Family Structure and Children's Educational Outcomes: Blended Families, Stylized Facts, and Descriptive Regressions*

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ABSTRACT

This paper adds to the growing literature describing correlations between children's educational outcomes and family structure. Although popular discussions focus on the distinction between two-parent families and single-parent families, McLanahan and Sandefur (1994) show that outcomes for stepchildren are similar to outcomes for children in single-parent families. McLanahan and Sandefur describe their results as showing that the crucial distinction is between children who were reared by both biological parents and children who were not. This description is misleading.

This paper shows that educational outcomes for both types of children in blended families -- stepchildren and their half-siblings who are the joint biological children of both parents -- are similar to each other and substantially worse than outcomes for children reared in traditional nuclear families. We conclude that, as a description of the data, the crucial distinction is between children reared in traditional nuclear families (i.e., families in which all children are the joint biological children of both parents) and children reared in other family structures (e.g., single-parent families or blended families). We then turn from "stylized facts" (i.e., simple correlations) which control only for family structure to "descriptive regressions" which control for other variables such as family income. When controls for other variables are introduced, the relationship between family structure and children's educational outcomes weakens substantially and is often statistically insignificant.

In the conclusion we argue that, for policy analysis, we need to reformulate the question, "What is the effect of family structure on outcomes for children?" by specifying an explicit counterfactual.

What is the effect of family structure on educational outcomes for children? Everyone knows that children from two parent families do better than children from single-parent families. Journalists and politicians often assume that correlation implies causation. Social scientists know better.

In this paper we add to the growing literature describing correlations between children's educational outcomes and family structure. Although popular discussions focus on the distinction between two-parent families and single-parent families, McLanahan and Sandefur (1994) show, and other researchers have confirmed, that outcomes for stepchildren are similar to outcomes for children in single-parent families. McLanahan and Sandefur describe their results as showing that the crucial distinction is between children who were reared by both biological parents and children who were not. This description is misleading.

We show that, as a description of the data, the crucial distinction is between children who grow up in what the Census Bureau calls "traditional nuclear families" (i.e., families in which all children are the joint biological children of both parents) and children who grow up in other family structures (i.e., single-parent families; blended families). We show that outcomes for both types of children in blended families -- stepchildren and their half-siblings who are the joint biological children of both parents -- are similar to each other and substantially worse than outcomes for children reared in traditional nuclear families. Our blended family result adds to the stock of "stylized facts" -- simple empirical regularities looking for explanations. Our results also illustrate the importance of classification schemes.

Classification schemes often determine what we see. Nearly all previous research has viewed family structure through the lens of a "child-based" classification scheme, classifying a child's family as a "stepfamily" or a "two-biological-parent family" on the basis of the child's relationship to the parents. With a child-based classification, the same blended family is a stepfamily for one child and a two

biological parent family for another. Instead of a child-based classification of family structure, we use one that is "family-based." With a family-based classification, stepchildren and joint biological children who live together are said to belong to a “blended family." Using a child-based classification, previous researchers focused on differences between children reared with a stepparent and children reared by both biological parents, a category that, although it also includes the joint biological children in blended families, is dominated by children reared in traditional nuclear families. Using a family-based scheme, we distinguish between children reared in traditional nuclear families and the joint biological children in blended families. We investigate whether outcomes for the joint biological children in blended families differ significantly or substantially from outcomes for children in traditional nuclear families, outcomes for stepchildren, or outcomes for children in single parent families.

The family structure literature has revealed more complicated patterns in the data than our previous paragraphs suggest. One strand in the literature moves from simple stylized facts -- differences in mean outcomes for children reared in various family structures -- to "descriptive regressions" that control for the effects of other variables such as mother's education and family income. We find that controlling for additional variables substantially reduces the correlation between children's educational outcomes and living in a single-parent family, and that the effect of living in a single-parent family is often no longer statistically significant after controlling for family income.

Those who favor policies that promote marriage often cite stylized facts – simple correlations between family structure and children’s outcomes -- while those skeptical of such policies respond by citing descriptive regressions that control for variables such as mother's education and family income. Both sides brandish descriptive regressions that support their positions, but the regressions used in the political debate are only summaries of correlations among endogenous variables. Honest policy debates rest on beliefs about structural relationships, not on stylized facts or descriptive regressions.

Our paper proceeds as follows. In section 1 we summarize briefly the conceptual issues and empirical literature on family structure and outcomes for children. In section 2 we discuss our data and our estimation procedures and in section 3 our empirical results. Section 4 is our conclusion.

CONCEPTUAL ISSUES AND A REVIEW OF THE LITERATURE

Conceptual Discussion of Family Structure

Psychology, sociology, and economics suggest causal mechanisms that might explain correlations between family structure and children's educational outcomes. Each discipline postulates that children reared in certain family structures will, on average, receive more psychological support or more social, cultural, and economic resources than children reared in others. Biblarz and Raftery (1999) describe these mechanisms in more detail and provide additional references to the literature. The distinction between psychological, sociological, and economic theories is seldom useful because most theories draw on insights from all three disciplines. Although Biblarz and Raftery assert that "Almost all existing theory about the consequences of family structure for children centers around the relationship between family type and resources," (p. 323) the notion of resources in these disciplinary perspectives is very broad.

The pathways through which resources are hypothesized to affect children are often described in the language of sociology and developmental psychology. Socialization theories often point to parenting styles, which may differ systematically with family structure. For example, single parent families may be associated with inconsistent parenting or reduced supervision and control, and these characteristics of parenting styles may adversely affect child development (Thomson, Hanson and McLanahan 1994). Learning theories often emphasize the importance of a male role model. One variant is the "pathology of matriarchy" which was proposed by Moynihan in *The Negro Family*; another variant argues that father-absence leads to a lack of knowledge about how to operate in society (McLanahan and Sandefur 1994).

Loss of parental control theories emphasize trauma -- perhaps the loss of a parent due to death or divorce, perhaps the number of transitions from one residence to another or from one family structure to another (Wu and Martinson (1993). Stepparents may have limited abilities to parent within the blended family (Cherlin and Furstenberg 1994). Economic theories typically emphasize human capital, focusing on the access of children to money and time; but the gap between economic theories, on the one hand, and sociological and psychological theories, on the other, is substantially narrowed if the crucial variable is parental time spent nurturing children rather than expenditure on books or child care.

Selection and evolutionary psychology cut across the substantive theories drawn from sociology, psychology and economics because they are silent about the nature of the resources or the pathways through which differences in adult motivations or characteristics affect children. Selection theories postulate that some unobserved characteristics cause both changes in family structure and differences in educational outcomes for children. For example, parental conflict rather than divorce itself may adversely affect child development. Research has shown that children whose parents eventually divorce may manifest behavioral problems before parental separation (Cherlin et al. 1991). Alternatively, some individuals may be more child-oriented than others and this may result in their attachment to certain family structures and in certain outcomes for children. Because selection does not directly identify the pathways through which parental behavior or characteristics affect children, it is a complement to rather than a substitute for the theories from sociology, psychology, and economics.

Evolutionary psychology purports to explain the motivation of the parents and stepparents, postulating that mothers are more willing to provide resources than fathers, and biological parents more willing to provide resources than stepparents.[1] Mothers and biological parents have greater investments in children and thus are more vested in their outcomes. Because it does not specify the pathways through

[1] Daly and Wilson (1999, 2000) provide a sympathetic discussion of evolutionary psychology and extensive references to the literature.

which parental motivations affect outcomes for children, evolutionary psychology, like selection, is a complement to theories which propose resource-based mechanisms. We argue below that to link parental motivation to conclusions about child outcomes requires assumptions about both production functions for child outcomes and intrafamily allocation processes.

