Work and family trajectories: Changes across cohorts born in the first half of the 20th century

Simone Scherger, James Nazroo & Vanessa May

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Keywords: employment careers, family, life courses, cohorts, baby boomers, sequence analysis

Corresponding author:
Dr. Simone Scherger
Centre for Social Policy Research
University of Bremen
Postfach 33 04 40
28334 Bremen
Germany
E-mail: simone.scherger@uni-bremen.de
Phone: +49 (0)421 218 58569

Dr Vanessa May
Morgan Centre for Research into Everyday Lives Sociology
Oxford Road
Manchester M13 9PL
UK
E-mail: Vanessa.May@manchester.ac.uk

Professor Dr James Nazroo
School of Social Sciences
The University of Manchester
Humanities Bridgeford Street-G29
Manchester
M13 9PL
UK
E-mail: james.nazroo@manchester.ac.uk

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1. Introduction

Individual life courses underwent major changes in the 20th century, particularly work and family life. Britain, like most other Western countries, has shifted from a male breadwinner society with strict norms around marriage and divorce to a more liberal and egalitarian one where women's employment has become the norm and divorce more acceptable. This paper focuses on the relationship between family formation and employment in older cohorts of the English population. Based on retrospective life history data of the English Longitudinal Study of Ageing (ELSA), we trace the ways in which current older generations have combined family and waged work. This allows us to describe in more detail patterns of change and stability across age cohorts. In contrast to many other approaches to this question, we include trajectories of childless and unmarried people, who form a significant, sometimes neglected minority. However, it is not only differences *between* cohorts that have to be studied, but also differentiation *within* cohorts, in particular by gender and education. If groups that have been in the vanguard of innovative life course patterns can be identified, this would contribute towards explaining what has driven the changes in individual life courses in contemporary Western societies.

For these purposes, we apply the method of sequence analysis, which differs from classical statistical hypothesis-testing methods in that its main objective is the description and classification of long trajectories. We observe three dimensions of individual lives – employment, marital status, and having children – and analyse the sequence of the resulting eight states from the age of 15 to 50. Thus, this paper addresses the following three issues:

(1) How has the timing and the combination of family formation and work over the life course changed across cohorts, and which continuities can be observed? Is the narrative around the baby

boomers as a particularly innovative generation compatible with the cohort-related pattern of change we find?

(2) Is it possible to describe these changes as a standardisation or de-standardisation of life courses, that is, is there increasing or decreasing variation in family and employment trajectories?

(3) What role do gender and education play in the emergence of new trajectories? How crucial are educational expansion and the inclusion of women in higher education?

The next section provides an overview of how recent life course changes have been described in the literature, and what role education and gender are assigned. The data and the steps of the sequence analyses are explained in section 3. Section 4 presents the results of the cluster analyses based on the constructed sequences. Section 5 illustrates descriptively how cluster membership is differentiated by cohort and gender. In section 6 the predicted probabilities of cluster membership for different educational subgroups and cohorts are examined. The paper concludes with a discussion of the results.

2. The description and analysis of changing life course patterns

Changes in the life courses of men and women have been discussed widely in the sociological and demographic literature (for example, Brückner & Mayer 2005, Mayer 2001). We can distinguish different dimensions of change related to *what* happens in an individual life course and *when* it happens (Brückner & Mayer 2005: 32). First, there are changes regarding the *occurrence* of certain transitions and states, and their combinations. In the last decades, for example, marriage rates and fertility rates have declined whereas the occurrence of childless marriages, divorce and of non-marital unions has risen. Alongside this, paid employment has become more widespread among married women and mothers (Crompton et al. 2007, Lewis 2001, Blossfeld & Drobnič 2001). Second, we can look at the changing *timing* of transitions, for example the age at which full-time education ends and consequent delays in the transition to first (full-time) paid employment, or the increase in the mean age of marriage and parenthood (Blossfeld et al. 2005). On the whole, life course patterns seem to have become more diversified, as new states such as unmarried cohabitation, paid employment of mothers, and being divorced become more widespread.

This diversification is often described as de-standardisation (Brückner & Mayer 2005, Author1). De-standardisation entails a greater diversity of states and transitions, more diverse sequences (both individually and on an aggregate level), and increased variability in the timing of transitions when

different points in time, societies, or subgroups of a population are compared.[1] In order to explain the underlying dynamics of these changes, more exact information is needed on how the timing of transitions and innovations are connected in individual life courses. It is of interest which groups are the first to break a pattern, for example, by divorcing, delaying marriage or, for women, combining the formation of a family with a continuous career. Cohort explanations, arguing, for example, that younger cohorts embrace postmaterialist values because they have grown up in economically secure times (Inglehart 1971), compete with the idea of period effects, resulting, for example, from rapid political change, such as protest movements. Only the former would become visible in marked cohort differences in life course patterns.

The temporal structures of life courses are in many ways connected to social inequalities. If and when certain transitions (be they related to education, work or family) happen, has consequences for the position of individuals in inequality structures, and vice versa. Furthermore, earlier transitions structure later transitions in terms of probability and timing, and through the temporal sequencing of different stages and transitions, inequality-related advantages and disadvantages are accumulated (Dannefer 2003). In this sense, cohort differences in the temporal structures of life courses are also indicative of changing inequality structures, with educational expansion and related shifts in class composition as the clearest examples.

Correspondingly, differentiation of temporal sequencing *within* cohorts points to inequality dynamics among people born at the same time. The most important and interrelated factors of differentiation within cohorts are gender, class and education. Normative expectations towards men and women around the division of labour within the family influence their employment trajectories and inequality-related outcomes such as income and social status. Class and education are not only connected to different variations in these gendered norms, but they affect the economic chances of individuals over their life courses, and also their attitudes, values and preferences. Education, defined by educational credentials usually acquired earlier in the life course, comprises a central dimension of social inequality that we examine below, because it has long-lasting effects on later life chances and is closely connected to other inequality outcomes such as class, social status, and income. More precisely, education is not only important because it shapes the career chances of men and women, and indirectly their family biographies, but also because it is a proxy for their expectations towards work. Higher education tends to go together with a higher labour market attachment and expectations of higher material and non-material rewards for work, while the relative gains for women of marrying, having children and staying at home diminish (for a more

1 Another (contested) concept often used in this context is 'individualisation'. However, individualisation implies an *explanation* of changing life course patterns (see for example Author1), whereas (de-)standardisation strictly remains at the descriptive level, so that description and explanation can be separated allowing for the possibility of different explanations for the same patterns

detailed discussion see Becker 1981, Oppenheimer 1994). In this sense, expanding education, in particular for women, and subsequent career opportunities can be seen as an important catalyst of social change (see for example Solera 2009, Blossfeld & Dronič 2001, Lewis 2001, Becker 1981) – to a certain degree, higher education 'allows' women (or makes it easier for them) to depart from life courses defined by family obligations rather than by an occupational career. However, there may also be counteracting tendencies connected to the necessity of work for financial reasons. Better educated women tend to be married to better educated men, financially allowing them not to work. Indeed, under the "cultural model" of the male breadwinner (Pfau-Effinger 2004), being a housewife is a valued status. Undoubtedly the biggest changes have taken place with regard to the life courses of parents. Nonetheless, changes in the (working) lives of unmarried and childless people, as well as the extent of single lifestyles and childlessness[2] itself, are also important indicators of social change that are examined in this paper.

It is worth noting that the main focus of the literature is on *recent* changes and on the cohorts who are now young adults or middle aged. In this paper, in contrast, the youngest cohort we study is born in the mid-1950s. Thus we shift the temporal perspective to older cohorts, born roughly between 1916 and 1957, in order to give a more complete picture of the changes in family and work at a time that so far has been depicted as one where little changed. By studying the life courses of older cohorts we are able to understand the backdrop to recent changes in the lives of younger cohorts. The life courses of older cohorts are also often taken as the benchmark when diagnosing increasing variation or de-standardisation of life courses (Elzinga and Liefbroer 2007; Widmer et al. 2003), which is why it is important to scrutinise this reference point itself.

2 Of course, childlessness is not only a matter of choice: there is a certain proportion of involuntary childlessness due to various problems related to infertility. However, assuming that the proportion of people who are infertile throughout the so-called 'childbearing years' is about the same in all cohorts and positing that infertility resulting from a delay in childbearing is caused by socially embedded decision processes, it is still justifiable to interpret changing rates of childlessness as an indicator of social change.

