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The Apple Does Not Fall Far From the Tree

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Abstract

We use data from the National Longitudinal Survey of Youth (NLSY), the Children of the NLSY, and from a study in Prince George's County, Maryland, to assess the relationship between 17 characteristics of mothers measured during adolescence and the same characteristics of their children, also measured during adolescence. We find positive correlations between specific characteristics of parents and children. But we also find that few parental characteristics predict characteristics of children other than the same one that is measured in parents. Four mechanisms might explain such correlations — socioeconomic resources, parenting practices, genetic inheritance, and role modeling. These four mechanisms make varying predictions about which parental traits will be correlated with which child traits; whether the traits of fathers or mothers should be more important to sons or daughters; and to what extent parental socioeconomic characteristics, parenting behaviors, and children's identification with their parents account for the observed correlations. Our evidence provides little support for the SES and parenting explanations, but more substantial support that role modeling may account for some of the intergenerational correlations, and genetic factors may account for others.

The Apple Does Not Fall Far from the Tree

I. Introduction

Decades of social science research have documented correlations between the social, educational, behavioral, and economic outcomes of parents and children. For example, children of more highly educated and economically successful parents tend themselves to complete more schooling and earn more, although the intergenerational correlations are below unity.

Children of parents who smoke, take drugs, commit crimes, and engage in early sex are more likely to do the same compared with children whose parents do not engage in these activities. Positive correlations have also been established for social-psychological dispositions such as depression, emotional withdrawal and locus of control. Here too the intergenerational correlations are often significant in a statistical sense but far from unity.

One common interpretation of the intergenerational correlation of behaviors is that parents pass on *general* competencies to their children - "good" or "successful" parents tend to produce "good" or "successful" children and likewise for "bad" or "unsuccessful" parents and children. Model 1 of Figure 1 depicts this process by showing a set of parental characteristics $(P_1, ..., P_n)$ that combine to form a single parental characteristic (P_z), which in turn affects many child outcomes $(C_1, ..., C_n)$. For example, maternal traits and behaviors might determine a mother's parenting style, which in turn influences a whole range of her child's outcomes. In this model P_z could be parents' income, education, parenting style or any other characteristic that affects many child outcomes.

In contrast, parents could pass along *specific* traits and competencies to their children (Model 2). In this case a parent who is consistent, caring and otherwise a "good" parent but who has a problem with alcohol will be more likely to have a child who has a problem with alcohol, but no more likely to have a child who does badly in school or suffers from depression, apart from the extent that using alcohol contributes to these other problems. Trait-specific genetic influences are one way in which this might happen. Children's modeling a specific parental behavior is another, more psychological, process that could produce trait-specific intergenerational correlations.

If parents' general competencies matter most (as in Model 1), then interventions that alter P_z would improve many dimensions of their children's well-being. But if parents pass on specific competencies to their children, then such interventions might not work very well.

Of course the process of intergenerational transmission is not likely to be entirely specific or general. Models 3 and 4 in Figure 1 show mixed processes. In Model 3 each parental characteristic affects several child characteristics. For example, parents' cognitive skills may affect the child's cognitive skills and social skills. In Model 4, parents' characteristics affect a latent parental characteristic (e.g. their income or parenting style) that affects many child characteristics but specific parental characteristics also affect specific child characteristics. For example, parents' cognitive skills may affect children's cognitive skills directly but also affect parental income or parenting style, which then affects many other child outcomes.

An unpublished paper by Case and Katz (1991) supports the hypothesis that parents pass on specific competencies. The authors estimate five regressions, each of which relates a specific child behavior to the set of comparable behaviors of his or her parents. Their results, reproduced in Table 1, suggest that specific behaviors of parents predict the same but not other behaviors of their children. The Case and Katz study has important limitations: the sample is confined to youth residing in relatively low-income neighborhoods of Boston; parents and youth were interviewed concurrently; and the measures cover an important but limited set of child outcomes.

Our own look at intergenerational patterns avoids these problems by using two different data sets. The National Longitudinal Survey of Youth (NLSY) is nationally representative and provides identical maternal and child measures taken at roughly the same point in the life cycle (middle to late adolescence). The Prince Georges County study (PGC) provides data on parental characteristics from fathers as well as mothers in one county in Maryland. In total, our two data sets measure seventeen outcomes in seven domains: i) cognitive skills, including both math and reading achievement; ii) psychological well-being, including depression, anger, and shyness; iii) "outwardly-directed" negative behaviors such as fighting; iv) "inwardly-directed" negative behaviors such as taking drugs; v) getting caught by authorities, measured by such events as school suspensions and arrests; vi) social activities such as church attendance; and vii) gender role attitudes.

We interpret the patterns we observe in light of socioeconomic resource, parenting, role-model/identity formation and genetic mechanisms. In general, we find much more evidence of a specific than general transmission process. Neither socioeconomic status nor parenting behaviors appear very important to the intergenerational transmission process. Our results are more consistent with genetic explanations for some traits and behaviors and role-model/identity formation explanations for attitudes and some behaviors, although our tests of these mechanisms are indirect.

II. Intergenerational correlations

Schooling, earnings and occupation. The completed schooling of fathers correlates on average .35 with the completed schooling of sons in U.S. studies and somewhat less in most other Western countries (Mulligan, 1999).

Intergenerational correlations between fathers' and sons' earnings range widely, from about .10 to .50, but for predictable and important methodological reasons (Solon, 1992). A major source of difference is whether earnings are measured in a single year or over a number of adjacent years. Since earnings vary from one year to the next, correlations based on single-year earnings are considerably lower (e.g., in the .2 to .3 range) than correlations based on multi-year approximations of "permanent" earnings (.4 to .5; Solon, 1999). To the extent possible, our own work on intergenerational correlations of traits, behaviors and achievement incorporates adjustments for the measurement errors stemming from intertemporal instability in measurement.

A second important consideration is when in the life cycle the two-generation measurements are taken. Correlations with fathers' middle-age earnings are between .20 and .30 if sons' earnings are measured when sons are in their 20s, but approach .50 if measured when the sons are in their 30s (Solon, 1999). However, Hauser (1998) finds that the correlation between the educational level of father's and son's occupations does not depend on when in the life cycle they are measured. This correlation ranges between .30 and .35. The NLSY data usually allow us to assess parent and child characteristics measured at the same stage in the life cycle.

Solon (1999) reports that father-daughter earnings correlations are similar to father-son correlations. However Hauser (1998) finds that father-daughter correlations in the educational

level of occupations are significantly lower than father-son correlations and generally range between .20 and .30. In both of our data sets, we examine parent-child correlations separately for sons and daughters.

IQ. Interest in the inheritance of IQ has generated hundreds of estimates of parent-child IQ correlations. Daniels et al. (1997) gathered data from 212 such studies and report average correlations of .50 between biological children and their two-parent average and .41 between single parents and their biological children. In both cases parents and children lived together. The difference in the two correlations points to the utility of measuring traits of both parents, a feature present in only one of the two data sets we use in our own analysis.

Psychological characteristics. Research finds positive correlations between parents' and children's personality traits and attitudes. Loehlin (this volume) reports average correlations of modest size (.13) for personality characteristics and more substantial size (.32) for attitudes and interests between biological parents and their children. His data suggest that the parent-child resemblance in personality is mostly due to genes, whereas environments play a larger role in the similarity of attitudes. The correlations between parents and children for personality characteristics were similar whether or not the parents and children took the same questionnaire at the same age. Cunningham (2001) reported that mothers' gender role attitudes when their children were newborns are correlated .14 with offsprings' gender role attitudes at age 18; however, the correlation was larger (.27) between later assessments of maternal attitudes (when children were 15) and children's attitudes at 18. Further, in Loehlin's summary, mother-daughter correlations on personality traits were modestly higher, on average (.16) than father-son correlations (.11) but not different from mother-son similarities (.15).

Others have suggested that correlations are likely to be modest when parent and offspring characteristics are measured at different developmental stages; this may be due to the specific outcome measure. In one study, the correlation of aggression across two generations when measured at comparable ages was higher than the stability across a 22-year span within one generation (Cohen et al., 1998). The correlations are also higher when the measures are based on large and representative population samples. Studies that rely on fairly homogeneous subamples (e.g., inner city or predominantly minority populations - Hardy et al., 1998; Serbin et al., 1998)

risk attenuating correlations.[1] Attrition in longitudinal studies is almost always most severe for the least advantaged sample members and can bias intergenerational correlations. A final problem with most psychological studies is that virtually all of the "parent" data reflect maternal (not paternal) characteristics. The PGC data provide measures of both.

Psychological studies focusing on the transmission of risk behaviors have also found positive correlations between mothers and children for early pregnancy, smoking, antisocial behavior, inhibited behavior, academic failure, interpersonal violence, and negative parenting practices (Patterson, 1998; Serbin & Stack, 1998).

Cairns et al. (1998) found a correlation of .36 between mothers' early school failure and young children's (ages 4, 5, and 6) low cognitive competence. The correlation between mothers and sons was higher (.48) and significant compared with the insignificant correlation for girls (.28). In contrast, in this study, there was no intergenerational correlation of aggressive behavior. Cigarette smoking has been linked across two generations (grandparent-to-parent and parent-to-adolescent); the correlation between grandparent and grandchild smoking was .16 and that between parent smoking (during adolescence) and child smoking was .32 in one study (Chassin et al., 1998). Cohen et al. (1998) found significant intergenerational similarity (.27) for a latent variable representing inhibited behavior (e.g., shy, fearful) (parents were assessed at age 7 and offspring were assessed at age 2), but found no statistically significant intergenerational correlation for a composite measure of difficult behavior (e.g., anger intensity, negative mood, attention seeking). In another study, mothers' childhood aggression predicted (.20) their children's aggression (observed by independent raters) when the children are approximately the same age (Serbin et al., 1998). Age at first birth appears to correlate across generations (odds ratio =1.7) and holds for the mother-daughter link as well as the mother-son link (Hardy et al., 1998).

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[1] This is a problem in intergenerational studies of earnings correlations as well. Studies based on homogeneous samples such as Mormon men or Air Force veterans produce lower correlations than studies based on broader, more representative samples.

III. Data

　　We use data from the National Longitudinal Survey of Youth, the Children of the National Longitudinal Survey of Youth, and the Prince Georges County Survey. The NLSY is a multi-stage stratified random sample of 12,686 individuals aged fourteen to twenty-one in 1979.[2]

　　Most of our measures of maternal outcomes are from the 1979 survey when the mothers were between fourteen and twenty-one years old. Thus, maternal outcomes are measured when mothers were adolescents or very young adults and before their children were born. The exceptions include a retrospective question about age at first sex that was asked in 1983, 1984 and 1985, a question about participation in high school clubs asked in 1984, and a retrospective measure of shyness, a 1985 question asking respondents to indicate how shy they were at age six. Frequency of religious attendance was asked in 1982. Finally, two of the measures, the Pearlin Mastery scale and the depression scale, were administered to respondents as adults, in 1992, when they would have been between the ages of 27 and 34.

　　We measure maternal characteristics during adolescence for two reasons. First, measuring maternal characteristics before the child was born avoids potential problems of reverse causality. A child's characteristics cannot influence a parent's characteristic measured before the child was born. This is especially important when we estimate the effect of parental characteristics on later parenting behaviors. Second, we are interested in the extent to which maternal behaviors correspond to the same behavior in their children, and because some of the behaviors are age- or developmental stage-specific, we need to measure them at approximately the same age. However, as detailed below, there is also analytic power in being able to compare intergenerational correlations for maternal behaviors and attitudes measured both concurrently and in adolescence. Thus, we also estimate the impact of differential timing of maternal measurement for a limited number of behaviors and attitudes.

　　Beginning in 1986, women in the original NLSY sample who had become mothers were given the mother-child supplement to the NLSY, and their children were given cognitive and other assessments creating the Children of the NLSY (CNLSY) dataset. In 1986, 3,053 women

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[2] Black, Hispanic, and low-income youth were oversampled in the NLSY; our regression results do not change in important ways depending on whether or not we weight the data for oversampling and differential nonresponse.

from the original NLSY survey had 5,236 children.[3] Mothers and children have been interviewed repeatedly since 1984. Most of our measures of children's outcomes are from the year the child was fourteen years old.[4] The number of cases in analyses using the combined NLSY and CNLSY data varies somewhat with the outcome being measured. For most models in which we predict children's outcomes from parental characteristics the number of cases is about 1,200. The number of cases declines to about 900 cases in models that control either parenting practices or family background. The NLSY data provide seventeen traits and behaviors of mothers and their children. Variable descriptions, means, standard deviations, ranges and cross-year reliabilities (when available) are provided in the appendix.

The PGC data were gathered in 1991 via face-to-face interviews with 7th grade children and their primary caregivers (usually their mothers) and self-administered surveys with secondary caregivers. The original sample consisted of 1,501 families in one school district (consisting of 23 middle schools) in Prince Georges County, MD. We imposed two restrictions on this sample. First, the youths had to come from two-parent families, either intact or step families, because we were interested in the effect of resident fathers' characteristics on their children. This limited our sample to 900 cases. Second, the primary caregiver had to be the youth's mother or stepmother. This reduced the sample size to 897. Data are available for 462 girls and 435 boys. Approximately two-thirds of the sample is black and one-third is white.

Data from the PGC study provide measures of intergenerational correlations for anger, depression, and gender role attitudes. Each of the three measures is based on a composite of questions and is coded so that a high score references greater anger and depression and more liberal gender role beliefs. The mother and father measures are coded in the same fashion and are identical to the youth measures. The appendix provides descriptions and descriptive statistics for the PGC adolescent and parent measures.

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[3] Interviews were completed every other year, with the most current data available for 1998. Early cohorts of the CNLSY disproportionately sampled children born to young mothers. With each additional cohort the children become more representative of all children. NLSY children up to about age 15 in 1999 share many demographic characteristics of their broader set of age mates, although none were born to mothers older than 26.

[4] When an age 14 measure was not available, we first took an age 13 measure and if that wasn't available, we took an age 15 measure. Some youth measures were asked only of those 15 and older; we first took the age 15 measure, then 16 or 17 if the age 15 measure was not available. We control for the child's age at interview in all analyses.

Our basic empirical strategy with the larger NLSY data is to estimate unadjusted and regression-adjusted correlations (and, in the case of dichotomous measures, odds ratios) between the seventeen maternal traits measured during adolescence and each of the same seventeen characteristics of children, also measured in adolescence Our regressions control only for the mother's race and age and are estimated separately for sons and daughters. Thus we estimate seventeen models, each regressing a single child outcome on seventeen maternal characteristics plus age and race. This allows us to assess the extent to which maternal characteristics have general or specific effects on children's outcomes and whether the effects differ for sons and daughters.

IV. Results

Mother-daughter correlations in the NLSY. Table 2 shows the bivariate and regression-adjusted associations between mothers' and daughters' traits and behaviors that are measured dichotomously. We used logistic regression, so entries in the table are odds ratios.[5] Table 3 shows corresponding associations for mother-daughter traits and behaviors that are measured on continuous scales. These entries are Pearson correlations and standardized OLS regression coefficients.[6] Together Tables 2 and 3 show the effect of 17 characteristics of mothers on each of the 17 corresponding outcomes for daughters.