Review of the Empirical Literature

Social scientists from many disciplines have estimated the empirical relationship between family structure and children's outcomes, some making modest claims about correlations and others making less-modest claims about causation. When estimating the determinants of education, social scientists often control for family structure, along with exogenous variables such as race and gender.[2] Few researchers would claim that family structure is exogenous, and it is difficult to rule out the possibility that some unobserved variables or processes influence both family structure and educational outcomes.

Perhaps the most influential work on the correlation between family structure and children's outcomes is McLanahan and Sandefur (1994). They find that children who grow up in single-parent families and children with stepparents have lower educational attainment than those who grow up with both biological parents. The estimated correlations depend on the control variables used in the regression. After controlling for mother's employment and occupation, Biblarz and Raftery (1999) find that children living with both biological parents or a single-mother have higher occupational status and educational attainment than children living with a stepparent or children living with a single father. Biblarz and Raftery interpret their findings as consistent with evolutionary psychology theory which

[2] Several researchers, including Haveman and Wolfe (1994, 1995) and Manski, Sandefur, McLanahan and Powers (1992), and, Eckstein and Wolpin (1999) include measures of family structure in estimates of children's educational outcomes. These estimates, however, are not linked to structural models of family structure and investments in children.

argues that mothers care more about the well-being of their children than fathers. Wojtkiewicz (1993) and Boggess (1998) find a negative and significant correlation between living with a stepfather and children's educational attainment.

To interpret these correlations as evidence of the causal effect of family structure on children's outcomes, researchers need to assume that family structure is exogenous. This assumption is false if there are processes that jointly determine family structure and children's outcomes or if child outcomes such as behavioral problems affect family structure. Researchers attempting to control for the endogeneity of family structure have made various identifying assumptions. Manski et al. (1992) evaluate the impact of alternative parametric and identification assumptions on the estimated effect of family structure on high school graduation. They demonstrate that the estimated effect depends on the identification assumptions imposed and conclude: "Any attempt to determine the family structure effect more tightly must bring to bear prior information about the process generating family structure and children's outcomes. As long as social scientists are heterogeneous in their beliefs about this process, their estimates of family structure may vary" (p. 36).

Subsequent research that attempts to control for the endogeneity of family structure confirms this conclusion. Fixed effects estimators allow researchers to control for the endogeneity of family structure assuming there are unobserved family characteristics that are correlated with both child outcomes and family structure. Using fixed effects estimators, Ermisch and Francesconi (2001), Case, Lin and McLanahan (2001), and Evenhouse and Reilly (2004) find that family structure has a significant effect on children's educational outcomes, while Björklund and Sundström (2002) find no significant effects on children's educational outcomes and Gennetian (Forthcoming) finds no significant effects on children's cognitive assessment outcomes.

Parental death, some have argued, is a quasi-natural experiment that can be used to examine the effect of family structure on children's outcomes. Lang and Zagorsky (2001), Corak (2001), and Biblarz and Gottainer (2000) find that parent-absence due to death has much less impact on children's outcomes than parent-absence due to divorce.

Finally, using longitudinal data researchers have compared children's outcomes before and after divorce. Cherlin et al. (1991) find that elementary school children whose parents eventually divorce performed poorly in school prior to the change in family structure. Painter and Levine (2000), however, find no prior poor performance when they examine educational outcomes for teenagers.

The lack of a consensus about the effect of family structure on children's outcomes is striking. Research shows that living with a single-parent or a stepparent is *correlated* with poor outcomes for children. Biblarz and Raftery (1999) show that the correlations between family structure and children's outcomes diminish substantially as more controls for family background are added. When researchers attempt to address the endogeneity of family structure, estimated family structure effects depend on the identification assumptions. The most consistent set of results are found when parental death is used as a quasi-natural experiment: the death of a parent appears to have a substantially less negative effect on child outcomes than divorce. With the exception of Biblarz and Raftery (1999), few researchers have evaluated the robustness of the correlation between family structure and children's outcomes when control variables such as family income or mother's education are added.

The lack of empirical consensus about the effect of family structure on children's outcomes is matched by the lack of conceptual consensus or clarity. The threshold difficulty of estimating the causal effect of family structure on children's educational attainment is the lack of a well-specified counterfactual. We discuss counterfactuals in the conclusion. Evolutionary psychology appears to offer strong predictions about the effect of family structure on outcomes for biological children and

stepchildren, but appearances are deceptive. Translated into the language of economics, evolutionary psychology predicts that parents prefer their own biological children to their stepchildren. The implications of these preferences for children's outcomes depend on (a) the "production function" relating children's outcomes to "inputs" and (b) the intrafamily resource allocation process that determines inputs. We assume for the sake of argument that evolutionary psychology is correct about parental preferences, and briefly discuss how production functions and intrafamily allocation processes mediate the effect of parental preferences on child outcomes.

The production function for child outcomes is poorly understood, but love, affection, time, and money are presumably key inputs.[3] Some of the relevant inputs are presumably "private inputs" for a particular child, while others are child “public inputs" that benefit all the children in the family. To the extent that child public inputs are important, we might expect similar outcomes for children with similar abilities in a family; to the extent that child private inputs are important, parents can use them to favor a particular child or to compensate for or reinforce differences in children's abilities.

Now consider alternative assumptions about the intrafamily allocation of private inputs. For definiteness, consider a family with one stepchild and one biological child; more specifically, suppose that both are the biological children of the mother, but only one is the joint biological child of the mother and the father. (a) In Becker's altruist model, the altruist (assumed to be the father) controls resource allocation within the family and, given our assumption about preferences, favors his biological child over his stepchild. (b) In bargaining models of marriage, intrafamily resource allocation will favor the joint biological child. The extent to which the biological child is favored depends on the relative bargaining power of the father and the mother, as well as on the children’s abilities and the productivities of child public inputs and child private inputs. (c) In models that recognize asymmetric information and the

[3] Unobserved heterogeneity implies that the same measured inputs may produce different outcomes; children have different abilities, parents have different abilities, and the "match" between children and parents may be important.

difficulty spouses have monitoring each other's behavior, stepchildren and biological children may have similar outcomes. Suppose the division of child rearing responsibilities is highly gendered and the wife allocates inputs among the children. Suppose further that the husband's ability to observe and monitor resource allocation among children is limited.[4] In blended families, the gendered division of child rearing responsibilities ensures that even resident fathers are effectively absent much of the time and, hence, that they are weakly positioned to monitor resource allocation between their stepchild and their biological child. If the mother controls resource allocation among the children, she will not favor one child over the other, because both are her biological children.[5] The father, recognizing the mother's role as allocator, may respond by increasing or decreasing the total resource available to the mother. But regardless of the father's response, resources he attempts to channel to his own child are "taxed" and, in response, the biological child receives less than she would if the father's contributions were not taxed.

The asymmetric information and monitoring story is consistent with our findings that outcomes for biological children in blended families are neither substantially nor significantly better than outcomes for stepchildren, and that outcomes for all of the children in blended families are substantially and significantly worse than outcomes for children in traditional nuclear families. Our findings are also consistent with explanations based on unobserved heterogeneity (e.g., of parents' preferences or abilities) or with stress associated with blended families. Both of these explanations can be interpreted in terms of the production function, and neither requires an explicit model of intrafamily resource allocation.

