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ABSTRACT

Data from the Panel Study of Income Dynamics, the November 1989 Current Population Survey, and the National Longitudinal Study of Women suggest that women with sisters have completed less schooling than women without sisters. This hypothesis follows a long tradition of theories about the effects of sibling number and configuration. There is relatively weak evidence for this hypothesis in the analysis on which the findings are based. Analyses of the effects of sibling gender composition on educational attainment among cohorts of women and men in the Occupational Changes in a Generation Survey, the Survey of Income and Program Participation, and the National Survey of Families and Households offer no support for this hypothesis or for other related hypotheses about the effects of the gender composition of sibships.

In decades of research on the determinants of educational attainment in the United States, there is consistent evidence of the influence of a relatively small number of variables. These include birth cohort, sex, race-ethnicity, farm and Southern origin, academic ability and aspiration, and several indicators of the size, composition, and socioeconomic standing of the family of orientation. The last group of variables includes the number of siblings in the family, the presence of one or both parents in the household, and socioeconomic variables: parental education, occupational status, and income (Duncan 1967; Hauser and Featherman 1976; Sewell, Hauser, and Wolf 1980; Kuo and Hauser 1995).

The accumulated body of research shows a special fascination with functions of the size of sibships, their composition with respect to age or gender, and the position of individuals within their sibships (Ernst and Angst 1983; Heer 1985, 1986; Blake 1989). A great deal of attention has focused on supposed effects of birth order on intelligence, which is presumably a precursor of educational attainment (Zajonc and Markus 1975; Zajonc 1976, 1983; Zajonc, Markus, and Markus 1979; Zajonc and Bargh 1980; Steelman 1985, 1986; Steelman and Powell 1985; Retherford and Sewell 1991, 1992; Zajonc et al. 1991). Overall, this line of research has found little in the way of consistent findings beyond the overall negative effect of the size of sibships.

Within the past few years, a new line of research has brought attention to the gender composition of sibships (Powell and Steelman 1989, 1990; Butcher and Case 1994; Kaestner 1997) and, specifically, its influence on the educational chances of men and women. Socioeconomic background variables offer little help in accounting for gender differences in schooling in populations like that of the U.S. Gender preference affects the cessation of childbearing modestly through the desire of parents to have both sons and daughters (Westoff, Potter, and Sagi 1963: 205-7; Ben-Porath and Welch 1976, 1980). This is, of course, quite different in some Asian societies (Parish and Willis 1993), where there is a strong preference for sons. The new line of research has offered varying suggestions: that having more brothers hurts women's high school grades and college entry chances more than having sisters (Powell and Steelman 1989, 1990),[1] or that having any sisters hurts women's educational attainments (Butcher and Case 1994).

These are puzzling findings, and they conflict with other research findings. In a sample of the full sibships of 9,000 Wisconsin youth, who were born in years around 1939, we find absolutely no effects of gender composition on educational attainment (Kuo and Hauser 1996, 1997). To be sure, we do find differences between men and women in the attainment of schooling. Women's schooling is far less variable than that of men, and women's schooling is less affected both by measured and unmeasured family background variables than is the schooling of men. Women obtain less schooling than men, but this differential is unaffected by size of sibship (in the range 2 to 5) or by the gender composition of those sibships. These negative findings have left us skeptical about those reported by Butcher and Case and by Powell and Steelman. For that reason, we have set out to examine their evidence and findings and to obtain new evidence of the effects of the gender composition of sibships on educational attainment.

The evidence behind the new findings may be weak as well as contradictory. The studies by Powell and Steelman each fail to test for differences between the effects of numbers of male and of female siblings. Butcher and Case (1994) suggest that the deleterious effects of numbers of sisters have declined between two broad cohorts, those born from 1920 to 1940 and those born from 1940 to 1961, each observed in the 1985 Panel Study of Income Dynamics (PSID). Butcher and Case also analyze data from a November 1989 Current Population Survey supplement (CPS) and from the National Longitudinal Survey panel of young women panel (NLSW), but their findings in those data are less strong, and they focus on the PSID data.[2] Kaestner (1997) reports a careful analysis of data for younger cohorts than those examined by Butcher and Case, namely, respondents and children of women in the 1979 National Longitudinal Study of Youth (NLSY). He finds little evidence of effects of sibling gender composition, either on educational attainment in adulthood or on educational achievement in childhood and adolescence. One significant exception, which we do not address here, is his finding that Black men with sisters obtain more schooling than men without sisters.

These mixed findings pose a genuine empirical puzzle, and, in an effort to solve it, we have looked closely at the analysis by Butcher and Case, and we have carried out similar analyses in several other bodies of data that have not previously been analyzed with their hypotheses in mind. Specifically, we address the question whether there have ever been effects of sibling gender composition on educational attainment in the U.S. during the 20th century. We use three data sources that were not used by Butcher and Case: the 1973 Occupational Changes in a Generation Survey (OCG), the 1986 to 1988 Surveys of Income and Program Participation (SIPP), and the 1989 National Survey of Families and Households (NSFH). Each of these surveys is large, nationally representative, and covers a broad age-range of the adult population. The pooled SIPP panels contain more than 33,000 adults aged 25 to 64; the 1973 OCG has a similar number of adult men and their wives; the NSFH is a sample of 13,000 U.S. households. Each survey contains good measures of several social and economic background variables, including the gender composition of sibships. Thus, we believe that a comparative analysis of those data, focusing on differences between cohorts and between men and women in the effects of sibling composition, should enable us to clarify when and for whom the gender composition of sibships has affected educational attainment.

What Did Butcher and Case Find?

Butcher and Case's (1994) theoretical discussion offers several distinct hypotheses about effects of gender composition on educational attainment. “If parents wish to maximize the sum of their children's incomes and face no borrowing constraints” (p. 533), there should be no effect of the size or sex composition of a sibship on educational investment in children. If the family faces borrowing constraints, but parents still wish to maximize the sum of children’s incomes, “Children's educations are ... no longer independent of the size and composition of their sibships. If boys receive a higher return to each level of schooling, we should expect to see not only that boys receive more education, but also that the presence of sons reduces the educational attainment of daughters. A girl with only sisters would receive more education than a girl with brothers in this case” (p. 534). However, even in the absence of borrowing constraints, if parents have an aversion to earnings inequality among their children, they will invest more in children with lower returns to schooling, e.g., daughters. Thus, “in this case ... girls would receive more education in the presence of brothers” (p. 534). Yet another factor in parents' investment decisions about children is differential cost: “If the overall cost of raising a daughter differed systematically from that of raising a son, completed education of both male and female children may depend upon the *percentage* of female children in the household” (p. 535).