Many of the youngest cohort we observe (born 1948 to 1957) are commonly designated as baby boomers. The birth rate in Britain reached its (first) peak after World War Two in 1947, and generally those born 1947 to 1954 are defined as (first wave) baby boomers (Biggs et al. 2007). Some scholars see these baby boomers as powerful agents of social change who were strongly influenced by American developments and embraced the expanding consumer culture and the emergent youth culture, including the sexual revolution, liberal values and an anti-conformist mood (Edmunds & Turner 2002: 24-45). They are also often seen as the ones who broke with the hitherto standardised life courses. Others, such as Leach et al. (2013) and Biggs et al. (2007), find evidence of baby boomers acting as a "bridging generation", displaying attitudes and other characteristics from both the cohorts before and the ones succeeding them. Evidence as to whether the life courses of the baby boomers are distinctively different from the life courses of the relatively homogeneous cohorts born before them would lend support to one of these competing views. Thus, among the aims of this paper is to critically explore whether our observations, in particular the work life histories of the youngest cohort included in the study, who are at least in part baby boomers, are consistent with the interpretation that baby boomers were an influential generation, driving social change.

3. Data and methods

We use data from the life history interview of the third wave of the English Longitudinal Study of Ageing (ELSA) (Steptoe et al. 2013, www.ifs.org.uk/elsa).[3] ELSA is a multidisciplinary panel study that contains detailed information on the health, economic and social circumstances of a representative sample in England aged 50 and over. Respondents are interviewed every two years. At Wave 3 respondents also participated in a life-history interview to collect information from their childhood onwards, which covered, amongst others, children and fertility, partnerships, education, employment and key health events. The challenge of collecting accurate retrospective data was addressed through the use of Event History Calendars that are known to improve the reliability and validity of such data (Belli 1998). In addition, the problem of people forgetting or omitting short episodes, for example of unemployment, is mitigated by the fact that we only look at transitions in a very coarse description, where short episodes are not taken into account.

The response rate for the main interview of Wave 3 was around 73 per cent, with 89 per cent of these respondents participating in the life history interview (for details see Scholes et al. 2009: 39). Respondents over the age of 90 had their exact age and year of birth removed from the data to minimise risk of disclosure, so they had to be excluded. Thus the oldest cohort we look at was born

3 For further details of the study see also Banks et al. (2008, 2012).

between 1916 and 1927, whereas the other cohorts include exactly ten birth years: 1928-37, 1938-47 and 1948-57. The oldest cohort is relatively small in size and, because of selective survival of those with a higher socio-economic status, the possibility of a related bias in the results has to be borne in mind. All descriptive percentages in this paper (but not the case numbers) have been weighted with a weight (retrowgt) that compensates for non-response bias in the life history interview.

In the following we present the results of a sequence analysis, a very effective tool for describing and classifying the temporal patterns in a larger number of sequences, or trajectories, consisting of a succession of states that are observed over a defined length of time. Not following the traditional stochastic modelling culture of regression, or event history analysis, it is based on an algorithmic modelling culture that does not clearly separate cause and effect, and sees "the sequence as a holistic product of possibly multiple interrelated processes" (see Aisenbrey & Fasang 2010: 434-5 for an overview of the method; and Simonson et al. 2011 for an example of its applications which is similar to this paper). In our case, the sequences represent a section of the life course of the ELSA respondents.

For the purpose of this paper, we have focused on whether someone is married or not, whether they have children or not, and whether they are in paid employment or not. Combining these three dimensions, each with two specifications, results in eight different states (see legend of Figure 1), which are the basis of the sequences we have constructed containing information on each year between the ages of 15 and 50 for each respondent. Studying trajectories of such lengths necessarily implies some imprecision. First, we are only able to define one state per year. So, people are counted as married, or as having children, in a certain year of their life if they have experienced the related event *at some point* in that year. Similarly, someone was seen as having been in paid work if they were working at some point in the year, even if this was only for a month or two. Second, we only have two specifications for each of the three dimensions we combine. So, not being in paid work can mean being in education, being a homemaker, being ill or disabled, being unemployed or retired. Being in paid work can refer to both full-time and part-time employment. Having children only refers to the fact that someone is a parent, defined as an irreversible state; it does not mean that the children live in the same household. And finally, not being married also includes the cases in which someone has been divorced or widowed, or cohabits with a partner to whom they are not married. We do not present a more detailed categorisation in order to avoid making the analysis too complex. Each additional differentiation, for example between full-time and part-time employment, would increase the number of states we examine by at least four.

After having defined the space of states and constructed individual trajectories, the second step in a sequence analysis consists of classifying individual sequences into clusters. A distance matrix is used

for this, which contains a value for each pair of respondents that indicates how similar their sequences are to each other. Put differently, the distances are an expression of how much it would 'cost' to turn one sequence into the other, using pre-determined 'prices' for substituting one state with another and for inserting or deleting a state, so making the sequences identical. To set these costs we use the Dynamic Hamming dissimilarity measure (Aisenbrey & Fasang 2010: 436, Lesnard 2006), which is based on the observed transition probabilities in our data: the more often a transition between two states occurred in our data, the lower the cost it was assigned. In addition, the Dynamic Hamming dissimilarity measure allows for the costs to vary over time, which here implies permitting transitions between different states to vary in costs depending on age. From a certain point onwards, for example, changing from not being a parent to being a parent becomes less probable. The same applies to entering the labour market after long periods without being in paid employment, or later in life.[4]

As a third step, a cluster analysis based on this distance matrix is estimated using Ward's algorithm. As a minimum rule for determining the appropriate cluster solution, we ensure that the ratio of average within-cluster-distance and average between-cluster-distance is lower than 0.5 (see Aisenbrey & Fasang 2010: 432-3). In the final step of our analysis, we adopt a more classical inferential approach to examine the extent to which gender, birth cohort and education predict cluster membership. As suggested in Section 2, this gives an idea of how educational credentials impact – through interconnected occupational careers – patterns of combining work and family, and of related differences between cohorts and genders.

4. Results of cluster analysis

In the following, we present the cluster solution and explore the composition of the clusters with regard to gender and cohort. The different clusters represent groups of sequences that are similar to each other, that is, distinct patterns of life courses with regard to the combination of work and family. The criterion of a ratio of average within-cluster-distances to between-cluster-distances being at least 0.5 was fulfilled from a solution of five clusters onwards. For each further clustering step beyond five clusters, the improvement of this ratio was small[5], so we decided to give more weight to how meaningful each additional cluster appeared, and its size, following the criterion of "plausibility" and "theoretical interpretability" of the results (Aisenbrey & Fasang 2010: 433). With the sixth cluster, an almost exclusively "female" cluster was added which we deemed of importance given that

4 The Dynamic Hamming dissimilarity measure only defines substitution costs so that only sequences of equal length can be compared. For this reason incomplete trajectories were excluded from our analysis.

5 The addition of cluster five to the four-cluster solution improves the ratio by 0.013, the addition of the sixth cluster by 0.018, the seventh by 0.001, the eighth by 0.014 and the ninth by 0.013.

one of our research foci was on the role that gender plays in the development of new trajectories. The addition of a seventh cluster meant that a big cluster, consisting of more than 50 per cent of the sample, was divided into two groups. As these two clusters vary in the timing of states (and less with regard to their sequence), retaining the seventh cluster in the analysis allows us to trace in a more subtle way the shifts in work-family-trajectories over cohorts. The addition of an eighth cluster resulted in a somewhat residual group exhibiting a number of 'unusual' trajectories, but these seem essential to look at, because of their distinctiveness. In contrast, the inclusion of a ninth cluster offered a less crucial differentiation since it only separated out from the first cluster a small group who were in education for a very long time. Consequently, we settled on an eight cluster solution to describe the trajectories we constructed. This relatively high number of clusters enables us to distinguish subtle changes in the work-life-sequences across cohorts and related to gender and education.

