Education and Diverging Family Trajectories in Britain: New Insights From Microsimulation

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Abstract

According to the "Diverging Destinies" thesis, changes in family behaviour associated with the Second Demographic Transition have meant that more educated women tend to be exposed to gaining trajectories, with later childbearing and maternal employment, while women with fewest resources tend to pursue loosing trajectories associated with early, non-marital childbearing and partnership dissolution. There has thus been in the US a divergence in the opportunities for these groups of women, and an increasing disparity of life chances for their children. This paper examines, using a long time series of retrospective fertility and partnership histories, how the family trajectories of British women have changed in recent decades, and the extent to which demographic experiences have diverged according to education. Childlessness is becoming more and more frequent among highly educated women, and births out of a co-residing union increasingly frequent among the lower educated. On the other hand, the differentials in having all children in partnerships or experiencing first partnership dissolution have not increased. A microsimulation model will allow us to estimate the interrelationships between partnership formation, fertility, and partnership dissolution in a holistic way and thus permit us to project the completed trajectories of cohorts born in the 1970s and early 1980s who have yet to reach the end of their reproductive years, under varying assumptions. The paper concludes with a discussion of questions and policy implications that the findings raise.

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Motivation

Recent research repeatedly emphasises the link between economic vulnerability and family behaviour (Cherlin, 2014). According to McLanahan (2004) changes in family behaviour associated with the Second Demographic Transition have meant in the US that more educated women tend to be exposed to *gaining* trajectories, with later childbearing and maternal employment, while women with fewest resources tend to pursue *loosing* trajectories associated with early, non-marital childbearing and divorce. There has thus been a divergence in the opportunities for these groups of women, and an increasing disparity of life chances for their children. Level of education is suggested as a key marker of this vulnerability (Carlson, 2012; McLanahan 2004). Explanations for early and non-marital childbearing among less advantaged groups in the US focus on the lack of employed male breadwinners as suitable marriage partners (Cherlin, 2014; McLanahan, 2004; Oppenheimer, 1988), but also on lower self-efficacy and more frequent unintended births among low income women (England et al., 2011; Musick et al., 2009). Edin and Kafalas (2005) argue that for young poor women childbearing is often one of the few ways they can get meaning into their lives.

It is unclear to what extent this "diverging destinies" thesis is relevant for European countries. Family change in Europe is, in general, considered much less problematic than in the US. Notably, the educational differentials in partnership and family formation patterns tend to be narrower than in the US (Perelli-Harris and Lyons-Amos, 2014), and in many European societies lone-mothers are supported to some extent by welfare regimes in raising their children (Knijn et al. 2007). Also, the perception of cohabitation and of childbearing in cohabitation is positive in many European contexts, even if marriage often remains valued (Perelli-Harris et al. 2014). However, the UK is more like the US than many of its European neighbours in terms of the socio-economic gradient of non-marital childbearing and lone parenthood (Berrington et al., 2015; Berrington, 2014) and similar to the US, rhetoric conflating family instability and poverty is pervasive. Indeed, the current Conservative Government includes a measure of the proportion of children not living with two biological parents in their indicators of poverty (DWP, 2016). Recent research focusing on fertility (e.g. Berrington, Stone and Beaujouan, 2015; Ní Bhrolcháin and Beaujouan 2012), partnership behaviour (e.g. Berrington, Perelli-Harris and Trevena, 2015; Ní Bhrolcháin and Beaujouan 2013) and lone parenthood (Berrington, 2014) suggests that there are *increasing* educational differences in the sequencing of family formation and in the stability of families. The present research *brings together* these strands of evidence by providing an overview of the cohort change in partnership and childbearing trajectories within educational groups in Britain.

Motivated by findings from recent qualitative research which suggest that higher educated men and women prefer a more 'traditional' sequencing of family formation, i.e. cohabitation, then marriage

prior to childbearing (Berrington, Perelli-Harris and Trevena, 2015) we examine how the inter-relationship between partnership and fertility differs by education and whether there is evidence of a divergence (Thomson et al. 2013). Furthermore, we examine for Britain the extent to which there has been a cross-over in the educational gradient of separation, from positive to negative, as there has been observed elsewhere (Matysiak et al. 2013). We move beyond existing studies by considering the whole family trajectory, rather than a particular event, e.g. a non-marital birth, providing new estimates of for example: the number of women who have children just within a first co-residential partnership; the number who have children within more than one partnership; or the average amount of years spent living as a lone mother, according to education. We also examine how the timing of entry into family formation is associated with subsequent family size and examine whether Britain is similar to the US in the way in which early childbearing outside of any co-residential partnership is associated with a subsequent life course characterised by childbearing within more than one partnership (Carlson and Furstenberg, 2006; Guzzo, 2014; Thomson et al., 2014).