Noneconomic factors also enter the theoretical discussion. Developmental psychology suggests “a spillover model ... that a girl with an older brother will receive more education than a girl with an older sister if educational attainment is a masculine trait. ... [A] boy with an older sister will receive less education on average than a boy with an older brother" (pp. 535-36). Finally, Butcher and Case draw on reference group theory to suggest that "if sibling sex composition affects a girl's reference group, it may in turn affect her education. ... [W]omen with *any* sisters will obtain levels of education that differ systematically from those obtained by women with no sisters" (p. 536).

Our reading of Butcher and Cases's text is that their hypotheses are so varied that any nominally significant effect of gender composition might be read in support of the thesis that gender composition matters. Recall that it is the last of their hypotheses for which Butcher and Case find empirical support, but their theoretical statement does not even indicate whether the presence of any sisters should be expected to raise or lower women's educational attainment. Taken in conjunction with their several other hypotheses, we think it is fair to say that Butcher and Case's analysis of the PSID, CPS, and NLSW data was essentially exploratory. Such exploratory work is entirely legitimate, but their findings should be read and appraised with the caution necessary in exploratory work.

Despite the exploratory context of their analysis, Butcher and Case (1994: 532-33) are unequivocal in their conclusion:

> "This paper documents the impact of siblings on the education of women and men born in the United States between 1920 and 1965. We find that throughout the century a woman's educational choices have been systematically affected by the sex composition of her siblings, and that a man's choices have not. Women raised only with brothers have received on average significantly more education than women raised with any sisters, controlling for household size."

Having demonstrated this effect to their satisfaction, Butcher and Case further assume that the gender composition of sibships has no direct effect on earnings, and they use the presence of sisters as an instrumental variable in an earnings function:

> "Since sibling sex composition affects women's educational attainment and may plausibly be unrelated to other determinants of earnings, it may provide a useful instrument for education in earnings functions for women. Our results suggest that standard estimates significantly underestimate the return to schooling for women" (p. 531).

How strong is the evidence supporting these findings and conclusions? Table 1, reproduced from Table IV of Butcher and Case, shows mean years of completed schooling by size and gender composition of sibships of three or less among white men and women in the PSID, the November 1989 CPS, and the NLSW. Butcher and Case state that, because American couples do not choose the gender composition of their offspring, "Sibling sex composition should be orthogonal to personal and family background characteristics; therefore, differences in these means reveal that sibling sex composition matters." Among women from two-child families, Butcher and Case say that women with brothers have significantly more schooling, by about half a year in the PSID and a third of a year in the NLSW. In the larger CPS sample, they report, the difference is smaller, but statistically significant (p. 544). Among men from two-child families, they find no significant differences in educational attainment by gender composition of the sibship.

In larger families, Butcher and Case also find support for the negative effect of having any sisters. They report significant differences of 0.9 years, both for women with three siblings (t = 2.4) and for women with four siblings (t = 1.8).[3] They also report an effect of having no sisters among three-child families in the CPS, 13.38 vs. 13.28 years of schooling, but they say this difference is not statistically significant (t = 1.44).

Among men, however, Butcher and Case find “no clear relationship” between gender composition and educational attainment in larger sibships. They report that, “In three-children families in the PSID, men without sisters receive significantly more education than men with any sisters (14.6 vs. 14.0). ... [I]n families with four or five children the educational attainment of men appears to be orthogonal to sibling sex composition ...” (p. 546). Thus, Butcher and Case conclude their reading of Table 1, “women's schooling is influenced by both family size and the sex composition of siblings. Men's schooling, however, is unaffected by the sex composition of siblings.”

How credible is this reading of Table 1? We do not find it convincing. In the case of women from two-child families, Butcher and Case exaggerate the reliability, strength, and consistency of their findings. Contrary to the text, the “third of a year” effect in the NLSW is not statistically significant at any conventional level (t = 1.53). Furthermore, the effect in the CPS, which is described as “significant although smaller (13.7 vs. 13.5)” (p. 544) is indeed statistically significant (t = 2.2), but it is actually less than 0.2: 13.68 vs. 13.54. Among larger families, there is no significant difference in schooling in the PSID between women from three-child families who did and who did not have sisters. While Butcher and Case report a “significant” effect among women with four siblings, it is not clear why one would reject null in an exploratory analysis with t = 1.8. Moreover, no significant effects are reported among women with two or more siblings in the November 1989 CPS or in the NLSW. Thus, among nine possible tests of the hypothesis for the samples of women covered in Table 1, there are only three statistically significant effects of having any sisters: among women with one sibling in the PSID and the CPS and among women with three siblings in the PSID.[4]

Having focused on the presence of sisters as a key indicator of gender composition, Butcher and Case (p. 548) report a regression analysis of educational attainment among women and men in the PSID and among women in the NLSW, which we have reproduced in Table 2.[5] The table is set up to display the effects of indicators for any sisters and any brothers, as well as of the percentage of sisters in the sibship and the total number of siblings. Several other social background variables have been included in each model, but their effects are not shown in the table. Butcher and Case emphasize that the effect of "any sisters" is statistically significant among the PSID women ($t = -2.25$) and in the NLSW ($t = -2.08$), but not among the PSID men. Moreover, the effect of any sisters holds up in the NLSW, though not so clearly among the PSID women ($t = -1.43$),[6] when the percentage of the sibship who are female is also controlled. However, the latter variable has no consistent or significant effect (p. 549).

Butcher and Case conclude, "The regression results ... suggest that sisters negatively impact each other's educational attainment" (p. 549). In our reading, this evidence is by no means definitive. We would note, by way of caution, that in the PSID the difference between women and men in the effect of having any sisters appears quite large, 0.052 vs. −0.302, but it is marginally statistically significant ($t = 1.79$).

Finally, Butcher and Case report logistic regression analyses of three educational transitions in two broad cohorts of the PSID women. We reproduce their findings in Table 3 (from p. 550). The analyses pertain to the transition to high school graduation, college attendance, and college graduation among women who were 45 to 65 years old or 24 to 44 years old in 1985. Butcher and Case report intercohort changes in the effect of sibling composition:

> "It is apparent that there are differences in the effect of sibling composition between cohorts. Sisters significantly reduce the probability that the respondent finishes high school, by 9 percent on average, for the older cohort. Sisters have an additional effect in this cohort: conditional on college attendance, the presence of a sister reduces the probability that women finish college by roughly 13 percent. For the younger cohort the situation has changed. Sisters no longer influence the probability of high school graduation, but continue to exert a negative effect on the probability that women finish college. The effect of sisters on college completion rates is smaller (0.08) and less significant in the younger cohort" (p. 550).