[4] This situation within the blended family parallels that discussed by Weiss and Willis (1985, 1993) in the context of divorce and child support by noncustodial fathers. In Weiss and Willis, the divorced fathers are nonresident and, therefore, very weakly positioned to monitor their ex-wife's allocation of child support payments between her own consumption and that of the child.

[5] This does not imply that she will allocate resources equally between the children because she may compensate for or reinforce differences in the children's abilities.

In this paper we make no attempt to estimate the structural relationships -- the production function or the intrafamily allocation process -- or even to estimate the reduced forms. We characterize our empirical results as "stylized facts" and "descriptive regressions" and view them as summaries of empirical regularities. The foregoing discussion of theory is intended only to reassure concerned readers that our empirical results are not inconsistent with the predictions of evolutionary psychology or economic theory. In the remainder of the paper we use three data sets to investigate the correlation between family structure and educational outcomes.

DATA AND ESTIMATION STRATEGY

We use three data sets to investigate the association between family structure and children's educational outcomes: the National Longitudinal Survey of Youth (NLSY), the Panel Study of Income Dynamics (PSID), and the children of females from the National Longitudinal Survey of Youth (NLSY-Child). The NLSY and PSID are used to examine the effect of family structure on four schooling outcomes for young adults: years of schooling, high school graduation, college attendance, college graduation. The NLSY-Child data are used to examine the effect of family structure on children's cognitive outcomes: three Peabody Individual Achievement Tests (PIAT)--reading recognition, reading comprehension, and math.[6]

The NLSY began in 1979 with a nationally representative sample of 12,686 young adults between the ages of 14 and 21. Almost half of the observations in the NLSY (5,863) come from multiple sibling households. We work with an "NLSY sibling sample" which we define to include a subset of individuals who have siblings or stepsiblings in the NLSY. To be included in our sibling sample, individuals must have completed the 1988 Childhood Residence Calendar, have complete

[6] The NLSY-Child also contains the Behavioral Problems Index which measures children's anti-social behavior.

measures of schooling in at least one year between the 1990 and 1994 survey waves, and have at least one sibling meeting these criteria. We eliminate individuals who are adopted, or report zero years of schooling, or report more than one change in family structure in a given year of childhood.

The PSID began collecting data in 1968 on a nationally representative, sample of 4,800 families. The PSID has followed individuals from their original families to new ones that form as a result of births, marriages, divorces, and children leaving home. Our sample consists of individuals born between 1960 and 1970 with educational outcomes observed between 1990 and 1993 and who have at least one sibling meeting these criteria. We selected this age group because they were roughly the same age as children in the NLSY and we could observe at least 10 years of family structure during childhood. In 1985 the PSID collected retrospective data providing information on the pair-wise relationships of all individuals in a 1968 family. We use this information from the 1968-85 Relationship file to derive our measures of family structure. Our sample includes individuals who are in the 1968-85 Relationship file (because we can observe their family structure), who have at least one biological parent in the PSID sample, who have reported years of schooling, and who have a sibling meeting these criteria.

Beginning in 1986, the NLSY started collecting data biennially on all of the children born to the female NLSY respondents (the NLSY-Child data). The 1994 wave of the NLSY-Child sample contains information from 3,464 women with children. Because children under the age of 15 make up the majority of this sample, we focus on cognitive outcomes rather than schooling attainment. The assessment instruments we use in this study are three Peabody Individual Achievement Tests (PIAT). For all three assessments, we use the normalized percentile scores in our analysis.[7] Our sample from the NLSY-Child data is limited to children with siblings in the sample, ages 5-15 for whom we have data on age and the three PIAT assessments.

[7] For the PIAT assessments, raw scores are normalized to a national distribution on an age-specific basis.

Given our focus on the effect of family structure on children's outcomes, the measurement of family structure requires explicit consideration. Previous studies have measured family structure as a dichotomous variable (e.g., does a child live with one or with both biological parents?) Dichotomous measures of family structure are unsatisfactory because family structure can change over the childhood (e.g., as the result of divorce or remarriage). Family structure measured at a child's particular age (age 14 in the NLSY) will not adequately reflect living arrangements that change during childhood. Wolfe, et al. (1996) examine the effect of using these 'window' variable measures, conclude that one-year window variables serve as weak proxies for childhood circumstances and events, and can result in unreliable estimates. Thus we require multiple observations of family structure during childhood in our samples in order to estimate more accurately the effect of family structure on children's outcomes. Children in multiple-sibling households may experience different family structures. For example, in blended families the youngest child may spend his or her entire childhood with both biological parents while the eldest child in the same family may be reared first by both biological parents, then by a single parent, and finally by one biological parent and a stepparent. Children living in these blended families share an environment that may have a similar impact on educational outcomes regardless of the child's biological relationship to the parents. The extent to which it does is, of course, an empirical question.

In our analysis we use family-based measures of family structure created from retrospective data covering the entire childhood.[8] In the PSID and NLSY, we characterize family structure as the proportion of childhood that a child lives with both biological parents and no half-siblings (traditional nuclear family), with a single biological parent (single-parent), with a biological parent who is married to a stepparent or with both biological parents and at least one half-sibling (blended families), and

[8] Using the data collected by the 1988 NLSY Childhood Residence Calendar Supplement, we construct age-specific changes in family structure over an individual's entire childhood, from ages zero to 16. Using data collected in the 1968-85 PSID Family Relationship file, we construct age-specific changes in family structure over an individual's childhood from ages one to 16.

alternative (other) family structures.[9] In the NLSY-Child survey, family structure is defined in each year of the survey data as living with a single mother, living with both biological parents and no half-siblings, or living in a blended family--defined as living with both biological parents and a half-sibling or living with a mother who is married to a stepfather.[10] Even these definitions do not measure family structure over the entire childhood and may be subject to the 'window problem,' but because they reflect living arrangements over multiple survey years, they are presumably better than conventional, single-year measures of family structure.

We restrict our attention to outcomes for children from "stable blended families," which we define as those in which at least one sibling reports living with both biological parents for the entire childhood while at least one other sibling reports living with a stepparent.[11] We exclude "unstable" blended families that end in divorce because we want to examine the subset of blended families in which the joint biological children are most comparable to children from traditional nuclear families.[12] Thus, the joint biological children in our stable blended families have experienced no family structure transitions.

[9] We treat cohabiting biological parents as if they were married. Following the census definition, we say that a "blended" family is one "that must include at least one stepparent, stepsibling and/or half-sibling. A stepparent is the spouse of a child's biological parent but is not the child's biological parent. . . Half-siblings share only one biological parent." (Census Bureau P70-38, p.B-1). The census defines the "traditional nuclear family" as consisting of a married couple and their biological child(ren), with no others are present in the household. The proportion of childhood in a given family structure in the NLSY is measured as the number of years in that family structure divided by 17. In most cases an individual's childhood (ages 1-16) is not entirely observed between 1968 and 1985 in the PSID sample. Thus, we define family structure as the number of years a child between the ages of 1 and 16 is observed in the sample in a given family structure divided by the total number of years the child is in the sample at ages 1-16 between 1968 and 1985.

[10] Again we treat cohabiting biological parents as if they were married.

[11] Appendix A contains additional information on the identification of blended families in our sample and the definitions of the variables used in this study.

[12] We also excluded families in which none of the children are the biological children of both parents (e.g., the "Brady Bunch") because we want to compare schooling outcomes of step-children in blended families with the outcomes of their half-siblings who are the biological children of both parents.

