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All in the family? Family composition, resources, and sibling similarity in socioeconomic status

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Abstract

Numerous studies have analyzed the effects of family structure, composition, and resources on socioeconomic status attainment. Fewer studies have explored how these family-based factors affect the variation—or the correlation—between siblings in socioeconomic status. The current study draws on data from the Panel Study of Income Dynamics and provides a descriptive account of the correlations between siblings along a number of family composition and resource dimensions. We report two main findings. First, correlations do not vary by siblings' sex mix. That is, brothers' correlations in education, earnings, and family income are similar to sisters' correlations. Second, siblings from relatively disadvantaged families—those with more siblings and lower educated, younger, and unmarried mothers—have lower correlations in socioeconomic status than siblings from more advantaged families. In general, family background has a weaker effect on adults who begin life from disadvantaged positions. These findings suggest that social reproduction and mobility processes are complex and shaped by family-level dynamics and resources.

Keywords: Socioeconomic status; Intergenerational correlation; Sibling correlation; Siblings; Family background; Family composition

Social scientists have long been concerned with the transmission of socioeconomic status from parent to child. Stratification scholars have traditionally used either parent–child or sibling correlations to uncover patterns of intergenerational social mobility. Although sibling correlations are limited in certain respects, they are one of the best measures of the effect of family background on socioeconomic status attainment because they provide a summative measure of *all* aspects of family background, including measurable and un-measurable neighborhood, genetic, and parental characteristics that siblings share. As Page and Solon (2003: 832) note, sibling correlations are best viewed as "omnibus measures of the extent to which inequality in those outcomes is attributable to family and community origins." Jencks et al. (1979: 10) provide a similar view in their statement that brother correlations are caused by "common genes, common environment, or the influence of one brother on the other."

Using these measures, studies have typically found that about half of the variance in educational attainment is attributable to family background factors that siblings share (for example, Hauser & Wong, 1989;

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Kuo & Hauser, 1995), and nearly half of the variance in labor market earnings is attributable to family background factors (for example, Mazumder & Levine 2003; Solon, Corcoran, Gordon, & Laren, 1991). Recent research has also analyzed how sibling correlations—or differences—vary among different racial groups (Heflin & Pattillo, 2006). Conley and Glauber (2007) show that African American siblings resemble each other less in income and earnings than white siblings. We extend this line of work by exploring other family-based contextual factors. We ask: How do family composition and resources affect siblings' adult socioeconomic status resemblances? To what extent do already advantaged families reproduce advantage in their offspring?

Answers to these questions provide an important set of descriptive findings on inequalities in the socioeconomic status attainment processes. Although sibling correlations do not indicate the direction of social mobility, they tell us of the general influence of origins on destinations. That is to say, sibling correlations tell us of the "slope" of the family background effect rather than of the intercept or the originating social location. Together, the magnitude of the family background effect and the direction of the family background effect comprise the major features of stratification systems.

In the current analysis, we explore variation in the family background effect by family resources and compositions. We think that this type of analysis is of consequence for at least two reasons. First, variation across family resource and composition group dispels of the notion of one dominant mobility process in the U.S. Instead, and as we find, intergenerational stratification processes occur on multiple levels and are mediated by family-level contextual factors. We find that siblings from relatively advantaged groups resemble each other more than siblings from relatively disadvantaged groups, which implies that there is more social reproduction and ascription among advantaged families than among disadvantaged families. Second, an analysis of variation in sibling correlations across resource and composition groups also sheds light on qualitatively different relationships and ties among adult siblings. Although correlations are only one measure of the cohesiveness among siblings, we provide an important first look at whether large or small or female or male sibships, for example, end up more or less like each other as adults. These findings are important indicators of the contours of contemporary siblings' relationships and economic experiences.

We draw on data from the 1983 to 2001 waves of the Panel Study of Income Dynamics (PSID), and we analyze sibling resemblances between different family composition and resource groups demarcated by mother's age at birth, mother's marital status at birth, and mother's educational attainment, as well as by sibling sex mix, sibling age spread, and sibship size. As noted above, we find that siblings from disadvantaged families—on nearly all of our measures—resemble each other less as adults, whereas siblings from advantaged families resemble each other more as adults. Differences between sibling groups via mother's educational attainment, which we use as a proxy measure of siblings' class background and the availability of resources, are especially pronounced.

Although our findings are essentially descriptive in nature, they are critical to our understanding of how social reproduction operates within families and how families with differing levels of social and economic resources act as queuing mechanisms for larger stratifying forces in different ways. In short, our findings document interaction effects between familial and societal levels of analysis.