They reach a global conclusion:

> "... [T]he impact of sibling sex composition has changed between the cohort born 1920 to 1940 and that born 1941 to 1961, with the negative effect of having a sister declining for the younger cohort. This suggests that a change has occurred in the way households allocate educational resources" (p. 551).

Again, we find the evidence less than persuasive that sibling composition has either affected educational transitions of women or that those effects have changed. First, it is striking that sibling gender composition does not significantly affect the college attendance of high school graduates either in the older or in the younger cohort. Especially among older cohorts, we would expect family resources to loom large in the transition from high school graduation to college attendance. Second, in the older cohort, the effect on college graduation is of marginal statistical significance; the ratio of the estimate to its standard error is -1.67. Third, in the younger cohort, the effect on college graduation is yet less reliable; the ratio of the estimate to its standard error is −1.60. Finally, for only one of the three transitions, that of all women to high school graduation, is there a shred of evidence of statistically significant change in the effect of gender composition. From Table 3, we estimate $t = -1.94$ for this contrast.

More Evidence is Needed

We agree with Butcher and Case that there is some evidence that women without sisters go further in school, but their analysis is surely no more than suggestive. There is scant evidence of such effects in the largest of the three samples examined by them, the November 1989 CPS, or in the data from the NLSW. Moreover, in our opinion, there is scant evidence that a negative effect of having sisters has declined across cohorts. The two PSID cohorts cover broad ranges of birth years, and the number of observations in each is too small to yield statistically reliable estimates of moderate intercohort change. We do not believe that the evidence warrants the strong and sweeping conclusions offered by Butcher and Case.[7] This is not to say, at this point, that their conclusions are invalid, but rather that more evidence is needed.

Butcher and Case cite two specific data requirements for their analysis. First, “individuals surveyed must be old enough to have completed their educations.” Second, “these people must also provide information on the number and sex composition of the siblings in the households in which they were raised” (p. 537). We would add that, given the desirability of controlling other social background characteristics, a vector of social background variables should also be measured. While Butcher and Case write, “We are able to use data from three sources,” and then cite the PSID, NLSW, and November 1989 CPS, there are in fact other large social surveys in the public domain that meet all three data requirements.

In order to look more closely at the effects of sibling gender composition on educational attainment and its possible changes across cohorts of American men and women, we have carried out new analyses of three large national surveys: the 1973 Occupational Changes in a Generation Survey (OCG), the pooled 1986 to 1988 Surveys of Income and Program Participation (SIPP), and the 1989 National Survey of Families and Households (NSFH).[8] Figure 1 summarizes the available measurements of social background and of the structure of sibships in the three surveys. All three surveys ascertained the respondent's number of brothers and number of sisters.[9]

The 1973 OCG survey was a mail supplement to the March 1973 Current Population Survey (Featherman and Hauser 1978). It covered U.S. men aged 20 to 65 in 1973, and it also asked an appropriate set of background questions about the wives of married men. Thus, our analyses of the 1973 OCG data for women are restricted to the currently married. Today, the restriction to married women would raise serious questions about coverage; we do not believe that it was a problem in 1973 (Featherman and Hauser 1976).[10] The Survey of Income and Program Participation is a large, short-term longitudinal household survey that has been carried out by the U.S. Bureau of the Census since 1984. From 1986 to 1988, the second wave of SIPP included a family background module that was administered to each household member between the ages of 15 and 64. The National Survey of Families and Households is a large, two-wave survey of the U.S. household population, which has been supported by the National Institute of Child Health and Human Development and the National Institute on Aging.

In all, these three surveys include more than 80,000 observations from the white population, roughly 40,000 in OCG, 34,000 in SIPP, and 7,000 in NSFH. In order to facilitate comparisons among cohorts and between surveys, we have classified each sample by five-year birth cohorts as shown in Table 4.[11] In combination, the three surveys cover cohorts born between 1910 and 1964. In OCG and in SIPP, there are at least 1500 cases in each five-year cohort, but the NSFH data are more sparse. Both the OCG and SIPP samples are comparable in size to the November 1989 CPS samples that were used by Butcher and Case in their preliminary analyses, but each contains a full vector of social background data. There are more observations in every cohort of the OCG and SIPP data than in the entire PSID samples for women or men or in the entire NLSW sample. The NSFH samples are about three times as large as the PSID or NLSW samples. Thus, we believe that the OCG, SIPP, and NSFH data are better suited to the analysis and comparison of gender composition effects than the PSID, November 1989 CPS, or NLSW data.

Findings from OCG, SIPP, and NSFH

Table 5 shows mean years of completed schooling by sex of respondent and number and sex of siblings among whites in the OCG, SIPP, and NSFH surveys. All three surveys show the expected increase in schooling between only children and children with one sibling. Likewise, all three surveys show a regular decline in years of schooling from sibships of size two to sibships of size six. However, within sibships of any given size, we see no consistent pattern of differences between the educational attainments of women or of men, depending on the number of their sisters. To clarify this finding, we have constructed Table 6, which shows each of the contrasts between women or men with no sisters and those with any sisters. First, consider the left half of the table, which shows the contrasts for women. To confirm the findings of Butcher and Case, we should find statistically significant negative *t*-statistics. In Table 6, the largest negative *t*-statistic for women is −1.55 among women in SIPP with three siblings. That is, there is not even one sibling configuration in which women with sisters obtained significantly less schooling than women without sisters. In fact, the only two nominally significant contrasts for women are opposite in sign from Butcher and Case's findings. Among NSFH women with two siblings and among OCG wives with five siblings, women with sisters obtained significantly more schooling than women without sisters. However, given the absence of strong or consistent findings, we are not inclined to offer an hypothesis contrary to that of Butcher and Case.

Among men, there are three statistically significant negative comparisons between those with and without sisters, but there are also two significant positive comparisons. Again, given the absence of any consistent pattern, we would join with Butcher and Case in concluding that the presence of sisters has no effect on the educational attainment of men in these cohorts.

Table 7 shows the linear effect of number of siblings and the effect of having any sisters on the educational attainment (years of schooling) of white women and men, estimated independently within each five-year age cohort in each survey.[12] In addition to sibling composition, the specification also includes a quadratic term in number of siblings and vectors of social background variables as described in Figure 1. All three surveys include measures of intact family, father's education, mother's education, and head's occupational status. Some surveys also contain family income, receipt of public assistance, Southern origin, farm background, and Catholic upbringing. We note that these cohorts are inclusive of the PSID cohorts studied by Butcher and Case, but they also include some older and some younger cohorts. We believe that this specification is generous to the hypothesis of Butcher and Case because it closely resembles the model that provided the strongest evidence of a negative effect of having sisters.

