

Girls' transition to adulthood and their later life socioeconomic attainment: Findings from the English Longitudinal Study of Ageing

Highlights

- Exits from full-time education represent a sensitive period for setting people into particular life course trajectories.
- Sequence analysis shows that both the timing and nature of exits from full-time education are important.
- Later transitions into employment were associated with higher socioeconomic attainment after age 50.
- Early transitions to domestic work were associated with lower socioeconomic attainment after age 50.
- Educational qualifications, life course employment and family factors played a mediating role in some of the associations seen.

Abstract

Transitions to adulthood represent a sensitive period for setting young people into particular life course trajectories, and the nature of these transitions have varied more for girls, historically, than for boys. We aim to investigate the long-term significance of different transitions out of full-time education for socioeconomic attainment in later life amongst postwar young women in England. Our data are from the English Longitudinal Study of Ageing for girls born during World War II and the post-war period (1939–1952, n=1798). Using sequence analysis, we identified six types of transition out of full-time education between ages 14 and 26: *Early-Work*, *Mid-Work*, *Late-Work*, *Early-Domestic*, *Late-Domestic*, and *Part-time Mixed*. We used linear and multinomial regression models to examine associations between transition types and socioeconomic attainment outcomes from age 50, including individual income, household income and wealth, and occupational class. Our study found that later transitions into employment (*Mid-Work* and *Late-Work*) were associated with higher socioeconomic attainment after age 50 compared with women who made early transitions from education to employment (*Early-Work*); much of the advantage of making later transitions to employment was due to higher educational attainment. We also found that early transitions to domestic work (*Early-Domestic*) set young women onto trajectories of lower socioeconomic attainment than compared with those who made early transitions to employment, suggesting the nature of the transition from full-time education is as important as the timing, perhaps uniquely for women. A pathway of cumulative advantage/disadvantage is also evident in our study; results suggest a partial mediating role for educational attainment in associations between childhood social class and later life socioeconomic attainment.

Keywords

Sequence analysis; Transitions to adulthood; Exits from full-time education; Socioeconomic attainment; Life course; ELSA

1. Introduction

Exits from full-time (FT) education in adolescence or early adulthood represent a pivotal period for setting young people onto particular adult trajectories of advantage or disadvantage. Structural differences in the life paths available to men and women have meant that women experience greater interdependence between family and work, and more variation in the nature of transitions to adulthood than men (Madero-Cabib & Fasang, 2016; Ross, Schoon, Martin, & Sacker, 2009; McMunn et al., 2015). For example, there is evidence that women are more likely to make work and family-related transitions earlier (the traditional family class) than men (Ross et al., 2009), and life courses involving part-time employment or a career break remain common for women even in the more recent cohorts (Lacey et al., 2017; McMunn et al., 2015). Exits from FT education are likely to have been particularly meaningful for the generations of women in the UK who are currently post-state-pension age. For these women, early marriage, often quickly followed by parenthood, was the norm, and FT homemaking was a common alternative to employment after leaving school (Lacey et al., 2017). These life course transitions in this historical and cultural context may have implications for subsequent inequality in women's socioeconomic attainment, and therefore, possibly greater life course inequality for this generation of women. Most previous studies have focused on the influence of the timing and occurrence of single event transitions into adulthood (e.g. education, unemployment) (e.g. Brandt & Hank, 2014; Carnevale, Rose, & Cheah, 2013; Carr et al., 2018). While studies applying a more holistic approach to capture the nature or sequence of several life course events mainly assessed the concurrent or short-term influences of life course transitions of young people (e.g. Maggs, Jager, Patrick, & Schulenberg, 2012; Sacker & Cable, 2018; Schoon, Chen, Kneale, & Jager, 2012), there remains a lack of understanding of the life course ramifications of the distinct pathways young people take when making the transition from FT education.

Our study aims to investigate the *long-term* life course impact of exits from FT education on socioeconomic attainment in midlife and after. Using the English Longitudinal Study of Ageing (ELSA), the first aim of the present study is to characterise the timing and nature of transitions out of FT education for girls born between 1939–1952 using sequence analysis. These girls are now part of the largest ever group of over 65s in Britain, and their later life experiences are likely to be partly attributable to their youth experiences. The second aim is to assess whether different exits from FT education are associated with later life socioeconomic attainment, in

particular, their own occupational class and income, as well as their household level income and wealth using linear and multinomial logistic regression models. The third aim is to investigate which life course pathway factors might explain or contribute to the associations between transitions out of FT education and later life socioeconomic attainment, by including educational attainment, and a variety of family, health and employment characteristics in regression models.

2. Theoretical background

2.1 Life course processes of advantages and disadvantages

The life course perspective recognizes that individual lives are best understood within the context of previous experiences (Elder, 1994, 1998), and different theoretical life course models have been proposed. The ‘cumulative advantage/disadvantage’ model suggests those with advantaged origins tend to experience subsequent advantageous life course trajectories (O’Rand, 1996, 2009), resulting in increasing differences with underprivileged groups over time (Dannefer, 2003). The ‘path dependency’ model hypothesises that the effect of early disadvantage is indirect (Graham, 2002). It highlights the different factors, such as lifestyles and educational achievement, that can act as mediators between early life social situations and advantages/disadvantages at later life.

A large body of research has documented the pivotal role of education in the inter-generational transmission of adversity (Crosnoe, Mistry, & Elder, 2002). Children from less advantaged families (characterised by low levels of parental education, low income, unemployment, single or early parenthood, or poor housing conditions) show, in general, lower levels of educational attainment than their more privileged peers (Breen & Goldthorpe, 2001; Bukodi & Goldthorpe, 2013; Erola, Jalonen, & Lehti, 2016). Education, in turn, provides the foundation for the accumulation of multiple forms of life course capital, including human capital, social capital, psychophysical capital (mental and physical health), and personal capital (self-esteem, efficacy, and identity) (O’Rand, 2006). Research derived from human capital theory has emphasised the contribution of early life education to income and employment differentials across the life course. For example, there is evidence that older people’s income sources were highly education-dependent (Crystal, Shea, & Reyes, 2017) and education contributes to the probability of making transitions into poverty at late life (McLaughlin & Jensen, 2000). For women born in the early post-war period in the UK, work by Kuh et al. (1997) has shown that

educational achievement strongly determinates their midlife earnings. Using seven prospective cohorts in Nordic countries, Carr et al. (2018) found that low levels of educational attainment were associated with increased risks of early retirement, and several studies have concluded that fewer years of education increase the probability of receiving disability pension at mid or older age in different population samples (Hagen, Holte, Tambs, & Bjerkedal, 2000; Johansson, Leijon, Falkstedt, Farah, & Hemmingsson, 2012; Krokstad, Johnsen, & Westin, 2002).

In addition, individuals who form partnerships or marry often have relatively equal levels of educational attainment (a process often referred to as educational homophily) (Blossfeld, 2009). Studies have shown that homophily within couples at all levels of education across countries contributes to the inequality of household income and couples' employment trajectories (Greenwood, Guner, Kocharkov, & Santos, 2014; Verbakel, Luijkx, & de Graaf, 2008; Visser & Fasang, 2018). Educational homophily within couples may act as another factor which makes education particularly important for setting individuals into life course advantage or disadvantage (DiPrete & Eirich, 2006; Verbakel et al., 2008).

2.2 Transitions to adulthood as a sensitive life course period

Among life course transitions, transitions to adulthood have been identified as unique in their complexity and importance. Transitions to adulthood involve multiple and inter-related status changes, each of which brings with it new challenges and opportunities which may exert long-lasting effects across the life course (Schulenberg, Sameroff, & Cicchetti, 2004). This is a period of the life course in which many young people have obtained the level of education and training that will provide the foundation for their adult lives, which makes it a potentially pivotal life transition (Buchmann & Kriesi, 2011; Schulenberg, Maggs, & O'Malley, 2003), although it is important to recognise that a substantial proportion of people return to education after a previous exit so that initial exits are not always final.

The life course perspective draws attention to the timing of adolescent transitions as potentially having long-term consequences through effects on subsequent transitions (Elder, 1994, 1998; Kuh, Ben-Shlomo, Lynch, Hallqvist, & Power, 2003; Shanahan, 2000). For example, a number of previous studies have linked early school leaving with low-paying, low-status, and less continuous paid employment in adulthood (Pailhé, Robette, & Solaz, 2013; Worts, Sacker, McMunn, & McDonough, 2013) and early school-leavers have been shown to be less likely to

form enduring partnerships but more likely to enter parenthood early (Falci, Mortimer, & Noel, 2010). Early school leaving age has also been linked with poor adult mental health (Ferdinand, Stijnen, Verhulst, & van der Reijden, 1999; Gutman & Sameroff, 2004; Rutter, Kim-Cohen, & Maughan, 2006). Those with higher education have been shown to be the most likely to combine continuous employment with childless or delayed parenthood (McMunn et al., 2015), and to be better able to purchase reliable childcare, and thus maintain strong ties to both employment and family (Joshi, 2002; Ward, Dale, & Joshi, 1996).

As well as the importance of the timing of transitions out of FT education, the life course perspective recognises that transitions have different meanings, antecedents, and consequences depending on the nature of transitions, that is how they fit into larger sequences or trajectories (Silke Aisenbrey & Fasang, 2010; Elder, 1994, 1998). Transition into adulthood is a demographically dense period which typically involves a series of transition events, including exiting FT education, entering the workforce, leaving the parental home, partnership formation and possible parenthood (Arnett, 2000; Schulenberg et al., 2004; Shanahan, 2000). These transition events accumulate and partially overlap, and each transition may demarcate a turning point for later life course. Studies focused on a complex set of transitions, including education, employment, housing, marital status, and parenthood, have argued that young adults who achieve multiple transitions to adulthood have better wellbeing in their mid-20s or early-30s than those who have yet to achieve them (Maggs et al., 2012; Rääkkönen, Kokko, Chen, & Pulkkinen, 2012; Sacker & Cable, 2018; Salmela-Aro, Taanila, Ek, & Chen, 2012; Schoon et al., 2012). However, it is worth noting that there is considerable heterogeneity in youth experiences, with a variety of transition combinations linked with high levels of life satisfaction and well-being. For example, Schoon and Lyons-Amos (2017) recently found that not all young people are inclined to pursue an academic career and instead those that select vocational training or further education, enabling them to experience competence and life satisfaction in their early-30s.

Rather than focusing on the occurrence and timing of one single event (e.g. education or unemployment), an increasing number of studies have advocated or applied a more holistic approach to capture both timing and nature of life course events (Aassve, Billari, & Piccarreta, 2007; Abbott & Tsay, 2000; Martin, Schoon, & Ross, 2008), and sequence analysis is one of the most promising methods (Aisenbrey & Fasang, 2010; McDonough, Worts, Booker, McMunn, & Sacker, 2015; McMunn et al., 2015). However, only one of these holistic studies

has focused on how different transitions into adulthood influence individuals' later life. By sequencing labour market participation at early and mid-adulthood, Wahrendorf et al. (2017) found that those who had strong ties to the labour market during early life tended to have histories of FT work up until and beyond age 60. This study focused on later life labour market participation, but how transitions out of education may influence other later life circumstances is unknown.

