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Family Patterns and Social Inequality among Children in the United States 1940-2012: A Re-assessment

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Abstract: This paper points to a sibsize revolution that occurred among children in lower status families in the United States in the closing decades of the twentieth century. It interprets that revolution as a source of social convergence in children's family contexts that ran counter to trends towards social divergence caused by change in family structure and has implications for how we understand the impact of family change on social inequality. Using micro-data from the Census of Population and Current Population Survey, the paper presents new estimates of differentials in sibsize and family structure by race and maternal education in the United States for the period 1940-2012. The estimates suggest that as the share of lower status children living in mother-headed families rose in the 1970s and 1980s, their average sibsize declined. The paper discusses some substantive and methodological challenges for existing scholarship arising from these cross-cutting movements and points to questions for future research.

Key Words: Family Patterns, Social Inequality, United States, sibsize, family structure,

Introduction

This paper draws attention to a sibsize revolution that occurred among lower status families in the United States in the closing decades of the twentieth century (the term sibsize is used here to refer to the number of siblings in the child's sibling group, where an only child is counted as having a sibsize of one). It interprets that revolution as a substantial but largely unnoticed counterbalance to what current scholarship widely views as a dominant trend -- the 'diverging destinies' in children's life chances caused by growing social disparities in family structure and related labour market problems for poor parents (McLanahan 2004, McLanahan and Jacobson 2015). Using micro-data from the US Census of Population (up to 1990) and the Current Population Survey (since 1990), the paper produces new estimates of differentials in sibsize and mother-headed families by race and maternal education for the period 1940 to 2012. These estimates show that as the share of lower status children in mother-headed families increased from the 1970s onwards, their hitherto large average sibsize declined sharply and converged towards the sibsize of children in higher status families. The cross-cutting nature of these changes gives rise to methodological and substantive challenges for current scholarly understanding of how family change has affected developments in social inequality among children in the United States since the mid-twentieth century. The paper discusses some of these challenges and points to directions for future research.

The paper is organised in five parts. First is a context-setting exercise which looks at the evolution of research on social differentials in family size in the United States and the shift of interest in recent decades towards family structure as a

source of social inequality among children. That is followed by a methodological account of one reason for the neglect of sibsize – the often unnoticed difference between children's and adults' perspective on family size (Preston 1976, Jenkins and Tuten 1992). The section after that presents new estimates of social disparities in children's sibsize and mother headed families for the period 1940-2012, referring both to race and maternal education as axes of differentiation. A fourth section outlines some challenges and research questions arising from the estimates and a final section concludes.

Family size and social inequalities: changing perspectives

Social differentials in family size were a major topic of social research in the first half of the twentieth century. The advent of long-term fertility decline in western countries in the late 1900s caused families to become smaller on average but also opened a widening gap between the large lower class family on the one hand and newly shrinking middle and upper class families on the other. The seminal empirical study of this topic was T.H.C. Stevenson's study of growing social class differentials in fertility in England and Wales among marriage cohorts of women from the 1850s to the 1890s (Stevenson 1920). His analysis confirmed what many contemporaries had long suspected, namely that, as Stevenson put it, the 'more successful and prosperous classes were behindhand in their contribution to the upkeep of the nation' (Stevenson 1920: 417).

Stevenson's study was a highlight in a wave of research on fertility differentials which emerged at the time (see the many citations in Pearl 1927; later examples include Ogburn and Tibbetts 1929, Edin and Hutchinson 1935, Methorst

1935, Notestein 1936, Westoff 1954; recent work includes Haines 1979, Szreter 1996, Barnes and Guinnane 2012, Dribe et al. 2014a, 2014b). This research fed into debate on what was seen as the two-sided population problem of the inter-war years – the threat of declining population numbers caused by falling fertility and of worsening population quality caused by the concentration of fertility among the poor and ethnic minorities (Ramsden 2003, van Bavel 2010). For eugenicists in the social Darwinist tradition, this double problem amounted to a paradox of the 'survival of the unfittest' and led to dire predictions about the degenerative effect on populations of high fertility among the lower orders (Kevles 1985, Soloway 1990, Ramsden 2009). Less alarmist responses emerged in the social sciences, where hopes of raising population totals and improving population quality were pinned on a combination of social policies to encourage higher fertility among the better off and energetic promotion of birth control among the poor and ethnic minorities (Ramsden 2009).

A key figure in the latter approach was Gunnar Myrdal, the Swedish social scientist who in 1937 was invited by the Carnegie Corporation of New York to carry out a study of the 'Negro problem' in the United States. The Swedish model of 'reform eugenics', which emphasised medical, educational and housing services for families with children and contraceptive services to limit fertility among the poor, appealed to liberal reformers in the United States and conferred a special status on Myrdal as an architect of the Swedish approach (Ramsden 2003, Broberg and Tydén 2005: 96-107). Myrdal's study of race in the United States which emerged from the Carnegie Corporation's commission, *The American Dilemma: the Negro Problem and Modern Democracy* (1944), echoed the agenda of reform eugenics in its view of black

subordination as the result of social rather than genetic factors and its advocacy of a range of social and political reforms to advance the black cause. His analysis of the black family pointed to large family size as a key source of black poverty and led him to advocate birth control programmes for poor families as a core element of the solution (Myrdal 1944/1962: 157-180).

Myrdal's study inspired much subsequent analysis of black social disadvantage, including the landmark Moynihan Report of 1965 (as Geary 2011 shows). However, in his account of the black family, Daniel Patrick Moynihan introduced a change of focus by turning his back on Myrdal's concern with family size (Moynihan 1965/1967). He pointed instead to a rising incidence of mother-headed families as a driver of black social disadvantage (Geary 2011 describes this perspective and outlines how Moynihan became immersed in it from 1964 onwards).[1] Moynihan spoke of family disruption in the black population in injudicious terms, provocatively labelling the black matriarchal family as 'pathological' and appearing to criticise black men for their shortcomings as fathers – an approach that was soon excoriated as 'blaming the victim' (Ryan 1971/1976). The ensuing condemnation from white liberals and black leaders drove Moynihan's analysis off the stage for a time (Massey and Sampson 2009, Patterson 2010) but it was rehabilitated in the 1980s, especially by way of William Julius Wilson's classic study of urban poverty and marginalisation, *The Truly Disadvantaged* (1987).

[1] Moynihan referred briefly in his 'Report' to high fertility among black women but only in connection with racial differences in population growth rates (Moynihan 1967: 71-2). In an article for the Fall 1965 issue of *Daedalus*, he quoted some data on the negative effects of large family size among black women on their children but did not develop the topic (Moynihan 1965: 759). A companion paper by Philip Hauser in the same issue of *Daedalus* set out a more comprehensive account but his emphasis on family size as a continuing aspect of social disadvantage for black children did not attract wide attention (Hauser 1965: 860-62, 865-67).

Wilson placed class rather than race at the forefront of analysis and avoided the graphic language that Moynihan had used. But otherwise he agreed that a proliferation of mother-only families was a key consequence of the limited job opportunities and neighbourhood segregation faced by America's urban poor, whether black or white, and was a key mechanism by which social disadvantage among poor parents was reproduced among their children (Wilson 1987: 63-92).

