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Sex, status, and reproductive success in the contemporary United States

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Abstract

This paper reexamines the relationship between status and reproductive success (at the ultimate and proximate levels) using data on sex frequency and number of biological children from representative samples of the U.S. population. An ordered probit analysis of data from the 1989–2000 General Social Survey (GSS) shows that high-income men report greater frequency of sex than all others do. An OLS regression of data from the 1994 GSS shows that high-income men have more biological children than do low-income men and high-income women. Furthermore, more educated men have more biological children than do more educated women. Results also show that intelligence decreases the number of offspring and frequency of sex for both men and women.

Keywords: Sex; Status; Reproductive success

1. Introduction

In most animal populations, status or social rank is positively related to reproductive success (Ellis, 1995; Low, Simon, & Anderson, 2002; Strier, 2003; Voland, 1998). There is much evidence that the same relationship between status and reproductive success also holds in preindustrial human populations, especially for males (see Table 1).

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Table 1
Studies showing a positive relationship between male status and number of surviving offspring

Society	Status measure	Reference(s)
Aché of Paraguay	Hunting ability	Kaplan and Hill (1985); Hill and Hurtado (1996)
Aka-Mormons	Political status	Walker and Hewlett (1990)
Aka of the Central African Republic	Political status	Hewlett (1988); Walker and Hewlett (1990)
Bakkarwal of India	Prestige, wealth	Casimir and Rao (1995)
Caribbean farmers	Land ownership	Flinn (1986)
Dogon of Mali	Land ownership, income	Strassman (1997)
Efe of Zaire	Wealth	Bailey (1991)
Gabbra of Kenya	Wealth	Mace (1996a, 1996b)
Medieval Europeans	Wealth, power	Betzig (1992, 1993, 1995)
Modern Hungarians	Education	Bereczkei and Csanaky (1996)
Ifaluk	Wealth	Turke and Betzig (1985); Betzig (1988)
Kipsigis of Kenya	Land ownership	Borgerhoff Mulder (1987, 1988, 1990, 1995, 1996)
Krümmhorn farmers of the 18th and 19th centuries	Land ownership	Voland (1988, 1990); Voland and Dunbar (1995)
!Kung of the Kalahari	Social status	Pennington and Harpending (1993)
Lancashire farmers of the 18th century	Occupational status	Hughes (1986)
Mormons of Utah	Wealth, religious rank	Faux and Miller (1984); Mealey (1985)
Mukogodu of Kenya	Wealth, Social Status	Cronk (1991)
Norwegian farmers of the 18th to 20th centuries	Age, wealth	Røskaft, Wara, and Viken (1992)
Portuguese elites of the 16th to 18th	Land ownership	Boone (1986)
Qing China	Rank in nobility	Lee and Campbell (1997); Lee, Campbell, and Wang (1993); Wang, Lee, and Campbell (1995)
Ancient Romans	Wealth, power	Betzig (1992)
Modern Swedes	Occupational status	Forsberg and Tullberg (1995)
Swedish farmers of the 19th century	Occupational status, Land ownership	Low (1991); Low and Clark (1992)
Yanomamö	Political status	Chagnon (1979, 1980, 1988)
Yomut Turkmen of Iran	Wealth	Irons (1979, 1980)

In modern human populations, the demographic transition and the availability of effective contraception appear to have severed the link between status and reproductive success, as previous studies suggest that high-status individuals have somewhat fewer offspring than do low-status individuals (Dickemann, 1993; Kaplan, Lancaster, Johnson, & Bock, 1995, Kaplan, Lancaster, Tucker, & Anderson, 2002; Low et al., 2002; Morgan, 1996, 2003; Pérusse, 1993; Potts, 1997; van den Berghe & Whitmeyer, 1990; Vining, 1986). Empirical studies suggest that fewer children, even if they are high quality, mean fewer genetic descendants on average (Kaplan et al., 1995; Mueller, 2001). Many of the criticisms of the use of evolutionary biology in the social sciences take this “central theoretical problem of sociobiology" as the centerpiece of their assertion that evolutionary biology cannot explain the behavior of contemporary humans (Vining, 1986), claiming that human reproductive behavior is a product of social learning alone.