Table 1: Cluster composition

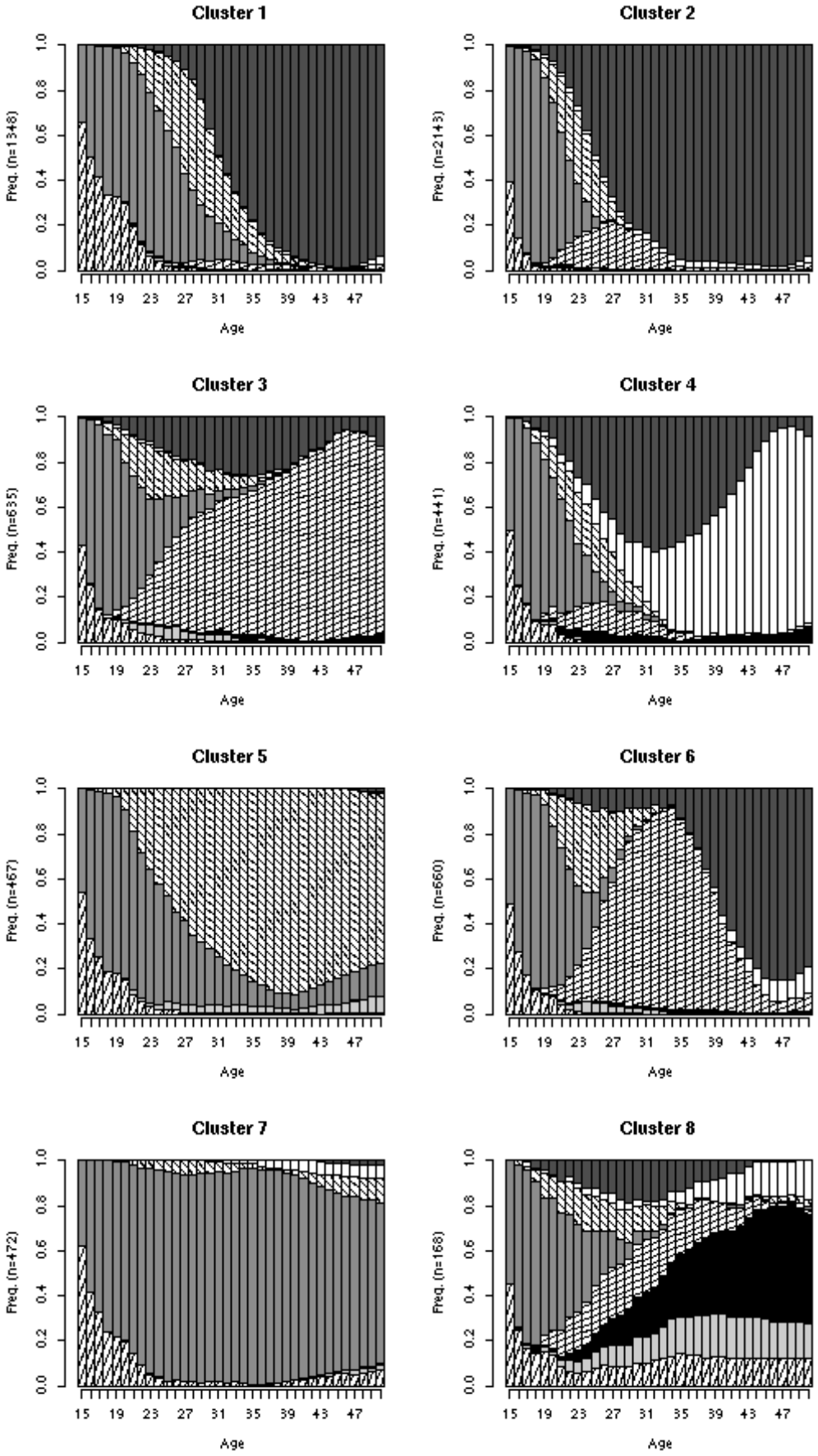
Cluster	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
N	1348	2143	635	441	467	660	472	168
per cent of sample (weighted)	20.83	34.59	10.11	6.98	7.21	9.79	7.43	3.05
men within cluster (weighted per cent)	77.90	57.82	11.85	43.18	53.53	0.32	60.48	27.52

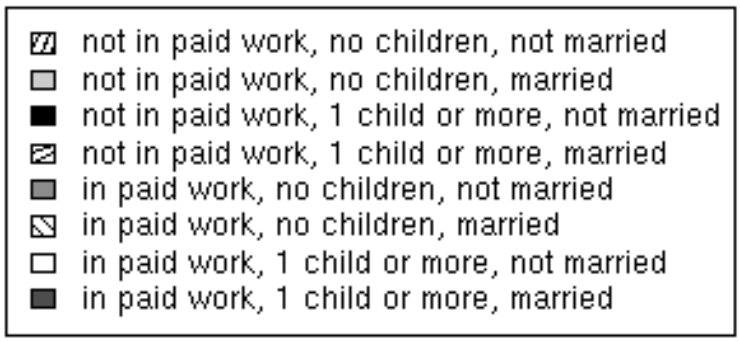
Table 1 displays the size of each cluster, in terms of the number of respondents they contain and their gender composition. Figure 1 shows, for each of the resulting clusters, the distribution across the eight states in each year of life between 15 and 50.[6]

Clusters 1 and 2, which we have called 'longer education, later marriage and family formation with continuous career' and 'early marriage and family formation, some short breaks from work' respectively, are relatively similar. One main difference relates to the timing of early adult life course transitions. The members of cluster 1 tend to have been in the education system and to have stayed unmarried and without children while working for a longer time. Around three quarters of cluster 1 members are men, while in cluster 2, there are only a few more men than women. The latter are mostly mothers who drop out of the labour market for a short time when their children are small.

6 The index plots, which give an overview over the trajectories in each cluster, are provided in an online Appendix [?- at the moment in additional doc], as well as the most frequent sequences by cluster and the mean time spent in each state by cluster.

Figure 1: The eight clusters of family-work-trajectories (state distribution plots)





Cluster 3 comprises 'mothers dropping out of the labour market and other non-working married parents'. Though somewhat similar to clusters 1 and 2 in terms of the timing of early adult transitions, it differs significantly in what happens after children are born, at which point most leave paid work and do not return by the age of 50. Ninety percent of cluster 3 members are women. The few men in this cluster have mostly been ill or disabled for longer periods, or unemployed on a long-term basis, and a minority seem to be stay-at-home fathers.[7]

Cluster 4 is dominated by people who, in their 30s and 40s, become 'working long-term divorcees with children'. Women slightly outnumber men in this cluster. Cluster 5, 'childless married (and partly divorced)', contains those who marry, remain childless, some of whom divorce. In most cases, cluster members are in continuous employment, but the timing of entry into the labour market and of marriage varies widely, compared with the first two clusters. This cluster contains slightly more men than women.

Cluster 6 consists of 'mothers with a longer work break, but returning to the labour market'. It is the only cluster that almost only contains women. These are the women who, after a longer time out of paid employment (on average around 14 years – see online Appendix Table O3), go back to work. Some of them get divorced in their 40s. Cluster 7 comprises those who are 'never, briefly or late married and mostly without children'. Sixty per cent of the cluster members are men. Cluster 8, 'heterogeneous patterns of long-term non-employment', is a small cluster where different states outside the labour market are dominant , and the only cluster with a considerable amount of people being in one of two clear minority states for a long time. The first includes those who are not in paid work and not married, but with children, many of whom have been married at some point. The second comprises those who are married, without children and not in paid work. Almost three quarters of the cluster members are women.

7 Only around one quarter of the men in this cluster did not have one or several periods of ill health in their adult life, as opposed to around two thirds or more in most other clusters. The number of episodes and years of unemployment are also above average for the men in this cluster (table not shown).

Clusters 1 and 2 make up more than half of the sample. None of the other clusters represent more than 10 per cent of the sample. In other words, just under half of the respondents display trajectories that are lived by a minority. Regarding the variety of states covered by one cluster, cluster 8 is clearly the most diverse, while for all other clusters trajectories become less varied as respondents reach their early thirties.

5. Cluster membership by cohort and gender

To examine how the different patterns are distributed within different cohorts we can look at the relative frequencies of cluster membership for each cohort, separately for men and women (Figure 2). The different distribution of trajectories among men and women is immediately apparent. Whereas among men the two most important clusters of trajectories apply to the majority – more than 80 per cent in the older two cohorts and more than 60 percent in the youngest cohort – women's life histories are less standardised. For women, none of the cohorts have more than 50 percent in just two clusters and the most prevalent two clusters vary across the cohorts. For example, cluster 3 (mothers dropping out of the labour market), is most prevalent for the oldest cohort, but loses some of its importance in subsequent cohorts, and patterns of motherhood with almost no or only short work interruptions (clusters 1 and 2) gain weight instead. However, most of the other patterns represent large minorities of women, too.