1. Previous research

1.1. Sibling correlations in socioeconomic status

Following publications by Jencks et al. (1972, 1979), many studies have used sibling correlations to analyze patterns of intergenerational mobility. Although many of these studies analyze occupational stratification (recent examples include Warren, Hauser, & Sheridan, 2002; Hauser, Sheridan, & Warren, 1999), we are particularly concerned with educational and income stratification and we research on sibling correlations in education and income below.

In terms of educational resemblances among siblings, Jencks et al. (1979) find that global family background explains about half of the variance in education. Benin and Johnson (1984), and Kuo and Hauser (1995) find similar results. Hauser and Wong (1989) find that family background accounts for roughly 60% of the variance in education.

Given the importance of schooling to socioeconomic outcomes, Hauser and Mossel (1985) and Hauser and Sewell (1986) determine the extent to which the relationship between educational attainment and socioeconomic outcomes is actually causal, or whether family background biases the apparent effect of schooling on economic attainment. Using pairs of brothers from the Wisconsin Longitudinal Study, Hauser and Mossel (1985) find that family background accounts for half of the variance in schooling and over a third of the variance in occupational status. Family background does

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not, however, affect the influence of schooling on occupational status. Similarly, Hauser and Sewell (1986) draw on data from localized Wisconsin and Kalamazoo, Michigan samples, and they find that family background accounts for 27% of the variance in annual earnings and 46% of the variance in schooling.

More recent studies have analyzed sibling correlations in labor market earnings. Solon et al. (1991) estimate a correlation of 0.448 in brothers' permanent earnings. Their findings suggest that earlier studies may have underestimated the effect of family background on earnings by using single-year earnings data. Similarly, Mazumder and Levine (2003) draw on data from the 1966 and 1979 National Longitudinal Surveys and find that the effect of family background is larger than previously thought and that there has been an increase in brothers' earnings correlations. For the more recent cohort, 0.45 of the variance in earnings can be attributed to family background. This represents an increase of 0.19 from the 1966 cohort. Since the authors find no increase in the correlation in years of education, they conclude that the increase in earnings cannot be attributed to higher returns to education.

Recent studies also suggest that there are racial differences in sibling correlations (Heflin & Pattillo, 2006; Kuo & Hauser, 1995). In an earlier study, we found that black siblings resemble each other less than white siblings (Conley & Glauber, 2007). Far fewer studies have analyzed differences across other social contexts. In the current study we analyze differences across sibling composition and resource groups, and before turning to our findings, we discuss research on these social contexts. Although most studies have not explored sibling correlations per se, they do provide us with a framework that leads to specific expectations.

1.2. Sibling resemblance and family composition

Most research finds that that there is a negative relationship between sibship size and educational outcomes (for example, Becker & Tomes, 1986; Conley & Glauber, 2006; Steelman, 1985; Steelman & Powell, 1989; although see Guo & VanWey, 1999 for insignificant findings). Research on sibling *variation* in socioeconomic status by sibship size has not been adequately addressed in previous research, so we present two alternative hypotheses, both of which are plausible. On the one hand, we might expect that individuals from larger sibships resemble each other less than individuals from smaller sibships. Larger families generally have fewer resources, and research has shown that with fewer resources, families may transfer resources unequally to the sibling for whom upwardly mobility is most likely (Conley, 2004). Alternatively, we might expect that individuals from larger sibships turn out more like each other than individuals from smaller sibships, if size is positively correlated with siblings' cohesiveness, siblings' interactions with each other, and siblings' lack of geographical and educational mobility.

Previous work on sibling spacing has asked how spacing affects the variance (or relative variation) among siblings' health and developmental outcomes. One hypothesis would suggest that close spacing yields less variability since siblings would experience critical family transitions (such as income shocks) at similar times in the course of their development (Elder & Caspi, 1988). There also may be more interdependence and cross-socialization among those who are not too far apart in age. The alternative hypothesis is that the closer siblings are in age, the more they are in direct competition with each other and the more they will diverge in their outcomes since small differences in abilities become magnified (Sulloway, 1996). Closely spaced siblings may also seek out different niches within the family.

Some research has also shown that siblings spaced more closely together evince a greater strain on family resources, which leads to lower average cognitive functioning (Powell & Steelman, 1990, 1993; Steelman & Powell, 1989). Powell and Steelman (1995) find that a closely spaced sibship is correlated with a decrease in financial investment in children, with the largest effect for sibships of two. Their results also demonstrate that although socioeconomic status accounts for just less than 40% of the effect of sibship size on parental investment, the inclusion of socioeconomic status actually magnifies the negative effect of closely spaced sibships on economic resources transferred.