2.3 Adolescent transitions in historical context

Life course theory also suggests that individual biographies are best understood in the historical and cultural contexts in which they unfold (Elder, 1998; Shanahan, 2000). Like other significant life transitions, the transition to adulthood is embedded in a sociocultural context which influences young people's behaviour and life course transitions and trajectories as well as the meaning of transitions for individuals (Elder, 1998; Elder & Rockwell, 1979; Schulenberg et al., 2004; Shanahan, 2000). Women who left school in Britain in the late 1950s and 1960s were among the first to plan their futures free from the constraints of austerity as rationing ended in 1954 and Britain emerged as an 'affluent' society. They were beneficiaries of the Welfare State, the expansion of further and higher education, a buoyant youth labour market in which girls could earn relatively good wages, the ascendancy of youth culture and a consumer boom (Dyhouse, 2010; Spencer, 2005). Many girls were, however, less interested in being young and single than in the prospect of early marriage. In 1960, 26.4% of girls under 20 years of age were married compared to 11.4% in 1936-40, and although young brides were predominantly from the working class, the trend transcended class (Dyhouse, 2006) and was one reason why the age of majority was reduced from twenty-one to eighteen in 1969 (put into practice from 1970). In the 1950s and 1960s, and unlike the interwar years, it was assumed that girls would enter paid employment before marriage and motherhood (Dyhouse, 2010; Spencer, 2005; Todd & Young, 2012). Contemporary surveys reveal that some girls also expected to return to the labour market after they had raised a family (Dyhouse, 2013). This expectation reflected the increase in married women's employment encouraged by postwar labour shortages and its dissociation from poverty (McCarthy, 2017; Spencer, 2005).

Like many countries, the UK has seen dramatic changes in the nature of work, family and the normative gender divisions between them over the past few decades (Figures 1s-3s in the appendix show the changes in marriage, employment and education patterns between women

and men over time in the UK). Generations of women in the UK who are currently post-state-pension age experienced greater diversity than more recent generations of women in their employment trajectories as women increasingly maintain strong ties to paid work (McMunn et al., 2015). Previous cohorts of women were much more likely than subsequent cohorts to have transitioned to domestic work and looking after a family FT (Lacey et al., 2017), which may have contributed to greater gender inequality between women of older generations in terms of their own occupational and financial attainment.

3. This study

Much previous research on the impact of transitions from FT education has focused on the long-term effect of a single event, such as the age of exit or qualifications received, without consideration of the destination roles and activities that are transitioned to (Brunello & Paola, 2014; Carr et al., 2018; Sacker & Cable, 2010). The only study to characterise the timing, nature and pattern of exits from FT education holistically considered associations with later labour market participation (Wahrendorf et al., 2017). We extend this work by moving beyond participation per se and investigating links with socioeconomic attainment in later life. As women who transitioned from FT education in the late 1950s and 1960s when the traditional breadwinner model was at its height reach older age, we are now able to characterise the longer-term life course associations between their various transitions to adulthood and later life circumstances, such as socioeconomic attainment. In recognition of the continuity and dependencies of life course events, our study characterises the distinct timing and nature of transitions out of FT education among English girls who were born during World War II and the post-war years, and we examine how different exits from FT education are associated with socioeconomic attainment in later life. Our data are women from the ELSA who were aged 50-63 at baseline (born between 1939–1952, n=1798). We use sequence analysis to identify types of transition out of FT education between age 14 and 26 and use linear regression and multinomial logistic regression models to assess the association between transitions out of FT education and individual income, occupational class, household income and household wealth at age 50+. We also investigate the contribution of life course pathway factors to these associations by including childhood circumstances, educational attainment, and a variety of adult family, health and employment characteristics in regression models.

4. Method

4.1. Study sample

We used the first seven waves of the ELSA, a nationally representative sample of people aged 50 years and over living in private households in England that started in 2002-2003. The structure of ELSA data collection and sample sizes across waves 1-7 are shown in Figure 1. Longitudinal response rates (defined here as the proportion of core members who have been interviewed at every wave of the study from those who were eligible at each wave) were 82% at wave 2, 71% at wave 3, 63% at wave 4, 59% at wave 5, 56% at wave 6, and 51% at wave 7. At wave 3 (2006/07), a life history interview was conducted to collect retrospective information in a number of different areas such as education, employment, partnership and fertility transitions, health, and specific life event (Step toe, Breeze, Banks, & Nazroo, 2013). The ‘event history calendar’ was used to help respondents in remembering prior life events (Belli, Shay, & Stafford, 2001). This method is in the form of a calendar, which shows time across the top and multiple rows down its side which make it possible to record different kinds of events in respondents' lives. Our analytic sample are women who born between 1939 and 1952 and have participated in the life history interview at wave 3 and have at least one wave measure of later life socioeconomic attainment between wave 1 and wave 7. Non-core sample members (n=88) were excluded from the analyses, as they were not designed to be nationally representative and thus have zero sampling weighting. The sample size for this study is 1,798, and the process of sample selection can be found in Figure 2.

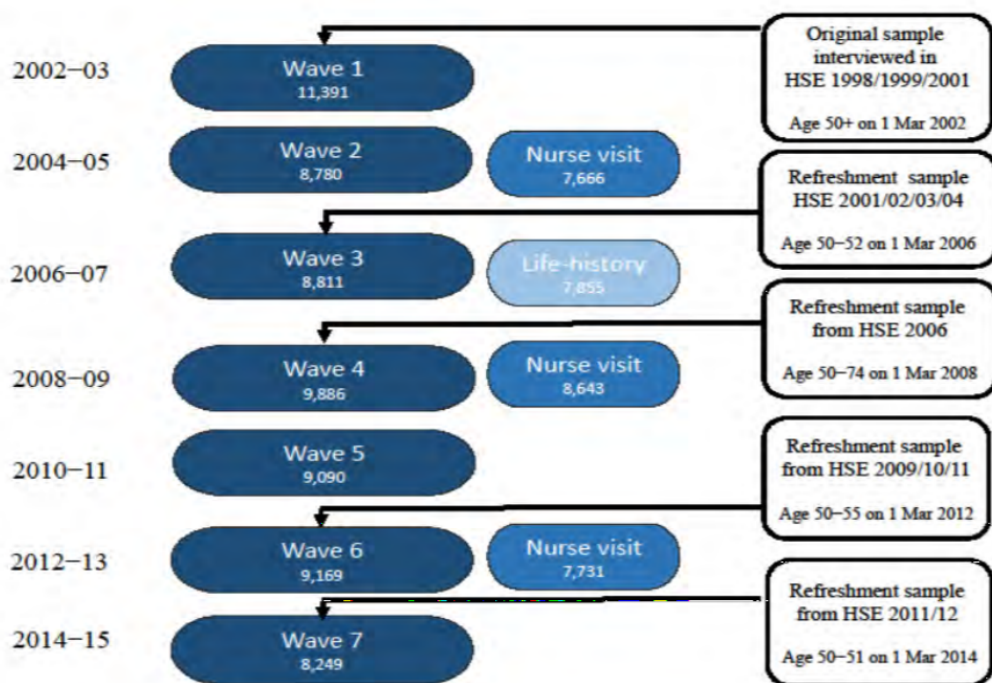


Figure 1. Data collection in ELSA waves 1-7 (sample sizes are for the core sample)
 Source: ELSA Wave 7 technical report. The Dynamics of Ageing: Evidence from the English Longitudinal Study of Ageing 2002 – 15

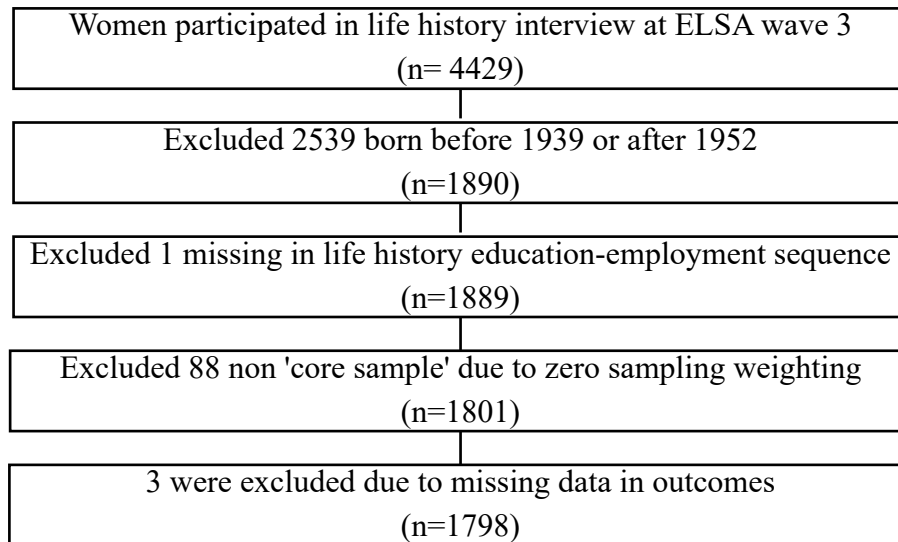


Figure 2. Flowchart of sample selection

4.2. Measures

4.2.1. Girls' transition to adulthood

A life history interview at wave 3 retrospectively collected information on the age when participants finished FT education, the age when they began and finished each paid job, whether that job was FT or part-time (PT), and the situation between jobs or before first job (including in education/training, short-term job, unemployed and searching for a job, unemployed but not searching for a job, looking after home or family, looking after a sick or disabled relative or friend, sick or disabled, voluntary work, and other). Using this data, we categorised each participant into FT education, FT work, PT work, unemployment (unemployed and searching or not searching for a job), FT domestic work (looking after home/family/relative/friend) or other non-employed (sick/disabled/voluntary work/other) for each year between ages 14-26 years. Sixteen women reported both being unemployed and doing domestic work. In these cases, we treated women as doing domestic work if they were not searching for a job, and as unemployed if they were searching for a job. We extend this transition period to age 14 as the start point, which is one year earlier than the school leaving age that time, to make sure the transition out of FT education is observed by our analysis. Age 26 was chosen as the endpoint of transition into adulthood, which is the age by which most

young women married (89.2% in our sample). We then used sequence analysis to group girls with similar transition patterns (see 4.3. Statistical analysis).