In Table 7, we see no evidence that the presence of sisters either raises or lowers the level of educational attainment among women or among men. Only one of the *t*-statistics for the presence of sisters is larger than 2.0, but it is positive, rather than negative. In no cohort of women are the two or three estimates of the sister effect consistently negative across all of the surveys. Of the 24 sister effects estimated for women, only 10 have the expected negative signs. Among men, only one *t*-statistics is larger than 2.0 in absolute value, but it is positive. Similarly, among men, about half of the effects are positive, and half are negative. Moreover, we see no consistent trend in the effects, either among men or among women.

We have also considered whether other hypotheses about sibling gender composition might yield significant effects on educational attainment. In Table 8, we show estimates of the effects of the percentage of sisters in the sibship, along with the linear effects of the number of siblings in the same equation. Again, in the 24 contrasts that we can examine, there is scant evidence that sisters reduce the educational attainments of women. In only one five-year cohort is the *t*-statistic larger than 2.0 in absolute value, and, again, it is positive. Among men, there is also only one statistically significant effects of the percentage of sisters. It is positive and occurs in the NSFH data, yet it does not appear in the OCG or SIPP data for the same cohorts. Overall, there is no consistency in the signs of the effects. There is little consistency in the effects for cohorts observed in more than one survey. There are no consistent trends across cohorts. In this specification, as in that using the presence of any sisters, there are no effects of sibling gender composition.

Finally, we have tried one other specification suggested by Powell and Steelman (1989, 1990), namely, to enter the number of sisters and the number of brothers as separate variates. Under the null hypothesis, the slopes of those two variables would be equal to one another and to the slope for the total number of siblings. Under the alternative hypothesis, an additional sister might lower educational attainment more (or less) than an additional brother. Table 9 shows the coefficients of number of sisters, of number of brothers, and the differences between them. Under this specification, as under the two previous specifications, there is no reliable evidence that the gender composition of sibships affects educational attainment. Among women, of the 24 contrasts between slopes of number of brothers and number of sisters, only two (for the OCG cohort of 1920 to 1924 and the NSFH cohort of 1960 to 1964) have *t*-ratios larger than 2.0 in absolute value; the former is negative and the latter is positive. Among men, none of the contrasts approaches statistical significance. Among men, as among women, about half the contrasts are negative in sign and about half are positive. Again, there is little consistency across surveys of the same cohorts, and there are no obvious trends in the differences between effects of numbers of sisters and brothers.

We have also carried out analyses of two educational transitions, parallel to those reported in Tables 7 to 9. These contrasts are high school graduation vs. non-graduation and completion of at least one year of post-secondary schooling vs. no completed post-secondary schooling among high school graduates. As in Tables 7 to 9, we find no consistent evidence of effects of the gender composition of sibships, either among men or among women. We examined three versions of the gender model for each of 48 combinations of sex, survey, and cohort for each educational transition, yielding a total of 144 tests for women and 144 tests for men. Of these, 23 tests were nominally significant at the 0.05 level for women, and 20 tests were nominally significant at the 0.05 level for men. The nominally significant contrasts were not consistent with respect to sign within specifications, nor were they consistent within the same cohorts observed in different surveys.[13] Neither did we observe any trend in the contrasts across cohorts. There was only one potential exception to our null findings, namely, that we observed consistently negative effects of having any sisters on white women's high school graduation within cohorts born from 1940 to 1959 in the Survey of Income and Program Participation. The effects observed for these cohorts in the OCG and NSFH surveys were consistent in sign, but none was statistically significant. Overall, there was almost no evidence that gender composition affected educational transitions.

Discussion

We began with the observation that there has been persistent interest in effects of sibling configuration, but that there is little reliable evidence of such effects, beyond the overall effect of the number of siblings. We end on almost the same note. Despite the rather strong and global claims by Butcher and Case (1994), their analyses of the PSID, November 1989 CPS, and NLSW provide no more than a hint of evidence that the number of sisters reduces educational attainment among women. In our extensive examination of three larger surveys, the 1973 OCG, the 1986-88 SIPP, and the 1989 NSFH, we find almost no evidence that the presence of sisters or the share of sisters in the sibship has affected women's schooling in the U.S. during this century. Moreover, we find no evidence that the effect of the number of sisters on educational attainment differs systematically from the effect of the number of brothers. Regardless of gender and regardless of year of birth, each additional child in a family leads to a modest reduction in educational attainment.

Our suspicion is that Butcher and Case made too much of an intriguing, but poorly supported set of findings. Obviously, we cannot prove that their findings were unreliable or otherwise invalid, but we have a strong impression that there is much less to their findings than meets the eye. This impression is reinforced by our failure to find confirming evidence in the present analysis. In light of our findings, we see no basis for the claim that the gender composition of sibships could be a valid instrumental variable in the estimation of earnings functions for women.

This is by no means to say that no aspects of sibling configuration make a difference in socioeconomic attainment. For example, Powell and Steelman (1990) offer convincing evidence that close spacing of children reduces their educational achievement in secondary school, and Powell and Steelman (1995) show that close spacing reduces parents' economic investment in children. We expect that family configuration will make a difference when it has an obvious, proximate relationship to child outcomes.

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FOOTNOTES

1. In this and later work, Powell and Steelman (1995) have also found important new evidence of the influence of child-spacing on educational and economic chances. We do not address those findings in this paper.

2. Conley (1996) has analyzed an overlapping set of data from the Panel Study of Income Dynamics and claims to find other effects of gender composition.

3. The means and counts for five child families were not reported by Butcher and Case.

4. Table 1 also indicates a peculiarity in the makeup of the PSID sample that was not noted by Butcher and Case. There are too few men and women without siblings: 8.1 percent of women and 8.8 percent of men in sibships of three or fewer, compared to 17.3 percent and 13.3 percent of women in the CPS and NLSW and 16.6 percent of men in the CPS. There are similar disparities between the PSID and the OCG, SIPP, and NSFH.

5. The November 1989 CPS data were dropped from the analysis at this point because they lacked measures of social background.

6. Butcher and Case describe this test statistic as "roughly 1.5" (p. 549).

7. Moreover, Butcher and Case apparently did not correct estimated standard errors (upward) to compensate for effects of clustering in sample designs.