There has also been extensive research on sibling sex composition (for example, Butcher & Case, 1994; Conley, 1999; Hauser & Kuo, 1998; Kaestner, 1997; Powell & Steelman, 1990, 1989). Although this research is largely interested in siblings' average level of attainment rather than siblings' variance in attainment, a handful of studies have analyzed variation by sex composition. Benin and Johnson (1984) find that sibling pairs differ significantly in resemblance in educational attainment, with brother–brother pairs being the most alike and older sister–younger brother pairs the least. Their two samples are drawn from a Lincoln, Nebraska survey as well as the Nebraska Annual Social Indicators Survey, and the general applicability of their findings may be somewhat limited. Hauser and Wong (1989) reappraise the claim, and find that the disparity in resemblance across pairs can be attributed more to a lack of

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resemblance between sister–brother combinations than to an unusual similarity between brother pairs—an effect perhaps owing more to the direction of influence than sex composition, per se.

1.3. Family resources

Previous qualitative work (Conley, 2004) suggests that among disadvantaged households, sibling disparities tend to increase, since limited opportunities and resources may elicit parenting strategies that accentuate sibling differences by directing family resources to the better-endowed siblings. Such strategies may also be the most efficient route to the highest living standards for all offspring when parents expect cross-sibling subsizidation in adulthood. That is, resource constrained parents may invest in the human capital of the best endowed offspring, hoping for the highest possible returns and that, in time, the offspring will make wealth transfers to less endowed siblings. Put another way, disadvantaged families may behave more efficiently by investing more in the child for whom they expect higher returns. This would reinforce sibling differences. More advantaged families may behave less efficiently by investing more in the child for whom they expect lower returns, and this would compensate for or try to produce more equity in the outcomes of children. Recent findings (Conley & Glauber, 2007) present evidence in support of this hypothesis, as we find that African American siblings, who come from families with fewer resources on average, tend to resemble each other less as adults than white siblings.

One alternative to this theory is proposed by Becker and Tomes (1986) who argue that with capital constraints, low-income parents may not be able to optimally invest in their children's human capital. Such underinvestment may lead to higher degrees of sibling resemblance at lower incomes since "high ability children from poor families may receive the same low level of education as a sibling with lower academic ability, compressing their earnings compared with similarly different siblings from a prosperous family" (Mazumder & Levine, 2003: 16).

In summary, previous research suggests ways that family composition and family resources affect siblings' socioeconomic attainments. However, as noted above, research results are often conflicting and tend to focus on sibling averages rather than on sibling variances or correlations. We build on these various studies and use a national longitudinal sample of brothers and sisters to test the moderating effects of family composition and family resources on sibling resemblances in socioeconomic status.

Table 1
Sample means for families with two or more siblings (standard deviations).

Education	13.45 (2.29)
Labor market earnings (ln)	10.12 (0.90)
Family income (ln)	10.55 (1.13)
Mixed sex	0.71 (0.46)
Same sex	0.29 (0.46)
All brothers	0.14 (0.35)
All sisters	0.15 (0.36)
Sibling age spread	7.68 (4.18)
Sibship size	4.76 (2.08)
Mother's age at birth	27.33 (5.66)
Mother married at birth	0.94 (0.23)
Mother's years of completed school	11.76 (2.69)
Number of person–years	25,554

Note: Descriptive statistics reported for sample with no missing educational data; descriptive statistics for samples with no missing earnings and income data are nearly identical.

2. Data and measures

The PSID began in 1968 with a nationally representative sample of 5000 American families and has followed them each year since. For a fuller description of the study design, see Hill (1992) or Duncan and Hill (1989). By virtue of this complex design, the study has information on the socioeconomic histories of families as well as on the outcomes of multiple children from the same families who were in the original sample, moved into it, or were born to sample members.

We selected adult respondents ages 25 and older who were the head or wife of their household in any (or all) years between 1983 and 2001. These individuals had to have a valid person number for their mother; that is, their mother had to have been in the sample at some time. They were then linked to their biological siblings through this maternal connection. Siblings related to each other through adoption or inter-marriage were not included in the analysis. A trivial number (less than 1%) of respondents had a father in the sample but not a mother. The majority had both parents. Since many fathers were missing, we decided to identify siblings based on their mother's identification. Results are not statistically different if we rely on the father's identification or include only those who have both parents' sample identifiers. The reason we truncate the person–years at 1983 is that prior to that year "wives" were classified differently. There was no category for cohabiting women, or what the PSID subsequently called "wife" in quotes.