Of the 289 coefficients in Tables 2 and 3, only 20% percent are statistically significant at the .05 level. However, almost all maternal characteristics predict the same characteristic in their daughters. Tables 2 and 3 show that 15 (88%) of the 17 maternal traits and behaviors significantly predict the corresponding trait or behavior in daughters. (These are the coefficients on the diagonal.) In nearly every case the associations for the matched pair of characteristics are stronger than all others in the row. Of the 272 off-diagonal coefficients, only 44 (16%) are

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[5] Taking the first cell in Table 2 as an example, the odds of a daughter participating in school clubs in adolescence are 1.85 times higher if her mother reported participating in such clubs in adolescence than if her mother reported not participating and no other regression controls are included. Adjusting for the effects of 16 other traits and behaviors, as well as age in 1979 and race/ethnicity, reduces this odds ratio to a marginally significant (z-ratio = 1.91) 1.29.

[6] The bivariate correlations and standardized regression coefficients would be identical if the given trait or behavior was uncorrelated with other regressors. This table also includes entries for measurement-error-adjusted regression coefficients, which are explained below.

statistically significant, a higher fraction than one would expect by chance but still many fewer than on the diagonal.

In addition, some of the off-diagonal correlations may arise because the outcomes are correlated with the on-diagonal relationship. For example, if the tendency to take drugs other than marijuana has a large genetic component and the tendency to use marijuana is correlated with the tendency to use other drugs, then parental use of other drugs is likely to be correlated with daughters' use of both marijuana and other drugs. In fact, mothers who used marijuana when they were teens are more likely to have daughters who use both marijuana and other drugs. Similarly mothers' math scores predict daughters' math scores and their participation in school clubs. This would not be surprising if smarter girls are more likely to participate in school clubs. We have not tried to specify which of the child outcomes are causally prior to others so we do not control any child outcomes in these models. This leaves open the possibility that some off-diagonal effects reflect on-diagonal influences.

Another way to consider whether maternal traits and behaviors have general or specific effects is to look across the rows. Row values tell us how many outcomes of daughters are predicted by a particular maternal characteristic. If a maternal characteristic predicts many outcomes, we can conclude that it has a general influence on daughters' outcomes. Maternal characteristics most predictive of daughters' outcomes are her reading scores and having had sex before the age of fifteen. But both predict only five of the seventeen outcomes of daughters and both could reflect specific rather than general effects. For example, if mothers who engage in early sex have daughters who engage in early sex, and if early sex reduces girls' school participation and increases suspensions, then a mother's early sex would reduce her daughter's chances of joining clubs and increases her chances of getting suspended.

Overall the mother-daughter correlations follow a remarkably consistent pattern of specific associations between maternal traits and behaviors and the same traits and behaviors in their daughters.

Mother-son correlations in the NLSY. Tables 4 and 5 show the associations between the characteristics of mothers and sons. Of the 289 coefficients in these two tables, 19% are significant. By this accounting, maternal characteristics appear to have a similar pattern of

effects for sons and daughters. But only eight of the 17 (47%) on-diagonal effects of maternal characteristics on sons' outcomes are statistically significant. This is considerably fewer than the 88% of on-diagonal effects that were significant for daughters. In addition, most of the on-diagonal effects of mothers on daughters are larger than the on-diagonal effects of mothers on sons. This suggests more specific effects of maternal characteristics on daughters than on sons.

Some of the gender difference in the off-diagonal effects may reflect different consequences of behavior for boys and girls rather than different transmission processes. For example, mothers who had sex before the age of 15 are more likely to have both sons and daughters who have sex before age 15. Their daughters but not their sons are also less likely to participate in school clubs and more likely to be suspended from school. If daughters who have sex before the age of 15 get pregnant, it would not be surprising that they do not participate in clubs and are suspended due to their pregnancy. Since the sons who have sex before age fifteen do not get pregnant, this will not curtail their school activities.

Four maternal characteristics are statistically significantly predictors of at least four outcomes of sons: participation in school clubs, ever suspended, reading test score and frequency of attending religious services. These patterns are similar to those found for mothers and daughters. All in all, there appear to be few differences in the way maternal characteristics affect sons and daughters.

Parent-child correlations in the PGC. The PGC data include information on fathers who reside with their children. Using these data we can compare the effect of fathers' and mothers' characteristics on sons and daughters. Unfortunately, we are able to do this for only three measures – anger, depression, and gender role attitudes. Table 6 shows that mothers' but not fathers' gender role attitudes have a significant effect on daughters' gender role attitudes, while Table 7 shows that fathers' depression also has a larger effect than mothers' depression on sons' depression. This suggests that same-sex intergenerational linkages may be especially important. But fathers' depression has a much larger effect than mothers' depression on daughters' depression, which is inconsistent with the role model hypothesis. Thus these PGC results provide contradictory evidence regarding same vs. opposite-sex linkages.

Reliability adjustments. Measurement error in maternal traits and behaviors would tend to downwardly bias their estimated impacts on their children's traits and behaviors. Some of the

measures of maternal characteristics that we use have been carefully developed in ways that increase their reliability. For example, the AFQT assessments of math and reading skills have been constructed to be highly reliable. In contrast, parents and children may be disinclined to accurately report their drug use or whether they got in fights, leading to considerable measurement error. Differential reliability of our measures could account for some of the differences in their effect on children's outcomes.

One way to estimate the reliability of a measure is to gauge its consistency over time. If a person accurately reports his mother's unchanging completed schooling, he will provide the same answer each time he is asked about his mother's education. If he provides a different answer every time he is asked, the reliability of any one answer is low. While the NLSY does not include repeated measures of most parental characteristics, the CNLSY does include repeated measures of many child characteristics. If we assume that a mother's characteristics are about as reliably reported as the same characteristics measured among children, we can use the repeated child measures to approximate the reliabilities of mothers' characteristics.

Appendix Table 1 shows the alphas for children's characteristics that were measured at different ages.[7] We use these alphas to "correct" our regression estimates for differences in reliability.[8] The rows labeled "reliability adj." in Tables 3 and 5 show the measurement-error-adjusted unstandardized regression coefficients for our continuous outcomes. Correcting for reliability in this way increases many of the coefficients. In some cases, coefficients more than double. But this correction also raises the standard errors (not shown). No coefficient becomes statistically significant because of this correction and none of our conclusions change because of the correction. Reliability adjustments may indeed matter, but our data are not up to the task of showing how.[9]

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[7] PIAT scores have the highest alphas and the personality variables have the second highest alphas. This is not surprising, because these are the variables that have been constructed to be highly reliable. Nonetheless, even these variables show considerable fluctuation over time. These alphas tend to increase in adolescence and young adulthood in the NLSY data.

[8] We do this using the "eivreg" (errors-in-variables) procedure in STATA.

[9] Correcting for reliability in this way raises some potential problems. First, we do not expect intertemporal consistency in many child characteristics. If depression at age 10 and at age 14 are weakly correlated, it could be because of measurement error or because the child was depressed at age 14 but not at age 10. In addition, the age at which behaviors occur may be important. If a young child damages property he may get in less trouble than an older child who does the same thing. Thus damaging property in adolescence may be more important than

All in all the results in these tables suggest that most maternal traits and behaviors affect the same traits and behaviors of sons and daughters but not many other characteristics of their children. Maternal traits and behaviors seem to have a stronger and more consistent relationship with the corresponding traits and behaviors of daughters than with the corresponding traits and behaviors of sons. We now turn to possible explanations for the rather specific patterns of associations between characteristics of mothers and their children.

V. Explaining the Intergenerational Correlations

At least four hypotheses could explain the intergenerational transmission of characteristics: socioeconomic resources, parenting, genetic inheritance, and role model/identity formation. Each makes different predictions about which behaviors of parents and children are likely to be correlated and whether the correlation is likely to be higher with same-sex parent-child pairs.

Parental socioeconomic resources. Parents' and children's traits and behaviors might be linked through parental socioeconomic resources. Suppose that "good" parental traits and behaviors (e.g., cognitive skills, motivation, conscientiousness) are rewarded handsomely in the labor market. Higher earnings increase family incomes, which enables parents to provide better child care and more stimulating home environments for their preschoolers; live in safer, more affluent neighborhoods with better schools; and provide their misbehaving adolescents with second and third chances to avoid the stigma of a criminal record. If these environmental

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damaging property at age 10. In this case we may not be interested in a child's life-time propensity to damage property, but only in whether he damaged property when he was a teenager. On the other hand, if we mean to measure some underlying attribute of children, the reliabilities may be helpful. Imagine that, as with family incomes, children's depression has both a transitory and a permanent component. Children's feelings of depression fluctuate, so that many children have bouts of depression but truly depressed children have more consistent depressive symptoms and these are the children for whom depression interferes with life chances. A one-time measure of depression in adolescence (such as we have for mothers) is at best a moderate predictor of the permanent and more harmful aspect of depression.

[10] Because children get half their genes from each parent, and these genes constitute a roughly random sample of each parent's total genetic endowment, the expected parent-child correlation for a trait that is entirely genetically transmitted would probably be between 0.4 and 0.6. Assortative mating raises this expected value. Dominant and recessive genes depress it. If genes express themselves differently under different environmental conditions, and if these environmental conditions vary, the parent-child correlation is further depressed. None of our correlations approach this size.

advantages lead children to acquire more positive traits, behaviors and attainments, then economic resources are a key mediator in accounting for intergenerational correlations in the parental traits and behaviors that increase economic resources.

Other socioeconomic resources such as parents' schooling may influence children's well being. Highly educated parents may produce more cognitively stimulating home learning environments and more verbal and supportive teaching styles (Harris, Terrel and Allen, 1999). Skills acquired through schooling may enhance parents' abilities to organize their daily routines and resources in a way that enables them to accomplish their parenting goals effectively (Michael, 1972).

This SES hypothesis predicts that the maternal traits and behaviors that are correlated with her eventual SES would have general rather than specific effects on her daughter's outcomes. If SES is the only mechanism linking mothers' and daughters' characteristics, maternal adolescent traits and behaviors that are uncorrelated with maternal SES should have little effect on daughter's outcomes. To investigate these ideas, we performed an auxiliary analysis regressing mother's eventual family income on our seventeen maternal characteristics, almost all of which were measured during adolescence. We use a sample of NLSY females who were present in the study between 1979 (when they were between the ages of 14 and 21) and at least age 30. We averaged family income when the women were ages 30 to 34, using as many years of data in this interval as possible.

The first column of Table 8 shows the bivariate correlations and regression-adjusted standardized effects of the 17 maternal adolescent traits and behaviors on her own eventual family income, controlling her birth cohort and race/ethnicity. Math scores, self-esteem, mastery, sex before age 15 and getting suspended from school are the strongest predictors of mothers' future income. There is considerable cross-time instability in all of these measures of psychological well-being (alphas range from .5 to .7), so Table 8 likely understates "true" effect of these traits and behaviors measured in adolescence on mothers' eventual income.

Given these relationships, the SES hypothesis would suggest that a mother's math scores, self-esteem, mastery, sex before age 15, and getting suspended from school will have a general effect on a child's outcome. Turning back to Tables 2 through 5, we see that having had sex before the age of 15 has a relatively general effect on daughter's outcomes (5 of 17) but not son's

outcomes (2 of 17). Mothers' AFQT math score has a statistically significant effect on 4 of 17 outcomes for daughters and 3 of 17 for sons. Having been suspended from school has a statistically significant effect on 4 outcomes of sons and three of daughters. Maternal mastery and self-esteem affect few outcomes of sons or daughters.

The second column of Table 8 shows that twelve of the seventeen traits of mothers' measured during adolescence traits are statistically significantly related to her eventual educational attainment. The SES explanation suggests that these traits would have a general affect on her children's outcomes. But, as we have already discussed, most do not.

The SES explanation would also suggest that the effect of mother's math scores, Pearlin Mastery Scale, self-esteem, sex before age fifteen and being suspended should decline when SES is controlled, because these were strongly related to mothers' eventual income. Tables 9 and 10 show how the effects of maternal traits change when we control mothers' schooling, age at the birth of the child, family income averaged when the child was 12 to 14 years old, family size and the mother's marital status.

Remarkably, the effect of the maternal characteristics on son and daughter outcomes is reduced very little by this extensive set of SES controls. In addition, when we control all the maternal characteristics measured in adolescence, none of the measures of family background was statistically significant for 11 of the 17 outcomes of daughters and no measure of family background had a statistically significant effect on more than two of the daughters' outcomes. The pattern of effects is similar for sons. Controlling income in the PGC also does not change the effect of mothers' or fathers' anger, depression or gender role attitudes on these same traits in sons or daughters (results not shown). Thus, although some maternal adolescent characteristics are associated with mothers' later income, family income does not appear to be the main mechanism through which these maternal characteristics affect children's outcomes. Previous research showing a sizable effect of family background on these child outcomes may have been biased because some important maternal characteristics were omitted.

The SES hypothesis implies that the intergenerational correlation of outcomes ought to be gender neutral, since the benefits of higher SES should accrue to both sons and daughters from the resource-enhancing characteristics of either the father or the mother (however, see Romich, 2001 for a discussion of differential parental investments in sons versus daughters in families

with limited economic resources). Since the pattern of effects of maternal characteristics appears to be generally gender-neutral this is consistent with the SES hypothesis.

Taken together, these results are not supportive of the SES hypothesis. Mothers' income appears to affect children's income mainly because specific behaviors of mothers result in low income and children are likely to engage in the these same behaviors, which in turn lowers their own income.

Parenting style and the home environment. The underlying assumption in developmental psychology is that parents have a powerful impact on children. Parenting style, assessed in terms of parental involvement and control, is often seen as the main mechanism for the transfer of parental characteristics to children. Researchers (e.g., Baumrind, 1967) commonly identify four parenting styles based on the warmth and control dimensions of parenting. Authoritative parents demonstrate high levels of both warmth and control, authoritarian parents display high control but low warmth, permissive parents share high warmth but low control, and disengaged parents demonstrate both low warmth and low control. Many studies have shown that children raised by authoritative parents demonstrate higher levels of competence, achievement, and social development, and have higher self-esteem and fewer mental health problems (Maccoby & Martin, 1983). Some studies report correlations of .50 or higher (Hetherington et al., 1999). Theories of parenting tend not to match specific parenting styles to specific child outcomes. Rather, "good" parenting is expected to relate broadly to "good" child outcomes. There is no reason to expect gender-specific associations, not only because "good" parenting is similar for boys and girls but also because, on average, parents tend to treat their daughters and sons similarly. However, some have suggested that optimal parenting is dependent on the social context. In Kohn's work on families headed by fathers in blue collar jobs, an authoritarian parenting style was viewed as optimal because it socialized children for the world in which they lived.

In addition, many studies have highlighted the role of the emotional warmth and cognitive stimulation that parents provide. Together, these two aspects of parental socialization represent key aspects of the "home environment," which have been widely linked to positive outcomes for children (Bradley et al., 2001).

One theory proposes that parenting style, in particular, "unskilled parenting" (i.e., ineffective and coercive discipline practices, lack of monitoring) plays a key role in linking parents' and children's antisocial behavior (see Patterson, 1998). According to the theory, children whose parents practice "unskilled parenting" develop antisocial behavior, which persists into adulthood when their own antisocial behavior is transferred to their children. The model does not posit a direct correspondence between specific dimensions of antisocial behavior. Rather, the antisocial behavior that children develop early in life (resulting from ineffective parenting practices) is thought to be broadly linked to a host of negative outcomes in later life, including economic outcomes, substance use, and mental health problems (Capaldi & Clark, 1998).

