

Educational Inequality between Brothers and Sisters in the United States

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Abstract

For most of the 20th century, American women had, on average, lower educational attainment than men. Researchers often theorize that differential treatment by parents based on children's genders played a role in this result, but they rarely examine directly whether siblings from the same family were unequally affected. This paper redresses this lacuna by asking two questions: (1) Is the gender gap in educational attainment in the population at large as evident *within* families? (2) Does parental socioeconomic status (SES) attenuate or exacerbate education differences between sons and daughters? Using the Study of American Families, fixed effects regressions initially suggest that families did favor sons over daughters, but upon closer examination, only high SES families generated higher-educated sons than daughters; low SES families produced equally-educated sons and daughters. These results are contrary to the predictions of gender egalitarianism theory. Additionally, this paper uncovers that if a father had more education than his wife, their son was more likely to surpass his sister educationally, net of family SES; this highlights the reproduction of gendered relations of educational advantage across generations.

Keywords: Gender inequality, Gender egalitarianism, Educational history, Sociology of education, Educational homogamy

1. Introduction

For most of the 20th century in the United States, on average, women had lower educational attainment than men (Alexander & Eckland, 1974; Marini & Greenberger, 1978; Sewell et al., 1980; Jacobs, 1996). Women born before 1970 had roughly a quarter of a year less of total formal schooling than men (author's calculations of the Cumulative General Social Survey). This difference is substantial, since each year of education is worth thousands of dollars in additional annual income, for both men and women (Card, 1999).

Recent work shows that for cohorts born since the mid-1960s, however, this gap has reversed, and now women surpass men in college-going (Buchmann & DiPrete, 2006; DiPrete & Buchmann, 2006). While the study of the reversal of the higher education "gender gap" is important, this paper focuses on the pre-1970s period because the underlying processes behind it are still not well understood. Indeed, research has yet to emerge that answers these two critical questions directly: (1) Do brothers and sisters from the same family, on average, exhibit as substantial an educational gender gap as found in the population at large? (2) Does parental socioeconomic status (SES) attenuate or exacerbate education differences between sons and daughters?

Answers have been lacking because almost all data on the long-standing gender gap in education has been based on differences between offspring from different families. Often arguments are made about how families contributed to inequalities among their own children (Buchmann & DiPrete 2006; DiPrete & Buchmann 2006), but researchers have not directly measured how the same families treat children of both sexes (for a rare exception, see Behrman et al., 1986).

What is unique about the case of men and women – which is not generally true of other ascriptive differences, like race – is that brothers and sisters grow up in homes together. While many researchers assume that the male-female education gap must be traceable back directly to inequalities in their shared home environments, that is not necessarily true. (Note 1) It is a theory that ought to be tested directly.

I contribute to the sociology of educational literature by using nationally representative data on (full) siblings to directly examine differences in educational attainment tied to gender within the same families. Because I have sibling data, I can use fixed effects models to statistically factor out those stable family characteristics that the siblings share (Conley et al., 2003) to better isolate whether there is any unique educational detriment to being a girl, even within the same family. Family dynamics are very complex and it is impossible to model all of the influences among parents and children, but actually examining siblings directly still constitutes an improvement over the typical quantitative method of examining girls and boys from separate families.

Given the massive complexity of family life, I excluded half and step siblings from my analyses. Because such siblings did not share the same parents, nor the same home for their whole upbringing, it is very difficult to compare them. I confined my analyses to full siblings from intact nuclear families. While this sample restriction increases our confidence in the use of fixed effects regression techniques (by better meeting the assumptions of the model), it

introduces a limitation as well: it restricts the generalizability of the results to other family forms and sibling relationships. The concern over generalizability is made less pronounced, however, by the fact that the vast majority (73%) of Americans who were born before 1970 grew up in homes with two biological parents.

My approach provides a new way to explore gender relations within the family and their consequences for the educational system as a whole. By examining an important historical period, this paper considers whether all socialization agents (i.e., family, schools, media, government) in American society operated in tandem to promote educational gender inequality (Acker, 1987). I consider the possibility that some families managed to produce mixed-sex siblings with equal educational levels, even while children at large were being exposed to gendered models of educational attainment. International researchers can apply this same methodology to their own countries, examining the correspondence between family vs. other societal values in promoting educational equality (Chu et. al., 2008 have done something similar for Taiwan).