Some other studies of the period, most notably Judith Blake's *Family Size and Achievement* (Blake 1989), pointed to the potential of falling family size to counter-balance the negative effects of rising family instability on children's life chances. Drawing on work by Samuel Preston (Preston 1976), she also emphasized the need to look at family size from the child's point of view, that is, by reference to sibsize rather than the somewhat different matter of women's cohort fertility (a topic I return to below). But Blake's two-sided view gained little traction in the midst of a growing preoccupation with one side of the story – the rising rates of breakdown in the traditional American family and its concentration in marginalised urban neighbourhoods where poor job prospects undercut the economic foundations of stable family life (see, e.g., McLanahan and Percheski 2008, Cherlin 2009, Carlson and England 2011, Morgan 2011, Furstenburg 2011, Heckman 2011, Putnam 2015).

This preoccupation was well captured in Sara McLanahan's Presidential address to the Population Association of America in 2004 when she pointed to the combined effect of family instability and poor parental job opportunities in giving rise to 'diverging destinies' among American children (McLanahan 2004, McLanahan and Jacobsen 2015). Over the past decade, a chorus of academic and

journalistic voices has argued a similar line, not least by championing a 'Moynihan was right' interpretation of the destabilisation of the American family since the 1960s and its contribution to widening inequalities in American society (e.g. Massey and Sampson 2009, Wilson 2009, Haskins 2009, Patterson 2010, Heckman 2011, Acs 2013, Aigner 2014, Kristoff 2015). The motivation for the present paper is to look beyond that perspective and attempt to recover the strand of the story it misses – the large numbers of siblings that poor children had to cope with as a consequence of the post-war baby boom, the racial and social class gulf in family conditions that experience represented, and the dramatic though incomplete equalisation of that aspect of children's lives that had come about by the end of the twentieth century.

Measuring sibsize

A technical matter that has to be clarified on the way to achieving that more complete picture is the often overlooked distinction between the adult's and the child's perspective on family size, that is, between cohort fertility among women and sibsize among their children. When it comes to access to family resources, the number of siblings that children have is crucial but is poorly captured by the measure of family size most widely used by demographers, namely, the number of children that age-groups of women have (cohort fertility).

In technical terms, children's mean sibsize is the contra-harmonic mean of their mothers' fertility (Jenkins and Tuten 1992). It is determined by both the mean and the variance in their mothers' childbearing, not just by the mean on its own, and can be defined as follows (Preston 1976, Lam and Martelleto 2013): $\overline{C} = \overline{X}\ (1 + V_X^2)$

where $\overline{C}$ is the mean sibsize among the children of a cohort of women, $\overline{X}$ is the mean fertility of that cohort of women and V_X^2 is the squared standardised variance in women's fertility. As this equation implies, mean cohort fertility of women matches the sibsize of their children only when all women have exactly same number of children, that is, where V_X is zero. For example, if ten women have two children each (zero variance), mean fertility among the women is identical to the mean of sibsize of their children (at 2.0). However, if five of the ten women have one child each and five have three each, the women's mean fertility is still 2.0, but the mean sibsize of the children rises to 2.5. If five childless women then join the group of ten women, the women's mean fertility drops to 1.33 but mean sibsize among the children is unaffected. If the five childless women then have one child each, the women's mean fertility *rises* to 1.67 but the children's mean sibsize *falls* to 2.2. These illustrations show not only that children's mean sibsize is typically larger than the mean cohort fertility of their mothers but also that it can change over time or differ between groups in ways that can diverge sharply from corresponding movements in women's fertility.

Preston examined the fertility of white and non-white women in the US from 1890 to 1970 from this perspective and found that while the racial gap in women's completed cohort fertility had reached its narrowest point of the period in 1960, the gap in children's sibsize had moved in the opposite direction and reached what in relative terms was its widest (Preston 1976: 111-113). In other words, as we confirm below, the 1960s, paradoxically, were a period of exceptional *equalisation of women's completed cohort fertility* but also of *exceptional social inequality in children's sibsize*. Demographic research of that era was alert to the former of these

developments but widely overlooked the latter, leading to a scholarly view that the large social disparities in family size that had featured in the early decades of the twentieth century were no more (e.g. Kiser 1960, Kiser, Grabill and Campbell 1968, Glass 1968, 1976).

That picture as generally understood changed little over the following decades: the social differences in mean cohort fertility among women that had emerged by the 1960s became fixed within a narrow band of fluctuation. The view emerged that, despite persisting gaps in cohort fertility, family size was in a new era of relative social equality, prompting a focus on issues such as the age and partnership circumstances of mothers at birth as sources of social disparity (Sweet and Rindfuss 1983, Yang and Morgan 2003, Jones and Tertilt 2007, Morgan 2011). Some strands of research continued to highlight the powerful effects of family size on children's life chances (for reviews, see Heer 1985, Steelman et al. 2002; recent important contributions include Black *et al*., 2005, 2011; Bjerkedal *et al.* 2007, Booth and Kee 2009). But this work became disconnected from the analysis of macro-structural trends in social inequality. In consequence, the distinctiveness of children's family size and its significance for social stratification failed to register in the macro-structural approach. We now turn to the data which will enable us to develop a more complete picture of children's changing sibsize over this period.

Sibsize and social inequalities among children: new estimates

Data and measures

The picture of sibsize presented here is based on data for two age-groups – women aged 45-49 years and children aged 8-9 years. It examines social differentiation

along two axes of stratification – race and maternal educational attainment. The data are drawn from the Integrated Public Use Microdata Series from the US Census (Ruggles et al. 2010) and the Current Population Survey (King et al. 2010) – see Data Appendix for details.

Women aged 45-49 are included in the analysis since they are widely studied in demography as the age-category that represents just-completed child-bearing. Their interest for present purposes is that, by applying the derivation formula just outlined, data on their fertility outcomes can be used to generate measures of their children's sibsize and yield a consistent measure of *completed* sibsize over time. Though that time series is informative and is much used here, it has the limitation that the 'children' of 45-49 year old women are not a specific age-category since they range in age from infancy to their early 30s – and also span a 30 or more year time period of childbearing among their mothers. Both the age-range and time period they encompass are thus diffuse. In addition, the children in question can be observed in the data we use here (which relate to co-resident members of households) only in cases where they are recorded as residents of the same household as their mothers, a condition which holds typically for less than half of those children. It is thus difficult to learn anything more about those children or their family circumstances in childhood other than their sibsize.

To examine sibsize in a more time and age specific way and among children we can fully observe in the data, we focus in addition on a narrow age-band of younger children and examine sibling numbers and other features of their family contexts in successive birth-cohorts (on the sampling issues involved, see Lam and

Marteleto 2013: 20-22). The technique used here is to extract a relevant age-band of children from the micro-data and link them with their mothers' reported number of children ever-born (along with other key variables such as family structure and maternal age and education), thus providing a measure of sibsize among the selected children.

Sibling numbers measured in this way are independent of whether siblings of the reference child are still resident in the family home or even whether they are still alive. Half-siblings who have the same mother and different fathers are captured in the sibling count but half-siblings who have different mothers and the same father are not. In all cases, this method of measuring sibsize requires that the children be young enough to be co-resident with their mothers so that the linkage in the data records with the mother's response to the children-ever-born question can be achieved. A further age constraint arises for years where CPS data are used (in the present instance, the years 2000 and 2012) since the 'children ever born' question was asked only of women aged up to 44 in 2000 and up to age 50 in 2012. This constraint means that the children we focus on must be young enough for their mothers to be below these age thresholds at time of measurement in 2000 and 2012 and thus have answered the 'children ever born' question.