However, the theory that parenting styles link parents and children's behavior has only rarely been tested. Only one of the studies cited earlier as having obtained an intergenerational correlation in behavior tested this hypothesis (Cairns et al., 1998). It examined the mediating role of "high-literacy environments", indexed by frequency of mother reading to child, the HOME score, and observed parental responsiveness, and found only a small correlation between mothers' childhood characteristics and her later parenting behavior. Thus, even though many studies show substantial concurrent correlations between mothers' parenting behavior and children's outcomes, they have not yet provided support for the idea that parenting behaviors play a key role in linking behavior across generations.

The CNLSY measures five parenting practices of sample females who eventually become mothers: parental involvement, parental monitoring, child autonomy, emotional warmth and cognitive stimulation. Maternal adolescent characteristics that are associated with the mother's future parenting behaviors ought to have a general effect on children's outcomes. When we regressed each of the parenting measures on the mother's adolescent traits and behaviors (data not shown in tables), we found that no single maternal adolescent characteristic significantly affects all five parenting practices. This is not surprising because the parenting practices themselves are not strongly correlated.[11] About half of the maternal characteristics (depression,

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[11] The largest correlation among the parenting practices is between cognitive stimulation and parental warmth (r = .33) and the next largest correlation is between parental involvement and parental autonomy (r= .23). Only two other correlations are greater than .10.

using marijuana, using other drugs, damaging property, fighting, hitting, and having been convicted) are statistically significantly associated with either no or only one parenting practice. Only one maternal adolescent characteristic (attending religious services) is significantly related to three of the five parenting practices. Two additional maternal characteristics, having sex before age 15 and having been suspended from school, are significantly related to three parenting practices at the .10 level.

If parental involvement, monitoring, autonomy-granting, emotional warmth and cognitive stimulation are the mechanisms through which parents influence their children, we might expect the effect of attending religious services, having sex before age 15, and having been suspended from school to decline when we control these indicators of parental behaviors, because these characteristics of mothers were associated with three of the five behaviors. But Tables 9 and 10 show that controlling the five measures of parenting practices hardly changes the effect of these maternal characteristics on children's outcomes. Furthermore, for 12 of the 17 outcomes of daughters, none of the parenting practices has a statistically significant effect when all the maternal adolescent characteristics are controlled. No parental behavior has a significant effect on more than two outcomes for daughters. Thus, none of the five parenting behaviors we measure are likely to be the main mechanism through which parents transmit characteristics to their children. This same conclusion holds in the PGC data (not shown; a description of the parenting measures examined in the PGC is in the Appendix).

It is somewhat surprising that the majority of the parenting practices measures have no statistically significant effect on any child outcome, since a considerable body of research claims that parenting practices are key to children's outcomes. Our analysis suggests that previous studies may have omitted important background characteristics, including parental traits and behaviors before they become parents. Other possible explanations for our results include: 1) the aspects of parenting that we measure do not matter but something else does, 2) these aspects of parenting matter but we have mis-measured them, or 3) parenting really does not matter.

We do not find the first explanation to be very plausible because, taken together, our parenting measures cover the major dimensions (e.g., warmth, control, and cognitive stimulation) that developmental psychologists have claimed are important. (One noteworthy exception is harsh discipline practices, which have been highlighted in studies of parenting effects - e.g.,

Dodge et al., 1994; McLoyd et al., 1994). It is also likely that other parenting practices would be correlated with the five we do measure.

Poor measurement is unlikely since the measures we employ were developed and field-tested for the CNLSY by a leading panel of experts in developmental psychology. In recent work using the CNLSY (e.g., Carlson and Corcoran, 2001), a composite measure of the HOME score (one that combined the emotional warmth and cognitive stimulation subscales) was a significant predictor of behavior problems, PIAT math, and PIAT reading among children ages 7-10. Carlson (1999) also linked a 7-item measure of father involvement for kids 10 to 14 years old to BPI internalizing and externalizing scores, delinquency, and substance use. The parenting measures in the NLSY may be better predictors of the outcomes of young children than of adolescent outcomes. But if parenting behaviors effect the outcomes of young but not older children, they cannot be the mechanism through which the intergenerational correlation of adolescent or adult psychological, educational, or economic outcomes operate.

The third explanation – that parents do not matter much for their children's development - has been proposed in a controversial book by Judith Rich Harris (1998), which argued that peer rather than parental influences are key. Much of Harris' argument rests on the observation that, net of genetic similarities, siblings sharing the same family environment develop almost as differently as children raised in different families. Harris argued that children's "groups" are the active agents of socialization; peers are the primary influence because it is peers with whom children identify. Our results shed no light on peer influence, but they do suggest a substantially smaller role for parental monitoring, involvement, autonomy-granting, emotional warmth, and cognitive stimulation than previously assumed. This is an important, but not exhaustive, list of what parents do. However, as discussed next our results also provide some support for the role model hypothesis, which would be contrary to Rich's argument that parents do not matter.

Inheritance. Behavioral geneticists believe that a large portion of parent-child correlations in many traits and behaviors but not social attitudes can be attributed to genetic inheritance (Loehlin this volume, Rowe 1994).

The debate over the heritability of IQ has raged for decades, with Herrnstein and Murray (1994) suggesting that .60 is a "middling value." Critics who accept the basic logic of behavioral genetics models still argue for a substantial role of inheritance, in one recent case ranging

between 27% and 54% (Daniels et al., 1997). Loehlin and Rowe (1992) estimate "broad sense" heritability of the so-called "Big Five" personality characteristics (extroversion, agreeableness, conscientiousness, emotional stability and intellectual openness) ranging from about .34 to .54. Goodman and Stevenson (1989) estimate high heritability in hyperactivity and inattentiveness. The behavioral genetics literature also suggests heritability in criminal, especially adult criminal, behavior (Cloninger and Gottesman, 1987) as well as smoking and substance use (Chassin et al., 1998).

Behavioral genetics models also yield miniscule estimates of the contributions of the environments shared by siblings who grow up together. The most direct assessment of shared environmental influences comes from comparisons of twins reared together and apart, which show remarkably similar twin correlations for personality inventories and vocational interests (Bouchard et al., 1990). More formal models suggest that less than five percent of the sibling variance is attributable to shared environmental influences, a figure that is often found in a broader set of behavioral genetics studies.

There are many reasons to doubt the precision of the estimates from behavioral genetic models (e.g., Devlin et al., 1997). Particularly problematic is the task of accounting for the complex interactions between genetically transmitted attributes and environmental influences. Nonetheless, cognitive skills have a large genetic component and recent research suggests that shyness and depression may also have a significant genetic component.[12] Some behavioral geneticists claim that crime and substance abuse also have high heritability, while none appear to claim that social attitudes do. Little research has tried to assess the genetic component of the other outcomes that we measure, so other characteristics could also be associated because of genetic links.

If child behavior were inherited from parents in the same way as eye color or high blood pressure, we would expect to observe a strong correlation between specific outcomes, such as cognitive skill, substance use, and shyness (all outcomes for which there is evidence of a genetic

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[12] Because children get half their genes from each parent, and these genes constitute a roughly random sample of each parent's total genetic endowment, the expected parent-child correlation for a trait that is entirely genetically transmitted would probably be between 0.4 and 0.6. Assortative mating raises this expected value. Dominant and recessive genes depress it. If genes express themselves differently under different environmental conditions, and if these environmental conditions vary, the parent-child correlation is further depressed. None of our correlations approach this size.

link), of parents and their children. If this were the only reason children resembled their parents, we would expect that, say, parental use of alcohol would affect their children's use of alcohol but it would have little effect on other outcomes of children except through the correlation of those outcomes with alcohol use. However, these correlations could produce very general effects of a maternal trait or behavior. For example, race is genetically transmitted, but it has wide-ranging consequences for nearly all child outcomes. If some characteristics such as social attitudes are not genetically transmitted and genetic transmission is the only mechanism linking parents and children's outcomes, we should not observe specific correlations for social attitudes.

Tables 2 through 5 show that daughters' and sons' traits and behaviors known to have a significant genetic component (cognitive skill, shyness, and substance use) are all predicted by their corresponding maternal trait or behavior. However, our measure of maternal depression does not have a statistically significant effect on either sons or daughters' depression in either the NLSY or the PGC. Fighting, hitting, and being convicted of a crime may be signs of criminal behavior. But none of these maternal behaviors has an effect on the corresponding behavior of sons and only maternal hitting or being convicted affect the corresponding behavior of daughters. Our one measure of maternal social attitudes, traditional gender role attitudes, has a statistically significant effect on sons' but not daughters' gender role attitudes. Maternal math and reading skills have relatively general affects on their children. Mother's reading score has a statistically significant effect on five outcomes for daughters and four for sons. Mother's math score has a statistically significant effect on four outcomes of daughters and three outcomes of sons. Maternal shyness and marijuana use also have relatively general effects on daughters but not sons.

Sex-linked inheritance (as with color-blindness) would be expected to produce gender-specific correlations, although the number of traits for which sex linkages has been established is relatively small. Gender-of-child differences in parent-child correlations could also result if environments cause the same genes to express themselves differently in boys and girls. Suppose, for example, that aggression is genetically determined but that it manifests itself as fighting in boys and aggressive social interactions among girls. Fighting in fathers would be correlated with fighting in sons but not daughters, while aggressive social interactions would be correlated in

mother-daughter but not mother-son pairs. All in all, it is difficult to judge whether gender-specific intergenerational correlations are consistent or inconsistent with a genetic explanation.

Role Modeling. Social learning models of the intergenerational transmission of behavior posit that parental behavior is observed and directly modeled in concurrent or later behaviors or relationships (Capaldi & Clark, 1998). For example, observation of parental use of illicit substances may "legitimate" these behaviors in children's eyes. Or, children may learn that certain modes of behavior, such as aggression toward a relationship partner, are tactics one should use to gain power in family relationships. This mechanism is likely to produce behavior-specific associations as children mimic particular behaviors of parents. Resulting intergenerational correlations are likely to be higher for social attitudes, which are more likely the product of social learning, than more basic traits such as cognitive skill and mental health.

If adolescents model the behaviors of valued individuals, then they are more likely to model the behavior of a parent with whom they have a good relationship. This theory further suggest that same-sex modeling may be more common than opposite sex modeling because children may see same-sex parents as exemplars of appropriate social behavior for each gender and from these, form gender-role schemas to guide their behavior. Cognitive learning theory holds that same-sex modeling is more likely because the same-sex parent is more influential on the child (but see Kandel and Wu, 1995, who report that maternal smoking is a more powerful influence on adolescent smoking than is paternal smoking). Sex-role identification may take place by modeling or reinforcement. Thus, we might expect in particular to see gender-specific associations in sex role attitudes.

The role model hypothesis suggests that fathers should have a greater influence on sons and mothers should have a greater influence on daughters. The genetic hypothesis makes similar predictions for characteristics transmitted by sex-linked genes or gender-specific expression of genes. Neither SES nor parenting hypotheses predict gender-specific parent-child associations. The NLSY data do not suggest that mother's characteristics are much less important to sons than daughters. But these data include no information on fathers. Mothers' characteristics may be important to sons because her characteristics are correlated with the fathers' characteristics.

The PGC study provides information on fathers who reside with their children. Using these data we can compare the effect of fathers' and mothers' characteristics on sons and

daughters. Unfortunately, we are able to do this for only three measures – anger, depression, and gender role attitudes. Table 6 shows that mothers' but not fathers' gender role attitudes have a significant effect on daughters' gender role attitudes. Table 7 shows that fathers' depression also has a larger effect than mothers' depression on sons' depression. Both of these results are consistent with the role model hypothesis. But fathers' depression has a much larger effect than mothers' depression on daughters' depression, which is inconsistent with the role model hypothesis. Thus these PGC results provide contradictory evidence regarding the role model and genetic hypothesis.

The role model hypothesis also predicts that children's behavior should be more like parents' behavior when children strongly identify with their parents. We test this hypothesis by interacting fathers' traits with a variable that measures the extent to which a child reports having a negative relationship with the father. The results (not shown) show that daughters are angrier when their fathers are angrier and when they have a more negative relationship with their father. But the more negative the relationship with the father the less the father's anger increases the daughters' anger. Put another way, daughters with more positive relationships with their fathers are more prone to be angry if their father is angry. The same pattern arises for the relationship between fathers' and daughters' depression, fathers' and sons' anger, and fathers' and sons' gender role attitudes. This supports the role model hypothesis.[13]   However, we do not replicate these results when we test the interactions between mothers' traits and children's identification with mothers. In sum, interaction results support the role model hypothesis in four of six possible interactions with fathers, but none with mothers. This evidence on gender specific associations provides somewhat contradictory conclusions about the role model hypotheses.

We lack direct measures of role modeling or genetic mechanisms. However, we can conduct an additional indirect test. The most plausible way in which a child models a parent's behavior is to see the parent engage in the behavior. But thus far we have measured maternal characteristics during adolescence, well before most children were born. For those characteristics to be transmitted through role modeling they have to be correlated with the

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[13] Because fathers and children's outcomes are measured at the same time, it is possible that children's psychological attributes affect fathers' attributes rather than the other way around. But the NLSY data suggest that this is not the case.

mother's behavior after the child is born. If a characteristic is transmitted genetically, on the other hand, it should not matter when the trait is measured as long as it is measured accurately.

Thus if we regress children's outcomes on maternal traits measured in adolescence and in adulthood and find that the effect of the latter measure is greater than the effect of the former, it suggests role modeling rather than genetic transmission of that characteristic. If both measures are equally predictive of the children's outcomes, it is evidence of a genetic mechanism. If traits and behaviors were highly correlated between adolescence and adulthood, then we would be unable to distinguish between their separate effects. But the traits and behaviors for which we have both concurrent and adolescent measurement never correlate more than .50 between these two times, and most correlations are in the .2 to .4 range.

Ideally, we would measure each maternal characteristic during adolescence and at the same time that we measure the child outcome. Unfortunately, the NLSY includes only three maternal characteristics measured at both these times: depression, use of drugs, and use of marijuana. When we regress both maternal measures of drug use on children's drug use, we find that all 71 mothers who used drugs as adults had children who also reported using drugs. So we cannot separate the effect of mother's adolescent and adult drug use on her child's drug use. Table 11 shows that when we regress both measures of maternal marijuana use on child's marijuana use, the coefficients are very similar. The same is true for mothers' depression.[14]

Two additional maternal traits are measured both during adolescence and adulthood but not contemporaneously with the child outcome. These are self-esteem and gender role attitudes. We estimate a model in which we control both measures of maternal traits on the corresponding outcome of children who were are least six years old when the second maternal trait was measured (Table 11).[15] These children were probably old enough to learn from observing their mothers' behavior. There is little difference in the effect of the two measures of self-esteem on the child's self-esteem, but the more recent measure of mothers' gender role attitudes has a much greater effect than the measure of mothers' adolescent gender role attitude.

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[14] Although we do not show it, the results are similar when we estimate these models separately for boys and girls. Furthermore, the results are similar when both maternal measures are entered into the same regression.

[15] We also estimated these models for children who were at least four years old or at least six years old when the second maternal trait was measured. The results were substantively similar to the models for children who were at least six years old.