We examine three socioeconomic outcomes and split the sample along a number of family composition and resource dimensions. These measures are described below, and descriptive statistics are presented in Table 1.

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2.1. Education

This is one of our three dependent variables and is measured as the total years of formal schooling completed—a continuous variable from 1 to 17, with the topcode representing any graduate work, regardless of whether a degree was received. The PSID does not distinguish between various levels of graduate schooling.

2.2. Earnings

The second of our three dependent variables is measured as the total labor market earnings logged to the base e. Respondents with no labor market earnings were dropped from the analysis.

2.3. Family income

The final dependent variable is measured as the total family income logged to the base e. Respondents with missing family income were also dropped from the analysis.

2.4. Family composition measures

We present sibling correlations by sibling sex mix (all brothers or all sisters, mixed sex or same sex), by large or small age spread, and by large or small sibship size. A family is considered to have a large age spread when the difference between the oldest and the youngest sibling is greater than four, the median. A family is considered to have a large sibship size when the total number of siblings is greater than three, the median. Although large families tend to have larger age spreads, these two groups are not always equivalent (as we show below).

2.5. Family resource measures

We present sibling correlations by three maternal resource measures: mother's age at birth, mother's marital status at birth, and mother's educational attainment. A mother is considered young at birth when she is age 26 or younger, the median. We split mother's education at 12 or fewer years and greater than 12 years. This split results in unequal cell sizes, but since the majority of our respondents are clustered at 12 years, there is no way to split this categorical measure equally.

3. Statistical approach

The approach that we take to estimate the sibling resemblance is a variance decomposition method, following the strategy for income used by Mazumder and Levine (2003) and Solon et al. (1991). Conley and Glauber (2007) used and wrote about this method as well. The total variance of the outcome, Y_{ij}, can be expressed as

$$\sigma_\varepsilon^2 = E(\bar{\varepsilon} - \varepsilon_{ijt})^2 \tag{1}$$

This total variance can be decomposed into the sum of expected values of three components (as shown in Eq. (2) below): the between-family component in permanent status (that is, the difference between the mean for the family j and the grand mean), a within-family component (the difference between the mean for the individual i in family j from the mean for family j), and a within-subject component (the transitory component of education, earnings, or family income; that is, the differences between a given year's education level, earnings, or family income and the mean for that individual). Permanent status is often simply taken to mean the over-time average of income or earnings.

$$\sigma_\varepsilon^2 = E[(\bar{\varepsilon}_j - \bar{\varepsilon})^2 + (\bar{\varepsilon}_{ij} - \bar{\varepsilon}_j)^2 + (\varepsilon_{ijt} - \varepsilon_{ij})^2] \tag{2}$$

Multiplying this out gives us the formula that the total variance equals the sum of the three variance components minus two times their respective covariances.

$$\begin{aligned}\sigma_\varepsilon^2 = {} & E(\bar{\varepsilon}_j - \bar{\varepsilon})^2 + E(\bar{\varepsilon}_{ij} - \bar{\varepsilon}_j)^2 + E(\varepsilon_{ijt} - \bar{\varepsilon}_{ij})^2 \\ & -2E(\bar{\varepsilon} - \bar{\varepsilon}_j)(\varepsilon_{ij} - \bar{\varepsilon}_j) - 2E(\bar{\varepsilon}_{ij} - \bar{\varepsilon}_j)(\varepsilon_{ijt} - \bar{\varepsilon}_{jt}) \\ & -2E(\bar{\varepsilon} - \bar{\varepsilon}_{ij})(\varepsilon_{ijt} - \bar{\varepsilon}_{jt})\end{aligned} \tag{3}$$

With no covariance by design, the total variance can be represented as a sum of the three variance components:

$$\sigma_\varepsilon^2 = \sigma_a^2 + \sigma_u^2 + \sigma_v^2 \tag{4}$$

where σ_a^2 is the variance between families, and σ_u^2 is the variance within families in permanent status, and σ_v^2 is the variance in individual economic characteristics. This statistical necessity of zero covariance—discussed thoroughly in Conley and Glauber (2005)—makes the variance decomposition possible and results in a sibling correlation in permanent status according to the following equation:

$$\rho = \frac{\sigma_a^2}{\sigma_a^2 + \sigma_u^2} \tag{5}$$

We estimate sibling resemblance by decomposing the value on a given measure for those families with two or more siblings with at least one valid person–year each in the sample. We obtain standard errors for all of our estimates by using the Fisher's z' transformation which converts correlations to the normally distributed variable

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z'. The formula for the transformation is as follows:

$$z' = 0.5[\ln(1+\rho) - (1-\rho)] \quad (6)$$

We then calculate standard errors of z' based on the formula: $\sigma_{z'} = 1/\sqrt{N-3}$. We test differences across groups using differences in the Fisher z' transformations.