However, demographic studies of fertility use census or other data that only report female fertility or the number of children in a household (Greene & Biddlecom, 2000; Kaplan & Hill, 1986). Other studies use social survey data that do not distinguish between respondents' adopted, step, and biological children. Such studies do not fully measure male fertility, where the variance in reproductive success is predicted to be highest (Trivers, 1972; Trivers & Willard, 1973). There is evidence that male status as measured by wealth (Essock-Vitale, 1984; Vining, 1986) and height (Mueller & Mazur, 2001; Pawlowski, Dunbar, & Lipowicz, 2000) does promote reproductive success. These outcomes occur even given legally mandated monogamy and disproportionate female control over fertility decisions (Beckman, Aizenberg, Forsyth, & Day, 1983; Kohler, Rodgers, & Christensen, 1999; Sorenson, 1989) because high-status males can achieve higher reproductive status through a series of marriages and/or families (Forsberg & Tullberg, 1995, Mueller & Mazur, 2001).

Here, I reexamine the relationship between status and reproductive success by measuring fertility as the number of biological children claimed by a probability sample of both men and women. This is the first such analysis for a modern, developed society (other analyses used convenience or snowball samples, e.g., Kaplan et al., 1995; Pawlowski et al., 2000; Pérusse, 1993; Mueller, 2001; Mueller & Mazur, 2001).

Some theorists contend that even if contemporary achieved fertility does not maximize reproductive success, our preferences and behaviors regarding fertility would promote reproductive success if not for contraception (Bongaarts, 1993; Boone & Kessler, 1999; Buss, 1999; Carey & Lopreato, 1995; Cosmides, Tooby, & Barkow, 1992, p. 5; Kaplan, 1994, 1996; Kaplan et al., 2002; Morgan & King, 2001; Potts, 1997; Rogers, 1995; Turke, 1989). For example, Pérusse (1993) found that although high-status males did not have greater achieved fertility than do low-status males, as measured by the number of children, they did have greater potential for fertility as estimated by copulation frequency (see also Kanazawa, 2003).

Furthermore, there appear to be evolved sex differences in mate preferences (Buss, 1989; Buss & Barnes, 1986; Buss & Schmitt, 1993; Buunk, Dijkstra, Kenrick, & Warntjes, 2001; Gangestad & Simpson, 2000; Oppenheimer, 2000), including a general female preference for equal or higher-status males as mates, and a general male preference for younger mates (Buss, 1989; Buss & Barnes, 1986; Buunk et al., 2001; Ellis, 2001; Kenrick & Keefe, 1992; Wiederman, 1993). The operation of these preferences over time leads to a shrinking pool of possible mates for high-status females and an expanding pool of possible mates for high-status males. In contrast, low-status females should find more available mates than low-status males would (Trivers, 1972; Trivers & Willard, 1973).

To analyze the relationship between status and fertility (both potential and achieved) and the interaction between sex and status in its effect on fertility, I tested the following hypotheses:

Hypothesis 1. The relationship between individual status and *potential* fertility is positive.

Hypothesis 2. The relationship between individual status and *achieved* fertility is positive.

Hypothesis 3. Sex and status interact in their effects on *potential* fertility: The rate of increase of potential fertility with increasing status is greater for males than for females.

Hypothesis 4. Sex and status interact in their effects on *achieved* fertility: The rate of increase of achieved fertility with increasing status is greater for males than for females.

2. Methods

I test these hypotheses with pooled data from the 1989 through 2000 General Social Surveys (GSS) conducted at the National Opinion Research Center (NORC) at the University of Chicago (Davis & Smith, 1998). Each survey is an independently drawn, multistage probability sample of noninstitutionalized, English-speaking persons age 18 or over, living in the United States. Not all variables are available for all years of the GSS; hence, depending on the variables used, some subset of one or more of these national samples was included in the analysis. To verify that year of the survey did not influence the results in any way, in separate analyses (not shown), I controlled for year of survey. The results did not differ in any substantive way from the results reported below.

2.1. Dependent variables

Potential fertility is measured by the variable reported frequency of sex in the last 12 months prior to the survey (values: not at all=0, once or twice=1, about once a month=2, two or three times a month=3, about once a week=4, two or three times a week=5, more than three times a week=6). Given concealed ovulation and assuming that a higher frequency of sex increases the likelihood of conception, frequency of sex may be considered an indirect measure of potential fertility. Homosexuals were excluded from the analysis.