These results are consistent with a large genetic component to self-esteem, depression and use of marijuana, but with role modeling for gender role attitudes. These differences are consistent with behavioral genetics research that has found weak genetic links for attitudes but stronger genetic links for personality attributes (Loehlin this volume, Rowe, 1994). The results for drug use are somewhat ambiguous. A mother's current drug use is a perfect predictor of her children's drug use, and this is a much greater effect than her drug use as an adolescent. Since only a small number of mothers who report using drugs in adulthood, we caution against making too much of this difference.

VI. Discussion

We have used patterns of correlations in two data sets to describe the relationship between the characteristics of parents and their children. We find evidence of many more specific than general intergenerational associations. We discuss four possible explanations of similarities in parents and children. We begin with a summary of evidence on each explanation, followed by some caveats and general conclusions.

Socioeconomic status. Our results provide little support for the idea that parental SES is the key cause of similarities in parents and children. Only a few maternal adolescent characteristics are related to future income and the effect of these characteristics on children's outcomes does not decline when direct measures of parental SES are controlled. Also inconsistent with an SES-based explanation is our evidence of many more specific than general effects of maternal traits and behaviors on children.

Parenting styles and the home environment. Given the strong presumption by developmental psychologists of the key role played by parenting behaviors such as warmth and control, we were most surprised by the weak support accorded this hypothesis by our data. Most maternal characteristics were related to none, one or at most two of the parenting practices that we can measure, and these maternal characteristics did not display the pattern of general effects on daughters' outcomes predicted by the parenting explanation. Most telling is that direct controls for five measures of parenting practices accounted for none of the many strong

intergenerational correlations observed in our data. To our knowledge, ours is the first to test this hypothesis in a nationally representative sample.

Genetic influence. According to this hypothesis, each of a parent's genetically-determined traits and behaviors should predict its counterpart trait or behavior in children. A genetic explanation would also lead us to expect that a given trait or behavior would not be closely linked to other child traits and behaviors. Although hampered by a lack of data on fathers, our results are strikingly consistent with this prediction. Most maternal characteristics are associated with only the same characteristic in their children. But certain maternal traits (e.g., AFQT math and reading score and depression) predict several other outcomes, which may be inconsistent with the genetic explanation. Consistent with a genetic explanation is the fact that traits do not appear to be gender specific, and neither family background nor parenting practices have much effect on child outcomes once all maternal characteristics are controlled. Finally, the fact that measures of maternal depression, self-esteem and marijuana use in adolescence are as good as adult measures of the same characteristic at predicting the corresponding outcome in children is consistent with a genetic link for these outcomes. All in all, we find considerable, albeit indirect, support for the genetic explanation.

Role modeling. The pattern of trait and behavior-specific correlations across generations that we observe in our data supports key predictions of both the genetic and role-modeling hypotheses. But it proved difficult to develop competing predictions between the role model and genetic explanations. One possible exception is that the role model but not the genetic explanation predicts gender-specific effects. We find some evidence that mothers' characteristics more often predict the same characteristics in daughters than in sons, and that the effects are greater for daughters than for sons. Some characteristics of fathers also seem to have a greater effect when children report a positive relationship with their father. However, evidence of a differential effect of fathers on sons and daughters is weak. Maternal role model attitudes measured in adulthood have a much greater effect on children's role model attitudes than maternal attitudes measured in adolescence, indicating that role modeling is important for this outcome.

All in all, we are left with suggestive evidence that genetic and/or identity formation influences figure prominently in explaining the resemblance between parents and their children.

Our evidence suggests that Models 1 and 4 in Figure 1 are not likely to represent the intergenerational transmission process, at least if P_z is either parental SES or the parenting behaviors that we are able to measure. Because many of the children's outcomes that we measure are related to their future economic success, out results also provide suggestive evidence of the importance of genetic and role modeling influences on the intergenerational transmission of economic success. In contrast, little of the evidence we gathered supported the idea that either parenting practices or parental economic resources account for intergenerational linkages.

At the same time, we have not tested the well-accepted proposition that behavioral traits are the result of not only environmental and genetic influences, but also the interactions between environment and genetics. In other words, social conditions, such as parental SES or the socialization environment created by parenting practices, can moderate the expression of biological or genetic predispositions. Guo and Stearns (1999) suggest that individuals living under greater societal constraint have more difficulty realizing their genetic potential and provide evidence that low-SES environments decrease the heritability of cognitive skills. A similar point is made by Maccoby (2000), who summarized evidence that the cross-generational transmission of psychiatric disorders is moderated by the socialization environment provided by parents. In studies of adopted children, for example, children with a schizophrenic biological parent were more likely to develop a range of psychiatric problems, but only if they were adopted into a dysfunctional adoptive family (Maccoby, 2000). Well-functioning parents may buffer children against the emergence of negative genetic potentials. Future studies should examine intergenerational correlations of traits and behaviors in different subgroups defined by levels of SES and in a variety of socialization environments.

Furthermore, recent interventions that have experimentally changed the economic context of the low-income families appear to affect children's adjustment (Morris et al., 2001). Interestingly, these same interventions did not appear to affect the specific parenting behaviors deemed key by developmentalists (e.g., emotional warmth, monitoring, involvement). Nevertheless, these experimental findings support the contention that social environments do matter for children's development, but perhaps also demonstrate that certain dimensions of parental behavior matter less than previously thought.

Our list of methodological concerns is long. We lack direct evidence on the genetic make-up of our parents and children. Our list of available traits and behaviors, although long, is dictated by data availability rather than theory. Most measures in our key data set (the NLSY) have dubious reliability, and our attempts to adjust for measurement error reduced the precision of our estimates to the point that we were uncertain about the consequences of measurement error for our main conclusions.

Despite these concerns, we do have confidence in several stylized facts for which future work on intergenerational processes must account. Above all, as with Case and Katz (1991), we find striking evidence that "like begets like" across generations. Many more specific than general competencies appear to be passed down from one generation to the next. This is perhaps unfortunate from a policy perspective, since necessarily blunt policy instruments are better suited for addressing general than specific competencies.

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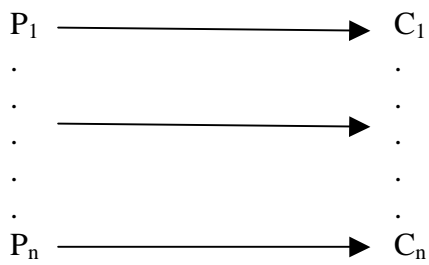
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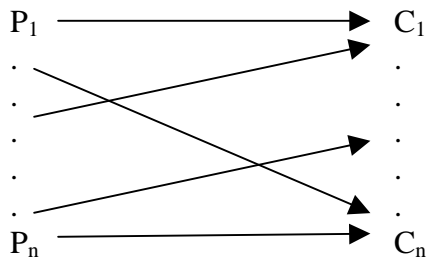**Figure 1: Models of Intergenerational Transmission Process**

Model 1: General Effects

P_1

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. → P_z

.

P_n

C_1

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.

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C_n
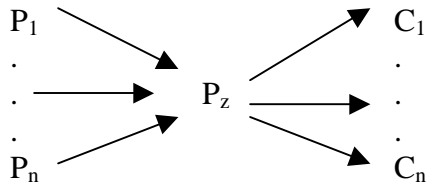
Model 2: Specific Effects

P_1 ⟶ C_1

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.   .

.   .

.   .

P_n ⟶ C_n

Model 3: Combination Effects A

P_1 ⟶ C_1

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.   .

.   .

P_n ⟶ C_n

Model 4: Combination Effects B

P_1 ⟶ C_1

.   .

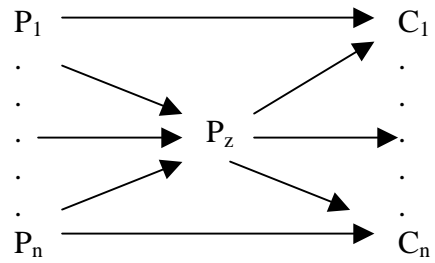. → P_z → .

.   .

P_n ⟶ C_n

Table 1: OLS Regressions Relating Children's Outcomes to Parental Characteristics Using Data from the Boston Inner City Youth Survey

PARENT BEHAVIORS	CHILDREN BEHAVIORS				
	Crime in last year	Use Illegal Drug	Single Parent	Attends Church Often	Highest Grade Completed
Family Member in Jail	**.08** **(.03)**	.03 (.03)	.03 (.03)	-.02 (.03)	-.19 (.10)
Family Member w/drug, alcohol	.08 (.02)	**.15** **(.03)**	.04 (.03)	-.02 (.03)	-.03 (.10)
Parents not married	.02 (.03)	.02 (.04)	**.11** **(.03)**	-.03 (.04)	-.01 (.12)
Parents Attend Church Often	-.02 (.02)	-.04 (.03)	.01 (.03)	**.19** **(.03)**	-.04 (.09)
Parent's Years of Schooling	.00 (.01)	.02 (.01)	-.01 (.01)	.01 (.01)	**.10** **(.02)**

Note: Standard errors are shown in parentheses.

Source: Case and Katz (1991) Table 6. Regressions also control for race, gender, and child's age.

Table 2: Odds Ratios from Multivariate and Bivariate Logistic Regressions for Dichotomous Outcomes for Mothers and Daughters

DAUGHTER TRAITS AND BEHAVIORS (dependent variables)

MATERNAL TRAITS AND BEHAVIORS (independent variables)		Pro-Social Behavior: Particip. in School Clubs	Substance Use: Used Marijuana	Used Other Drugs	Sex Before Age 15	Damaged Property in Last Year	Fought at School/Work Last Year	Hit Someone Last Year	Ever Suspended	Ever Convicted
Participation in School Clubs	Odds Ratio	1.39	.84	2.47	1.16	.79	.92	.96	1.10	1.20
	(z-ratio)	(2.44)	(-.77)	(1.24)	(.92)	(-1.13)	(-.48)	(-.25)	(.50)	(.45)
	Bivariate Odds	1.85	0.62	1.36	0.87	0.69	0.78	0.89	0.99	0.85
Used Marijuana	Odds Ratio	.88	1.72	6.11	1.16	1.18	.95	1.59	1.34	2.56
	(z-ratio)	(-.85)	(2.06)	(2.74)	(.86)	(.72)	(-.26)	(2.50)	(1.46)	(2.41)
	Bivariate Odds	0.90	1.78	4.10	1.35	1.40	0.84	1.51	1.26	1.93
Used Other Drugs	Odds Ratio	.60	1.08	5.39	1.18	1.63	.97	.90	.96	.60
	(z-ratio)	(-2.54)	(.28)	(2.12)	(.74)	(1.84)	(-.10)	(-.43)	(-.15)	(-1.03)
	Bivariate Odds	0.68	1.88	5.62	1.55	1.87	1.01	1.30	1.26	1.21
Sex Before Age 15	Odds Ratio	.76	1.54	1.59	1.86	.92	1.37	1.37	1.50	.90
	(z-ratio)	(-1.99)	(1.80)	(.61)	(3.87)	(-.40)	(1.76)	(1.71)	(2.06)	(-.23)
	Bivariate Odds	0.61	1.65	1.15	2.89	1.12	1.57	1.38	2.01	1.33
Damaged Property Last Year	Odds Ratio	.81	2.78	2.48	1.20	1.09	1.12	.82	.85	1.94
	(z-ratio)	(-.96)	(2.81)	(.88)	(.60)	(.25)	(.37)	(-.61)	(-.59)	(1.17)
	Bivariate Odds	0.70	2.65	1.55	1.47	1.11	1.52	1.07	1.52	2.75
Fought at School/Work Last Year	Odds Ratio	.85	.80	.48	0.95	1.47	1.34	1.06	1.23	1.93
	(z-ratio)	(-1.01)	(-.75)	(-.95)	(-.26)	(1.63)	(1.44)	(.30)	(1.01)	(1.60)
	Bivariate Odds	0.71	1.24	1.73	1.09	1.36	1.77	1.31	2.15	1.81
Hit Someone Last Year	Odds Ratio	1.06	1.45	.93	1.04	1.01	1.24	1.64	1.91	.82
	(z-ratio)	(.36)	(1.45)	(-.10)	(.24)	(.04)	(1.14)	(2.79)	(3.30)	(-.50)
	Bivariate Odds	0.89	1.32	1.02	1.15	1.23	1.45	1.64	2.40	1.57
Ever Suspended	Odds Ratio	.95	1.26	.49	1.26	.99	1.16	1.05	1.61	.98
	(z-ratio)	(-.36)	(.88)	(-.90)	(1.35)	(-.04)	(.79)	(.27)	(2.49)	(-.05)
	Bivariate Odds	0.72	1.55	1.03	1.46	1.17	1.55	1.22	2.74	1.42
Ever Convicted	Odds Ratio	.57	1.89		1.72	1.88	1.34	.69	3.75	5.12
	(z-ratio)	(-1.22)	(1.29)		(1.16)	(1.43)	(.62)	(-.76)	(3.39)	(1.95)
	Bivariate Odds	0.51	3.17	1.82	2.29	2.32	2.07	1.32	3.97	5.10
Math Test Score	Odds Ratio	1.03	.98	1.03	0.98	.99	.99	1.02	.99	.93
	(z-ratio)	(3.19)	(-.89)	(.43)	(-1.43)	(-.62)	(-.93)	(1.42)	(-.53)	(-2.63)
	Bivariate Odds	1.05	0.99	1.00	0.98	0.98	0.96	1.00	0.95	0.95
Reading Test Score	Odds Ratio	1.02	1.01	.94	1.00	1.01	.99	.99	.98	1.03
	(z-ratio)	(2.01)	(1.07)	(-1.30)	(-.10)	(.71)	(-1.28)	(-.96)	(-1.32)	(1.12)
	Bivariate Odds	1.03	1.01	0.99	0.99	1.00	0.98	1.00	0.97	1.00
Pearlin Mastery Scale	Odds Ratio	1.02	.99	.95	0.98	.99	1.00	.97	.95	.90
	(z-ratio)	(.98)	(-.26)	(-.55)	(-.86)	(-.20)	(.00)	(-1.29)	(-1.51)	(-1.93)
	Bivariate Odds	1.05	0.97	0.97	0.96	0.98	0.96	0.95	0.95	0.89
Self-esteem Scale	Odds Ratio	1.01	1.00	1.02	1.00	1.00	1.02	1.03	1.02	1.00
	(z-ratio)	(.69)	(-.04)	(.23)	(-.20)	(.02)	(1.03)	(1.08)	(.75)	(-.06)
	Bivariate Odds	1.06	0.98	0.99	0.97	0.98	0.98	1.00	0.98	0.94
Depression Scale	Odds Ratio	1.02	1.00	.96	1.04	1.01	1.03	1.06	1.04	1.04
	(z-ratio)	(1.15)	(-.04)	(-.46)	(2.33)	(.38)	(1.92)	(3.48)	(2.03)	(1.15)
	Bivariate Odds	0.97	1.02	1.00	1.05	1.03	1.05	1.06	1.07	1.09
Shyness at Age 6[a]	Odds Ratio	.85	1.16	1.20	1.00	.98	.91	.97	1.16	1.26
	(z-ratio)	(-2.46)	(1.20)	(.45)	(-.03)	(-.20)	(-1.13)	(-.32)	(1.71)	(1.30)
	Bivariate Odds	0.84	1.03	0.92	1.05	0.97	0.94	1.00	1.13	1.30
Traditional Gender-role Attitudes	Odds Ratio	1.01	1.00	1.05	1.01	.97	.99	.99	.93	1.00
	(z-ratio)	(.71)	(-.01)	(.47)	(.62)	(-1.28)	(-.44)	(-.31)	(-2.78)	(-.06)
	Bivariate Odds	0.99	1.00	0.98	1.01	0.97	0.99	0.98	0.96	1.01
Frequency Attend Religious Services	Odds Ratio	1.05	1.18	1.31	0.94	1.01	.89	1.02	.96	1.16
	(z-ratio)	(1.40)	(2.29)	(1.30)	(-1.41)	(.19)	(-2.29)	(.45)	(-.71)	(1.06)
	Bivariate Odds	1.12	1.01	1.25	0.87	0.95	0.88	0.94	0.90	1.00
Black	Odds Ratio	1.14	.55	.74	0.68	1.27	1.24	1.29	3.02	.62
	(z-ratio)	(.79)	(-1.98)	(-.36)	(-1.90)	(.91)	(.93)	(1.14)	(4.55)	(-1.11)
	Bivariate Odds									
Hispanic	Odds Ratio	.81	1.38	3.50	0.81	1.74	1.35	1.42	1.86	.70
	(z-ratio)	(-1.16)	(1.16)	(1.52)	(-1.01)	(2.20)	(1.25)	(1.55)	(2.33)	(-.66)
	Bivariate Odds									
Age	Odds Ratio	1.01	1.45	2.94	1.16	1.16	.88	.84	1.27	1.02
	(z-ratio)	(.13)	(4.53)	(5.11)	(2.28)	(1.57)	(-1.09)	(-1.42)	(1.66)	(.10)
	Bivariate Odds									
Number of Observations		1246	929	1051	964	1363	880	880	1346	848

Notes: [a] Mothers were asked as adults to indicate how shy they were at age six.