4.2.2. Later life socioeconomic attainment

Financial security, including income and wealth, is a key factor enabling older people to enjoy life, while occupational class structures access to employment relations and conditions which may foster or limit employment and financial security. Own occupational class, individual income, household income and household wealth were used as indicators of later life socioeconomic attainment outcomes in this study. Occupational class was measured by the National Statistics Socio-economic Classification (NS-SEC). The NS-SEC is the current standard UK social class qualification that was derived from the Goldthorpe Schema. We use the three-class version of the NS-SEC, including ‘managerial and professional occupations’, ‘intermediate occupations’, and ‘routine and manual occupations’. Income was calculated as the sum of employment income, self-employment income, state pension income, private pension income, state benefit income, asset income (only measured at the benefit unit level and not used when calculating individual level income) and other income. Household income was measured at the benefit unit level (a single person or a couple) and household size was considered using the OECD equivalence scale, which assigns a weight of 0.5 to second adults and dependent children aged 14 and over and a weight of 0.3 to children under 14 years of age (Oldfield, 2011). Household wealth was calculated as gross financial wealth minus financial debt. Income and wealth were divided by the yearly consumer price index to take account of the fluctuation over time. These socioeconomic attainment outcomes were measured in every wave of ELSA; thus, each participant will have up to seven time points of repeated measures of socioeconomic attainment. To better reflect the distribution of socioeconomic outcomes across waves, we averaged individual income, household income, and household wealth across waves, and we used the most frequently reported occupational class, as later life socioeconomic attainment outcome. The distributions of the average individual income, household income and wealth were skewed, and thus, were log transferred to have normal distributions.

4.2.3. Covariates

All models controlled for year of birth (continuous), and early life conditions, including occupation of father at age 14 (manager/professional, non-manual, manual), whether parents separated before age 16, and childhood health (good, poor). Potential life course pathway

variables including education, family factors, later life health conditions, and life course employment history were included. Highest educational qualification was measured in six categories, including degree (International Standard Classification of Education-ISCED level 6), higher education below degree (ISCED level 4 and 5), A-level (ISCED level 3), O-level (ISCED level 2), foreign/other, and no qualification. Family factors included number of children ever had (0, 1, 2, 3 or more), age of first birth (rescaled 0-35 with 0 for those without children), partner's employment (in work, not in work, no spouse), and partner's highest educational qualification (higher than A-level, A-level or O level, lower than O-level, no partner, missing). Health conditions included depressive symptoms (≥ 4 of CESD-8) and long-standing illness (Banks, Nazroo, & Steptoe, 2014). Long-standing illness was grouped into limiting long-standing illness (LLSI), long-standing illness without limitations (LSI), and no long-standing illness. Long-standing illness, depressive symptoms, partner's employment, and partner's education may be time-varying, thus were measured at wave 3 (all sample have participated in wave 3). Life course employment variables were years of FT working, PT working, and no working between transitions and outcomes (ages 27-49 years).

4.3. Statistical analysis

4.3.1. Sequence analysis

In the sequence analysis, we applied a modification of optimal matching analysis, dynamic Hamming (DH) (Lesnard, 2010), to identify girls' transition types between age 14 and 26. Like all optimal matching analysis, DH has at its heart the calculation of distance measures. DH uses information on states at each age in the biographical sequence (in our case, education/employment statuses between age 14 and 26), and calculates a distance measure representing the 'cost' of converting one person's sequence to another's (McDonough et al., 2015). Unlike standard algorithms, DH avoids insertions and deletions, thus the timing of transitions to alternate states is preserved when calculating the distances between sequences, which accords well with our interest in the timing of girls' transition. Individuals are then clustered empirically, and stopping rules are used to determine the number of clusters. Calinski-Harabasz (CH) pseudo F index and the Duda-Hart $Je(2)/Je(1)$ index are the two most commonly used stopping rules. For both rules, larger values indicate more distinct clustering. We calculated these two stopping values and investigated the chronograms for each cluster solution from two to 20 clusters. Details of the stopping values are shown in the appendix (chronograms are not shown). Based on these two stopping indexes, the two-group solution was the most distinct, but failed

to represent adequate variation in girls' transitions. The six-group solution had reasonable high values for both stopping rules, and the unique patterns identified by this solution were of theoretical interest and none of the six clusters had a very small sample size. We thus used the six-group solution, and based on their characteristics, labelled them as: *Early-Work*, *Mid-Work*, *Late-Work*, *Early-Domestic*, *Late-Domestic*, and *PT mixed*. Descriptions of transition types were presented in Figure 2 and Table 1 (see 5. Results for details).

4.3.2 Regression models

Chi-square test was used in the descriptive analysis of girls' transition types, and multinomial logistic regression was used to assess which early-life characteristics predicted girlhood transition types. Birth cohort, father's occupation, parents' separation, childhood health and education were added to the model each first individually and then simultaneously. Results of multinomial logistic regression are converted to average marginal effect (AME). AME results are comparable across the models with different independent variables and are more intuitive to read than the odd ratios (Mood, 2010). AME shows how substantial the effects are by showing the increased or decreased percentage points compared to the reference group.

Regression models were applied to assess whether girls' transition types between ages 14-26 were related to their socioeconomic attainment at age 50+. Linear regression was used for continuous socioeconomic attainment outcomes (individual income, household income, and household wealth). Because income and wealth measures were log transferred, their results are shown in percentages, which were calculated as $\exp(\beta) - 1$. Multinomial regression was used for the categorical outcome (occupational class), and results are shown in AME, which gives information on differences in probabilities (percentage points) of being in each occupational class. We chose the *Early-Work* as the reference group, as it was the most common type of girls' transition in this study. For each form of socioeconomic attainment, we first show the results from the basic model (Model 1). This basic model adjusted for year of birth and early life conditions including father's occupational class, parents' separation, and childhood health. To assess the extent to which life course pathway factors from each domain might separately explain or contribute to the associations between transitions to adulthood and later life attainment found in Model 1, highest educational qualification, family factors, later life health conditions, and life course employment variables were added to Model 1 each first individually and then simultaneously.

4.3.3 Moderation

We tested for potential moderation by father's occupational class (manager/professional, non-manual, manual) and birth cohort (born during/after the war), by adding interaction terms between girlhood transitions and father's occupational class or birth cohort to models. The magnitude and statistical significance of interaction terms cannot be interpreted straightforwardly in nonlinear models (Ai & Norton, 2003). Therefore, for occupational class, we tested the moderating effect using 'contrasts of margins', which calculates the differences in the AME by the moderator variable and tests whether the differences are significant. The moderator variable is the reference-category contrast operator. Stratified analysis was conducted if the p-value of moderation is less than 0.05.

5. Results

5.1. Girls' transition to adulthood

An index plot uses line segments to graph each individual sequence in the sample as well as providing an indication of the proportion of the sample in each group. A chronogram shows the proportion of observations in each state for every time point. Figure 2. shows index plots and chronograms of six resulting types identified by sequence analysis, including *Early-Work*, *Mid-Work*, *Late-Work*, *Early-Domestic*, *Late-Domestic*, and *PT mixed*. All six girlhood biographies started with FT education.

The three biographies dominated by FT employment made transitions from FT education to FT employment around ages 15-16 years (*Early-Work*), 17-19 years (*Mid-Work*), or 21-24 years (*Late-Work*). Two types were characterised by transitions to FT domestic work after having made the transition to FT employment around ages 15-17. The *Early-Domestic* type generally transitioned to FT domestic work between ages 16-21, while the *Late-Domestic* type generally made the transition to FT domestic work after age 21. The *PT-Mixed* type started FT employment around ages 15-18, and after that their employment situations diverged. Some entered FT domestic between ages 18-20, some made transitions to PT work between ages 19-22. A small number of girls in this type (<5%) experienced unemployment or 'other' non-employed situations between ages 14-26. As shown in Table 1, 31% of girls were grouped into the *Early-Work* and 17% in the *Late-Domestic* type. The remaining *Mid-Work*, *Late-Work*, *Early-Domestic*, and *PT-Mixed* were comprised of 11-15% of the sample.

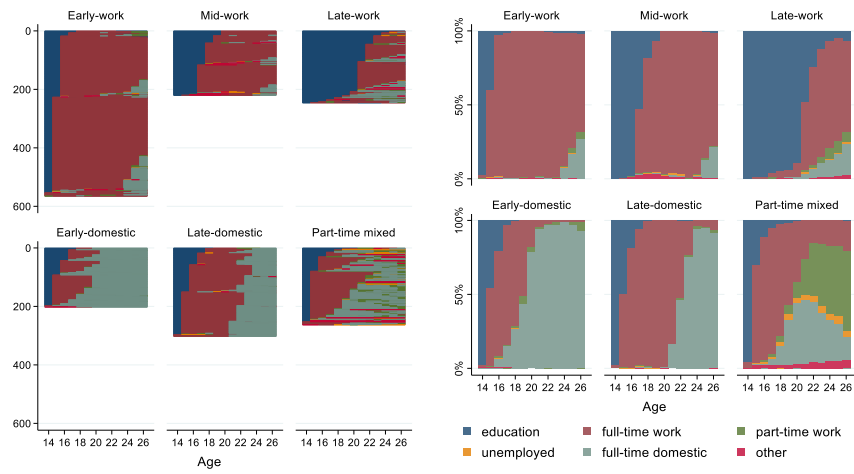


Figure 2. Index plots (left) and chronograms (right) from sequence analysis by transition types

Table 1. Distribution of girls' transition types between ages 14-26 years.

Transition types	% (n=1798)	Groups characterised by
Early-work	31.4	Transition from FT education to FT employment between ages 15-16
Mid-work	12.3	Transition from FT education to FT employment between ages 17-19
Late-work	13.7	Transition from FT education to FT employment between ages 21-24
Early-domestic	11.2	Transition from FT education to FT employment between ages 15-17, then transition to FT domestic work between ages 16-21.
Late-domestic	16.8	Transition from FT education to FT employment between ages 15-17, then almost all transition to FT domestic work between ages 21-24.
Part-time mixed	14.6	Transition from FT education to FT employment 15-18, some enter FT domestic 18-20, some enter PT work 19-22, some unemployment and 'other' (sick or disabled/ voluntary work/ other.)