The correlation between each individual's education in the first available year and their education in the last available year is high, at 0.93, which suggests that most adult respondents have already completed their education by age 25. The same correlations for earnings and income are lower, at 0.42 and 0.34, respectively.

4. Findings: inequality and sibling resemblances

Sibling correlations are summative estimates of the combined effect of shared environment, shared genetic composition, and sibling effects on each other. By this measure, our analyses are descriptive only as we cannot disentangle these three separate components. Table 2 presents our descriptive findings, namely sibling correlations in education, labor market earnings, and family income by sibling composition and sibling resource groups. In general, our results reveal that siblings from disadvantaged families resemble each other less as adults than siblings from advantaged families. These findings could be explained by a number of dynamics: the variation of ability could be different in advantaged and disadvantaged families; the pattern of parental investment could be different and less equal; society writ large could generate a larger variance in outcomes for disadvantaged families through a process of tokenism that generates apparently random influences when viewed at the family level; or some combination of the above. We discuss these mechanisms in more detail in the conclusion and turn here to the specifics of our findings.

Given that previous research finds a stronger resemblance between brothers than between sisters (Benin & Johnson, 1984), and a weaker resemblance in one of the mixed-sex pairs (Hauser & Wong, 1989), we would expect that children who grew up with only siblings of their own sex would resemble each other more as adults. Instead, we find that sex mix does not significantly moderate sibling resemblances in socioeconomic outcomes. Siblings from mixed sex families have a 0.627 correlation in educational attainment, and siblings from same sex families have a 0.701 correlation in educational attainment. This is not a statistically significant difference. Mixed sex siblings have a correlation of 0.396 in labor market earnings and a correlation of 0.393 in family income. Same sex siblings have a correlation of 0.298

Table 2
Sibling correlations in socioeconomic statuses by family composition and resources.

	Education	Earnings	Family income
Mixed sex			
Correlation	0.627	0.396	0.393
Standard error	0.052	0.052	0.052
N person–years	16,350	13,390	11,441
N persons	1,127	1,190	1,180
N families	366	369	369
Same sex			
Correlation	0.701	0.298	0.441
Standard error	0.049	0.048	0.048
N person–years	9,204	7,394	6,623
N persons	650	686	691
N families	414	432	437
Difference	−0.075	0.098	−0.049
Standard error of difference	0.072	0.071	0.071
All brothers			
Correlation	0.632	0.338	0.626
Standard error	0.069	0.067	0.066
N person–years	4,686	3,814	4,817
N persons	331	353	363
N families	214	227	233
All sisters			
Correlation	0.751	0.196	0.455
Standard error	0.071	0.070	0.071
N person–years	4,518	3,580	1,806
N persons	319	333	328
N families	200	205	204
Difference	−0.119	0.143	0.172
Standard error of difference	0.099	0.097	0.097
Large age spread			
Correlation	0.678	0.320	0.299
Standard error	0.058	0.058	0.058
N person–years	14,916	12,242	10,470
N persons	1,001	1,056	1,049
N families	299	299	299
Small age spread			
Correlation	0.613	0.420	0.409
Standard error	0.046	0.045	0.045
N person–years	10,638	8,542	7,594
N persons	776	820	822
N families	481	502	507
Difference	0.065	−0.100	−0.110
Standard error of difference	0.074	0.073	0.073
Large sibship			
Correlation	0.615	0.281	0.231
Standard error	0.056	0.055	0.055
N person–years	14,135	11,454	9,768
N persons	974	1,022	1,018
N families	320	330	328
Small sibship			
Correlation	0.622	0.460	0.446
Standard error	0.047	0.046	0.046

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Table 2 (*Continued*)