Source: National Longitudinal Survey of Youth 1979 Cohort and Children of the NLSY79

Table 3: OLS Standardized Regression Coefficients and Pearson Correlations for Continuous Outcomes for Mothers and Daughters

DAUGHTER TRAITS AND BEHAVIORS (dependent variables)

MATERNAL TRAITS AND BEHAVIORS (independent variables)		Cognitive Skills		Personality Traits				Other/Pro-Social Behavior	
		Math test score	Reading test score	Pearlin Mastery Scale	Self-esteem Scale	Depression Scale	Shyness At Age 6[a]	Traditional Gender-role Attitudes	Frequency Attend Religious Services
Math Test Score	Beta	**.22**	.16	-.05	.04	.02	-.02	-.04	.06
	(t-ratio)	**(6.37)**	(4.51)	-(.99)	(.79)	(.51)	-(.86)	-(.94)	(1.69)
	reliability adj.	.27	.14	-.13	.02	.08	-.04	-.02	.09
	correlation	**.39**	.37	.07	.07	-.03	.01	-.11	.04
Reading Test Score	Beta	.12	**.24**	.17	.04	-.06	-.03	-.10	-.08
	(t-ratio)	(3.45)	**(6.32)**	(3.58)	(.74)	-(1.24)	-(.98)	-(2.24)	-(2.09)
	reliability adj.	.13	.32	.25	.02	-.11	-.01	-.16	-.15
	correlation	.37	**.40**	.14	.09	-.05	-.01	-.14	-.01
Pearlin Mastery Scale	Beta	.04	.05	**.07**	.08	.03	.01	-.02	-.05
	(t-ratio)	(1.30)	(1.77)	**(1.76)**	(2.02)	(.66)	(.41)	-(.52)	-(1.49)
	reliability adj.	.03	.06	.07	.08	.07	.03	.02	-.13
	correlation	.14	.16	**.13**	.13	-.01	-.02	-.08	.00
Self-esteem Scale	Beta	-.04	-.02	.03	**.09**	-.01	.00	.07	.03
	(t-ratio)	-(1.57)	-(.77)	(.79)	**(2.46)**	-(.30)	(.13)	(1.88)	(1.16)
	reliability adj.	-.09	-.07	.02	.13	-.01	.02	.13	.08
	correlation	.13	.15	.09	**.16**	-.07	-.01	-.01	.05
Depression Scale	Beta	-.06	-.04	-.08	-.06	**.07**	.01	.08	-.08
	(t-ratio)	-(2.38)	-(1.58)	-(2.48)	-(1.75)	**(1.79)**	(.46)	(2.23)	-(2.84)
	reliability adj.	-.10	-.06	-.15	-.11	.14	.03	.15	-.18
	correlation	-.15	-.14	-.12	-.10	**.08**	.00	.10	-.09
Shyness at Age 6[a]	Beta	-.05	-.08	-.02	-.05	.05	**.10**	.04	-.05
	(t-ratio)	-(2.14)	-(2.93)	-(.70)	-(1.69)	(1.39)	**(5.31)**	(1.15)	-(1.79)
	reliability adj.	-.11	-.17	-.04	-.11	.11	.22	.11	-.10
	correlation	-.12	-.13	-.03	-.05	.06	**.10**	.05	-.03
Traditional Gender-role Attitudes	Beta	.03	.00	.08	.04	.03	-.01	**.04**	-.02
	(t-ratio)	(1.18)	(.04)	(2.11)	(1.02)	(.65)	-(.31)	**(.95)**	-(.63)
	reliability adj.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	correlation	-.04	-.09	.01	-.03	.02	.02	**.10**	.01
Frequency Attend Religious Services	Beta	.04	-.01	.00	.00	-.02	.01	.03	**.15**
	(t-ratio)	(1.48)	(-.46)	(-.10)	(.00)	(-.49)	(.48)	(.80)	**(5.11)**
	reliability adj.	.04	-.03	-.01	.00	-.01	.02	.05	.21
	correlation	.05	.01	.00	.01	-.04	.01	.02	**.16**
Participation in School Clubs	Beta	.05	.01	.00	-.01	-.01	-.02	.03	.02
	(t-ratio)	(1.83)	(.27)	(.14)	(-.18)	(-.36)	(-.86)	(.94)	(.68)
	reliability adj.	.07	-.03	.00	-.04	-.01	-.02	.08	.02
	correlation	.15	.11	.09	.08	-.05	-.03	-.03	.07

Table 3: OLS Standardized Regression Coefficients and Pearson Correlations for Continuous Outcomes for Mothers and Daughters (continued)

DAUGHTER TRAITS AND BEHAVIORS (dependent variables)

MATERNAL TRAITS AND BEHAVIORS (independent variables)		Cognitive Skills		Personality Traits				Other/Pro-Social Behavior	
		Math test score	Reading test score	Pearlin Mastery Scale	Self-esteem Scale	Depression Scale	Shyness At Age 6[a]	Traditional Gender-role Attitudes	Frequency Attend Religious Services
	Beta	.01	-.02	.05	.05	.02	-.03	-.07	-.02
	(t-ratio)	(.31)	(-.65)	(1.37)	(1.34)	(.50)	(-1.17)	(-2.10)	(-.61)
	reliability adj.	.02	-.05	.08	.07	.04	-.04	-.10	-.01
Used Marijuana	correlation	.07	.07	.05	.05	.03	-.02	-.09	-.06
	Beta	-.02	-.01	-.02	.02	.02	.01	-.03	.00
	(t-ratio)	(-.87)	(-.54)	(-.41)	(.63)	(.42)	(.23)	(-.88)	(-.02)
	reliability adj.	-.04	-.01	-.03	.03	-.02	.03	-.04	.02
Used Other Drugs	correlation	.05	.04	-.02	.00	.04	-.01	-.04	-.05
	Beta	-.08	-.05	-.04	-.02	.01	-.01	.03	-.02
	(t-ratio)	(-3.21)	(-1.97)	(-1.16)	(-.47)	(.21)	(-.34)	(1.00)	(-.63)
	reliability adj.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sex Before Age 15	correlation	-.14	-.13	-.06	-.03	.03	-.02	.03	-.03
	Beta	.01	.01	-.02	-.03	.04	.01	.01	-.03
	(t-ratio)	(.50)	(.50)	(-.66)	(-.92)	(1.39)	(.28)	(.20)	(-.91)
Damaged Property	reliability adj.	.03	.04	-.05	-.06	.11	.02	-.04	-.07
in Last Year	correlation	-.04	-.03	-.03	-.03	.05	.01	.04	-.03
	Beta	.00	-.01	-.01	.00	-.03	.01	0.05	.01
Fought at	(t-ratio)	(.01)	(-.50)	(-.20)	(-.07)	(-.77)	(.61)	(1.38)	(.36)
School/Work Last	reliability adj.	.00	-.03	-.04	-.05	-.10	.12	.19	.06
Year	correlation	-.12	-.12	-.04	-.03	.01	-.01	.09	.00
	Beta	-.01	.00	.03	.04	.00	-.04	0.00	-.02
	(t-ratio)	(-.22)	(.01)	(.87)	(1.20)	(-.05)	(-1.74)	(-.10)	(-.60)
Hit Someone Last	reliability adj.	-.01	.01	.10	.14	.02	-.15	-.09	-.03
Year	correlation	-.05	-.06	.03	.05	.04	-.04	.02	-.04
	Beta	-.03	-.06	-.03	-.05	.00	-.01	0.08	-.02
	(t-ratio)	(-1.21)	(-2.26)	(-.86)	(-1.57)	(-.03)	(-.61)	(2.26)	(-.65)
	reliability adj.	-.03	-.07	-.05	-.08	.00	-.04	.10	-.03
Ever Suspended	correlation	-.15	-.16	-.03	-.05	.04	-.04	.07	-.03
	Beta	-.02	-.05	.04	-.01	.04	.01	0.02	.00
	(t-ratio)	(-1.17)	(-2.62)	(.95)	(-.28)	(1.05)	(.34)	(.51)	(-.07)
	reliability adj.	-.04	-.12	.06	-.04	.07	.01	.07	.02
Ever Convicted	correlation	-.04	-.05	.00	-.04	.05	-.01	.02	-.03
	Beta	-.14	-.11	.10	.20	-.01	-.08	-0.11	.03
	(t-ratio)	(-4.27)	(-3.43)	(2.34)	(4.38)	(-.24)	(-3.33)	(-2.62)	(.87)
	reliability adj.	-.11	-.07	.12	.20	.01	-.10	-.17	.02
Black	correlation								
	Beta	-.11	-.04	.02	.00	.02	-.01	-0.01	-.01
	(t-ratio)	(-3.66)	(-1.20)	(.42)	(.01)	(.38)	(-.60)	(-.29)	(-.30)
	reliability adj.	-.09	-.01	.03	.01	.03	-.03	-.04	-.02
Hispanic	correlation								
	Beta	-.02	-.01	.02	.05	.04	-.12	-0.08	.00
	(t-ratio)	(-.76)	(-.44)	(.47)	(1.42)	(1.25)	(-6.07)	(-2.48)	(-.04)
	reliability adj.	-.02	-.02	.01	.04	.05	-.11	-.08	.00
Age	correlation								
R-Squared		.21	.24	.05	.08	.02	.03	.06	.04
Number of Observation		1278	1272	919	920	922	2717	901	1350

Notes: [a] Mothers were asked as adults to indicate how shy they were at age six. Daughters' shyness was assessed by mothers and interviewers when the child was six years old.

Source: National Longitudinal Survey of Youth 1979 Cohort and Children of the NLSY79

Table 4: Odds Ratios from Multivariate and Bivariate Logistic Regressions for Dichotomous Outcomes for Mothers and Sons

SON TRAITS AND BEHAVIORS (dependent variables)

MATERNAL TRAITS AND BEHAVIORS (independent variables)		Pro-Social Behavior	Substance Use		Delinquent Behavior					
		Particip. in School Clubs	Used Marijuana	Used Other Drugs	Sex Before Age 15	Damaged Property Last Year	Fought at School/ Work Last Year	Hit Someone Last Year	Ever Suspended	Ever Convicted
Participation in School Cubs	Odds Ratio	**1.29**	.87	1.44	.97	.91	1.82	1.47	.96	1.26
	(z-ratio)	**(1.93)**	(-.67)	(.94)	(-.17)	(-.60)	(3.44)	(2.15)	(-.33)	(.84)
	Bivariate Odds	**1.50**	0.68	0.96	0.72	0.76	1.07	1.26	0.80	1.01
Used Marijuana	Odds Ratio	1.18	**1.75**	1.38	1.29	1.44	1.12	1.49	1.04	1.23
	(z-ratio)	(1.13)	**(2.54)**	(.73)	(1.49)	(2.10)	(.61)	(2.16)	(.26)	(.70)
	Bivariate Odds	1.10	1.87	1.77	1.43	1.43	1.24	1.83	1.22	1.43
Used Other Drugs	Odds Ratio	.55	1.42	**1.64**	1.30	1.04	1.18	.86	1.53	1.31
	(z-ratio)	(-2.81)	(1.27)	**(.97)**	(1.12)	(.16)	(.66)	(-.60)	(2.00)	(.74)
	Bivariate Odds	0.72	2.13	**2.26**	1.34	1.22	1.19	1.50	1.38	1.39
Sex Before Age 15	Odds Ratio	.94	1.27	.78	**2.01**	1.20	1.30	1.29	1.26	2.90
	(z-ratio)	(-.44)	(1.11)	(-.68)	**(4.49)**	(1.09)	(1.52)	(1.41)	(1.62)	(4.13)
	Bivariate Odds	0.87	1.60		**2.64**	1.46	1.68	1.34	1.87	2.57
Damaged Property Last Year	Odds Ratio	.79	1.13	2.63	.78	**.77**	.89	1.19	.84	.49
	(z-ratio)	(-.93)	(.32)	(1.74)	(-.88)	**(-.88)**	(-.38)	(.55)	(-.71)	(-1.10)
	Bivariate Odds	0.88	1.15	1.66	1.32	**1.04**	1.14	1.22	1.46	0.40
Fought at School/Work Last Year	Odds Ratio	1.26	.63	.25	.90	.92	**.71**	1.11	1.16	.63
	(z-ratio)	(1.37)	(-1.82)	(-2.08)	(-.57)	(-.42)	**(-1.71)**	(.53)	(.84)	(-1.24)
	Bivariate Odds	0.95	0.93	0.52	1.54	1.29	**1.13**	1.18	1.43	0.56
Hit Someone Last Year	Odds Ratio	.99	.95	1.03	1.19	1.17	1.47	**1.23**	1.09	.58
	(z-ratio)	(-.06)	(-.22)	(.07)	(1.03)	(.90)	(2.18)	**(1.16)**	(.59)	(-1.85)
	Bivariate Odds	1.04	0.97	1.09	1.43	1.34	1.40	**1.38**	1.42	0.55
Ever Suspended	Odds Ratio	1.14	1.54	2.07	1.60	1.41	1.31	.96	**1.52**	1.26
	(z-ratio)	(.89)	(2.11)	(1.90)	(2.92)	(2.02)	(1.49)	(-.22)	**(2.89)**	(.87)
	Bivariate Odds	0.98	1.80	2.44	2.45	1.54	1.69	1.11	**1.98**	1.27
Ever Convicted	Odds Ratio	1.33			1.22	1.23	.99	.47	2.37	**1.19**
	(z-ratio)	(.61)			(.31)	(.38)	(-.02)	(-.85)	(1.90)	**(.16)**
	Bivariate Odds	0.59	0.68	1.41	1.05	1.53	1.46	0.83	1.67	**0.56**