Table 1 reports the means and standard deviations of the variables used in the NLSY and PSID siblings sample along with the stable blended family subsamples. Almost 30 percent of the siblings in the NLSY and 48 percent of siblings in the PSID report ever living in a non-traditional family.[13] Of those children who have lived in a blended family in the PSID and NLSY, 75 percent have lived with a stepfather whereas only 14 percent have lived with a stepmother. The remaining 11 percent are the biological children of both parents in the blended family. Three percent of the siblings in the NLSY (154 individuals) and eight percent in the PSID (111 individuals) lived in stable blended families.[14] Within the stable blended family subsample, 39 percent of children have lived with a stepfather whereas only 9 percent have lived with a stepmother. The remaining 52 percent are the biological children of both parents in the stable blended family. Mean educational outcomes are lower in the stable blended family subsamples than for all siblings.

Table 2 reports the descriptive statistics for the NLSY-Child sample and our stable blended family subsample. There are 4,320 siblings in the sample, of whom 418 individuals live in stable blended families. Children in the NLSY-Child sample are repeatedly assessed, so we have over 10,000 child-year observations in this data set. Mean reading and math assessment scores are lower in stable blended families than for all of the siblings in the NLSY-Child sample. By definition, children in blended families in the NLSY-Child are the biological children of the mother and live with either their biological father or a stepfather.

[13] The percentage of siblings living in non-traditional families is greater in the PSID because of the oversampling of disadvantaged families.

[14] Because our blended families are defined as families that remain together for the entire childhood of at least one child, these percentages are not an estimate of the percentage of children in the population who spend some portion of their childhood in a family that includes a husband, a wife, at least one stepchild, and at least one biological child of the couple.

We use these data to estimate the correlation between family structure and children's educational attainment making no attempt to control for the endogeneity of family structure. Instead, we focus on the robustness of the correlation between children's educational outcomes and family structure when we use alternative definitions of family structure and introduce controls for family background variables.

We begin by estimating the correlation between family structure and educational outcomes using two models, the entire sample of siblings, and our family-based measures of family structure. We are motivated to take this approach by Biblarz and Raftery (1999) who show that the effect of family structure is sensitive to which control variables are included. In addition to family structure, our first model includes the exogenous variables of gender and race. We exclude variables that measure inputs and behaviors chosen jointly with family structure, although several studies include such variables.[15] In order to examine the sensitivity of family structure estimates to the inclusion of other control variables, we include variables such as sibship size (number of siblings), birth order, family income, religion, and parental schooling in the second specification.

In our second approach, we compare outcomes for half-siblings within the same stable blended family. We have defined our stable blended family samples in the NLSY and PSID to ensure that each family includes at least one child reared by both biological parents until age 16.[16] If growing up with both biological parents has a substantial impact on children's educational outcomes, we would expect to find evidence of this in our stable blended family samples. That is, we would expect to find that children reared by both biological parents have better outcomes than their half-siblings who spent time in single-parent families and as stepchildren in stable blended families.

[15] See for example, Biblarz and Raftery (1999), Manski et al. (1992), and Lang and Zagorsky (2001).

[16] Stable blended families in the NLSY-Child are defined as at least one sibling living with both biological parents and a half-sibling in 1994.

EMPIRICAL RESULTS

The Correlation Between Family Structure and Educational Outcomes

We begin by estimating two cross-section models of the effect of family structure on schooling outcomes. Model (A) regresses schooling outcomes on variables for gender, race, an indicator for being in the disadvantaged subsample, and family structure. Model (B) adds measures for number of siblings, birth order, family income, religion, and parental schooling to Model (A). Estimates using the NLSY are presented in Table 3, and those using the PSID are presented in Table 4. All regression estimates throughout the paper report standard errors that are clustered by family and adjusted using the Huber-White method to account for the correlation between observations from the same family. The models use family-based measures of family structure; all models have measures for the proportion of childhood spent in a single-parent family, blended family, or other family structure with proportion spent in a traditional nuclear family being the omitted category. We can interpret the coefficient on proportion of childhood in a given family structure as the effect on schooling of spending an additional fraction of childhood in that family structure and correspondingly less in a traditional nuclear family.

Like previous research, our OLS and probit cross-section estimates of Models (A) in both data sets show that proportion spent with a single-parent family or blended family have negative and significant effects on schooling outcomes. As additional variables are included in Model (B), we observe results similar to those in Biblarz and Raftery (1999). The estimated effect of growing up with a single-parent attenuates and is not statistically significant in seven of the eight models estimated in Tables 3 and 4. In estimates not reported here, we find that much of the attenuation in the effect of single-parent families on educational outcomes results from the inclusion of family income in Model B. The estimated effect of growing up in a blended family is less negative in model B than in model A, but

the coefficients remain negative and statistically significant in five of the eight models. Our results suggest that the estimated effect of family structure is sensitive to the inclusion of other variables in the regression.[17] After controlling for additional variables, blended families are more negatively correlated with lower educational attainment than single-parent families.

We now turn to the correlation of family structure with child assessment outcomes. Table 5 presents two sets of estimates for each of three child assessment outcomes (reading recognition, reading comprehension, and math). In the first OLS specification, Model (A), the normalized percentile assessment scores for each outcome is regressed on variables for age, gender, race, and family structure. Model (B) adds number of siblings, religion, mother's schooling, family income, and an indicator for low birth weight to Model (A). Family structure is measured as an indicator variable for each year an individual is in the data set. The results for Model (A) indicate that living with a single parent or in a blended family significantly decreases reading and math scores. The estimated effect of family structure on assessment outcomes decreases substantially in Model (B) when additional variables are included in the regression.[18] More specifically, the results for Model B indicate that living with a single-parent or in a blended family is always negative. But of the six family structure coefficients reported in Table 5 only one, the effect on reading recognition of living in a blended family, attains statistical significance.

[17] We have experimented with alternative specifications in Tables 3 and 4 and found our results to be robust. In appendix tables B.1 and B.2 we use dummy variables for family structure instead of proportion living in a particular family structure. The estimates presented in Tables 3 and 4 fit the data better than those using family structure dummies but tell the same story.

[18] In results available from the authors by request, we find similar estimated effects of family structure on the behavioral problems index.

Blended Families Estimates

We next consider educational outcomes in stable blended families. We begin with schooling attainment. Because our stable blended-family sample is small in each data set, we combine the blended family subsamples from the PSID and NLSY for this analysis. Appendix Tables B.3 through B.6 contain separate analyses for the PSID and NLSY blended family subsamples. We begin with simple tests of differences in mean schooling. The top panel of Table 6 tests the null hypothesis of no difference in mean schooling between siblings from stable blended families and siblings from traditional nuclear families in the combined PSID-NLSY sample. For all four schooling outcomes we reject the null hypothesis of no difference. Mean schooling outcomes in the stable blended-family sample are substantially and significantly lower than those for children from traditional nuclear families.[19]

Next, we compare the mean educational outcomes for joint biological children from stable blended families with outcomes for children from traditional nuclear families. In the middle panel of Table 6 we see that in three of the four outcomes joint biological children from blended families have significantly lower educational attainment.

Finally, we evaluate whether schooling outcomes within the stable blended-family sample differ for the stepchildren and the joint biological children. These results are presented in the bottom panel of Table 6. For three of the four schooling outcomes, children growing up with both biological parents in stable blended families do better than the stepchildren.