5.2. Characteristics of the Transition Types

Table 2 shows the descriptive characteristics of the sample and by each transition type. In this study, 55% of girls were born after the war (1946-52). Girls in the *Late-Work* type were more likely to be born after the war, while girls in the *Late-Domestic* type were more likely to be born during the war (1939-45). On average, one in five came from a managerial/professional social class (measured by fathers' occupation), and these girls were most likely to be in the *Late-Work* (50%) and *Mid-Work* (34%) types than other types. Girls in the *Early-Work* (40%) and *Late Domestic* (45%) types were most likely to have a father working in a manual occupation, while girls who made later transitions to employment were least likely (16% for *Late-Work* and 22% for *Mid-Work*). Girls in the *Early-Domestic* type were most likely to have a father working in non-manual occupation (53%). On average, only 6% reported that parents were separated in their childhood, but the percentage was higher than 10% among girls in *Early-Domestic* and *PT-Mixed* types. 30% reported poor health during childhood, and the percentage was similar across transition types. 69% of the *Late-Work* had a degree qualification, 17% among the *Mid-Work*, and only 6% to 7% among other types. Both *Mid-* and *Late-Work* types were more likely than other types to have some higher education. The *Mid-Work* type was the most likely to have A-level (23%) and O-level (34%) qualifications, and the early transition types, either to FT employment or FT domestic work, as well as the *PT-Mixed* type, were the most likely to have no educational qualifications, ranging from 34% to 39% in these types. The *Mid-* and *Late-Work* types were most likely to have a partner in work, and both domestic work types were most likely to have a partner not in work, while the *PT-Mixed* type was most likely not to be living with a partner. Women in the *Late-Work* type were most likely to have a partner with educational qualifications higher than A-level (60%), women in the *Mid-Work* type were most likely to have a partner with A- or O-level qualifications (22%), and women in the *Early-Domestic* type were most likely to have a partner with qualifications lower than O-level (34%). The three working types had much higher percentages of never having a child (15%-19%) than the other three types (1%-4%), although women in the *Early-Work* type were most likely to have one child (23%). Women in the *Late-Domestic* type were most likely to have two children (32%) and those in the *Early-Domestic* to have three or more (63%). Women in the two domestic types and the *PT-Mixed* were more likely to have their first children before age 25, with women in the *Early-Domestic* and *PT-Mixed* most likely to have their first child before the age of 20. Women in the three working types were more likely to have their first child (if they had them) after age 25. Women in the *Late-Work* were least likely to report a long-standing

illness or be above the threshold for depressive symptoms while women in the *Early-Domestic* and *PT-Mixed* were the most likely for both.

The three working types also had the on average shortest years of not working (4-5 years) between ages 27-49, and were more likely to work FT rather than PT, especially for those *Late-Work* girls (FT=13.53 years, PT=5.76 years). Girls transitioned to the *Early-Domestic* has the longest years of not working (mean=8.09 years), and on average 8.43 years of PT working, second to the *PT-Mixed* type (mean=8.49 years).

Table 2. Descriptive life course socio-demographic characteristics by six girlhood transition types

	Early- work (n=596) %	Mid- work (n=233) %	Late- work (n=266) %	Early- domestic (n=211) %	Late- domestic (n=311) %	PT- mixed (n=272) %	Total (n= 1798) %
Birth cohort				<i>p</i> =0.004			
1939-42	25.8	24.6	17.5	24.3	29.1	17.9	23.8
1943-45	21.2	18.6	17.9	22.8	26.5	24.0	21.9
1946-49	33.5	37.7	39.8	34.2	31.1	38.8	35.3
1950-52	19.5	19.1	24.8	18.8	13.3	19.4	19.0
Father occupation				<i>p</i> <0.001			
Manager/prof	13.3	33.6	50.4	11.9	13.9	12.2	20.6
Non-manual	46.6	44.1	33.7	52.5	41.1	48.3	44.5
Manual	40.2	22.3	15.9	35.6	45.0	39.5	34.9
Parents separated				<i>p</i> <0.001			
No	89.6	89.6	97.6	82.7	89.4	81.0	88.6
Yes	5.0	5.0	1.6	10.4	5.3	11.0	6.1
Other	5.5	5.5	0.8	6.9	5.3	8.0	5.3
Childhood health				<i>p</i> =0.318			
Good	72.0	74.1	70.3	70.8	66.2	67.3	70.2
Poor	28.0	25.9	29.7	29.2	33.8	32.7	29.8
Education				<i>p</i> <0.001			
Degree	6.6	16.8	69.1	7.4	6.6	6.8	16.5
< Degree	7.6	20.9	23.6	7.9	10.9	12.2	12.7
A-level	8.1	22.7	3.7	6.4	8.0	8.4	9.1
O-level	28.9	34.1	2.9	28.2	30.1	21.7	25.0
Foreign/other	14.3	4.6	0.8	10.9	14.6	16.7	11.3
No qualification	34.5	0.9	0.0	39.1	29.8	34.2	25.4
Partner employment				<i>p</i> <0.001			
No work	32.7	29.1	27.6	40.6	40.7	30.8	33.5
In work	40.7	45.9	50.8	32.2	40.4	34.2	40.8
No spouse	26.6	25.0	21.5	27.2	18.9	34.9	25.7
Partner education				<i>p</i> <0.001			
>A-level	26.0	35.5	60.2	18.8	34.1	17.9	31.2
O-/A-level	18.4	21.8	9.4	12.4	16.6	12.6	15.7

< O-level	20.5	9.1	2.4	34.2	21.9	26.2	19.2
No spouse	26.6	25.0	21.5	27.2	18.9	34.9	25.7
Missing	8.5	8.6	6.5	7.4	8.6	8.4	8.1
No. children				<i>p<0.001</i>			
0	14.5	15.0	19.1	0.5	1.7	3.8	9.9
1	22.5	17.3	15.9	4.5	11.6	15.2	16.0
2	37.7	41.4	41.5	32.2	46.7	40.3	39.9
3+	25.3	26.4	23.6	62.9	40.1	40.7	34.2
Age 1 st birth				<i>p<0.001</i>			
No children	14.5	15.0	19.1	0.5	1.7	3.8	9.9
<20y	5.7	3.2	2.4	35.6	1.3	27.0	10.7
20-24y	19.8	11.8	19.5	58.9	85.1	58.6	39.8
25-29y	40.5	45.0	34.6	3.5	11.3	8.0	26.4
30y+	19.5	25.0	24.4	1.5	0.7	2.7	13.2
Illness				<i>p<0.001</i>			
No	52.0	53.6	56.5	44.1	45.0	38.8	48.8
LSI	22.0	19.6	22.4	17.3	22.2	18.6	20.8
LLSI	26.0	26.8	21.1	38.6	32.8	42.6	30.4
Depression				<i>p<0.001</i>			
No	87.1	90.0	91.1	77.2	83.1	78.0	84.9
Yes	12.9	10.0	8.9	22.8	16.9	22.1	15.1
FT work years				<i>p<0.001</i>			
Mean	10.36	10.79	13.53	6.49	8.11	10.2	10.00
(SD)	(10.4)	(9.81)	(9.50)	(8.51)	(9.24)	(9.8)	(9.8)
PT work years				<i>p=0.006</i>			
Mean	8.15	7.26	5.76	8.43	8.15	8.49	7.79
(SD)	(9.46)	(9.29)	(8.62)	(8.92)	(9.03)	(9.58)	(9.25)
No work years				<i>p<0.001</i>			
Mean	4.49	4.95	3.71	8.09	6.75	4.33	5.20
(SD)	(6.72)	(6.88)	(5.69)	(8.42)	(7.83)	(7.00)	(7.18)

5.3 Early life characteristics and girlhood transition

AME results in the associations between early life course characteristics and girlhood transition are shown in Table 3. Compared with those whose fathers were in a managerial/professional occupation, those whose fathers were in a manual or non-manual occupation were significantly less likely to be in the *Mid-* and *Late-Work* transition types and were more likely to be in the *Early-Work* or one of the domestic or part-time work transition types. However, the influence of father's social class was largely attenuated by the inclusion of educational qualifications in the fully adjusted model. Parents' separation was associated with an increased likelihood of being in the *Early-domestic* and *PT-Mixed* transition types, both in the unadjusted model and the fully adjusted model. Those with a degree qualification are the most likely to have a *Late-Work* transition during girlhood. Education qualification was the most important early life characteristic which was strongly associated with girlhood transition types, and its influence

was still strong in the fully adjusted model. Compared to women who had a degree qualification, women who had an A-level or below degree educational qualification were more likely to be in the *Mid-Work* transition type, while women who had a foreign/other qualification or no qualification were less likely to be in this transition type. Women without a degree qualification were significantly less likely to be in the *Late-Work* transition type and were more likely to be in the *Early-Work* or one of the domestic or part-time work transition types.

Table 3. Associations between early life course socio-demographic characteristics and girlhood transition types (n = 1798, results are AME from multinomial logistic regression) ^a

	Unadjusted						Mutually adjusted ^b					
	Early-work	Mid-work	Late-work	Early-domestic	Late-domestic	PT-mixed	Early-work	Mid-work	Late-work	Early-domestic	Late-domestic	PT-mixed
Birth cohort												
1939-42			ref							ref		
1943-45	-0.04	-0.02	0.01	0.002	-0.003	0.05	-0.03	-0.04	-0.003	0.01	0.004	0.06
1946-49	-0.04	0.004	0.05	-0.01	-0.06	0.05	-0.03	-0.03	0.04	0.005	-0.05	0.06
1950-52	-0.02	-0.004	0.08	-0.004	-0.09	0.04	0.01	-0.04	0.04	0.009	-0.08	0.07
Father occupation												
Manager/prof			ref							ref		
Non-manual	0.13	-0.08	-0.23	0.07	0.04	0.07	0.04	-0.05	-0.06	0.03	0.01	0.03
Manual	0.16	-0.12	-0.27	0.05	0.10	0.08	0.06	-0.08	-0.09	0.02	0.06	0.04
Parents separated												
No			ref							ref		
Yes	-0.06	-0.02	-0.11	0.09	-0.02	0.13	-0.08	-0.02	-0.08	0.08	-0.02	0.12
Other	0.02	0.001	-0.13	0.04	-0.003	0.09	-0.004	0.022	-0.12	0.03	-0.002	0.08
Childhood health												
Good			ref							ref		
Poor	-0.03	-0.02	-0.001	-0.003	0.03	0.02	-0.03	-0.03	0.003	-0.004	0.03	0.02
Education												
Degree			ref							ref		
< Degree	0.06	0.08	-0.32	0.02	0.08	0.08	0.05	0.07	-0.28	0.01	0.07	0.08
A-level	0.16	0.18	-0.52	0.03	0.08	0.08	0.13	0.19	-0.45	0.01	0.06	0.05
O-level	0.24	0.04	-0.56	0.08	0.13	0.07	0.21	0.04	-0.49	0.06	0.13	0.05
Foreign/other	0.27	-0.08	-0.56	0.06	0.15	0.16	0.26	-0.07	-0.49	0.04	0.12	0.14
No qualification	0.30	-0.12	-0.57	0.12	0.13	0.14	0.28	-0.12	-0.50	0.11	0.11	0.13

^a Results with p<0.05 are shown in bold text.

^b Birth cohort, father's occupation, parents' separation, childhood health and education were mutually adjusted.

5.4. *Girlhood transition and later life socioeconomic attainment*

AME results in the associations between girlhood transitions and later life occupational attainment are shown in Table 4. In model 1, compared with women who made early transitions from FT education to work (*Early-Work* type), those with mid- and late- transitions to work had a higher probability of being in a managerial/professional occupation (23 and 41 percentage points higher, respectively), and a lower probability of being in a routine/manual occupation (30 and 34 percentage points lower, respectively). To the contrary, those with an early transition to FT domestic work (*Early-Domestic* type) and those with transitions characterised by higher levels of PT employment and mixed career breaks (*PT-Mixed* types) had a lower probability of being in an intermediate occupation (10 and 7 percentage points lower, respectively) and a higher probability of being in a routine/manual occupation (12 and 8 percentage points higher, respectively).