A number of observations can be made with regard to the clusters that only apply to small minorities of men and women across all cohorts. For men, these are the heterogeneous cluster 8 and cluster 3, which contains married fathers who spend a longer time and/or more periods not in paid employment. The growth of these two clusters across cohorts points to the historically increasing rate of unemployment. Furthermore, increasingly generous welfare regulations might have allowed a growing proportion of men to stop work because of chronic illness or disability. For women, this group with heterogeneous patterns of long-term non-employment seems to grow across cohorts as well, although we cannot discern sufficiently between voluntary disengagement from the labour market, because of family care, and undesired unemployment.

Figure 2: Cluster membership by cohort and gender

English Longitudinal Study of Ageing (life history data 2008), weighted percentages (n= 6334)

Growing divorce rates are expressed in the increasing shares of men and women who are represented by cluster 4. Although there are also divorcees in most other clusters, cluster 4 differs from these in that those who divorce do not marry again. Finally, there are those who never marry or mostly remain childless (or both), or have their children very late (cluster 5 and 7). For women, both of these trajectories are least important in the middle cohorts. For men, the pattern is similar with regard to the ones who remain mostly childless. However, there are very few of those who never marry (cluster 7) in the oldest cohort but considerably more in the youngest cohort. This gender difference amongst the oldest in terms of never marrying might indicate an excess of women of marriageable age at the end of World War Two.

To summarise, there are two important changes across cohorts. First, fewer mothers take a long break from, or even drop out of, the labour market while patterns that contain short or no considerable breaks from paid work become more prevalent.[8] Second, the growing numbers of those men and women who are and stay divorced and of those who do not marry and who stay childless are noticeable from the second oldest cohort to the youngest cohort, however this pattern is also more frequent among the oldest cohort.

8 It has to be borne in mind that, in the calculation of states, a year was counted as one with paid employment even if only a very short period was spent in paid work. That means that breaks that are shorter than one to two years disappear in the graph. Although this is a lack of precision, we would argue that it is exactly those visible longer breaks that have an enduring negative effect on women's careers (Gangl & Ziefle, 2009).

These small similarities between the oldest and the youngest cohort are likely to result (completely, or in part) from different causes. Elements of choice probably played a bigger role in the incidence of staying unmarried, or childless, for the very youngest cohort. Yet before we discuss the results in more depth, we will examine the link between cluster membership and education.

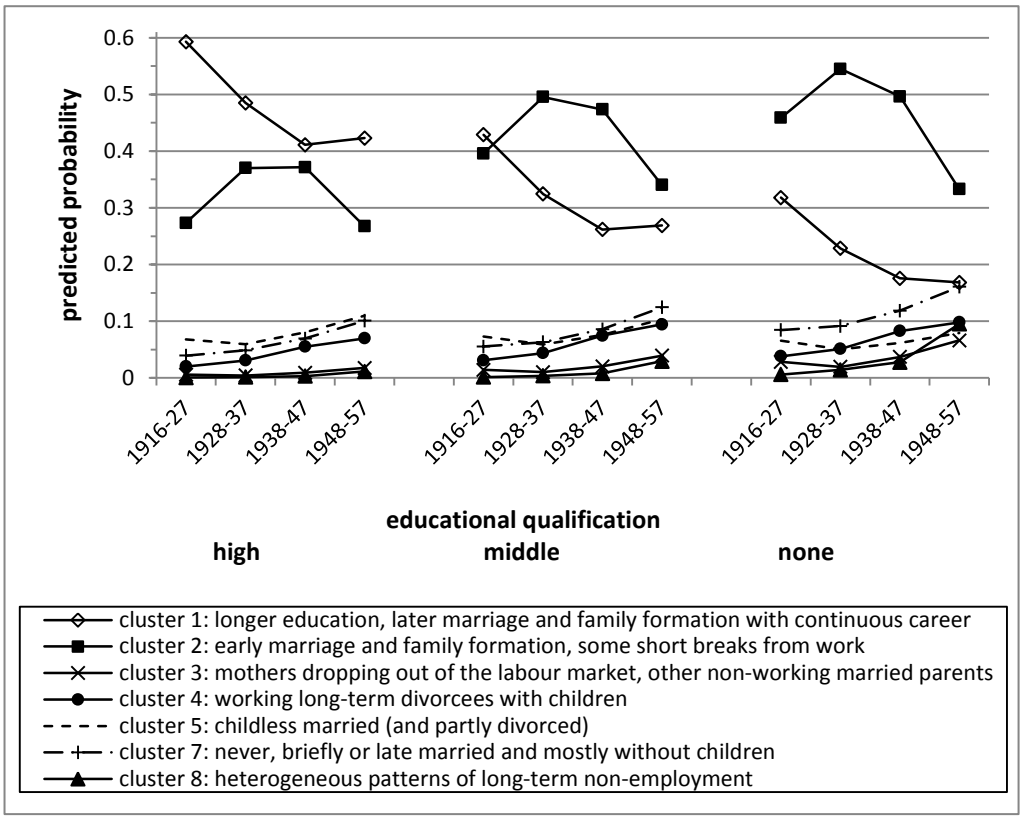
6. Cluster membership and education

Apart from the general dynamics of labour markets, education is the most important factor regarding the changing relationship between family and labour market participation for women.[9] So, in order to describe the relationship between work-family trajectories and education, we have estimated, separately for men and women, multinomial logit models with cluster membership as the dependent variable and education and cohort included as independent variables. Since there is only one man in cluster 6, this cluster has been excluded in the model for men.[10] Here, we focus on the mean predicted probabilities as shown in Figure 3 (for men) and Figure 4 (for women), because these are much easier to interpret and compare than the coefficients of the very complex model (for detailed results of the regressions see Appendix, Tables A3 to A6). In the underlying multinomial logit regressions (see Table A5 in the Appendix), the effects for cohort and level of educational qualification on cluster membership are almost all statistically significant for women, while cohort differences are less frequently significant for men (see Table A3 in the Appendix), indicating that there has been more change over cohorts for women.

Figure 3: Mean predicted probabilities of cluster membership for men
(based on multinomial logit regression with birth cohort and educational qualification)

9 Although most non-work states at the beginning of the trajectories we observe will be times of education and thus the length of full-time education has entered the construction of the trajectories as well, the state of being in education has not been singled out and is regarded like other forms of non-employment. Educational qualification in itself has not entered the construction of the trajectories and the calculation of the clusters, so there is no problem of endogeneity concerning educational qualification.
Occupational class is a very important influence as well, but it is problematic to include it in a multivariate model with cluster membership as a dependent variable because it is at the same time a cause and a result of the observed trajectories, the more so as the most precise measure available in the data relates to the end of the trajectories we observe.

10 One more case has been excluded because the information on educational qualification is missing.



English Longitudinal Study of Ageing (life history data 2008), n= 2992

For men, the clearest differences across cohorts and by educational qualification can be found regarding membership of the most common clusters 1 and 2.[11] This is mirrored in the regression results (see Table A3 in the Appendix for the coefficients of the regression model). First, with the oldest birth cohort and cluster 2 as the reference group, the coefficients for the first cluster are all significant, meaning younger cohorts are less likely than the oldest cohort to be in cluster 1 compared with cluster 2. Second, with the highest education group and cluster 2 as the reference group, the other education groups were much less likely to be in cluster 1. For clusters 1 and 2 (and also most others), the general temporal patterns of the mean predicted probabilities are broadly parallel across different educational groups, though on different levels. Early marriage and family formation with short breaks (cluster 2) is most frequent in the middle cohorts, whereas a later start and continuous careers (cluster 1) is more likely in the oldest cohort. There is also a slight increase in cluster 1 membership in the youngest cohort, though this is limited to those with middle and higher education. This slight increase may reflect a choice to delay family formation, in part because of opportunities for longer educational participation. Despite the parallel changes over time, 'late family formation with continuous careers' (cluster 1) is the most likely trajectory in the best educated subgroup regardless of cohort, whereas this role is taken by cluster 2 (early family formation and