Table 4: Odds Ratios from Multivariate and Bivariate Logistic Regressions for Dichotomous Outcomes for Mothers and Sons (continued)

SON TRAITS AND BEHAVIORS (dependent variables)

MATERNAL TRAITS AND BEHAVIORS (independent variables)		Pro-Social Behavior	Substance Use		Delinquent Behavior					
		Particip. in School Clubs	Used Marijuana	Used Other Drugs	Sex Before Age 15	Damaged Property Last Year	Fought at School/ Work Last Year	Hit Someone Last Year	Ever Suspended	Ever Convicted
Math Test Score	Odds Ratio	1.01	.99	1.02	.98	1.01	1.00	1.00	.98	1.02
	(z-ratio)	(1.12)	(-.60)	(.68)	(-1.35)	(.76)	(-.11)	(.03)	(-2.03)	(1.05)
	Bivariate Odds	1.03	0.99	1.00	0.96	0.98	0.98	1.02	0.96	1.00
Reading Test Score	Odds Ratio	1.01	1.00	.95	.99	.99	.96	1.00	1.01	.98
	(z-ratio)	(1.20)	(-.24)	(-2.25)	(-.79)	(-1.00)	(-3.69)	(.33)	(1.65)	(-1.14)
	Bivariate Odds	1.02	1.00	0.97	0.97	0.98	0.98	1.02	0.98	1.00
Pearlin Mastery Scale	Odds Ratio	1.02	.99	.93	1.00	.98	.99	1.03	1.01	1.02
	(z-ratio)	(1.21)	(-.43)	(-1.20)	(.10)	(-.80)	(-.48)	(1.25)	(.58)	(.56)
	Bivariate Odds	1.05	1.00	0.96	0.95	0.97	0.97	1.03	0.98	1.02
Self-esteem Scale	Odds Ratio	.98	1.05	.89	.98	.96	1.03	1.01	.96	1.00
	(z-ratio)	(-.91)	(1.70)	(-2.64)	(-1.26)	(-1.85)	(1.52)	(.62)	(-2.16)	(.04)
	Bivariate Odds	1.04	1.00	0.86	0.96	0.94	0.98	1.01	0.96	1.00
Depression Scale	Odds Ratio	.98	1.02	.88	1.03	.99	1.02	1.03	1.04	1.03
	(z-ratio)	(-1.80)	(.76)	(-2.19)	(1.83)	(-.74)	(1.09)	(1.59)	(2.90)	(1.05)
	Bivariate Odds	0.97	1.02	0.94	1.05	1.01	1.03	1.02	1.05	1.01
Shyness at Age 6[a]	Odds Ratio	.98	1.17	1.43	1.04	1.10	.99	1.06	1.07	.97
	(z-ratio)	(-.32)	(1.42)	(1.53)	(.48)	(1.20)	(-.12)	(.63)	(.89)	(-.24)
	Bivariate Odds	0.91	1.16	1.54	1.02	1.12	1.00	1.04	1.08	0.95
Traditional Gender-role Attitudes	Odds Ratio	.99	1.01	.99	.97	1.03	1.02	1.02	.98	.92
	(z-ratio)	(-.85)	(.19)	(-.26)	(-1.43)	(1.23)	(.90)	(.87)	(-1.09)	(-2.45)
	Bivariate Odds	0.96	1.00	0.99	0.97	1.03	1.01	0.97	0.99	0.93
Frequency Attend Religious Services	Odds Ratio	.99	.91	.85	.88	.95	.86	.85	.94	.93
	(z-ratio)	(-.34)	(-1.63)	(-1.26)	(-2.87)	(-1.03)	(-3.18)	(-3.15)	(-1.45)	(-.90)
	Bivariate Odds	1.04	0.87	0.73	0.85	0.94	0.88	0.86	0.92	0.86
Black	Odds Ratio	.82	1.08	.80	2.62	1.17	1.05	.74	2.62	.96
	(z-ratio)	(-1.23)	(.28)	(-.44)	(5.27)	(.77)	(.26)	(-1.42)	(5.46)	(-.14)
	Bivariate Odds									
Hispanic	Odds Ratio	.62	2.37	.48	1.30	1.11	1.02	.95	.90	1.47
	(z-ratio)	(-2.83)	(3.30)	(-1.19)	(1.29)	(.50)	(.08)	(-.22)	(-.50)	(1.21)
	Bivariate Odds									
Age	Odds Ratio	1.07	1.37	1.42	1.01	1.22	1.05	1.22	1.24	1.39
	(z-ratio)	(.72)	(4.15)	(1.88)	(.11)	(2.51)	(.42)	(1.71)	(2.00)	(1.98)
	Bivariate Odds									
Number of Observations		1270	924	1059	998	1400	872	875	1403	833

Notes: a Respondents were asked as adults to indicate how shy they were at age six.

Source: National Longitudinal Survey of Youth 1979 Cohort and Children of the NLSY79

Table 5: OLS Standardized Regression Coefficients and Pearson Correlations for Continuous Outcomes for Mothers and Sons

		Cognitive Skills		Personality Traits				Other/Pro-Social Behavior	
MATERNAL TRAITS AND BEHAVIORS (independent variables)		Math Test Score	Reading Test Score	Pearlin Mastery Scale	Self-Esteem Scale	Depression Scale	Shyness at Age 6[a]	Traditional Gender-Role Attitudes	Frequency Attend Religious Services
Math Test Score	Beta	**.15**	.09	.07	.00	.00	.05	-.03	.05
	(t-ratio)	**(4.27)**	(2.59)	(1.58)	(.11)	(.07)	(1.82)	(-.57)	(1.38)
	reliability adj.	.19	.07	.08	-.04	.01	.08	.00	.06
	correlation	**0.38**	0.35	0.11	0.10	0.01	0.01	-0.11	0.03
Reading Test Score	Beta	.15	**.20**	.07	.12	-.08	-.03	-.09	-.04
	(t-ratio)	(4.11)	**(5.33)**	(1.47)	(2.37)	(-1.67)	(-1.04)	(-1.90)	(-1.14)
	reliability adj.	.16	.25	.10	.18	-.11	-.05	-.12	-.08
	correlation	0.38	**0.39**	0.13	0.15	-0.02	-0.03	-0.17	-0.02
Pearlin Mastery Scale	Beta	.04	.05	**.06**	.11	.04	-.02	-.11	-.07
	(t-ratio)	(1.47)	(1.81)	**(1.59)**	(3.04)	(.99)	(-.88)	(-3.07)	(-2.51)
	reliability adj.	.04	.07	.05	.20	.10	.00	-.20	-.17
	correlation	0.17	0.18	**0.12**	0.15	-0.01	-0.06	-0.14	-0.02
Self-esteem Scale	Beta	-.01	.04	-.03	**-.02**	.00	-.02	.02	.04
	(t-ratio)	(-.36)	(1.46)	(-.76)	**(-.56)**	(-.07)	(-1.14)	(.59)	(1.28)
	reliability adj.	-.06	.03	-.07	-.05	.00	-.01	.06	.08
	correlation	0.14	0.18	0.08	**0.10**	-0.02	-0.05	-0.10	0.04
Depression Scale	Beta	-.05	-.03	-.07	.01	**.05**	.03	.02	-.08
	(t-ratio)	(-1.86)	(-1.23)	(-1.93)	(.24)	**(1.25)**	(1.60)	(.49)	(-2.80)
	reliability adj.	-.09	-.05	-.13	.06	.13	.07	-.01	-.16
	correlation	-0.11	-0.11	-0.07	-0.04	**0.05**	0.04	0.05	-0.08
Shyness at Age 6[a]	Beta	-.04	-.02	-.02	-.03	.01	**.10**	.01	.02
	(t-ratio)	(-1.48)	(-.95)	(-.76)	(-.81)	(.36)	**(5.32)**	(.32)	(.77)
	reliability adj.	-.09	-.04	-.07	-.05	.04	.20	.00	.05
	correlation	-0.09	-0.08	-0.04	-0.03	0.01	**0.10**	0.04	0.02
Traditional Gender-role Attitudes	Beta	-.01	.00	-.02	-.08	-.03	.01	**.15**	.03
	(t-ratio)	(-.49)	(.13)	(-.47)	(-2.00)	(-.81)	(.52)	**(3.88)**	(.99)
	reliability adj.	.00	.02	-.02	-.08	-.02	.00	.14	.01
	correlation	-0.11	-0.11	-0.05	-0.12	0.00	0.03	**0.16**	0.05
Frequency Attend Religious Services	Beta	.03	.02	.03	.00	-.03	.00	.02	**.16**
	(t-ratio)	(1.24)	(.73)	(.82)	(-.02)	(-.95)	(-.24)	(.62)	**(5.92)**
	reliability adj.	.03	.02	.05	.00	-.05	.00	.04	.21
	correlation	0.05	0.04	0.03	0.00	-0.04	0.00	0.02	**0.17**
Participation in School Clubs	Beta	.07	.05	-.04	-.05	.02	-.03	-.04	.07
	(t-ratio)	(2.54)	(1.85)	(-1.03)	(-1.54)	(.48)	(-1.70)	(-1.14)	(2.49)
	reliability adj.	.12	.07	-.09	-.12	.04	-.06	-.08	.12
	correlation	0.17	0.14	-0.01	-0.01	0.00	-0.04	-0.05	0.09
Used Marijuana	Beta	.05	.01	.05	-.06	.02	-.03	.02	-.03
	(t-ratio)	(1.74)	(.43)	(1.21)	(-1.47)	(.50)	(-1.54)	(.49)	(-.96)
	reliability adj.	.09	.01	.09	-.12	.02	-.05	.06	-.02
	correlation	0.09	0.08	0.03	-0.01	0.06	-0.04	-0.04	-0.08

SON TRAITS AND BEHAVIORS (dependent variables)

Table 5: OLS Standardized Regression Coefficients and Pearson Correlations for Continuous Outcomes for Mothers and Sons

MATERNAL TRAITS AND BEHAVIORS (independent variables)		Cognitive Skills		Personality Traits				Other/Pro-Social Behavior	
		Math Test Score	Reading Test Score	Pearlin Mastery Scale	Self-Esteem Scale	Depression Scale	Shyness at Age 6[a]	Traditional Gender-Role Attitudes	Frequency Attend Religious Services
Used Other Drugs	Beta	-.03	.02	-.04	.02	.04	-.02	-.01	.01
	(t-ratio)	(-.95)	(.64)	(-1.09)	(.59)	(1.05)	(-1.08)	(-.33)	(.18)
	reliability adj.	-.08	.02	-.09	.06	.05	-.02	-.05	.03
	correlation	0.06	0.08	-0.01	0.02	0.08	-0.03	-0.03	-0.04
Sex Before Age 15	Beta	-.04	-.05	-.05	-.06	.04	.00	.03	-.05
	(t-ratio)	(-1.48)	(-1.71)	(-1.57)	(-1.71)	(1.14)	(.22)	(.97)	(-1.77)
	reliability adj.	-.03	-.04	-.05	-.05	.04	.00	.02	-.03
	correlation	-0.13	-0.14	-0.09	-0.07	0.04	0.01	0.07	-0.07
Damaged Property in Last Year	Beta	.03	.01	-.05	-.02	.10	.01	.02	-.01
	(t-ratio)	(.96)	(.48)	(-1.51)	(-.63)	(2.68)	(.56)	(.49)	(-.23)
	reliability adj.	.07	.03	-.09	-.04	.18	.03	.06	-.05
	correlation	0.01	0.00	-0.06	-0.03	0.09	0.00	0.00	0.00
Fought at School/Work Last Year	Beta	-.02	-.02	.02	.03	.00	.00	-.06	.04
	(t-ratio)	(-.81)	(-.65)	(.67)	(.79)	(-.05)	(-.11)	(-1.60)	(1.46)
	reliability adj.	-.11	-.04	.03	.11	.02	.00	-.16	.13
	correlation	-0.08	-0.10	-0.01	0.00	0.03	-0.01	-0.01	0.01
Hit Someone Last Year	Beta	.02	.01	.02	.00	-.04	.00	-.02	.00
	(t-ratio)	(.72)	(.24)	(.52)	(-.14)	(-1.19)	(-.21)	(-.46)	(.11)
	reliability adj.	.10	.01	.07	-.05	-.13	-.01	.01	-.03
	correlation	0.00	0.00	-0.02	-0.01	-0.02	-0.02	-0.02	-0.02
Ever Suspended	Beta	.00	-.04	.00	-.03	-.02	-.01	.02	-.01
	(t-ratio)	(.04)	(-1.34)	(.06)	(-.75)	(-.44)	(-.32)	(.54)	(-.43)
	reliability adj.	.03	-.05	.01	-.07	-.04	-.01	.07	-.04
	correlation	-0.11	-0.14	-0.05	-0.05	0.02	-0.02	0.02	-0.02
Ever Convicted	Beta	-.02	.01	-.07	-.04	.00	.01	-.01	.02
	(t-ratio)	(-.91)	(.47)	(-3.23)	(-3.35)	(.01)	(.27)	(-.35)	(.73)
	reliability adj.	-.07	.01	-.14	-.06	.01	.01	-.05	.07
	correlation	-0.04	-0.02	-0.08	-0.03	0.01	0.00	0.00	-0.02
Black	Beta	-.20	-.18	.02	.06	-.08	-.03	-.03	.05
	(t-ratio)	(-5.76)	(-5.26)	(.45)	(1.33)	(-1.84)	(-1.40)	(-.66)	(1.45)
	reliability adj.	-.17	-.16	.03	.06	-.09	-.04	-.03	.03
	correlation								
Hispanic	Beta	-.08	-.03	.02	.00	-.02	.00	-.05	.04
	(t-ratio)	(-2.51)	(-1.13)	(.55)	(-.05)	(-.41)	(.11)	(-1.25)	(1.13)
	reliability adj.	-.05	-.02	.04	-.02	-.03	-.01	-.05	.04
	correlation								
Age	Beta	-.10	-.02	.04	.05	-.02	-.07	-.06	.07
	(t-ratio)	(-4.12)	(-.99)	(1.19)	(1.41)	(-.64)	(-3.81)	(-1.96)	(2.56)
	reliability adj.	-.10	-.02	.04	.05	-.03	-.07	-.06	.06
	correlation								
R-Squared		.22	.21	.05	.05	.03	.03	.07	.07
Number of Observations		1325	1308	932	934	933	2906	875	1407

Notes: [a] Mothers were asked as adults to indicate how shy they were at age six. Daughters' shyness was assessed by mothers and interviewers when the child was six years old.