2. Gender Gaps in Educational Attainment

The direction and magnitude of the national gender gap was not much in doubt for most of the century. “Early attainment studies included gender as a predictor of years of schooling completed,” generally finding women received less schooling than men (Jacobs 1996: 161). A number of theories exist for the gender gap in education. The dominant theory is based on gender socialization (Acker, 1987). Many agents, including family, school, and the media, present models of how boys and girls should act in various contexts, including in the classroom (Thorne, 1993; Raley & Bianchi, 2006). In the 1940s, 1950s and 1960s, the gender socialization process meant that boys received greater encouragement and had higher expectations from parents and teachers than girls, even when they were of equal SES background (Reynolds & Burge, 2008).

Another theory posits that educational resources could have been funneled toward one sex over the other within the family, which could also limit female achievement (Raley & Bianchi, 2006; Buchmann & DiPrete, 2008). Becker (1991) argues that given higher rates of return on education for men than women, owing to women’s supposed less-than-complete commitment to the labor market and discrimination against women in the labor market, “rational” parents would invest more in the education of their sons over daughters. On that point, however, using the Wisconsin Longitudinal Survey (WSL), Kim (2005) does not find that parents give more education-transfers to sons over daughters, all else equal. Contrary to Kim (2005), Raley & Bianchi (2006) find more – but not complete – support for the idea that parents invest more in boys’ schooling than girls’ schooling, when a broader definition of investment is used, including not just money, but also parental time and attention and access to valuable peers (Freese & Powell, 1999).

Adjudicating among these theories can be difficult, because they make predictions in the same direction. In order to better test them, we need a quasi-experimental way to isolate the role that gender plays, holding family characteristics constant. By asking “Do brothers have more education than sisters?,” as opposed to asking, “Do men have more education than

women?,” we can highlight the unique role that the family can play in either minimizing or exacerbating gender expectations present in society at large. The default assumption, however, is a direct correspondence between the gender gap in society at large and the one in the typical family:

HYPOTHESIS 1: On average, a brother will have more schooling than his sister

3. Siblings, SES, and Gender Egalitarianism

What family characteristics attenuate or exacerbate education differences between brothers and sisters in the same families? Socioeconomic status – which refers to the resources that individuals accumulate and the lifestyles they embody, given their joint positions in the education, labor, marriage and property markets (Weber, 1978) – deserves strong consideration.

Gender egalitarianism argues that increasing parental SES should reduce educational inequality between opposite-sex siblings (Buchmann & DiPrete, 2006). Sociologists have found higher levels of gender egalitarian ideology among high SES families (Thornton & Freedman, 1979; Thornton et. al., 1983). People with higher SES seem to hold notions of equal opportunity between the sexes (Buchmann & DiPrete, 2006). If they act on these notions, and have the resources to make equality happen, then high status families can equalize their children’s schooling levels, regardless of gender. Looking to individuals born before 1970, and using data from the GSS, Buchmann & DiPrete (2006) find that only among high SES parents (where both parents have some college training), do boys and girls have roughly comparable levels of college-going. I contribute to this debate by testing whether *within the same family*, siblings appear to be treated equally based on their gender and their parents’ SES. Under this theory, the expectation is:

HYPOTHESIS 2: As family SES increases, the educational disadvantage for daughters will decrease

4. Parental Educational Inequality and Sibling Educational Inequality

Gender stratification researchers also consider if unequal parental achievements have differential effects on offspring (Kalmijn, 1994; Coltrane & Collins, 2000; Korupp et. al., 2002; Van der Slik et. al., 2005; Chu et. al., 2008; Bonke & Esping-Andersen, forthcoming). In the context of family dynamics of educational attainment, it is important to consider if there is an effect if one parent has more education than the other.