Including educational qualification to model 1 largely explained the advantage in occupational attainment of the *Mid-Work* type and fully explained the advantage of the *Late-Work* type but did not explain the disadvantages of the *Early-Domestic* and *PT-Mixed* types. Adding family factors to model 1 fully explained the disadvantages of the *Early-Domestic* and *PT-Mixed* types. Including later life health conditions made the association between *PT-Mixed* type and lower occupational attainment become non-significant. Employment year did not influence any of the above associations. In the fully-adjusted model, class advantages of *Late-Work* type and disadvantages of *Early-Domestic* and *PT-Mixed* types were fully explained, but differences between *Mid-Work* and *Early-Work* remained statistically significant, suggesting some unexplained advantage in this type.

In terms of covariates, women's educational attainment and the number of years spent in FT employment were positively associated with advantages in occupation. Having fewer children was associated with advantages in occupational class as well, although age of first birth was not. The influence of father's social class was attenuated by the inclusion of educational qualifications, and, to a lesser extent, by including family factors so that it was no longer associated with later occupational class in the final model. Having a LLSI was significantly associated with a higher probability of being in a routine/manual occupation in later life.

Table 4. Association between girlhood transition types and occupational attainment at age 50+ (n = 1798, results are AME from multinomial logistic regression)^a

	Model 1 ^b			Model 1 + education			Model 1 + family ^c			Model 1 + health ^d			Model 1+ employment ^e			Full model		
	M/Pr	Inter	Rout	M/Pr	Inter	Rout	M/Pr	Inter	Rout	M/Pr	Inter	Rout	M/Pr	Inter	Rout	M/Pr	Inter	Rout
Transition																		
Early-work	ref			ref			ref			ref			ref			ref		
Mid-work	0.23	0.07	-0.30	0.10	0.05	-0.16	0.21	0.07	-0.28	0.23	0.07	-0.30	0.23	0.07	-0.30	0.11	0.05	-0.16
Late-work	0.41	-0.07	-0.34	0.03	0.02	-0.05	0.36	-0.05	-0.32	0.40	-0.07	-0.34	0.38	-0.06	-0.32	0.03	0.02	-0.05
Early-domestic	-0.02	-0.10	0.12	-0.02	-0.09	0.11	0.02	-0.05	0.02	-0.01	-0.09	0.10	-0.01	-0.08	0.06	0.03	-0.03	0.004
Late-domestic	-0.03	0.02	0.01	-0.06	0.02	0.04	-0.03	0.05	-0.02	-0.03	0.03	0.001	-0.02	0.04	-0.02	-0.04	0.06	-0.02
PT-mixed	-0.01	-0.07	0.08	-0.03	-0.06	0.08	0.02	-0.02	0.004	0.001	-0.05	0.05	-0.01	-0.07	0.07	-0.01	-0.003	0.02
Education																		
Degree				ref												ref		
<Degree				-0.07	0.01	0.06										-0.06	0.001	0.06
A-level				-0.42	0.18	0.24										-0.39	0.17	0.22
O-level				-0.46	0.17	0.29										-0.41	0.17	0.25
Foreign/other				-0.49	0.13	0.36										-0.44	0.14	0.30
No qualification				-0.52	-0.03	0.56										-0.46	-0.02	0.47
No. children																		
3+							ref									ref		
2							0.04	-0.01	-0.02							0.03	-0.01	-0.02
1							0.06	-0.02	-0.04							0.07	-0.03	-0.04
0							0.04	0.14	-0.17							-0.01	0.13	-0.12
Age 1st birth							0.0004	0.005	-0.005							-0.001	0.004	-0.004
Partner work																		
No work							ref									ref		
In work							-0.02	0.05	-0.04							-0.01	0.05	-0.03
Partner education																		
>A-level							ref									ref		
O-/A-level							-0.04	0.04	0.001							-0.02	0.03	-0.01
< O-level							-0.19	0.01	0.18							-0.12	0.03	0.10
Missing							-0.03	0.03	-0.003							-0.03	0.05	-0.02
No partner							-0.05	-0.03	0.09							-0.04	-0.02	0.06
Illness																		
No illness										ref						ref		
LSI										-0.02	0.01	0.01				-0.03	0.01	0.02

Similar to occupational class, later transitions into FT employment were associated with advantages in later-life individual income (Table 5). Those in the *Mid-* and *Late-Work* types had 19% and 44% higher average individual income in later life, compared to those in the *Early-Work* type. Their advantages in individual income were fully explained by higher levels of educational attainment. Transitions to FT domestic work during girlhood were associated with lower later individual income, especially when transitions to domestic work were made at an early age. Compared to the *Early-Work* type, women in the *Early-* and *Late-Domestic* types had 27% and 19% lower later individual income, respectively, and this was fully explained by fewer subsequent years in employment. The advantages of *Mid-* and *Late-Work* types and the disadvantages of *Early-* and *Late-Domestic* types were only slightly attenuated after adjusting for family factors and did not change after adjusting for later life health conditions. In the fully-adjusted model, differences between the transition types were fully explained. Women's own educational qualifications and number of years spent in employment were positively associated with later individual income, as were partner's employment and father's occupational class.

Table 5. Association between girlhood transition types and individual income at age 50+ (linear regression, n = 1798) ^a

	Model 1 ^b	Model 1	Model 1	Model 1	Model 1	Full model
		+ education	+ family ^c	+ health ^d	+ employment ^e	
	%	%	%	%	%	%
Transition						
Early-work	ref	ref	ref	ref	ref	ref
Mid-work	19.4	-0.1	18.2	19.5	21.2	6.1
Late-work	44.4	0.3	43.9	43.8	35.8	5.0
Early-domestic	-26.5	-26.2	-22.9	-25.5	-12.0	-10.8
Late-domestic	-18.7	-20.5	-13.5	-18.3	-10.3	-8.0
PT-mixed	-6.2	-6.9	-6.2	-4.9	-5.6	-6.1
Education						
Degree		ref				ref
< Degree		-13.0				-13.0
A-level		-24.1				-21.7
O-level		-32.7				-26.7
Foreign/other		-43.5				-36.4
No qualification		-47.8				-38.5
No. children						
3+			ref			ref
2			-6.9			-7.6
1			0.8			-4.3
0			5.4			-5.5
Age 1st birth						
			0.4			0.8
Partner employment						
Not in work			ref			ref
In work			22.3			14.7
Partner education						
>A-level			ref			ref
O-/A-level			0.6			0.1

< O-level			-8.0			-0.7
Missing			-4.6			-6.0
No partner			67.6			62.6
Illness						
No illness				ref		ref
LSI				2.9		1.3
LLSI				-5.0		0.2
Depression						
No				ref		ref
Yes				-5.4		-6.1
FT work years					4.9	4.4
PT work years					3.1	2.9
Father occupation						
Manager/prof	ref	ref	ref	ref	ref	ref
Non-manual	-17.7	-12.3	-16.6	-17.7	-17.4	-13.4
Manual	-18.5	-11.8	-17.6	-18.2	-16.6	-11.8
Parents separated						
No	ref	ref	ref	ref	ref	ref
Yes	-1.6	-0.6	-1.9	-0.6	-3.6	-2.5
Other	12.5	9.3	9.1	12.2	9.8	3.9
Childhood health						
Good	ref	ref	ref	ref	ref	ref
Poor	-2.3	-2.9	-3.1	-1.4	-0.7	-0.8
<i>Pseudo R²</i>	<i>0.0638</i>	<i>0.1020</i>	<i>0.1156</i>	<i>0.0654</i>	<i>0.1770</i>	<i>0.2364</i>
<i>AIC</i>	<i>4827.71</i>	<i>4762.748</i>	<i>4743.256</i>	<i>4830.504</i>	<i>4599.922</i>	<i>4499.293</i>
<i>BIC</i>	<i>4893.643</i>	<i>4856.154</i>	<i>4858.639</i>	<i>4912.921</i>	<i>4676.844</i>	<i>4669.62</i>

^a Results with $p < 0.05$ are shown in bold text.

^b Model 1 additionally adjusted for year of birth.

^c Family factors included number of children ever had until wave 3, age of first birth, partner's employment status, and partner's education.

^d Health factors included long-standing illness and depression.

^e Life course employment factors included years of full-time (FT) work and years of part-time (PT) work between ages 27-49.

Table 6 shows the associations with later-life household income. Again, mid- and late-transitions to FT employment during girlhood were linked with higher household income in later life (28% and 52% higher, respectively), compared to the *Early-Work* type. To the contrary, women in the *Early-Domestic* or in the *PT-Mixed* type were associated with 14% lower household income than those in the *Early-Work* type. Educational qualifications explained more than half of the advantages of *Mid-* and *Late-Work* types, but did not fully-attenuate the association. Unlike individual income, family factors play a more important role in the pathway between girlhood transitions and later household income. Family factors fully explained the disadvantage of the *Early-Domestic* type and explained about half of the disadvantage of the *PT-Mixed* type, and about 20% of the advantages of the *Mid-* and *Late-Work* types. Health conditions and life course employment only slightly attenuated the associations found in the basic model. In the fully-adjusted model, household income remained 15% and 17% higher in the *Mid-* and *Late-Work* type and 6% lower in the *PT-Mixed* type (compared to the *Early-Work* type), suggesting some unexplained differences in household income between transition types. Both women's own and their partners' educational qualifications and employment were significantly associated with higher household income, as was childlessness. The influence of father's social class remained strong in the fully-adjusted model. Raised depressive symptoms or having a LLSI were significantly associated with lower later household income.