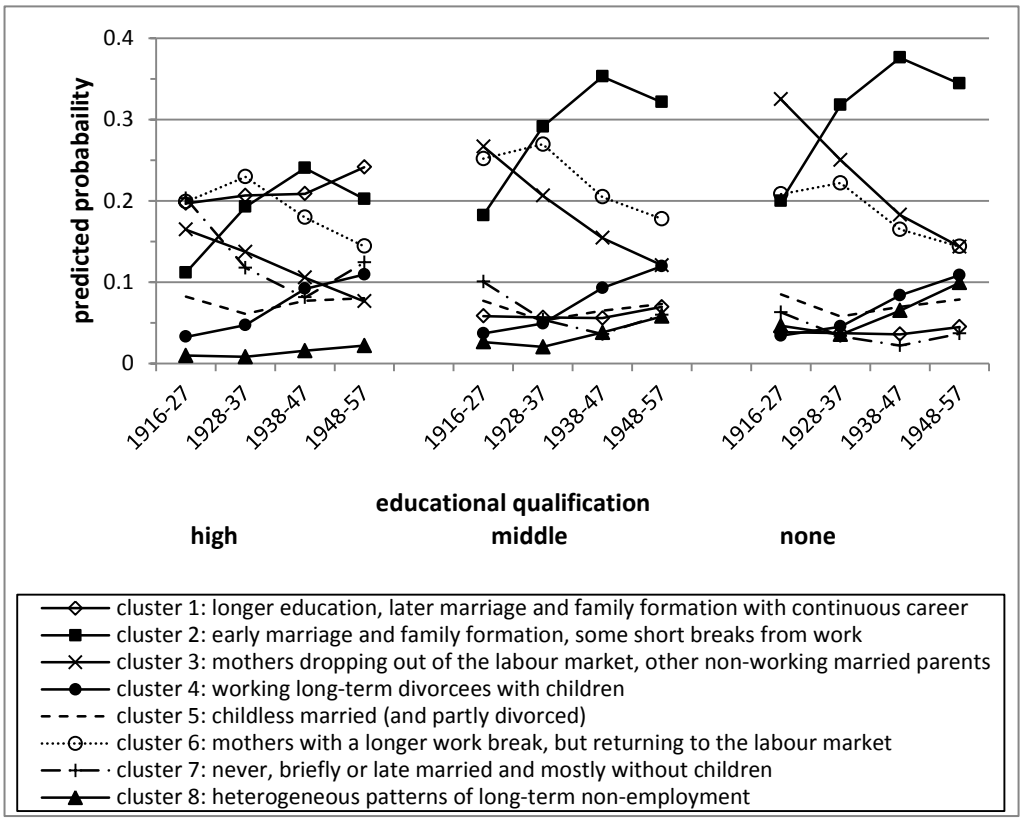
11 The three categories of educational qualification are defined as follows: "high" includes NVQ4/NVQ5/Degree or equivalent and higher education below degree; "middle" refers to NVQ3/GCE A Level or equivalent, NVQ2/GCE O Level or equivalent, NVQ1/CSE other grade or equivalent or foreign/other qualification; and "none" refers to no formal educational qualification.

short breaks) for the subgroup without any educational qualifications. The difference regarding these two clusters and their relationship to men's educational qualifications is statistically significant.

All other clusters become more prevalent with younger cohorts, while still remaining minority clusters. They also show statistically significant differences between the lowest educational qualification group in comparison to the highest, and with regard to the youngest in comparison to the oldest (reference) cohort. Men without educational qualifications are more likely to be a non-working parent because of unemployment or long-term illness and disability (cluster 3); they are less likely to be married and childless (cluster 5); and they are more likely to be long-term unemployed (cluster 8). Men in the youngest cohort are much more likely to be a non-working parent (cluster 3), perhaps reflecting increases in unemployment with time; they are also more likely to be working divorcees (cluster 4) and never or only briefly married mostly without children (cluster 7); and very much more likely to be long-term unemployed (cluster 8).

Figure 4 clearly displays not only a greater variety of patterns for women, but also a higher level of change compared to men. The variety is greatest among women with the highest educational qualification.

Figure 4: Mean predicted probabilities of cluster membership for women
(based on multinomial logit regression with birth cohort and educational qualification)



English Longitudinal Study of Ageing (life history data 2008), n= 3340

On the whole, three clusters are most prevalent. First, cluster 2, 'early marriage and family formation with some short breaks from work', reaches its peak in the cohort born 1938-47 for all three education groups, and it is most common in the group without any educational qualifications. Second, cluster 3, 'mothers dropping out of the labour market', does not show statistically significant differences across educational groups (see regression results in Table A5 in the Appendix), although its prevalence tends to increase with decreasing educational levels in Figure 4. However, it does show a marked, continuous and statistically significant decline across age cohorts. This decline is sufficient for it to move from being the most prevalent cluster for women with middle and no educational qualifications in the oldest cohort to being considerably less prevalent in the youngest cohorts. Finally, membership in cluster 6, 'mothers with a longer break, but returning to the labour market', shows a small but statistically significant decrease for the two youngest cohorts.

For the highly educated group of women, cluster 1, 'longer education, later marriage and family formation with continuous career', is also a highly prevalent trajectory, with a suggestion that it is more important for the youngest cohort. This cluster is much less prevalent in the other educational groups (with mean probabilities below 0.1). For the oldest among those with high education, apart from cluster 1 and 6, one other trajectory is important, cluster 7, containing never, briefly, or late married women mostly without children. This cluster loses importance over time (in all educational subgroups), while remaining valid for a considerable minority of highly educated women and gaining weight again in the youngest cohort. The temporal pattern of cluster 7 might again be related to World War Two that led to there being fewer men available to marry. Furthermore, the above mentioned attachment of highly educated women to work will play a role as well.

Finally, being childless and married (cluster 5) is a slightly more frequent trajectory for highly educated women. The pattern connected to divorce (cluster 4) shows a steady rise for all cohorts, with highly educated women having a slightly higher probability of getting and remaining divorced. Cluster 8, including all kinds of long-term unemployment, becomes more likely in all cohorts, with a significantly higher probability for women without any educational qualifications in comparison to the highly educated.

7. Summary of results

Our analysis has highlighted that there is a certain amount of stability across cohorts in how family and work are combined over the life course, in particular for men. No single cohort stands out as being particularly innovative or revolutionary in their behaviour, not even the youngest cohort who at least partly belong to the (first wave-) British baby boomers. While for men, there is little change apart from the rise in divorce, we have been able to illustrate a considerable *continuous* change

among women, particularly in relation to combining work and motherhood. First, the pattern of a complete withdrawal from work decreases in prevalence and, second, the pattern with long family breaks is gradually replaced by one with shorter breaks. While there has always been a group of mothers without any, or only very short, interruptions from work, this trajectory becomes more important with each new cohort.

In terms of the de-standardisation of life courses, the relative concentration of cases in very few clusters of sequences – which can be seen as a dimension of standardisation – was greatest in the two middle cohorts observed here (born between 1928 and 1937 and between 1938 and 1947). Women's work and family trajectories are throughout more varied and de-standardised than men's – there have always been several patterns of combining work and family careers, something that is even more visible if we differentiate between full-time and part-time employment (the results of corresponding sequence analyses we carried out are not presented here because they involve 12 different states, but these analyses led to the patterns for women becoming even more complex compared to those for men which do no change a lot).

Further important changes in the trajectories include the growing importance of divorce and of trajectories without marriage and without parenthood. However, in contrast to contemporary experiences, non-married parenthood is still only lived by a very small minority of the cohorts observed here. Another important change is in the timing of the transition into work and family formation. The middle cohorts are the ones among whom the pattern of early marriage and family formation is most frequent, in comparison to the oldest and the youngest cohort. The first signs of the current delay in marriage and family formation can only be seen in the last cohort. Childlessness, too, is least prevalent in the two middle cohorts.

These points suggest that the life courses of the oldest cohort are probably influenced by the turbulences of World War Two, and that the economically stable times of the 1950s and 1960s made family formation easier for the middle two cohorts at a time when more traditional family values re-emerged, emphasising women's role as housewives (Deem 1981). Finally, there are (also) indications of selection effects at work for the oldest cohorts, with the more privileged ones having survived and thus a specific bias in the patterns found, towards those patterns connected to higher education and status (for example, regarding the never or only briefly married trajectory, cluster 7, among well-educated women).