8. We have followed Butcher and Case in restricting the analyses reported here to the white population. However, we have also carried out parallel analyses for the total population and obtained similar findings.

9. In addition, the OCG survey ascertained men's number of older and younger siblings of each sex, and SIPP ascertained the number of older and younger siblings of each sex for all respondents.

10. Critics have suggested that the OCG data for women are suspect because they pertain only to the wives of adult men. We would agree that such a sampling scheme would be questionable in a contemporary study; in March 1994, only 69.7 percent of white women aged 25 to 64 were married and living with their spouses. However, in 1973, 79.4 percent of white women aged 25 to 64 were married, spouse present, and coverage exceeded 80 percent at ages 25 to 54. Thus, we find no reason to worry about population coverage of white women in the OCG, except at ages 55 to 64, where coverage is less by dint of early widowhood.

11. The youngest annual cohorts are missing from OCG and from SIPP, because of the age restrictions in those surveys, but we doubt that this is consequential.

12. We have also estimated an alternative specification with a linear effect of sibling number, plus a dummy variable for only children. This has no substantial effect, either on model fit or on the effects of gender composition.

13. These analyses are available from the authors by request.

Figure 1. Social and Economic Background Variables: 1973 OCG, 1986-1988 SIPP, and 1989 NSFH

Variable	1973 OCG Men	1973 OCG Women	1986-1988 SIPP Men and Women	1989 NSFH Men and Women
Sibling Composition	Number of Siblings	Number of Siblings	Number of Siblings	Number of Full Siblings
	Oldest Sibling		Oldest Sibling	Oldest Sibling
	Number of Brothers	Number of Brothers	Number of Brothers	Number of Full Brothers
	Number of Sisters	Number of Sisters	Number of Sisters	Number of Full Sisters
Family Structure	Intact Family	Intact Family	Intact Family	Intact Family
	Female Headed	Female Headed	Female Headed	No Father (from OCC var.)
Parental Education	Father's Education (yrs)	Father's Education (yrs)	High School Grad. (Father)	Father's Education (yrs)
	Mother's Education (yrs)	Mother's Education (yrs)	Some College Edu. (Father)	Mother's Education (yrs)
			College Grad. (Father)	
			High School Grad. (Mother)	
			Some College Edu. (Mother)	
			College Grad. (Mother)	
Parental Occupation	HH Head's OCC (SEI)	HH Head's OCC (SEI)	Father's OCC (SEI)	Father's OCC (SEI)
			Mother's OCC (SEI)	Mother's OCC (SEI)
			Father Working	
			Mother Working	Mother Working
Economic Origin	Income 1 ($0-1999, 27%)			Public Assist. pre-16
	Income 2 ($2000-4999, 41%)			
	Income 3 ($5000-7999, 17%)			
Others	South			South
	Farm Background	Farm Background		Catholic

Note: Models also include indicators of missing data. SEI refers to the Duncan scale of the socioeconomic status of occupations.

Table 1. Mean Years of Complete Education for Women and Men by Number and Sex of Siblings: PSID, November 1989 CPS, and NLSW (from Butcher and Case 1994: 545)

		PSID				Nov '89 CPS				NLSW	
Sibling structure		Women	Cases	Men	Cases	Women	Cases	Men	Cases	Women	Cases
0 siblings		13.4	105	14.3	104	12.9	3946	13.2	3606	12.6	176
		(0.3)		(0.2)		(0.1)		(0.1)		(0.2)	
1 sibling	0 sisters	13.9	184	14.0	168	13.7	3232	13.8	3004	12.8	215
		(0.2)		(0.2)		(0.0)		(0.1)		(0.1)	
	1 sister	13.4	178	14.0	143	13.5	2920	13.9	3116	12.4	188
		(0.2)		(0.2)		(0.1)		(0.1)		(0.2)	
2 siblings	0 sisters	13.5	126	14.6	103	13.4	1688	13.6	1532	12.5	132
		(0.2)		(0.2)		(0.1)		(0.1)		(0.2)	
	1 sister	13.3	205	14.0	212	13.3	3740	13.6	3582	12.5	208
		(0.2)		(0.2)		(0.0)		(0.1)		(0.1)	
	2 sisters	13.3	83	14.0	97	13.3	1676	13.5	1640	12.1	101
		(0.3)		(0.2)		(0.1)		(0.1)		(0.2)	
3 siblings	0 sisters	13.7	47	13.0	53	13.0	674	13.1	682	11.9	39
		(0.4)		(0.3)		(0.1)		(0.1)		(0.4)	
	1 sister	12.9	153	13.8	146	13.0	2155	13.1	2010	11.8	110
		(0.2)		(0.2)		(0.1)		(0.1)		(0.2)	
	2 sisters	12.7	159	12.9	108	13.0	2071	13.1	1963	12.2	117
		(0.2)		(0.3)		(0.1)		(0.1)		(0.2)	
	3 sisters	12.9	52	13.1	45	13.2	724	13.1	598	12.3	33
		(0.29)		(0.37)		(0.09)		(0.11)		(0.29)	

Note: The PSID and NLSW are weighted using sampling weights. The PSID is restricted to whites, greater than age 23 and less than age 66, reporting a given amount of completed schooling. The November 1989 CPS is restricted to whites, greater than age 23 and less than age 64, who reported the given number of living siblings. The NLSW is restricted to white women who reported gender information about their siblings. Standard errors are shown in parenthesis.

Table 2. Sibling Sex Composition and Educational Attainment: PSID and NLSW (from Butcher and Case 1994: 548)

	PSID								NLSW			
Explanatory variable	Men				Women				Women			
Indicator variable, any sisters	0.052 (0.146)	--	--	0.244 (0.224)	-0.302 (0.134)	--	--	-0.278 (0.195)	-0.246 (0.118)	--	--	-0.381 (0.190)
Indicator variable, any brothers	--	0.094 (0.155)	--	--	--	0.227 (0.134)	--	--	--	0.250 0.134	--	--
Percentage of siblings female (including R)	--	--	-0.123 (0.251)	-0.433 (0.387)	--	--	-0.399 (0.220)	-0.057 (0.319)	--	--	-0.195 (0.210)	0.299 (0.335)
Number of siblings	-0.507 (0.079)	-0.513 (0.082)	-0.491 (0.078)	-0.515 (0.079)	-0.186 (0.067)	-0.272 (0.066)	-0.258 (0.063)	-0.194 (0.076)	-0.078 (0.090)	-0.180 (0.086)	-0.142 (0.085)	-0.029 (0.105)
Number of siblings (squared)	0.027 (0.007)	0.028 (0.007)	0.026 (0.007)	0.028 (0.007)	0.006 (0.006)	0.011 (0.006)	0.010 (0.006)	0.006 (0.006)	-0.012 (0.010)	-0.004 (0.009)	-0.007 (0.009)	-0.015 (0.010)
Number of observations	1816	1816	1816	1816	2010	2010	2010	2010	1724	1724	1724	1724
R-squared	0.2989	0.2990	0.2990	0.2994	0.2880	0.2870	0.2872	0.2880	0.3198	0.3197	0.3187	0.3202

Note: See Butcher and Case (1994: 548) for description of sample restrictions and listing of other social background variables in each equation. Standard errors are shown in parenthesis.

