

**The Myth of Extended Working Lives in Liberal Countries:
Work Pathways of Older People In the US and UK Compared**

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******Draft version.**

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Abstract

This paper examines the extent to which older people in the UK and US are ‘reinventing retirement’, by moving into self-employment and part-time work as a means of working ‘late’ (after state pension age). The employment paths taken by people over a ten-year period are examined using sequence analysis, cluster analysis, and multinomial logistic regressions. The analysis is based on the English Longitudinal Study of Ageing and the US Health and Retirement Study. This shows that ‘conventional retirement’ from full-time work, at or around state pension age, is fairly unusual in both countries. People took a number employment paths over the period. However, these employment trajectories were more likely to result in early, rather than late, retirement. In addition, there were gender differences between countries. In the US people typically moved *into* part-time work in older age, albeit in relatively low numbers. In the UK part-time work was common among women at much earlier ages. This illustrates the need for greater consideration of the nature of female employment across the life course.

Introduction

It has been suggested that we are now entering a new period in the history of retirement. Rix (2009: 77) sums up perceptions that:

‘Boomers... are going to reinvent and/or revolutionise retirement. Not for them is an early labour force exit to full and permanent retirement. Rather, they will work longer, perhaps *much* longer, than their parents and combine work and leisure in new and more rewarding ways’.

It also appears that many older people expect to work longer, and move beyond the ‘traditional model’ of full retirement from full-time work at ‘pension age’. The AARP (2014) Work and Career Study 2013 found that 72% of older people in the US planned to work in retirement, the majority part-time. Likewise, 13% planned to set up their own business or work for themselves in retirement. However, these expectations are not an entirely new phenomena. Analysis of the first Health and Retirement Survey (HRS) in 1992 revealed that significant numbers of older Americans expected to work in retirement (Maestas, 2010) and/or reduce their working hours (Abraham and Houseman, 2004). Likewise, the AARP survey from 2002 also showed that a significant minority, 10%, planned to move into self-employment in retirement. If older people have been extending their working lives by moving into self-employment and part-time work in large numbers, we should already be able to find empirical evidence of this happening.

The assumption in the literature is that we will also see similar employment transitions in other English-speaking ‘liberal’ market economies with ungenerous welfare states, such as the UK. Buchholz et al., (2011: 22-23 emphasis added), for example, make the following prediction with regard to the UK and US:

the institutional setting of these countries follows the credo that individuals have to take care of their welfare on their own, and possible risks are hardly compensated through welfare state, but directly shifted to the individual. *Consequently, there is a strong need to be employed in these countries... This implies that they may have to accept employment insecurities in their late life – such as unemployment, stop gap jobs and income losses – and may even be forced to work beyond retirement age.*

This account is therefore rather more pessimistic than the opening one. Nevertheless, in both cases the expectation is that significant numbers of people in the US and UK are now working ‘late’, typically defined as working after state pension age. Furthermore, the paths to working ‘late’ are expected to include returns to work after retirement (‘un-retirement’), alongside movements *into* self-employment and/or part-time work.

Despite predictions that these transitions are occurring across English-speaking countries, there is little actual empirical evidence to support this (Lain, 2016). Furthermore, as Lain (2016) has argued, there have been stronger opportunities and pressures to work in older age in the US than the UK. In the US, the safety net for those with low retirement incomes is weaker than in the UK, but protection from retirement on the basis of age has been stronger. Mandatory retirement at age 65 was allowable in the UK until 2011, but has been outlawed in the US since 1986. Furthermore, there is a stronger pressure for men and women of all ages in the US to work in full-time jobs, in part because benefits such as health insurance have typically only been provided to full timers (Lyonette et al., 2011). In contrast, a ‘modified male breadwinner model’ in the UK has resulted in large numbers of married women working part-time across the life course (O’Connor et al., 1999). As a result, the proportions of women working part-time in the UK have remained at around 40% for the last 30 years (ONS 2013). We would therefore predict that employment trajectories in the US result in more ‘late’ employment than in the UK. Furthermore, we would expect differing employment

trajectories for women in each country, with female part-time work in the UK often being a continuation of previous employment patterns.

This paper examines whether movements into part-time work and self-employment are leading to significant numbers of individuals working beyond ‘conventional’ retirement age, the age at which a ‘full’ state pension is received. It focuses on the USA and England, the largest country in the UK. For the cohort under examination, ‘conventional’ retirement age was 65 for men and women in the USA. In England conventional retirement age was 65 for men and 60 for women.

The paper starts by examining the literature on working late, self-employment and part-time work in older age. It then presents the results of sequence analysis, cluster analysis, and multinomial logistic regression analysis on the employment paths people took over a ten-year period. The analysis indicates that ‘conventional retirement’, at or around state pension age, is fairly unusual in both countries. People took a number employment paths over the period. However, these employment trajectories were more likely to result in early, rather than late, retirement. In addition, there were gender differences between countries. In the US people typically moved *into* part-time work in older age, albeit in relatively low numbers. In the UK part-time work was common among women at much earlier ages. This illustrates the need for greater consideration of the nature of female employment across the life course, something that is often neglected by cross-country comparative research.

Literature review

Working ‘late’ in the UK and USA

Historically, research has tended to focus to a greater degree on the issue of early, rather than ‘late’, retirement (Lain, 2016). This is perhaps not surprising, given the growth in early labour market exits across countries between the 1970s and late 1990s (Kohli, 1991;

Ebbinghaus, 2006). Research on working 'late', or 'post retirement' work, is conceptualised and measured in two different ways. First, 'late' employment can be classified as the result of a *transition into* work after an individual has previously defined themselves as being retired (or partially retired). This type of 'post-retirement' work is sometimes referred to in the literature as 'un-retirement'. Under this categorisation, the age at which an individual makes an 'un-retirement transition' is unimportant, and they could still end up permanently leaving work at a fairly early age. They may have retired at age 55, returned to work at 57, and (again) fully retired at 60.

The second way of approaching 'late' employment relates to people working beyond an *age* of institutional significance - typically state pension age. This does not necessarily mean 'post-retirement work', because an individual might simply be continuing in a long held job, rather than returning to work following 'retirement'. Consequently, research on late employment in terms of working beyond a certain age gives us a greater sense of whether we are witnessing extended working lives. However, it often tells us less about the transitions that led up to working at this age. Research on post-retirement work as a *transition* tells how many people experience an un-retirement transition at some point in time, but less about whether this contributes to 'late' employment in an age-based sense (after retirement age).

While un-retirement is being presented as a novel phenomena, there is evidence to suggest that it is not particularly new. Ruhm (1990), for example, found that around a quarter of those 'retiring' between 1969 and 1979 went back into work. Maestas's (2010) later study found a similar proportion 'un-retired' between 1992 and 2002. Maestas (2010) found that men were marginally more likely to un-retire than women, and it was more common among younger 'retirees'. Education was shown to have no effect, although this was only based on whether or not an individual had done more than 12 years of studies; it did not distinguish between those with below secondary qualifications, or those with degrees. Interestingly, the research

suggests that most individuals un-retiring had anticipated this when interviewed in 1992, although only around half of those saying they wanted to work in retirement went on to un-retire (Maestas 2010, 730). Individuals may therefore find it harder to return to work than they anticipate (see also Lain, 2016 for a fuller discussion).

UK research on ‘un-retirement’ transitions are relatively rare, but suggest that it is less common than in the US (Kanabar, 2012). Kanabar (2012) estimated that 5.5% of retired men in the English Longitudinal Study of Ageing 2002 had returned to work at some point by 2009. In contrast, Cahill’s (2011) analysis found that 15% of men and women aged 51-61 in 1992 had returned to work by 2008. While this presents evidence suggesting that un-retirement is less common in England than the US, there remains a need for analysis directly comparing un-retirement in both countries. In this regard, there is a need for women to be included. The influences on post-retirement work may be different for men and women. For example, Pleau’s (2010) US analysis shows a higher incidence of ‘post-retirement’ work among divorced and separated women, suggesting financial motivations for working among this sub-group of females.

UK research taking an ‘age-based’ approach often focuses on people working after state pension age, which has historically been 60 for women and 65 for men (Smeaton and McKay, 2003; Barnes et al 2004; Parry and Taylor, 2007; Clayton 2010). Lain (2011, 2012, 2016) alternatively looked at employment beyond age 65, on the basis that this the age in which individuals lost the right to continue working in the UK. For women, working past their state pension age of 60 has not been particularly difficult; consequently, women aged 60 to 64 were the most likely to be working after state pension age (Smeaton and McKay, 2003). Irrespective of age marker used, research suggests that having good levels of health and education increases the likelihood of working, as does the presence of a working partner in the household (Lain and Vickerstaff, 2014). The poorest segment appears to be less likely to

work than the richest, which can in part be attributed to lower levels of health and education (Lain, 2016). Nevertheless, financial pressures in the form of debts and outstanding mortgages increase the likelihood of being in work (Smeaton and McKay, 2003; Lain, 2016; Mann, 2011). US research has also suggested that working past 65 is most common amongst the healthiest, wealthiest and highest educated (Haider and Loughran, 2001), although the influence of financial influences should be noted (Lain, 2016). In both countries, people working past ‘normal’ retirement age are disproportionately part-time or self-employed (Lain, 2016), although there is little analysis of whether they moved *into* these forms of employment in older age.

To summarise, there is a need for research on the employment paths, or sequences, people follow over time as they age and whether the paths taken result in them working ‘late’ (in an age-based sense). In doing this, we need to examine movements between periods of employment and inactivity, and into self-employment and part-time work.

Part-time work

The expectation that people will move into part-time hours in United States can be linked to debates about bridge jobs. Wang (2014: 195) defines ‘Bridge employment’ as ‘the labour force participation patterns observed among older workers as they leave their career jobs and move toward complete labour force withdrawal (i.e. full retirement)’. Bridge employment therefore often implies some form of ‘downscaling’, whether this be working whilst self-defining as retired or reducing working hours (Wang, 2008). Wang (2008), for example, defines bridge employment as working whilst defining themselves as being partially retired, and finds that this happens to a third of individuals in the US. However, it is important to note that reducing working time, or working ‘partially’, does not necessarily mean that individuals move into part-time work. Americans have long working hours by international standards, so

there is considerable scope for reducing working time but remaining in full-time employed (Lain, 2016). Full-time work is common to both men and women across the life course, as noted above, in part because benefits such as health insurance have often only been provided to full-time staff (Lyonette et al., 2011).

The idea of reducing working time in older age appears to be common in the USA, which can be linked to expectations that they will work longer. Abraham and Housman's (2005) analysis of the Health and Retirement Survey suggests that 18.3% of Americans aged 50+ in 1992 planned to reduce their working time, rising to 23% for those aged 61. More recently, the AARP Work and Career Study 2013 found that 72% of older people planned to work 'in retirement' (AARP, 2014: 24; the definition of 'retirement' is not specified). Of this, 29% were expecting to work part-time for enjoyment, and 23% plan to work part-time for financial reasons.

While it may be fairly common for individuals to expect to reduce their hours in the US, it may be harder to do in practice. Abraham and Housman (2004) found that the majority of those saying they would reduce their hours, 60%, said they would do this at or after normal retirement age in their workplace. However, only 35% planning to reduce their working time actually followed through on their plans; 28% of individuals stopped working; and 36% worked the same or more hours. Rigidities in US workplaces, for example around the provision of benefits to full-time staff only, may mean that part-time work options are rare (Johnson, 2011; Lain, 2016).

In the UK, although the idea is popular in theory, opportunities for full-time employees to reduce their working hours in practice also do not appear to be widespread (Vickerstaff et al., 2004; Vickerstaff, 2007; Hedges and Sykes, 2009: 25). A survey of older people showed that a third of those aged 50 to 59 thought that their working hours were not ideal, with most

wanting fewer hours. At the upper age range, only around 5% of employees working part-time at age 65 to 69 wanted a full-time job (Lain and Loretto, 2016). Overall, therefore, there is relatively little evidence of ‘underemployment’ of older workers in the UK, in terms of working hours, and there appears to be a demand that is not met for older full-timers to reduce their working hours.

While in general working time reductions might be uncommon, the majority of those working past age 65 in the UK did so part-time (Smeaton and McKay, 2003: 29). Such outcomes are sometimes viewed from a positive perspective. Although only a minority managed to work past 65, it is assumed that workers have managed to reduce their hours - a possible model for other people to follow (see Loretto and Vickerstaff, 2015 for a discussion). However, as Loretto and Vickerstaff (2015) argue, many women in the UK are already working in marginal part-time jobs at earlier stages of the life course. As noted in the introduction, around 40% of female workers are part-time, a proportion that has remained unchanged for the last 30 years (ONS, 2013). This reflects the dominance of a ‘modified male breadwinner’, under which women work part-time hours as secondary earners to their male full-time counterparts (Orloff et al 1999). Women working part-time in older age are therefore likely to be doing so as a continuation of previous working hours. There is relatively little longitudinal evidence as to whether or not this is the case, however.

In sum, we currently lack empirical evidence of the extent to which individuals move into part-time work, and whether such pathways lead to ‘late’ employment in an age-based sense. However, the picture presented above suggests that transitions into part-time work may be less common than we would expect based on individuals’ expectations. Furthermore, high levels of part-time working in the UK may largely be due to women continuing in such jobs, rather than moving into them.

Self-employment

As noted in the introduction, the transition into self-employment is seen as an increasingly important component of late careers. The attraction of self-employment is likely to rest in the ability to control the amount or type of work done, while offering a new and rewarding activity in itself (Cahill and Quinn, 2014). The proportions working in self-employment increase sharply with age in both the UK and USA, which would *appear* to support the hypothesis that people move into self-employment as they get older. Analysis of the HRS shows that just over 20% of male workers aged 51 to 56 were self-employed in 1998, but this had risen to 35% when they reached 65-70 in 2012 (Cahill and Quinn, 2014: 135). A rise was also evident over the period for women, from around 10 to 20%. In the UK, self-employment rates are also high amongst those working past state pension age - around half of men working at this age are self-employed in the early 2000s, as were almost quarter of women (Smeaton and McKay, 2003).

While rates of self-employment were high amongst the oldest workers in both countries, we cannot automatically assume this is because of people working as employees moving into self-employment. It may, for example, be the case that it is easier for the long-term self-employed to continue working. As noted above, in the UK employees in the early 2000's had few employment rights beyond age 65, whereas the self-employed were less subject to such organisational constraints to continue working. UK analysis by Parker and Rougier (2007: 697) found that 'relatively few [older] employees and virtually no retirees switch into self-employment in later life'. They go on to say that 'the switches [to self-employment] that do occur are motivated less by attempts to use self employment as a bridge job or 'stepping stone' to full retirement, than by self-employment being the last resort for less affluent workers with job histories of weak attachment to the labour market' (Parker and Rougier, 2007: 697). There may, therefore, be isolated instances of self-employment, but these are not

part of a structured path into employment in older age. Most self-employed individuals working at age 65-69 in the UK have been in self-employment for many years (Lain and Loretto, 2016). There is a lack of in-depth corresponding analysis for the United States. However, Cahill and Quinn (2014) suggest that individuals find it harder to move into self-employment than they anticipate, given the expertise, costs and risks of doing so.

To summarise the literature, there is little empirical evidence in the literature that large numbers of individuals are ‘reinventing retirement’ by moving into self-employment and part-time work as a means of working beyond ‘conventional’ retirement age. In part, a lack of understanding stems from the fact that analysis thus far has focused on examining different types of employment separately. In relation to ‘late’ employment, research has typically focused *either* on employment after retirement itself (as a transition) or employment after a specific age. At the same time, research has examined self-employment and part-time work in older age (as separate issues), but done less to explore whether people move *into* these forms of work in older age. Furthermore, we cannot automatically assume that the transitions will be similar across all countries, even if they are ‘liberal’ welfare states such as the UK and US. The example of high female part-time employment at earlier ages in the UK suggests that we may see differences between these two countries.

The remainder of the paper therefore examines late career transitions over a ten-years, covering the period before and after state pension age. Over this period, it examines movements between full-time work, part-time work and self-employment, and identifies periods of inactivity (including inactivity due to disability). The analysis is conducted for both the USA and England, the largest country in the UK. The results suggest that conventional retirement from full-time work into retirement at pension age is relatively rare, but the paths taken are much more likely to result in early rather than late exit.

Data

This paper makes use of two datasets: The RAND files of the Health and Retirement Study (HRS; Chien et al., 2015) and the English Longitudinal Study of Ageing (ELSA; Marmot et al. 2016). The HRS is a nationally representative panel survey of older Americans and their spouses, which have been observed every two years since 1992. Given the interest in analysing late labour force trajectories from five years before to five year after SPA, and also to ensure data comparability between the US and England, we focused on individuals in the HRS aged between 60-61 and 70-71 during a 10-year period covering 2002 till 2012 (also see Table 1).

The original HRS cohort consisted of 9,752 individuals (nested in 93,640 observations) that were born between 1931 and 1941 and responded to the survey in 1992. From this group, 8,551 people (46,908 observations) responded at least once to the HRS survey from the year 2002 onwards. 1,335 individuals (nested in 8,010 observations) were aged 60-61 in wave 2002, which is the age group we are interested in. However, if we keep only those with no missing values in labour force statuses in the six waves between 2002 and 2012, we have a balanced panel dataset with 905 respondents (5,430 observations).

For ELSA we use the first six waves to have the same years as available in the RAND files of the HRS. These data were collected between 2002/2003 and 2012/2013. When we look at all these six waves together, the data had 63,227 observations (individuals*wave) nested within 17,980 respondents. We made several selections. First, like in the HRS, we selected those individuals who were aged about 5 years before SPA in the first wave. In England in this time period this means we are looking at women aged 55/56 and follow them till they are about 65/66 as well as men aged 60/61 and follow them till they are about 70/71 (also see Table 1). After selecting this age-range (or missing on age at this stage) we had 18,313 observations nested in 6,727 respondents. We then deleted proxy interviews as it was

not the individual him- or herself answering the questionnaire. This led to a total of 17,480 observations nested in 6,513 respondents. Third, we only selected individuals who participated in all six waves to be able to look at their full sequences. This led to a total of 2,814 observations nested in 469 respondents. Finally, we only selected core members as these were the targeted respondents of ELSA. This resulted in 2,802 observations nested in 467 respondents. After deleting missing data we ended up with 2,706 observations nested in 451 respondents.

-Table 1 about here-

Variables

HRS

To construct labour force trajectories from age 60-61 to 70-71 in the US we used first the labour force status as coded by RAND (Chien et al., 2015): working full-time, working part-time, partly retired, completely retired, disabled, unemployed, and not in the labour force. Because an individual can give simultaneous evidence of multiple statuses, RAND uses information from several sources to sort out the discrepancies (e.g., working for pay, employment status, self-classified as retired, usual hours worked per week and year in first and second job, and whether looking for work).

Working takes precedence in this procedure. If the respondent is working 35 or more hours per week, labour force status is set as working full-time. If the respondent is working less than this, labour force status is set as working part-time as long as there is no mention of retirement. If the respondent is working part-time and mentions retirement, labour force status is set to being partly retired. If the respondent is not working, and is not looking for a job, and there is any mention of retirement, labour force status is then set to being completely retired. If retirement is not mentioned and a disabled employment status is given, labour force status is set to disabled. If the respondent is not working but is looking for a job, labour force

status is set to being unemployed. Otherwise, labour force status is set to not in the labour force. Because of the few cases of people classified as unemployed, we decided to merge the categories unemployment and not in the labour force in one category titled not in the labour force.

We also considered two other statuses for reconstructing late labour force trajectories: self-employment and deceased. Self-employment comes from the RAND File derived variable '*Whether self-employed*', which basically collects information on whether the main job of each individual is being self-employed. Moreover, following the RAND procedures, the status 'deceased' is set when an individual left the survey because of being deceased.

ELSA

In this paper we distinguish between several labour force statuses: (1) deceased, (2) disabled, (3) not in labour force, (4) partly retired, (5) retired, (6) self-employed, (7) working full-time, (8) working part-time. These statuses were based on a collection of variables.

First, whether the respondent was dead was taken from the index file of ELSA. The index file contains information on when the respondent died in relation to ELSA wave. We used this information for the first labour force status (1) deceased.

Second, we used the question “Which one of these, would you say best describes your current situation?” with the answering categories (1) retired, (2) employed, (3) self-employed, (4) unemployed, (5) permanently sick or disabled, (6) looking after home or family, (7) other, or (8) (only when mentioned spontaneous) semi-retired. Individuals who would say they are best described as (5) permanently sick or disabled were considered ‘disabled’ as labour force status, but if they did work either as employee or being self-employed, their employment status was taking precedence.

For (3) ‘not in the labour force’ we first used a derived variable in the dataset, which divided individuals who were employed into employed or self-employed. If a respondent was either employed or self-employed, this person was not out of the labour force. Individuals were also asked if they were not employed or self-employed whether they were looking for paid work, and the question above on the current situation also included the option of being ‘unemployed’. Finally, we also looked at whether the respondent received any job seekers allowance. These three variables provided indications that the respondent was currently unemployed. As this group was too small to be a separate group, we combined these with other individuals in the dataset who were currently inactive. For this we included individuals who were currently looking after home or family.

Regarding (4) ‘partly retired’ and (5) ‘retired’ we looked at individuals who defined themselves as being retired or semi-retired. Individuals who defined themselves as retired but were also working part-time were considered partly retired. Individuals who considered themselves to be retired but were still working full-time were considered to be working full-time.

Finally, for (6) self-employed, (7) working full-time, (8) working part-time, we used again the derived variable on whether individuals were employed or self-employed. We used this variable to define whether individuals were (6) self-employed. From the harmonized ELSA file we took the working hours in the main job and in a second job (if applicable). We added these working hours to construct a total working hours variable. Also from the harmonized ELSA file we looked at how many weeks a year a respondent worked. We used these variables to construct two categories: part-time work (1-34 hours/week or working less than 36 weeks/year) and full-time (35 hours/week or more for at least 36 weeks/year). We used this to divide individuals in working full-time (7) or part-time (8). The cut-off is based on the fact that although the UK does not have an official definition of full time employment, the

UK government states that “a full-time worker will usually work 35 hours or more a week” (Gov.UK, 2014). The inclusion of working at least 36 weeks/year is for comparability with the HRS.

We predict the clusters with the variables gender, health, having a partner, income, and educational level. For gender, we make a distinction between women (1) and men (0).

For health we look at Activities of Daily Living (ADLs). Specifically, we look at the number of difficulties of activities mentioned in the following list “Sitting for about two hours”, “Getting up from a chair after sitting for long periods”, “Climbing several flights of stairs without resting”, “Climbing one flight of stairs without resting”, “Stooping, kneeling, or crouching”, “Reaching or extending your arms above shoulder level”, “Pulling or pushing large objects like a living room chair”, “Lifting or carrying weights over 10 pounds, like a heavy bag of groceries”, and “Picking up a 5p coin from a table”. The list consisted of one more item “Walking 100 yards” but this was not asked in a similar manner in the HRS and was thus excluded for comparability reasons. When adding the number of difficulties, we ended up with a count variable that was clearly not normally distributed (as we would also expect). Hence, we made a distinction between (1) No ADLs, (2) 1 ADL, (3) 2 ADLs, (4) 3 ADLs, and (5) 4 or more ADLs.

