were able to identify five main reasons for the transitions between employment states and occupations identified in the quantitative component. The significance of these influences varied between the clusters but there were also differences between them as well as commonalities across the clusters notably by gender and at different stages in people's lives. Moreover, it was possible to unpack the impact of decisions made earlier in an individual's working life on transitions made in later life. For example, for one interviewee (F1, age 54, self-employed part-time (cluster 2)) her decisions to work for an academic publisher and set up a training business were related to her earlier career as a teacher; for another (M43, age 59, unemployed (cluster 4)) his decision to take voluntary redundancy and go into full-time education in his 40s was linked to an unsettled period in his life due to divorce and the death of a close relative.

Using a mixed methodology enabled us to capture the underlying structure of the long life histories of older people and derive typologies of those histories over an extended period of time. This is an important advantage in ageing research given that panel data at the national level are not widely available for the length of time necessary to assess the employment histories of people in their 50s and 60s in a comparable way. For example, full data for the original British Household Panel Survey/Understanding Society sample are currently only available for 20 years. The shortest sequence used in our analysis is 33 years. However, some purpose specific, retrospectively constructed datasets are available over longer time-frames e.g. the British Household Panel Survey Combined Work-Life History files (Haplin, 2000).

The research also suggests that OHCs used within an interview are aptly suited to the needs of older respondents. The OHCs provided a useful focal point for the interview, giving it structure. This made it easier for the respondents to construct their narrative and enabled the researchers to gather a coherent and comprehensive mix of data. The physical and visual nature of the OHCs highlighted patterns and trends at a glance and where information gaps were evident or additional further understanding was needed, probe further. Consistent with other studies (e.g. Engel et al., 2001) participants were keen to ensure their timelines were as complete as possible which enhanced the quality of the data in terms of the validity and reliability.

A particular attraction of using the OHC in a mixed methods design with older people is the reflective nature of the tool. The opportunity to '*walk down memory lane*' was appreciated and often acted as a catalyst for further reflection. The process of 'thinking back' on significant life events is known to have significant therapeutic value for older people. Recalling past experiences can enhance self-

412 esteem and heighten sense of identity (Yen-Chun Lin, Yu-Tzu Dai & Shiow-Li Hwang, 2003). In  
413 relation to occupational histories, the OHCs and the follow on interviews provided an opportunity  
414 for older people to visualise their working lives on paper, to reminisce about past accomplishments  
415 and provide explanations and justification for actions taken and decisions made. The reflective  
416 nature of the tool, the cathartic benefit of telling their life story, of being listened to and feeling  
417 valued engendered a positive and enjoyable research experience for many of the participants. This  
418 satisfaction in the research process, as evidenced below can have a positive impact on the data,  
419 enhancing both accuracy and reliability of the data (Glasner and van der Vaart 2009).

420 'I think it's given me an opportunity to really think about how I do feel about it all. And I guess  
421 that what attracted me about it, about being interviewed was how I feel now, this sort of  
422 transition period and it's sort of very frightening going into retirement' (F13, female age 59,  
423 employed full-time)

424 'It is, it is interesting isn't it, it is, and yes you know, it's given me food for thought too' (M26, male  
425 age 54, employed full-time)

426 The participatory nature of the chosen methods provided an opportunity for older people to be  
427 engaged in co-producing meaningful data for research. Not only is this empowering, active  
428 engagement promotes shared responsibility of the research process which creates a desire to  
429 produce high quality data and gives the message that their contribution is valued. This is important  
430 for a population who tend to hold a minority status in society today. In our opinion, it was this  
431 collaborative component, the working together to populate the OHC that also enhanced the  
432 research experience for our participants. Co-constructing their work biographies ensured that the  
433 difficulty and frustration encountered by Feldman and Howie's (2009) older sample when self-  
434 completing their life history review tool would not be experienced by our participants.

435 A further point is that the interactive format makes for pleasant data collection conditions not only  
436 for the interviewees but the researchers as well. Similar to Harris and Parisi (2007), our researchers  
437 enjoyed listening to the respondents narratives and working collaboratively with them to co-  
438 construct the OHC.