While perhaps seeming reductive and out-dated, sex-based role-modeling on education could produce differential effects for brothers and sisters. As Buchmann et al (2008: 327) note: “Some scholars argue that role modeling is sex specific, such that girls look more to their mothers and boys more to their fathers as they develop their educational and occupational aspirations ... daughters should do relatively better in households with a better-educated mother than in households with a better-educated father and sons should be affected more negatively than daughters by the absence of a father in the home.” There has been some limited evidence for this dynamic (e.g., Rosen & Aneshensel, 1978), but often it does not appear to operate, at least in single-parent homes (Downey & Powell, 1997). DiPrete &

Buchmann (2006) find, however, that family background strongly influences the population-wide gender gap in college-going. In the early part of the 20th century, girls in households with lesser-educated fathers or no fathers suffered relative to boys. What they do not examine explicitly, and they cannot without siblings, is whether the relationship between parents' *own* educational levels played some additional role in this process.

Overt parental bargaining may drive this effect, where the more educated spouse has more input into how far children should go academically (Becker, 1991). In studies of power dynamics among husbands and wives, education or income differences often proxy for power, or bargaining leverage, differences in the marriage (Ericksen et. al., 1979; Van der Slik et. al., 2005). For this to produce differential effects, however, a parent's greater "say," by virtue of his or her higher education, must be combined with some desire to see the child who shares his or her sex go further educationally than the child of the opposite sex.

Singly or in combination, these mechanisms would lead brother-sister pairs to mirror the father-mother education relationship more closely:

HYPOTHESIS 3A: If a father's education surpasses his wife's, the likelihood that their son educationally surpasses his sister increases

HYPOTHESIS 3B: If a mother's education surpasses her husband's, the likelihood that their daughter educationally surpasses her brother increases

Given the nature of these hypotheses, my sample for these analyses is limited to families with both a mother and father present; single-parent households are excluded by design.

5. Data and Methods

I used a nationally-representative sample of siblings from the General Social Survey's (1994) module, the Study of American Families (SAF), fielded by Robert M. Hauser and Robert D. Mare; the response rates are quite high with the GSS in general, approximately 71 percent. Beyond the usual battery of questions asked in the GSS, they asked the respondent for information on one randomly-chosen sibling (for an introduction to the SAF, see Hauser & Mare, 1994). (Note 2) Therefore, my analyses applied to two siblings per family. I limited my analyses to families where: both siblings are *full siblings* (to ensure they had the same parents) and both are 25 years of age or older (to ensure they have completed their schooling). I used GSS-provided sample weights in all analyses, making my results representative of the non-institutionalized, civilian, English-speaking adult United States population in 1994.

To test my hypotheses, I relied on two statistical techniques.

5.1 Fixed Effects Regressions

To test Hypotheses 1-2, I used a fixed effects model, which can be represented as follows:

$$\Delta Y_{ij} = \alpha + \Delta X_{ij} + \varepsilon$$

This gives the change in educational attainment (Y) of the i th person in the j th family, where their genders and/or ages (represented by X) vary. All other stable family characteristics that

the siblings share are factored out (Conley et al 2003).

5.2 Multinomial Logistic Regression

To test Hypotheses 3a-3b, I used multinomial logistic regression. It is necessary to run this model because my sibling inequality measure is an *unordered*, polytomous variable with three possible states (see Dependent Variables below). The multinomial logistic model works by running a set of simultaneous logit regressions, each made in reference to one baseline category (Park & Kerr, 1990). The logit regressions are represented as follows:

$$\text{Log}[\text{Pr}(Y=1)/(\text{Pr}(Y=2))] = \alpha + \beta_1 X_i + \beta_2 Z_i + \varepsilon,$$

$$\text{Log}[\text{Pr}(Y=3)/(\text{Pr}(Y=2))] = \alpha + \beta_3 X_i + \beta_4 Z_i + \varepsilon,$$

where $\text{Log}[\text{Pr}(Y=1)/(\text{Pr}(Y=2))]$ is the log-odds that a brother has more schooling than his sister ($Y=1$) vs. the siblings have equal educational levels ($Y=2$); and the other logistic is the log-odds that a sister has more schooling than her brother ($Y=3$) vs. the siblings have equal educational levels ($Y=2$). Additionally, X_i represents whether the same-gender parent has more education than their spouse or not, and Z_i is a vector of other characteristics of the family or of the sibling pair. Logit coefficients were then converted into relative risk ratios (or odds-ratios).