For being partnered we distinguish between having a partner (1) or not (0). For this we combine two variables. First, marital status was asked to the respondents and respondents who were currently married regardless of whether it is a first marriage were considered to have a partner. As about 78% of the sample was currently married and of the currently married about 79% were in their first marriage we did not feel we had a big enough sample size to make further distinctions. Second, the harmonized ELSA file contains a variable on

whether partnership is implied (RwMPART) as this is not specifically asked in the first wave. Individuals who were identified to be in a partnership were also considered to have a partner.

The harmonized ELSA file contains a variable regarding wealth, called HwATOTB. This variable contains the total family wealth. It differs from the RAND HRS variable in that it does not contain the value of vehicles (see Phillips et al. 2016 for more information). In this study we look at wealth quartiles. A higher quartile means more wealth.

Finally, for educational level we combined (1) NVQ4 / NVQ5 / Degree or equivalent into “high education”; (2) higher education below degree, (3) NVQ3 / GCE A Level equivalent, and (4) NVQ2 / GCE O Level equivalent; and (5) NVQ1 / CSE other grade equivalent, and (6) Foreign / other into “middle education”, and (7) No qualification into “low education”.

Descriptive statistics of these variables can be found in Table 2.

-Table 2 about here-

Method

The main goal of this paper is to assess employment trajectories of older workers in the US and the UK to investigate to what degree we see different types of late employment. To achieve this goal, we perform sequence analyses. Sequence analyses provide an indication of how similar or different sequences are from one another. The specific type of sequence analysis performed in this paper is Optimal Matching (OM) with constant substitution costs of 2 and indel costs of 1 (indel costs describe the costs for inserting or deleting a state in a sequence).

The sequence analysis is followed-up with cluster analysis to cluster similar sequences together. This will create typologies of sequences. Even though there is no “best” type of cluster analysis to perform after sequence analysis, Ward (1963) clustering is widely used (cf. Biemann & Datta, 2014; Madero-Cabib & Fasang, 2016). To determine the number of

clusters, we combine information about the silhouette width with looking at the substantive meaning of clusters. The silhouette width tells us how well a respondent fits in the cluster in which s/he is placed relative to the neighbouring cluster. In general, a higher score (with a maximum of 1) means that the person is better placed. When the average silhouette width is at least 0.5 this indicates a reasonable classification while a silhouette width of lower than 0.2 indicates there is not really a cluster structure (Kaufmann & Rousseeuw, 1990 as cited in Everitt, Landau, Leese, & Stahl, 2011).

Next to reporting the results of the cluster solutions, we also look at variation *within* clusters. This is to assess the extent to which clusters are equally complex in the USA and England. To assess this, we evaluated three indexes of the internal dynamism of the sequences types: entropy, turbulence, and complexity (Elzinga, 2010; Gabadinho et al., 2011). These indexes indicate how time-fixed or time-varying the statuses and transitions that compose a sequence type at every time point between 60-61 and 70-71 years are. At any time point, the entropy index is 0 when all respondents are in the same status and 1 when respondents are distributed evenly across all possible statuses. The complexity index also ranges from a 0 to 1, but in addition to the longitudinal entropy it also considers the number of transitions within a sequence. The turbulence index accounts for the number of distinct subsequences that can be constructed from one sequence type. The number of subsequences arises from the analysis of all the transitions occurring in a sequence, as well as of the time elapsed in each of the statuses that compose a sequence. Therefore, a high turbulence index reflects a large number of distinct subsequences in one sequence, which in turn indicates that statuses and transitions are highly time-varying. Turbulence is not normalised between 0 and 1. A complexity index that equals 0 indicates complete similarity of statuses across individuals and that no transitions occurred between statuses (i.e., time-fixed statuses and

transitions), while a complexity index of 1 indicates the opposite. In contrast to entropy it takes the order of statuses into account.

After describing the clusters, we discuss who is in which cluster based on some background variables we know are related to whether older individuals are still employed. Specifically, we look at gender, health, whether the respondent has a partner, educational level, and wealth quartile.

Finally, certain transitions that we would expect based on the literature were not coming out of the cluster analysis. Specifically, we did not find clusters characterised by unretirement or a movement *into* self-employment. Hence, to see whether they are really uncommon or hidden in other clusters, we separately look at how often these transitions occur.

All analyses are done in R (R Core Team, 2016), using the packages *TraMineR* for the sequence analysis (Gabadinho et al., 2011), *WeightedCluster* for the cluster analysis (Studer, 2013), *nnet* for the multinomial regressions (Ripley & Venables, 2011), and *glm* for the logistic regressions.

Results

Clusters

Figure 1 shows that when we look at the average silhouette width (ASW) there seem to be at least two peaks in the 2 till 20 cluster solutions. When looking at the 6 (US) and 6 (England) cluster solutions, we ended up with very broad clusters that seemed to combine much of the variation we are interested in within single clusters. Consequently, we looked at the second peak, which in England had a higher ASW. The 12-cluster solution in the United States and the 15-cluster solution in England provide us with information about pathways we are interested in while still simplifying the data.

-Figure 1 about here-

Figures 2 and 3 show the similar and different clusters in both countries. Figure 2 shows the state distribution plots per cluster. As the name suggests, this shows for each year in the data the distribution of all states for each cluster separately. Figure 3 instead show the individual sequence plots. While Figure 2 gives information about the distribution of *states*, Figure 3 gives information about all individual *sequences* for each cluster. As shown in these figures, the most common cluster of sequences in both countries is early retirement. This makes up about 36% of the sequences in the US and almost 24% of the sequences in England.

-Figures 2 and 3 about here-

After the most common clusters, the US and England start to differ in ranking of most prevalent clusters. However, 10 of the clusters seem to have the same substantial meaning. Hence, despite all the suggestions that both countries are quite different in later working live patterns, we see quite some similarities in addition to differences. One clear difference we see is the role of partial retirement in the US and part-time work in England. Partial (early) retirement is the third most common cluster in the US and only the 15th in England. Moreover, the US has two more clusters characterised by being partly retired ‘partial (early) retirement 2’ and ‘partial (late) retirement’ that are not found back in England. Clearly, being partly retired plays a bigger role in the US than in England.

In England, part-time work plays a bigger role. On-time retirement from a part-time job is the second most common cluster in England, with about 12% of the respondents following this pathway, while it is not found back in the US. Moreover, England has two more clusters characterised by part-time work ‘late retirement part-time workers’ and ‘phased retirement’. The first one occurs in about 2.3% of the cases in the US and 6.4% in England, while the second one is not found back in the US. Clearly then, working part-time plays a bigger role in the US than in England.

One argument could be that they are the same thing. Both are working part-time, but in the US they call themselves retired as well while they do not do this in England. However, we know that women in England are more likely to work part-time than in the US. If partial retirement and part-time work were indeed a similar transition in both countries, then we would also expect a similar within-country gender composition in part-time work and partial retirement. Table 3 shows that this is not the case. Partly (early) retirement in both countries were sequences of both men and women (though a much more common sequence in the US compared to England) and retirement of part-time workers clearly mostly a cluster filled with women (though much more common in England than the US). The two clusters that differ between the US and England show that partial (early) retirement 2 and partial (late) retirement are more similar to partial (early) retirement in gender composition, while on-time retirement of part-time work and phased retirement are more similar to retirement of part-time workers in gender composition.

-Table 3 about here-

Another thing to notice from Table 3 is that clusters on late retirement in England are mainly women. Remember that there is an age difference in England, making it easier for women to work late as already set out in the introduction. Clusters containing being out of the labour force or working part-time are also disproportionally women, but this is also expected, as we know that women are more likely to work part-time or be homemakers.

Do different pathways mean individuals are working late?

Clearly conventional retirement from full-time work at or around state pension age is relatively unusual. However, to what extent do the diverse range of paths people take result in late employment, i.e. after state pension age, as the discussion in introduction suggested? In order to make sense of this, the different clusters have been classified on the basis of whether

they result in ‘early exit mostly’, ‘on-time’ retirement mostly, or involve some form ‘late’ employment.

As the groupings on Table 4 show, most individuals were in clusters that were commonly associated with early, rather than late, exit. In the United States, 59.8% were in clusters where early exit was common, with a corresponding percentage of 51.7% in England.

Looking at the clusters for ‘on time’ retirement, people in England were more likely to retire around pension age than their counterparts in United States. In England, 22.8% were in ‘on-time’ retirement clusters, compared with 7.1% in the US. However, the difference between countries was not with those retiring from full-time work (‘conventional retirement’) - around 7% were in this category in both countries. Instead, the additional on-time retirement in England came from part-time workers and the self-employed retiring at the ‘right time’; these clusters did not even exist in the United States.

Finally, as Table 4 shows, Americans were more likely than their English counterparts to be in clusters that typically involved some form of ‘late’ employment; this is consistent with the literature discussed above. The difference between countries is smaller than we might expect – 24.6% were in ‘late employment’ clusters in the US, compared with 19.5% in England. However, most people working ‘late’ in England were women (79.5%). This was because it was fairly easy for women to work ‘late’ in England, because their state pension ages were only 60 (compared with 65 for men). Nevertheless, in both countries being in a ‘late’ cluster was much less likely than being in an ‘early exit’ cluster.

In sum, Table 4 shows that conventional retirement is relatively rare in both countries. However, contrary to the expectations set up in the introduction, the diverse range of paths people follow are much more likely to result in early, rather than late, exit in both countries.

-Table 4 about here-

Variation within clusters

Second, we are interested in the variation *within* clusters i.e. whether or not clusters were similarly complex in both countries. Table 5 gives a summary of the three homogeneity indices. All three indices give some indication of variation within clusters (as described in more detail in the method section). If we first look at the last line, giving the overall values, we see that entropy, turbulence, and complexity are relatively similar in the US compared to England. If we then look at the specific clusters, we see that most clusters are quite similar as well. Only for the deceased (early or late) clusters we see clear differences. Hence, the variation in clusters appears to be similar in the England and the USA.

-Table 5 about here-

Who is in which cluster?

Third, we look at who is in which cluster. The goal is to see to what degree known predictors of later life transitions are similarly related to cluster solutions in the US and England. To increase the sample size in some of our clusters we combined them. For the US, we combined the three ‘partial retirement’ clusters. For England, we combined ‘very early retirement’ with ‘slightly early retirement’, ‘on-time retirement of part-time workers’ with ‘late retirement of part-time workers’, and ‘conventional retirement self-employed’ with ‘late retirement self-employed’. For both countries, we combined ‘early deceased’ with ‘late deceased’. The rationale for this is that we perceive these to be similar transitions and for country-comparativeness. If a cluster has a (very) small sample size but cannot logically be combined with another cluster it is kept separately. It should be noted though that significance testing is not very meaningful for these clusters. This includes, for example, partial (early) retirement in England and retirement of part-time workers in the US. We assess the consequence of keeping these small clusters in the analysis (which potentially will lead to multicollinearity) in a robustness check. We use ‘early retirement’ as reference category as this is the most

common cluster in both countries and apparently has become the norm. In the Web Appendix we also show the results of using ‘conventional retirement’ as the reference category.

Results (see Table 6) show that being female increased the likelihood of conventional retirement or late retirement versus early retirement in England, but lowered this likelihood in the US. This is likely related to the age difference in England. In both countries, being female increased the relative likelihood of retirement of part-time workers or from OLF to retirement (though the relative likelihood of retirement of part-time workers was only marginally significant in the US). In the US we also see that being female decreases the relative likelihood of retirement from self-employment, something we do not see back in England, while in England we see that being female is related to an increased likelihood of phased retirement. Finally, in the US being female decreased the relative likelihood of being deceased. The relationship was similar in England but failed to reach significance.

Having four or more ADLs decreased the likelihood of most clusters compared to early retirement, though not always significant in both countries. The exceptions were retirement of people with a disability and being deceased, which is as expected. Also, in England, this was not found for going from out of the labour force to retirement, underlining that people with severe health issues are less likely to work in older age.

Having a partner does not appear to be clearly related to the clusters in either country. The only difference it seems to make is that it increased the likelihood of being in the cluster ‘from OLF to retirement’ compared to early retirement. This relationship is significant in the US but not in England.

Having a higher education decreased the likelihood of being in the cluster from OLF to retirement compared to early retirement in the US, but this relationship was (though in the same direction) less clear in England. It appears that the middle educated are least likely to be

in this cluster compared to early retirement in the US. Also, it appears that there is a curvilinear relationship between education and the relative likelihood of late retirement in the US. Individuals with middle education seem most likely to be in this cluster compared to early retirement. This is not found in England.

Finally, being in the highest wealth quartile decreased the relative likelihood of most clusters compared to early retirement, though not always significantly in both countries, suggesting that individuals in the highest wealth quartile are more likely to retire early. The clearest exception here is retirement of self-employment. The relative likelihood of being in this cluster increases when being in the highest quartile, significantly so in the US.

-Table 6 about here-

Unretirement

None of the clusters described above give an indication about un-retirement. However, previous research has suggested that un-retirement is more common in the US than in the UK (see literature review). To tease this out, we specifically look at this transition within the sequences. Table 7 gives an overview of un-retirement transitions. The proportions mentioned in this table indicate the proportion of sequences in which this transition occurs at least once. It is clear that the transition from being retired to paid work (part-time, full-time, or self-employed) occurs much more often in the US compared to England (17% versus 9%). Moving from being retired to a full-time job occurs does not happen often in either country; only in about 1% of the sequences in England and about 3% of the sequences in the US. Moving from being retired to a part-time job (either partly retired or part-time job) occurs in about 5% of the sequences in England compared to 12% of the sequences in the US. The difference in moving from being retired to being self-employed is small, but may occur slightly more in England (3% of sequences) than in the US (2% of sequences).

-Table 7 about here-

Movement into self-employment

Another specific transition that we look at separately is the movement into self-employment.

As discussed in the literature review, the literature suggest that older workers are more likely to be self-employed than younger workers, but there is some discussion as to whether this is a movement into self-employment or whether people who are self-employed retire later than people who are in employment. Table 8 shows the transition into self-employment. This table shows that about 8% of the respondents in the US and 11% of the respondents in England move into self-employment. Note that this can be a sequence that looks like this: self-employed → part-time job → self-employed. Only about 2% in the US and 3% of the respondents in England move to self-employment from being retired though with a further 1% in both countries moving from not being in the labour force to self-employment. In the US about 3% move from partly retired to self-employed, something that happens in less than 1% of the cases in England. Alternatively, in England about 4% moves from part-time work to self-employment, which happens only in less than 1% of the cases in the US. Overall then, it seems equally likely in England and the US to move into self-employment from a part-time job in older age. As staying in self-employment becomes a separate cluster and the movement from retirement to self-employment does not, the first seems more common.

-Table 8 about here-

Robustness Checks and Additional Analyses

We performed a variety of robustness checks to see how robust our results were for various specifications of the model. First, we looked at the robustness of type of sequence analysis, and also looked at the 15-cluster solution of the Dynamic Hamming Distance and the Hamming Distance. We see largely similar clusters and hence our results seem largely robust for type of sequence analysis. Second, we looked at a different type of cluster analysis (namely Partitioning Around Medoids, PAM) and again we see largely the same clusters. In general over these two robustness checks we see that in the US retirement of people with a

disability and partial (late) retirement are less stable than the other clusters. In England we see that partial (early) retirement, late deceased, and (slightly) early retirement are less robust. See Web Appendix 1 and 2 for more details.

Second, we wanted to get some idea about sample bias in our cluster formation (see Web Appendix 3 for details). For this we weighted the data and looked at missing data. Weighting the data did not substantially change the clusters we found. Our missing data analysis suggests that missing data are not completely at random. For example, in England missing data seems to be related to having a low education and low wealth, suggesting that we are looking at a relatively well-off sample. In the US, while we do not find neither strong statistical effects nor big size effects, missing data is associated with individuals with two ADLs, people classified in the third quartile of wealth, and persons partly or fully. This should be taken into account when interpreting the data.

Finally, we looked at different specifications of the multinomial logistic regression analysis (see Web Appendix 4 for details). Here it is shown that excluding clusters than seem to introduce multicollinearity does not change the substantive results for the other clusters. Hence, we show the full model in this paper for completeness. Also, we looked in more detail at education and wealth and it seems that there is some overlap in its effects with wealth being the more proximate factor. Finally, we repeated the various analyses with having conventional retirement as reference category.

Conclusion / Discussion [to be developed further]

This paper examines the extent to which older people in the US and England are moving into self-employment and part-time work as a means of working ‘late’ (after state pension age). The employment paths taken by people over a ten-year period are examined using sequence

analysis, cluster analysis, and multinomial logistic regressions. The analysis is based on the English Longitudinal Study of Ageing and the US Health and Retirement Study.

This shows that ‘conventional retirement’ from full-time work, at or around state pension age, is fairly unusual in both countries. People took a number employment paths over the period. However, these employment trajectories were more likely to result in early, rather than late, retirement. In addition, there were gender differences between countries. In the US people typically moved *into* part-time work in older age, albeit in relatively low numbers. In the UK part-time work was common among women at much earlier ages. This illustrates the need for greater consideration of the nature of female employment across the life course. Taking this paper forward we will carefully consider these results in more depth.

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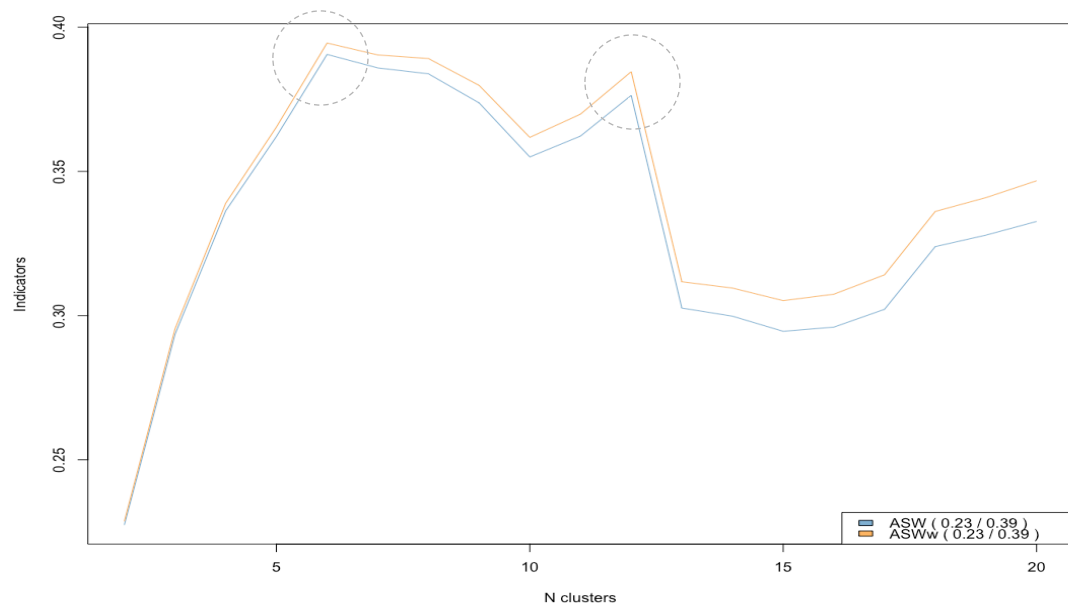
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Text to include in acknowledgement:

This analysis uses data or information from the Harmonized ELSA dataset and Codebook, Version D as of March 2016 developed by the Gateway to Global Aging Data. The development of the Harmonized ELSA was funded by the National Institute on Ageing (R01 AG030153, RC2 AG036619, 1R03AG043052). For more information, please refer to www.g2aging.org. Secondly, this analysis uses data and information from the RAND HRS data documentation version O. This research was financially supported by the FONDECYT Postdoctoral Project N°3160522.