Table 6. Association between girlhood transition types and household income at age 50+ (linear regression, n = 1798) ^a

	Model 1 ^b	Model 1 + education	Model 1 + family ^c	Model 1 + health ^d	Model 1 + employment ^e	Full model
	%	%	%	%	%	%
Transition types						
Early-work	ref	ref	ref	ref	ref	ref
Mid-work	28.0	14.8	23.7	27.7	28.5	15.1
Late-work	52.1	21.2	40.6	50.4	50.3	16.5
Early-domestic	-13.5	-13.1	-6.1	-10.3	-9.7	-3.0
Late-domestic	2.2	0.7	1.1	3.7	4.6	1.9
PT-mixed	-14.4	-14.7	-7.1	-10.9	-14.2	-6.4
Education						
Degree		ref				ref
< Degree		-12.3				-11.3
A-level		-18.6				-17.1
O-level		-21.8				-18.1
Foreign/other		-26.8				-24.1
No qualification		-35.8				-28.9
Number of children						
3+			ref			ref
2			2.1			0.6
1			1.1			0.3
0			13.9			9.6
Age 1st birth			0.3			0.2
Partner's employment						
Not in work			ref			ref
In work			18.7			18.1
Partner's education						
>A-level			ref			ref
O-/A-level			-12.1			-11.4

< O-level							-26.7		-22.4
Missing education							-19.1		-18.8
No partner							-32.2		-29.7
Illness									
No illness							ref		ref
LSI							0.9		1.2
LLSI							-13.0		-8.1
Depression									
No							ref		ref
Yes							-18.2		-9.2
FT work years								1.1	0.8
PT work years								0.8	0.4
Father's occupation									
Manager/prof	ref	ref	ref	ref	ref	ref	ref	ref	ref
Non-manual	-16.4	-12.9	-11.9	-16.2	-16.4	-16.4	-16.4	-16.4	-9.6
Manual	-21.2	-17.1	-16.0	-20.4	-20.9	-20.9	-20.9	-20.9	-12.4
Parents separated									
No	ref	ref	ref	ref	ref	ref	ref	ref	ref
Yes	-1.5	-0.5	2.3	1.7	-1.9	-1.9	-1.9	-1.9	4.1
Other	-5.8	-8.0	-2.0	-6.7	-6.3	-6.3	-6.3	-6.3	-4.9
Childhood health									
Good	ref	ref	ref	ref	ref	ref	ref	ref	ref
Poor	-2.1	-2.5	-2.4	0.4	-1.6	-1.6	-1.6	-1.6	1.0
<i>Pseudo R²</i>	0.2211	0.2760	0.3696	0.2657	0.2428	0.2428	0.2428	0.2428	0.4362
<i>AIC</i>	2244.387	2123.034	1881.917	2144.359	2197.678	2197.678	2197.678	2197.678	1701.324
<i>BIC</i>	2310.32	2216.439	1997.3	2226.775	2274.6	2274.6	2274.6	2274.6	1871.652

^a Results with $p < 0.05$ are shown in bold text.

^b Model 1 additionally adjusted for year of birth.

^c Family factors included number of children ever had until wave 3, age of first birth, partner's employment status, and partner's education.

^d Health factors included long-standing illness and depression.

^e Life course employment factors included years of full-time (FT) work and years of part-time (PT) work between ages 27-49.

Table 7 shows the associations between girlhood transition and later-life household wealth. Results for household wealth mirrored what has been found for household income. Compared to the *Early-Work*, *Mid-* and *Late-* transitions to FT employment during girlhood were linked with 267% and 375% higher household wealth in later life, respectively. Adding educational qualification to model 1 explained about 40% and two-third of the advantages of the *Mid-* and *Late-Work* types, respectively, and adding family factors explained 14% and 36%, respectively, but associations remained strong and significant. The *Early-Domestic* and *PT-Mixed* types had 67% lower household wealth, compared to the *Early-Work*. Their disadvantage was not explained by education. Adding family factors attenuated about one-third of their disadvantages. Unlike income measures, health seems to be more important for later wealth and adding health conditions explained nearly 20% of the disadvantages of the *Early-Domestic* and *PT-Mixed* types. In the fully-adjusted model, household wealth remained 164% and 106% higher in the *Mid-* and *Late-Work* type, and 42% lower in the *PT-Mixed* type. Again, partner characteristics were significantly associated with household wealth, as was the number of children women had, their own health, employment and educational qualifications, and father's occupational class.

Table 7. Association between girlhood transition types and household financial wealth at age 50+ (linear regression, n = 1798) ^a

	Model 1 ^b	Model 1 + education	Model 1 + family ^c	Model 1 + health ^d	Model 1 + employment ^e	Full model
	%	%	%	%	%	%
Transition types						
Early-work	ref	ref	ref	ref	ref	ref
Mid-work	266.5	154.6	229.6	260.0	280.2	163.8
Late-work	374.6	135.0	240.7	332.1	397.3	105.8
Early-domestic	-67.1	-65.8	-43.2	-55.3	-63.8	-35.2
Late-domestic	33.9	26.3	25.8	51.8	41.4	32.2
PT-mixed	-66.9	-67.1	-48.8	-54.1	-67.2	-42.1
Education						
Degree		ref				ref
< Degree		-42.6				-39.3
A-level		-52.6				-45.5
O-level		-48.2				-39.7
Foreign/other		-45.6				-45.4
No qualification		-81.3				-71.6
Number of children						
3+			ref			ref
2			191.6			175.6
1			187.3			191.4
0			306.3			275.4
Age 1st birth			-1.7			-3.0
Partner's employment						
Not in work			ref			ref
In work			58.9			57.7
Partner's education						
>A-level			ref			ref
O-/A-level			-35.5			-32.4

< O-level				-71.9		-63.7
Missing education				-25.9		-23.6
No partner				-93.3		-89.6
Illness						
No illness				ref		ref
LSI				9.5		14.8
LLSI				-67.3		-56.4
Depression						
No				ref		ref
Yes				-82.7		-68.5
FT work years					3.0	0.1
PT work years					5.6	2.0
Father's occupation						
Manager/prof	ref	ref	ref	ref	ref	ref
Non-manual	-54.8	-47.7	-43.9	-54.0	-55.6	-39.4
Manual	-55.2	-45.8	-43.4	-50.9	-56.4	-35.0
Parents separated						
No	ref	ref	ref	ref	ref	ref
Yes	-23.2	-19.2	-6.0	-0.2	-21.2	16.0
Other	-41.6	-48.2	-23.7	-46.6	-42.1	-35.6
Childhood health						
Good	ref	ref	ref	ref	ref	ref
Poor	-34.4	-35.3	-34.4	-19.0	-31.8	-24.0
<i>Pseudo R²</i>	<i>0.1074</i>	<i>0.1268</i>	<i>0.2366</i>	<i>0.1759</i>	<i>0.1177</i>	<i>0.2857</i>
<i>AIC</i>	<i>9390.307</i>	<i>9360.813</i>	<i>9127.001</i>	<i>9252.664</i>	<i>9373.293</i>	<i>9027.52</i>
<i>BIC</i>	<i>9456.24</i>	<i>9454.218</i>	<i>9242.384</i>	<i>9335.081</i>	<i>9450.215</i>	<i>9197.847</i>

^a Results with $p < 0.05$ are shown in bold text.

^b Model 1 additionally adjusted for year of birth.

^c Family factors included number of children ever had until wave 3, age of first birth, partner's employment status, and partner's education.

^d Health factors included long-standing illness and depression.

^e Life course employment factors included years of full-time (FT) work and years of part-time (PT) work between ages 27-49.

5.5. Moderators

We tested whether associations between transition types and later life socioeconomic attainment differed depending on women's birth cohort (born during/after the war) or their father's occupational class. Results of interaction terms are shown in appendix (Table 1s-4s). We did not find any significant interaction with father's occupational class, but we found a suggestion that birth cohort may moderate the association between girlhood transitions and later occupational class ($p=0.02$) for women in the *PT-Mixed* type. Therefore, the results were stratified and suggest that the disadvantage in later occupational class associated with the *PT-Mixed* type was only found in the post-war birth cohort, and not among those born during the war (Figure 3). Birth cohort also reached borderline significance in the association between girlhood transitions and later household income for women in the *PT-Mixed* type ($p=0.06$, -12.0%), suggesting their disadvantage in later household income may be greater in the post-war cohort.

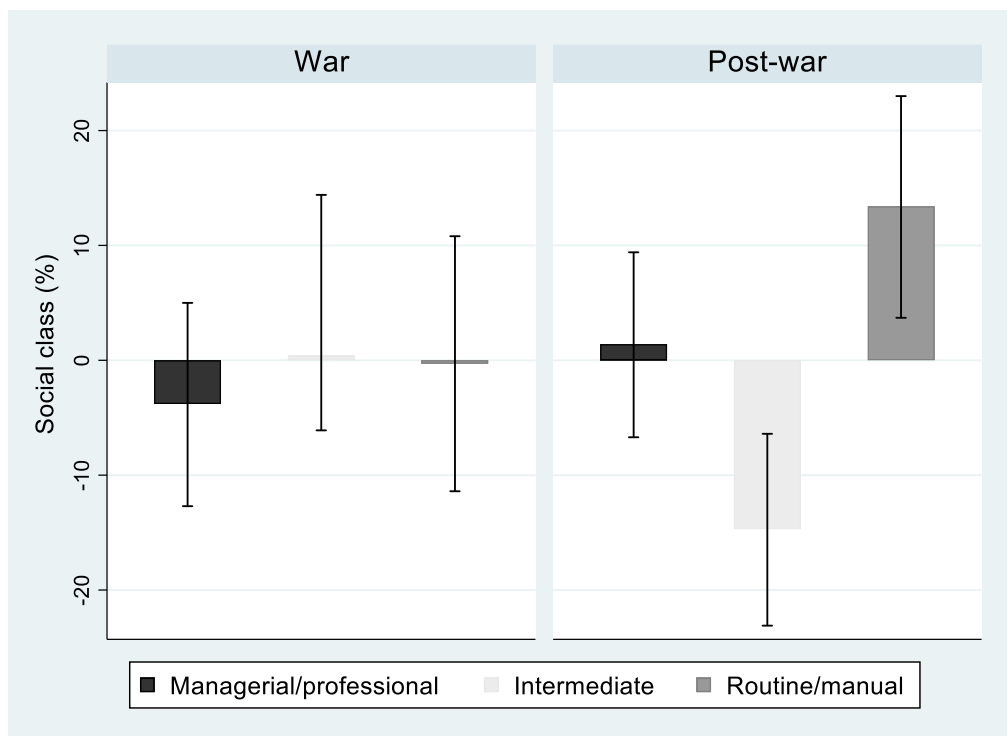


Figure 3. Stratified analysis by birth cohort in the association between girlhood transition and later social class for women in the *PT-Mixed* type compared to women in the *Early-Work* type

5.6. Sensitivity analysis

Partner's educational qualifications were not collected if the partner was not represented in the ELSA sample, thus we did a sensitivity analysis by excluding 145 individuals whose partner's education information was missing. This did not change the results (results of sensitivity analysis are shown in appendix Table 5s).

6. Discussion

This study builds on previous work suggesting exits from FT education represent a pivotal sensitive period in the life course. Here we use sequence analysis to show that the nature of this transition sets young women onto a particular constellation of life course family and employment related events that at least partially determine their socioeconomic attainment in later life. The timing of these exits is key, mainly because timing represents the procurement of educational qualifications which enables subsequent accumulation of socioeconomic resources. More importantly, our study suggests that, perhaps uniquely for women, the nature of the transition is also important in that women who exit FT education into positions of weaker ties to employment suffer longer-term financial disadvantage in comparison with similar women (in terms of timing of transition and educational attainment) who transition to FT employment.