#### 439 *Limitations of mixed-method OHCs*

440 Adopting a mixed methods approach to collecting and analysing the long working lives of older  
441 people poses several methodological challenges. Consideration must be given to aspects of the tools  
442 used and the population with which they are being administered. One such consideration is paper  
443 size. According to Nelson (2010) paper size is important and has implications on where interviews  
444 can be conducted and what data can be analysed. She used blank A0 easel paper rather than a pre-  
445 printed matrix but this unstructured format meant that the calendar data could not be formally  
446 analysed. Our choice of paper size (A3) proved suitable for use with older people. The size was large  
447 enough to record data that was legible to the respondents and easily accommodated the stickers  
448 earmarking key life events. The use of the stickers to record personal events helped to personalise  
449 the data collection: 'was that after your son George was born?' which in turn maintained the interest  
450 and focus of the participants. This cross-referencing of personal information with job histories  
451 additionally helped to reduce discrepancies; for example, by clarifying dates that might otherwise  
452 simply be guessed or only roughly estimated.

Pragmatically, the OHC can be cumbersome and complicated to complete. The number of sheets required (up to seven in some cases) to obtain full work histories made management of the OHCs somewhat unwieldy during the interviews. Equally, co-ordination of the various pens and multiple stickers needed for coding was burdensome and could detract interviewers from other tasks such as following up on important details and correcting inconsistencies. The unwieldiness of the traditional pen and paper method could potentially be circumvented by using a tablet or laptop computer but this format may not be best suited to all older people as some may be more comfortable using pen and paper methods rather than technological interfaces. As noted by an anonymous reviewer, the use of a computer in the interviews could also inhibit rapport building.

Some inconsistencies in how different researchers recorded the data were also noted although these did not surface until the analysis stage. For example, different colour codes used, and multiple jobs were recorded in different ways. The value of using a mixed methods design became apparent here as interview transcripts were then used to help clarify any resulting inconsistencies in the data. Further inconsistencies emerged in how interviewers moved through the OHC. One interviewer began interviews with the participant's first job rather than last. This was not deemed an issue of particular concern as Belli and Callegaro (2009) are of the opinion that priority should be given to the respondent's preferences for moving through the calendar, but it does highlight the need for training of researchers using OHCs, to ensure consistency in approach. Further research is needed to assess the impact of different approaches to recording data on the OHC to maximise methodological benefits (Roberts and Horney, 2010).

Collecting data on an older population also poses challenges. Despite efforts to maximise recall by using OHCs, there were still some difficulties in remembering periods of employment, especially when the participants had only been in a particular job for a short time or had held multiple jobs simultaneously (this was also difficult to code in the calendars). Gaps in work histories were inevitable given respondents age but we found that discussion during the follow-on interviews could jog their memory and gaps in the time line were subsequently filled as part of the interview process further highlighting the benefit of using a mixed methods design.

Time is another factor that merits consideration when collecting data from an elderly cohort. An OHC administered within a semi-structured interview increases the amount of time needed to complete the data collection process. Duration ranged between one and two and half hours with most lasting longer than an hour and a half. Although not particularly excessive time-wise, recalling and reflecting on significant events sequentially across a long life span can be difficult for older participants (Feldman & Howie, 2009). Researchers need to be cognisant of the emotional demands that timeline tools can bring to bear on participants.

Additional limitations relate to the analysis of the OHC data as sequences which requires the application of optimal matching. This method has been criticised because of concerns about how researchers determine the substitution and indel costs that are used to calculate the dissimilarity matrix (Halpin, 2003, 2010; Piccarreta 2012). Ideally these costs should be determined by theory but this is not usually practical (Davia and Legazpe, 2014). Using a transition based substitution cost structure as here treats non-frequent transitions as more costly and setting indel costs equal to one (the Levenshtein I OM parameterization, see Potârca et al 2013) attaches importance to preserving the timing of sequences but does not restrict the procedure to using only substitution operations.

While sequence analysis has been more commonly used to find patterns in large data sets, the non-parametric Needleman-Wunsch alignment algorithm used in the optimal matching procedure makes no distributional assumptions. In addition, embedding the OHC in a qualitative interview has the advantage of allowing for detailed inspection of the patterns identified and their relevance. As suggested by an anonymous reviewer, future research could nevertheless benefit from using large national data sets to perform parallel sequence analysis and using the findings to inform new qualitative research.