Table 3. Educational Transitions for Women, PSID 1985 (from Butcher and Case 1994: 550)

	Older Women (45 to 65 years old)			Younger Women (22 to 44 years old)		
Explanatory variable	HS degree	Attend college	College degree	HS degree	Attend college	College degree
Indicator variable, any sisters	-0.093 (0.042)	-0.048 (0.056)	-0.132 (0.079)	-0.001 (0.022)	-0.028 (0.037)	-0.080 (0.050)
Number of siblings	-0.011 (0.022)	-0.028 (0.029)	-0.059 (0.051)	-0.007 (0.016)	-0.041 (0.023)	-0.040 (0.030)
Number of siblings (squared)	-0.001 (0.002)	0.003 (0.003)	0.002 (0.005)	-0.001 (0.002)	0.003 (0.002)	0.003 (0.003)
Number of observations	762	528	231	1267	1058	651
R-squared	0.1444	0.1503	0.1541	0.1596	0.1505	0.0740

Note: See Butcher and Case (1994: 550) for description of sample restrictions and listing of other social background variables in each equation. Standard errors are shown in parenthesis.

Table 4. Number of Observations by Sex, Cohort, and Survey

	Women			Men		
Birth Cohort	OCG	SIPP	NSFH	OCG	SIPP	NSFH
1910-14	1152			2172		
1915-19	2033			2552		
1920-24	2483			2989		
1925-29	2818	1790	292	3113	1573	187
1930-34	2640	1556	254	2918	1504	199
1935-39	2647	1691	338	2711	1519	219
1940-44	2976	2009	400	3294	1897	295
1945-49	2613	2485	567	2715	2361	427
1950-54		2703	738		2685	510
1955-59		2978	699		2766	564
1960-64		2293	660		2231	536
Total	19362	17505	3948	22464	16536	2937

Table 5. Mean Years of Completed Schooling by Sex and by Number and Sex of Siblings

	OCG		SIPP		NSFH	
Women	Mean	Cases	Mean	Cases	Mean	Cases
Total	11.74	19362	12.98	17504	13.10	3948
	(0.02)		(0.02)		(0.04)	
No siblings	12.72	1432	13.22	2251	13.29	374
	(0.06)		(0.05)		(0.12)	
One sibling	12.82	3312	13.65	3266	13.86	805
	(0.04)		(0.04)		(0.09)	
No sisters	12.86	1840	13.66	1766	13.88	430
	(0.05)		(0.06)		(0.12)	
One sister	12.77	1472	13.64	1500	13.83	374
	(0.06)		(0.07)		(0.13)	
Two siblings	12.37	3462	13.41	3592	13.30	897
	(0.04)		(0.04)		(0.08)	
No sisters	12.30	896	13.40	965	13.01	229
	(0.08)		(0.08)		(0.16)	
One sister	12.37	1786	13.42	1799	13.39	456
	(0.05)		(0.06)		(0.12)	
Two sisters	12.44	780	13.38	828	13.40	211
	(0.08)		(0.09)		(0.17)	
Three siblings	11.83	2826	13.03	2914	13.21	695
	(0.05)		(0.05)		(0.09)	
No sisters	11.82	365	13.20	390	13.58	82
	(0.13)		(0.12)		(0.29)	
One sister	11.79	1152	12.92	1099	13.09	283
	(0.07)		(0.08)		(0.12)	
Two sisters	11.82	975	13.09	1038	13.19	236
	(0.08)		(0.08)		(0.19)	
Three sisters	12.05	333	13.01	387	13.34	94
	(0.13)		(0.12)		(0.25)	
Four siblings	11.43	2153	12.71	1913	12.90	421
	(0.05)		(0.06)		(0.12)	
No sisters	11.45	110	12.99	149	12.85	25
	(0.24)		(0.21)		(0.47)	
One sister	11.31	624	12.67	475	13.12	111
	(0.10)		(0.12)		(0.25)	
Two sisters	11.45	761	12.58	683	12.96	175
	(0.09)		(0.10)		(0.16)	
Three sisters	11.44	538	12.75	474	12.61	91
	(0.10)		(0.13)		(0.28)	
Four sisters	11.91	120	13.05	132	12.47	18
	(0.21)		(0.20)		(0.68)	
Five siblings	11.15	1666	12.27	1263	12.41	253
	(0.06)		(0.07)		(0.15)	
No sisters	10.44	67	12.60	45	12.58	6
	(0.34)		(0.26)		(2.36)	
One sister	11.33	253	12.11	188	12.07	54
	(0.16)		(0.19)		(0.27)	
Two sisters	11.20	528	12.19	405	12.37	83
	(0.11)		(0.12)		(0.21)	
Three sisters	11.09	491	12.18	365	13.13	64
	(0.12)		(0.12)		(0.32)	
Four sisters	11.19	266	12.54	207	12.05	37
	(0.15)		(0.17)		(0.37)	
Five sisters	11.14	61	12.75	53	11.15	9
	(0.29)		(0.29)		(1.04)	

(continued next page)

Table 6. Mean Years of Completed Schooling among Women and Men with and without Sisters by Number of Siblings: OCG, SIPP, and NSFH