I select 8-9 year olds here as a suitable age-group to fit within these constraints. At that age children are old enough for their mothers to have advanced some way in their family formation but are young enough to be still largely co-resident with their mothers and not to have a large share of mothers who were beyond the age-thresholds for the CPS question on children ever born in 2000 and

2012. This focus does not give us a picture of completed sibsize among children but it does yield a consistent account of sibsize in middle childhood. It allows us not only to trace change in children's family size over an extended period but also to examine linkages with other aspects of the children's family context such as family structure and parental education. It should be noted that while the resulting family size data relate to a tight age-band of children, the ages of their mothers are quite varied, ranging from early 20s to early 50s and with a mean age in the mid-30s (over the period 1900-2012, the mean age of mothers of 8-9 year olds in the data we use here was at its lowest in 1980, at 33.95 years, and at its highest in 2012, at 36.99 years).

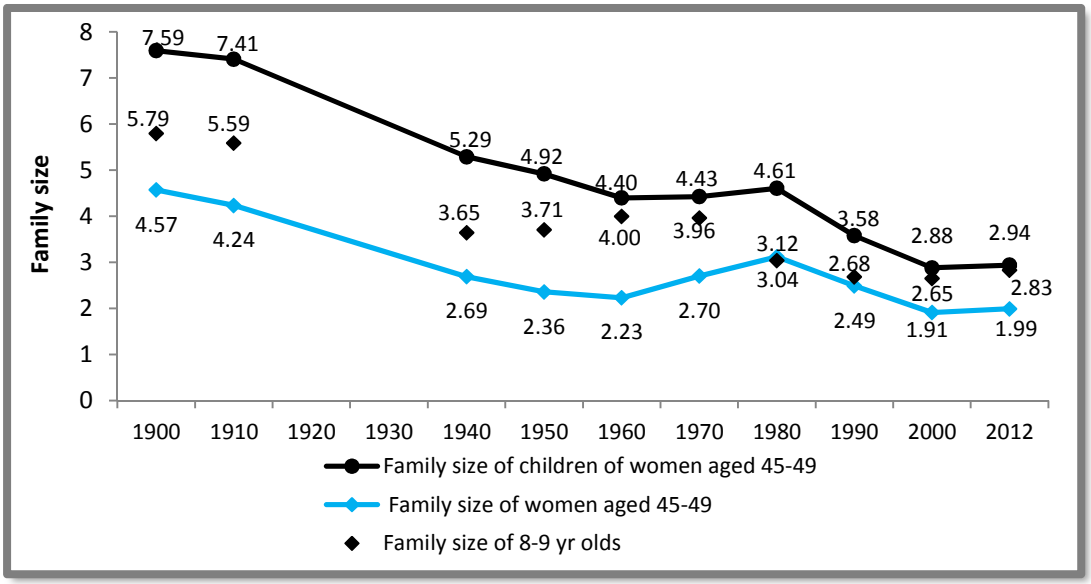
The broad picture: women's family size and children's sibsize over time

To contextualise the analysis, Figure 1 takes the story back to 1900 and plots three measures of family size derived from the data just outlined. The first measure tracks cohort fertility among women aged 45-49 (a conventional measure), the second uses Preston's formula outlined earlier to derive the sibsize of those women's children, and the third tracks sibsize among 8-9 year olds. Keeping in mind that childbearing among 45-49 year old women is likely to have been concentrated in a period some 15-20 years prior to the year of measurement, the trend line for the fertility of that age-cohort reflects the pre-war decline in childbearing, the post-war baby boom and the subsequent resumption of decline until the end of the century. The trend-line for sibsize among their children shows a similar trajectory but at a level that is 1.5 to two times higher and with an initially slower rate of decline. In 1960, for example, when cohort fertility among 45-49 year old women had fallen to 2.21, sibsize among their children was almost double that at 4.37. Thirty years later,

when cohort fertility among the women had *risen* slightly to 2.43, sibsize among their children had *fallen* to 3.50, generating a ratio of 1.44 to one.

The changing sibsize of 8-9 year-olds is shown as the third trend in family size in Figure 1. This measure differs from that for children of women aged 45-49 in the first instance because for the early twentieth century sibsize among 8-9 year olds was well below that for children in completed families, reflecting incomplete childbearing among many mothers of 8-9 year olds in that period. By the early 2000s, however, the gap had almost disappeared, indicating that by then few women who had children aged eight or nine would go on to have more children. In addition, the focus on 8-9 year olds captures more precisely the timing of the fall in children's sibsize in the second half of the twentieth century: the big drop occurred in the two decades between 1970 and 1990 following which it more or less bottomed out.

Figure 1: Family size for three population categories, United States, 1900-2012: women aged 45-49*, children of women aged 45-49* and 8-9 year-olds

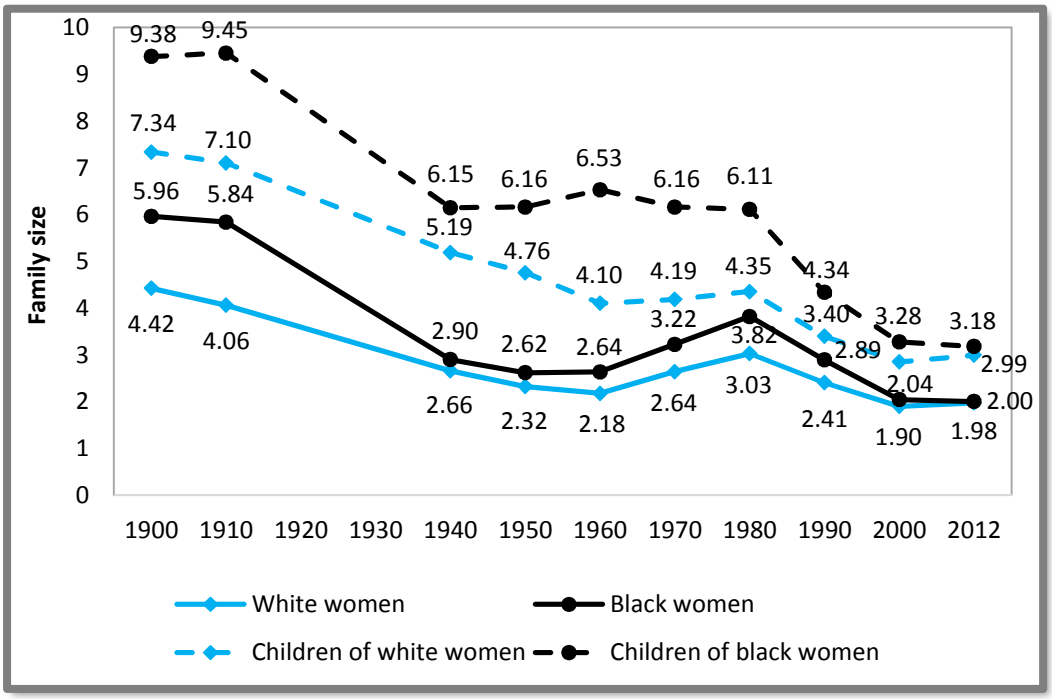


* Data for 2000 are based on women aged 40-44. Data for 1900-1970 differ slightly from those published by Preston (1976) because of minor differences in population coverage and the handling of top-coded parity data in certain years.
Sources: IPUMS-USA (1900-1990), IPUMS-CPS (2000), US Census Bureau (CPS 2012)

Differentials in sibsize by race

We now come to our core concern, which is to examine social disparities in family size. We look first at differentials by race using measures both of women's cohort fertility and of sibsize among their children (Figure 2). Again we take the story back to 1900 to provide an historical context.