Whilst we observe the completed experience of those born 1940-1969, the more recent cohorts have not yet reached age 45. We therefore use microsimulation to project the last part of their trajectories under alternative assumptions.

Research questions

RQ1: What are the main changes for birth cohorts 1940-1969 in women's experience of partnership and of fertility by level of education?

RQ2: What have been the key changes for birth cohorts 1940-1969 in the intersection between partnership and childbearing across the life course by level of education? Key markers include: the proportion who experience a birth outside of any co-residential partnership; the stability of partnerships that involve children; the likelihood of mothers and non-mothers repartnering; the average number of years spent as a lone mother; the proportion of women who have children within more than one partnership.

RQ3: Given their level of education and family experiences so far, what might the family trajectories of those born 1970-94 look like, given different assumptions?

Data and Methods

The data come from the Centre for Population Change General Household Survey (GHS) database (Beaujouan et al. 2014) for the years 2000-2009, augmented with retrospective fertility and partnership histories from the first wave (2009-2010) of the Understanding Society Survey. Whilst the partnership histories have been validated internally and against external sources (Berrington et al. 2011) and are considered to be of good quality, there is some evidence that childlessness is slightly

over estimated within recent rounds of the GHS, especially among women aged 50 and older at interview (Ni Bhrolchain et al., 2011). We select women born from 1940 onwards, excluding those who had a first child or entered a first partnership before the age of 15 or were born abroad. Indeed, their partnership behaviour is different from natives and even different between immigration groups (Hannemann and Kulu 2015). The analytical sample thus consists of 61,756 women with consistent partnership and childbearing histories. By comparing the reported dates (month and year) of live births and entry and exits from sequential partnerships we define whether and in which partnership each birth took place. Any birth whose date was comprised within the dates of a partnership (cohabiting or married) was considered as a birth inside a co-residential union. Any other birth was considered out-of-union. The accuracy of the calculations depends on the quality of the retrospective reporting of partnership and childbearing together, which we will discuss. Since we do not have any information concerning the identity of the fathers we estimate the level of multi-partner fertility using the proportion of children born within different co-residential partnerships. We know that women do sometimes repartner the same man (Skew et al., 2011), so this may be a slight inflation of the actual number of different fathers.

In preparation of the microsimulation, we estimate separate hazard regression models of birth and union events experienced by British women from when they were aged 15 to maximum aged 45, focusing on cohorts born in the 1940s to the mid-1990s. Previous research had modelled the early family transitions of women born in 1958 and 1970 up to age 29 (e.g. Berrington, 2003), here in each cohort we use all the observations until the time of survey also for the most recent cohorts. Partnership events are however closely linked or competing, thus the estimations of cohabitation versus direct marriage, of marriage versus separation of cohabitation, and of separation of cohabitation versus marriage, are undertaken in a competing risk setting. All models are estimated for three groups of education separately and for the whole population. Level of education is coded as high (first and higher degree), medium (teaching and nursing qualifications and Advanced 'A' levels) and low (secondary school qualifications e.g. O levels, GCSE, CSEs and below). Enrolment in education is a time-varying covariates. We note that there have been important changes in the British population by educational attainment, notably the share of women with less than O level passing from almost two third to one fifth of all women between the 1940-49 and the 1960-69 birth cohorts (Berrington et al. 2015), and that our results must be interpreted accordingly.

The results then serve as parameters to our microsimulation model implemented in Modgen (Statistics Canada). The microsimulation (Winkler-Dworak et al., 2015; Thomson et al., 2011) generates hypothetical populations of women with different union and childbearing histories for all groups of education and cohorts, even for those cohorts who are still in their reproductive age at the time of observation. We then assess how family forms are related with cohort fertility levels, and how the relationship changed as family forms were becoming more complex across cohorts.