Achieved fertility is measured as the respondent's number of biological children at the time of the survey. The GSS routinely asks about the number of children, but biological children are not distinguished from others. In the 1994 GSS, a random subset of respondents was asked the sex of each of their children, whether he or she was a biological step or adopted child, and whether he or she was still alive. These questions were asked for up to nine of the respondent's children and were asked in such a way that respondents were likely to mention all their biological children (see Appendix 1). Answers to these questions were used to create the variable number of biological children.

2.2. Independent variables

The cumulative GSS data set has several measures of respondent's status at the time of the survey. I use one measure of respondent's education (degree), two measures of the respondent's occupational status [socioeconomic index (SEI) and prestige], one measure of the respondent's current income (income), and one measure of the respondent's intelligence (number of words correct).

Degree is a set of four dummy variables measuring the highest credential attained by the respondent (either a high school diploma, junior college diploma or associate's degree, bachelor's degree, or graduate degree; the reference category is less than a high school diploma). Socioeconomic index (SEI) is a measure assigned to occupations that is computed from measures of average education, income, and prestige for each occupation (using the methodology developed in Blau & Duncan, 1967). This is the most common measure of occupational status used in sociological studies of status attainment (Blau & Duncan, 1967; Hauser & Featherman, 1977; Kerckhoff, Campbell, Trott, & Kraus, 1989; Rytina, 2000). Occupational prestige measures social standing of the occupation. The measure of occupational prestige used here was taken from ratings systems developed at NORC in 1963–1965 and updated in 1989.

Each measure of income refers to respondent income in the year preceding the survey. To enable the pooling of data across survey years, NORC has recoded income into constant (inflation adjusted) dollar amounts. Because income was recoded into different constant dollar amounts depending on the year of the survey, there is a different version of the variable income for each of the four independent samples of data analyzed here. Income1 has 20 categories (range, 1–20), with the top category equal to an income of US$60,000+. Income2 has 21 categories (range, 1–21), with the top category equal to an income of US$75,000+. Income3 has 23 categories (range, 1–23), with the top category equal to an income of US$110,000+ (see Table 2 for a listing of each income measure and the associated survey years). The decision was made not to create one constant inflation-adjusted income amount and pool all the data into one large sample because this would have entailed loss of information on the measure of income from the later surveys. The fourth income measure, 1994 income, is coded in the same way as Income2 and is used in the analysis of achieved fertility using only 1994 data.

All variables associated with the respondent's occupation are measured only for those respondents with a paid job for as long as 1 year in the past, except current income, which is only measured for those employed in the previous year. Recoding income so that those unemployed in the last year (excluding retirees and those in the "other" category) were put in the lowest income category did not substantially change the results reported here.

The # words correct is the number of words that the respondents get correct on a 10-word vocabulary test. This is used as a measure of respondent intelligence, as performance on vocabulary tests is highly correlated with respondent IQ (Vining, 1986, p. 176). Sex is the measure of respondent sex, coded 1 for males and 0 for females. Respondent age is measured as the respondent's actual age in years.

Frequency of sex is an ordinal variable, thus, Hypotheses 1 and 3 were tested using an ordered probit model. This model assumes an underlying continuum to the ordinal dependent

Table 2
Survey years for income measures (constant dollars)

Income measure	Income1	Income2	Income3	1994 Income
Survey years	1989, 1990	1991, 1993, 1994, 1996	1998, 2000	1994
Total *N*	1240	5233	3115	1294

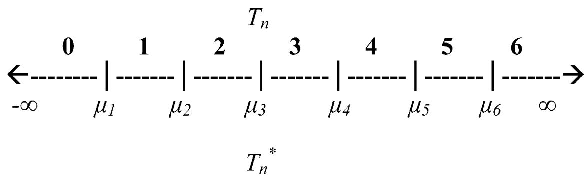

Fig. 1. Relationship between latent and coded measures of sex frequency.

variable and estimates threshold levels of this continuum, along with parameters for each of the independent variables. The specification used here was:

$$T_n^* = \beta' z_n + \varepsilon_n$$

where T_n^*=latent and continuous measure of sex frequency of respondent, z_n=a vector of explanatory variables describing the respondent, and β is a vector of parameters to be estimated, and ε_n=a random error term.

The observed and coded sex frequency, T_n, is determined from the model as follows.