## Summary

This paper provides procedural knowledge on the adapted use of an OHC nested within a semi-structured interview, to analyse the employment histories of a sample of older people. Given the age of the participants, their life histories were predictably long and complex. Adopting a mixed methods research design to capture both qualitative and quantitative data not only enabled us to explore patterns but helped us develop a more holistic understanding of the data and uncover some new insights about the interrelationships between age and employment over the lifecourse. The use of the mixed method OHC was central to this study and allowed us to collate data over relatively long periods of time. Further, by integrating semi-structured interview questions within the OHC format in this study, we were able to contextualise the employment experiences of the sample members and better understand how older people themselves perceive the relationship between age and work, the barriers to employment they face and their perceptions of the changing work environment. In particular, the complexities of individual decisions, both at a moment in time and over the lifecourse could be explored. This is an important consideration in research on ageing and employment where snapshots of individual lives can potentially give misleading information. The research reported here can be viewed as a first step in the application of this particular mix of methodologies to research the employment histories of older workers. In this paper we have tried to illustrate some of the gains from adopting this approach and how it may be used by others.

## Acknowledgements

This research was part-funded through two European Social Fund projects: Institutional Discrimination against older workers (2005-6) and Institutional discrimination against older male workers (2006-7). We are grateful to the anonymous reviewers who provided constructive comments that helped us to improve the paper significantly.

## References

- Anyadike-Danes, M., & McVicar, D. (2010). My Brilliant Career: Characterizing the Early Labor Market Trajectories of British Women from Generation X, *Sociological Methods Research*, 38(3), 482-512. doi: 10.1177/0049124110362968
- Axinn, W., Pearce, L., & Ghimire, D. (1999). Innovations in Life History Calendar Applications. *Social Science Research*, 28, 243-64. doi: 10.1006/ssre.1998.0641

- 532 Bell, A. J. (2005). "Oh yes, I remember it well!" Reflections on using the life-grid in qualitative  
533 interviews with couples". *Qualitative Sociological Review*, 1(1). Retrieved February 2013 from  
534 [http://www.qualitativesociologyreview.org/ENG/archive\\_eng.php](http://www.qualitativesociologyreview.org/ENG/archive_eng.php)
- 535 Belli, R., & Callegaro, M. (2009). The Emergence of Calendar Interviewing: A Theoretical and  
536 Empirical Rationale. In R. Belli, F. Stafford & D. Alwin (Eds.), *Calendar and Time Diary Methods in*  
537 *Life Course Research*. 31-52 Sage Publications: London.
- 538 Berney, L., & Blane, D. (2003). The Lifegrid Method of Collecting Retrospective Information from  
539 People at older ages. *Research Policy and Planning*, 21(2), 13-22.
- 540 Blossfeld, H., Buchholz, S., & Kurz, K. (2011). *Ageing Populations, Globalization and the Labor*  
541 *Market: Comparing Late Working Life and Retirement in Modern Societies*, Edward Elgar:  
542 Cheltenham
- 543 Bradburn, N.M., Rips, L.J., & Shevel, S.K. (1987). Answering Autobiographical questions: the impact  
544 of memory and inference on surveys. *Science*, 236, 157-162. doi: 10.1126/science.3563494
- 545 Brzinsky-Fay, C., U. Kohler, and M. Luniak (2006). Sequence analysis with Stata. *The Stata Journal* 6  
546 (4), 435-460.
- 547 Burnard, P. (1991). A Method of Analysing Interview Transcripts in Qualitative Research. *Nurse*  
548 *Education Today*, 11(6), 461-6. DOI: 10.1016/0260-6917(91)90009-Y
- 549 Burnard, P., Gill, P., Stewart, K., Treasure, E., & Chadwick B. (2008) Analysing and Presenting  
550 Qualitative Data. *British Dental Journal*, 204, 429-432. doi: 10.1038/sj.bdj.2008.292
- 551 Carmichael, F., Hulme, C., Porcellato, L., Ingham, B., & Prashar, A. (2011). Ageism and age  
552 discrimination: the experiences and perceptions of older employees. In E. Parry & S. Tyson (Eds.),  
553 *Managing Age Diversity*. Palgrave Macmillan: London.
- 554 Carmichael, F., Hulme, C., Porcellato, L. (2013) Older Age and Ill Health: Links to Work and  
555 Worklessness. *International Journal of Workplace Health Management*, 6, 54-65. doi:  
556 10.1108/17538351311312330
- 557 Caspi, A., Moffitt, T., Thornton, A., Freedman, D., Amell, J., Harrington, H., Smeijers, J., & Silva, P.  
558 (1996). The Life History Calendar: A Research and Clinical Assessment Method for Collecting  
559 Retrospective Event-History Calendar. *International Journal of Methods in Psychology*, 6, 101-14.  
560 doi: 10.1002/(SICI)1234-988X(199607)6:23.3.CO;2-E
- 561 Creswell, J., & Plano Clark, V. (2007). *Designing and Conducting Mixed Methods Research*. Sage  
562 Publications: London.
- 563 Davia, M. A., and N. Legazpe. (2014) Female Employment and Fertility Trajectories in Spain: An  
564 Optimal Matching Analysis. *Work, Employment & Society* 28, no. 4 (August 1): 633–50.  
565 doi:10.1177/0950017013500117.
- 566 De Lisle, J. (2011). The Benefits and Challenges of Mixing Methods and Methodologies. *Caribbean*  
567 *Curriculum*, 18, 87-120.