Results

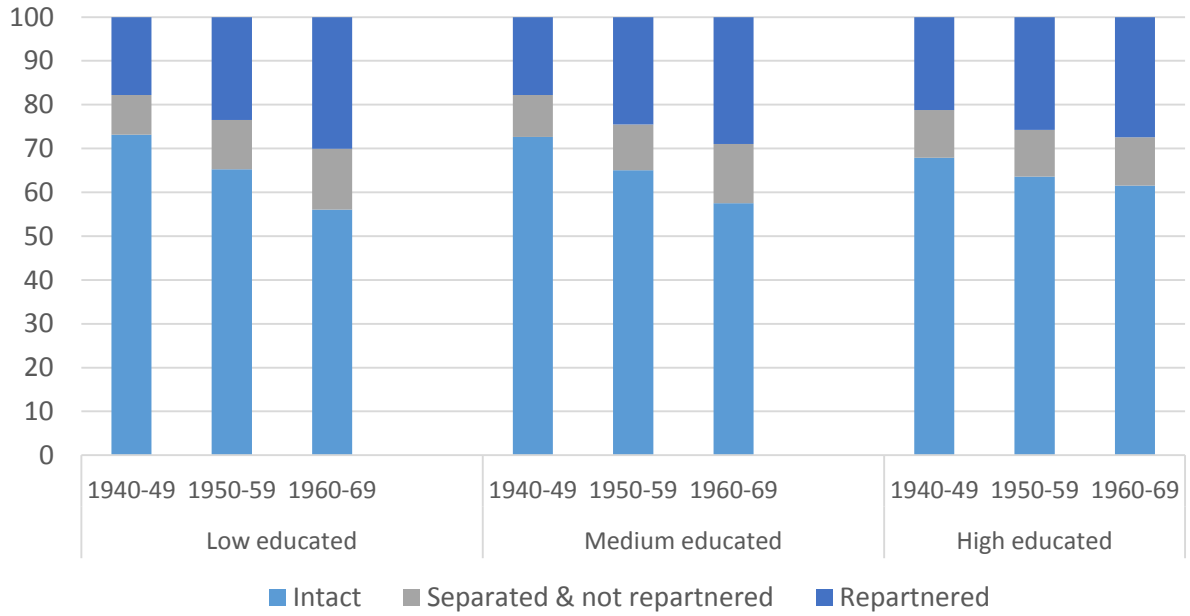
Below we present the results for research questions 1 to 3 (Figures 1 and 2 and Table 1) based on observed experiences of cohorts born 1940 to 1969. We continue to work on the microsimulation and projections required for RQ3.

RQ1 Change in experience of partnership and fertility by level of education

By age 45 the vast majority of women had experienced at least one co-residential union. In the earliest birth cohort born in the 1940s there was a significant educational difference whereby 9% of high educated women had not entered a partnership, compared to just 3% of low educated women (results not shown). However, the proportion of low educated women who have never had a co-residential partnership increased over time, such that the gaps became much smaller – among the 1960-69 cohort 6% of low educated, 4% of medium educated and 8% of high educated women had never had a union.

Figure 1 shows the outcome of the first union according to birth cohort and level of education. In the earliest birth cohort (1940-49) it was actually those with high education who were most likely to see their relationship dissolve. Over the decades however the instability of first partnership has increased most for those with low and medium levels of education, such that among the 1960-69 cohort, partnership instability is similar across the educational groups – around 60% of first partnerships had dissolved by age 45. These findings reflect the changing nature of the first partnership, notably its fertility – and how this is moderated by educational experience, as we will go on to discuss.

Figure 1. Outcome of first co-residential partnership, by cohort and level of education, British women born 1940-1969.



Although the overall mean age at entry into motherhood rose steadily for cohorts born 1940-69, we have seen an increased polarisation, with delay to older ages being particularly pronounced among those with high education (Berrington et al., 2015). Total number of children ever born alive (completed family size) has declined across the cohorts (from 1.94 to 1.83 children per woman), associated with an increase in childlessness and the postponement of childbearing to later ages (Berrington et al., 2015). Table 1 shows that levels of childlessness are lower among less educated women. Comparison of the ten-year birth cohorts suggests that the proportions childless remained stable for low and middle educated groups (at around 13% and 17% respectively), whilst the proportion of highly educated women remaining childless increased from 24% to 26%.

RQ2 Intersection between partnership and childbearing across the life course by level of education

Overall, we observe a significant decline in the proportion of women whose births all occur within the first union (from 72% among women born in the 1940s to 57% among women born in the 1960s, table 1). Interestingly, this pattern is very similar among all the educational groups. In other words, a significant minority of highly educated women born in the 1940s who went to University in the late 1950s and 1960s had a first partnership that did not bear children. Whilst the data in Table 1 do not tell us whether this partnership was cohabiting or married, the finding is consistent with those of Ni Bhrolchain and Beaujouan (2013, p.445) who showed that it was the most educated that were the fore-runners in terms of cohabitation "In 1980–84, between 9 percent and 15 percent more of the best than of the least educated women aged 25+ had experienced cohabitation".

Overall, the proportion of women whose births all occur within their second union has increased – from 2.3% to 6.0%. This increase has occurred across all educational groups, but is particularly large for the medium educated (2.5% to 7.5%).