Table 1. Summary Statistics (Unweighted)

	Obs.	Mean	St. Dev.
Educational Attainment (either R or R's sibling)	1,872	13.15	2.84
Age (either R or R's sibling)	1,872	44.78	15.7
Parental SES	1,872	0.00	1.23
Number of Siblings	674	3.61	2.69
African-American	674	0.11	-
Average Age, Pair	674	44.56	15.25
Age Difference, Pair	674	5.15	3.91
Brother Education > Sister's Education	674	0.36	-
Brother Education < Sister's Education	674	0.36	-
Brother Education = Sister's Education	674	0.29	-
Family Where Father's Educ. > Mother's Educ.	674	0.34	-
Family Where Father's Educ. < Mother's Educ.	674	0.33	-
Family Where Father's Educ. = Mother's Educ.	674	0.33	-

Some percentages do not add to 100% due to rounding.

5.3 Dependent Variables

Educational Attainment. Individual educational attainment is the number of years of formal schooling reported by the GSS respondents about themselves and their siblings, top-coded to 20 years. Without direct observation of parental behaviors toward their children, most researchers rely on total years of education as “an indirect, but behavioral measure” of parental investment patterns (Hopcroft, 2005: 1116). In fact, Kim (2005) finds that each

\$1,000 educational contribution from parents translates into a 0.067 increase in the total number of years of schooling for their children.

Sibling Educational Inequality. This is an *unordered*, polytomous variable with three possible states: the brother has more schooling than his sister (value=1); brother and sister educational levels are equal (value=2); or the sister has more schooling than her brother (value=3). (Note 3)

5.4 Independent Variables

Socioeconomic Status (SES). My proxy for SES was generated from the first factor score from a principal components analyses of two measures: (1) the highest total number of years of schooling attained by the respondent's parents, whether mother or father, which is generally found to be the single best predictor of children's educational attainment (Blake, 1989); and (2) the highest prestige ranking score of either parent's occupation when the respondent was 16 years of age, which is indicative of "permanent income" and of the family's resource-generating capacity (Blau & Duncan, 1967). The Eigenvalue on the first principal component is above 1 (1.57) and accounts for most of the total variance (79%). In the fixed effects models, families are dichotomized into "high SES" and "low SES" families, separated at the mean family SES score.

Parental Educational Inequality. A series of indicator variables for three possible states: (1) the father has more schooling than his wife; (2) the father has less schooling than his wife; or (3) father and mother educational levels are equal. (Note 4)

5.5 Control Variables

Total Number of Siblings. Following other stratification researchers, I included the total number of siblings the respondent and sibling have, including step-siblings, half-siblings and adopted siblings.

Sibling Age Difference. This measures the number of years of age separating the two siblings in the pair, which has been shown to be important (Steelman et. al., 2002). In addition to the age difference, I included the *Sibling Average Age* (of the pair) to account for positive drifts over time in educational attainment or other cohort effects (Hauser & Sewell, 1985). In the fixed effects models, I include the respondents' and siblings' ages.

Race. Following other stratification researchers, I included an indicator variable for whether the respondents are African-American or not.

6. Results and Discussion

Table 1 presents (unweighted) descriptive statistics of the data. Most notable is that 36% of families have a son with more education than his sister, and 36% of families have a daughter with more education than her brother; 29% of the time, they have the same amount of education (these percents do not add to 100% due to rounding). On its own, this suggests parity between the sexes within families. Yet when educational attainment is considered as a continuous measure of formal years of schooling, this story changes dramatically. That is

what is visible in the fixed effects regressions below.

The first fixed effects regression appears to provide support for HYPOTHESIS 1, that the average family favored their sons over their daughters educationally for cohorts born before 1970. Model 1 of Table 2 shows that even within families, girls had -0.16 years of schooling less their brothers ($p < .10$, two-tailed test; $p < .05$, one-tailed test). This result appears to show that the gender gap in educational attainment in society at large is evident *within* families, but this analysis is too simplistic. It does not take into account possible heterogeneity in gendered educational inequality across the SES distribution.