Figure 2: Family size among women aged 45-49* and among their children by race, 1900-2012



* Data for 2000 are based on women aged 40-44. Family size among children (sibsize) is derived based on the method described by Preston (1976).
Sources: IPUMS-USA (1900-1990), IPUMS-CPS (2000), US Census Bureau (CPS 2012)

As the solid lines in Figure 2 show, racial disparities in women's cohort fertility had narrowed by the 1940s and 1950s, widened slightly up to the 1980s and then narrowed again – the conventional story of change in women's fertility in the twentieth century as outlined earlier. The dashed lines in Figure 2, however, show that sibsize differentials among their children evolved differently. Both black

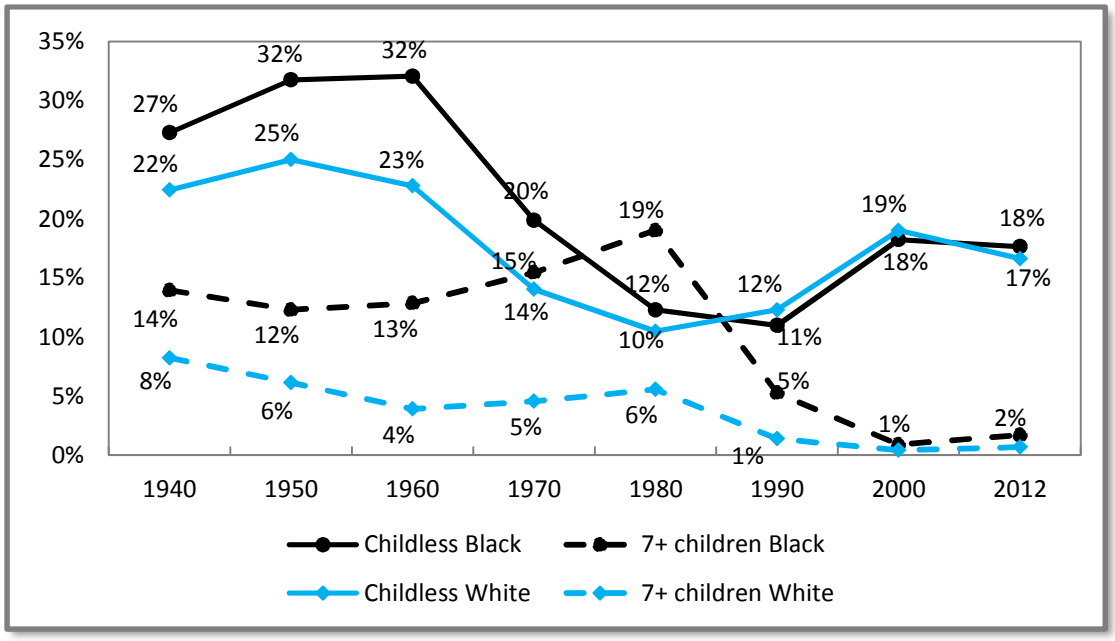
and white sibsize fell from very high levels in the early twentieth century but black sibsize plateaued in the 1940s as white sibsize continued to decline. The result was that the racial gap in sibsize widened after 1940 and reached a maximum for the century in 1960 (as Preston 1976 showed): in that year, the average child of black women aged 45-49 was one of 6.53 siblings where the corresponding white child was one of 4.10 siblings, a differential of 2.43 siblings. This gap was marginally greater in absolute terms than it had been in 1910 (when it was 2.35 siblings) and in relative terms was much greater (the black-white ratio in sibsize in 1960 was 1.6, compared to 1.33 in 1910). It remained quite wide until 1980, at which point it entered a rapid contraction to the extent that it had almost disappeared by 2012. *Thus the post-war years emerge as the period of widest racial disparities in sibsize in the twentieth century, while the final quarter of the century witnessed the virtual elimination of this aspect of racial difference in children's family contexts.*

As outlined earlier, mean sibsize among cohorts of children is driven by both the level and the variance of their mother's childbearing. Figure 3 gives an indication of how variance in fertility changed among black and white women for the years 1940-2012 by focusing on two extremes of family size – childlessness and very large families (those with seven or more children).

Wide variance in black women's fertility up to 1960 arose from an exceptional combination of these two extremes: one-third of black women aged 45-49 in 1960 were childless while 13% had had seven or more children. This polarisation of black women's family size explains why sibsize among black children at that time was so large even though on average black women's cohort fertility was

low.[2] Narrower variance among corresponding white women was the result of a lower incidence both of childlessness (23%) and of large families (4% had seven or more children). In consequence, white children were more clustered in families of moderate size than was the case for black children.

Figure 3: Women aged 45-49*: % childless and % with very large (7+ children) families by race, 1940-2012



*

Data for 2000 are based on women aged 40-44.
Sources: IPUMS-USA (1900-1990), IPUMS-CPS (2000), US Census Bureau (CPS 2012)

Figure 3 also reveals an important racial difference in the nature of the post-war baby boom. Among white women, childlessness fell and there was no return to larger family sizes. Among black women, childlessness declined fell more steeply but, in contrast to white women, a sharp rise occurred in large families (the proportion with seven or more children rose from 13% in the 1960 cohort to 19%

[2] The sharp increase in variance in black women's fertility in the post-war period has not been adequately explained. Initial accounts blamed the rise in childlessness among black women on a syphilis epidemic of the 1930s and 1940s which left many women involuntarily sterile (Kiser et al. 1968: 57, 64-66, 199-200; Farley 1970, Brandt 1988). Later research interpreted black childlessness as a largely voluntary response to the same choice issues as drove white fertility decline (see Boyd 1989 for a review). The latter explanation, however, is difficult to reconcile with the simultaneous rise in the incidence of large families among black women who did have children, a pattern which did not occur among white women (see Figure 3).