Table 1. Observed family trajectories up to age 45 by level of education (selected trajectories, are not mutually exclusive).

Lower educated	Birth cohort		
	1940-49	1950-59	1960-69
Childless	13.0	14.6	13.4
All births out of union	2.5	3.8	8.0
All births in first union	72.9	65.5	56.0
All births in second union	2.0	3.8	5.3
All births in third union	0.0	0.2	0.6
Births in at least two unions	3.5	4.1	5.3
Births out and in union	6.0	8.0	11.3

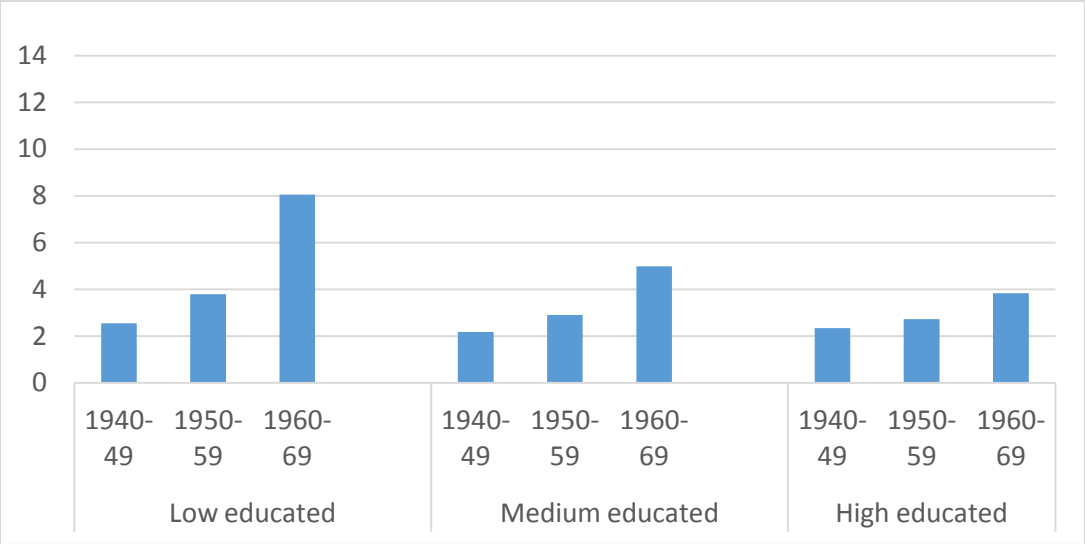
Medium educated	Birth cohort		
	1940-49	1950-59	1960-69
Childless	16.6	17.7	16.6
All births out of union	2.2	2.9	5.0
All births in first union	72.6	64.3	58.8
All births in second union	2.5	5.5	7.5
All births in third union	0.1	0.8	1.4
Births in at least two unions	2.7	4.0	3.8
Births out and in union	3.2	4.8	7.0

Higher educated	Birth cohort		
	1940-49	1950-59	1960-69
Childless	23.7	23.3	26.1
All births out of union	2.3	2.7	3.8
All births in first union	64.4	60.4	54.6
All births in second union	3.7	6.9	7.4
All births in third union	0.4	1.1	1.6
Births in at least two unions	2.0	2.6	2.9
Births out and in union	3.5	3.0	3.7

All	Birth cohort		
	1940-49	1950-59	1960-69
Childless	14.8	16.7	16.7
All births out of union	2.5	3.4	6.5
All births in first union	72.0	64.8	56.6
All births in second union	2.3	4.6	6.0
All births in third union	0.1	0.5	0.8
Births in at least two unions	3.2	3.7	4.5
Births out and in union	5.2	6.3	8.8

Interestingly, there has been only a modest increase over cohorts in the proportion of women who bear children in at least two unions (3.2% to 4.5%). What has changed is the proportion who experience the birth of at least one child outside any sort of co-residential partnership. Overall this doubled from 7.7% to 15.3%. Furthermore, the increase was much larger for those with low levels of education (8.5 to 19.3). Overall, multipartnered fertility as defined in Thomson et al. (2013) was composed of births within and out of unions. Separating these two out gives the striking result that it was mostly the share of births outside any union that increased across cohorts in the UK (Figure 2). While the educational differential in the proportion of women having children within unions (even several) was not changing much, the number of low educated women giving birth outside a (declared) partnership became much more significant.

Figure 2. Proportion of women who have <u>all</u> their births outside of any co-residential partnership, British women born 1940-1969.