Figure 1: Average Silhouette Width

1a. United States



1b. England

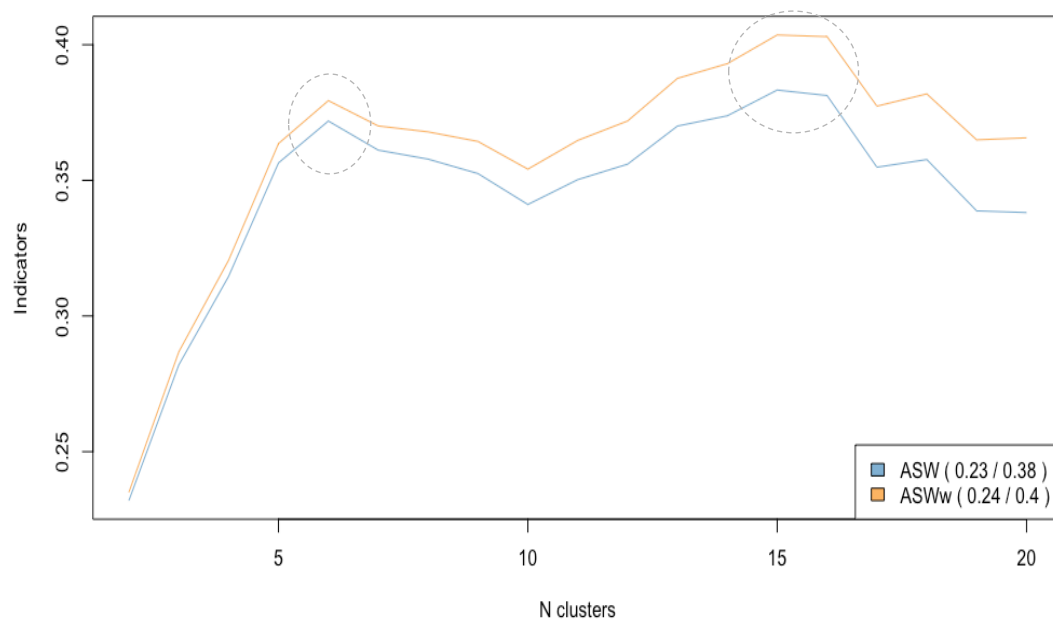
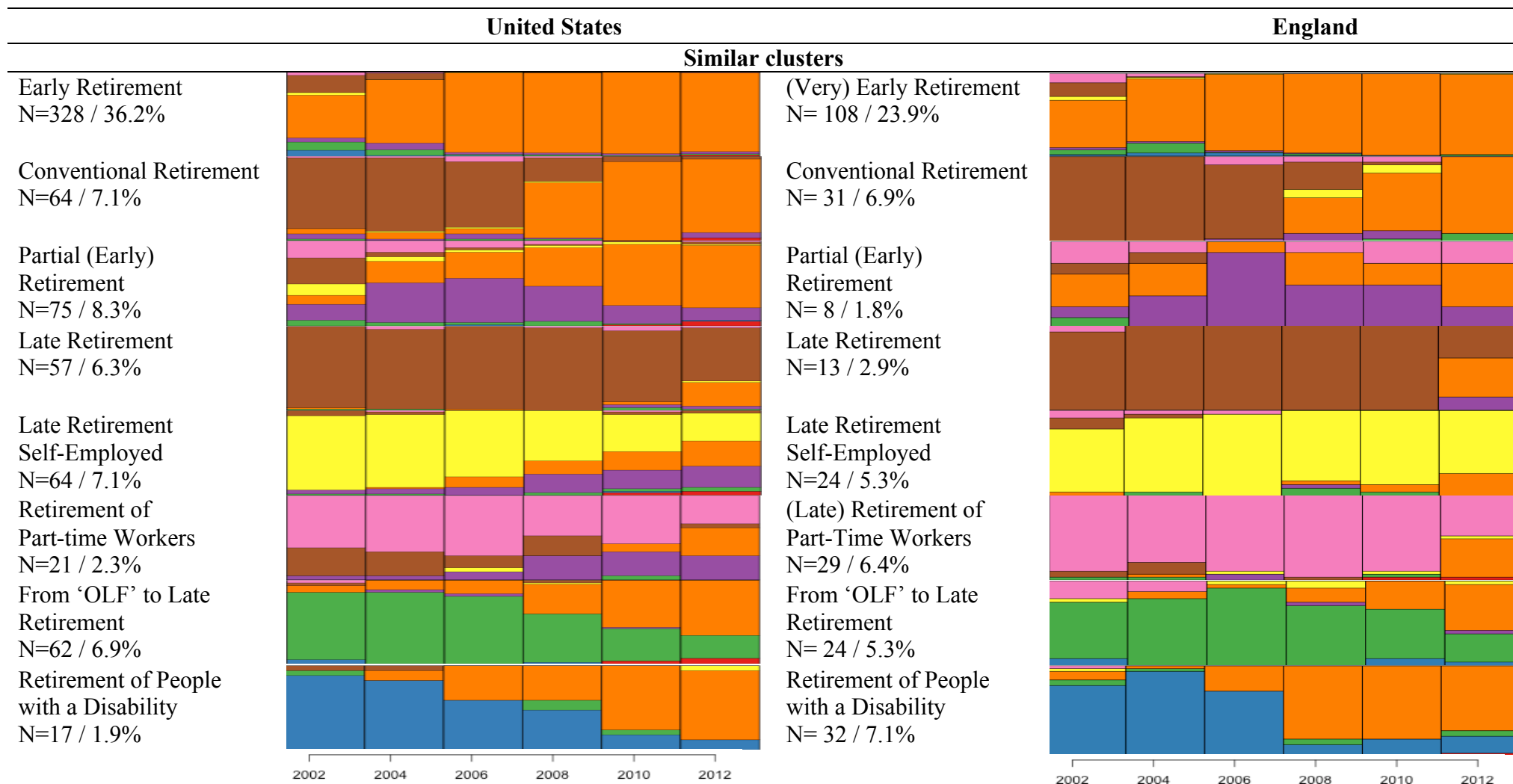


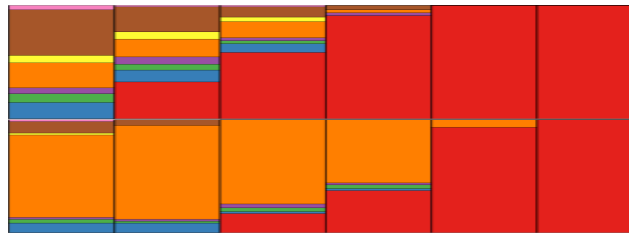


Figure 2: State distribution plots



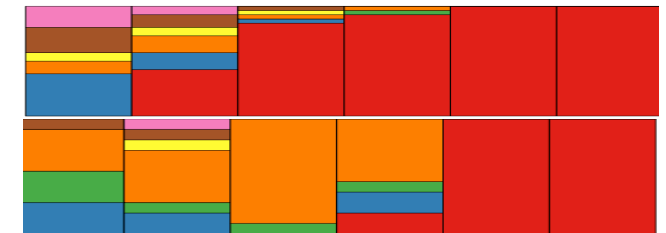
Early Decease
N=77 / 8.5%

Late Decease
N=59 / 6.5%



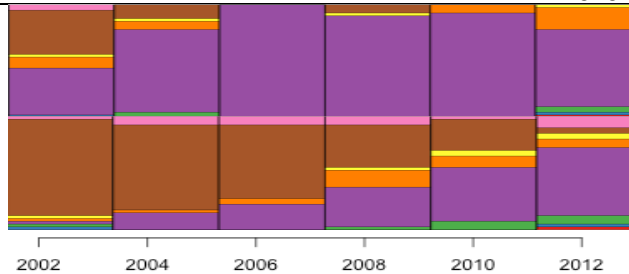
Early Deceased
N=26 / 5.8%

Late Deceased
N= 11 / 2.4%



Different Clusters

Partial (Early)
Retirement 2
N=41 / 4.5%
Partial (Late) Retirement
N=40 / 4.4%



On-time Retirement of
Part-time Work
N=54 / 12.0%
Phased retirement
N=22 / 4.9%

(Slightly) Early
Retirement
N=28 / 6.2%
Conventional Retirement
(Self-employed)
N= 18 / 4.0%
From 'OLF' to 'On-
Time' Retirement
N= 23 / 5.1%

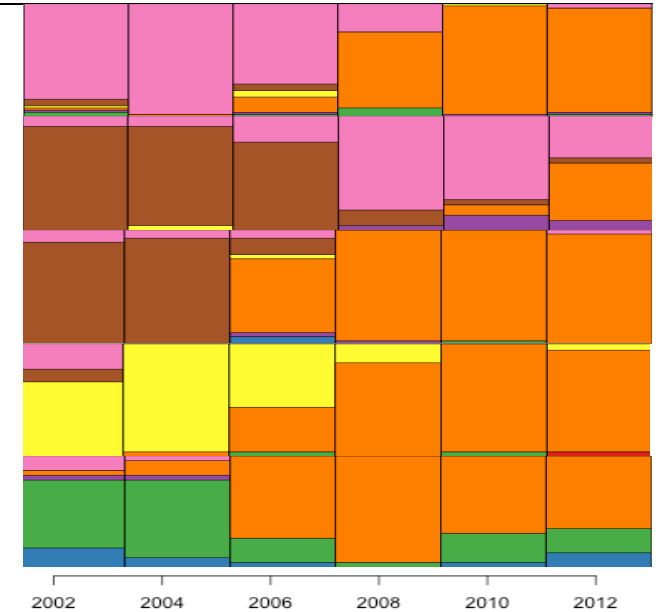
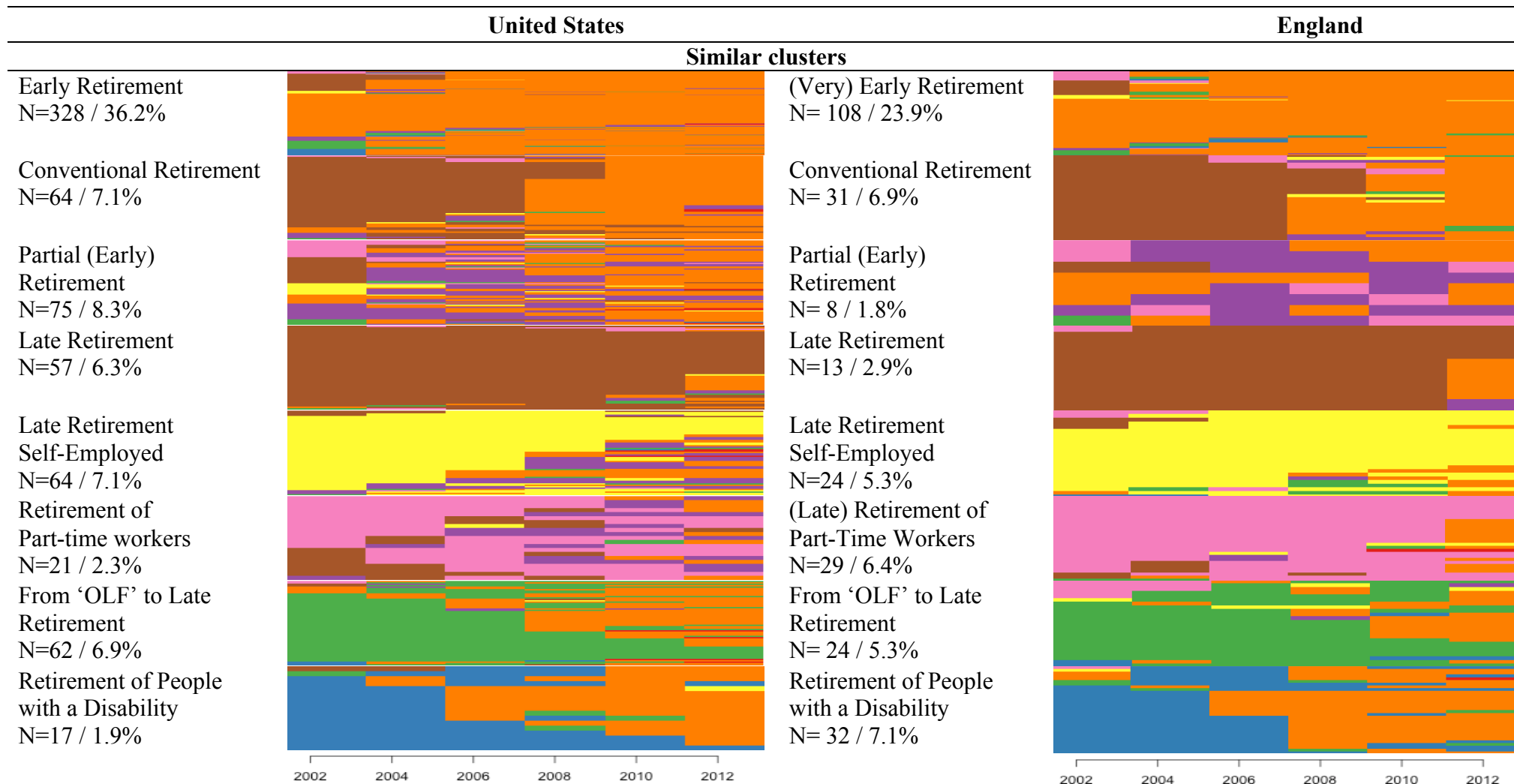


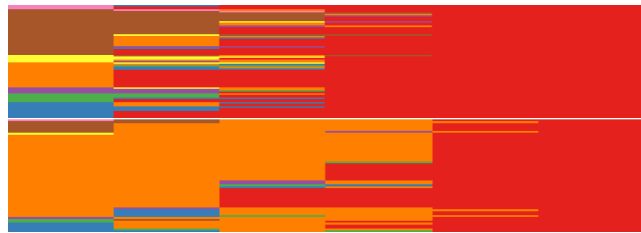


Figure 3: Individual sequence plots



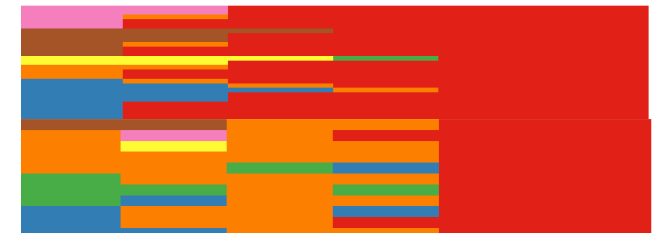
Early Decease
N=77 / 8.5%

Late Decease
N=59 / 6.5%



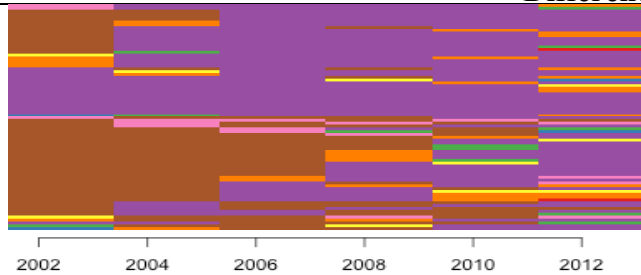
Early Deceased
N=26 / 5.8%

Late Deceased
N= 11 / 2.4%



Different Clusters

Partial (Early)
Retirement 2
N=41 / 4.5%
Partial (Late) Retirement
N=40 / 4.4%



On-time Retirement
Part-time Work
N=54 / 12.0%
Phased retirement
N=22 / 4.9%

(Slightly) Early
Retirement
N=28 / 6.2%
Conventional Retirement
(Self-employed)
N= 18 / 4.0%
From 'OLF' to 'On-
Time' Retirement
N= 23 / 5.1%



Table 1: Overview age range in both datasets

Year	2002	2004	2006	2008	2010	2012
Wave in HRS	6	7	8	9	10	11
Wave in ELSA	1	2	3	4	5	6
Selected ages for men and women in the US	60-61	62-63	64-65	66-67	68-69	70-71
Selected ages for men in England	60-61	62-63	64-65	66-67	68-69	70-71
Selected ages for women in England	55-56	57-58	59-60	61-62	63-64	65-66

Table 2: Descriptive Statistics

Variable	Proportion HRS	Proportion ELSA
Labour Force Status wave in 2002		
Deceased	0.00	0.00
Disabled	0.07	0.10
Not in Labour Force	0.11	0.10
Partly Retired	0.07	0.01
Retired	0.28	0.17
Self-employed	0.09	0.09
Works full-time	0.33	0.27
Works part-time	0.06	0.24
Labour Force Status wave in 2012		
Deceased	0.17	0.09
Disabled	0.01	0.02
Not in Labour Force	0.03	0.05
Partly Retired	0.11	0.02
Retired	0.58	0.70
Self-employed	0.03	0.05
Works full-time	0.05	0.01
Works part-time	0.02	0.06
Gender		
Male	0.45	0.38
Female	0.55	0.62
Health wave 1		
No ADLs	0.33	0.51
1 ADL	0.12	0.17
2 ADLs	0.11	0.09
3 ADLs	0.08	0.07
4 or more ADLs	0.22	0.16
Having a partner wave 1		
No partner	0.28	0.19
Partner	0.72	0.81
Wealth wave 1		
1 st Quartile	0.25	0.24
2 nd Quartile	0.25	0.24
3 rd Quartile	0.25	0.24
4 th Quartile	0.25	0.24
Education wave 1		
Low	0.20	0.42
Middle	0.58	0.26
High	0.22	0.32
N	905	451

Note: Wealth does not add up to 100% in ELSA as there is some missing data on this variable (14 cases or 3.1%).

Table 3: Gender composition of clusters

	United States			England	
	Men	Women		Men	Women
Early Retirement N=328 / 36.2%	42.1% (33.8%)	57.9% (38.2%)	(Very) Early Retirement N= 108 / 23.9%	61.1% (38.8%)	38.9% (14.9%)
Conventional Retirement N=64 / 7.1%	60.9% (9.6%)	39.1% (5.0%)	Conventional Retirement N= 31 / 6.9%	38.7% (7.1%)	61.3% (6.8%)
Partial (Early) Retirement N=75 / 8.3%	44.0% (8.1%)	56.0% (8.5%)	Partial (Early) Retirement N= 8 / 1.8%	37.5% (1.8%)	62.5% (1.8%)
Late Retirement N=57 / 6.3%	56.1% (7.8%)	43.9% (5.0%)	Late Retirement N=13 / 2.9%	7.7% (0.6%)	92.3% (4.3%)
Late Retirement Self-Employed N=64 / 7.1%	67.2% (10.5%)	32.8% (4.2%)	Late Retirement Self-Employed N=24 / 5.3%	37.5% (5.3%)	62.5% (5.3%)
Retirement Part-time workers N=21 / 2.3%	19.0% (1.0%)	81.0% (3.4%)	(Late) Retirement of Part-Time Workers N=29 / 6.4%	6.9% (1.2%)	93.1% (9.6%)
From 'OLF' to Late Retirement N=62 / 6.9%	3.2% (0.5%)	96.8% (12.1%)	From 'OLF' to Late Retirement N= 24 / 5.3%	0% (0.0%)	100% (8.5%)
Retirement of People with a Disability N=17 / 1.9%	47.1% (2.0%)	52.9% (1.8%)	Retirement of People with a Disability N= 32 / 7.1%	40.6% (7.6%)	59.4% (6.8%)
Early Decease N=77 / 8.5%	53.2% (10.0%)	46.8% (7.2%)	Early Deceased N=26 / 5.8%	57.7% (8.8%)	42.3% (3.9%)
Late Decease N=59 / 6.5%	49.2% (7.1%)	50.8% (6.0%)	Late Deceased N= 11 / 2.4%	100% (6.5%)	0% (0.0%)
Partial (Early) Retirement 2 N=41 / 4.5%	42.1% (5.4%)	57.9% (3.8%)	On-time Retirement Part-time Work N=54 / 12.0%	13.0% (4.1%)	87.0% (16.7%)
Partial (Late) Retirement N=40 / 4.4%	42.5% (4.2%)	57.5% (4.6%)	Phased retirement N=22 / 4.9%	27.3% (3.5%)	72.7% (5.7%)
			(Slightly) Early Retirement N=28 / 6.2%	50.0% (8.2%)	50.0% (5.0%)
			Conventional Retirement (Self-employed) N= 18 / 4.0%	50.0% (5.3%)	50.0% (3.2%)
			From 'OLF' to 'On-Time' Retirement N= 23 / 5.1%	8.7% (1.2%)	91.3% (7.5%)

Note: Clusters where more than 80% is male or female are shaded. Outside the brackets the percentage reflects the percentage of men and women in each cluster; within brackets how often the cluster is occurring for men and for women.

Table 4: Categorising clusters by whether they mostly involve early exit, ‘on time’ retirement’ or some ‘late employment’

	United States	England
Early Exit Mostly	Early Retirement	(Very) Early Retirement
US – 59.8%		
England – 51.7%	Partial (Early) Retirement	Partial (Early) Retirement
(% in category female: US: 60.6% England: 53.4%)	Retirement of People with a Disability	Retirement of People with a Disability
	Late Deceased	Late Deceased
	From ‘OLF’ to Late Retirement	From ‘OLF’ to Late Retirement
		(Slightly) Early Retirement
		From ‘OLF’ to ‘On-Time’ Retirement
‘On time’ retirement mostly	Conventional Retirement	Conventional Retirement
USA – 7.1%		On-time Retirement of Part-Time Workers
England – 22.8%		
(% in category female: US: 39.1% England: 72.8%)		Conventional Retirement (Self-employed)
Mostly some ‘late’ employment	Late Retirement	Late Retirement
USA – 24.6%	Late Retirement	Late Retirement
England – 19.5%	Self-Employed	Self-Employed
(% in category female: US: 47.4% England: 79.5%)	Retirement Part-time workers	(Late) Retirement Part-time workers
	Partial (Early) Retirement 2	Phased retirement
	Partial (Late) Retirement	
Early Deceased	Early Deceased	Early Deceased
USA – 8.5%		
England – 5.8%		
(% in early deceased category female: US: 46.8% England: 42.3%)		

Table 5: Indexes of internal homogeneity of similar clusters in ELSA and HRS

Clusters	United States			England		
	Entropy	Turbulence	Complexity	Entropy	Turbulence	Complexity
(Very) Early Retirement	0.19	2.19	0.19	0.17	2.05	0.18
Partial (Early) Retirement	0.49	4.28	0.51	0.47	4.08	0.49
Conventional Retirement	0.39	3.95	0.35	0.42	3.87	0.38
Late Retirement	0.13	1.75	0.14	0.15	1.69	0.14
Late Retirement Self-Employed	0.28	2.97	0.28	0.21	2.35	0.21
Retirement of Part-Time Workers	0.44	4.01	0.47	0.42	3.98	0.39
From 'OLF' to Late Retirement	0.30	3.31	0.32	0.33	3.15	0.33
Retirement of People with Disability	0.35	3.47	0.34	0.35	3.84	0.34
Deceased Individuals (early)	0.36	3.14	0.34	0.30	2.83	0.27
Deceased Individuals (late)	0.41	3.84	0.37	0.51	4.17	0.50
Overall	0.29	2.95	0.29	0.31	3.12	0.30

Table 6: Multinomial Logistic Regression using “Early Retirement” as Reference Category

6a. United States

	Conventional Retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	-1.08	.072	-0.70	.260	-1.39	.059	-4.36	.001	-3.65	<.001	-1.97	.097	-0.52	.225	0.64	.119
Female	-0.79	.015	-0.75	.030	-0.94	.005	1.11	.060	3.23	<.001	-0.89	.148	-0.02	.911	-0.91	<.001
No ADL (ref)																
One ADL	-0.51	.289	-0.89	.080	-0.26	.519	1.04	.074	-0.63	.249	0.79	.583	-0.37	.255	-0.16	.705
Two ADLs	-0.14	.756	-1.03	.078	-1.07	.061	-0.19	.790	-0.46	.367	0.73	.612	-0.45	.178	-0.03	.935
Three ADLs	-0.13	.804	-0.21	.681	-0.15	.790	-10.59	.932	-0.93	.181	1.65	.194	-0.16	.666	0.02	.957
Four or more ADLs	-0.98	.033	-1.32	.007	-1.90	.003	-1.98	.075	-1.03	.021	2.09	.059	-0.97	.002	0.48	.130
Partnered	-0.24	.514	-0.57	.119	-0.09	.817	-0.54	.344	1.36	.003	-0.42	.501	-0.01	.981	-0.34	.212
Low education (ref)																
Middle education	0.24	.671	1.39	.018	-0.11	.828	-0.26	.839	-2.06	.002	-1.25	.280	0.20	.590	-0.12	.764
High education	0.48	.298	0.69	.190	-0.69	.135	1.32	.217	-1.29	.001	-0.93	.112	0.24	.458	-0.30	.297
1 st wealth quartile (ref)																
2 nd wealth quartile	0.44	.327	0.10	.823	0.95	.175	0.61	.481	-0.09	.840	-12.47	.937	-0.04	.900	-0.89	.004
3 rd wealth quartile	-0.52	.294	-0.92	.055	1.01	.143	0.21	.824	-0.75	.150	-0.95	.203	-0.25	.461	-1.52	<.001
4 th wealth quartile	-0.35	.491	-1.78	.002	1.42	.038	0.81	.370	-0.43	.410	-1.95	.086	-0.02	.948	-1.65	<.001

Note: reference category = early retirement. Due to missing data on ADLs, n=789. The 1st wealth quartile contains respondents with least (or negative) wealth, the 4th wealth quartile contains respondents with most wealth. Relationships with p<.050 are shaded.