- 568 Eerola, M., & Helske, S. (2012). Statistical analysis of life history calendar data. *Statistical Methods*  
569 *Medical Research*, 1-27. doi: 10.1177/0962280212461205
- 570 Engel, L., Keifer, M., & Zahm, S. (2001). Comparison of a Traditional Questionnaire With an  
571 Icon/Calendar-Based Questionnaire to Assess Occupational History. *American Journal of*  
572 *Industrial Medicine*, 40, 502-11. doi: 10.1002/ajim.1118.absFeldman, S., & Howie, L. (2009).  
573 Looking Back, Looking Forward: Reflections on Using a Life History Review Tool with Older  
574 People. *Journal of Applied Gerontology*, 28(5), 621-637. doi: 10.1177/0733464808330081
- 575 Freedman, D., Thornton, A., Camburn, D., Alwin, D., & Young-DeMarco, L. (1988). The Life History  
576 Calendar: A Technique for collecting retrospective data. *Social Methodology*, 18, 37-68.
- 577 Glaser, B.G., & Strauss A.L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative*  
578 *Research*, Chicago, Aldine Publishing Company
- 579 Glasner, T., & van der Vaart, W. (2009). Applications of calendar instruments in social surveys: a  
580 review. *Quality and Quantity*, 43, 333-349. doi: 10.1007/s11135-007-9129-8
- 581 Green, A. (2009). Older People and Transitions from Employment to Nonemployment: International  
582 Perspectives and Policy Issues. *The Professional Geographer*, 61(1), 46-58. doi:  
583 10.1080/00330120802577699  
584
- 585 Halpin, B. (2000) BHPS Work-life History Files, Version 2, ESRC Research Centre on Micro-social  
586 Change, University of Essex. Retrieved June 2014 from:  
587 <http://www.esds.ac.uk/doc/3954/mrdoc/pdf/newman.pdf>
- 588 Halpin, B. (2003) Tracks through time and continuous processes: Transitions, sequences, and social  
589 structure, Working paper 2003-01, Dept of Sociology, University of Limerick. Retrieved April 2014  
590 from : <http://www3.ul.ie/sociology/docstore/workingpapers/wp2003-01.pdf> (13/08/14)
- 591 Halpin, B., 2010. Optimal Matching Analysis and Life-Course Data: The Importance of Duration.  
592 *Sociological Methods & Research* 38, 365–388. doi:10.1177/0049124110363590
- 593 Happ MB (2009). Mixed methods in gerontological research: Do the qualitative and quantitative  
594 data “touch”? *Research in Gerontological Nursing*, 2(2), 122-127. doi: 10.3928/19404921-  
595 20090401-06
- 596 Harris, D., & Parisi, D.M. (2007). Adapting Life History Calendars for Qualitative Research on Welfare  
597 Transitions. *Field Methods*, 19(1), 40-58. doi: 10.1177/1525822X06292707
- 598 Holland, P., Berney, L., Blane, D., Davey Smith, G., Gunnell, D.J., & Montgomery, S.M. (2000). Life  
599 course accumulation of disadvantage: childhood health and hazard exposure during adulthood.  
600 *Social Science and Medicine*, 50, 1285-95. doi: 10.1016/S0277-9536(99)00375-5
- 601 Hoppin, J., Tolbert, P., Flagg, E.W., Blair, A., & Zahm, S. (1998). Use of a life events calendar approach  
602 to elicit occupational history from farmers. *American Journal of Industrial Medicine*, 34 (5), 470-  
603 76. doi: 10.1002/(SICI)1097-0274(199811)34:53.O.CO;2-UKhan, K. (2009). Employment of the  
604 Older Generation. *Economic and Labour Market Review*, 3(4), 30-36. doi: 10.1057/elmr.2009.57