$T_n = 0$ if $-\infty \le T_n^* \le \mu_1$ (Not at all)
$T_n = 1$ if $\mu_1 < T_n^* \le \mu_2$ (Once or twice)
$T_n = 2$ if $\mu_2 < T_n^* \le \mu_3$ (About once a month)
$T_n = 3$ if $\mu_3 < T_n^* \le \mu_4$ (Two or three times a month)
$T_n = 4$ if $\mu_4 < T_n^* \le \mu_5$ (About once a week)
$T_n = 5$ if $\mu_5 < T_n^* \le \mu_6$ (2 or 3 times a week)
$T_n = 6$ if $\mu_6 < T_n \le \infty$ (More than 3 times a week)

The μs represent the thresholds estimated in the analysis, along with the parameter vector β. The thresholds give cutoffs for predicted values of the dependent variable and allow one to predict dependent variable values for specific values of the independent variables.

Elements of the parameter vector β can be interpreted much as slopes in a multiple regression analysis. Fig. 1 shows the relationship between the latent, continuous measure of sex frequency T_n^* and the observed sex frequency, T_n.

For more information on this model, see Greene (2000).

Hypotheses 2 and 4 were tested using ordinary least squares regression of total number of biological children on independent variables. This model is:

$$\hat{Y} = a + b_1 \text{ age} + b_2 \text{ sex} + b_3 \text{ status},$$

where $\hat{Y}$ is the predicted number of biological children, a is the y intercept, and the bs are the unstandardized regression coefficients. In those models where an interaction of status with sex is included, the model is:

$$\hat{Y} = a + b_1 \text{ age} + b_2 \text{ sex} + b_3 \text{ status} + b_4 \text{ status* sex}.$$

Given the presence of the interaction term, the coefficient b_2 should be interpreted as the effect for males with zero status compared with being female with zero status (i.e., when status=0). Also for males (i.e., when sex=1), the coefficient for the effect of status is obtained by adding b_3+b_4. For females, the coefficient for the effect of status is b_3 (i.e., when sex=0).

3. Results

3.1. Frequency of sex

Table 3 gives the results of the ordered probit model of reported sex frequency to test Hypotheses 1 and 3. Age and Age^2 are controlled. The main effect of sex is significant and positive and should be interpreted as the effect for males with less than a graduate degree (i.e., when grad=0) compared with females with less than a graduate degree. The coefficients on the dummy variables for highest degree attained for high school diploma and junior college diploma are both negative and significant (p<.05). The coefficients on the college and graduate degree dummies show that there is no effect of either credential on frequency of sex for women. The interaction term is not significant and suggests that a graduate degree does not affect frequency of sex differently for men and women. Net of the effects of age, education has a slight negative effect on frequency of sex for both men and women.

Model 2 includes # words correct on a vocabulary test. The main effect of # words correct and the interaction of # words correct with sex are not significant. The effect of the variable sex suggests that men with zero # words correct report more frequent sex compared with women with zero # words correct. This analysis suggests that intelligence has little effect on frequency of sex, and this does not differ for men and women.

Models 3 and 4 use occupational status (SEI) and occupational prestige, respectively, as the measures of status. The main effect of both occupational status variables is insignificant, and the nonsignificant interaction effects show that neither SEI nor occupational prestige affect frequency of sex differently for men and women. The coefficients for sex in both models are positive and significant, suggesting that males with zero SEI and occupational prestige report more frequent sex than do females with zero SEI and occupational prestige (hypothetical because such values on SEI and occupational prestige are not in fact possible). Greater occupational status has little effect on frequency of sex, and this is the same for men and women.

The next three models show the effects of income, for which there are three measures used separately in Models 5, 6, and 7. In Model 5, the income variable is not significant and there is no interaction between sex and income. The next two measures of income used in Models 6 and 7 also show no effect of income on sex frequency for women. However, the interaction of income with sex is statistically significant for both measures. This shows that income does affect reported sex frequency differently for men when compared with women, such that while a higher income increases reported sex frequency for men, it does not for women. This analysis also suggests that higher income men have more frequent sex than all others do.