N person–years	11,419	9,330	8,296
N persons	803	854	853
N families	460	471	478
Difference	−0.007	−0.180*	−0.215**
Standard error of difference	0.073	0.072	0.072
Mother young at birth			
Correlation	0.612	0.273	0.182
Standard error	0.040	0.039	0.039
N person–years	16,274	13,255	11,506
N persons	1,151	1,213	1,204
N families	629	645	645
Mother old at birth			
Correlation	0.675	0.409	0.400
Standard error	0.051	0.050	0.050
N person–years	9,280	7,529	6,558
N persons	626	663	667
N families	389	406	409
Difference	−0.063	−0.136*	−0.218***
Standard error of difference	0.065	0.064	0.063
Mother unmarried at birth			
Correlation	0.800	0.030	0.387
Standard error	0.030	0.139	0.136
N person–years	1,124	791	832
N persons	84	87	93
N families	55	55	57
Mother married at birth			
Correlation	0.599	0.399	0.419
Standard error	0.039	0.039	0.039
N person–years	18,605	15,190	13,047
N persons	1,292	1,369	1,362
N families	644	667	669
Difference	0.201***	−0.369*	−0.032
Standard error of difference	0.050	0.144	0.141
Mother has <13 years school			
Correlation	0.521	0.254	0.206
Standard error	0.042	0.041	0.041
N person–years	18,897	15,359	13,432
N persons	1,323	1,387	1,386
N families	575	585	590
Mother has 13+ years of school			
Correlation	0.491	0.516	0.564
Standard error	0.070	0.069	0.069
N person–years	6,657	5,425	4,632
N persons	454	489	485
N families	205	216	216
Difference	0.041	−0.262**	−0.357***
Standard error of difference	0.082	0.080	0.080

* $P < .05$.
** $P < .01$.
*** $P < .001$.

in labor market earnings and a correlation of 0.441 in family income. Again, these differences between same sex and mixed sex siblings are not statistically different from zero.

Considering sibling sex, our results are again surprising given previous research findings, as we find that all sister compositions and all brother compositions lead to relatively equivalent correlations across each of the three socioeconomic outcomes. Brothers have correlations in education, earnings, and family income of 0.632, 0.338, and 0.626, respectively, whereas sisters have correlations in education, earnings, and family income of 0.751, 0.196, and 0.455, respectively. For both brothers and sisters, resemblances are high in educational attainment and relatively low in labor market earnings. We discuss reasons for these differences among socioeconomic status outcomes in the conclusion.

Age spread does not moderate the effect of family background on siblings' socioeconomic status correlations, yet sibship size does. Siblings from larger families have lower correlations in education, earnings, and family income than siblings from smaller families. Siblings from larger families have a correlation of 0.281 in labor market earnings, whereas siblings from smaller families have a correlation of 0.460 in labor market earnings. This is a statistically significant difference of 0.180. Siblings from larger families also have a correlation of 0.231 in family income, whereas siblings from smaller families have a correlation of 0.446 in family income. This is a statistically significant and relatively large difference. The average correlation in family income for siblings from larger families is about half the average correlation for siblings from smaller families.

The final three panels of Table 2 present the moderating effects of maternal resources on sibling correlations, including maternal age at birth, maternal marital status at birth, and maternal educational attainment. Again, we find that siblings from disadvantaged families resemble each other less than siblings from advantaged families. Siblings born to younger mothers have correlations in earnings and family income of 0.273 and 0.182, respectively, whereas siblings born to older mothers have much higher correlations in earnings and family income of 0.409 and 0.400. These differences, especially for family income, are substantial. However, as with most of our analyses, sibling differences in educational attainment are not significantly different from zero.

Considering mother's marital status, we find that siblings born to unmarried mothers have correlations in education and earnings of 0.800 and 0.030. Siblings born to married mothers have a lower average correlation in education of 0.599, but a higher average correlation in labor market earnings of 0.399. This moderating effect on education is anomalous to our other findings and perhaps reflective of the very uneven cell sizes, as more than 90% of siblings are born to a married mother. Differences

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in family income correlations by mother's marital status are not statistically different from zero.

In the final panel of Table 2 we report average sibling correlations between groups demarcated by mother's education. Average sibling correlations for labor market earnings and family income for those from mothers with only a secondary school degree (or less) are 0.254 and 0.206, respectively. Average correlations for siblings from mothers with more education are higher, at 0.516 and 0.564. As with differences induced by maternal age, differences induced by maternal educational attainment are large in magnitude.

5. Discussion and conclusion

In summary, our descriptive analysis leads to two conclusions about siblings and family background effects. We find that sibling correlations are similar across different sex compositions and that sibling correlations are weaker among disadvantaged families than among advantaged families. More specifically and to begin with family composition, we find that family background exerts a stronger effect on individuals with fewer siblings. Results from previous studies on family size and siblings' average educational outcomes are somewhat conflicting. Most studies provide evidence of a negative effect (Becker & Tomes 1986; Conley & Glauber 2006; Steelman, 1985; Steelman & Powell 1989). However, Guo and VanWey (1999) find that this effect may be non-causal. When we explore the effects of family size on children's later-life variances, rather than on their averages, we find that family size increases variances. Further, siblings from more age-condensed families have slightly higher average correlations in labor market earnings and family income than siblings from less age-condensed families, although these differences are not statistically significant.