605 Kim, J., & Moen, P. (2002). Retirement transitions, gender and psychological well-being - A life  
606 course ecological model. *Journal of Gerontology: Psychological Sciences*, 57B, 212-222.

607 Lilley, R.C., Cryer, P.C., Firth, H.M., Herbison, G.P., & Feyer, A.M. (2011). Ascertainment of  
608 Occupational Histories in the Working Population: The Occupational History Calendar Approach.  
609 *American Journal of Industrial Medicine*, 54, 21-31. doi: 10.1002/ajim.20903  
610 Martyn, K., & Martin, R. (2003). Adolescent Sexual Risk Assessment. *Journal of Midwifery and Women's Health*, 48(3),  
611 213-219. doi: 10.1016/S1526-9523(03)00064-3

612 Meltzer, P. (2001). Using the Self-Discovery Tapestry to Explore Occupational Careers. *Journal of*  
613 *Occupational Sciences*, 8 (2), 16-24. doi: 10.1080/14427591.2001.9686485

614 Nelson, I. (2010). From Quantitative to Qualitative: Adapting the Life History Calendar Method. *Field*  
615 *Methods*, 22(4), 413-428. doi: 10.1177/1525822X10379793

616 OECD (2004). Ageing and Employment Practices – UK, Organisation for Economic Cooperation and  
617 Development, Paris.

618 OECD (2005). Promoting Adult Learning. Organisation for Economic Cooperation and Development,  
619 Paris.

620 OECD (2006). “Live longer, work longer” Ageing and Employment Policies Project, OECD Publishing.

621 Parry, O., Thomson, C., & Fowkes, G. (1999). Life Course Data Collection: Qualitative Interviewing  
622 using the Life Grid. *Sociological Research Online*. Retrieved 01 Dec 2011 from  
623 <http://www.socresonline.org.uk/4/2/parry.html>.

624 Piccarreta, R., 2012. Graphical and Smoothing Techniques for Sequence Analysis. *Sociological*  
625 *Methods & Research* 41, 362–380. doi:10.1177/0049124112452394

626 Pollock, G., Antcliff, V., & Ralphs, R. (2002). Work Orders: analysing employment histories using  
627 sequence data. *International Journal of Social Research Methodology*, 5(2), 91-105. doi:  
628 10.1080/13645570110062432

629 Porcellato, L., Carmichael, F., Hulme, C., Ingham, B., & Prashar, A. (2010). Giving older workers a  
630 voice; constraints on employment. *Work Employment and Society*, 24(1), 85-103. doi:  
631 10.1177/0950017009353659

632 Potârcă, G., Mills, M. and Lesnard, L. 2013. Family formation trajectories in Romania, the Russia  
633 Federation and France: Towards the second demographic transition? *European Journal of*  
634 *Population*, 29, 69-1-1 doi: 10.1007/s10680-012-9279-9

635 Roberts, J. and Horney, J. (2010 ) Chapter 15 The Life Event Calendar Method in Criminological  
636 Research in A.R. Piquero and Weisburd D (eds) *Handbook of Quantitative Criminology*, Springer  
637 Science + Business Media DOI10.1007/978-0-387-77650-7\_15

638 Schmelzer, P. (2011). Income development of older people: Consequences of pension reforms and  
639 unstable careers in the UK. In H. Blossfeld, S. Buchholz & K. Kurz K (Eds.), *Ageing Populations*,