Table 3
Sex, status, and frequency of sex during last year, parameter estimates for ordered probit models, nonhomosexuals only, 1989–2000 GSS

	1	2	3	4	5	6	7	8
Age	.044*	.043*	.041*	.040*	.046**	.019**	.040*	−.014
Age^2	−.001*	−.001*	−.001*	−.001*	−.000*	−.000*	−.001*	−.000*
Sex (Male=1)	.411**	.334*	.250*	.195**	.057	−.047	−.163	−.085
Status								
HS	−.057***							
Jr. college	−.087***							
BA	.005							
Graduate	.052							
Number of words correct		−.009						−.027**
SEI			−.000					
Occupational prestige				−.000				
Income1[a]					.006			
Income2[b]						−.004		−.004
Income3[c]							.002	
Status by Sex	−.086	−.016	−.000	.001	.016	.017**	.029*	.021[d],**
Thresholds								
μ_1	−.819*	−.752*	−.777*	−.788*	−.648***	−1.343*	−.697*	−1.539*
μ_2	−.520***	−.460*	−.479*	−.489*	−.343	−1.025*	−.400***	−1.227*
μ_3	−.187	−.130	−.143†	−.153†	−.016	−.672*	−.068	−.878*
μ_4	.280	.337*	.327*	.318*	.500†	−.193	.397***	−.421***
μ_5	.849*	.907*	.903*	.894*	1.120*	.399***	.966*	.160
μ_6	1.865*	1.923*	1.923*	1.914*	2.264*	1.427*	1.964*	1.184*
Pseudo R^2	.268	.261	.259	.260	.121	.108	.107	.108
N	13,944	8,231	13,233	13,306	1,221	5,088	2,997	3,300

[a] 20 categories.
[b] 21 categories.
[c] 23 categories.
[d] Interaction with income.
† $p \leq .1$.
* $p \leq .05$.
** $p \leq .01$.
*** $p \leq .001$.

Furthermore, there is evidence that intelligence and income have opposing effects on sex frequency. Model 8 shows that (after controlling for age) when # words correct is included in the analysis with income and the interaction between sex and income, income has a positive effect on sex frequency for men only, while # words correct has a negative effect on reported sex frequency. This suggests that the general measures of education and occupational status may have null or negative effects on frequency of sex because they combine individuals of differing levels of income and intelligence in the same categories and, hence, combine these two opposing effects.

3.2. Number of biological children

The results of the test of Hypotheses 2 and 4 are given in Table 4. This analysis includes all those cases from the 1994 GSS with information on the variable number of biological children, which has values from 0 to 9. Age is controlled.

The unstandardized regression coefficient for sex in Model 1 shows that being a male with less than a graduate degree has a negative effect on the total number of biological children compared with a female with less than a graduate degree. All the coefficients for highest degree attained (except graduate degree) show that those with higher levels of education have fewer children than do those with less than a high school diploma. These results show that the relationship between achieved fertility and education is negative. However, within the graduate degree category, there is a significant difference by sex, as shown by the significant interaction term. Women with graduate degrees have significantly fewer children than do men with graduate degrees, even though both have fewer children than do those with less than a high school diploma.

Table 4
Sex, status, and total number of biological children, unstandardized regression coefficients, from OLS Regression, 1994 GSS (standard errors in parentheses)

	1	2	3	4	5	6
Age	.037* (.002)	.037* (.002)	.039* (.002)	.040* (.002)	.057* (.003)	.058* (.004)
Sex (male=1)	−.337* (.071)	−.179 (.273)	−.524** (.189)	−.548*** (.229)	−1.092* (.186)	−1.455* (.242)
Status measures						
Education						
HS	−.352*(.097)					
Jr. college	−.232 (.159)					
BA	−.656* (.117)					
Graduate	−1.199* (.193)					
Intelligence (number of words correct)		−.054*** (.027)				−.126* (.024)
SEI			−.011* (.002)			
Occupational prestige				−.012* (.003)		
1994 Income (21 categories)					−.057* (.010)	−.056* (.014)
Interaction with sex	.816[a],* (.254)	−.001 (.042)	.007† (.004)	.008† (.005)	.078* (.014)	.092* (.018)[b]
Constant	.314*** (.139)	.248 (.211)	.342*** (.161)	.303† (.179)	−.283† (.161)	.575* (.240)
R^2	.205	.170	.190	.186	.255	.277
N	1906	1209	1803	1818	1288	817

[a] Interaction with graduate degree.
[b] Interaction with income.
† $p \leq .1$.
* $p \leq .05$.
** $p \leq .01$.
*** $p \leq .001$.