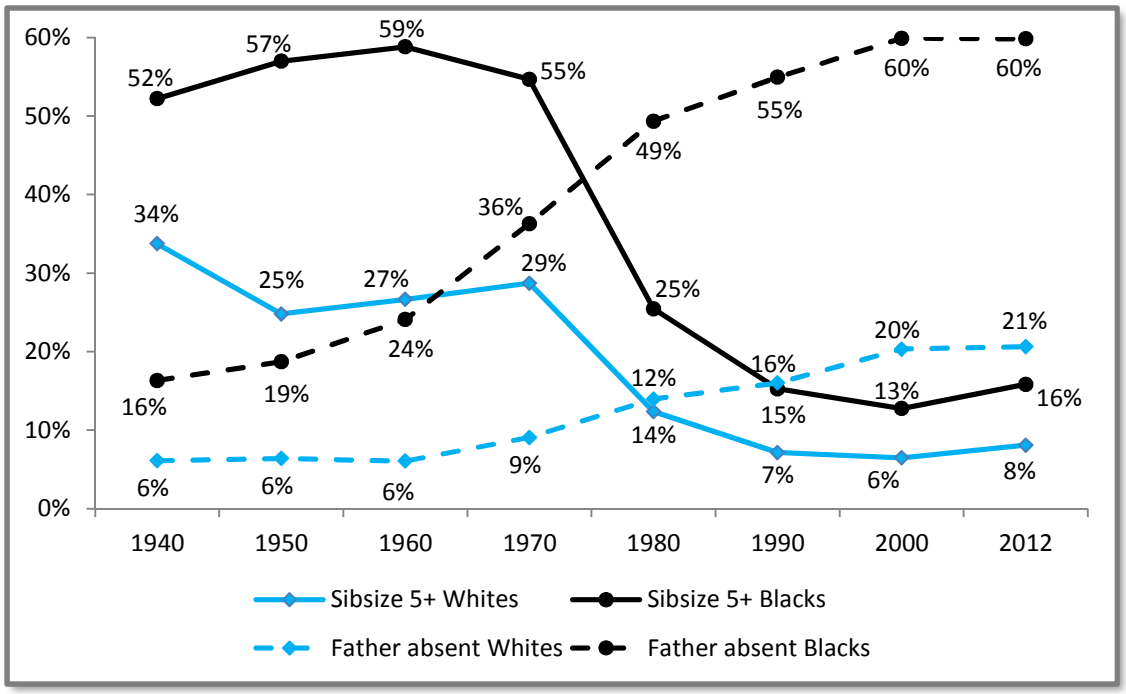
in the 1980 cohort). For white women, in other words, the rise in cohort fertility was accompanied by reduced variance, thus bringing children's sibsize closer to the mean cohort fertility of their mothers (as shown earlier for the 1980 cohort in Figure 2). For black women, variance in cohort fertility remained wide as the mean rose, thus causing sibsize among their children to continue at a level well above cohort fertility (as also shown for the 1980 cohort in Figure 2). It was only after 1980 that convergence between black and white women on these indicators set in: the incidence of large families among black women plummeted and had fallen to the very low level found among white women by the beginning of the 2000s, while the black-white difference in the incidence of childlessness had already been more or less eliminated by the 1980s.

Sibsize and family structure: counter-balancing trends

As indicated earlier, a key concern in this paper is the possible contrast between sibsize and family structure as sources of racial disparity among children and the extent to which trends over time in these aspects of children's family context ran counter to each other. Did the growing disparities in family structure that emerged between lower and higher status children since the 1960s create a new level of inequality in their family circumstances, as the Moynihan Report first argued and much subsequent research has since concurred? Or do we get a different picture if we take family size into account and ask whether old social inequalities in children's sibsize have faded as new disparities in family structure have emerged, suggesting a potentially more neutral net effect of family change on social inequalities among children over this long period?

To answer this question, we switch our attention to 8-9 year olds since, as outlined earlier, it is possible in their case to measure other aspects of their family contexts alongside sibsize, including family structure. The measure of family structure we use here is father absence – whether or not the reference child's father was resident in the child's household – and the measure of sibsize is the percentage of the 8-9 year olds who belonged to sibling groups consisting of five or more children. Figure 4 plots these two indicators for black and white 8-9 year olds for the period 1940-2012. The dashed lines in this graph represent the widening racial differential in children's exposure to father absence which has attracted comment since Moynihan's day and underlies the 'diverging destinies' interpretation of how family change has affected inequalities among children. The solid lines represent the trend in family size and show a different picture. First was the period up to 1960 when larger sibsize became somewhat more common for black children and less common for white children, thus widening the racial gap in sibsize. At the same time the racial gap in father absence was also worsening to the disadvantage of black children. This then was a period when black children were losing ground because of both family size and family instability, echoing the view offered earlier of the years around 1960 as a period of maximal racial inequality in children's family circumstances.

Figure 4: Sibsize of 5+ and father absence among 8-9 year-olds by race, 1940-2012

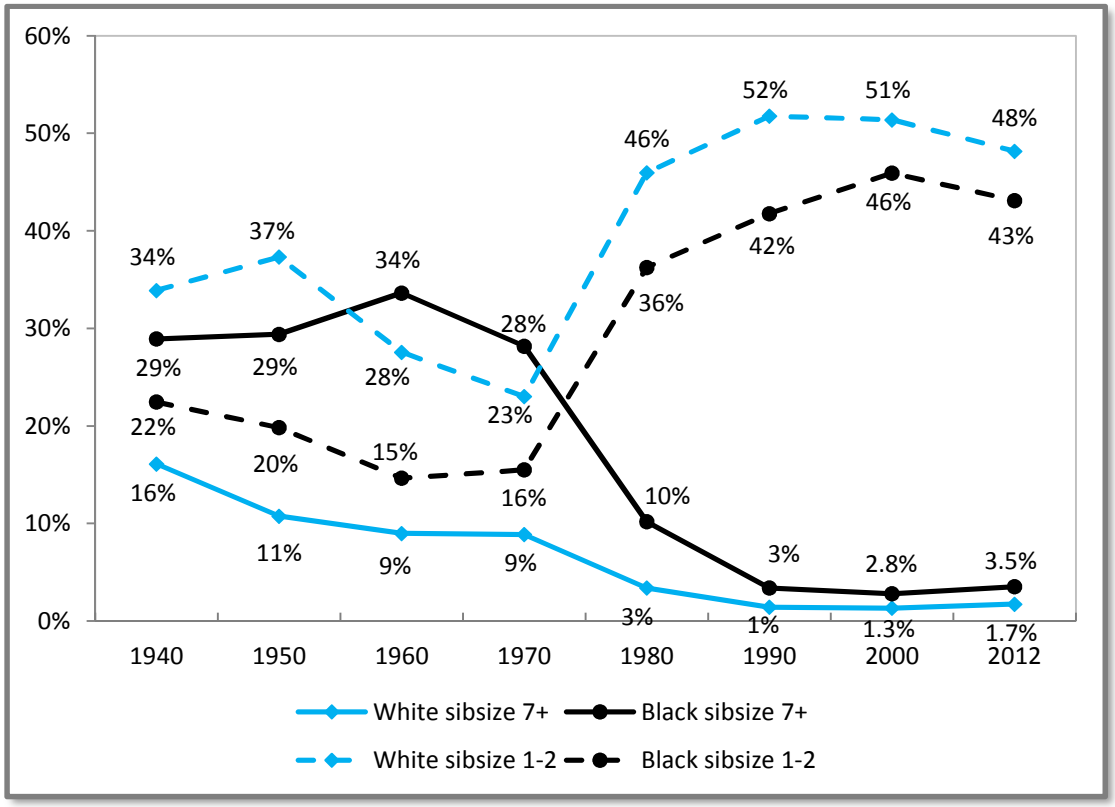


Sources: IPUMS-USA (1900-1990), IPUMS-CPS (2000), US Census Bureau (CPS 2012)

Between 1960 and 1970, however, the share of black 8-9 year olds in families of five or more siblings levelled off at just under 60%. It then tumbled in the 1970s and 1980s, converging rapidly though not completely towards the reduced sibsize then found among white children. By the end of the century, racial differences in father absence and larger sibling numbers had more or less inverted the corresponding disparities of half a century earlier: sibling numbers had fallen for black children as father absence had risen and the pattern of black children's disadvantage on father absence in the year 2000 mirrored the pattern of black children's disadvantage on family size of the 1950s and 1960s. Since 1970, then, narrowing racial disparities in sibsize have run counter to widening racial disparities in family structure and point to the possibility that the former

neutralised the latter as far as effects on social inequalities among American children are concerned (a possibility I return to below).