As noted above, we find that sibling correlations in education, labor market earnings, and family income do not vary by sibling sex mix. That is, brothers' resemblances are similar to sisters' resemblances, and resemblances among same sex siblings are similar to resemblances among mixed sex siblings. These findings have larger implications to our understanding of gender dynamics within families. If we observed lower correlations among mixed sex sibships than among same sex sibships, we might conclude that parents invest differently (even perhaps favoring males) when they have offspring of mixed sexes. This does not appear to be the case, and instead our findings suggest that in this specific regard, families do not tend to favor, or equally distribute resources, in all male sibships or all female sibships or in mixed sex sibships or same sex sibships.

Although family composition has only a moderate effect on siblings' socioeconomic resemblances, maternal resources have a larger effect. Siblings born to young mothers have average correlations in earnings and family income that are only about half of the correlations for siblings born to older mothers. For siblings born to young mothers, family background explains less than a fifth of the variation in family income and less than a third of the variation in labor market earnings. For siblings born to older mothers, family background explains nearly half of the variation in both family income and labor market earnings. The same pattern is repeated for maternal education. Family background explains less than a third of disadvantaged siblings' variation in labor market earnings and family income, but explains more than half of advantaged siblings' variation in earnings and income.

One immediate question that these findings raise is why correlations in education are more consistent across different social groups than are correlations in earnings and income. We think that there are a number of possible answers to this question. First, education, which is measured by years of completed schooling, may not capture nuanced differences in the U.S. educational system with respect to quality, prestige, and course of study. Earnings differences could largely reflect unmeasured educational differences. Second, education may be subject to greater parental control through investments, expectations, and aspirations. Income and earnings, which are generally attained later in life, may be less subject to parental control and may reflect external forces and different opportunity structures in the labor and marriage markets.

Finally, we can consider what our findings mean to general processes of stratification and mobility in the U.S. Why should we care that disadvantaged siblings tend to resemble each other less as adults than advantaged siblings? For starters, sibling resemblance is an important qualitative component of adult sibling relationships. Resemblance in socioeconomic status is not the only measure of cohesiveness or sibling ties, but it is one important measure. Our findings speak to issues regarding sibling family dynamics, ties, and class differences across social groups. Disadvantaged siblings have large variances, and therefore, may be located in different social classes. Future research should consider both the mechanisms and the outcomes of cross-class sibling relationships among individuals from disadvantaged families.

Further, recent qualitative research by Conley (2004) suggests that parents with fewer resources direct their

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resources to the better-endowed sibling and thereby accentuate sibling differences. Our study may lend support to this previous research finding, as we show that siblings with fewer resources tend to resemble each other less than siblings with more resources. Although lower sibling correlations are often taken to mean a greater level of meritocracy, it could very well be the case that lower sibling correlations reflect less meritocratic processes. Parents with limited resources may differentially invest in their offspring. It is also plausible that individuals from less advantaged families have fewer resources at their command to protect their adult socioeconomic status outcomes from intervening or chance events. Thus, differences in correlations between advantaged and disadvantaged families could reflect the absence of a protective floor. Of course, our analyses are descriptive in nature. It is possible that ability varies between certain subpopulations or that individuals from different subpopulations are sorted differently through discriminatory processes. Although we cannot advance empirical evidence for or against any one of these particular underlying models, we provide an important first step in this direction. Our analyses challenge the tacit assumption of equal mobility processes and within-family variances across different population groups.

References

Becker, G. S., & Tomes, N. (1986). Human capital and the rise and fall of families. *Journal of Labor Economics*, *4*(3), S1–S39.

Benin, M. H., & Johnson, D. R. (1984). Sibling similarities in educational attainment: A comparison of like-sex and cross-sex sibling pairs. *Sociology of Education*, *57*, 11–21.

Butcher, K. F., & Case, A. (1994). The effect of sibling sex composition on women's education and earnings. *The Quarterly Journal of Economics*, *109*, 531–563.

Conley, D. (1999). *Being black, living in the red: race, wealth, and social policy in America*. Berkeley: University of California Press.

Conley, D. (2004). *The Pecking order: which siblings succeed and why*. New York: Pantheon.

Conley, D., & Glauber, R. (2005). S*ibling Similarity and Difference in Socioeconomic Status: Life Course and Family Resource Effects*. National Bureau of Economic Research Working Paper No. 11320.

Conley, D., & Glauber, R. (2006). Parental educational investment and children's academic risk: Estimates of the impact of sibship size and birth order from exogenous variation in fertility. *Journal of Human Resources*, *41*(4), 722–737.