In Model 2, there is a negative effect of # words correct (for women) on the number of biological children. However, the interaction between # words correct and sex shows that the effect of intelligence on the number of biological children does not differ for men and women. In Models 3 and 4, significant predictors of total number of biological children include SEI and occupational prestige. These negative coefficients show that women with higher occupational status and prestige tend to have fewer children than do women with lower occupational status and prestige. The coefficient for sex is negative in both models, showing that hypothetical men with zero SEI or occupational prestige have fewer children than do women with zero SEI or occupational prestige (although such values on SEI and prestige are not in actuality possible given the occupational prestige and status scales). The interaction terms for SEI and occupational prestige are not significant ($.05<p<.1$), suggesting that SEI and occupational prestige do not work differently for men and women. Increasing status, as measured by intelligence, occupational status, and prestige, tends to decrease the number of biological children, but this does not differ significantly between men and women.

In Model 5, the coefficient for sex shows that hypothetical men with zero income have fewer children than do women with zero income. The coefficient for income is significant and negative, and there is a significant interaction between income and sex. These results show that high-income men have more children than do high-income women and low-income men (see Fig. 2 for respondents aged 50). The R^2 term shows that the variables income, sex, and age and the interaction of sex with income together account for about 26% of the variation in achieved fertility.

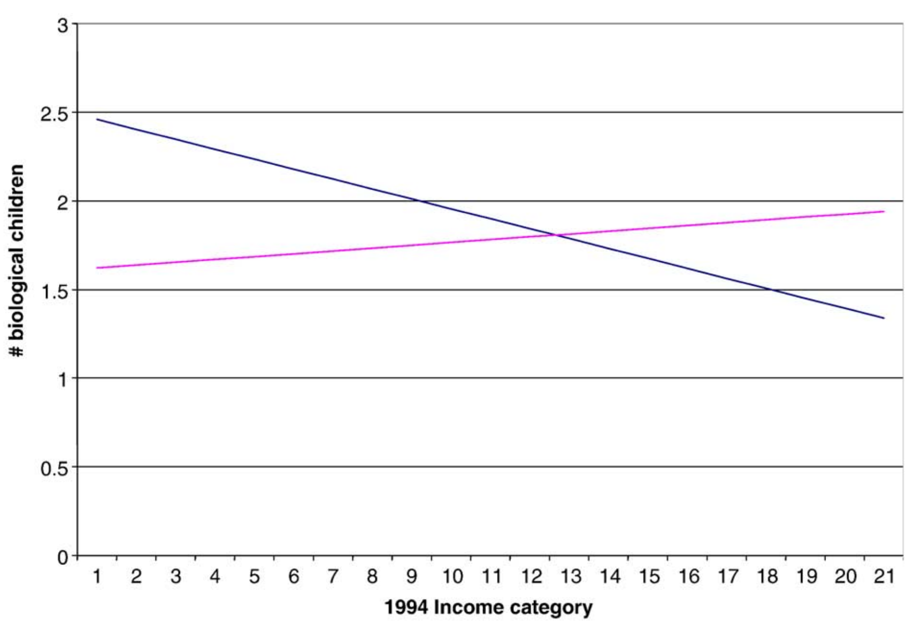

Fig. 2. Number of biological children by income (model prediction for 50-year-olds), 1994 GSS.

Fig. 2 shows the regression lines for men and women aged 50 separately. This graph shows that in this sample, low-income women (aged 50) have more children than do high-income men. There are two points to keep in mind regarding the graph. First, this graph shows predicted completed fertility for 50-year-olds. For women at 50, this will be total completed fertility; for men, this may not be because they could possibly have children after age 50. Second, the 1994 income variable is measured in 21 categories, and the highest income category is an open category of US$75,000 or more. This means that the richest men in the data set are put in the top category with less well-off men, and their attained fertility data are averaged in with these others. This may mean that the observed relationship between male income and number of children is weaker than the real relationship. This analysis excludes women who did not have a paid job in the last year, who may have larger numbers of biological children than do women who had paid employment. This analysis likely understates the sex difference in the effects of income on number of children.

Furthermore, this analysis sheds light on why this (and other) study shows a null or negative relationship between measures of status such as education or occupational status and achieved fertility. Once again, there is evidence (see Table 4, Model 6) that income and intelligence have opposite effects on achieved fertility for men: While intelligence decreases achieved fertility, income increases it. This may help explain the prior findings of a null or negative effect of occupational prestige, status, and education on achieved fertility.