Our study found that later transitions into employment (*Mid-Work* and *Late-Work*) were associated with higher socioeconomic attainment after age 50 compared with women who made early transitions from FT education to FT employment (*Early-Work*). For individual measures of attainment, including individual income and occupational class, this advantage was largely due to higher educational attainment. This is consistent with previous studies which have emphasised the contribution of education to income and employment differentials across the life course (Carnevale et al., 2013; Crystal et al., 2017; Kuh et al., 1997; McLaughlin & Jensen, 2000). Associations between later transitions to employment and household measures of attainment, including household income and wealth, in later life were only partly explained by education. There was some unexplained advantage in this type after further adjusting for parity, partner's employment and education, later life health conditions, and life course employment histories. It is likely to be partners' contributions to household income and wealth that explain this residual effect, but we do not have the information on partners' incomes to investigate this.

We also found that early transitions to FT domestic work (*Early-Domestic*) set young women onto trajectories of lower socioeconomic attainments than women who made early transitions to FT employment. Household financial disadvantages and lower occupational class amongst women in the *Early-Domestic* type were largely explained by these women having more children and having partners with lower levels of educational attainment and partners who were less likely to be in work in later life. Those with transitions characterised by higher levels of PT employment and mixed career breaks (*PT-Mixed*) also had lower socioeconomic attainment (except for individual income) compared with women who made early transitions to FT employment, and like women in the *Early-Domestic* type, parity and homophily in partner's attainment were important mediators.

Women's employment was a key life course mechanism for achieving socioeconomic advantage. Previous work has identified a 'wage penalty' for women who have career interruptions or work PT, especially for those who spent long periods out of employment (Aisenbrey et al., 2009; Evertsson & Grunow, 2012; Staff & Mortimer, 2012). We found that women who transitioned out of FT education early, straight into FT unpaid domestic work, spent the fewest number of years in employment among the six transition types, leading to significantly lower levels of individual income in comparison to women who also transitioned out of FT education early, but went straight into FT employment, which was fully explained by the differing number of years women in the two types spent in paid employment. Women who made a later transition to FT domestic work, who also spent fewer years in FT employment than women in other transition types, also had lower levels of individual income than those who made early transitions to FT employment type. Their number of years out of employment, and their income disadvantage was smaller than for those who made early transitions to FT domestic work.

Women who made early transitions to FT domestic work or had transitions characterised by higher levels of PT employment and mixed career breaks are more likely to report a long-standing illness or be above the threshold for depressive symptoms than women who make early transitions to FT employment. This partly explained the household wealth disadvantage amongst women in these two types and fully explained the disadvantage of occupational class for women with higher levels of PT employment and mixed career breaks. This result is in line with previous studies which have suggested that women who spend long periods of the life course out of employment to look after the home and family have worse health and well-being

than those with stronger links to employment (Lacey, McMunn, & Webb, 2018a, 2018b; Lahelma, Arber, Kivelä, & Roos, 2002; Wahrendorf, 2015), and women's declining health may have had negative influences on their economic well-being at later life (Wakabayashi & Donato, 2006).

Schools and universities provide a context in which young people meet each other. For these reasons, education is also a factor in the choice of a partner with strong tendencies for educational homogamy (Blossfeld, 2009). We also observed educational homogamy in our study, and consistent with previous studies, we found that educational homogamy is an important factor contributing to inequality in household financial attainment (Eika, Mogstad, & Zafar, 2018). Like educational attainment, educational homogamy may also act as a path dependency link between early life circumstance and later life advantage/disadvantage.

In terms of early life characteristics, a process of cumulative advantage/disadvantage is evident in our study. We found that the influence of childhood social class on income and wealth persisted into late life, although the magnitude of this relationship was partially attenuated after educational qualification has been taken into account. It is likely that childhood social class has a cumulative effect on later life, and may influence later income and wealth through pathways other than education per se. For instance, social class of origin often determines neighbourhood residence and may influence marriage (McPherson, Smith-Lovin, & Cook, 2001). In the case of later life occupational class, the influence of childhood social class no longer existed in our study once educational qualifications and family factors were accounted for. Such results indicate that there is no direct relationship between the childhood social class and later life social class, but childhood social class influences their subsequent education and family factors including number of children and partner's education which are important for later life social class. In this case, we found a path dependent effect of childhood social class on later life social class, with results indicating the pivotal role of education in the inter-generational transmission of adversity.

Our analysis of the interaction between birth cohort and exits from FT education suggest that, compared to those women who were born during the war, the disadvantages associated with PT-Mixed transition were concentrated in the later-born cohort. Women who were born after the war and transitioned to part-time employment before their mid-twenties were more likely to come from disadvantaged origins, made the transition to parenthood earlier and had more

children than women born during the war who made similarly early transitions to part-time employment. It may be that later born women were more likely than earlier-born women to make this transition for financial reasons.

Our study benefits from using life course data with a variety of information across domains – particularly the careful collection of financial data in ELSA (Steptoe et al., 2013). We applied a more holistic approach- sequence analysis- to capture the timing and nature of transitions into adulthood. However, several limitations should be considered in relation to our findings. First, life course information was retrospectively reported in ELSA rather than collected prospectively; we thus need to consider a potential recall bias. Yet, the ‘event history calendar’ approach used in the life course interview is believed to improve the accuracy of recall (Belli, Smith, Andreski, & Agrawal, 2007; Jivraj, Goodman, & Oliveira, 2017). Second, our education exit was measured up to age 26, but some women will have re-entered education after the transition period captured here. Third, education and employment sequences were measured annually, thus, we may have bypassed some short period events and underestimated the diversity of transitions out of education.

Our analysis is based on observational data thus our results cannot be interpreted as casual. However, observational studies are a fundamental part of life course research and can answer questions that it would be unethical to do a randomised controlled trial (e.g. it will be unethical to randomly allocate people to particular post-education transitions). To reduce the chance of reverse causality and confounding bias, we have modelled the complexity of women’s life course transitions and progression using long a follow-up time and we carefully selected covariates based on life course theories.

Taken together, our study suggests that both the timing and nature of exits from FT education set young women onto particular adult trajectories of advantage or disadvantage. For those young women who made later transitions into FT employment after achieving higher education attainment advantages persist into late life, but young women who made transitions to FT domestic work or experienced higher levels of PT employment and mixed career breaks suffered longer-term financial disadvantage. Of course, the life experiences of the cohort studied here are at least partly a product of the particular epoch and place in which they occurred. We have investigated the long-term meaning and significance of the different transition patterns for post-war young women in England. Influenced by the contextual

conditions in England during the 1950s and the 1960s, these young women's patterns of youth transition depart from what was usual for girls growing up in the first half of the 20th century, as well as those who grew up later in the century. Thus, our findings may be unique for British women in this generation. Fewer British women in subsequent generations have made transitions straight from or shortly after FT education to FT domestic labour (McMunn et al., 2015). It is possible that this reduced variation in the nature of exits from FT education may lead to reduced variability amongst women in subsequent socioeconomic attainment in later life, and the small group of (now non-normative) women who do transition early to FT domestic work may have even more disadvantaged outcomes than the majority of women who maintain stronger links with employment. Given the continually changing nature of education and employment, there is a need for continued investment in longitudinal data amongst current cohorts and in different countries.

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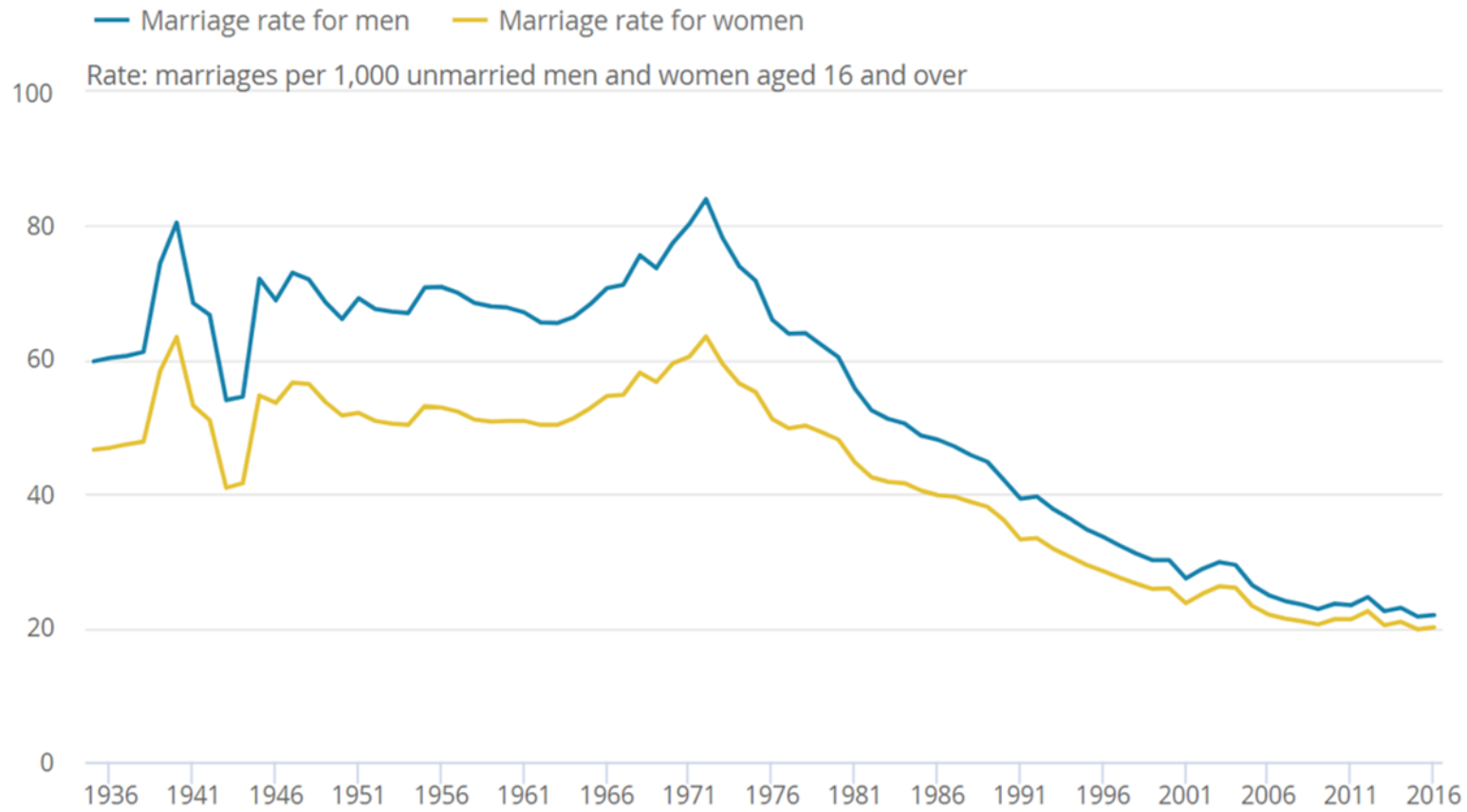


Figure 1s. Marriage rates in England and Wales in 1935-2016.