Our further analyses aimed at giving a more detailed picture of the changes and the underlying individual factors by focussing on the role played by education. Findings suggest that the diffusion of the trajectories is related to the level of educational qualifications. In the case of men, this seems mainly connected to the better labour market chances of better educated men, and their later family

formation. However, patterns containing spells of non-work become more frequent over cohorts in all educational groups. For women, the picture is again more complex. Shifts in the level of education across cohorts are a very important driver of changes in family-work-trajectories. Highly educated women, an increasingly important group across cohorts, display the most even distribution across all trajectories except the one characterised by different states of long-term non-work. The trajectories of the other, less well-educated women, in contrast, are dominated by only three clusters. Therefore the assumption not only of increased financial independence and better job opportunities, but also of a more pronounced work orientation among highly educated women is plausible, as is the early adoption of attitudes of gender equality. Gender inequalities in and resulting from education have clearly decreased in the cohorts we study, although they remain considerable. There is no indication that the general influence of education on life course patterns has diminished; if anything, the contrary is the case, and the stronger engagement in work of better educated women emerges more clearly in the youngest cohort.

8. Discussion and conclusions

Leaving aside important background conditions, for example innovations such as effective contraception, the findings can be interpreted in light of ideational (that is, cultural and political) and economic explanations for changing life course patterns, in particular patterns of family formation and fertility. Ideational explanations refer to processes of secularization and the increasing importance of values such as individual autonomy and fulfilment that lead to less unequal gender relations, higher expectations towards the quality of the relationship between spouses, greater (financial) independence of women and a lower degree of social and institutional control of private relationships (Lesthaege 1995, van de Kaa 2001). In economic explanations, structural changes are viewed as the root cause of these life course changes. So, in the view of Becker (1981), the expanding education and labour market involvement of women leads to their growing economic independence which makes marriage economically less attractive. Easterlin (1976, see also Easterlin et al. 1990) argues that decreasing income gains and difficult labour market transitions, in particular at the beginning of individual careers, lead to delayed family formation. And of course labour market participation of both women and men is influenced by the current economic situation, the structure of labour markets, and family-related policies. However, as Lesthaege (1995) convincingly argues, economic explanations on their own are not sufficient to explain the changes, but should instead be viewed as complementing ideational explanations because of the reciprocal relationship between the two. For example, as famously pointed out by Inglehart (1971), a certain level of material well-being is necessary to develop post-materialist values (like self-fulfilment, autonomy and personal

freedom), which in turn lead to the life course changes depicted in this paper. Or, even if one motive for delaying marriage and parenthood is economic insecurity, liberalisation and the acceptance of non-married cohabitation are a presupposition for the latter to spread across regions and classes. So, in most cases, ideational and economic changes interact with each other in changing life course patterns like family-work-trajectories.

In our study, the observed importance of education, in particular for women, lends weight to both ideational and economic explanations as these are inextricably intertwined in this attribute. Education is, on the one hand, a crucial factor determining the labour market opportunities and potential income from paid employment independent of one's partner. On the other hand, attitudes towards work and more general attitudes towards change, traditional (life course) conventions and politics are also influenced by education. Considering the relationship between female employment and careers and ideas of gender equality, it is hardly possible to separate economics and attitudes.

However, only a minority of the oldest cohort, among the highly educated women, can be seen as a vanguard, with others living relatively traditional lives. The fact that the cohort differences for women mostly remain significant even after controlling for education underlines that beyond education as a catalyst for social change there are also changes affecting women across all levels of educational qualification. Less well educated women display very similar tendencies over time to better educated women, just less pronounced and delayed. Education matters much less with regard to the trajectories of men (who simply follow the norm of the male breadwinner), but lower education is connected to patterns with longer absences from the labour market.

Further research is needed to overcome some of the shortcomings of this paper, and to learn more about the exact mechanisms of how life course patterns actually spread. First, the observations of this paper are not very fine-grained. Differentiating between different non-work statuses, or between part-time and full-time work would help deepen our knowledge about the processes described. Second, some of the differences seen in the life courses of the oldest cohorts might be attributed to selection effects. Third, to learn more about the underlying dynamics of life courses and driving factors of change, more detailed quantitative studies are required about single transitions and changes on the one hand, as well as qualitative accounts of life histories and the individual meaning of transitions and changes. Fourth, the role of family policies has not been discussed in this paper and should be examined more closely (for example Gregg et al. 2007). With regard to the sequences depicted above, changes in the policy framing (for example parental benefits) seem to lag behind individual life course changes. Finally, and connected to family policies, inequality-related outcomes of family-related trajectories, such as wage penalties and poverty in older age, should be examined in more depth over time.

In summary, our paper provides an important contribution in that we are able to show how the changes that have been debated in the recent literature began to unfold. By observing older cohorts from a period of 40 years (1916 to 1957) and over a considerable proportion of their life span (age 15 to 50), we gain a detailed and comprehensive picture of the seeds of the more sweeping changes in the younger cohorts of today. The overall picture we find is one of ongoing, fairly steady change, a mixture of innovation and stability in all cohorts, rather than one of a particularly innovative cohort breaking with the past. There are no exceptional changes or dramatic cohort differences. While some of the baby boomers might have put into motion some of the more recent changes, our evidence is not consistent with the idea that they are revolutionary in terms of their life courses. Rather, their life courses display signs of incremental change and innovation, as suggested by Leach et al. (2013) in relation to patterns of consumption. Beyond this idea of change driven by specific cohorts, our findings show that the expansion of the education of women is a very important factor in transforming individual life courses.

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add one reference Author1

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Additional Tables and graphs for
Work and family trajectories: Changes across cohorts born in the first half of the 20th century

The first part of these additional tables and graphs (A1 to A6) should at least be added as an online Appendix, if this is possible (ideally, these would even be part of the paper, as an Appendix, but this is not possible considering the 8000-word-limit)

The second part (Figures O1 to O3) could also form part of an online Appendix but are not absolutely necessary.

Table A1: Overview over sample characteristics

gender	**n**	**per cent (unweighted)**	**per cent (weighted)**
men	2994	47,27	49,67
women	3340	52,73	50,33
birth cohort			
men			
1916-27	362	12,09	11,17
1928-37	780	26,05	22,80
1938-47	1005	33,57	34,20
1948-57	847	28,29	31,84
women			
1916-27	462	13,83	15,24
1928-37	849	25,42	23,21
1938-47	1090	32,63	32,60
1948-57	939	28,11	28,95
educational qualification			
men			
high	1267	42,33	38,80
middle	1084	36,22	36,42
none	642	21,45	24,78
women			
high	870	26,05	22,88
middle	1352	40,48	39,11
none	1118	33,47	38,01

Table A2: Further cluster characteristics

	cluster 1	**cluster 2**	**cluster 3**	**cluster 4**	**cluster 5**	**cluster 6**	**cluster 7**	**cluster 8**	**total**
gender	n								
men	1,032	1,194	59	180	233	1	257	38	2994
women	316	949	576	261	234	659	215	130	3340
educational qualification	per cent within clusters (weighted)								
high	52.81	25.07	14.87	28.86	34.67	20.68	36.96	10.50	30.78
middle	31.21	40.65	36.48	42.26	37.63	42.85	34.67	35.66	37.78
none	15.99	34.28	48.65	28.88	27.70	36.46	28.37	53.83	31.44
number of children	per cent within clusters (weighted)								
men									
0	0	0	0	0	95.89	0	89.43	33.75	16.12
1	26.4	14.79	10.22	22.70	2.95	0	3.58	12.88	16.97
2	47.66	46.94	36.38	48.83	0.38	100	4.90	24.03	39.26
3 or more	25.94	38.27	53.40	28.48	0.79	0	2.09	29.34	27.65
women									
0	0	0	0	0	99.47	0	92.51	31.16	13.39
1	43.06	17.09	16.27	28.30	0.53	13.14	5.42	12.78	17.47
2	39.78	45.21	48.12	44.95	0	46.01	0.44	15.24	38.42
3 or more	17.16	37.70	35.62	26.75	0	40.85	1.63	40.81	30.72

Table A3: Multinomial Logit Model for cluster membership, men (cluster 6 excluded) relative risk ratios (95%-confidence interval in brackets)

	birth cohort (reference: 1916-27)			**educational qualification (reference: high)**	
	1928-37	**1938-47**	**1948-57**	**middle**	**low**
cluster 1	0.60***	0.51***	0.73*	0.50***	0.32***
	(0.46-0.80)	(0.39-0.68)	(0.54-0.98)	(0.41-0.61)	(0.25-0.41)
cluster 2 (base outcome)					
cluster 3	0.58	1.20	3.21*	1.75	3.00**
	(0.20-1.66)	(0.46-3.14)	(1.26-8.20)	(0.89-3.43)	(1.46-6.17)
cluster 4	1.12	2.00*	3.52***	1.06	1.13
	(0.55-2.29)	(1.02-3.92)	(1.78-6.96)	(0.74-1.53)	(0.73-1.74)
cluster 5	0.65	0.87	1.65	0.74	0.58**
	(0.38-1.10)	(0.53-1.43)	(1.00-2.73)	(0.54-1.02)	(0.38-0.87)
cluster 7	0.91	1.30	2.62***	0.97	1.28
	(0.53-1.56)	(0.78-2.17)	(1.56-4.40)	(0.71-1.34)	(0.89-1.84)
cluster 8	2.00	4.31	22.18**	2.02	6.70***
	(0.23-17.30)	(0.54-34.60)	(2.91-169.06)	(0.80-5.14)	(2.69-16.72)
n=2992; log likelihood = -4180.58; pseudo R^2= 0.033 *p<=0,05 **p<=0.01 ***p<=0.001					