For the fourth schooling outcome, graduation from college, stepchildren do better than the joint biological children, but the sample size is very small: only 14 individuals in the blended family sample

[19] These results do not change when non-stable blended family are included in the analysis.

are college graduates. Furthermore, the difference between the stepchildren and the joint biological children in stable blended families is not statistically significant. Comparing the bottom panel of Table 6 with the top panel, we see that the differences in mean schooling outcomes within the blended family are small relative to the difference between blended family schooling outcomes and those of children in traditional nuclear families. Given the lack of statistical significance and the small sample size, we could be committing a Type II error of accepting the null hypothesis when the null is false. To examine this possibility, we estimated the power of the hypothesis tests in the bottom panel of Table 6 assuming a five percent level of significance. All of the hypothesis tests in the bottom panel of Table 6 have estimated power equal to one, suggesting a negligible chance of committing a Type II error.

In Table 7, we estimate two models of schooling using the stable blended-family sample.[20] Model (A) is a parsimonious model where family structure is measured as proportion of childhood in a non-intact family. We use this variable because it captures the differences between the step and joint biological children in the blended families. Model (B) includes additional family background characteristics. In both models, the proportion of childhood spent in a non-intact family has a negative and statistically insignificant effect on educational attainment.[21]

Our results on the impact of family structure on educational attainment can be summarized as follows: Using family-based measures of family structure, estimates of the effect of living with a single parent differ significantly depending on which family background variables are included in the model. Regardless of the specification employed, the effect of living in a blended family remains negative and significant. In the stable blended families sample, the differences in educational outcomes between the joint biological and stepchildren is small and both types of children from blended families do poorly

[20] Only three of the four schooling outcomes are presented in Table 7 because only 14 individuals in the blended-family sample graduated from college.

[21] This result also holds when the models are estimated separately for the PSID and NLSY. See Appendix Tables B.5 and B.6.

when compared with children from traditional nuclear families. The tests of mean differences indicate that growing up in a stable blended family has a negative impact on schooling outcomes for both stepchildren and joint biological children. In the stable blended family regressions, stepchildren do somewhat worse than joint biological children, but the difference is small and not statistically significant.[22]

We now turn to the effect of family structure on the three child assessment outcomes. Table 8 reports results of tests of mean differences in the assessment outcomes for children in the NLSY-Child sample. The first panel in Table 8 shows statistically significant differences in mean outcomes between the children in the stable blended family sample and children from traditional nuclear families in the NLSY-Child sample. For all three outcomes, we reject the null hypothesis of no difference in mean scores across the two groups. The second panel of Table 8 compares the mean outcomes for joint biological children in stable blended families with children from traditional nuclear families. We again see large differences: the children in traditional nuclear families have substantially better outcomes.

The bottom panel of Table 8 reports mean outcomes within the stable blended family sample, comparing the stepchildren ("her children") with the joint biological children of both parents ("their children"). We find that stepchildren have lower mean scores on both reading assessments and the math assessment. When we test the null hypothesis that there is no mean difference in outcomes between "her children" and "their children," we again fail to reject the null hypothesis: we find no significant difference in mean outcomes of the step children and the joint biological children in stable blended-families. We evaluated the power at the five percent level of significance of the hypothesis tests in the bottom panel of Table 8.

[22] Case, Lin, and McLanahan, (2002) find that stepchildren in stepmother families do substantially and significantly worse than biological children in these families. However, they also find no significant difference in educational outcomes between stepchildren and biological children in stepfather blended families. As discussed in section 2, the majority of children in our sample are from stepfather blended families.

The reading comprehension and math hypothesis tests have estimated power of one and 0.998 respectively, suggesting a negligible chance of committing a Type II error. The reading recognition test has less power at 0.784.

Finally, in Table 9 we present regression estimates of the effect of family structure on children's assessments using the NLSY-Child stable blended-family sample. Results for Models (A) and (B) are presented in the table for the three assessments. We find that living in a single-parent or a blended family generally has a positive but insignificant effect on the PIAT assessments. Only one of the family structure variables is statistically significant in Table 9: living with a single parent has a positive and statistically significant effect on reading comprehension, even after controlling for family background characteristics.

Tables 8 and 9 indicate that stable blended family child assessment outcomes differ from the full NLSY-Child sample. Comparing the effect of family structure using the stable blended-family sample, we find that the estimated coefficients on the family structure variables often change signs and generally become statistically insignificant. Our results are based on 418 observations which should be sufficient to generate statistically significant point estimates. Using the NLSY-Child data and mother-fixed effects estimates for blended families, Gennetian (Forthcoming) finds essentially the same results.

Our estimates show that outcomes for both types of children in stable blended families--stepchildren and their half-siblings who are the joint biological children of both parents are substantially worse than for children reared in traditional nuclear families. Because these estimated correlations are merely the result of regressing one endogenous variable on another, however, they do not provide a basis for policy.

CONCLUSION

In this paper we have augmented the stock of stylized facts and descriptive regressions that summarize the correlations between family structure and children's educational outcomes. Our results pertain only to educational outcomes and may not generalize to other outcomes such as health or teen pregnancy. Our contribution to the stock of stylized facts concerns blended families. It is well-known that, on average, children reared in traditional nuclear families have substantially better educational outcomes than stepchildren from stable blended families. We find that children reared in traditional nuclear families also have substantially better educational outcomes than the joint biological children from stable blended families. Within stable blended families we find that the difference between the joint biological children and the stepchildren is neither substantial nor statistically significant.

Controlling not only for family structure but also for variables such as mothers' education and family income, descriptive regressions reveal a different pattern of family structure effects than the stylized facts which control only for family structure. With additional controls, the effect of family structure falls substantially and often loses statistical significance. In particular, the effect of living in a single-parent family is no longer statistically significant after controlling for family income.

How can we understand these findings? Four explanations, separately or in combination, might account for at least some of them. First, family structure may well be a proxy for other variables that affect outcomes for children. If family structure is correlated with family resources (e.g., time and money) devoted to children and if we fail to control for these variables, then family structure will pick up some of their effects. Because descriptive regressions do not correspond to either structural or reduced form

relationships, there is no principled way to argue about which variables ought to be included and which excluded from descriptive regressions.[23]

The second explanation is stress. Although the Brady Bunch was preternaturally happy, the presence of stepchildren is often described as a source of stress. The sociologist Andrew Cherlin (1978) characterized remarriage as an "incomplete institution," arguing that roles in such families lack clear definition; for example, there is no consensus about when it is appropriate for a stepfather to discipline a stepchild. Most discussions of blended families focus on outcomes for stepchildren. Few researchers have discussed the joint biological children in blended families, although Gennetian (Forthcoming) is an important exception. The stresses and strains of blended families -- the presence of stepchildren, not necessarily their behavior -- might affect outcomes for the joint biological children as well as the stepchildren. Stress might explain why children in blended families have worse educational outcomes than children in other two-parent families.