Source: National Longitudinal Survey of Youth 1979 Cohort and Children of the NLSY79

Table 6: OLS Standardized Regression Coefficients and Pearson Correlations for Scales for Mothers, Fathers and Daughters

MATERNAL /PATERNAL TRAITS AND BEHAVIORS (independent variables)		DAUGHTER TRAITS AND BEHAVIORS (dependent variables)		
		Anger Scale	Depression Scale	Gender-role Attitudes
Mother Anger Scale	Beta	**.11**	.11	-.05
	(t-ratio)	**(1.61)**	(1.60)	(-.70)
	correlation	**.13**	.15	-.06
Mother Depression Scale	Beta	.01	**.05**	.02
	(t-ratio)	(.17)	**(.69)**	(.33)
	correlation	.10	**.12**	-.06
Mother Gender Role Attitudes	Beta	-.08	.00	**.13**
	(t-ratio)	(-1.18)	(-.05)	**(2.05)**
	correlation	-.08	-.03	**.14**
Father Anger Scale	Beta	**-.01**	-.11	.09
	(t-ratio)	**(-.15)**	(-1.50)	(1.19)
	correlation	**.05**	-.02	-.02
Father Depression Scale	Beta	.06	**.15**	-.13
	(t-ratio)	(.87)	**(1.97)**	(-1.73)
	correlation	.08	**.10**	-.09
Father Gender Role Attitudes	Beta	.01	-.03	**-.01**
	(t-ratio)	(.22)	(-.48)	**(-.09)**
	correlation	-.03	-.04	**.08**
Average Parental Age at Birth of Child	Beta	.03	.06	.02
	(t-ratio)	(.45)	(.96)	(.24)
	correlation	-.03	.05	.08
Average Parental Education	Beta	-.12	.00	.19
	(t-ratio)	(-1.86)	(-.05)	(2.89)
	correlation	-.14	.01	.18
Youth Black	Beta	.11	.01	.09
	(t-ratio)	(1.87)	(.24)	(1.62)
	correlation	.13	.01	.07
R-Squared		.056	.042	.071
Number of Observations		289	289	289

Source: Prince Georges County data

Table 7: OLS Standardized Regression Coefficients and Pearson Correlations for Scale for Mothers, Fathers and Sons

MATERNAL/PATERNAL TRATIS AND BEHAVIORS (indepdent variables)		SON TRAITS AND BEHAVIORS (dependent variables)		
		Anger Scale	Depression Scale	Gender Role Attitudes
Mother **Anger Scale**	Beta	**.05**	.02	-.04
	(t-ratio)	**(.69)**	(.28)	(-.58)
	correlation	**.11**	.09	-.03
Mother **Depression Scale**	Beta	.07	**.12**	.01
	(t-ratio)	(.07)	**(1.68)**	(.09)
	correlation	.12	**.14**	-.04
Mother **Gender Role Attitudes**	Beta	.06	.07	**.10**
	(t-ratio)	(.87)	(.99)	**(1.43)**
	correlation	.03	.05	**.17**
Father **Anger Scale**	Beta	**-.01**	-.09	.09
	(t-ratio)	**(-.10)**	(-1.15)	(1.19)
	correlation	**.06**	.02	.02
Father **Depression Scale**	Beta	.09	**.16**	-.09
	(t-ratio)	(1.22)	**(2.10)**	(-1.23)
	correlation	.11	**.13**	-.07
Father **Gender Role Attitudes**	Beta	-.03	-.06	**.09**
	(t-ratio)	(-.46)	(-.86)	**(1.32)**
	correlation	-.03	-.04	**.17**
Average Parental Age **at Birth of Child**	Beta	-.01	.02	-.06
	(t-ratio)	(-.16)	(.33)	(-.91)
	correlation	-.07	.00	.00
Average Parental **Education**	Beta	-.12	.00	.16
	(t-ratio)	(-1.76)	(-.01)	(2.40)
	correlation	.13	.14	-.06
Youth **Black**	Beta	.02	.11	.12
	(t-ratio)	(.25)	(1.83)	(1.92)
	correlation	.03	.11	.12
R-Squared		.046	.058	.080
Number of Observations		270	270	270

Source: Prince Georges County data

Table 8: OLS Standardized Regression Coefficients and Pearson Correlations relating Mothers' Family Income and Years of Schooling to Her Adolescent Traits and Behaviors

TRAITS AND BEHAVIORS IN ADOLESCENCE (independent variables)	Total Avg. Family Income (age 30-34)		Total Years of Schooling	
Math Test Score	Beta	.18	Beta	.31
	(t-ratio)	(7.57)	(t-ratio)	(16.57)
	correlation	.25	correlation	0.53
Reading Test Score	Beta	.00	Beta	.24
	(t-ratio)	(-.11)	(t-ratio)	(12.54)
	correlation	.21	correlation	0.52
Pearlin Mastery Scale	Beta	.05	Beta	.06
	(t-ratio)	(2.32)	(t-ratio)	(3.91)
	correlation	.14	correlation	0.26
Self-esteem Scale	Beta	0.08	Beta	.09
	(t-ratio)	(4.80)	(t-ratio)	(6.25)
	correlation	.15	correlation	0.33
Depression Scale	Beta	-.02	Beta	.01
	(t-ratio)	(-1.22)	(t-ratio)	(.43)
	correlation	-.10	correlation	-0.16
Shyness at Age 6[a]	Beta	-.03	Beta	-.03
	(t-ratio)	(-1.66)	(t-ratio)	(-2.52)
	correlation	-.07	correlation	-0.10
Traditional Gender-role Attitudes	Beta	-.02	Beta	-.07
	(t-ratio)	(-.94)	(t-ratio)	(-5.11)
	correlation	-.07	correlation	-0.25
Frequency Attend Religious Services	Beta	.01	Beta	.10
	(t-ratio)	(.84)	(t-ratio)	(7.40)
	correlation	.02	correlation	0.14
Participation in School Clubs	Beta	.03	Beta	.07
	(t-ratio)	(2.38)	(t-ratio)	(5.46)
	correlation	.12	correlation	0.29
Used Marijuana	Beta	-.01	Beta	-.03
	(t-ratio)	(-.60)	(t-ratio)	(-2.07)
	correlation	.01	correlation	0.03

(continued on the following page)

Table 8: OLS Standardized Regression Coefficients and Pearson Correlations relating Mothers' Family Income and Years of Schooling to Her Adolescent Traits and Behaviors (continued)

TRAITS AND BEHAVIORS IN ADOLESCENCE (independent variables)	Total Avg. Family Income (age 30-34)		Total Years of Schooling	
Used Other Drugs	Beta	.02	Beta	.01
	(t-ratio)	(.85)	(t-ratio)	(1.03)
	correlation	.02	correlation	0.02
Sex Before Age 15	Beta	-.04	Beta	-.11
	(t-ratio)	(-2.88)	(t-ratio)	(-8.34)
	correlation	-.07	correlation	-0.21
Damaged Property in Last Year	Beta	.00	Beta	.04
	(t-ratio)	(.32)	(t-ratio)	(2.83)
	correlation	-.01	correlation	-0.01
Fought at School/Work Last Year	Beta	-.01	Beta	-.01
	(t-ratio)	(-.76)	(t-ratio)	(-.70)
	correlation	-.06	correlation	-0.16
Hit Someone Last Year	Beta	-.01	Beta	-.05
	(t-ratio)	(-.48)	(t-ratio)	(-3.53)
	correlation	-.05	correlation	-0.09
Ever Suspended	Beta	-.04	Beta	-.08
	(t-ratio)	(-2.40)	(t-ratio)	(-6.12)
	correlation	-.10	correlation	-0.20
Ever Convicted	Beta	-.01	Beta	-.01
	(t-ratio)	(-.38)	(t-ratio)	(-.69)
	correlation	-.02	correlation	-0.07
Black	Beta	-.07	Beta	.17
	(t-ratio)	(-4.22)	(t-ratio)	(10.63)
	correlation	-.12	correlation	-0.04
Hispanic	Beta	-.02	Beta	.01
	(t-ratio)	(-1.40)	(t-ratio)	(.54)
	correlation	-.04	correlation	-0.15
Age	Beta	-.04	Beta	-.08
	(t-ratio)	(-2.31)	(t-ratio)	(-5.60)
	correlation	-.02	correlation	0.00
R-Squared		.10		0.41
Number of Obs.		3582		3679

Notes: [a] Respondents were asked as adults to indicate how shy they were at age six.
Source: National Longitudinal Survey of Youth 1979 Cohort

Table 9: Standardized Regression Coefficients for Daughters and Sons, with and without SES and Parenting Style Controls

DAUGHTER TRAITS AND BEHAVIORS (dependent variables)

MATERNAL TRAITS AND BEHAVIORS (independent variables)		Math test score	Reading test score	Pearlin Mastery Scale	Self-esteem Scale	Depression Scale	Shyness At Age 6[d]	Traditional Gender-role Attitudes	Frequency Attend Religious Services
	No controls[a]	.23	.17	-.06	.04	.00	-.08	-.02	.10
	Parenting only[b]	.21	.15	-.07	.03	.01	-.07	-.01	.09
Math Test Score	SES only[c]	.22	.15	-.06	.04	.01	-.08	.00	.07
	No controls	.03	.06	.12	.14	.03	.03	-.06	-.02
Pearlin Mastery	Parenting only	.03	.05	.13	.14	.03	.03	-.06	-.01
Scale	SES only	.04	.06	.11	.13	.03	.03	-.05	-.02
	No controls	-.07	-.02	.00	.06	.05	.04	.12	-.01
	Parenting only	-.08	-.04	.00	.06	.05	.06	.11	-.04
Self-esteem scale	SES only	-.08	-.03	.00	.06	.07	.04	.13	-.03
	No controls	-.08	-.05	.01	-.05	.07	.14	.07	-.02
	Parenting only	-.07	-.03	.00	-.05	.06	.13	.07	.00
Shyness At Age 6[d]	SES only	-.09	-.04	.01	-.05	.07	.13	.06	-.01
Traditional	No controls	.06	.00	.12	.06	.00	-.08	.02	-.02
Gender Role	Parenting only	.06	.00	.13	.07	.00	-.07	.03	-.01
Attitudes	SES only	.06	.01	.12	.06	.00	-.08	.02	-.02
	No controls	.04	-.05	.01	-.01	-.06	.05	.08	.16
Frequency Attend	Parenting only	.04	-.05	.00	-.03	-.06	.06	.07	.13
Religious Services	SES only	.03	-.05	.02	-.01	-.05	.04	.07	.15
	No controls	-.09	-.04	-.09	-.10	.03	.01	.05	-.04
	Parenting only	-.08	-.02	-.09	-.09	.03	.01	.03	-.02
Sex Before Age 15	SES only	-.07	-.02	-.09	-.10	.03	.00	.03	-.04
	No controls	-.04	-.06	-.06	-.09	.03	.01	.08	-.02
	Parenting only	-.04	-.05	-.06	-.09	.03	.01	.09	.00
Ever Suspended	SES only	-.03	-.05	-.06	-.08	.02	.01	.06	-.01

Table 9: Standardized Regression Coefficients for Daughters and Sons, with and without SES and Parenting Style Controls (continued)

SON TRAITS AND BEHAVIORS (Dependent Variables)

MATERNAL TRAITS AND BEHAVIORS (independent variables)		Math test score	Reading test score	Pearlin Mastery Scale	Self-esteem Scale	Depression Scale	Shyness At Age 6	Traditional Gender-role Attitudes	Frequency Attend Religious Services
Math Test Score	No controls	.15	.12	.08	.00	-.02	.06	.00	.03
	Parenting only	.15	.11	.08	.01	-.01	.06	.00	.04
	SES only	.13	.10	.08	-.01	-.02	.07	.02	.02
Pearlin Mastery Scale	No controls	.02	.03	.05	.10	.02	.00	-.15	-.04
	Parenting only	.01	.02	.04	.08	.04	.00	-.14	-.05
	SES only	.01	.02	.04	.10	.02	.00	-.13	-.04
Self-esteem Scale	No controls	-.03	.01	-.08	-.07	.05	.03	.08	.06
	Parenting only	-.03	.02	-.09	-.08	.04	.03	.08	.05
	SES only	-.04	.00	-.08	-.08	.05	.04	.09	.05
Shyness at Age 6[d]	No controls	-.02	-.03	-.02	-.03	.04	.14	.04	.04
	Parenting only	-.02	-.02	-.02	-.02	.03	.14	.03	.05
	SES only	-.01	-.02	-.01	-.02	.04	.13	.03	.04
Traditional Gender-role Attitudes	No controls	-.02	-.04	-.02	-.05	.01	.01	.15	.04
	Parenting only	-.02	-.04	-.02	-.06	.01	.01	.15	.03
	SES only	-.01	-.03	-.02	-.05	.01	.01	.14	.03
Frequency Attend Religious Services	No controls	.02	.02	.00	-.03	-.02	-.01	.02	.20
	Parenting only	.02	.02	-.01	-.04	-.02	-.01	.02	.18
	SES only	.01	.01	.01	-.03	-.01	-.01	.01	.19
Sex Before Age 15	No controls	-.06	-.05	-.06	-.05	.09	.03	.07	-.08
	Parenting only	-.06	-.05	-.04	-.03	.08	.03	.05	-.08
	SES only	-.04	-.04	-.07	-.03	.08	.02	.06	-.08
Ever Suspended	No controls	.02	-.02	.02	-.03	.05	-.01	.01	-.01
	Parenting only	.01	-.02	.02	-.03	.05	-.01	.01	-.01
	SES only	.02	-.02	.01	-.02	.05	-.01	.01	.00

Notes: [a] All regressions include controls for all mothers traits and behaviors, child's age and race. Only selected variables are shown. [b] Parenting style controls include measures of parental involvment, degree of parental monitoring, child autonomy, emotional warmth and cognitive stimulation in the home. [c] SES controls include mother's age at birth of the child, highest level of education received, average total net family income when the child was 12-14, whether the mother had ever divorced and whether the mother was married when the child was 14. [d] Mothers were asked as adults to indicate how shy they were at age six. Daughters' shyness was assessed by mothers and interviewers when the child was six years old.