Table A4: Predicted Probabilities for cluster membership, men (cluster 6 excluded) (as shown in Graph 3 in main text)

		educational qualification		
	birth cohort	high	middle	none
cluster 1: longer education, later marriage and family formation with continuous career	1916-27	0,593	0,429	0,318
	1928-37	0,485	0,324	0,228
	1938-47	0,411	0,262	0,176
	1948-57	0,423	0,269	0,168
cluster 2: early marriage and family formation, some short breaks from work	1916-27	0,273	0,396	0,459
	1928-37	0,370	0,496	0,545
	1938-47	0,372	0,474	0,496
	1948-57	0,267	0,340	0,333
cluster 3: mothers dropping out of the labour market and other non-working married parents	1916-27	0,006	0,014	0,028
	1928-37	0,004	0,010	0,020
	1938-47	0,009	0,021	0,037
	1948-57	0,018	0,039	0,066
cluster 4: working long-term divorcees with children	1916-27	0,020	0,031	0,038
	1928-37	0,031	0,044	0,051
	1938-47	0,055	0,075	0,083
	1948-57	0,070	0,094	0,098
cluster 5: childless married (and partly divorced)	1916-27	0,068	0,073	0,066
	1928-37	0,059	0,059	0,051
	1938-47	0,080	0,076	0,062
	1948-57	0,110	0,103	0,079
cluster 7: never, briefly or late married, without children	1916-27	0,039	0,055	0,085
	1928-37	0,049	0,063	0,092
	1938-47	0,069	0,086	0,119
	1948-57	0,101	0,125	0,161
cluster 8: heterogeneous patterns of long-term non-employment	1916-27	0,001	0,002	0,006
	1928-37	0,001	0,004	0,014
	1938-47	0,003	0,008	0,028
	1948-57	0,011	0,029	0,095

Table A5: Multinomial Logit Model for cluster membership, women, relative risk ratios (95%-confidence interval in brackets)

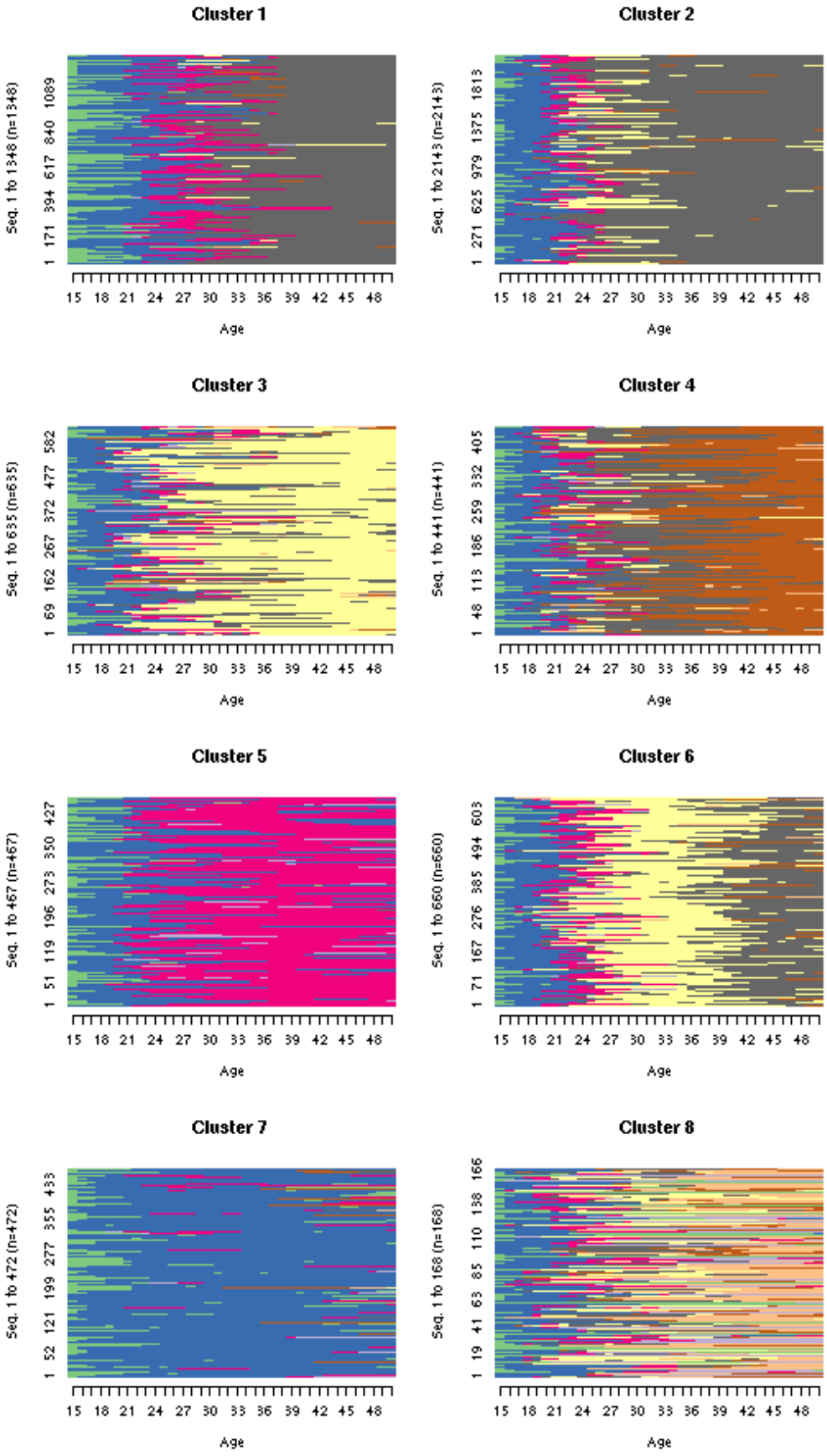
	birth cohort (reference: 1916-27)			**educational qualification (reference: high)**	
	1928-37	**1938-47**	**1948-57**	**middle**	**low**
cluster 1	0.61	0.49**	0.68	0.18***	0.11***
	(0.37-1.01)	(0.30-0.80)	(0.42-1.10)	(0.13-0.25)	(0.07-0.16)
cluster 2 (base outcome)					
cluster 3	0.48***	0.30***	0.26***	0.99	1.10
	(0.35-0.68)	(0.21-0.42)	(0.18-0.37)	(0.74-1.34)	(0.81-1.50)
cluster 4	0.83	1.30	1.84*	0.69*	0.58**
	(0.44-1.57)	(0.72-2.34)	(1.02-3.33)	(0.49-0.97)	(0.40-0.85)
cluster 5	0.43**	0.44***	0.54*	0.57**	0.58**
	(0.26-0.70)	(0.27-0.69)	(0.33-0.87)	(0.40-0.83)	(0.39-0.85)
cluster 6	0.67*	0.42***	0.40***	0.78	0.59***
	(0.47-0.95)	0.30-0.59)	(0.28-0.58)	(0.60-1.01)	(0.44-0.78)
cluster 7	0.34***	0.19***	0.34***	0.30***	0.17***
	(0.21-0.55)	(0.11-0.30)	(0.21-0.54)	(0.21-0.43)	(0.11-0.26)
cluster 8	0.48*	0.74	1.24	1.67	2.66**
	(0.24-0.96)	(0.40-1.40)	(0.66-2.34)	(0.90-3.08)	(1.43-4.95)
n=3340; log likelihood = -6070.61; Pseudo R^2= 0,0395 *p<=0,05 **p<=0.01 ***p<=0.001					