- Globalization and the Labor Market: Comparing Late Working Life and Retirement in Modern Societies. 259-282, Edward Elgar: Cheltenham.
- Scott-Ricks, T. N., & Harrison, T. (2011). Issues using the life history calendar in disability research. *Disability and Health Journal*, 4, 262-270. doi: 10.1016/j.dhjo.2011.05.004.
- Sutton, J.E. (2010). A review of the life-events calendar method for criminology research. *Journal of Criminal Justice*, 38, 1038-1044. doi: 10.1016/j.jcrimjus.2010.07.006
- Tams, S., & Arthur, M.B. (2010). New directions for boundaryless career: Agency and interdependence in a changing world. *Journal of Organisational Behaviour*, 31(5), 629-646. doi: 10.1002/job.712
- Verd, J.M., & Lopez, M. (2011). The Rewards of a Qualitative Approach to Life-course research. The example of the Effects of Social Protection on Career Paths. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 12(3), 1-15. Retrieved 18<sup>th</sup> Feb 2013 from <http://www.qualitative-research.net/index.php/fqs/rt/prINTERfriendly/1753/3259>.
- Wiggins, R., Erzberger, C., Hyde, M., Higgs, P., & Blane, D. (2007). Optimal Matching Analysis Using Ideal Types to Describe the Lifecourse: An Illustration of How Histories of Work, Partnerships and Housing Relate to Quality of Life in Early Old Age. *International Journal of Social Research Methodology*, 10(4), 250-278. doi: 10.1080/13645570701542025
- Wiseman, L., & Whiteford, G. (2009). Understanding occupational transitions: a study of older rural men's retirement experiences. *Journal of Occupational Science*, 16(2), 104-109. doi: 10.1080/14427591.2009.9686649
- Yen-Chun Lin R., Yu-Tzu Dai R.N., & Shiow-Li Hwang R.N. (2003). The Effect of Reminiscence on the Elderly Population: A Systematic Review. *Public Health Nursing*, 20(4), 297-306. doi: 10.1046/j.1525-1446.2003.20407.x
- Zahm, S., Colt, J., Engel, L., Keifer, M., Alvarado, A., Burau, K., Butterfield, P., Caldera, S., Cooper, S., Garcia, D., Hanis, C., Hendrikson, E., Heyer, N., Hunt, L., Krauska, M., MacNaughton, N., McDonnell, C., Mills, P., Mull, D., Nordstrom, D., Outtersen, B., Slesinger, D., Smith, M.A., Stallones, L., Stephens, C., Sweeney, A., Sweitzer, K., Verson, S., & Blair, A. (2001). Development of a Life Events/Icon Calendar Questionnaire to Ascertain Occupational Histories and Other Characteristics of Migrant Farmworkers. *American Journal of Industrial Medicine*, 40, 490-501. doi: 10.1002/ajim.1117

676 Table 1: Characteristics of interviewees

Characteristic	Statistic
<i>Age (n=56)</i>	<b>Mean years (range)</b>
	58.9 (50-68)
<i>Gender (n=56)</i>	<b>n (%)</b>
Male	32 (55.4)
<i>Employment status (n=56)</i>	<b>n (%)</b>
Employed	22 (39.3)
Employed full-time	8 (14.3)
Employed part-time	5 (8.9)
Self-employed (full or part-time)	12 (21.4)
Unemployed	16 (30.4)
Retired not looking for employment	1 (0.2)
Retired and looking for employment Voluntary work	6 (11)
<i>Educational attainment (n=56)</i>	<b>n (%)</b>
Low; none or below GCSE*/equivalent	18 (32.1)
Intermediate 1; GCSE/equivalent	7 (12.5)
Intermediate 2; 'A' level/diploma/equivalent (e.g. teaching certificate, nursing certificate)	13 (17.9)
Higher; university (undergraduate and postgraduate):	18 (32.1)
<i>Annual household income (n=38)**</i>	<b>n (%)</b>
Below £10,000	6 (15.8)
£10,000-£20,000	8 (21.1)
£20,000 - £30,000	8 (21.1)
Over £30,000	16 (42.1)
<i>Health status (n= 44)**</i>	<b>n (%)</b>
Fair to poor	2 (4.6)
Fair	16 (36.4)
Good	10 (22.7)
Very good	11 (25)
Excellent	4 (9)

677 Notes:

678 \*The General Certificate of Secondary Education (GCSE) is an academic qualification awarded in a  
679 specified subject by students usually aged 14-16 in secondary education in England, Wales and  
680 Northern Ireland.