Some have suggested that the number of family structure transitions experienced by stepchildren and by children in single parent families explains the poor outcomes they experience. Although we do not systematically examine the effects of the number of family structure transitions, our findings for educational outcomes of biological children in stable blended families cannot be explained in this way. The biological children in stable blended families grew up with both biological parents and experienced no family structure transitions. Yet their educational outcomes are similar to those experienced by

[23] The discussion of the effect of family resources on outcomes for children provides an example. The papers in Duncan and Brooks-Gunn (1996) generally argue that increases in family resources have positive effects on child outcomes; Mayer (1997) argues that most of the observed correlation between family resources and child outcomes reflects unobserved heterogeneity; Blau (1999) provides a balanced summary of the discussion. The underlying difficulty is that the discussion of family resource effects, like the discussion of family structure effects, requires a well-specified counterfactual (e.g., an increase in cash welfare benefits; winning the lottery), but discussions of counterfactuals are conspicuously absent.

stepchildren and by children in single parent families, and much worse than those experienced by children in traditional nuclear families.[24]

The third explanation hinges on the allocation of time and other resources within blended families. If mothers allocate resources among children within blended families, and if all of the children are hers, as they usually are, then she may use her ability to allocate resources to "compensate" for any negative effects of family structure on stepchildren. This explanation highlights the fact that observed educational outcomes are not "pure" family structure effects, whatever that might mean, but also reflect the effects of any compensating or reinforcing family allocation decisions.

The fourth explanation is heterogeneity. Observed heterogeneity draws our attention to which of the observed variables investigators choose to control for. The descriptive regressions show that the correlations between family structure and outcomes for children fall substantially and often lack statistical significance when we control for variables such as mothers' education and family income. Unobserved heterogeneity draws our attention to differences in unobserved behaviors that may influence outcomes for children but also to differences in preferences and ability that influence the choice of family structure, education, and childbearing. Parents in blended families and single-parent families that result from divorce or nonmarital fertility may differ from parents in traditional nuclear families in unobserved as well as observed characteristics. Even if family structure has no "direct" or "causal" effect on outcomes for children, unobserved heterogeneity and selection could account for the association between outcomes for children and family structure summarized in the stylized facts and descriptive regressions.

[24] The fact that children of widows have educational outcomes similar to those of children in traditional nuclear families also casts doubt on the importance of the number of family structure transitions.

Our analysis also demonstrates, if another demonstration were needed, that what we see depends on the lens we look through -- the classification scheme we bring to the analysis. Classification schemes illuminate some relationships and obscure others. Furthermore, as Bowker and Star (1999) emphasize, classification schemes themselves often become visible only when alternatives appear. Using a family-based rather than a child-based classification of family structure, we see the children in blended families -- the step children and the joint biological children -- in a new light.

Although we have augmented the set of stylized facts regarding family structure, we conclude by emphasizing that stylized facts and descriptive regressions cannot support either scientific conclusions or policy analysis. Counterfactuals are required. In economics most questions have default counterfactuals that are not spelled out explicitly because they are generally understood. Questions about the effect of family structure lack default counterfactuals. Interpreted literally, the question "What is the effect of family structure on outcomes for children?" is ill-posed because it asks about the effect of one endogenous variable on another. We argue for clarifying the family structure question by specifying an explicit counterfactual.

Any counterfactual will clarify the question, but policy analysis requires policy-relevant counterfactuals: the death of a parent provides a counterfactual, but not one that is useful for policy analysis. In contrast, the effect of a change in the income tax that reduces the marriage penalty or a change in state divorce laws on outcomes for children provide policy relevant counterfactuals. Gruber (Forthcoming) investigates the effect of unilateral divorce on outcomes for children, using state-to-state differences in the timing of the "divorce revolution" -- the transition from fault based divorce, to divorce by mutual consent, to unilateral divorce. Gruber finds that unilateral divorce has a negative and significant effect on children's educational attainment. Although Gruber does not use the language of counterfactuals, he reviews the family structure literature, which generally claims that divorce has

adverse effects on outcomes for children, and criticizes it for failing to recognize and deal with the endogeneity of family structure.

Our results imply cautions for policy. Neither stylized facts nor descriptive regressions provide defensible estimates of effects of family structure. Designers of policy interventions need to know more about the determinants of outcomes for children than they can learn from stylized facts and descriptive regressions. Policies intended to improve outcomes for children often focus on family structure, which is easy to observe and, some believe, relatively easy to influence through tax and welfare policy, couple counseling, or legal rules governing marriage, divorce, and child support. If the stylized facts about the relationship between outcomes for children and family structure reflect the influences of variables other than family structure, then policies that affect family structure may have little or no effect on outcomes for children. Our blended family results and our descriptive regressions results call into question the causal interpretation of the stylized facts about the relationship between family structure and outcomes for children.

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Table 1
Descriptive Statistics NLSY and PSID Sibling Samples

	NLSY		PSID	
Variable	**All Siblings**	**Half Sibs**	**All Siblings**	**Half Sibs**
Years of Schooling	12.919	12.318	12.782	12.523
	(2.273)	(1.839)	(1.871)	(1.773)
High School Graduate = 1	0.854	0.786	0.851	0.838
	(0.353)	(0.412)	(0.356)	(0.370)
College Attendance = 1	0.416	0.292	0.388	0.360
	(0.493)	(0.456)	(0.488)	(0.482)
College Graduate = 1	0.129	0.026	0.135	0.090
	(0.335)	(0.160)	(0.342)	(0.288)
Proportion Lived in Traditional Family	0.819	0.160	0.570	0.053
	(0.325)	(0.270)	(0.479)	(0.194)
Proportion Lived with Single Parent	0.114	0.129	0.238	0.081
	(0.251)	(0.236)	(0.376)	(0.209)
Proportion Lived in Blended Family	0.059	0.701	0.176	0.858
	(0.194)	(0.363)	(0.335)	(0.294)
Proportion Lived in Other Family	0.007	0.010	0.015	0.009
Structure	(0.053)	(0.063)	(0.087)	(0.066)
Lived in Traditional Family	0.698		0.524	
Continuously = 1	(0.459)		(0.500)	
Lived in Single Parent Family = 1	0.164	0.071	0.181	0.045
	(0.370)	(0.258)	(0.385)	(0.208)
Lived in Blended Family = 1	0.107	0.896	0.254	0.937
	(0.309)	(0.306)	(0.435)	(0.244)
Lived in Other Family Structure = 1	0.031	0.032	0.041	0.018
	(0.173)	(0.178)	(0.199)	(0.134)
Female = 1	0.480	0.461	0.507	0.550
	(0.500)	(0.500)	(0.500)	(0.500)
African American = 1	0.292	0.571	0.473	0.441
	(0.455)	(0.496)	(0.499)	(0.499)
Hispanic = 1	0.165	0.104	0.033	
	(0.371)	(0.306)	(0.180)	
Birth Order	3.330	3.494	3.636	3.459
	(2.221)	(2.124)	(2.480)	(2.396)
Number of Siblings	4.366	4.916	3.863	3.598
	(2.653)	(2.190)	(1.655)	(1.290)
Practiced Religion = 1	0.954	0.929	0.982	1.000
	(0.210)	(0.258)	(0.134)	(0.000)
Family Income	17793	15922	34314	31427
	(13648)	(12897)	(22155)	(12340)

Note: Standard Deviations in Parentheses.