4. Discussion

Consistent with previous studies, the results presented here show that social status measured in the traditional ways (occupational prestige, socioeconomic status, and education) has a null or negative effect on both potential and achieved fertility for both men and women in the contemporary United States. These findings replicate previous findings from research on both sexual behavior (see Rushton & Bogaert, 1988) and achieved fertility (Morgan, 1996, 2003; Vining, 1986). However, the analysis here also suggests why such measures have no or a negative effect on fertility behavior, at least in the United States. The educational and occupational status variables used in this research (as in all such research) combine in the same categories men and women of somewhat different levels of income and intelligence, yet the results presented here suggest that for men, intelligence works at cross purposes with income. For men, income increases both potential and achieved fertility, while intelligence decreases potential and achieved fertility for both men and women. Given categorical measures of status that combine men and women with somewhat varied incomes and levels of intelligence in the same categories, the net result is a null or negative effect of status on fertility.

Results also show that better educated people have fewer biological children than other people do, but better educated men have more biological children than better do educated women. Income promotes frequency of sex for males but not for females. In addition, high-income men have more biological children than high-income women. These results are consistent with the assumption of a sex difference in variance on reproductive success on which the Trivers-Willard hypothesis is based. For further testing of this hypothesis using these and other data, see Hopcroft (2005). Last, the results show that income increases male/female differences in fertility behavior, and intelligence narrows male/female differences in fertility behavior. This is suggestive of the ability of intelligence to work against any evolved psychological predisposition toward reproductive behavior we may have (Barkow & Burley, 1980) and further adds to the puzzle of the evolution of intelligence (Kanazawa, 2004).

Unlike previous studies, results show that higher income men have greater achieved fertility than do low-income men (e.g., Pérusse, 1993; Vining, 1986). Yet, no previous study has examined the biological children of a probability sample of a modern population in an industrialized society. Demographic studies always measure fertility by the number of children born to each woman, not to each man (Greene & Biddlecom, 2000; Kaplan & Hill, 1986). In this study, both male and female respondents were asked about all their children. It is quite possible for men to have a larger number of children than the number of children born to their current wife/partner.

Thus, there is evidence that in contemporary American society, males do turn one important form of social status, income, into reproductive success at both the proximate and ultimate levels (Alexander, 1987; Turke, 1989; Turke & Betzig, 1985; van den Berghe & Whitmeyer, 1990). The survey data used here excludes males at the bottom of the status hierarchy (the homeless and those in prison or other institutions), who may have below average fertility, and probably also excludes those males at the very top of the status hierarchy (the super rich) who may have very high fertility (Betzig, 1997, p. 8; Groves, 1989). The income data also exclude those men who were unemployed in the past year. Including such cases may make the relationship between male income and reproductive success even stronger. This suggests that the "central theoretical problem of sociobiology" may not be such a problem after all; the key may be to collect adequate data on male status and fertility.

It may be that females in contemporary society also translate status into reproductive success, but this is not captured here. For example, it is likely that it not the socioeconomic status and income of a woman herself that promotes her reproductive success, but that of her spouse. This could not be examined in the present study because although the data do contain information on the respondents' current spouse, there is no way to determine if a woman's current spouse is the father of her children. Future studies should examine whether other indicators of female status besides the measures used here translate into reproductive success for women.

Appendix A. GSS Family Mobility Topic Module, 1994. Wording of questions about biological children.

503. Now I have some questions about your children. These include your biological, adopted, or step children. Let's start with the oldest and work down to the youngest. (Record this information for up to the nine oldest children in table to right.)

A. What is (this/your next) child's first name?
B. Is (CHILD'S NAME) male or female?

C. In what year was (CHILD'S NAME) born?
D. Is (CHILD'S NAME) your biological child (B), adopted child (A), or step child (S)?
E. Is (CHILD'S NAME) alive?
F. (IF BORN BEFORE 1976) What is the highest grade or year of regular school that (CHILD'S NAME) ever completed? CODE EXACT GRADE.
G. Do you have any other children?

Note: Respondents were supposed to begin with the oldest child and work down to the youngest. This was not always done, according to the following note in the codebook for the variable KDPICKED: "Number corresponds to the number of the child (1–9) who was randomly chosen for the follow-up questions (KDWORK1 to KDIND80). Children were supposed to be listed from oldest to youngest, but this was not always done. Out-of-order listings are more likely to occur when some of the children had died and when both biological and nonbiological children were being enumerated. Thus, one cannot necessarily infer age from order of listings."

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