6b. England

	Conventional retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Phased retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	0.05	.927	-3.77	.007	-1.47	.053	-2.17	.001	-3.18	<.001	-0.93	.215	-13.91	.942	-1.34	.099	-0.17	.804
Female	0.81	.024	3.18	.004	0.67	.101	2.68	<.001	3.53	<.001	0.45	.385	1.25	.122	1.47	.009	-0.75	.123
No ADL (ref)																		
One ADL	-0.75	.455	0.67	.330	0.22	.669	0.36	.423	0.74	.151	-0.48	.673	-0.18	.876	0.01	.986	0.49	.478
Two ADLs	-0.69	.431	0.12	.920	0.75	.297	1.35	.028	0.64	.416	0.65	.594	1.02	.397	0.40	.664	2.22	.002
Three ADLs	0.12	.850	-12.49	.980	-0.98	.382	0.37	.956	0.63	.379	1.47	.130	-11.64	.978	0.70	.389	1.45	.083
Four or more ADLs	-1.45	.035	-14.45	<.001	-0.61	.393	-0.92	.114	0.15	.796	2.49	<.001	-0.21	.861	-1.57	.156	1.60	.006
Partnered	-0.09	.847	-0.30	.673	-0.09	.858	0.56	.227	0.88	.107	-0.50	.361	0.19	.865	-0.31	.596	-0.00	.999
Low education (ref)																		
Middle education	-0.22	.646	0.68	.394	0.05	.924	-0.43	.306	-0.14	.763	-0.17	.773	-0.64	.618	-0.05	.935	-0.81	.178
High education	0.25	.555	0.87	.322	-0.31	.525	-0.50	.241	-0.82	.135	-0.71	.310	0.49	.599	-0.07	.910	-1.15	.047
1 st wealth quartile (ref)																		
2 nd wealth quartile	-0.42	.415	-0.14	.870	0.20	.781	0.49	.344	-0.89	.121	-1.00	.111	10.81	.955	-0.21	.758	-1.38	.025
3 rd wealth quartile	-0.95	.073	-0.99	.283	0.53	.434	-0.23	.661	-1.54	.010	-1.25	.061	10.30	.957	-0.75	.292	-1.22	.045
4 th wealth quartile	-1.43	.009	-2.07	.042	0.37	.590	-1.25	.029	-1.64	.006	-2.14	.021	10.53	.956	-1.87	.026	-1.44	.036

Note: reference category = early retirement. Due to extra missing data on wealth, n=437. The 1st wealth quartile contains respondents with least (or negative) wealth, the 4th wealth quartile contains respondents with most wealth. Relationships with p<.050 are shaded

Table 7: Proportion un-retirement transitions in the United States and England

Un-retirement transitions	United States	England
Retired → Partly Retired	0.11	0.03
Retired → Full-time job	0.03	0.01
Retired → Self-employment	0.02	0.03
Retired → Part-time job	0.01	0.02
Total	0.17	0.09

Note: Proportion refers to proportion of sequences in which this transition occurs at least once.

Table 8: Proportion moving into self-employment in the United States and England

Self-employment transitions	United States	England
Part-time job → Self-employed	0.00	0.04
Retired → Self-employed	0.02	0.03
Full-time job → Self-employed	0.02	0.02
Not in labour force → Self-employed	0.01	0.01
Partly retired → Self-employed	0.03	0.00
Disabled → Self-employed	0.00	0.00
Total	0.08	0.11

Note: Proportion refers to proportion of sequences in which this transition occurs at least once. Total may be bit higher or lower than when adding up the proportions in this table due to rounding of proportions.

Web Appendix 1: Type of sequence analysis

As a robustness check, we wanted to see to what degree our choice in type of sequence analysis influenced our results. To assess this we redid our analysis looking at the Dynamic Hamming Distance and the original Hamming Distance. If these types of sequence analyses lead to largely the same clusters this is an indication that our cluster solution is relatively robust for type of sequence analysis.

Dynamic Hamming Distance

Figure A1.1a: US

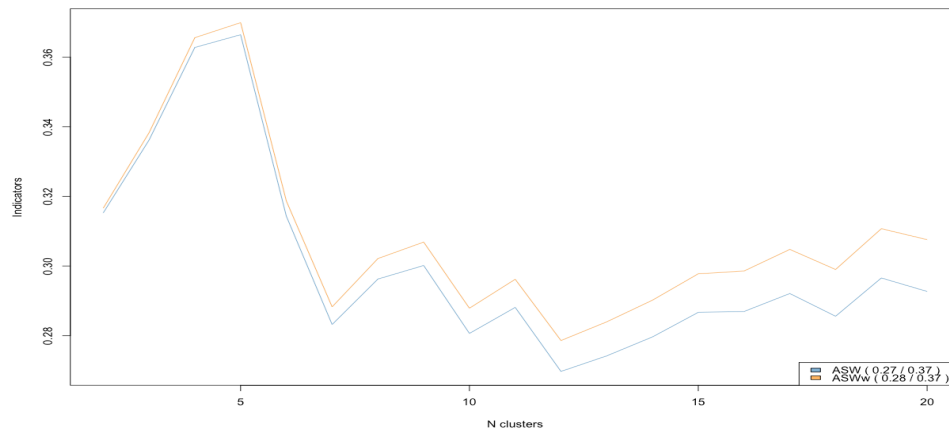
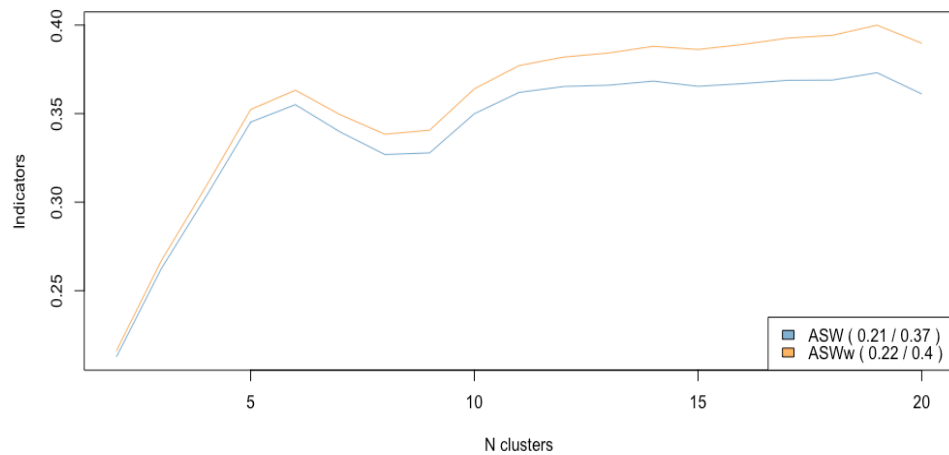
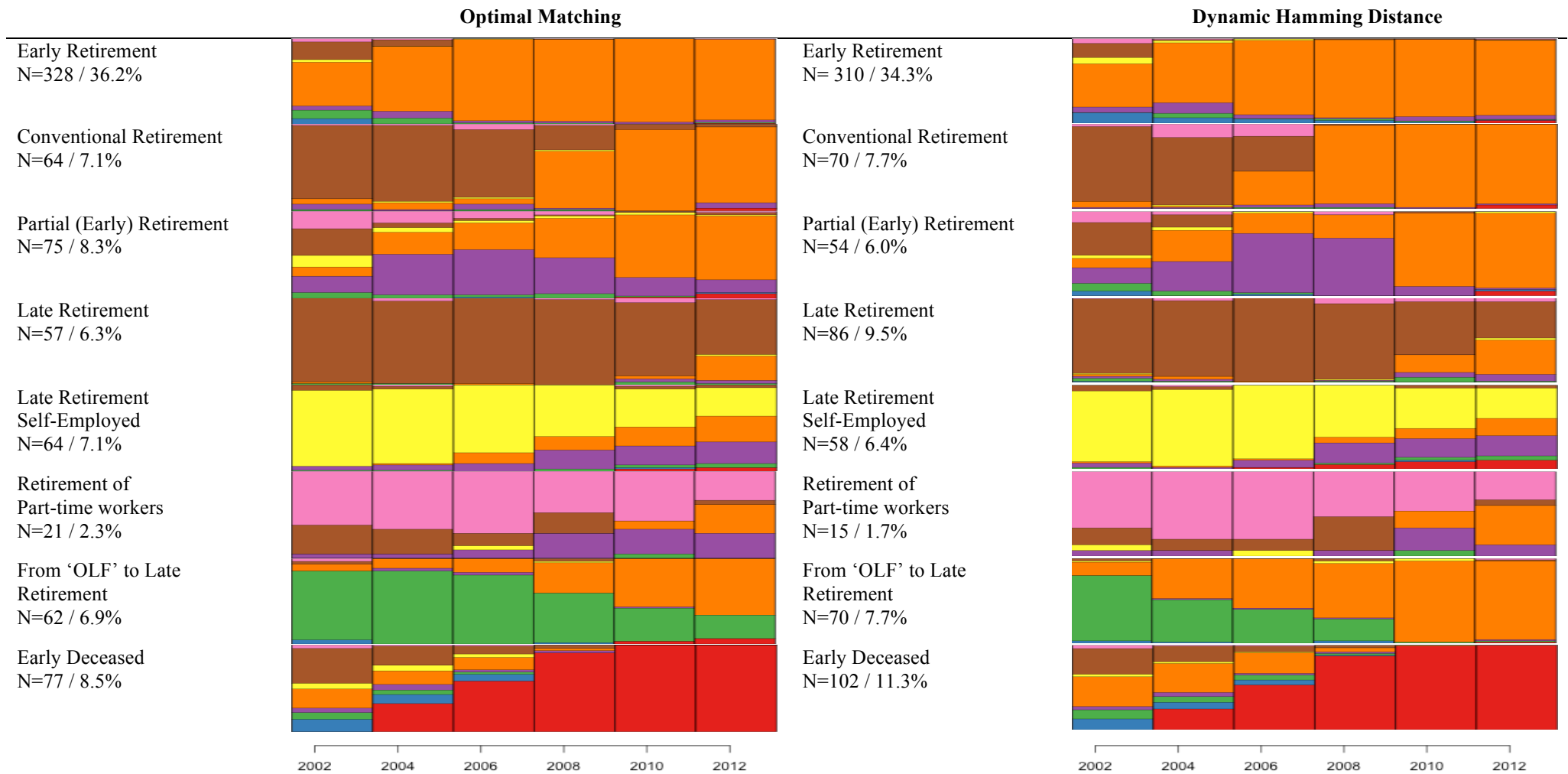


Figure A1.1b: England



As can be seen from Figure A1, the 12 cluster solution in the US and the 15 cluster solution in England no longer stand out as a cluster solution to look at. Nevertheless, for comparability, this is the cluster solution we investigated.

Figure A1.2a: State distribution plots - US

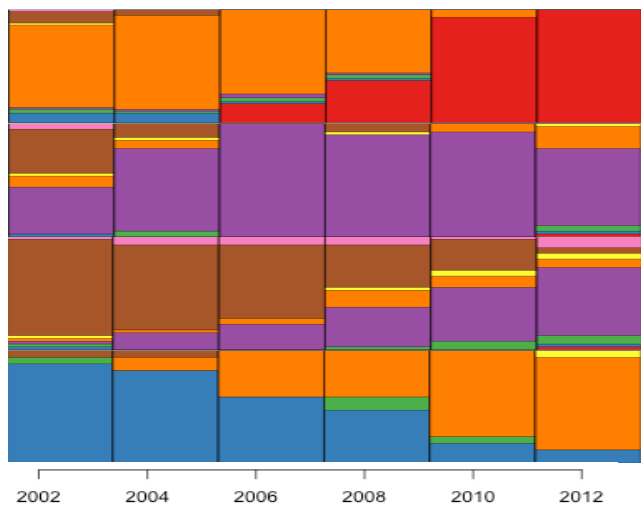


Late Deceased
N=59 / 6.5%

Partial (Early) Retirement 2
N=41 / 4.5%

Partial (Late) Retirement
N=40 / 4.4%

Retirement of People with a
Disability
N=17 / 1.9%

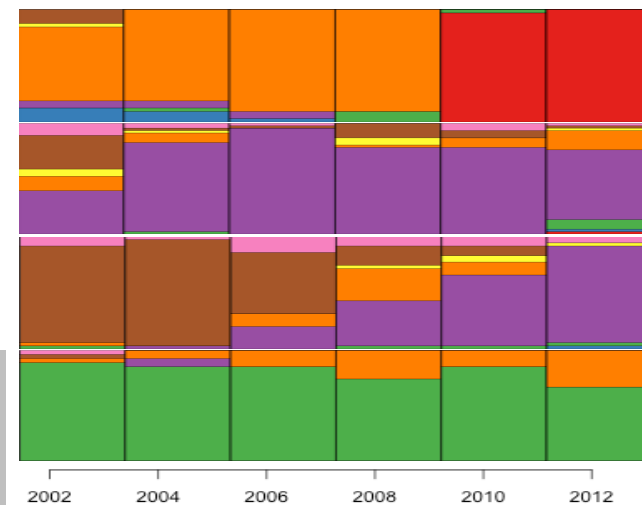


Late Deceased
N=32 / 3.5%

Partial (Early) Retirement 2
N=46 / 5.1%

Partial (Late) Retirement
N=35 / 3.9%

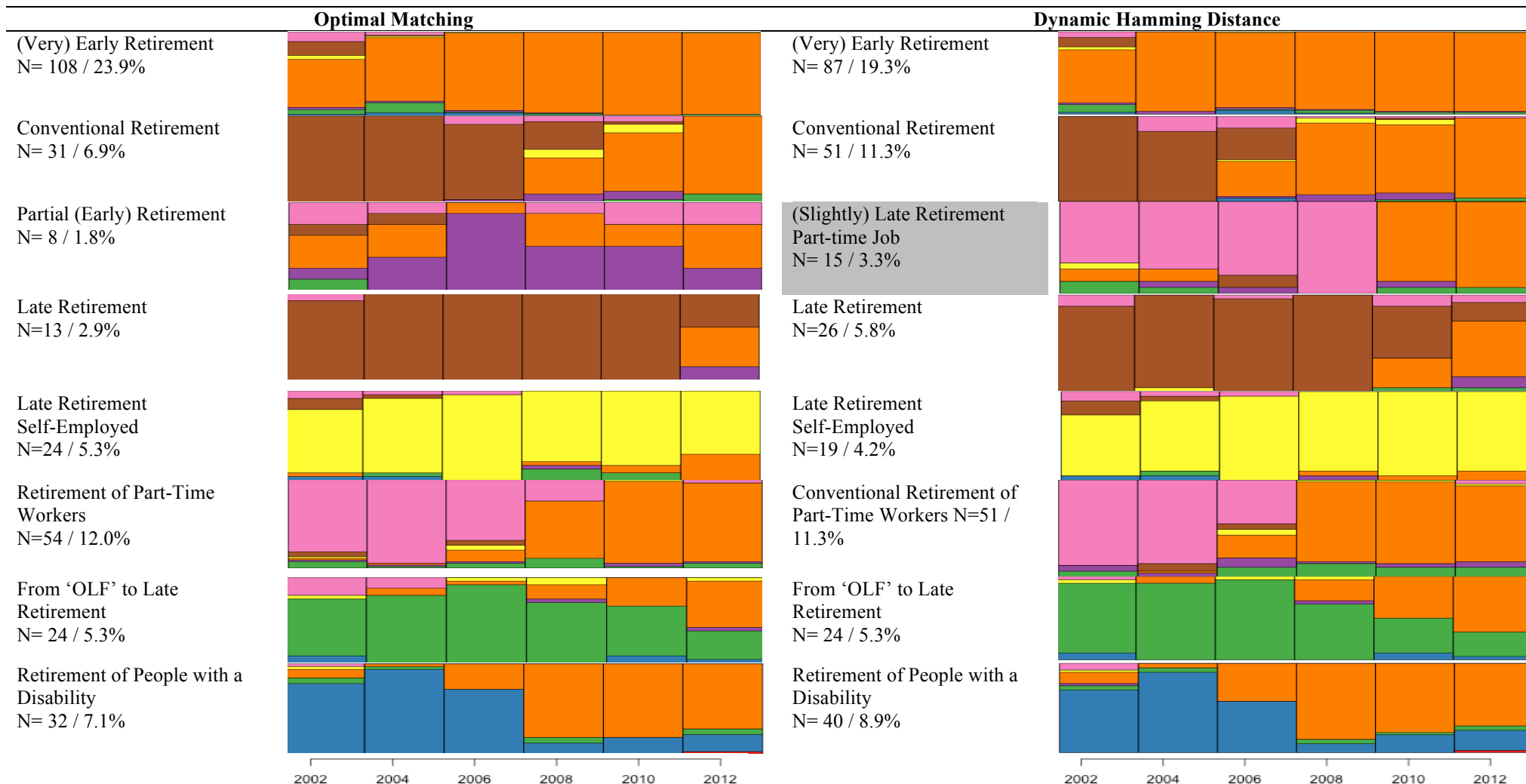
From 'OLF' to (Very) Late
Retirement
N=27 / 3.0%



Note: Clusters that are different in substantive meaning are shaded.

- Dead
- Disabled
- NotInLbf
- PartlyRet
- Retired
- SelfEmployed
- WorksFT
- WorksPT

Figure A1.2b: State distribution plots - England



Early Deceased
N=26 / 5.8%

Late Deceased
N= 11 / 2.4%

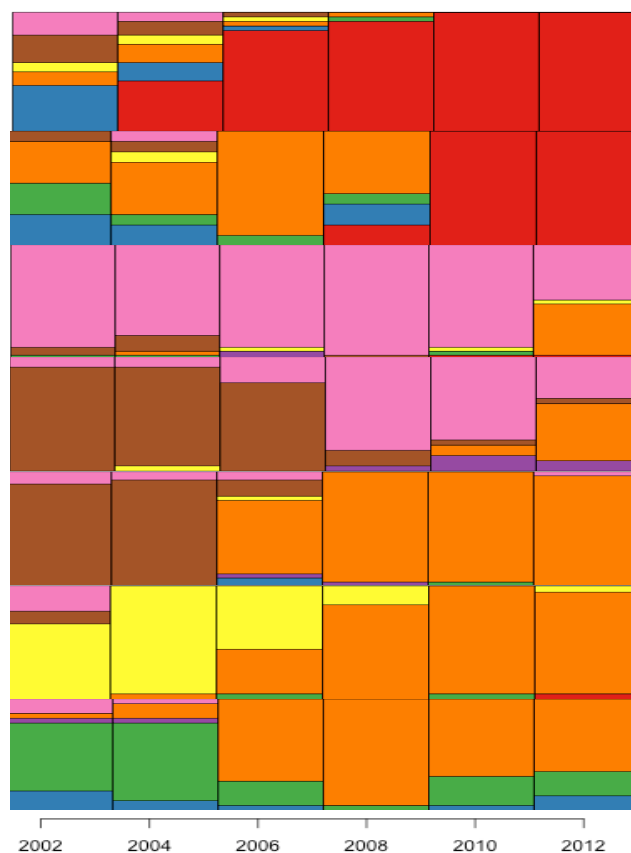
Part-time Work
N=29 / 6.4%

Phased retirement
N=22 / 4.9%

(Slightly) Early Retirement
N=28 / 6.2%

Conventional Retirement
(Self-employed)
N= 18 / 4.0%

From 'OLF' to 'On-Time'
Retirement
N= 23 / 5.1%



Early Deceased
N=25 / 5.5%

Late Deceased
N= 12 / 2.7%

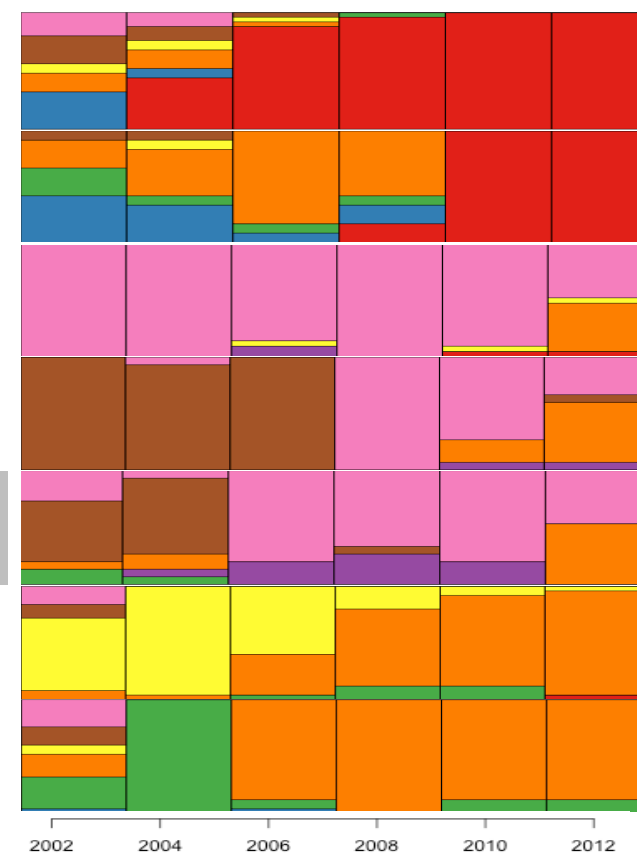
Part-time Work
N=21 / 4.7%

Phased retirement (1)
N=15 / 3.3%

Phased retirement (2)
N= 15 / 3.3%

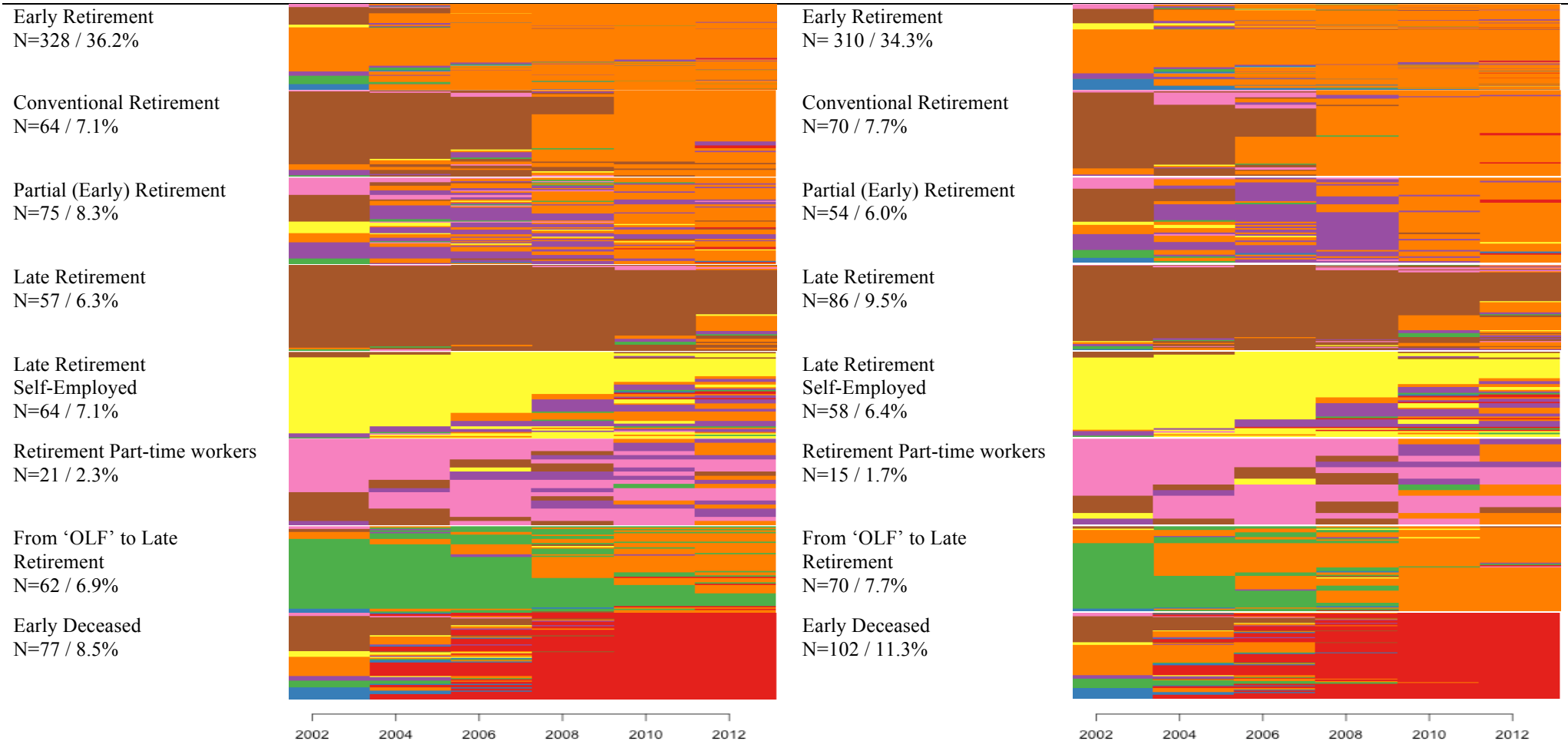
Conventional Retirement
(Self-employed)
N= 25 / 5.5%

From 'OLF' to 'On-Time'
Retirement
N= 25 / 5.5%



Note: Clusters that are different in substantive meaning are shaded.