Table 1
Descriptive Statistics NLSY and PSID Sibling Samples (continued)

	NLSY		PSID	
Variable	**All Siblings**	**Half Sibs**	**All Siblings**	**Half Sibs**
Mother High School Graduate = 1	0.358	0.286	0.356	0.396
	(0.479)	(0.453)	(0.479)	(0.491)
Mother Some College = 1	0.160	0.078	0.103	
	(0.367)	(0.269)	(0.304)	
Mother's Schooling Missing = 1	0.056	0.065	0.024	0.018
	(0.230)	(0.247)	(0.152)	(0.134)
Father High School Graduate = 1	0.277	0.227	0.211	0.216
	(0.447)	(0.420)	(0.408)	(0.414)
Father Some College = 1	0.208	0.097	0.150	0.072
	(0.406)	(0.297)	(0.357)	(0.260)
Father's Schooling Missing = 1	0.130	0.240	0.150	
	(0.336)	(0.429)	(0.357)	
Sample Size	4764	154	1980	111

Table 2
Descriptive Statistics 1986-1994 NLSY Children

	All Siblings		Stable Blended Families	
Variable	**Number Of Obs.**	**Mean**	**Number of Obs.**	**Mean**
PIAT- Reading Recognition Percentile Score	10803	52.990 (27.931)	1031	49.890 (27.522)
PIAT-Reading Comprehension Percentile Score	8799	50.839 (27.745)	822	47.658 (27.506)
PIAT-Math Percentile Score	10803	45.141 (26.335)	1031	42.172 (25.967)
Lived in Traditional Family	10803	0.475 (0.499)	1031	
Lived with Single Mother	10803	0.377 (0.485)	1031	0.228 (0.420)
Lived in Blended Family	10803	0.148 (0.355)	1031	0.772 (0.420)
Age	10803	9.064 (2.626)	1031	9.129 (2.681)
Real Family Income	9165	31907 (60310)	877	38391 (78272)
Female = 1	4320	0.482 (0.500)	418	0.502 (0.501)
African American = 1	4320	0.344 (0.475)	418	0.397 (0.490)
Hispanic = 1	4320	0.215 (0.411)	418	0.208 (0.406)
Number of Siblings	4320	2.139 (1.169)	418	2.656 (1.396)
Practiced Religion = 1	4320	0.406 (0.491)	418	0.385 (0.487)
Mother High School Graduate = 1	4320	0.488 (0.500)	418	0.495 (0.501)
Mother Some College = 1	4320	0.272 (0.445)	418	0.251 (0.434)
Low Birth Weight	4320	0.089 (0.285)	418	0.105 (0.307)

Note: Standard Deviations in Parentheses.

Table 3
NLSY Sibling Estimates of the Effect of Family Structure on Schooling Outcomes

	Years of Schooling		High School Graduate		College Attendance		College Graduate	
	OLS	OLS	Probit	Probit	Probit	Probit	Probit	Probit
Variable	(A)	(B)	(A)	(B)	(A)	(B)	(A)	(B)
Intercept	13.269*	8.378*	1.219*	-1.874*	-0.085~	-2.499*	-0.964*	-3.013*
	(0.074)	(0.562)	(0.047)	(0.412)	(0.039)	(0.380)	(0.045)	(0.482)
Disadvantaged Oversample	-0.914*	-0.333*	-0.485*	-0.198~	-0.403*	-0.137~	-0.295*	-0.054
	(0.116)	(0.111)	(0.079)	(0.081)	(0.059)	(0.069)	(0.065)	(0.088)
Female	0.417*	0.437*	0.244*	0.311*	0.223*	0.250*	0.165*	0.208*
	(0.066)	(0.062)	(0.047)	(0.055)	(0.039)	(0.045)	(0.049)	(0.056)
African-American	0.101	0.672*	0.199~	0.468*	0.058	0.383*	-0.092	0.148
	(0.120)	(0.112)	(0.088)	(0.092)	(0.065)	(0.075)	(0.068)	(0.086)
Hispanic	-0.262	0.454*	-0.078	0.197~	-0.033	0.366*	-0.308*	-0.041
	(0.149)	(0.141)	(0.090)	(0.097)	(0.077)	(0.090)	(0.096)	(0.116)
Birth Order		0.050~		0.029		0.019		-0.006
		(0.024)		(0.018)		(0.017)		(0.024)
Number of Siblings		-0.123*		-0.067*		-0.064*		-0.028
		(0.022)		(0.016)		(0.016)		(0.021)
Religion		0.494*		0.447*		0.176		0.050
		(0.188)		(0.116)		(0.115)		(0.151)
Family Income 1979		0.352*		0.240*		0.176*		0.162*
		(0.052)		(0.040)		(0.036)		(0.046)
Mother High School Graduate		0.551*		0.282*		0.289*		0.191~
		(0.094)		(0.086)		(0.064)		(0.082)
Mother Some College		1.266*		0.405*		0.778*		0.396*
		(0.131)		(0.129)		(0.087)		(0.099)
Mother's Schooling Missing		-0.163		-0.174		-0.050		-0.067
		(0.145)		(0.111)		(0.108)		(0.170)
Father High School Graduate		0.397*		0.411*		0.198*		0.122
		(0.096)		(0.083)		(0.066)		(0.081)
Father Some College		1.545*		0.851*		0.833*		0.515*
		(0.124)		(0.143)		(0.080)		(0.090)
Father's Schooling Missing		0.080		0.091		0.021		-0.136
		(0.114)		(0.086)		(0.083)		(0.125)
Proportion with Single Parent	-0.674*	-0.235	-0.417*	-0.253~	-0.356*	-0.122	-0.374*	-0.194
	(0.159)	(0.157)	(0.106)	(0.119)	(0.092)	(0.107)	(0.122)	(0.144)
Proportion in Blended Family	-0.894*	-0.517*	-0.259~	-0.152	-0.562*	-0.322~	-0.965*	-0.884*
	(0.169)	(0.161)	(0.130)	(0.140)	(0.120)	(0.135)	(0.217)	(0.247)
Proportion without Parents	-1.459~	-0.641	-0.678	-0.460	-0.884	-0.494	-0.310	0.290
	(0.587)	(0.615)	(0.369)	(0.451)	(0.461)	(0.515)	(0.520)	(0.589)
Sample Size	4674	3817	4674	3817	4674	3817	4674	3817
R-Squared	0.074	0.288	0.047	0.162	0.036	0.162	0.044	0.115

Notes: Robust standard errors clustered by family in parentheses. p< .05 = ~ and p< .01 = *. R-Squared for probit is a pseudo-R-squared. Sample size drops between models (A) and (B) because of missing family income data for some observations.

Table 4
PSID Sibling Estimates of the Effect of Family Structure on Schooling Outcomes