It would appear then, that in terms of overall partnership (i.e. not disaggregating cohabitation and marriage), the key area of divergence across educational groups has been in the proportion of births that take place outside of any co-residential partnership. Fertility taking place in several co-resident relationships has increased very little, even for the low educated. In fact, experiencing several unions has become much more frequent, but separations of childless unions is also extremely frequent, which explains the contrast in these two increases.

Next steps for the analyses

Over the next few months we will extend the analyses in a number of ways: First we will establish *where* in the life course births outside co-residential partnerships are taking place and how this differs by education - are they primarily to young women prior to any co-residential partnership i.e. teenagers

(we know that within these cohorts teenage childbearing continued to be much higher in the UK than other European countries, and more similar to the US), or are they spread across different stages of the life course? Previous analyses of the GHS time series dataset (Berrington, 2014) showed that the proportion of female birth cohorts who experienced a pre-partnership birth prior to age 25 increased from 6% among those born in 1950-54, to 10% among those born 1970-74, but then remained steady – being 9% for cohorts born 1980-84. Comparison of the 1958 and 1970 British cohorts' early life experiences by Berrington (2003) showed that a roughly similar proportion experienced a conception prior to any co-residential partnership. In both cohorts there was a similar negative class gradient in the occurrence of a pre-partnership conception. What appears to have changed is the partnership behaviour following conception. There has been a dramatic reduction in the proportion who legitimate their conception through marriage, and a rapid increase in the proportion who start cohabiting and had a cohabiting birth, or in the proportion who have the birth outside of any partnership.

Second we will examine educational gradients in partnership dissolution and repartnering in more detail and by parity and establish whether and to what extent there has been educational divergence in the duration spent in lone mother households between these cohorts. Given that the first (frequently cohabiting) partnership is often childless, it is useful to include a measure of lifetime experience of the dissolution of partnerships containing (under 18) children. This could be simplified by showing the percentage who experienced at least one partnership dissolution following the date at which they entered motherhood.

Finally, we will address the last research question which asks what the likely completed trajectories of more recent birth cohorts will look like given their experience so far and assumptions as to how the patterns shown in previous cohorts can be extended to those yet to reach these life stages. We suspect that the delay in entry into partnership and motherhood could have important consequences for later life course experiences including union stability and completed family size.

Discussion

In this paper we have found evidence for divergence according to education in the family trajectories of British women born between 1940 and 1969. However, the degree of divergence and the extent to which the medium educated group are closer to the most educated group, or closer to the least educated group differs according to family trajectory.

The two trajectories where we see the smallest educational gradient is women who experience all their births within the first partnership, and women who experience first partnership dissolution. We might speculate that this finding relates to the different role of the first partnership among different educational groups. For graduates, the first partnership (often cohabiting and childless) may be more of a convenience - a way to postpone childbearing and marriage until the career gets better established

(Oppenheimer 1994). Whereas, less educated couples enter parenthood at a younger age and are more likely to become parents either before or during their first partnership (Berrington, 2003).

There are only relatively small educational differences in the likelihood of experiencing partnership dissolution, with the medium educated appear to be more similar to the least educated. The chances of experiencing the dissolution of the first co-residential partnership were already quite high among women of all educational backgrounds born in the 1940s. The proportion experiencing first partnership dissolution has increased further for the two less educated groups. In future analyses where we will identify the dissolution of partnerships where children are present it is likely that a much stronger socio-economic divide will be seen.

The two trajectories where we see the greatest divergence are remaining childless, and experience of one or all births outside of any sort of co-residential partnership. For childlessness, it seems that it is only for those with at least a first degree for whom levels of childlessness increased over time. In other words, overall levels of childlessness in Britain increased because more women entered higher education, but also a higher proportion of female graduates remained childless. The second key area where we see increased educational divergence is in the propensity to have a live birth outside of any co-residential partnership.

There was surprisingly little educational differences in multi-partnership fertility, taken as conceptions within several unions. However, if births outside a union are taken into account in the definition, then the educational differential was becoming substantial, and increasing across cohorts. It would be interesting to know whether the UK is different to e.g. other Anglo-Saxon countries in that lone parenthood has increased more than multi-partnered fertility.

Whilst our empirical findings provide important demographic insight to inform policy debates, many questions are raised by the findings. What role do structural factors such as economic uncertainty, housing unaffordability and welfare policies and the like play in driving these divergences, particularly in childbearing outside of co-residential partnerships. Or are the differences due more to cultural or normative differences between different educational groups? Where children are born outside of a (declared) co-residential partnership, what kind of relationship do the parents have? Is it one that is more similar to a "visiting relationship" where the father remains in regular contact and is involved with their child? How often does the mother actually co-reside with the child's father prior to, or subsequent to the birth? What special support do multi-partnered fertility families need?

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