The initial support for HYPOTHESIS 1 disappears once the gender gap is examined according to family SES level. The gender inequality is driven by differences in the SES of families. No evidence is found in support of HYPOTHESIS 2, that as family SES increases, the educational disadvantage for daughters will decrease. In fact, the gender gap is much larger among high SES families than among low SES families. In Model 2 of Table 2, the fixed effects equation shows that daughters suffer a -0.27 deficit in schooling relative to their brothers in high SES families ($p < .05$, two-tailed test). In contrast, as Model 3 of Table 2 shows, the gender gap among low SES families is nonexistent and indistinguishable from zero. Low SES daughters and brothers do not differ from each other. These results provide evidence contrary to the gender egalitarian thesis. It is incorrect to assume that *all* family-types have meaningful gender gaps in their own homes, since low SES families do not. Instead, this analysis shows that *all* of the gender gap within families is driven by high SES siblings.

Table 2. Fixed Effects Regression of Educational Attainment, Full Mixed-Sex Siblings Aged 25 and Older

	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>
	<i>All Families</i>	<i>High SES Families</i>	<i>Low SES Families</i>
	Coeff.	Coeff.	Coeff.
Age	-0.03* (0.01)	0.00 (0.03)	-0.05** (0.02)
Male (reference)	-	-	-
Female	-0.16[§] (0.09)	-0.28* (0.13)	-0.01 (0.13)
Constant	14.92** (0.70)	14.83** (0.95)	14.99** (1.02)
Observations	1,872	930	942
Families	936	465	471
Adjusted R ²	0.48	0.49	0.38

** $p < .01$ * $p < .05$ + $p < .10$ (two-tailed); [§] $p < .05$ (one-tailed)

Robust standard errors in parentheses.

Why would this SES effect emerge? It is possible that while high SES families espouse an ethic of equality between the sexes, they do not practice it as fully; there is evidence that high SES individuals give “socially desirable” answers to questions about gender (Press & Townsley, 1998). Another possibility is that high SES parents are the only ones with

sufficient resources to actually channel investments to one sibling over another; low SES families may be unable to play favorites based on gender because they do not have enough resources to investment differentially in their children's educational careers to begin with (Conley, 2005 makes this point). Certainly, more research is necessary to fully understand this finding.

It also should be noted, that while this paper is highlighting the gender gap among relatively already privileged families, this does not mean that the *level* differences in educational attainment between low SES and high SES families is not important. Clearly, the fact that low SES families, on average, produce children of lower achievement levels is critically important and deserves continuing investigation (for reviews, see Luster & McAdoo, 1996; Kao & Thompson, 2003).

Table 3. Logistic Regression of One Sibling Having More Education than the Opposite-Sex Sibling, Full Mixed-Sex Siblings Aged 25 and Older

	Baseline: Sister Educ. = Brother Educ.	
	<i>Brother Educ. > than Sister Educ.</i> Relative Risk Ratio	<i>Sister Educ. > Brother Educ.</i> Relative Risk Ratio
Parental SES	0.95 (0.09)	0.95 (0.09)
Total Number of Siblings	1.07 (0.05)	1.09* (0.05)
Age Difference, Pair	0.97 (0.03)	0.99 (0.03)
Average Age, Pair	1.01 (0.01)	1.01 (0.01)
White or Non-African-American Ethnicity (reference)	-	-
African-American ^a	0.65 (0.26)	1.48 (0.39)
Family w/ Father's Educ. > Mother's Educ.	2.27** (0.60)	1.48 (0.39)
Family w/ Father's Educ. = Mother's Educ. (reference)	-	-
Family w/ Mother's Educ. > Father's Educ.	1.03 (0.24)	0.94 (0.22)
Log pseudo-likelihood		-725.21
Wald χ^2 (d.f.=14)		24.90*
Observations		674
Pseudo-R ² (Cragg & Uhler's)		0.02

**p<.01 * p<.05 + p<.10 (two-tailed)

Robust standard errors in parentheses.