Figure 5: Percent of 8-9 yr olds with very large (7+) and small (1-2) sibsize by race, 1940-2012



Sources: IPUMS-USA (1900-1990), IPUMS-CPS (2000), US Census Bureau (CPS 2012)

Looking again at 8-9 year olds, Figure 5 amplifies the picture of changing sibsize differentials by race since 1940 and reinforces the picture of worsening disadvantage for black children in the early part of the period. The proportion of black 8-9 year-olds with a sibsize of seven or more rose to one-third in 1960, compared to less than one-tenth among white children at the same time and to 29% of black children who were in such families in 1940. Between 1970 and the end of the century, the incidence of very large sibsize among black children plummeted, the incidence of small sibsize soared and for the first time the small family became a common experience for black children. *Here again, then, we have evidence that the*

later decades of the twentieth century, particularly the 1970s and 1980s, witnessed a sibsize revolution for black children that transformed their family circumstances and narrowed a previously wide disparity with white children.

Sibsize differentials by maternal education

The estimates of sibsize differentials presented so far have focused on race as the stratifying variable. We need also to check the robustness of the patterns identified in regard to differentials by education, since education is often used as a proxy for social class. The context here is the common view that as a black middle class emerged in the 1970s and 1980s and the white urban poor became more numerous, social class took over from race as the dominant influence on the nature and extent of social disadvantage among American families (Wilson 1987, Massey and Sampson 2009).

To examine educational differentials in sibsize for the period 1940-2012, we classify 8-9 year-olds by their mothers' level of educational attainment in two ways. One is to use the standard categories of educational attainment (high school, college degree, etc.). However, the expansion of education since the 1940s has been so great that the distribution of the mothers of 8-9 year-olds according to these categories has changed dramatically and provides a limited means of tracking relative social position (see Appendix Table 2). In 1960, for example, 46% of mothers of 8-9 year olds had not graduated from high school. By 2000, that proportion had dropped to 12%.

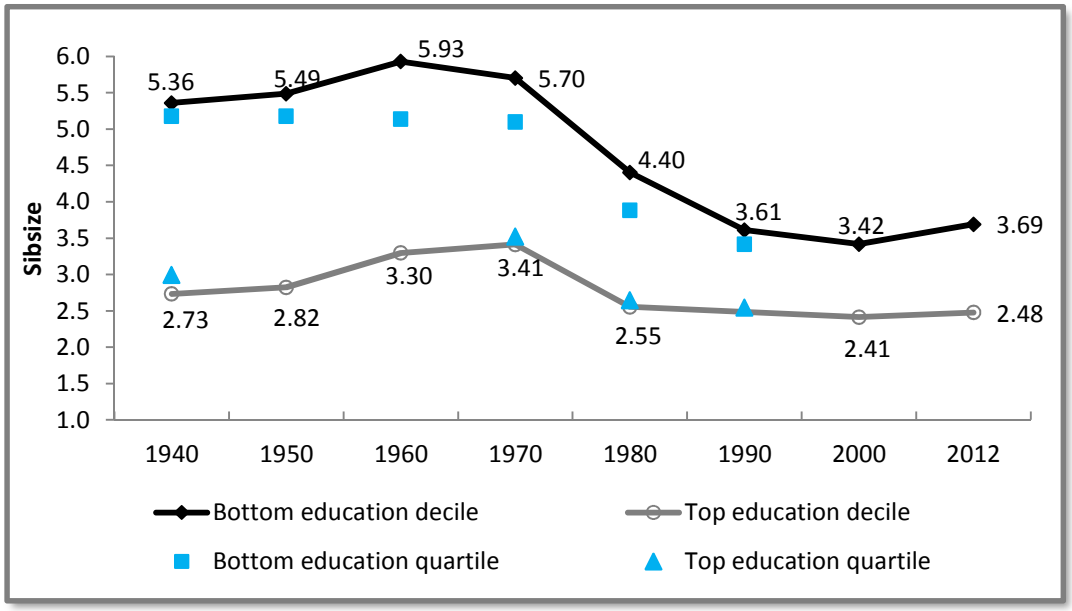
The second approach we use is to measure relative educational position at each time point by reference to decile and quartile distributions of educational attainment. That approach too has problems since the limited numbers of categories used to measure educational attainment and the uneven distribution of the population across those categories mean that exact identical proportions cannot be tracked over time. In the year 2000, for example, we can identify a bottom 13% of mothers who had not graduated high school but the next category – those with high school diplomas – contained 33% of mothers among whom we cannot separate out those who would be in the bottom educational quartile. Similar uneven distributions across educational categories in other years mean that it is rarely possible to measure quartile or decile segments in a precise way. Our solution here is, where possible, to define and measure proportions which approximately capture the top and bottom educational deciles and quartiles. In cases where the measured proportions deviate by more than ±5% from an exact quartile or by ±3% from an exact decile, the data are treated as missing.

Trends in mean sibsize among 8-9 year olds classified by the bottom and top educational deciles and quartiles of mothers are shown in Figure 6a, with Figure 6b based on fixed educational categories. The pattern revealed in Figure 6a echoes that found earlier for differentials by race. From 1940 to 1970, the sibsize gap across educational levels widened or remained stable, depending on the sub-period and metric examined, while from 1970 to 1990 a decisive but incomplete convergence occurred. Comparing the top and bottom education deciles, for example, the sibsize differential was 2.63 in 1960 while by 2000, it had reduced to 1.01. The latter figure indicates the incompleteness of the sibsize revolution among lower status children

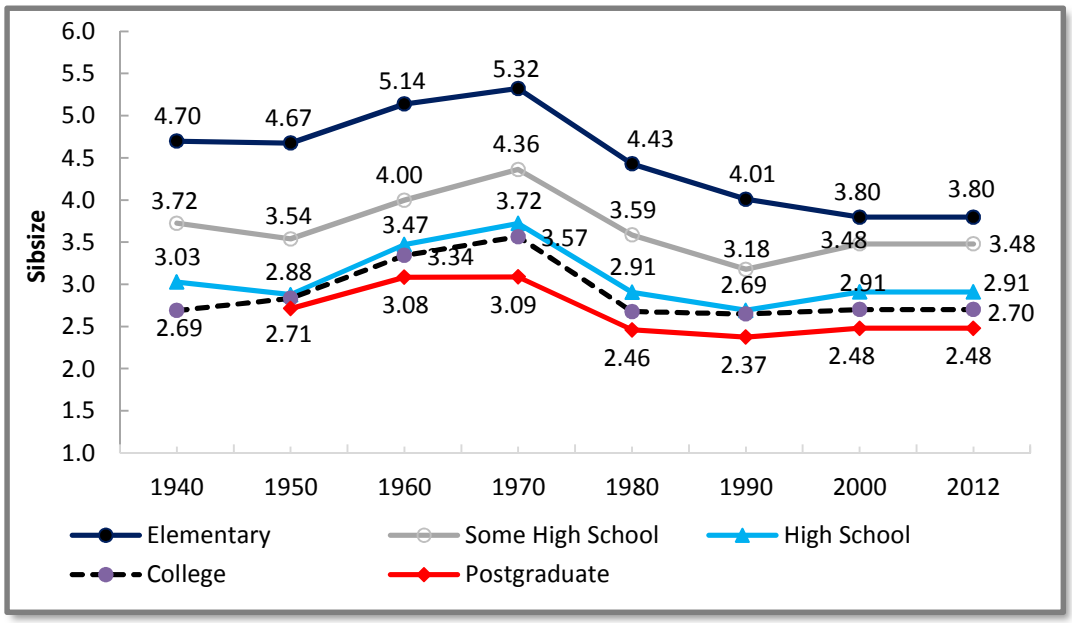
since a differential of around one in the early 2000s was still substantial and warranted attention as an aspect of social inequality. Yet it was substantially lower than it had been fifty years previously.