681 \*\*The questions on income and health were asked at the end of the interview. The sample  
682 sizes are smaller as not all the participants responded to these questions, some because they  
683 were unable and/or unwilling to select a precise category

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Figure 1: The Occupational History Calendar

**Older Workers in the North West Life Event Calendar**

ID # \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Place: \_\_\_\_\_

Interviewer: \_\_\_\_\_ D.O.B: \_\_\_\_\_ Age: \_\_\_\_\_ Ethnicity: \_\_\_\_\_

Gender: \_\_\_\_\_ Marital Status: \_\_\_\_\_ Current Employment Status: \_\_\_\_\_















Age	Year	JAN to MAR	APR to JUN	JUL to SEP	OCT to DEC	Historical Context
	1950					•Korean War started •Uruguay win World Cup
	1951					•Churchill re-elected
	1952					•King George VI dies •Helsinki Olympics
	1953					•Coronation of Elizabeth II
	1954					•Bannister 4 minute mile •West Germany win World Cup
	1955					•Anthony Eden elected
	1956					•Suez Crisis •Melbourne Olympics
	1957					•Space Race Sputnik Launch

Figure 2: Recording and coding in the Occupational History Calendar

**Older Workers in the North West Life Event Calendar**

ID# \_\_\_\_\_

Age	Year	JAN to MAR	APR to JUN	JUL to SEP	OCT to DEC	Historical Context
	1999					•Min. Wage introduced •Y2K panic
	2000	FT Researcher at Faith College				Millennium Dome •Dr. Shipman •Sydney Olympics
	2001					Foot and Mouth •9/11 Tragedy •Blair re-elected
	2002					•Commonwealth Games - Manchester •Brazil win World Cup
	2003	 Funding Ends	 Unemployed			•War in Iraq •Space Shuttle explodes
	2004					•Asian Tsunami •Greece win UEFA Cup
	2005	 PT Lecturer at Hope University				London Bombings •England win Ashes •George Best dies
	2006					Winter Olympics Italy