Optimal Matching		Dynamic Hamming Distance	
Early Retirement N=328 / 36.2%		Early Retirement N= 310 / 34.3%	
Conventional Retirement N=64 / 7.1%		Conventional Retirement N=70 / 7.7%	
Partial (Early) Retirement N=75 / 8.3%		Partial (Early) Retirement N=54 / 6.0%	
Late Retirement N=57 / 6.3%		Late Retirement N=86 / 9.5%	
Late Retirement Self-Employed N=64 / 7.1%		Late Retirement Self-Employed N=58 / 6.4%	
Retirement Part-time workers N=21 / 2.3%		Retirement Part-time workers N=15 / 1.7%	
From 'OLF' to Late Retirement N=62 / 6.9%		From 'OLF' to Late Retirement N=70 / 7.7%	
Early Deceased N=77 / 8.5%		Early Deceased N=102 / 11.3%	

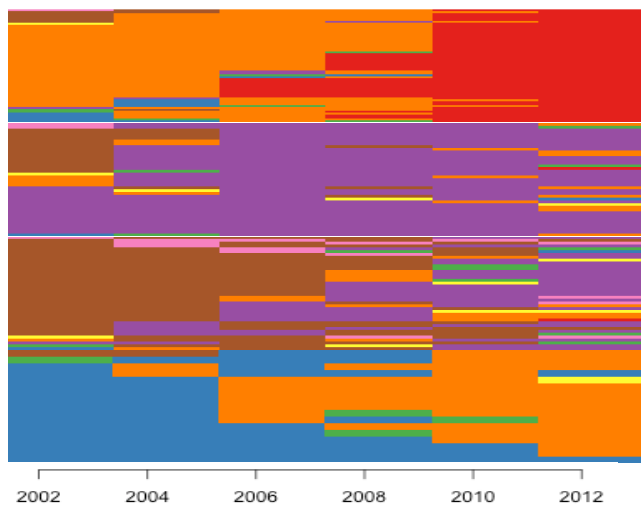


Late Deceased
N=59 / 6.5%

Partial (Early) Retirement 2
N=41 / 4.5%

Partial (Late) Retirement
N=40 / 4.4%

Retirement of People with a
Disability
N=17 / 1.9%

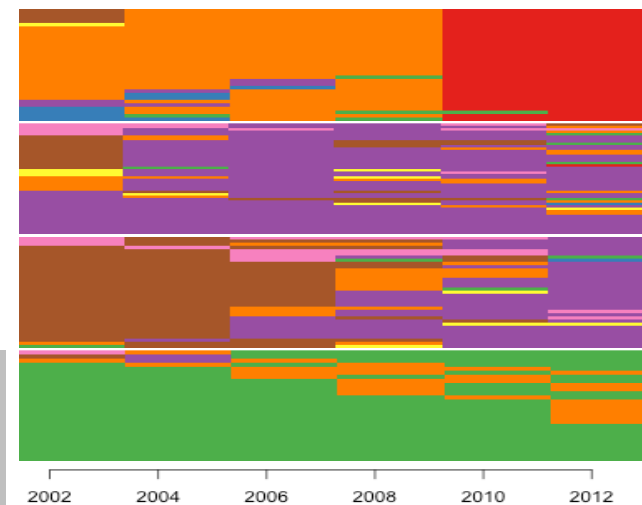


Late Deceased
N=32 / 3.5%

Partial (Early) Retirement 2
N=46 / 5.1%

Partial (Late) Retirement
N=35 / 3.9%

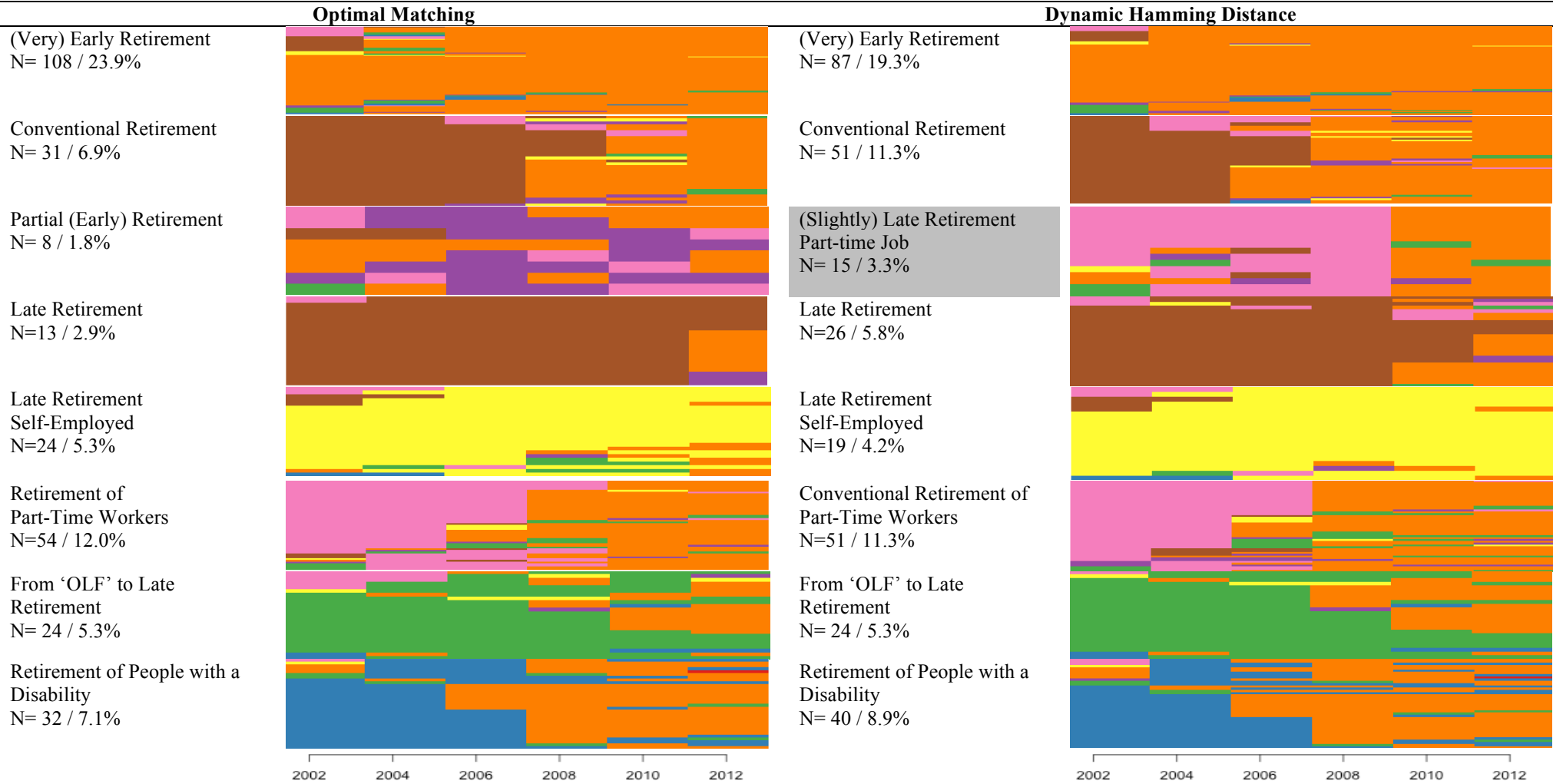
From 'OLF' to (Very) Late
Retirement
N=27 / 3.0%



Note: Clusters that are different in substantive meaning are shaded.



Figure A1.3b: Individual sequence plots England



Early Deceased
N=26 / 5.8%

Late Deceased
N= 11 / 2.4%

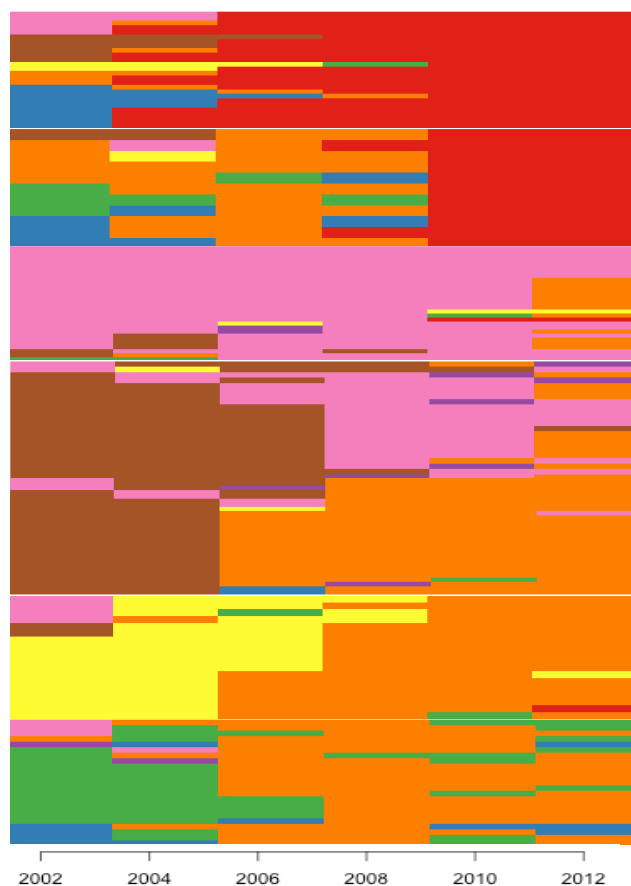
Part-time Work
N=29 / 6.4%

Phased retirement
N=22 / 4.9%

(Slightly) Early Retirement
N=28 / 6.2%

Conventional Retirement
(Self-employed)
N= 18 / 4.0%

From 'OLF' to 'On-Time'
Retirement
N= 23 / 5.1%



Early Deceased
N=25 / 5.5%

Late Deceased
N= 12 / 2.7%

Part-time Work
N=21 / 4.7%

Phased retirement (1)
N=15 / 3.3%

Phased retirement (2)
N= 15 / 3.3%

Conventional Retirement
(Self-employed)
N= 25 / 5.5%

From 'OLF' to 'On-Time'
Retirement
N= 25 / 5.5%



Note: Clusters that are different in substantive meaning are shaded.

As shown on the tables on the previous pages, when we use the dynamic hamming distance, we get largely the same cluster solutions. Though the precise number of people per cluster differs, we see only one different cluster in the US. The retirement of people with a disability is no longer a separate cluster (it was already the smallest cluster using Optimal Matching). Instead, there is a new cluster from OLF to (very) late retirement. In England, two clusters are different. Partial early retirement (which already was the smallest cluster and had only 8 respondents in it) is no longer found, but instead we see a (slightly) late retirement from a part-time job cluster. Also the (slightly) early retirement cluster is no longer found but instead a second cluster with phased retirement. Both point to the importance of part-time work in England.

Hence, most clusters in both countries seem rather robust for whether we are using Optimal Matching or the Dynamic Hamming Distance.

Hamming Distance

Figure A1.4a: US

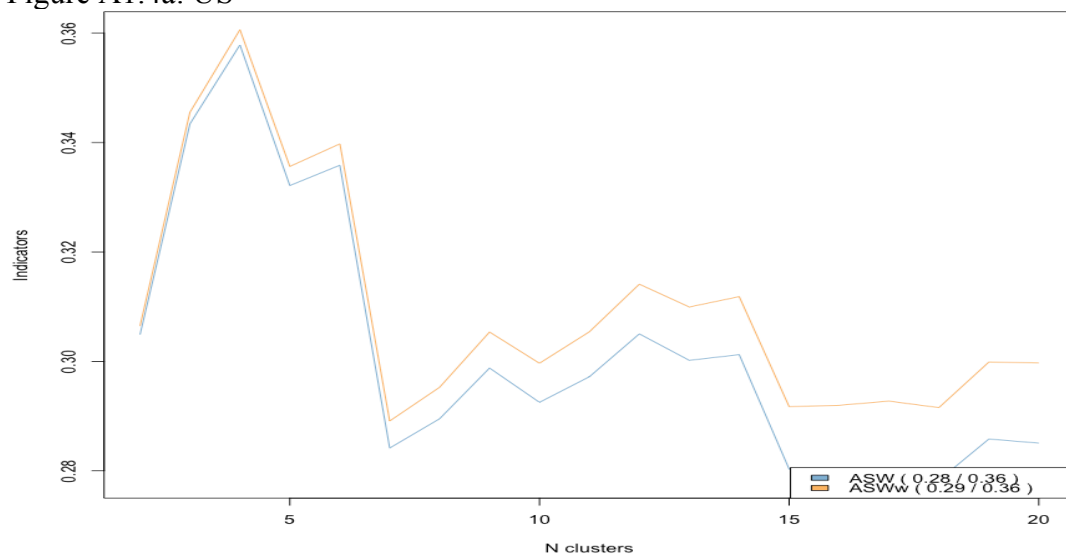
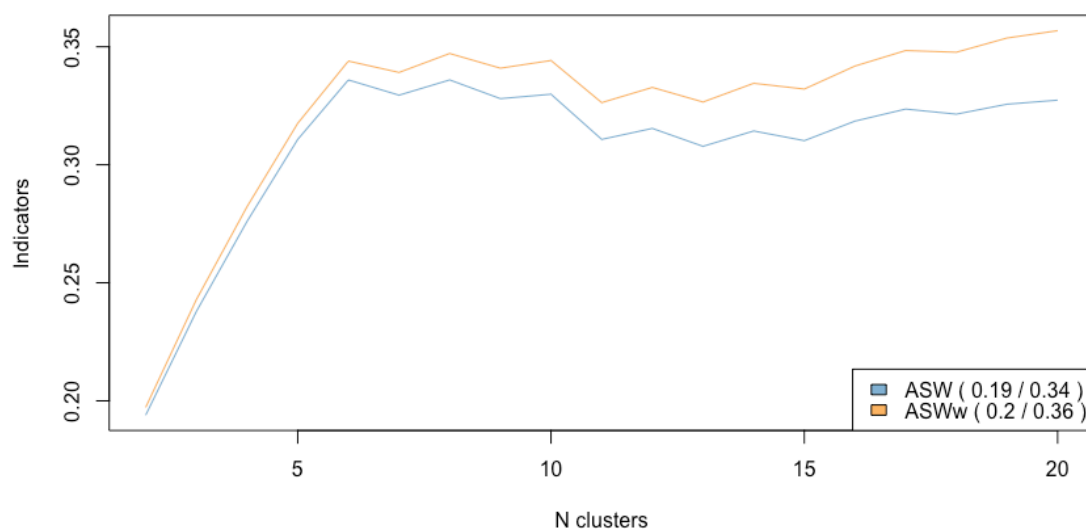


Figure A1.4b: England

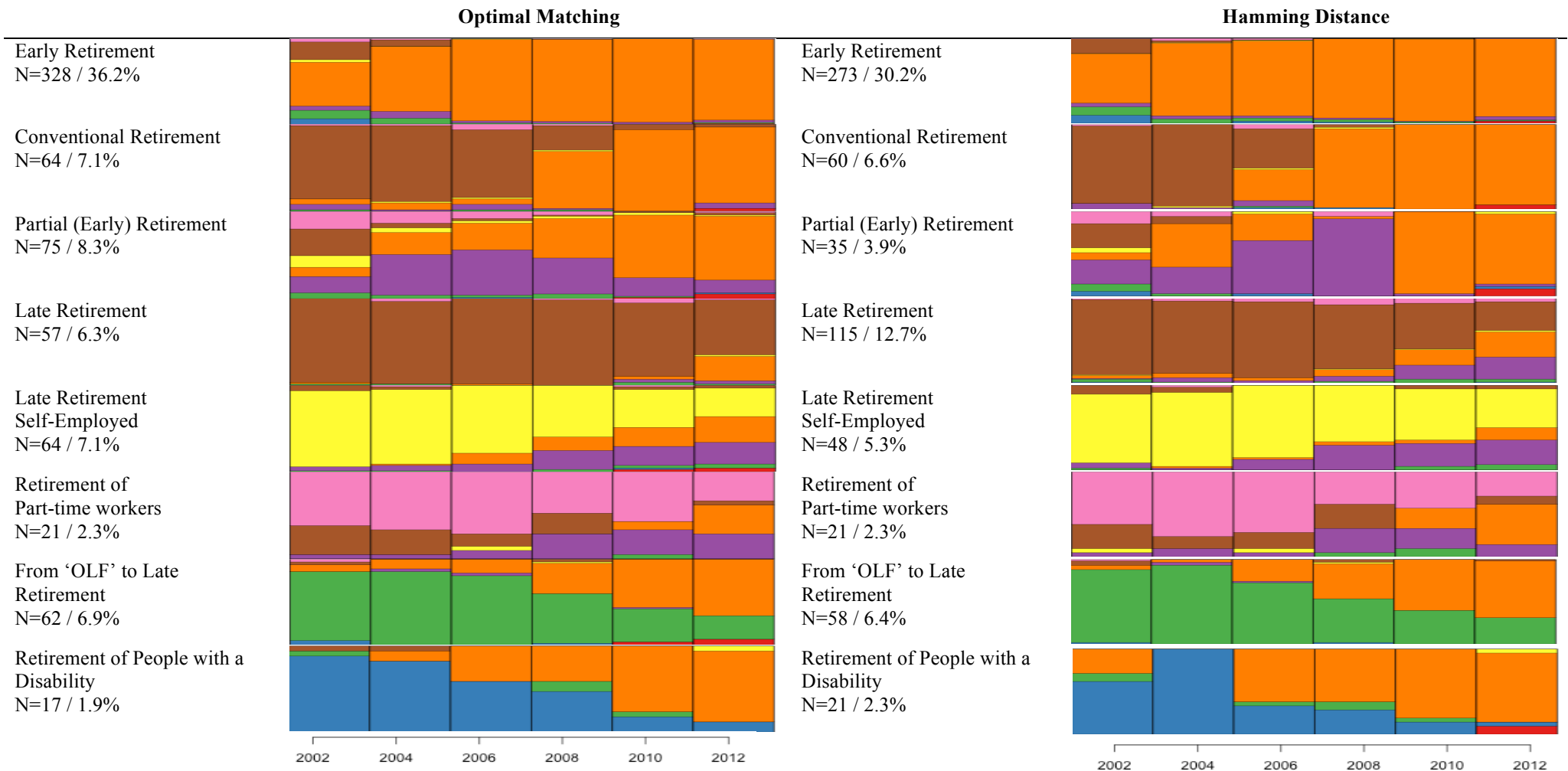


Again, as can be seen from Figure 1b, in England, the 15-cluster solution does not stand out anymore as a cluster solution to look at. The 12 cluster solution in the US does seem to be a peak, but at a lower level than with optimal matching. Nevertheless,

for comparability, these are again the cluster solution we investigated. The tables on the following papers show again relatively similar cluster solutions with the Hamming Distance compared to the Optimal Matching. In the US, the cluster solution not found this time is partial (late) retirement. Instead, we now found a cluster solution on early retirement from various sources. In England, again the partial (early) retirement was not found (which was the smallest cluster with only 8 respondents in it). Instead we now found a cluster (slightly) late retirement part-time workers.

Again, to conclude, most clusters seem fairly stable, regardless of whether we are using the Hamming Distance or Optimal Matching.