	Women						Men					
	OCG		SIPP		NSFH		OCG		SIPP		NSFH	
	Sisters	No Sisters	Sisters	No Sisters	Sisters	No Sisters	Sisters	No Sisters	Sisters	No Sisters	Sisters	No Sisters
One sibling												
Mean	12.77	12.86	13.64	13.66	13.83	13.88	13.32	13.24	14.13	13.99	14.59	14.11
Standard error	(0.06)	(0.05)	(0.07)	(0.06)	(0.13)	(0.12)	(0.07)	(0.08)	(0.07)	(0.08)	(0.16)	(0.15)
t		-1.26		-0.29		-0.29		0.76		1.39		2.18
Two siblings												
Mean	12.39	12.30	13.41	13.40	13.40	13.01	12.64	12.88	13.67	13.88	14.00	14.14
Standard error	(0.05)	(0.08)	(0.05)	(0.08)	(0.10)	(0.16)	(0.06)	(0.11)	(0.06)	(0.09)	(0.12)	(0.20)
t		0.90		0.15		2.09		-2.04		-1.96		-0.61
Three siblings												
Mean	11.84	11.82	13.00	13.20	13.17	13.58	12.10	12.32	13.32	13.10	13.95	13.15
Standard error	(0.05)	(0.13)	(0.05)	(0.12)	(0.10)	(0.28)	(0.06)	(0.16)	(0.06)	(0.15)	(0.14)	(0.33)
t		0.12		-1.55		-1.36		-1.30		1.36		2.27
Four siblings												
Mean	11.43	11.45	12.68	12.99	12.90	12.85	11.41	11.20	12.89	12.93	13.13	13.51
Standard error	(0.05)	(0.24)	(0.06)	(0.21)	(0.12)	(0.46)	(0.07)	(0.27)	(0.07)	(0.28)	(0.15)	(0.70)
t		-0.08		-1.41		0.11		0.76		-0.14		-0.54
Five siblings												
Mean	11.18	10.44	12.26	12.60	12.41	12.58	10.79	10.40	12.63	12.39	12.89	14.75
Standard error	(0.06)	(0.34)	(0.07)	(0.26)	(0.14)	(2.14)	(0.08)	(0.40)	(0.09)	(0.39)	(0.19)	(0.88)
t		2.17		-1.25		-0.08		0.95		0.59		-2.07

Table 7. Effects of Number of Siblings and Presence of Sisters on Mean Years of Schooling by Sex and Cohort: OCG, SIPP, and NSFH

	Number of Siblings			Any Sisters		
Birth Cohort	OCG	SIPP	NSFH	OCG	SIPP	NSFH
Women						
1910-14	-0.238			0.114		
	(0.083)			(0.242)		
1915-19	-0.229			0.185		
	(0.056)			(0.157)		
1920-24	-0.087			-0.132		
	(0.052)			(0.139)		
1925-29	-0.200	-0.130	-0.208	0.000	-0.220	-0.285
	(0.046)	(0.092)	(0.211)	(0.122)	(0.167)	(0.382)
1930-34	-0.265	-0.420	-0.294	0.081	0.462	0.135
	(0.049)	(0.098)	(0.207)	(0.125)	(0.179)	(0.416)
1935-39	-0.252	-0.283	-0.337	0.060	0.006	-0.243
	(0.044)	(0.084)	(0.149)	(0.110)	(0.150)	(0.355)
1940-44	-0.142	-0.331	-0.156	-0.023	-0.020	0.032
	(0.044)	(0.084)	(0.183)	(0.100)	(0.142)	(0.307)
1945-49	-0.139	-0.245	-0.214	0.146	0.053	-0.241
	(0.046)	(0.073)	(0.159)	(0.102)	(0.121)	(0.273)
1950-54		-0.233	-0.120		-0.053	0.196
		(0.070)	(0.098)		(0.115)	(0.208)
1955-59		-0.095	-0.366		-0.147	0.143
		(0.070)	(0.098)		(0.109)	(0.182)
1960-64		-0.178	-0.131		-0.143	0.262
		(0.091)	(0.095)		(0.147)	(0.192)
Men						
1910-14	-0.309			0.168		
	(0.080)			(0.229)		
1915-19	-0.283			0.246		
	(0.070)			(0.198)		
1920-24	-0.245			-0.189		
	(0.064)			(0.167)		
1925-29	-0.333	-0.432	-0.489	0.148	-0.099	-0.612
	(0.064)	(0.121)	(0.221)	(0.161)	(0.216)	(0.583)
1930-34	-0.311	-0.212	-0.506	-0.106	-0.069	0.787
	(0.062)	(0.125)	(0.289)	(0.162)	(0.224)	(0.558)
1935-39	-0.373	-0.309	-0.103	0.130	0.097	0.511
	(0.062)	(0.116)	(0.246)	(0.149)	(0.203)	(0.567)
1940-44	-0.132	-0.368	-0.582	-0.153	0.173	0.848
	(0.056)	(0.105)	(0.179)	(0.136)	(0.172)	(0.406)
1945-49	-0.162	-0.149	-0.264	-0.241	-0.041	-0.023
	(0.059)	(0.087)	(0.154)	(0.130)	(0.147)	(0.311)
1950-54		-0.304	-0.293		0.113	0.163
		(0.075)	(0.136)		(0.122)	(0.253)
1955-59		-0.142	-0.264		-0.078	0.212
		(0.075)	(0.141)		(0.117)	(0.258)
1960-64		-0.232	-0.229		0.142	0.023
		(0.093)	(0.123)		(0.155)	(0.200)

Note: In each equation a vector of social background variables has been controlled (see Figure 1), and a term is included for the square of the number of siblings.

Table 8. Effects of Number of Siblings and Percentage of Sisters on Mean Years of Schooling by Sex and Cohort: OCG, SIPP, and NSFH