Figure 6: Sibsize of 8-9 year-olds by educational level of mothers, 1940-2012

6a. Mothers classified by relative educational level: (approximate) top and bottom educational deciles and quartiles



6b. Mothers classified by standard categories of educational attainment



Sources: IPUMS-USA (1900-1990), IPUMS-CPS (2000), US Census Bureau (CPS 2012)

The interest of Figure 6b lies in what it reveals about declining sibsize even among children whose mothers who had not shared in the general upgrade in educational attainment. For example, while mothers with no more than elementary education represented an ever more marginalised sub-population in educational terms over time (as Appendix Table 2 shows), their children came substantially closer to the middle ground in regard to sibling numbers. By 2000, their sibsize (at 3.80) was quite high in relative terms but, having fallen from 5.32 in 1970, was nevertheless almost down to the level that children of mothers who were high school graduates had experienced thirty years previously (3.72). Thus while the general advance in the educational level of the adult population may have been one factor that helped drive the decline in children's sibsize, changed behaviour among mothers within educational grades, especially at the lower levels, also had an effect.

Sibsize, race and education: a multivariate picture

To complete the analysis of sibsize differentials by race and maternal education, I use OLS regressions for selected years to examine the joint effect of both axes of differentiation simultaneously while controlling for other key variables available in the data, namely, maternal age and family structure (as measured by mother's marital status). As the results in Table 1 shows, the coefficients for race confirm that its effect on sibsize peaked in 1960 and declined thereafter but remained significant even in 2012. The effect of the various categories of education peaked in 1970 and declined more slowly thereafter, consistent with the view that educational attainment displaced race as the main axis of differentiation as the twentieth century came to a close. Though the coefficients for 'elementary' education and 'some high school' remained quite large in 2012, it should be recalled that in

combination those two categories accounted for only 12% of mothers in that year, compared to 47% in 1960, so that they represented a declining segment of the population.

Table 1: Regression models of sibsize among 8-9 year olds

	1940	1960	1970	1990	2012
Constant	*-2.00****	*-0.06*	*-0.64****	*0.27****	*2.05****
Race – black	1.04***	1.56***	1.26***	0.46***	0.38***
Mother's education					
Elementary	0.76***	1.15***	1.16***	1.12***	0.92***
Some high school	0.17	0.30***	0.50***	0.49***	0.68***
High school	ref.	ref.	ref.	ref.	ref.
College	-1.10***	-0.34***	-0.30***	-0.14***	-0.19**
Postgraduate	-0.37	-0.76***	-0.94***	-0.61***	-0.42***
Mother's age	0.13***	0.06***	0.09***	0.06***	0.01**
Mother's marital status					
Married	ref.	ref.	ref.	ref.	ref.
Married spouse absent	-0.69**	-0.08	-0.05	0.04	N/A
Separated	N/A	-0.20***	0.07	0.04	0.33
Divorced	-0.96**	-0.54***	-0.23***	-0.22***	-0.18
Widow	-0.10	0.16	0.23***	0.27**	0.28
Single	N/A	N/A	-1.12***	-0.39***	-0.35***
R square	16.4%	15.2%	17.8%	11.9%	7.2%
N	5778	46210	41688	22466	2701

* p < 0.5 ** p < 0.01 *** p < 0.001. N/A: not available

Of the control variables, it is notable that the coefficient for mother's age also dropped over time, reflecting the increasing disjunction between women's age and family size as contraceptive practice became more universal. Finally, there are indications that in all years, one or other form of instability in the mother's relationship with the reference child's father had the effect of reducing family size – or, to put it the other way, the father's continued presence had the effect of adding siblings to the child's family. In 1940, the main damping effect occurred among married women whose spouse was absent, divorce emerged as an influence with

similar effects from 1960 to 1990, and unmarried parenting acted similarly from 1970 (and did so especially in 1970). While father absence is usually thought of as harmful for children, its effect in limiting the number of siblings with whom children had to compete for family resources could be considered a compensating factor.

Challenges and questions for research

This paper has sought to show that since the 1950s, trends in two sources of social disparity in children's family contexts in the United States have moved in different and sometimes opposing directions over time. The incidence of mother headed families has increased and has become more differentiated by social status, but children's sibsize, having become more unequal during the post-war baby boom, turned towards social convergence in the 1970s and 1980s and led to a dramatic reduction (though not complete elimination) of social differentials in sibsize by the end of twentieth century.

Space precludes an analysis here of the full significance of these developments but it is possible to outline some of challenges they pose for existing scholarship and indicate directions for future research. The key challenge is to assess the effects of social convergence in sibsize on social inequalities in children's lives and weigh these up against the 'diverging destinies' for children that, as outlined earlier, most scholars now see as the dominant impact of family change on social inequalities among American children. The 'resource dilution' perspective on family size has long argued that number of siblings can reduce the family resources available per child in a family and hamper child development (Downey 2001, Steelman et al. 2002). The implication is that the social convergence in sibsize in the

US since the 1970s may have exerted an equalising influence on family resources available to children and counterbalanced the disequalising effect caused by growth and social polarisation of weakened family structures.

A key challenge for future research is to establish how far this is so. One starting point might be provided by the numerous studies which have assessed the impact of rising lone parenthood on income inequality over time, the results of which have constituted an important foundation for the 'diverging destinies' thesis (McLanahan and Perscheski 2008 review the results of ten such studies). These studies apply various techniques to estimate the counterfactual trend in income inequality that would have occurred had family structure remained unchanged over the period they study and use the gap between the counterfactual and the actuality to measure the effect of change in family structure on income inequality. In the ten studies just mentioned, for example, the family structure effect identified in this way was an increase in income inequality of between 11 and 65 per cent over a diverse range of time periods (McLanahan and Percheski 2008: 260).

It would have some value to build on those studies by estimating a second counterfactual – what would have happened to income inequality had both sibsize patterns and family structures remained unchanged, that is, if the typical lower status child today had two co-resident parents and five or six siblings rather than the current mix of one-parent and two-parent arrangements with two or three siblings. We should recall here that Mollie Orshansky's pioneering studies of poverty in the 1960s found that, in the context of a general US poverty rate of 15% at the time, the poverty rate among families with five children was 36% and among *black*

families with five children was 74% (Orshansky 1965, Table 8). The task faced by counterfactual analysis, then, would be to project the combined family size and family structure conditions of that era forward to today, estimate a concomitant pattern of household income distribution, and use the contrast with current actual income distribution to estimate a more comprehensive measure of the effect of family change on income inequality.

While such an exercise would have some interest, it is instructive to consider the substantive limitations and the methodological challenges it would face. First is the limited value of snapshot measures of income in capturing the family resources that are relevant for child well-being. The issue here is whether measures of current potential consumption (as measured by household income) adequately capture the ongoing investment in children's personal and human capital development that shapes their life chances. One illustration must suffice here to indicate the complexities involved: if a fifteen year-old in a poor family leaves school to take up a paid job, the result is positive from an anti-poverty or income equality point of view (since income in the family rises) but is negative from a human capital or child development perspective (because the child's schooling is curtailed). Likewise, if over time the incidence of transition to work among lower-status teenagers changed, the implications for income equality could be different to those for equality in child development. Time-series analysis of the effects of family change on resource equalities among children would face considerable difficulty in taking such nuances into account.