Source: National Longitudinal Survey of Youth 1979 Cohort and Children of the NLSY79

Table 10: Logistic Regression Odds Ratios for Daughters and Sons, with and without parenting and SES controls

DAUGHTERS TRAITS AND BEHAVIORS (Dependent Variables)

MATERNAL TRAITS AND BEHAVIORS (independent variables)		Particip. in School Clubs	Used Marijuana	Used Other Drugs	Sex Before Age 15	Damaged Property in Last Year	Fought at School/Work Last Year	Hit Someone Last Year	Ever Suspended	Ever Convicted
	No controls[a]	1.04	1.00	1.04	.98	.98	.97	1.02	1.00	.88
	Parenting only[b]	1.03	1.00	.99	.99	.98	.98	1.02	1.00	.88
Math Test Score	SES only[c]	1.03	1.01	na	.99	.97	.97	1.03	1.00	.89
	No controls	1.03	.95	1.04	.97	.91	.98	.93	.99	.89
Pearlin Mastery	Parenting only	1.03	.96	.69	.97	.92	.99	.93	.99	.89
Scale	SES only	1.03	.93	na	.96	.90	.98	.94	.99	.88
	No controls	.99	1.04	1.19	1.00	1.01	1.07	1.06	1.03	1.02
	Parenting only	.98	1.04	1.16	1.00	1.01	1.07	1.06	1.03	1.04
Self-esteem scale	SES only	.98	1.07		1.01	1.00	1.43	1.07	1.03	1.07
	No controls	.77	1.20	3.93	1.06	.86	.94	.99	1.30	1.03
	Parenting only	.79	1.19	10.82	1.05	.85	.93	1.00	1.30	1.02
Shyness At Age 6[d]	SES only	.77	1.37	na	1.09	.88	.92	.98	1.28	1.01
Traditional	No controls	1.02	1.03	1.26	1.01	.99	.99	.99	.97	.97
Gender Role	Parenting only	1.01	1.02	1.11	1.01	.99	.99	.98	.97	.96
Attitudes	SES only	1.02	1.04	ba	1.02	.99	.98	.98	.97	.97
	No controls	1.01	1.29	2.04	.97	.93	.88	1.08	1.11	1.13
Frequency Attend	Parenting only	.98	1.31	4.02	1.00	.92	.88	1.08	1.11	1.14
Religious Services	SES only	1.01	1.39	na	.99	.94	.89	1.09	1.15	1.12
	No controls	.78	1.67	.70	2.07	.91	1.86	1.90	1.78	.55
	Parenting only	.89	1.61	1.49	1.93	.93	1.86	1.94	1.81	.61
Sex Before Age 15	SES only	.91	1.53	na	2.11	1.02	1.79	1.82	1.75	.30
	No controls	1.07	1.33	.03	1.34	.91	1.20	.88	1.70	.47
	Parenting only	1.11	1.29	.00	1.36	.87	1.21	.91	1.69	.43
Ever Suspended	SES only	1.15	1.37	na	1.41	.92	1.13	.83	1.69	.38

Table 10: Logistic Regression Odds Ratios for Daughters and Sons, with and without parenting and SES controls (continued)

SON TRAITS AND BEHAVIORS (Dependent Variables)

MATERNAL TRAITS AND BEHAVIORS (independent variables)		Particip. in School Clubs	Used Marijuana	Used Other Drugs	Sex Before Age 15	Damaged Property in Last Year	Fought at School/Work Last Year	Hit Someone Last Year	Ever Suspended	Ever Convicted
	No controls	1.01	.96	.99	.98	1.02	.99	1.00	.98	1.03
	Parenting only	1.01	.96	1.01	.99	1.02	.99	1.00	.98	1.03
Math Test Score	SES only	1.01	.96	1.02	1.00	1.03	.99	1.01	.98	1.03
	No controls	1.05	.98	.99	.97	.98	1.02	1.05	1.02	1.13
Pearlin Mastery	Parenting only	1.04	.97	1.02	.98	.99	1.03	1.05	1.02	1.16
Scale	SES only	1.04	.98	1.15	.97	.99	1.03	1.06	1.03	1.14
	No controls	.98	1.06	.81	1.01	.96	1.04	.99	.95	.93
	Parenting only	.96	1.06	.83	1.01	.96	1.03	.99	.95	.92
Self-esteem scale	SES only	.98	1.06	.74	1.02	.96	1.05	.99	.95	.92
	No controls	.98	1.12	1.16	.91	1.02	.87	1.10	1.07	.99
	Parenting only	1.04	1.12	1.20	.89	1.00	.84	1.08	1.06	.93
Shyness At Age 6[d]	SES only	1.00	1.07	.91	.91	1.00	.88	1.07	1.07	.95
Traditional	No controls	.99	1.05	.92	1.00	1.02	1.05	1.03	.98	.87
Gender Role	Parenting only	.99	1.05	.89	1.00	1.03	1.05	1.02	.98	.85
Attitudes	SES only	.99	1.05	.94	1.00	1.02	1.05	1.02	.98	.86
	No controls	1.02	.94	.84	.97	.98	.92	.85	.92	.94
Frequency Attend	Parenting only	.98	.95	.88	.97	.98	.89	.84	.92	.92
Religious Services	SES only	1.02	.94	.92	.99	.99	.92	.86	.93	.94
	No controls	.98	1.56	1.37	2.01	1.49	1.39	1.16	1.92	2.68
	Parenting only	1.09	1.56	1.24	1.95	1.43	1.37	1.10	1.92	2.16
Sex Before Age 15	SES only	1.00	1.65	1.51	1.82	1.51	1.31	1.15	2.00	2.67
	No controls	1.44	1.78	1.01	1.84	1.69	1.41	.84	1.64	1.05
	Parenting only	1.56	1.81	.64	1.74	1.65	1.37	.82	1.66	.99
Ever Suspended	SES only	1.45	1.71	1.00	1.72	1.66	1.41	.79	1.61	.96

Notes: [a] All regressions include controls for all mothers traits and behaviors, child's age and race. Only selected variables are shown. [b] Parenting style controls include measures of parental involvment, degree of parental monitoring, child autonomy, emotional warmth and cognitive stimulation in the home. [c] SES controls include mother's age at birth of the child, highest level of education received, average total net family income when the child was 12-14, whether the mother had ever divorced and whether the mother was married when the child was 14. [d] Mothers were asked as adults to indicate how shy they were at age six. Daughters' shyness was assessed by mothers and interviewers when the child was six years old.

Source: National Longitudinal Survey of Youth 1979 Cohort and Children of the NLSY79

Table 11: Odds Ratios and Standardized Regression Coefficients for Models Regressing Children's Behaviors and Attitudes on Corresponding Adolescent and Adult Measurements of Mother's Behaviors and Attitude

	Use of marijuana (Odds Ratio)		Depression (OLS regression coefficient)		Self-esteem (OLS regression coefficient)		Gender Role Attitude (OLS regression coefficient)	
	I	**II**	**I**	**II**	**I**	**II**	**I**	**II**
Mother's Adolescent Characteristic	1.88 (3.12)		0.08 (1.74)		0.13 (3.23)		0.11 (2.33)	
Mother's Adult Characteristic		1.91 (2.33)		0.12 (2.84)		0.12 (3.25)		0.27 (6.69)
N	721	721	554	554	648	648	554	554

Note: t- and z-ratios are given in parentheses. Regression models include both maternal measures.
Source: NLSY

Appendix Table 1: Variable Descriptions and Descriptive Statistics for Mother, Daughter and Son Traits and Behaviors

Variable Name	Variable Description	Mothers[b] Mean (St. Dev.)	Daughters Mean (St. Dev.)	Sons Mean (St. Dev.)	range	reliability
Math Test Score	Standardized AFQT/PIAT math score[c]	43.17 (8.31)	96.90 (12.92)	97.53 (13.65)	(20,66) Afqt (65,135) Piat	.87
Reading Test Score	Standardized AFQT/PIAT reading score[c]	44.48 (11.28)	95.83 (12.80)	94.88 (13.54)	(20,66) Afqt (65,135) Piat	.86
Pearlin Mastery Scale	Pearlin Mastery Scale (higher score= greater mastery)	21.28 (3.34)	21.44 (2.96)	21.59 (2.91)	(7,28)	.70
Self-esteem Scale	Self-Esteem Scale (higher score= higher self-esteem)	31.69 (4.02)	31.74 (4.11)	32.01 (4.02)	(10,40)	.73
Depression Scale	Depression Scale (higher score= more depressed)	5.22 (4.55)	5.57 (3.88)	4.53 (3.29)	(0,21)	.61
Shyness at Age 6	How shy at age 6 (higher score= more shy)[d]	2.79 (.91)	2.26 (.95)	2.18 (.94)	(1,5)	.51
Traditional Gender-role Attitudes	Gender role attitudes scale (higher score= more conservative attitudes)	17.09 (3.58)	14.97 (3.05)	16.82 (2.94)	(8,32)	N/A
Frequency Attend Religious Services	How often attend religious services (1- never, 6- more than 1x week)	3.07 (1.66)	3.74 (1.79)	3.48 (1.84)	(1,6)	.74
Participation in School Clubs	Participated in high school clubs/organizations	.66 (.47)	.60 (.49)	.61 (.49)	(0,1)	.57
Used Marijuana	Smoked marijuana more than once	.32 (.47)	.12 (.32)	.17 (.37)	(0,1)	.72
Used Other Drugs	Ever used drugs other than marijuana	.13 (.34)	.01 (.11)	.03 (.17)	(0,1)	.77
Sex Before Age 15		.28 (.45)	0.35 (.48)	0.42 (.49)	(0,1)	N/A
Damaged Property in Last Year	Damaged property in last year	.07 (.25)	.10 (.30)	.17 (.38)	(0,1)	.58
Fought at School/Work Last Year	Fought at school/work in last year	.20 (.40)	.27 (.44)	.35 (.48)	(0,1)	.53
Hit Someone Last Year	Hit or seriously threatened to hit someone in the last year	.26 (.44)	.28 (.45)	.28 (.45)	(0,1)	.49
Ever Suspended	Ever suspended from school	.27 (.44)	.14 (.35)	.27 (.44)	(0,1)	.68

Appendix Table 1: Variable Descriptions and Descriptive Statistics for Mother, Daughter and Son Traits and Behaviors (continued)

Variable Name	Variable Description	Mothers[b] Mean (St. Dev.)	Daughters Mean (St. Dev.)	Sons Mean (St. Dev.)	range	reliability
Ever Convicted	Ever convicted of a crime	.01 (.12)	.05 (.21)	.11 (.31)	(0,1)	.57
Average Family Income	Average total family income when the child was 12-14 years old	N/A N/A	37949 (56407)	36122 (48190)	(0 , 974,100)	N/A N/A
Mother's Education	Highest level of educaiton mother had received when child was 14 years old	N/A N/A	11.64 (2.23)	11.63 (2.32)	(1, 20)	N/A N/A
Family Size	Total family size when the child was 14 years old	N/A N/A	4.46 (1.55)	4.42 (1.49)	(2, 13)	N/A N/A
Divorced	Mother had ever been divorced	N/A N/A	.30 (.46)	.29 (.45)	(0, 1)	N/A N/A
Two-parent home	Mother was married when child was 14 years old	N/A N/A	.54 (.50)	.54 (.50)	(0, 1)	N/A N/A
Parental Monitoring	Higher score indicates more parental monitoring of child's activities	N/A N/A	3.05 (.85)	2.92 (.92)	(0, 4)	N/A N/A
Parental Involvment	Higher score indicates more active engagement with parent	N/A N/A	4.26 (1.89)	4.28 (1.99)	(0, 8)	N/A N/A
Child Autonomy	Higher score indicates child has input on important household decisions	N/A N/A	13.64 (3.58)	13.67 (3.35)	(6, 22)	N/A N/A
Cognitive Stimulation	Percentile cogntive stimulation score from the HOME inventory	N/A N/A	49.03 (29.26)	44.78 (29.52)	(0,100)	N/A N/A
Emotional Warmth	Percentile emotional warmth score from the HOME inventory	N/A N/A	47.52 (30.07)	47.78 (29.63)	(0,100)	N/A N/A

Notes: [a] Variable reliabilities were calculated using multiple observations over time for children. Child reliabilities were then used as proxies for the reliabilities of the mothers in the analysis.

[b] The sample sized used in each regression differs depending on the dependent variable being analyzed, thus means and standard deviations for mothers change across analyses. The means and standard deviations presented here are meant to be representative.

[c] Mothers were administered the AFQT, while daughers and sons were administered the PIAT

[d] Mothers were asked as adults to indicate how shy they were at age six. Daughters' shyness was assessed by mothers and interviewers when the child was six years old.

Appendix Table 2: Descriptive Statistics of Variables by Gender
Prince George's County Data

Variable	Variable Description	Females Mean (Std. Dev)	Males Mean (Std. Dev)
Youth Anger Scale	Continuous variable averaging frequency youth felt very angry, felt so angry wanted to hit someone/ something, & couldn't control temper. Range 1 to 5.	2.19 (.86)	2.32 (.84)
Youth Depression Scale	Continuous variable averaging frequency youth felt hopeless, lonely, sad, depressed, didn't care anymore & suicidal. Range 1 to 5.	1.86 (.67)	1.77 (.67)
Youth Gender Role Attitudes	Continuous variable averaging youth belief male should be breadwinner & children suffer when mother works. Range 1 to 7.	5.26 (1.50)	4.56 (1.50)
Youth Black	Dummy variable with 1 = black, 0 = nonblack.	.57 (0.50)	.60 (0.49)
Mother Anger Scale	Continuous variable averaging frequency mother felt very angry, felt so angry wanted to hit someone/ something, & couldn't control temper. Range 1 to 5.	1.52 (.56)	1.55 (.52)
Mother Depression Scale	Continuous variable averaging frequency mother felt hopeless, lonely, sad, depressed, & didn't care anymore. Range 1 to 5.	1.60 (.63)	1.66 (.64)
Mother Gender Role Attitudes	Continuous variable averaging mother belief male should be breadwinner & children suffer when mother works. Range 1 to 4.	2.83 (.79)	2.80 (.81)
Father Anger Scale	Continuous variable averaging frequency father felt very angry, felt so angry wanted to hit someone/ something, & couldn't control temper. Range 1 to 5.	1.52 (.55)	1.48 (.52)
Father Depression Scale	Continuous variable averaging frequency father felt hopeless, lonely, sad, depressed, & didn't care anymore. Range 1 to 5.	1.53 (.65)	1.51 (.61)
Father Gender Role Attitudes	Continuous variable averaging father belief male should be breadwinner & children suffer when mother works. Range 1 to 4.	2.62 (.85)	2.68 (.80)
Mother Age at Birth of Child	Continuous variable composed of mother's current age minus youth's current age.	26.80 (5.44)	26.83 (5.51)
Mother Education	Continuous variable of self-reported educational attainment. (Q: What is the highest grade of school you have completed?)	13.96 (2.35)	14.21 (2.43)
Father Age at Birth of Child	Continuous measure of father's current age minus youth's current age. For missing cases, mother's age plus mean difference of reported ages was substituted.	29.37 (5.99)	29.46 (5.87)
Father Education	Categorical variable from 8th or less to professional degree, recoded as a continuous variable assigning years to each category.	14.66 (2.59)	14.65 (2.61)

Appendix Table 2: Descriptive Statistics of Variables by Gender (continued)
Prince George's County Data

Variable	Variable Description	Females Mean (Std. Deviation)	Males Mean (Std. Deviation)
Average Parental Age at Birth of Child	Continuous variable composed of the average of mother's & father's age.	28.08 (5.45)	28.12 (5.47)
Average Parental Education	Continuous variable composed of the average educational level of mother & father.	14.35 (2.11)	14.49 (2.24)
Total Family Income	Categorical variable of income ranges, recoded as continuous variable w/each category assigned midpoint. (Mother's report of total family income.)	54,335.23 (17,776.41)	55,382.21 (17,862.22)
Mother Authoritarianism	Continuous variable averaging mother's belief that youth should follow direction, ask permission to do things & not disagree in front of others. Range 1 to 5.	3.99 (.67)	4.00 (.67)
Mother Youth Involvement in Decision-Making	Continuous variable averaging mother's report of youth involvement in decisions affecting him/her & respect of youth's opinion. Range 1 to 5.	3.97 (.68)	3.97 (.64)
Father Authoritarianism	Continuous variable averaging father's belief that youth should follow direction, ask permission to do things & not disagree in front of others. Range 1 to 5.	3.75 (.78)	3.66 (.79)
Father Youth Involvement in Decision-Making	Continuous variable averaging father's report of youth involvement in decisions affecting him/her & respect of youth's opinion. Range 1 to 5.	3.75 (.72)	3.76 (.75)
Youth Identification w/Mother	Continuous variable averaging how much youth likes, respects, & feels close to mother. Range 1 to 4.	3.37 (.54)	3.36 (.49)
Youth Negative Relationship w/Father	Continuous variable averaging youth's perception of frequency father criticizes, hits, yells at, or put his needs above youth. Range 1 to 5.	1.58 (.55)	1.60 (.60)