	Number of Siblings			Percentage of Sisters		
Birth Cohort	OCG	SIPP	NSFH	OCG	SIPP	NSFH
Women						
1910-14	-0.228			0.176		
	(0.071)			(0.251)		
1915-19	-0.207			0.215		
	(0.049)			(0.172)		
1920-24	-0.109			-0.077		
	(0.046)			(0.146)		
1925-29	-0.205	-0.187	-0.221	0.067	-0.037	-0.542
	(0.040)	(0.083)	(0.188)	(0.130)	(0.175)	(0.394)
1930-34	-0.252	-0.336	-0.287	0.052	0.403	0.245
	(0.042)	(0.087)	(0.180)	(0.133)	(0.181)	(0.423)
1935-39	-0.249	-0.272	-0.380	0.117	-0.067	-0.112
	(0.038)	(0.074)	(0.131)	(0.117)	(0.162)	(0.369)
1940-44	-0.149	-0.350	-0.165	0.019	0.131	0.134
	(0.039)	(0.076)	(0.164)	(0.104)	(0.148)	(0.305)
1945-49	-0.158	-0.239	-0.268	-0.175	0.085	-0.190
	(0.040)	(0.065)	(0.139)	(0.109)	(0.129)	(0.283)
1950-54		-0.254	-0.099		0.051	0.266
		(0.063)	(0.089)		(0.123)	(0.231)
1955-59		-0.128	-0.345		-0.062	0.181
		(0.064)	(0.090)		(0.118)	(0.203)
1960-64		-0.210	-0.100		-0.081	0.374
		(0.082)	(0.085)		(0.157)	(0.204)
Men						
1910-14	-0.299			0.379		
	(0.069)			(0.225)		
1915-19	-0.255			0.278		
	(0.062)			(0.198)		
1920-24	-0.271			-0.132		
	(0.057)			(0.176)		
1925-29	-0.313	-0.462	-0.568	0.134	0.033	-0.212
	(0.056)	(0.109)	(0.207)	(0.165)	(0.225)	(0.591)
1930-34	-0.330	-0.236	-0.385	-0.041	0.052	0.970
	(0.055)	(0.112)	(0.252)	(0.165)	(0.234)	(0.552)
1935-39	-0.360	-0.281	-0.047	0.205	-0.004	0.741
	(0.055)	(0.104)	(0.209)	(0.150)	(0.209)	(0.570)
1940-44	-0.158	-0.320	-0.471	-0.068	0.029	0.925
	(0.050)	(0.094)	(0.160)	(0.140)	(0.180)	(0.420)
1945-49	-0.207	-0.174	-0.292	-0.086	0.108	0.257
	(0.053)	(0.078)	(0.139)	(0.136)	(0.155)	(0.339)
1950-54		-0.281	-0.264		0.100	0.148
		(0.068)	(0.126)		(0.131)	(0.273)
1955-59		-0.160	-0.211		-0.028	0.020
		(0.070)	(0.127)		(0.127)	(0.284)
1960-64		-0.220	-0.225		0.239	0.027
		(0.083)	(0.114)		(0.165)	(0.212)

Note: In each equation a vector of social background variables has been controlled (see Figure 1), and a term has been included for the square of the number of siblings.

Table 9. Effects of Numbers of Sisters and Numbers of Brothers on Mean Years of Schooling by Sex and Cohort: OCG, SIPP, and NSFH

	Number of Sisters			Number of Brothers			Difference in Effects		
Birth Cohort	OCG	SIPP	NSFH	OCG	SIPP	NSFH	OCG	SIPP	NSFH
Women									
1910-14	-0.087			-0.136			0.049		
	(0.046)			(0.042)			(0.072)		
1915-19	-0.114			-0.156			0.042		
	(0.032)			(0.025)			(0.050)		
1920-24	-0.174			-0.080			-0.094		
	(0.028)			(0.026)			(0.044)		
1925-29	-0.145	-0.240	-0.352	-0.172	-0.202	-0.187	0.027	-0.038	-0.165
	(0.027)	(0.041)	(0.091)	(0.025)	(0.038)	(0.094)	(0.043)	(0.063)	(0.148)
1930-34	-0.126	-0.156	-0.252	-0.094	-0.226	-0.126	-0.032	0.070	-0.126
	(0.027)	(0.044)	(0.090)	(0.026)	(0.038)	(0.086)	(0.043)	(0.064)	(0.137)
1935-39	-0.088	-0.255	-0.161	-0.150	-0.193	-0.296	0.062	-0.062	0.135
	(0.025)	(0.036)	(0.082)	(0.024)	(0.033)	(0.089)	(0.040)	(0.054)	(0.144)
1940-44	-0.150	-0.204	-0.105	-0.153	-0.218	-0.058	0.003	0.014	-0.047
	(0.025)	(0.039)	(0.093)	(0.023)	(0.037)	(0.085)	(0.038)	(0.060)	(0.136)
1945-49	-0.137	-0.220	-0.133	-0.090	-0.246	-0.107	-0.047	0.026	-0.026
	(0.026)	(0.035)	(0.076)	(0.026)	(0.033)	(0.076)	(0.041)	(0.053)	(0.118)
1950-54		-0.164	-0.101		-0.208	-0.067		0.044	-0.034
		(0.032)	(0.056)		(0.030)	(0.058)		(0.047)	(0.088)
1955-59		-0.092	-0.126		-0.081	-0.154		-0.011	0.028
		(0.030)	(0.060)		(0.028)	(0.051)		(0.043)	(0.082)
1960-64		-0.158	0.096		-0.095	-0.113		-0.063	0.209
		(0.040)	(0.056)		(0.039)	(0.055)		(0.060)	(0.088)
Men									
1910-14	-0.158			-0.214			0.056		
	(0.090)			(0.038)			(0.062)		
1915-19	-0.176			-0.219			0.043		
	(0.035)			(0.036)			(0.057)		
1920-24	-0.162			-0.115			-0.047		
	(0.033)			(0.033)			(0.053)		
1925-29	-0.145	-0.300	-0.397	-0.163	-0.325	-0.148	0.018	0.025	-0.249
	(0.034)	(0.055)	(0.139)	(0.034)	(0.051)	(0.117)	(0.055)	(0.080)	(0.209)
1930-34	-0.209	-0.285	-0.199	-0.184	-0.271	-0.217	-0.025	-0.014	0.018
	(0.034)	(0.055)	(0.120)	(0.033)	(0.052)	(0.152)	(0.055)	(0.080)	(0.199)
1935-39	-0.130	-0.255	-0.006	-0.171	-0.230	-0.325	0.042	-0.025	0.319
	(0.033)	(0.055)	(0.140)	(0.033)	(0.051)	(0.137)	(0.053)	(0.080)	(0.216)
1940-44	-0.217	-0.267	-0.106	-0.128	-0.229	-0.426	-0.089	-0.038	0.320
	(0.033)	(0.053)	(0.107)	(0.032)	(0.048)	(0.123)	(0.052)	(0.076)	(0.185)
1945-49	-0.196	-0.154	-0.092	-0.150	-0.167	-0.168	-0.046	0.013	0.076
	(0.034)	(0.043)	(0.095)	(0.032)	(0.039)	(0.096)	(0.052)	(0.063)	(0.149)
1950-54		-0.193	-0.363		-0.165	-0.265		-0.028	-0.098
		(0.035)	(0.082)		(0.032)	(0.074)		(0.050)	(0.113)
1955-59		-0.070	-0.166		-0.101	-0.115		0.031	-0.051
		(0.035)	(0.078)		(0.033)	(0.077)		(0.050)	(0.112)
1960-64		-0.099	-0.172		-0.154	-0.182		0.055	0.010
		(0.047)	(0.071)		(0.042)	(0.062)		(0.066)	(0.096)

Note: In each equation a vector of social background variables has also been controlled (see Figure 1).

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