Conley, D., & Glauber, R. (2007). Family background, race, and labor market inequality. *The Annals of the American Academy of Political and Social Science*, *609*, 134–152.

Duncan, G. J., & Hill, D. (1989). Assessing the quality of household panel survey data: The case of the PSID. *Journal of Business and Economic Statistics*, *7*(4), 441–451.

Elder, G. H., & Caspi, A. (1988). Economic-stress in lives—developmental perspectives. *Journal of Social Issues*, *44*(4), 25–45.

Guo, G., & VanWey, L. K. (1999). Sibship size and intellectual development. *American Sociological Review*, *64*, 169–187.

Hauser, R. M., & Kuo, H.-H. D. (1998). Does the gender composition of sibship affect educational attainment? *Journal of Human Resources*, *33*, 644–657.

Hauser, R. M., & Mossel, P. A. (1985). Fraternal resemblance in educational attainment and occupation. *American Journal of Sociology*, *91*, 650–673.

Hauser, R. M., & Sewell, W. (1986). Family effects in simple models of education, occupational status, and earnings: Findings from the Wisconsin and Kalamazoo studies. *Journal of Labor Economics*, *4*, S83–S115.

Hauser, R., & Wong, R. S.-K. (1989). Sibling resemblance and intersibling effects in educational attainment. *Sociology of Education*, *62*, 149–171.

Hauser, R. M., Sheridan, J. T., & Warren, J. R. (1999). Socioeconomic achievements of siblings in the life course: New findings from the Wisconsin Longitudinal Study. *Research on Aging*, *21*(2), 338–378.

Heflin, C., & Pattillo, M. (2006). Poverty in the family: Race, siblings, and socioeconomic heterogeneity. *Social Science Research*, *35*(4), 804–822.

Hill, M. S. (1992). *The panel study of income dynamics: a user's guide*. Newbury Park, CA: Sage Publications.

Jencks, C. S., Smith, M., Acland, H., Bane, M. J., Cohen, D., Gintis, H., et al. (1972). *Inequality: a reassessment of the effect of family and schooling in America*. New York: Basic Books.

Jencks, C. S., Bartlett, S., Corcoran, M., Crouse, J., Eaglesfield, D., Jackson, G., et al. (1979). *Who gets ahead? The determinants of economic success in America*. New York: Basic Books.

Kaestner, R. (1997). Are brothers really better? Sibling sex composition and educational achievement revisited. *Journal of Human Resources*, *32*, 250–284.

Kuo, H.-H. D., & Hauser, R. M. (1995). Trends in family effects on the education of black and white brothers. *Sociology of Education*, *68*, 136–160.

Mazumder, B., & Levine, D. I. (2003). *The Growing Importance of Family and Community: An Analysis of Changes in the Sibling Correlation in Earnings*. Federal Reserve Bank of Chicago, Working Paper 2003–24.

Page, M. E., & Solon, G. (2003). Correlations between brothers and neighboring boys in their adult earnings: The importance of being urban. *Journal of Labor Economics*, *21*(4), 831–856.

Powell, B., & Steelman, L. C. (1989). The liability of having brothers: Paying for college and the sex composition of the family. *Sociology of Education*, *62*, 134–147.

Powell, B., & Steelman, L. C. (1990). Beyond sibship size: Sibling density, sex composition, and educational outcomes. *Social Forces*, *69*, 181–206.

Powell, B., & Steelman, L. C. (1993). The educational benefits of being spaced out: Sibship density and educational progress. *American Sociological Review*, *58*, 367–381.

Powell, B., & Steelman, L. C. (1995). Feeling the pinch: Child spacing and constraints on parental economic investments in children. *Social Forces*, *73*, 1465–1486.

Solon, G., Corcoran, M., Gordon, R., & Laren, D. (1991). A longitudinal analysis of sibling correlation in economic status. *Journal of Human Resources*, *26*, 509–534.

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Steelman, L. C. (1985). A tale of two variables: A review of the intellectual consequences of sibship size and birth order. *Review of Educational Research*, *55*, 353–386.

Steelman, L. C., & Powell, B. (1989). Acquiring capital for college: The constraints of family configuration. *American Sociological Review*, *54*, 844–855.

Sulloway, F. J. (1996). *Born to Rebel: birth order, family dynamics, and creative lives*. New York: Pantheon.

Warren, J. R., Hauser, R. M., & Sheridan, J. T. (2002). Occupational stratification across the life course: Evidence from the Wisconsin Longitudinal Study. *American Sociological Review*, *67*, 432–455.

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