Source: Office for National Statistics – Marriages in England and Wales

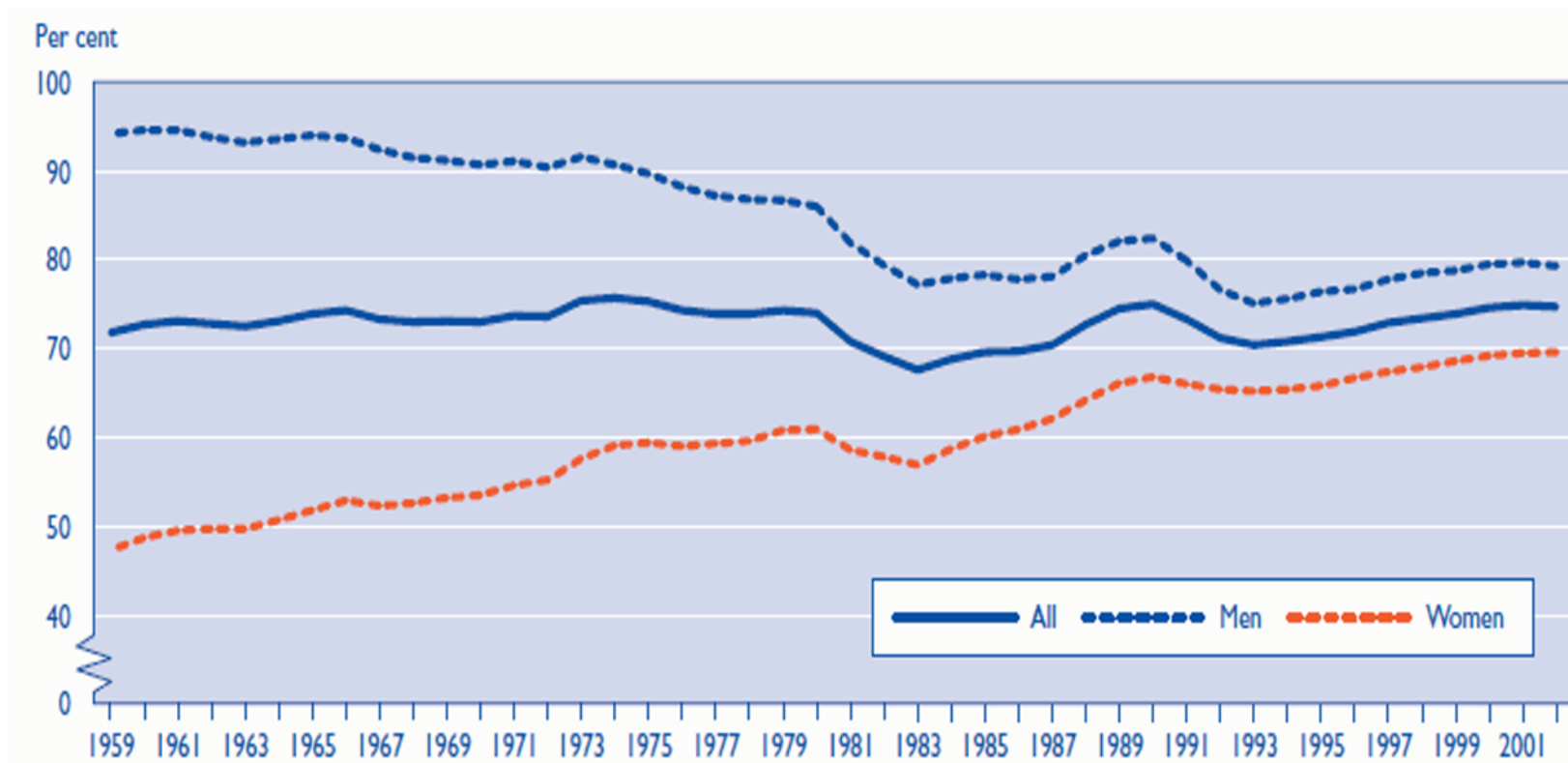


Figure 2s. UK employment rates of working age in 1959-2000.

Source: Office for National Statistics – Labour Force Survey 2002

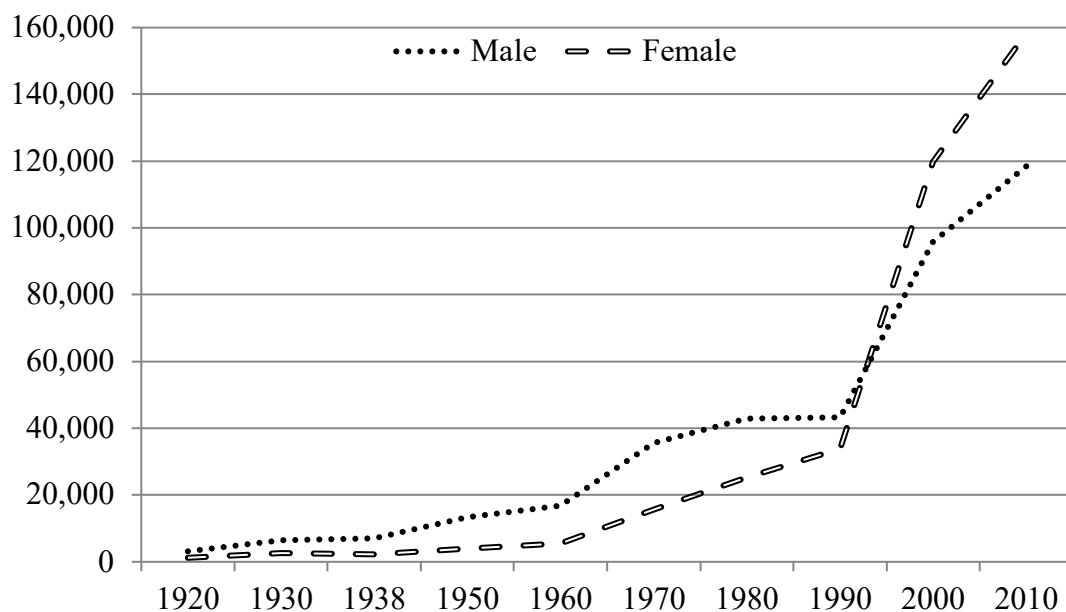


Figure 3s. Number of first degrees awarded to full-time students domiciled in the UK in 1920-2010.

Note: Data for years 1920, 1930, 1938, 1950, 1960, 1970, 1980 and 1990 (Bolton P, 2007) were combined with 2000 and 2010 data (HESA, 2015); data for 1940 were unavailable and replaced with 1938 data due to the intra-war period; data following 1970 includes universities in Northern Ireland; data following 1990 includes former polytechnic institutions.

Bolton P. Education: Historical Statistics. Nottingham: House of Commons Library; 2007:1-21.

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Table 1s. Results of interaction terms with birth cohort for later life occupational class (Results are the AME differences in later social class during post-war period vs. during war)

	Pro	Inter	Rout	Joint p
Mid-work × birth cohort	-0.6	-2.3	2.9	0.912
Late-work × birth cohort	2.0	4.6	-6.6	0.627
Early-domestic × birth cohort	-0.8	-6.4	7.2	0.604
Late-domestic × birth cohort	3.3	-6.4	3.0	0.615
PT-mixed × birth cohort	4.9	-18.8	13.8	0.020

Table 2s. Results of interaction terms with birth cohort for later life individual income, household income, and household wealth (Results are % differences in later socioeconomic attainment outcomes during post-war period vs. during war)

	Individual income		Household income		Household wealth	
	%	p	%	p	%	p
Mid-work × birth cohort	-9.8	0.485	-4.1	0.562	30.6	0.612
Late-work × birth cohort	-18.8	0.155	-11.9	0.075	75.6	0.278
Early-domestic × birth cohort	-8.8	0.547	-10.7	0.128	-48.4	0.221
Late-domestic × birth cohort	-1.7	0.897	0.4	0.956	22.4	0.668
PT-mixed × birth cohort	-10.2	0.444	-12.0	0.060	-26.5	0.535

Table 3s. Results of interaction terms with father's social class for later life individual income, household income, and household wealth (Results are % differences in later socioeconomic attainment outcomes compared to those with a managerial/professional father)

	Individual income		Household income		Household wealth	
	%	p	%	p	%	p
Mid-work × Manual father	-2.5	0.906	-0.4	0.968	2.4	0.975
Mid-work × Non-Manual/other	6.5	0.736	1.3	0.887	3.8	0.955
Late-work × Manual father	-12.2	0.537	9.8	0.360	3.6	0.682
Late-work × Non-Manual/other	-4.4	0.800	0.4	0.962	1.0	0.988
Early-domestic × Manual father	-36.2	0.073	-10.9	0.346	-44.0	0.515
Early-domestic × Non-Manual/other	-29.6	0.147	-18.9	0.075	-77.0	0.087
Late-domestic × Manual father	-3.8	0.849	11.7	0.268	-21.4	0.741
Late-domestic × Non-Manual/other	-17.8	0.338	1.9	0.853	8.7	0.909
PT-mixed × Manual father	-12.0	0.566	17.0	0.150	22.7	0.797
PT-mixed × Non-Manual/other	-18.6	0.349	7.3	0.509	9.4	0.908

Table 4s. Results of interaction terms with father's social class for later life occupational class (Results are the AME differences in later social class compared to those with a managerial/professional father).

	Pro	Inter	Rout	Joint p
Mid-work × Manual father	0.1	7.4	-7.6	0.400
Mid-work × Non-Manual/other	14.0	-4.0	-10.0	
Late-work × Manual father	5.2	8.6	-13.8	0.084
Late-work × Non-Manual/other	18.0	2.0	-20.1	
Early-domestic × Manual father	-10.3	5.3	5.0	0.698
Early-domestic × Non-Manual/other	-1.4	2.7	-1.3	
Late-domestic × Manual father	-4.0	-7.1	11.1	0.726
Late-domestic × Non-Manual/other	1.6	-4.4	2.8	
PT-mixed × Manual father	11.1	-8.1	-3.0	0.647
PT-mixed × Non-Manual/other	13.6	-12.3	-1.3	

Table 5s. Sensitivity analysis on the association between girlhood transition types and late life socioeconomic attainment ^a

	Occupational class			Individual income	Household income	Household wealth
	Pro	Inter	Rout			
Transition						
Early-work	ref	ref	ref	ref	ref	ref
Mid-work	0.21	0.09	-0.30	18.6	28.5	265.1
Late-work	0.41	-0.07	-0.34	45.1	52.8	415.0
Early-domestic	-0.05	-0.09	0.13	-26.7	-12.4	-67.1
Late-domestic	-0.03	0.02	0.01	-17.7	3.3	35.5
PT-mixed	-0.003	-0.08	0.08	-6.7	-14.5	-71.5

^a Adjusted for year of birth and early life conditions including father's occupational class, parents' separation, and childhood health (Model 1). Results with p<0.05 are shown in bold text.