Figure A1.5a: State distribution plots - US

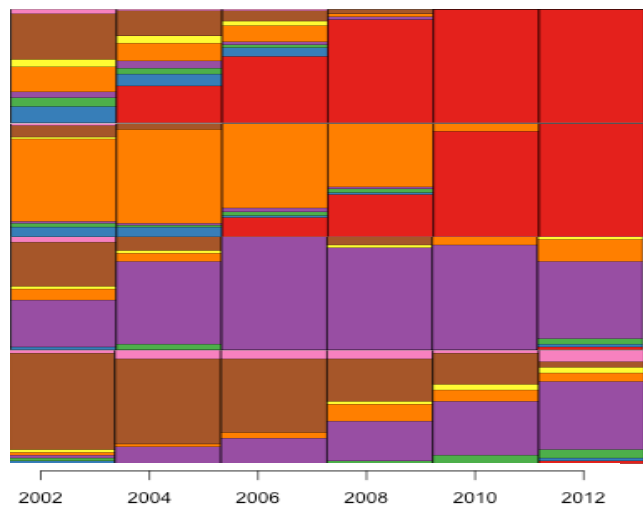


Early Deceased
N=77 / 8.5%

Late Deceased
N=59 / 6.5%

Partial (Early) Retirement 2
N=41 / 4.5%

Partial (Late) Retirement
N=40 / 4.4%

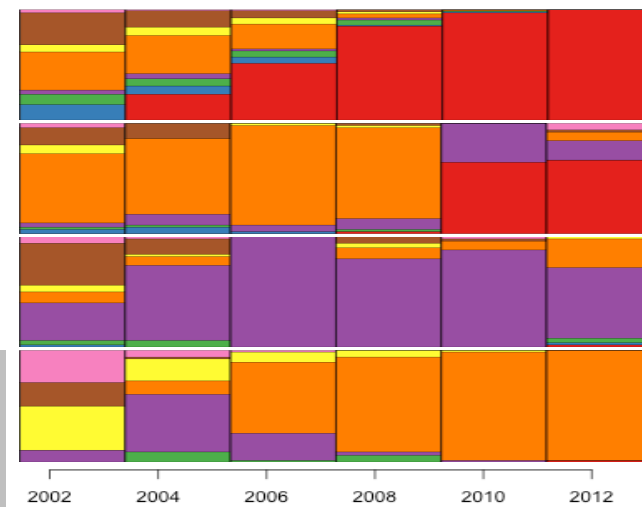


Early Deceased
N=107 / 11.8%

Late Deceased
N=51 / 5.6%

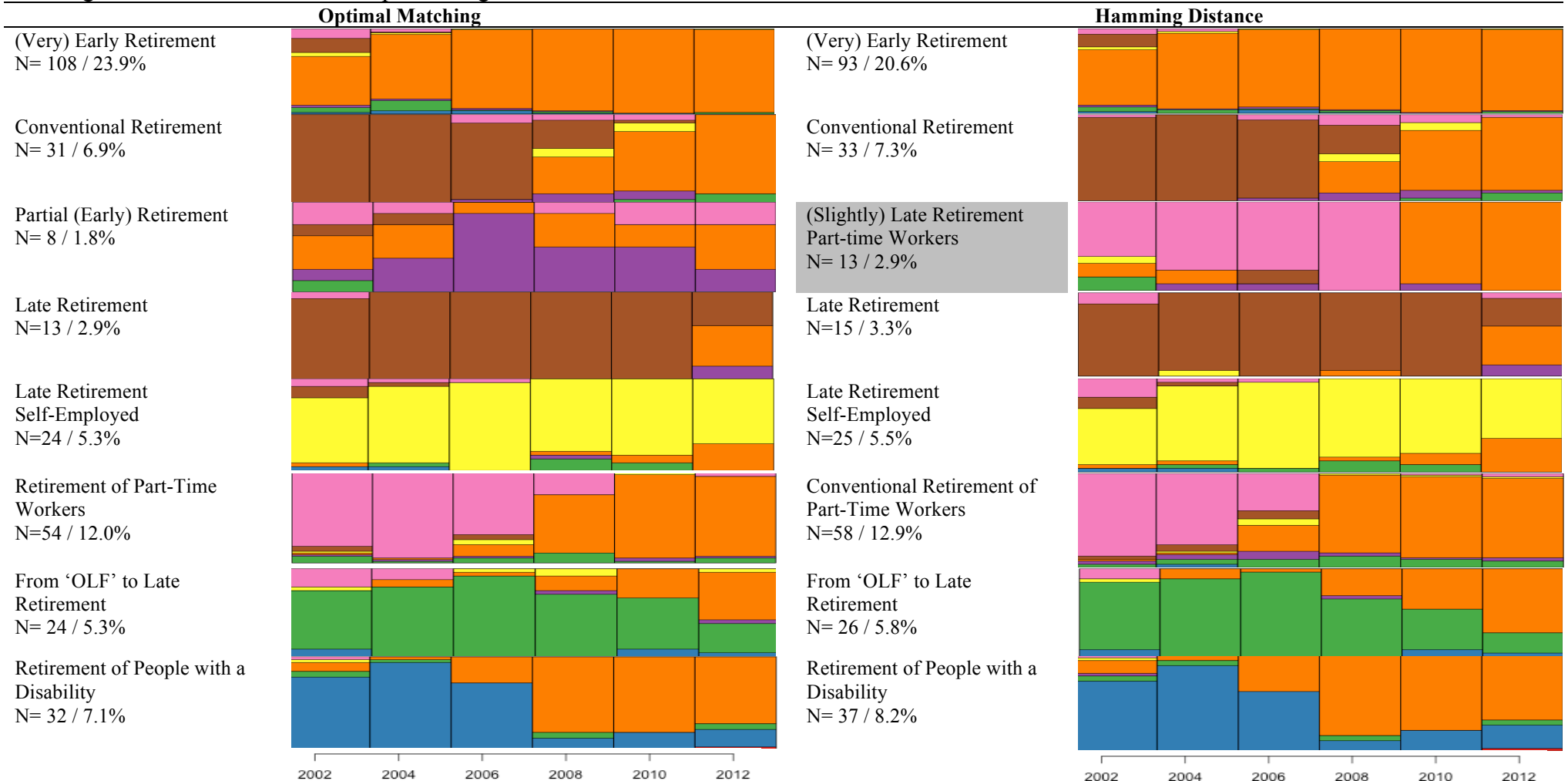
Partial (Early) Retirement 2
N=50 / 5.5%

Early Retirement from
various sources
N=66 / 7.3%



Note: Clusters that are different in substantive meaning are shaded.

Figure A1.5b: State distribution plots - England



Early Deceased
N=26 / 5.8%

Late Deceased
N= 11 / 2.4%

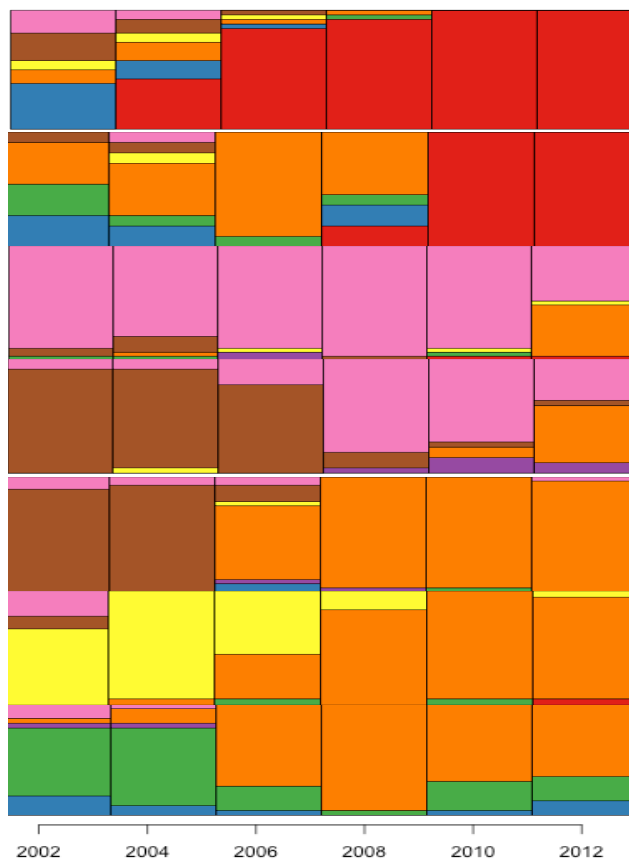
Part-time Work
N=29 / 6.4%

Phased retirement
N=22 / 4.9%

(Slightly) Early Retirement
N=28 / 6.2%

Conventional Retirement
(Self-employed)
N= 18 / 4.0%

From 'OLF' to 'On-Time'
Retirement
N= 23 / 5.1%



Early Deceased
N=23 / 5.1%

Late Deceased
N= 14 / 3.1%

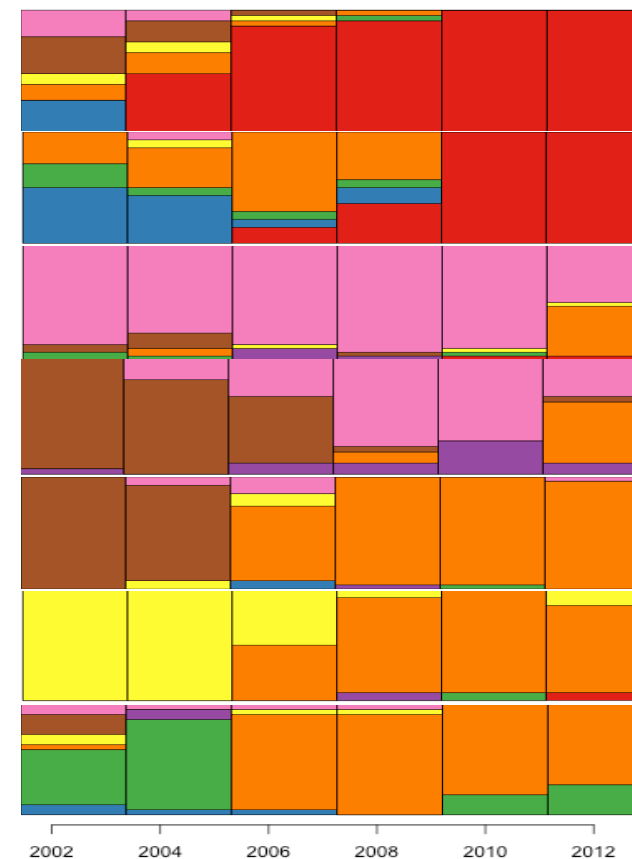
Part-time Work
N=30 / 6.7%

Phased retirement
N=21 / 4.7%

(Slightly) Early Retirement
N=27 / 6.0%

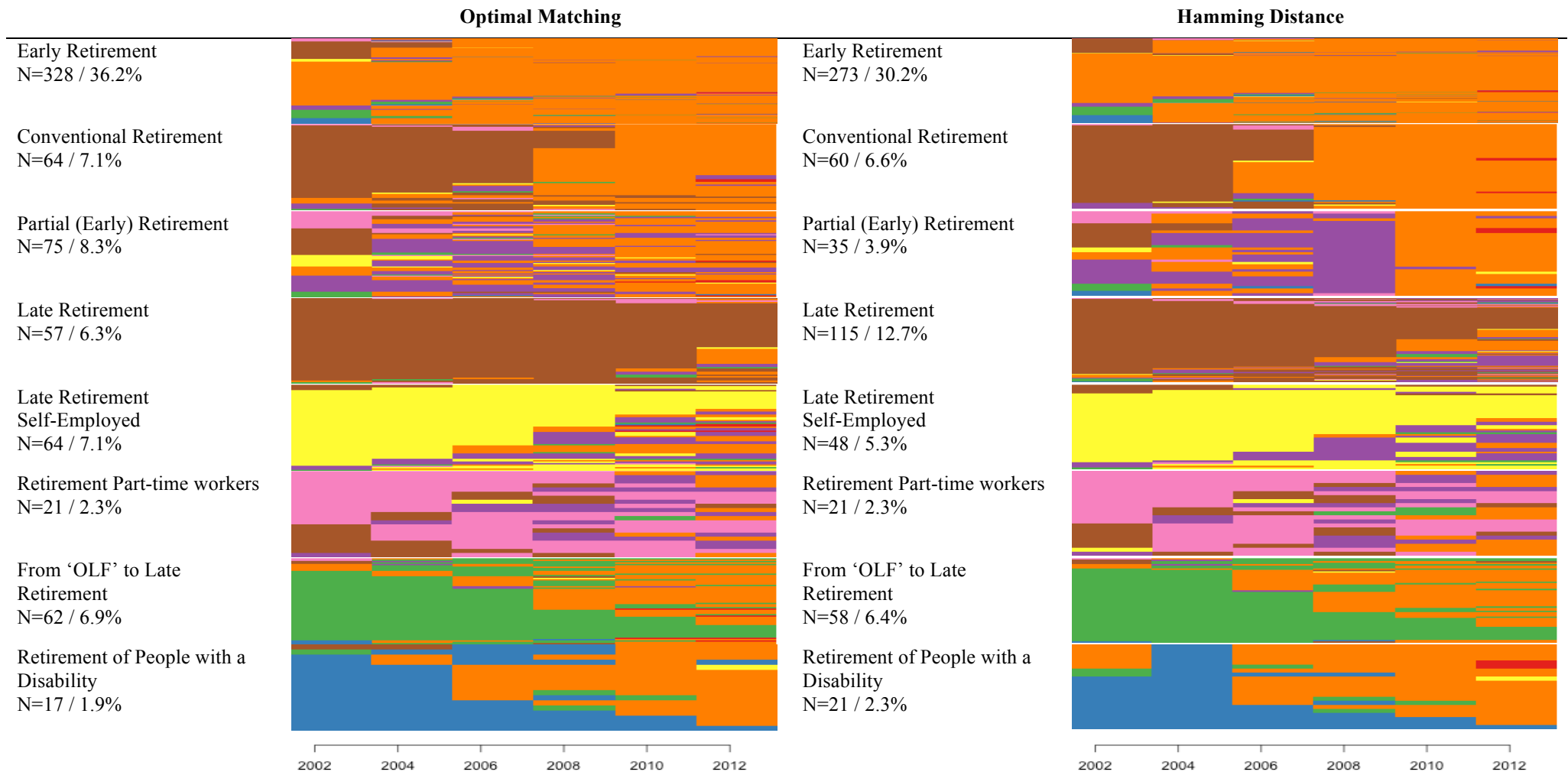
Conventional Retirement
(Self-employed)
N= 14 / 3.1%

From 'OLF' to 'On-Time'
Retirement
N= 22 / 4.9%



Note: Clusters that are different in substantive meaning are shaded.

Figure A1.6a: Individual sequences distribution plots - US

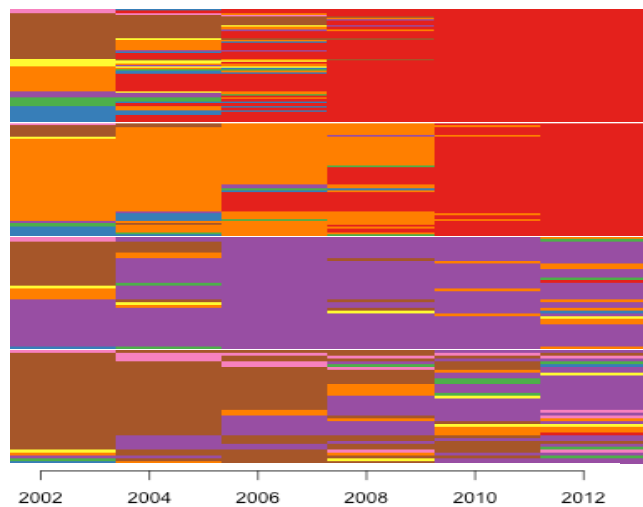


Early Deceased
N=77 / 8.5%

Late Deceased
N=59 / 6.5%

Partial (Early) Retirement 2
N=41 / 4.5%

Partial (Late) Retirement
N=40 / 4.4%

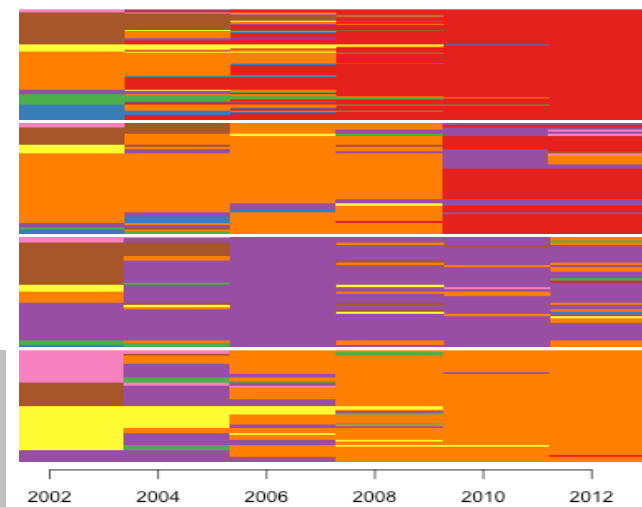


Early Deceased
N=107 / 11.8%

Late Deceased
N=51 / 5.6%

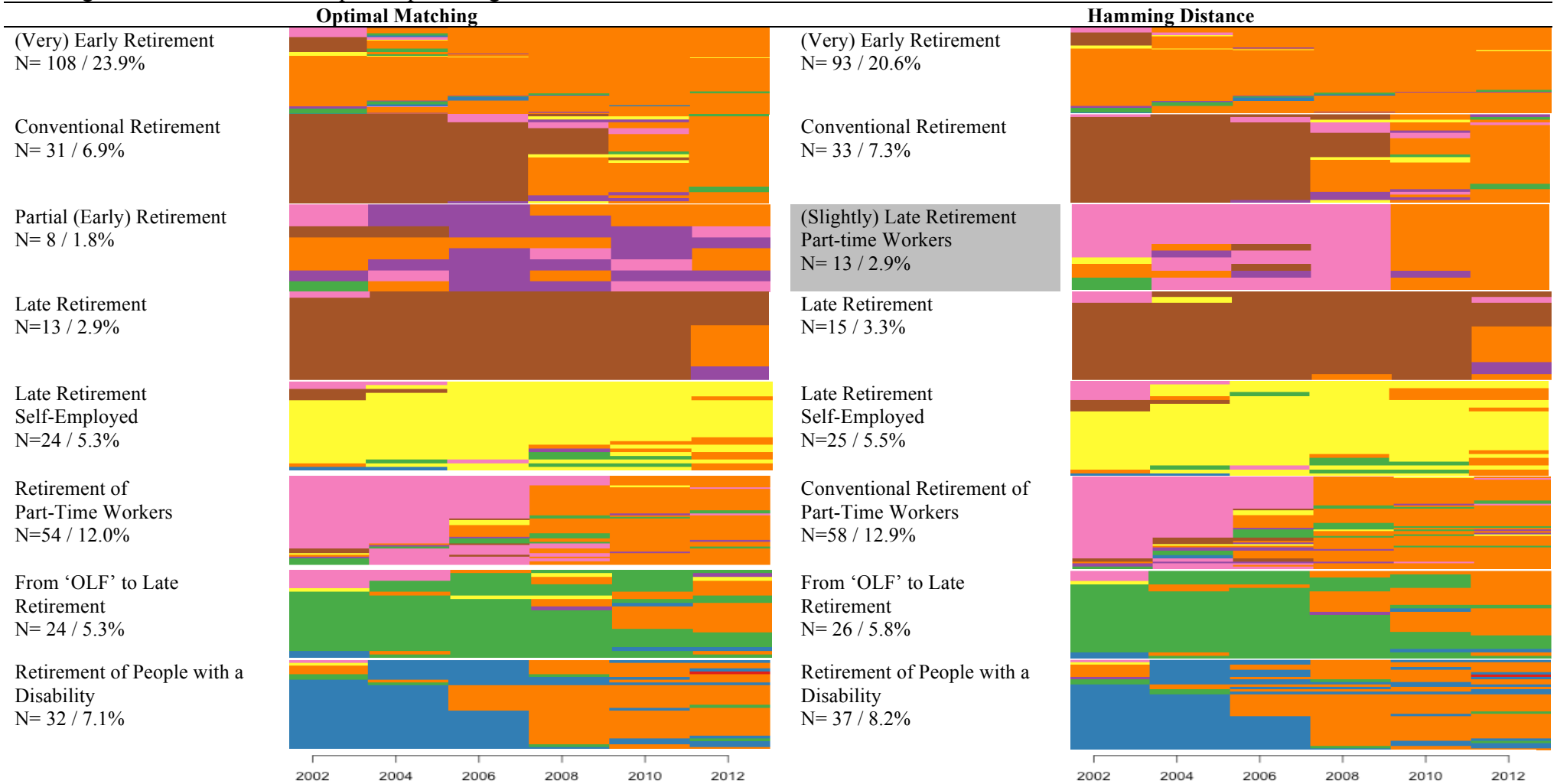
Partial (Early) Retirement 2
N=50 / 5.5%

Early Retirement
Self-Employed
N=66 / 7.3%



Note: Clusters that are different in substantive meaning are shaded.

Figure A1.6b: Individual sequence plots England



Early Deceased
N=26 / 5.8%

Late Deceased
N= 11 / 2.4%

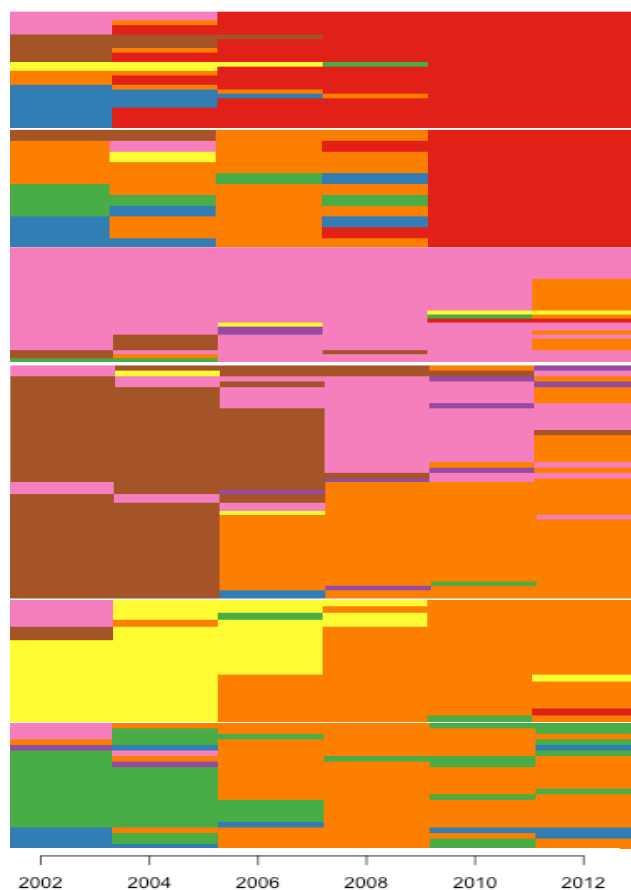
Part-time Work
N=29 / 6.4%

Phased retirement
N=22 / 4.9%

(Slightly) Early Retirement
N=28 / 6.2%

Conventional Retirement
(Self-employed)
N= 18 / 4.0%

From 'OLF' to 'On-Time'
Retirement
N= 23 / 5.1%



Early Deceased
N=23 / 5.1%

Late Deceased
N= 14 / 3.1%

Part-time Work
N=30 / 6.7%

Phased retirement
N=21 / 4.7%

(Slightly) Early Retirement
N=27 / 6.0%

Conventional Retirement
(Self-employed)
N= 14 / 3.1%

From 'OLF' to 'On-Time'
Retirement
N= 22 / 4.9%



Note: Clusters that are different in substantive meaning are shaded.

Web Appendix 2: Type of cluster analysis

Second, we investigate the type of cluster analysis. Ward clustering is a type of hierarchical clustering and is the most widely used in combination with sequence analysis. However, a priori there is no reason to assume a hierarchical structure. Hence, we also investigate Partitioning Around Medoids (PAM) clustering. To assess whether the main clusters are similar as in Ward clustering, we look at the same number of clusters per country as presented in the paper.

In the tables on the following pages, we see in the US two clearly different clusters from Ward clustering. We no longer see the retirement of people with a disability and the partial (late) retirement when using PAM-clustering. These are the same two clusters we identified as being less stable when using different types of sequence analysis (Web Appendix 1). Instead we now found from OLF to (very) late retirement and (very) early retirement. It is clear, then, that these two clusters are less stable than the other 10 clusters.

In England, we also see two differences. We no longer see partial (early) retirement and we no longer see late deceased. Instead, (very) early retirement is now split into very early retirement and early retirement and there is a new cluster (slightly) early retirement from various starting states. Partial (early) retirement is clearly a less stable cluster.