It also ought to be noted that these models do not directly test for gender gaps in educational attainment that may be due to other sources, especially racial or ethnic cultural traditions.

This paper only considers SES as the source of the gender gap. In order to generalize these results to the US as a whole, it would be necessary to test for sub-group variation tied to cultural diversity as well.

I had also hypothesized linkages between parental educational inequality and sibling inequality. Here, as is evident in Table 3, these hypotheses are at least partially supported. HYPOTHESIS 3A – when fathers are more educated than their wives, sons will be more educated than their sisters – is supported. As Table 3 shows, a family with a higher educated father more than doubles the log-odds that the son will be more educated than the daughter (relative risk ratio=2.27, $p<.01$), relative to the log-odds of having siblings with equal educational levels. HYPOTHESIS 3B, however, is not supported: families with mothers with more education than the fathers do not generate daughters with more education than the sons, as is evident in Table 3, where the odds-ratio is not different from 1 (RRR=0.94). This analysis highlights the reproduction of gendered relations of power and advantage across generations. (Note 5)

The findings on intergenerational gender inequality are not completely consistent with the hypotheses, however, since the most straightforward way for gender reproduction to operate within the family is through a sex-based role-modeling on education, where sons look to fathers for educational aspirations and daughters look to mothers. If that were the case, then families with more educated mothers should produce sibling pairs with more educated daughters, but we do not see that.

Why would only a family with a higher educated father increase the chances that the son will be more educated than the daughter? The answer could stem from the fact that fathers seem to prefer sons. In homes where fathers are ahead educationally, they can push harder to make sons do better than daughters, while mothers – even when more educated than their husbands – may be more inclined to want equality for all of their children, regardless of gender. This is consistent with the evidence of Raley & Bianchi (2006), who report that surveys show fathers are more inclined to say they want sons, while mothers express an equal desire for a child of either sex. In this circumstance, it appears that fathers, when more educated than their wives, may demand their sons to do somewhat better educationally than their daughters. Conversely, mothers do not use their advantaged positions to get advantages for their daughters, but instead produce equality for all children.

7. Conclusion

This paper advocated a stratification approach with a more direct perspective on gender dynamics within the family. I shifted to a framework where educational inequality is modeled not between men and women from different families, but between boys and girls within the same ones, much like under an experimental logic. By shifting focus, this paper has documented for the first time how gender plays a direct role within families. It also highlights subtle gendered mechanisms that operate to privilege some children in families relative to other children in those same families. While sibling educational inequality seemed like it might result from a random mixture of family interactions, or be merely a mirror of the forces at work in society at large, sibling inequality is actually affected strongly by family-of-origin

characteristics, including parental SES and parental educational inequality.

The relatively naïve “family as microcosm for larger society” reproduction model (where it was hypothesized that brothers and sisters from the same family, on average, would exhibit as great an educational gender gap as found in the population at large) is ultimately a poor approximation for the reality of gender inequality within families; although initial support was found for it in the population-wide fixed effects model. Specifically, I initially found that overall, sons were more likely to get more schooling than daughters. At first, this seemed to support the “rational” intrahousehold allocation (Becker, 1991) theory, where boys are predicted to be favored at all points in the SES distribution, because of their favored status in the labor market.

Yet that was before family-of-origin SES was taken into account. Once that was done, the analysis undermines both the “rational” intrahousehold allocation theory of Becker (1991) and the gender egalitarian theory. I found that high SES families exacerbated the total amount of schooling differences between brothers and sisters. Conversely, I showed that low SES parents brought brothers and sisters much closer educationally than brothers and sisters from high SES parents. This shows why it is incorrect to assume that *all* family-types had meaningful gender gaps in their own homes, since low SES families did not. The gender gap was only visible within high SES families. (Note 6)

Another factor that mattered, and surprisingly few researchers have directly tested it, was the educational attainment *inequality* among parents. Fathers with more education than their wives seemed to reproduce this relation in their children via sons having more education than daughters. As interesting, the reverse does not hold, such that when wives have more education than their husbands, this does not translate into an educational advantage for their daughters, but mothers seem to push for educational parity.