A related challenge comes from the need to consider *total* sibsize rather than the co-resident sibling group typically taken into account in household income data. Early departure of children from the family home as a result of pressure of numbers is a common consequence of large family size and a significant influence on child development but is missed in data on the co-resident family unit. Among the 8-9 year-olds studied for the present paper, for example, the black-white racial difference in total sibsize in 1960 was 25 per cent greater than the corresponding difference in co-resident sibsize. The focus on co-resident sibsize among families with children which is standard in conventional poverty measurement thus misses an important aspect of racial disparity in children's family contexts. Coping with this issue in time-series analysis over a period of decades would be both theoretically and methodologically complex since solutions would depend on how relevant theory would be operationalised and on the availability of appropriate data. Sampling issues also come into play since representative samples of families under-represent children in large families while representative samples of children over-represent large families (Jenkins and Tuten 1992). Time series studies in this area would thus have to choose between an adult-focused and child-focused approach and adopt their sampling strategies accordingly.

These considerations indicate that meaningful inclusion of sibsize into analysis of how family change has affected the evolution of social inequalities among children in America would be no easy task. However, it seems to be a sufficiently important issue to warrant considerable research effort in the future.

The task of *explaining* the sibsize revolution described in the present paper is also important, not least because of contemporary policy relevance. The sharp downward turn in sibsize in lower status families in the 1970s coincided with the introduction of federally funded family planning programmes for low income families through Title X of the Public Health Service Act, 1970 (Bailey 2012). While this coincidence of timing does not prove causality, it nevertheless raises the possibility that publicly funded family planning measures that were introduced on a bi-partisan basis under President Nixon were a driver of one of the great sources of social advance for lower status children of the past fifty years. This is a significant issue for academic understanding but also in light of controversy in recent years about continued funding for Title X programmes (Thomas 2012). It is also worth noting that while family planning is often targeted especially at prevention of unwanted teenage pregnancies, higher parities among older women are the key driver of large sibsize and merit continuing policy attention in light of the remaining social disparities in moderately large sibsize outlined above.

Conclusion

Starting with Daniel Patrick Moynihan in 1965, a line of prominent American social scientists has paid close attention to widening social disparities in family structure as a driver of social inequality among children in the United States but has overlooked the concomitant social convergence in sibsize (for a recent instance, see Putnam 2015: 43-75). The present paper has argued that the elision of sibsize in this way has led to an unduly pessimistic picture being painted of what has happened to American family life over the past half century and of how family change has affected social inequalities among children. Lower status American children today

are indeed much more likely than their higher status contemporaries to grow up in a household where no father is present and where they are economically and socially vulnerable as a result. They are also more likely to have had that experience than their grandparents did in their own childhood in the 1960s and 1970s. However, the children who grew up in lower status families fifty years ago themselves faced a different kind of vulnerability – that which arose from being one of five, six, seven or more siblings, a risk which was especially pronounced where the father remained in place and endowed his wife with ever-more children.

Social science has not yet sought to assess whether it was more challenging for lower-status children to grow up in the 1960s with two parents and many siblings than to grow up today with one parent and fewer siblings. Many studies have examined the effects of rising lone parenthood on income inequality over time (McLanahan and Percheski 2006) but, as the present paper has briefly outlined, much further work needs to be done to incorporate the effects of converging sibsize into that research in a theoretically coherent and methodologically robust way. In any event, it seems reasonable to take as a starting assumption for such future work that the large family and the unstable family are each socially and economically vulnerable in their own way and that the transition from one to the other over time as the dominant family type among less well-off children is best thought of as a change in form of risk rather than the absolute increase in risk that most accounts of the rise of mother-headed families today would seem to imply.

Data Appendix

The key data used in this paper are based on responses to a question on 'children ever born' which was asked of women in the US decennial census of population from 1900 to 1990 (except 1920 and 1930) and which, with some age-limitations, was continued every second year in the Current Population Survey up to the present. In the CPS, that question was limited to women aged 15-44 up to 2010 and in 2012, the age-range for the question was widened to include women up to age 50 (which is why I use the data from 2012 rather than 2010 to complete the decennial series on which the present analysis is based). The main text above explains how the age-thresholds for the CPS version of the children ever born question affected data selection for the paper.

The table below presents some details on the samples from the US Census and the Current Population Survey used in the paper. The samples relate to women aged 45-49 and children aged 8-9. The data drawn from these samples are subject to a number of errors, of which those affecting the 'children ever born' variable are of most relevance here. First, the census question on this item was asked only of ever-married women from 1900 to 1960 (it was asked of all women from 1970 onwards). Here, as is the norm in fertility analyses based on these data (Kiser et al. 1968, Preston 1976), single women in those years are counted as being childless, a procedure that would tend to produce an underestimate of fertility since it excluded non-marital births. However, Kiser et al. (1968: 300-02) checked census-based fertility estimates in 1960 against those based on vital statistics sources and contemporary Current Population Surveys and showed that census underestimates of births were likely to be small (in the region of 3-4 per cent).

Appendix

Appendix Table 1: Study Samples from IPUMS and US Census Bureau

Year	Source	Sample of women aged 45-49	Sample of 8-9 yr olds
		Number of cases	
1900	IPUMS Census	10000	9092
1910	IPUMS Census	10309	8086
1940	IPUMS Census	83608*	7973*
1950	IPUMS Census	101366*	13779*
1960	IPUMS Census	75322	46684
1970	IPUMS Census	64199	42238
1980	IPUMS Census	46553	29247
1990	IPUMS Census	50988	24754
2000	IPUMS CPS	5096	3454
2012	US Census Bureau (CPS)	4696	3544

CPS: Current Population Survey. * IPUMS self-weighting sample.

Estimates of sibsizes among 8-9 year-olds were derived by attaching mothers' responses to the 'children ever born' question to the data records for their children using the linking procedures available in the IPUMS databases. For CPS 2012, where the data were drawn directly from the US Census Bureau, the linkages were made by aggregating the individual level records at family level. Data on sibsize are missing for children who were not living with their mothers and where mothers did not respond to the children-ever-born question. Non-residence with

mothers could be due to a range of factors – the mother's death, early departure of the child from the mother's home or other form of separation between child and mother. The extent of these factors varied over time and introduces an element of variation in the responses that we have not tried to correct for here. Non-response by mothers to the children ever born question also varied over time and in CPS 2000 was exacerbated by the age threshold of 44 year beyond which women were not asked the question (9.9 per cent of 8-9 year olds in that year had mothers who were above that age-threshold – the raising of the age threshold to 50 in 2012 largely eliminated this problem). For children for whom the children-ever-born data were missing, the option of interpolating sibsize from counts of co-resident siblings in the household was explored but was not adopted as it seemed likely to introduce as many biases as it would correct.

Appendix Table 2: Educational distribution of mothers of 8-9 year olds, 1940-2012

	1940	1950	1960	1970	1980	1990	2000	2012
				%				
Elementary	57.6	37.2	21.1	12.3	7.8	5.4	4.5	4.2
Some high school	20.4	25.1	25.4	24.2	16.6	13.6	8.7	7.7
Complete high school	14.6	26.3	36.8	43.3	43.0	34.5	33.6	22.7
College	7.0	10.3	15.6	18.4	28.8	41.5	47.5	54.1
Postgraduate	0.5	1.0	1.1	1.8	3.8	5.0	5.7	11.4
Total	100	100	100	100	100	100	100	100

Sources: IPUMS-USA (1900-1990), IPUMS-CPS (2000), US Census Bureau (CPS 2012)

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