Figure 2.1a: Individual sequence plots US

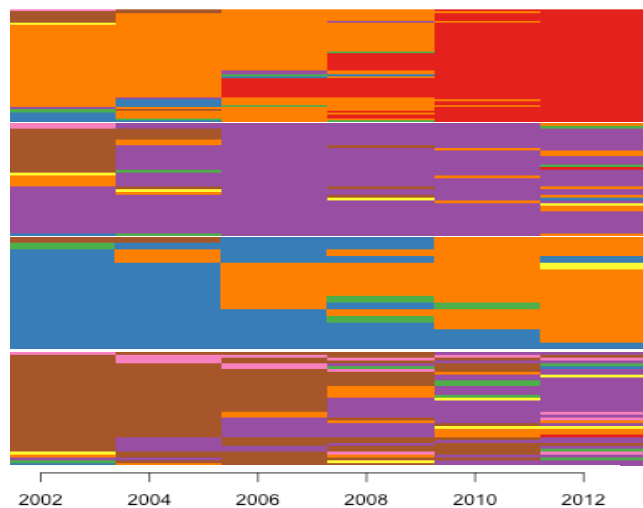


Late Decease
N=59 / 6.5%

Partial (Early) Retirement 2
N=41 / 4.5%

Retirement of People with a
Disability
N=17 / 1.9%

Partial (Late) Retirement
N=40 / 4.4%

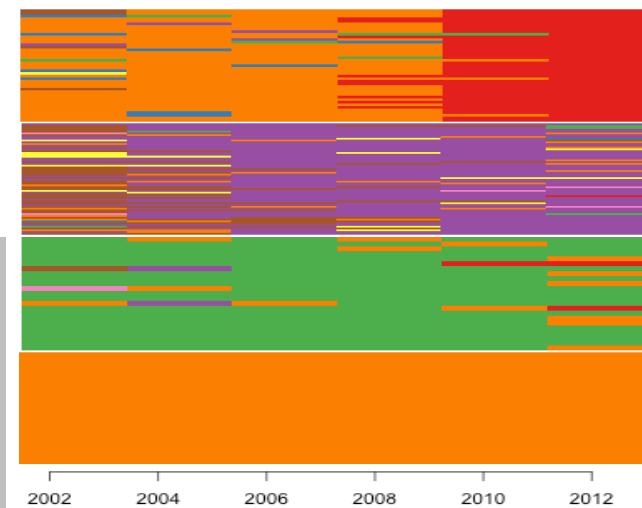


Late Decease
N=43 / 4.8%

Partial (Early) Retirement 2
N=62 / 6.9%

From 'OLF' to (very) Late
Retirement
N=23 / 2.5%

(Very) Early Retirement
N=110 / 12.2%



Note: Clusters that are different in substantive meaning are shaded.

Figure A2.1b: Individual sequence plots England



Early Deceased
N=26 / 5.8%

Late Deceased
N= 11 / 2.4%

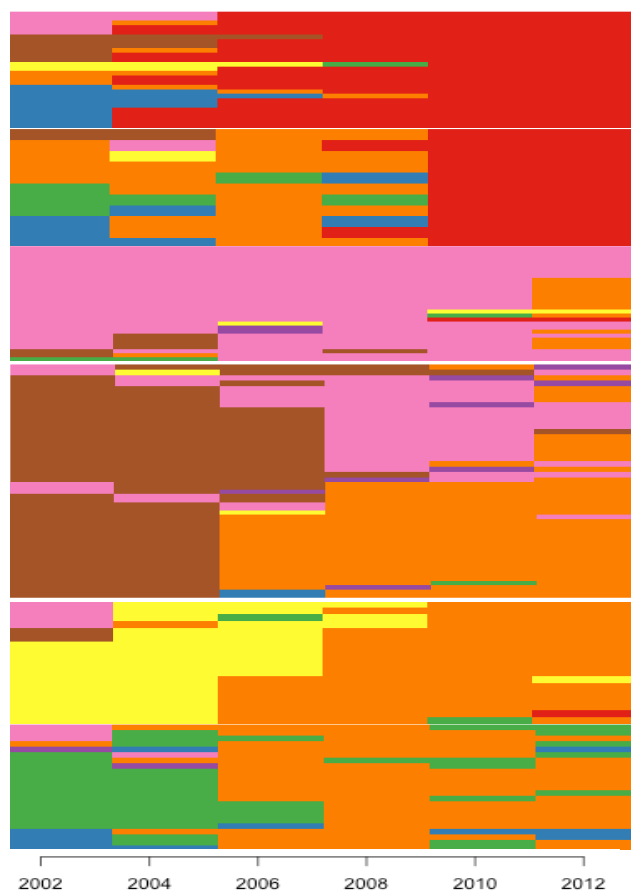
Part-time Work
N=29 / 6.4%

Phased retirement
N=22 / 4.9%

(Slightly) Early Retirement
N=28 / 6.2%

Conventional Retirement
(Self-employed)
N= 18 / 4.0%

From 'OLF' to 'On-Time'
Retirement
N= 23 / 5.1%



Deceased
N=30 / 6.7%

Early retirement
N = 33 / 7.3%

Part-time Work
N=39 / 8.6%

Phased retirement
N=24 / 5.3%

(Slightly) Early Retirement
N=15 / 3.3%

Conventional Retirement
(Self-employed)
N= 20 / 4.4%

From 'OLF' to 'On-Time'
Retirement
N= 17 / 3.8%



Note: Clusters that are different in substantive meaning are shaded.

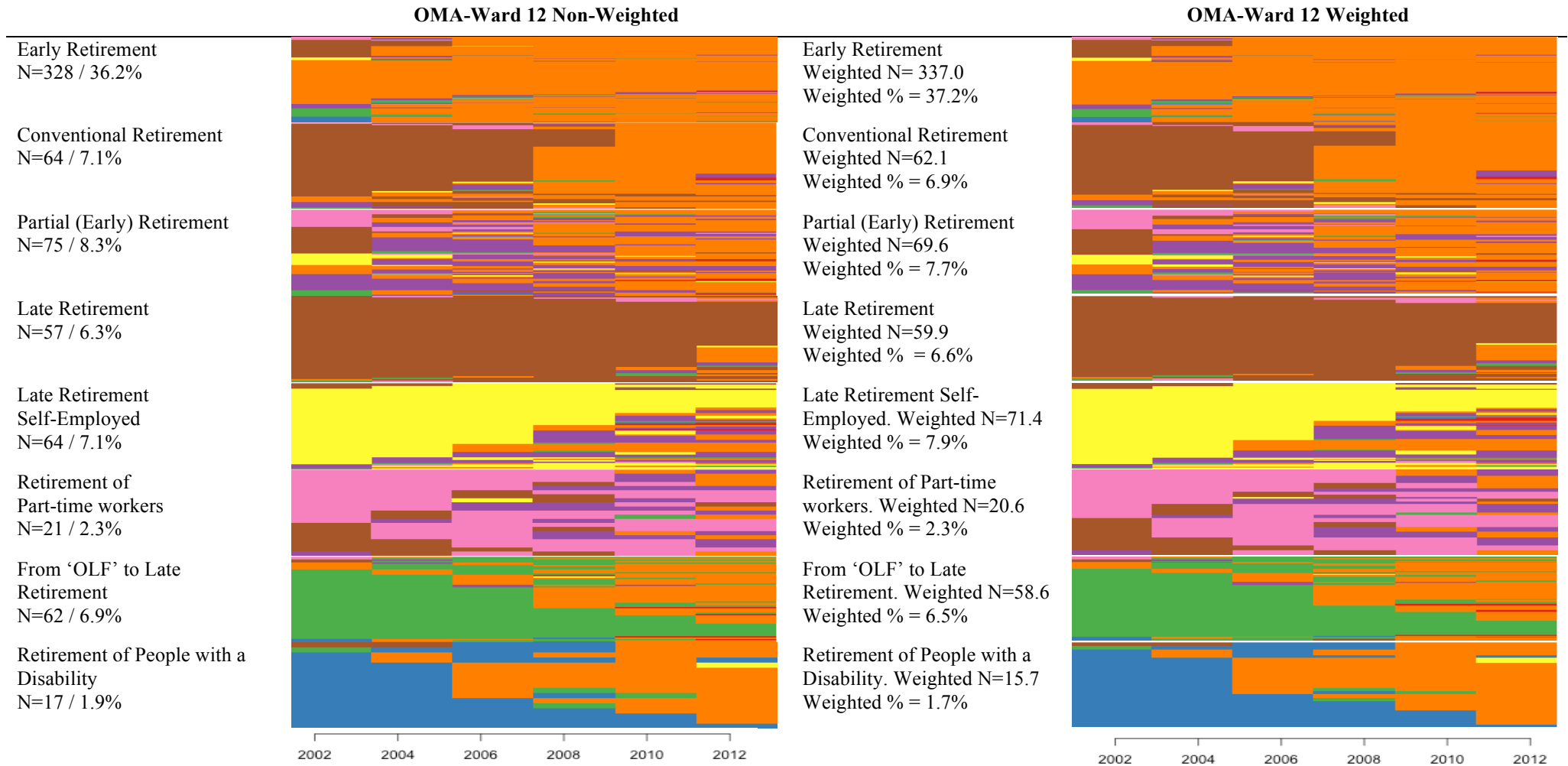
Web Appendix 3: Sample bias

Both ELSA and RAND provide weights to make the sample more representative for the population. Ideally, we would like to use longitudinal weights. However, by keeping people who died over the observation period in the dataset, this is not possible (they do not have this weight). What we can do is assess to what degree weighting based on start of the observation period-weights matters and to what degree individuals who dropped out of the sample (those with incomplete sequences) differ from the ones that we did use in the samples. This should give us some indication of possible biases in our analyses.

Web Appendix 3.1: Weighting the data

On the following pages the results of Optimal Matching in combination with Ward Clustering on weighted sequences can be found for both countries. For both countries it is shown that it does affect the sample size per cluster, but not the clusters found.

Figure 3.1a: Individual sequence plots US

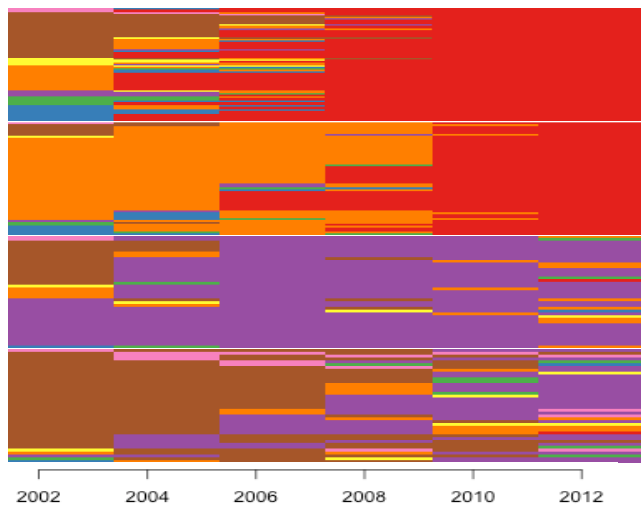


Early Decease
N=77 / 8.5%

Late Decease
N=59 / 6.5%

Partial (Early) Retirement 2
N=41 / 4.5%

Partial (Late) Retirement
N=40 / 4.4%



Early Decease
Weighted N=66.0
Weighted % = 7.3%

Late Decease
Weighted N=58.7
Weighted % = 6.5%

Partial (Early) Retirement 2
Weighted N=42.7
Weighted % = 4.7%

Partial (Late) Retirement
Weighted N=42.6
Weighted % = 4.7%

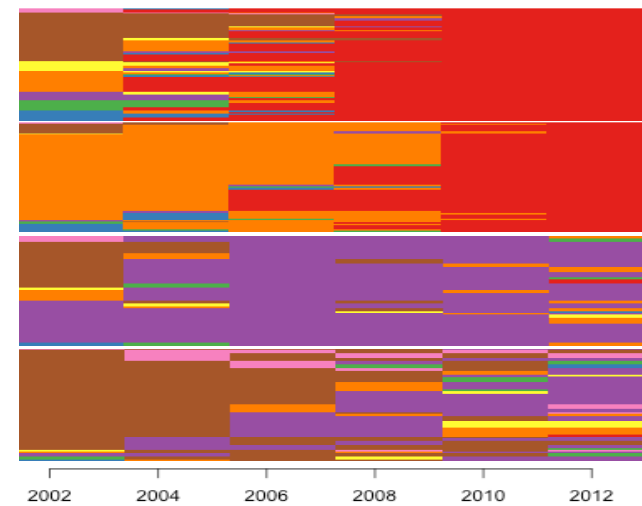
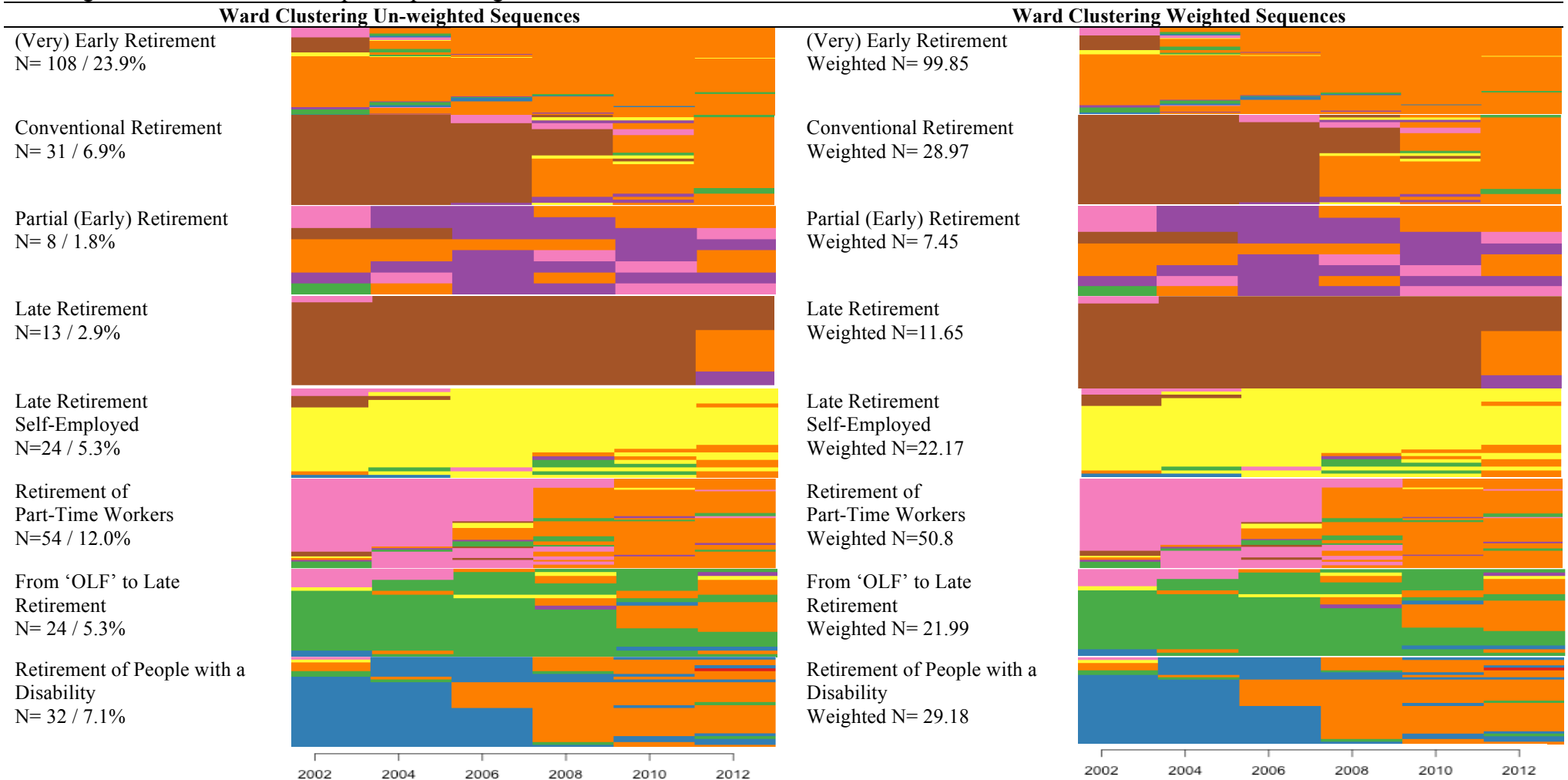


Figure A3.1b: Individual sequence plots England



Early Deceased
N=26 / 5.8%

Late Deceased
N= 11 / 2.4%

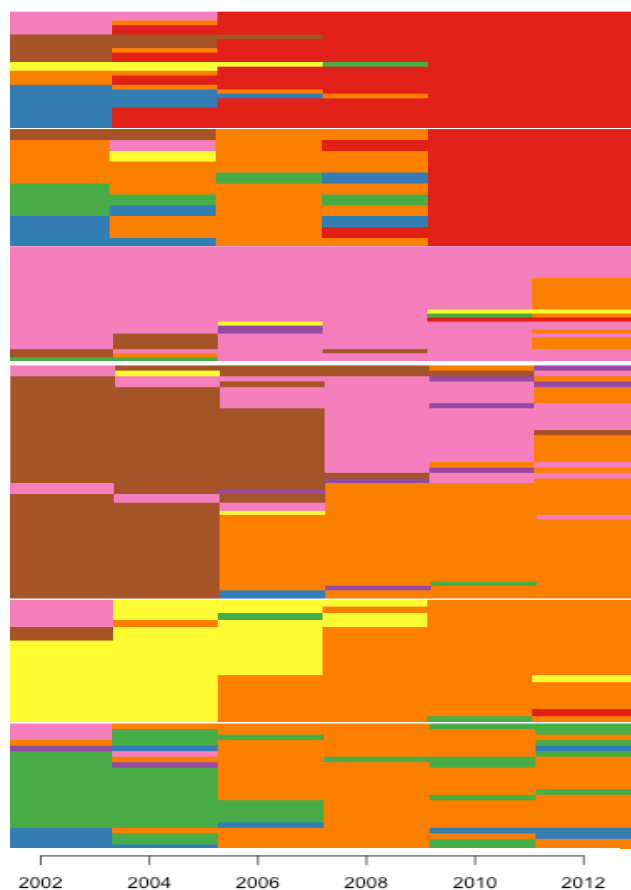
Part-time Work
N=29 / 6.4%

Phased retirement
N=22 / 4.9%

(Slightly) Early Retirement
N=28 / 6.2%

Conventional Retirement
(Self-employed)
N= 18 / 4.0%

From 'OLF' to 'On-Time'
Retirement
N= 23 / 5.1%



Early Deceased
Weighted N=25.05

Late Deceased
Weighted N= 12.34

Part-time Work
Weighted N=26

Phased retirement
Weighted N=20.23

(Slightly) Early Retirement
Weighted N=26.93

Conventional Retirement
(Self-employed)
Weighted N= 17.99

From 'OLF' to 'On-Time'
Retirement
Weighted N= 22.05



Note: Clusters that are different in substantive meaning are shaded.

Web Appendix 3.2 Missing data

A different way to look at bias is to look at missing data. Not everyone who participated in the first wave and belonged to our age-range ended up in the final analyses. Some respondents did not participate in every wave, others did not answer at least one question included in this study.

In the US, 1,335 individuals fitted to our age and wave criteria, that is, to be aged 60-61 in the sixth wave (year 2002). However, 905 respondents (67.8%) had no missing values in labour force statuses in any of the six waves between 2002 and 2012. As seen in Table A3.2.1a, individuals with two ADLs, people classified in the third quartile of wealth, and persons partly or fully retired are less likely to have missing values in labour force statuses during the observation period of interest. However, these results have to be mediated by the fact that none of these effects are strong statistical effects (as all p-values are close to 0.1) and also that the size effects are rather small.

In England, if we select all respondents who participated in the first wave and who fit all other criteria except for needing to have no missing data or waves, we ended up with 839 respondents (almost double the number as presented in the paper). 34 observations were excluded due to missing data in the first wave, leaving a sample to predict missing in later waves of 805. Table A3.2.1b shows that missing data is not random and that individuals with a higher education, who were retired, or who were working part-time were less likely to have missing data than individuals with low education or working full-time and that individuals in the lowest wealth quartile have a higher likelihood of having missing data than individuals with more wealth. Note however that we are explaining very little of the variation in why someone has missing data.

Table A3.2.1a Predicting missing data in US

Variable	Estimate	p-value
Intercept	-1.09	.001
Female	0.02	.903
Health		
No ADL (ref)		
One ADL	0.13	.608
Two ADLs	-0.52	.097
Three ADLs	-0.22	.501
Four or more ADLs	-0.18	.459
Educational level		
Low education (ref)		
Middle education	-0.15	.473
High education	0.01	.975
Having a partner	0.07	.758
Wealth		
Wealth quartile 1 (ref)		
Wealth quartile 2	-0.24	.335
Wealth quartile 3	-0.47	.093
Wealth quartile 4	0.14	.583
Labour force status		
Disabled	-0.21	.602
Not in Labour Force	-0.27	.404
Partly retired	-0.72	.094
Retired	-0.40	.079
Self-Employed	0.02	.938
Works part-time	0.47	.143
Works Full-time (ref)		
Hosmer and Lemeshow R ²	0.025	
Cox and Snell R ²	0.024	
Nagelkerke R ²	0.039	

Table A3.2.1b Predicting missing data in England

Variable	Estimate	P-value
Intercept	0.50	.049
Female	-0.12	.471
Health		
No ADL (ref)		
One ADL	-0.08	.693
Two ADLs	0.10	.710
Three ADLs	0.00	.988
Four or more ADLs	-0.02	.921
Educational level		
Low education (ref)		
Middle education	-0.30	.103
High education	-0.55	.005
Having a partner	0.14	.472
Wealth		
Wealth quartile 1 (ref)		
Wealth quartile 2	-0.55	.007
Wealth quartile 3	-0.46	.028
Wealth quartile 4	-0.46	.044
Labour force status		
Disabled	-0.29	.325
Not in Labour Force	0.05	.845
Partly retired	0.28	.649
Retired	-0.48	.046
Self-Employed	-0.17	.575
Works part-time	-0.49	.023
Works Full-time (ref)		
Hosmer and Lemeshow R ²	0.031	
Cox and Snell R ²	0.042	
Nagelkerke R ²	0.056	

Web Appendix 4: Alternative multinomial logistic regressions

We performed a series of robustness checks for our multinomial logistic regression. First, for England, we have two clusters that are very sparse and seem to lead to multicollinearity in the analysis. Hence, we also performed the analysis without these two clusters (late retirement and partial retirement) to see whether this matters for the results found in other clusters. Table A4.1 shows that results are very similar to the ones presented in the main paper. Only one difference regarding traditional significance levels is observed, namely the relationship between two ADLs and retirement of part-time workers that became just insignificant. In general though the results look very similar. Hence, we show the full model in the paper for completeness.

Second, we investigated what the results of the multinomial logistic regression without wealth included. As wealth and education are strongly related to one another we want to look at their separate relationship with the cluster solution. As wealth is a more proximal factor to later working lives it may be that we see little from education due to the inclusion of wealth. Tables A4.2a indicates that this is not the case in the US. One relationship becomes insignificant (middle education and late retirement) and another becomes just significant (middle education and deceased) when not controlling for wealth, but it does not appear to be the case that wealth is suppressing an education effect. In Table A4.2b we see that for England it does make a difference. Having a high education is now more clearly negatively related to the relative importance of retirement of part-time workers, from OLF to retirement, and retirement of people with a disability compared to early retirement than in the model with wealth included. We also looked at a model with only education as predictor (as education is also related to health for example. Now, also in the US we see that education is negatively related to the relative likelihood of retirement of people with a disability (Table A4.3a). We see similar results as in the previous analyses for England (Table A4.3b).

Third, we also were interested in wealth without controlling for education and health. Hence, we also made a model with only wealth as predictor (Tables A4.4a and A4.4b). In both countries we indeed see more without the other variables included, suggesting that there is some overlap in relations.