These findings show that gender often matters in altering relationships and affecting life-chances for all members of the family, but in very subtle ways, and only deceptively at the average. Generally, when gender differences matter, they matter because they are mediated through family-of-origin SES or other parental characteristics, e.g., parental educational inequality.

One limitation of this study is lack of data on parental gender attitudes and social interactions in the early lives of these siblings. We could profit from greater clarity around both parents’ and children’s subjective attitudes and opinions about family, work and education. As a result, it is impossible to fully adjudicate over theories of gender inequality. I relied on “objective” measures and correlates with gender attitudes, but these are necessarily incomplete. Nonetheless, finding meaningful gender differences should lead other researchers to look to identify additional mechanisms that would affect the gender gap.

Another limitation is that family dynamics are very complex, and it is difficult to satisfactorily “factor out” all of the variables that can affect the educational gender gap within families. My use of fixed effects was meant to try to account for as many stable family characteristics as possible, but that meant having to restrict my sample only to full siblings

from intact nuclear families (who could plausibly be assumed to have shared the same upbringing). That means that my results are limited in terms of their generalizability to other family arrangements and sibling relationships. For the pre-1970s cohorts, this was less of a problem because the nuclear family was dominant, but to the degree that we want these findings to speak to current conditions among boys and girls, a growing fragmentation of what we mean by family should be taken into account; after all, over 38% of Americans born since 1970 were not living with their two biological parents when they were 16 years of age. To address these family changes, additional research is certainly warranted.

Other countries around the world show some of the same educational attainment patterns, but not universally (Buchmann & DiPrete, 2006). Another extension of this paper would be to see whether the gender dynamics found here are altered by different welfare state regimes; different labor and family policies; and to some degree, different levels of educational homogamy. Likewise, another extension is to take my analysis up to the present day in the United States, taking into account the tremendous educational changes for cohorts born since 1970. Do the mechanisms found in this one time apply as well to the new time period? This deserves researcher attention.

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Notes

Note 1. It is not necessarily true that the male-female education gap must be traceable back directly to inequalities in brothers' and sisters' shared home environments for two reasons. One reason is the overall compositional mix of inequality-generating family types compared with equality-generating family types can be uneven. Certain families, like those with more children, can contribute disproportionately to the gap; in that case, if large families had high gender gaps within them, but small families had no gender gaps, it would be inaccurate to assume *all* family-types have meaningful gender gaps in their own homes. This idea has been illustrated in the literature (e.g., Buchman & DiPrete, 2006). The other reason is that educational attainment refers to the total years of completed schooling per person (Blau & Duncan, 1967; Jencks, 1979) and because of the cumulative quality of schooling, the averages of educational attainment, by gender, are affected by the exact form of the distributions of years of schooling. Because men and women differ not just in their means, but in the shape of the distributions of their educational attainment levels (Mickelson, 2003), some families can contribute disproportionately to the high or low attainments of boys and girls in ways that are not symmetric. Some family types can contribute high-educated sons, but low-educated daughters, while other family types can contribute nearly equal sons and daughters. These highs and lows are aggregated together at the population level in such a way

that it is not possible to know a priori how gender inequality works within a typical family itself.

Note 2. The SAF staff then attempted to contact this sibling for additional questions; telephone interviews were conducted with 1,155 of those siblings (for more information, see Warren, 2001); this additional information on this smaller sample is not used in this paper.

Note 3. The specific values are arbitrary.

Note 4. Naturally, this variable only applies to families with two parents present.

Note 5. Also of note, there do not appear to be any racial/ethnic differences in these patterns, since the relative risk ratios are not significantly different for African-American families, compared to all other racial/ethnic groups.

Note 6. While all difference models – like fixed effects – need to be mindful of measurement error (Griliches, 1979), measurement error is not likely driving these results here, since it is not thought to be high with regard to siblings. Hauser & Wong (1989) note that “proxy reports of status variables by adult offspring about one another are just about as accurate as are self-reports” (168).

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