Table A6: Predicted Probabilities for cluster membership, women (as shown in Graph 4 in main text)

		educational qualification		
	birth cohort	high	middle	none
cluster 1: longer education, later marriage and family formation with continuous career	1916-27	0,197	0,058	0,039
	1928-37	0,207	0,057	0,037
	1938-47	0,209	0,056	0,036
	1948-57	0,241	0,070	0,045
cluster 2: early marriage and family formation, some short breaks from work	1916-27	0,112	0,182	0,200
	1928-37	0,193	0,291	0,318
	1938-47	0,240	0,353	0,376
	1948-57	0,202	0,321	0,344
cluster 3: mothers dropping out of the labour market and other non-working married parents	1916-27	0,165	0,267	0,325
	1928-37	0,137	0,206	0,250
	1938-47	0,106	0,154	0,183
	1948-57	0,076	0,121	0,144
cluster 4: working long-term divorcees with children	1916-27	0,033	0,037	0,034
	1928-37	0,047	0,049	0,045
	1938-47	0,092	0,093	0,084
	1948-57	0,109	0,120	0,108
cluster 5: childless married (and partly divorced)	1916-27	0,082	0,077	0,085
	1928-37	0,061	0,053	0,058
	1938-47	0,077	0,065	0,070
	1948-57	0,080	0,073	0,079
cluster 6: mothers with a longer work break, but returning to the labour market	1916-27	0,199	0,252	0,208
	1928-37	0,230	0,270	0,222
	1938-47	0,180	0,205	0,165
	1948-57	0,144	0,178	0,144
cluster 7: never, briefly or late married, without children	1916-27	0,203	0,100	0,063
	1928-37	0,118	0,054	0,034
	1938-47	0,081	0,036	0,022
	1948-57	0,124	0,060	0,037
cluster 8: heterogeneous patterns of long-term non-employment	1916-27	0,010	0,026	0,046
	1928-37	0,008	0,020	0,035
	1938-47	0,016	0,038	0,065
	1948-57	0,022	0,058	0,099

Further Appendix (if possible)

Figure O1: Index plots showing the single trajectories over time (legend below)



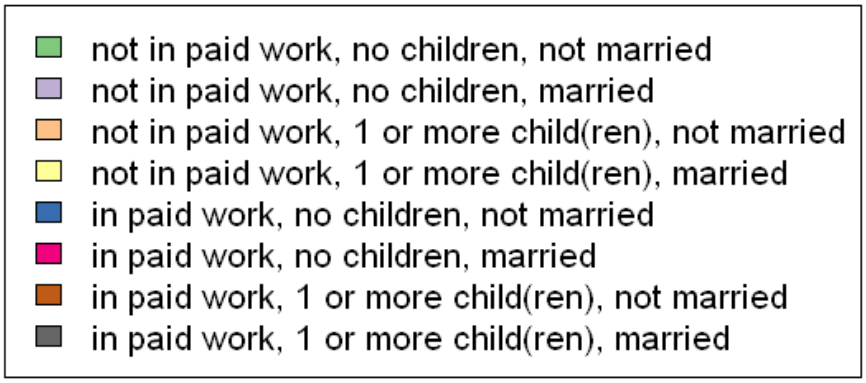
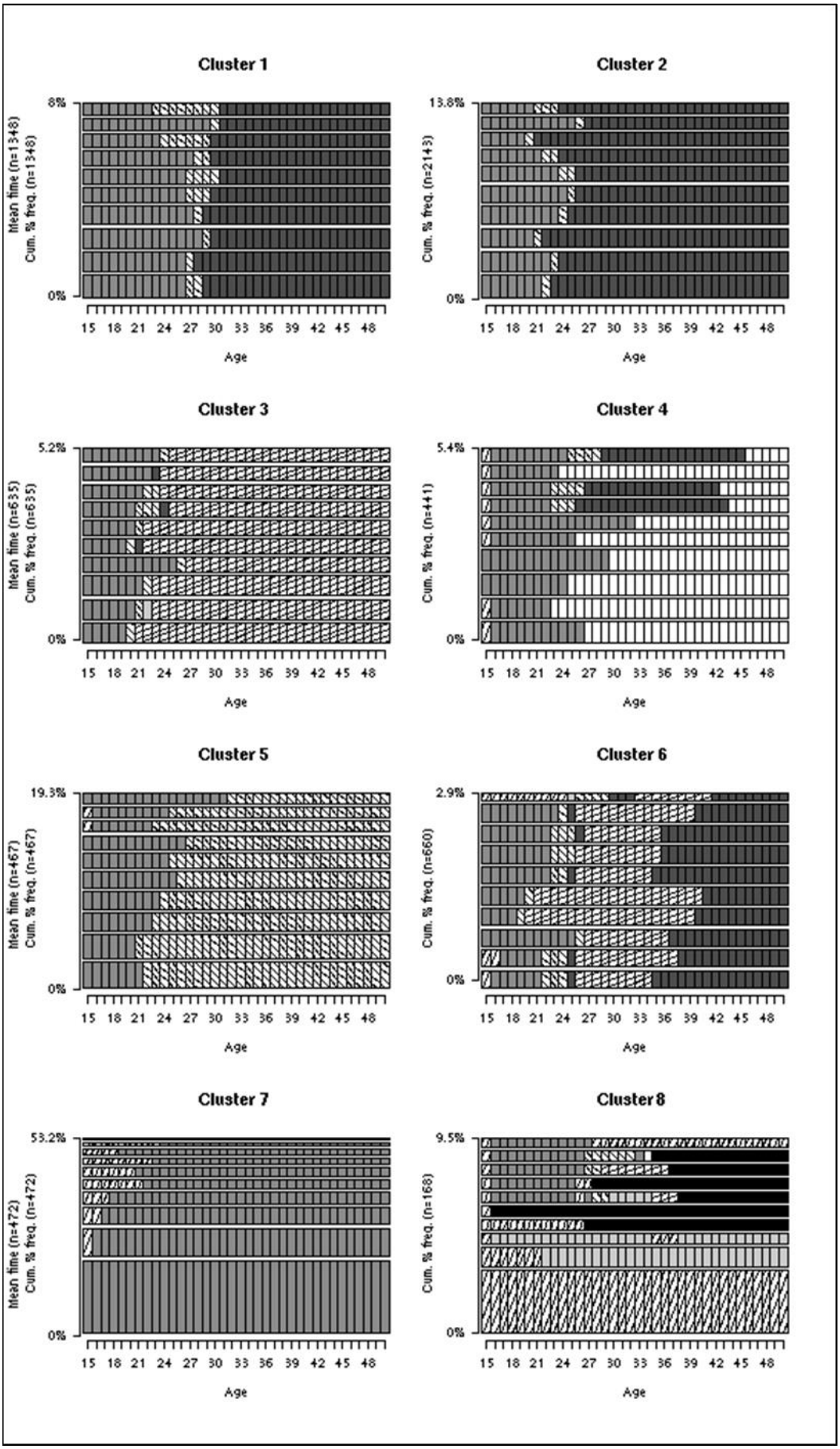

not in paid work, no children, not married
not in paid work, no children, married
not in paid work, 1 or more child(ren), not married
not in paid work, 1 or more child(ren), married
in paid work, no children, not married
in paid work, no children, married
in paid work, 1 or more child(ren), not married
in paid work, 1 or more child(ren), married

Figure O2: Ten most frequent sequences in each cluster (legend below)



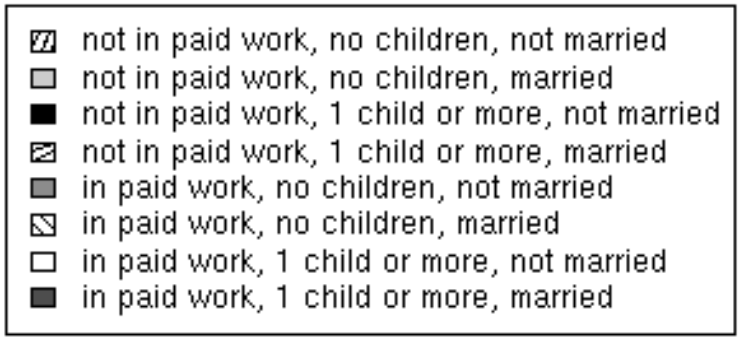

not in paid work, no children, not married
not in paid work, no children, married
not in paid work, 1 child or more, not married
not in paid work, 1 child or more, married
in paid work, no children, not married
in paid work, no children, married
in paid work, 1 child or more, not married
in paid work, 1 child or more, married

Figure O3: Mean Time spent in each state, by cluster (see above for legend)