Fourth, we repeated the various analyses using conventional retirement as reference category. In the paper we chose early retirement as reference category as this is the largest group in both countries and clearly seems to have become the norm. However, conventional retirement is also a logical reference category. Tables A4.5 till A4.9 show the results for this.

A4.1 Multinomial Logistic Regression – England – Without sparse clusters

	Conventional retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Phased retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	0.06	.915	-1.48	.051	-2.13	.002	-3.19	<.001	-0.94	.211	-1.33	.103	-0.21	.766
Female	0.81	.024	0.67	.102	2.67	<.001	3.54	<.001	0.47	.371	1.46	.009	-0.76	.117
No ADL (ref)														
One ADL	-0.77	.145	0.22	.659	0.30	.504	0.77	.138	-0.49	.667	-0.03	.960	0.49	.478
Two ADLs	-0.77	.379	0.68	.351	1.16	.057	0.45	.567	0.51	.675	0.25	.790	2.17	.003
Three ADLs	0.11	.866	-0.98	.381	0.00	.996	0.62	.389	1.45	.136	0.67	.406	1.45	.082
Four or more ADLs	-1.47	.034	-0.59	.403	-0.93	.109	0.17	.781	2.48	<.001	-1.59	.152	1.63	.005
Partnered	-0.09	.839	-0.07	.893	0.60	.186	0.92	.093	-0.46	.399	-0.29	.624	0.03	.963
Low education (ref)														
Middle education	-0.21	.659	0.05	.922	-0.45	.286	-0.12	.804	-0.18	.754	-0.05	.935	-0.81	.176
High education	0.24	.564	-0.30	.527	-0.54	.204	-0.88	.111	-0.76	.275	-0.09	.883	-1.11	.052
1 st wealth quartile (ref)														
2 nd wealth quartile	-0.40	.439	0.19	.792	0.47	.371	-0.97	.093	-1.02	.102	-0.22	.746	-1.38	.025
3 rd wealth quartile	-0.94	.076	0.53	.434	-0.22	.676	-1.54	.010	-1.21	.070	-0.75	.289	-1.21	.046
4 th wealth quartile	-1.44	.008	0.37	.591	-1.26	.027	-1.67	.005	-2.15	.020	-1.88	.025	-1.42	.038

Note: reference category = conventional retirement. The 1st wealth quartile contains respondents with least (or negative) wealth, the 4th wealth quartile contains respondents with most wealth. Relationships with $p < .050$ are shaded in grey. Cells that lead to a different conclusion are shaded in red.

A4.2a Multinomial logistic regression using “Early Retirement” as reference value without wealth- US

	Conventional Retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	-1.06	.052	-0.94	.109	-0.70	.194	-4.09	.001	-3.82	<.001	-2.64	.025	-0.59	.134	0.10	.794
Female	-0.74	.021	-0.72	.031	-0.90	.007	1.15	.051	3.24	<.001	-0.91	.134	-0.01	.949	-0.91	<.001
No ADL (ref)																
One ADL	-0.33	.482	-0.59	.231	-0.30	.452	1.04	.065	-0.54	.321	0.79	.580	-0.34	.285	0.03	.948
Two ADLs	-0.08	.863	-0.86	.136	-1.10	.052	-0.22	.762	-0.38	.445	0.84	.558	-0.44	.187	0.10	.796
Three ADLs	-0.03	.959	0.11	.825	-0.37	.488	-12.54	.969	-0.81	.237	1.94	.122	-0.15	.675	0.35	.424
Four or more ADLs	-0.85	.059	-1.01	.032	-1.97	.002	-2.11	.054	-0.92	.034	2.26	.038	-0.95	.002	0.77	.010
Partnered	-0.33	.360	-0.81	.019	0.04	.923	-0.41	.446	1.22	.006	-0.91	.127	-0.04	.882	-0.74	.004
Low education (ref)																
Middle education	-0.05	.931	0.72	.195	0.32	.481	-0.02	.990	-2.29	<.001	-1.70	.122	0.19	.593	-0.72	.045
High education	0.34	.455	0.43	.411	-0.41	.348	1.43	.177	-1.41	<.001	-0.97	.088	0.23	.471	-0.52	.058

A4.2b Multinomial logistic regression using “Early Retirement” as reference value without wealth - England

	Conventional retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Phased retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	-0.36	.484	-3.98	.002	-1.23	.041	-2.05	<.001	-3.76	<.001	-1.53	.028	-3.64	.007	-1.63	.023	-0.81	.198
Female	0.67	.055	2.90	.007	0.68	.091	2.44	<.001	3.40	<.001	0.25	.620	1.23	.120	1.27	.019	-0.84	.075
No ADL (ref)																		
One ADL	-0.61	.241	0.79	.241	0.21	.669	0.41	.353	0.90	.073	-0.34	.767	-0.23	.840	0.13	.838	0.51	.447
Two ADLs	-0.52	.546	0.34	.778	0.73	.310	1.41	.021	0.84	.273	0.88	.464	0.95	.429	0.59	.520	2.25	.002
Three ADLs	0.12	.848	-12.17	.978	-0.94	.400	0.08	.905	0.59	.407	1.43	.139	-11.41	.976	0.72	.368	1.47	.076
Four or more ADLs	-1.23	.071	-13.78	<.001	-0.61	.379	-0.58	.301	0.33	.574	2.79	<.001	-0.22	.852	-1.28	.243	1.84	<.001
Partnered	-0.27	.554	-0.54	.435	-0.01	.977	0.60	.309	0.60	.257	-0.74	.163	0.26	.821	-0.52	.367	-0.24	.663
Low education (ref)																		
Middle education	-0.38	.412	0.49	.530	0.08	.873	-0.50	.218	-0.37	.413	-0.38	.505	-0.57	.654	-0.21	.721	-0.95	.106
High education	-0.19	.631	0.23	.784	-0.24	.597	-0.94	.020	-1.31	.012	-1.38	.032	0.65	.459	-0.58	.323	-1.55	.004

Note: reference category = early retirement. Due to extra missing data on wealth, n=437. The 1st wealth quartile contains respondents with least (or negative) wealth, the 4th wealth quartile contains respondents with most wealth. Relationships with p<.050 are shaded

A4.3a Multinomial logistic regression using “Early Retirement” as reference value only with education- US

	Conventional Retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	-1.98	<.001	-2.11	<.001	-1.76	<.001	-4.06	<.001	-0.88	<.001	-1.86	<.001	-1.17	<.001	-0.32	.111
Low education (ref)																
Middle education	0.24	.616	0.75	.112	0.67	.104	0.45	.717	-1.48	.001	-2.44	.022	0.58	.082	-1.09	.001
High education	0.46	.261	0.27	.543	-0.15	.699	1.67	.107	-0.96	.002	-1.47	.005	0.47	.116	-0.62	.010

A4.3b Multinomial logistic regression using “Early Retirement” as reference value only with education - England

	Conventional retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Phased retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	-0.48	.082	-2.43	<.001	-0.96	.003	0.08	.722	-0.44	.111	-0.53	.060	-2.83	<.001	-1.33	<.001	-0.31	.243
Low education (ref)																		
Middle education	-0.21	.639	1.04	.168	0.27	.577	-0.08	.821	0.09	.828	-0.57	.252	-0.35	.783	0.10	.865	-1.26	.024
High education	-0.21	.572	-0.06	.943	-0.27	.543	-1.12	.002	-1.49	.002	-1.95	<.001	0.57	.510	-0.75	.190	-1.77	<.001

Note: reference category = early retirement. Due to extra missing data on wealth, n=437. The 1st wealth quartile contains respondents with least (or negative) wealth, the 4th wealth quartile contains respondents with most wealth. Relationships with p<.050 are shaded

A4.4a Multinomial logistic regression using “Early Retirement” as reference value only with wealth- US

	Conventional Retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	-1.79	<.001	-1.48	<.001	-3.09	<.001	-2.80	<.001	-1.36	<.001	-1.70	<.001	-0.79	<.001	0.03	.863
1 st wealth quartile (ref)																
2 nd wealth quartile	0.67	.095	0.13	.726	1.05	.122	0.25	.706	-0.10	.797	-2.64	.012	0.03	.925	-0.91	.001
3 rd wealth quartile	-0.14	.740	-0.45	.262	1.51	.018	-0.38	.595	-0.73	.073	-1.77	.008	-0.03	.930	-1.56	<.001
4 th wealth quartile	-0.05	.915	-0.92	.050	2.05	.001	0.27	.675	-0.41	.290	-2.77	.008	0.16	.571	-1.80	<.001

A4.4b Multinomial logistic regression using “Early Retirement” as reference value only with education - United Kingdom

	Conventional retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Phased retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	0.00	1.000	-1.25	.027	-1.25	.027	0.07	.853	0.25	.480	0.19	.590	-14.60	.971	-0.85	.083	0.25	.480
1 st wealth quartile (ref)																		
2 nd wealth quartile	-0.38	.448	-0.45	.565	0.11	.880	0.21	.657	-1.04	.046	-1.34	.018	12.20	.975	-0.30	.648	-1.55	.008
3 rd wealth quartile	-0.73	.144	-1.02	.221	0.45	.494	-0.35	.460	-1.54	.004	-1.77	.002	11.92	.976	-0.73	.272	-1.67	.002
4 th wealth quartile	-1.07	.028	-1.77	.055	0.25	.700	-1.30	.009	-1.66	<.001	-3.21	<.001	12.27	.975	-1.77	.022	-2.36	<.001

Note: reference category = early retirement. Due to extra missing data on wealth, n=437. The 1st wealth quartile contains respondents with least (or negative) wealth, the 4th wealth quartile contains respondents with most wealth. Relationships with p<.050 are shaded

A4.5a. Multinomial logistic regression using “Conventional Retirement” as reference value - US

	Early retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	1.08	.072	0.38	.632	-0.31	.725	-3.28	.023	-2.57	.013	-0.89	.489	0.56	.393	1.72	.007
Female	0.79	.015	0.04	.934	-0.15	.729	1.90	.003	4.02	<.001	-0.10	.881	0.76	.029	-0.13	.738
No ADL (ref)																
One ADL	0.51	.290	-0.38	.550	0.24	.667	1.54	.029	-0.12	.860	1.30	.387	0.14	.789	0.35	.534
Two ADLs	0.14	.752	-0.89	.189	-0.93	.166	-0.06	.943	-0.31	.616	0.87	.558	-0.31	.522	0.11	.843
Three ADLs	0.13	.806	-0.08	.904	-0.02	.978	-11.04	.947	-0.80	.326	1.78	.183	-0.03	.955	0.15	.801
Four or more ADLs	0.97	.033	-0.34	.583	-0.93	.218	-1.00	.395	-0.06	.922	3.06	.009	0.00	1.000	1.45	.004
Partnered	0.24	.515	-0.33	.481	0.15	.772	-0.30	.643	1.60	.004	-0.18	.798	0.23	.558	-0.10	.804
Low education (ref)																
Middle education	-0.24	.670	1.15	.125	-0.35	.611	-0.50	.715	-2.30	.005	-1.49	.236	-0.03	.956	-0.36	.563
High education	-0.48	.298	0.21	.743	-1.17	.052	0.84	.461	-1.77	.002	-1.42	.047	-0.24	.639	-0.78	.110
1 st wealth quartile (ref)																
2 nd wealth quartile	-0.44	.328	-0.34	.540	0.52	.510	0.18	.851	-0.52	.368	-14.04	.960	-0.48	.329	-1.32	.006
3 rd wealth quartile	0.52	.292	-0.40	.528	1.54	.056	0.73	.478	-0.23	.738	-0.43	.617	0.27	.615	-1.00	.071
4 th wealth quartile	0.35	.489	-1.43	.046	1.77	.027	1.16	.246	-0.08	.906	-1.60	.188	0.33	.549	-1.30	.023

A4.5b Multinomial logistic regression using “Conventional Retirement” as reference value - England

	Early retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Phased retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	-0.05	.927	-3.82	.007	-1.52	.055	-2.22	.002	-3.24	<.001	-0.98	.215	-16.85	<.001	-1.40	.095	-0.23	.759
Female	-0.81	.024	2.37	.034	-0.14	.750	1.87	<.001	2.71	<.001	-0.36	.524	0.44	.600	0.66	.260	-1.56	.003
No ADL (ref)																		
One ADL	0.75	.156	1.42	.060	0.97	.116	1.11	.044	1.49	.013	0.27	.821	0.57	.635	0.76	.299	1.09	.107
Two ADLs	0.69	.431	0.81	.539	1.44	.116	2.04	.012	1.33	.159	1.34	.314	1.71	.200	1.09	.307	2.91	.002
Three ADLs	-0.13	.849	-13.29	<.001	-1.10	.334	-0.09	.895	0.51	.487	1.35	.171	-11.38	.974	0.57	.484	1.32	.129
Four or more ADLs	1.46	.035	-11.19	.971	0.85	.333	0.54	.482	1.61	.038	3.94	<.001	1.25	.339	-0.11	.926	3.06	<.001
Partnered	0.09	.847	-0.21	.771	-0.00	.993	0.65	.191	0.97	.092	-0.41	.487	0.28	.808	-0.22	.716	0.09	.887
Low education (ref)																		
Middle education	0.22	.647	0.90	.256	0.26	.639	-0.22	.650	0.07	.885	0.05	.940	-0.54	.746	0.17	.795	-0.59	.365
High education	-0.25	.554	0.63	.487	-0.56	.301	-0.75	.112	-1.07	.068	-0.96	.193	0.24	.801	-0.32	.626	-1.40	.026
1 st wealth quartile (ref)																		
2 nd wealth quartile	0.42	.415	0.28	.739	0.62	.399	0.92	.083	-0.47	.424	-0.57	.385	14.12	<.001	0.21	.756	-0.96	.145
3 rd wealth quartile	0.95	.073	-0.04	.966	1.48	.038	0.71	.198	-0.59	.341	-0.31	.669	14.13	<.001	0.20	.784	-0.27	.683
4 th wealth quartile	1.43	.009	-0.64	.539	1.80	.014	0.18	.765	-0.20	.747	-0.70	.467	14.84	<.001	-0.43	.615	-0.01	.991

Note: reference category = conventional retirement. Due to extra missing data on wealth, n=437. The 1st wealth quartile contains respondents with least (or negative) wealth, the 4th wealth quartile contains respondents with most wealth. Relationships with p<.050 are shaded.

A4.6 United Kingdom

	Early retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Phased retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	-0.06	.913	-1.55	.052	-2.19	.002	-3.26	<.001	-1.00	.207	-1.39	.096	-0.27	.716
Female	-0.81	.024	-0.15	.744	1.85	<.001	2.73	<.001	-0.34	.542	0.65	.262	-1.57	.003
No ADL (ref)														
One ADL	0.77	.145	1.00	.106	1.08	.052	1.54	.011	0.28	.813	0.74	.313	1.26	.101
Two ADLs	0.77	.379	1.45	.117	1.93	.017	1.22	.195	1.28	.336	1.02	.341	2.94	.002
Three ADLs	-0.11	.866	-1.09	.338	-0.11	.871	0.51	.487	1.34	.175	0.56	.494	1.34	.124
Four or more ADLs	1.47	.034	0.88	.318	0.54	.481	1.64	.035	0.95	<.001	-0.11	.925	3.10	<.001
Partnered	0.09	.838	0.02	.967	0.69	.162	1.01	.079	-0.37	.534	-0.20	.750	0.12	.846
Low education (ref)														
Middle education	0.21	.659	0.26	.648	-0.24	.609	0.09	.861	0.03	.968	0.16	.803	-0.60	.356
High education	-0.24	.564	-0.55	.308	-0.79	.096	-1.12	.056	-1.01	.172	-0.33	.610	-1.36	.030
1 st wealth quartile (ref)														
2 nd wealth quartile	0.40	.438	0.59	.424	0.57	.101	-0.57	.334	-0.62	.349	0.18	.791	-0.98	.137
3 rd wealth quartile	0.94	.076	1.47	.040	0.71	.197	-0.60	.336	-0.27	.701	0.19	.797	-0.27	.677
4 th wealth quartile	1.44	.008	1.82	.013	0.18	.766	-0.22	.726	-0.70	.467	-0.43	.615	0.02	.976

Note: reference category = conventional retirement. The 1st wealth quartile contains respondents with least (or negative) wealth, the 4th wealth quartile contains respondents with most wealth. Relationships with $p < .050$ are shaded. Cells that lead to a different conclusion are shaded and diagonally striped.

A4.7a Multinomial logistic regression without wealth included - US

	Early retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	1.06	.052	0.12	.867	0.36	.599	-3.03	.020	-2.76	.005	-1.58	.211	0.47	.434	1.16	.048
Female	0.74	.021	0.02	.968	-0.16	.708	1.89	.003	3.97	<.001	-0.17	.797	0.72	.036	-0.17	.636
No ADL (ref)																
One ADL	0.33	.483	-0.26	.678	0.03	.957	1.37	.046	-0.21	.759	1.12	.448	-0.01	.980	0.36	.521
Two ADLs	0.08	.863	-0.78	.244	-1.03	.123	-0.14	.858	-0.30	.622	0.92	.534	-0.36	.451	0.18	.734
Three ADLs	0.03	.959	0.13	.833	-0.35	.606	-12.51	.969	-0.78	.330	1.97	.135	-0.13	.817	0.38	.526
Four or more ADLs	0.85	.059	-0.16	.794	-1.13	.130	-1.26	.277	-0.08	.899	3.11	.007	-0.10	.841	1.62	.001
Partnered	0.32	.360	-0.49	.279	0.36	.456	-0.08	.891	1.55	.004	-0.58	.381	0.29	.455	-0.42	.287
Low education (ref)																
Middle education	0.05	.932	0.77	.284	0.36	.568	0.03	.983	-2.24	.004	-1.66	.165	0.24	.682	-0.68	.244
High education	-0.34	.454	0.09	.888	-0.75	.195	1.10	.332	-1.74	.001	-1.31	.058	-0.11	.827	-0.86	.070

A4.7b Multinomial logistic regression without wealth included - United Kingdom

	Early retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Phased retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	0.35	.484	-3.63	.006	-0.87	.177	-1.70	.007	-3.41	<.001	-1.18	.115	-3.28	.017	-1.28	.089	-0.46	.503
Female	-0.67	.055	2.22	.043	0.00	.997	1.77	<.001	2.73	<.001	-0.43	.432	0.55	.496	0.60	.297	-1.51	.003
No ADL (ref)																		
One ADL	0.61	.241	1.40	.060	0.82	.172	1.02	.062	1.51	.011	0.27	.818	0.38	.749	0.74	.308	1.12	.140
Two ADLs	0.52	.545	0.86	.511	1.26	.166	1.93	.017	1.37	.143	1.40	.288	1.47	.265	1.11	.294	2.78	.003
Three ADLs	-0.12	.848	-13.95	<.001	-1.06	.348	-0.05	.944	0.46	.522	1.30	.186	-13.19	<.001	0.60	.466	1.34	.119
Four or more ADLs	1.23	.071	-11.75	.978	0.62	.476	0.65	.391	1.56	.042	4.02	<.001	1.01	.427	-0.05	.965	3.07	<.001
Partnered	0.27	.554	-0.28	.701	0.25	.650	0.73	.138	0.86	.124	-0.47	.417	0.52	.650	-0.26	.674	0.03	.963
Low education (ref)																		
Middle education	0.38	.412	0.87	.285	0.46	.407	-0.12	.790	0.01	.991	0.00	.999	-0.19	.882	0.17	.790	-0.57	.378
High education	0.19	.630	0.41	.626	-0.06	.911	-0.75	.089	-1.13	.041	-1.19	.079	0.84	.353	-0.40	.520	-1.37	.019

Note: reference category = conventional retirement. Due to extra missing data on wealth, n=437. Relationships with p<.050 are shaded.

A4.8a. Multinomial logistic regression only with wealth included - US

	Early retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	1.79	<.001	0.31	.434	-1.30	.046	-1.01	.083	0.44	.261	0.09	.835	1.00	.004	1.82	<.001
1 st wealth quartile (ref)																
2 nd wealth quartile	-0.67	.095	-0.53	.284	0.38	.610	-0.42	.575	-0.76	.123	-3.31	.003	-0.64	.145	-1.57	<.001
3 rd wealth quartile	0.14	.740	-0.31	.571	1.66	.025	-0.24	.767	-0.59	.285	-1.63	.032	0.12	.800	-1.42	.003
4 th wealth quartile	0.05	.915	-0.87	.144	2.09	.004	0.32	.669	-0.37	.495	-2.73	.015	0.21	.656	-1.75	<.001

A4.8b Multinomial logistic regression with only wealth included - United Kingdom

	Early retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Phased retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	0.00	1.000	-1.25	.027	-1.25	.027	0.07	.853	0.25	.481	0.19	.591	-14.53	.970	-0.85	.083	0.25	.481
1 st wealth quartile (ref)																		
2 nd wealth quartile	0.38	.448	-0.07	.931	0.49	.501	0.59	.228	-0.66	.225	-0.96	.101	12.52	.974	0.09	.899	-1.17	.052
3 rd wealth quartile	0.73	.144	-0.29	.736	1.18	.086	0.38	.448	-0.81	.154	-1.04	.086	12.58	.974	-0.00	1.000	-0.94	.106
4 th wealth quartile	1.07	.028	-0.69	.463	1.32	.051	-0.22	.680	-0.59	.282	-2.14	.011	13.28	.972	-0.69	.387	-1.28	.042

Note: reference category = conventional retirement. Due to extra missing data on wealth, n=437. Relationships with p<.050 are shaded.

A4.9a. Multinomial logistic regression only with education included - US

	Early retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	1.98	<.001	-0.13	.796	0.22	.638	-2.08	.050	1.10	.007	0.12	.809	0.81	.056	1.66	<.001
Low education (ref)																
Middle education	-0.24	.616	0.51	.416	0.43	.461	0.21	.874	-1.72	.006	-2.68	.019	0.34	.525	-1.33	.012
High education	-0.46	.261	-0.19	.733	-0.62	.246	1.21	.271	-1.43	.002	-1.93	.002	0.00	.995	-1.09	.011

A4.9b Multinomial logistic regression with only education included - United Kingdom

	Early retirement		Late retirement		Retirement of self-employed		Retirement of part-time workers		From OLF to retirement		Retirement of people with a disability		Partial retirement		Phased retirement		Deceased	
	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P	B	P
Intercept	0.48	.082	-1.95	.002	-0.48	.175	0.57	.038	0.05	.878	-0.05	.878	-2.35	.001	-0.85	.034	0.17	.555
Low education (ref)																		
Middle education	0.21	.639	1.25	.115	0.48	.375	0.13	.778	0.30	.535	-0.36	.519	-0.14	.915	0.31	.621	-1.05	.085
High education	0.21	.572	0.15	.852	-0.06	.903	-0.91	.029	-1.28	.015	-1.74	.005	0.78	.379	-0.54	.374	-1.56	.004

Note: reference category = conventional retirement. Due to extra missing data on wealth, n=437. Relationships with p<.050 are shaded.