**Present to Past** 

Figure 3: Screenshot of OHC data input in excel spreadsheet

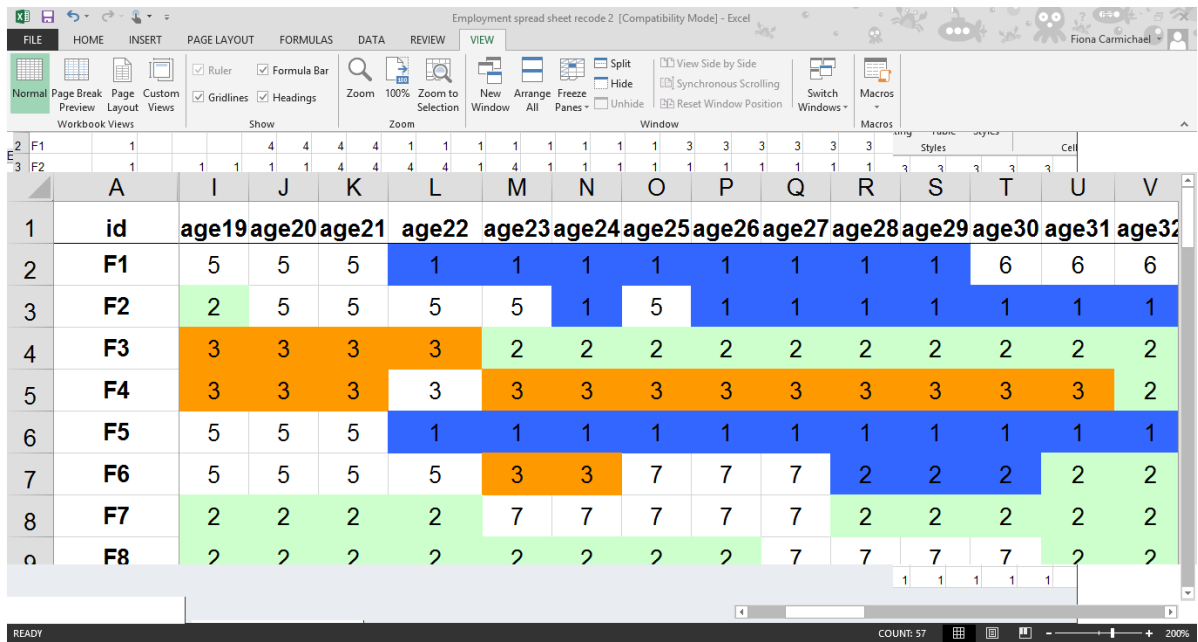
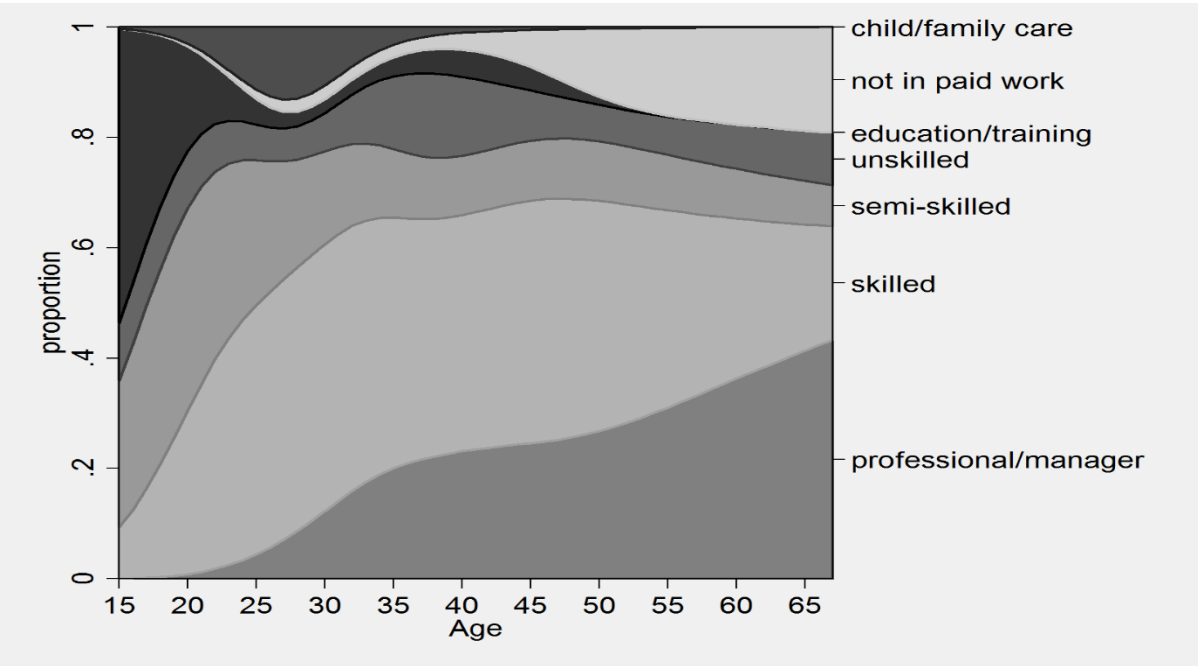


Figure 4: State distribution plot of employment status by age



Notes: 17.98%, of employment states within the sample were recorded as professional/managerial, 39.67% as skilled, 17.00% as semi-skilled, 9.30% as unskilled, 6.67% as in education/training, 5.88%, as not in paid work and 3.50% as a family carer.

710 Table 2: Distributional properties of the cluster groupings

Cluster number/name	1	2	3	4	5
	Unskilled	Patchwork	Skilled	Upward or out	Prof. & man.
% of employment states in each cluster recorded as:					
Managerial and professional	0.00	4.71	0.00	22.26	<b>60.92</b>
Skilled occupation	21.08	26.02	<b>77.41</b>	<b>48.17</b>	18.53
Semi-skilled occupation	3.01	<b>38.29</b>	10.97	5.98	2.57
Unskilled occupation	<b>63.86</b>	<i>11.65</i>	2.62	0.00	1.83
Education or training	5.42	4.34	4.91	<i>10.30</i>	<i>10.46</i>
Not in paid employment	1.81	<i>9.79</i>	0.49	11.63	4.22
Family carer	<i>4.82</i>	<i>5.20</i>	<i>3.60</i>	1.66	1.47
No. of sequences in cluster	4	19	14	7	12

711 Notes: bold indicates largest percentage within cluster; italics indicates larger than sample  
712 percentage within cluster