	Years of Schooling		High School Graduate		College Attendance		College Graduate	
	OLS	OLS	Probit	Probit	Probit	Probit	Probit	Probit
Variable	(A)	(B)	(A)	(B)	(A)	(B)	(A)	(B)
Intercept	13.330*	5.691*	1.432*	-2.551~	-0.110	-6.414*	-0.686*	-5.819*
	(0.106)	(1.364)	(0.088)	(1.216)	(0.068)	(1.054)	(0.078)	(1.417)
Disadvantaged	-0.605*	-0.071	-0.294~	-0.031	-0.310*	0.043	-0.379*	-0.042
Oversample	(0.151)	(0.131)	(0.119)	(0.121)	(0.096)	(0.097)	(0.119)	(0.123)
Female	0.282*	0.311*	0.066	0.100	0.297*	0.356*	0.130	0.133
	(0.083)	(0.076)	(0.078)	(0.080)	(0.060)	(0.064)	(0.072)	(0.078)
African-American	-0.190	0.459*	0.024	0.420*	-0.099	0.363*	-0.358*	0.051
	(0.153)	(0.141)	(0.123)	(0.129)	(0.100)	(0.104)	(0.124)	(0.135)
Hispanic	-0.182	0.466	-0.207	0.178	0.095	0.544*	-0.204	0.101
	(0.368)	(0.329)	(0.249)	(0.265)	(0.195)	(0.195)	(0.317)	(0.322)
Birth Order		-0.020		-0.030		-0.015		0.001
		(0.021)		(0.020)		(0.019)		(0.026)
Number of Siblings		-0.152*		-0.084~		-0.113*		-0.143*
		(0.035)		(0.035)		(0.031)		(0.040)
Religion		-0.466		-0.404		-0.327		-0.527
		(0.485)		(0.348)		(0.320)		(0.394)
Family Income 1979		0.725*		0.406*		0.602*		0.525*
		(0.121)		(0.112)		(0.095)		(0.127)
Mother High School		0.337*		0.357*		0.157		0.047
Graduate		(0.106)		(0.106)		(0.085)		(0.111)
Mother Some College		1.196*		0.949*		0.805*		0.484*
		(0.180)		(0.248)		(0.134)		(0.163)
Mother's Schooling		0.007		0.054		0.000		0.148
Missing		(0.280)		(0.281)		(0.279)		(0.275)
Father High School		0.321~		0.223		0.282*		0.150
Graduate		(0.124)		(0.127)		(0.096)		(0.126)
Father Some College		0.908*		0.326		0.630*		0.545*
		(0.176)		(0.209)		(0.119)		(0.149)
Father's Schooling		0.180		0.051		0.144		0.106
Missing		(0.186)		(0.160)		(0.152)		(0.244)
Proportion with Single	-0.556*	-0.054	-0.532*	-0.294	-0.323*	0.059	-0.454*	-0.165
Parent	(0.145)	(0.193)	(0.129)	(0.165)	(0.108)	(0.151)	(0.150)	(0.219)
Proportion in Blended	-0.483*	-0.234	-0.341*	-0.308~	-0.145	0.034	-0.423*	-0.284~
Family	(0.160)	(0.140)	(0.128)	(0.128)	(0.104)	(0.103)	(0.132)	(0.134)
Proportion without	-1.355~	-0.409	-1.152~	-0.706	-0.598	0.119	-1.235	-0.699
Parents	(0.565)	(0.488)	(0.499)	(0.485)	(0.457)	(0.445)	(0.905)	(0.861)
Sample Size	1980	1980	1980	1980	1980	1980	1980	1980
Adjusted R-Squared	0.084	0.252	0.049	0.125	0.041	0.159	0.094	0.199

Notes: Robust standard errors clustered by family in parentheses. p< .05 = ~ and p< .01 = *. R-Squared for probit is a pseudo-R-squared.

.**Table 5**
NLSY-Child Sibling Estimates of the Effect of Family Structure on Assessment Outcomes

	Reading Recognition		Reading Comprehension		Math Test Scores	
	OLS	OLS	OLS	OLS	OLS	OLS
Variable	**(A)**	**(B)**	**(A)**	**(B)**	**(A)**	**(B)**
Intercept	65.551*	21.234*	90.458*	49.054*	56.728*	13.991~
	(1.281)	(5.817)	(1.296)	(6.753)	(1.139)	(5.549)
Age	-0.798*	-0.801*	-3.430*	-3.244*	-0.244~	-0.183
	(0.124)	(0.126)	(0.122)	(0.131)	(0.106)	(0.113)
Female	6.340*	6.342*	3.708*	3.551*	0.793	0.627
	(0.786)	(0.771)	(0.761)	(0.732)	(0.706)	(0.703)
African-American	-8.026*	-6.288*	-9.098*	-7.256*	-12.752*	-11.431*
	(1.215)	(1.187)	(1.158)	(1.142)	(1.083)	(1.090)
Hispanic	-9.083*	-6.162*	-7.845*	-4.916*	-11.938*	-9.642*
	(1.400)	(1.284)	(1.330)	(1.221)	(1.243)	(1.171)
Number of Siblings		-2.403*		-2.198*		-1.423*
		(0.491)		(0.451)		(0.427)
Religion		2.147~		1.719~		0.572
		(0.840)		(0.818)		(0.762)
Family Income		3.776*		3.288*		3.611*
		(0.560)		(0.657)		(0.529)
Mother High School		7.033*		7.670*		6.132*
Graduate		(1.294)		(1.287)		(1.103)
Mother Some College		14.599*		13.825*		12.108*
		(1.483)		(1.480)		(1.338)
Low Birth Weight		-4.570*		-4.371*		-3.470*
		(1.604)		(1.544)		(1.251)
Lives in Blended	-4.360*	-3.099~	-2.872~	-1.970	-2.541~	-1.786
Family	(1.422)	(1.410)	(1.383)	(1.343)	(1.251)	(1.238)
Lives with Single	-7.772*	-1.665	-7.028*	-1.842	-5.917*	-0.740
Mother	(1.087)	(1.138)	(1.058)	(1.178)	(0.978)	(1.026)
Sample Size	10803	9109	8799	7424	10803	9109
R-Squared	0.071	0.148	0.155	0.220	0.082	0.141

Notes: Robust standard errors clustered by family in parentheses. p< .05 = ~ and p< .01 = *. R-Squared for probit is a pseudo-R-squared. Estimates use all observations without missing data.

Table 6
Tests of Mean Differences in PSID and NLSY Sibling Sample

Test: Mean Outcome Half-Siblings in Stable Blended Families v. Siblings in Traditional Families

Outcome	Mean Half-Siblings	Mean Traditional Families	Test Statistic	P-value
Years of Schooling	12.403	13.131	**6.256**	0.000
	(0.111)	(0.034)		
High School Graduate	0.807	0.887	**3.202**	0.002
	(0.024)	(0.005)		
College Attendance	0.321	0.456	**4.542**	0.000
	(0.029)	(0.008)		
College Graduation	0.053	0.161	**7.255**	0.000
	(0.014)	(0.006)		
Sample Size	265	4301		

Test: Mean Outcome in Traditional families v. Joint Biological in Stable Blended Family Sample

Outcome	Mean Joint Biological	Mean Traditional	Test Statistic	P-value
Years of Schooling	12.508	13.131	**4.234**	0.000
	(0.143)	(0.034)		
High School Graduate	0.855	0.887	0.994	0.322
	(0.032)	(0.005)		
College Attendance	0.339	0.456	**2.699**	0.008
	(0.043)	(0.008)		
College Graduation	0.040	0.161	**6.470**	0.000
	(0.018)	(0.006)		
Sample Size	124	4301		

Test: Mean Outcome Joint Biological v. Stepchild in Stable Blended Family Sample

Outcome	Mean Joint Biological	Mean Stepchild	Test Statistic	P-value
Years of Schooling	12.508	12.312	0.891	0.374
	(0.143)	(0.167)		
High School Graduate	0.855	0.766	1.858	0.064
	(0.032)	(0.036)		
College Attendance	0.339	0.305	0.584	0.560
	(0.043)	(0.039)		
College Graduation	0.040	0.064	-0.8633	0.389
	(0.018)	(0.021)		
Sample Size	124	141		

Notes: Traditional defined as observed in the survey as always living with both biological parents. Stepchild defined as ever living with a stepparent. Numbers in **Bold** are statistically significant.

Table 7
PSID and NLSY Blended Family Sample Estimates
of the Effect of Family Structure on Educational Outcomes

	Years of Schooling		High School Graduate		College Attendance	
	OLS	OLS	Probit	Probit	Probit	Probit
Variable	(A)	(B)	(A)	(B)	(A)	(B)
Intercept	12.036*	10.743*	0.895*	0.145	-0.897*	-1.226*
	(0.311)	(0.648)	(0.250)	(0.540)	(0.230)	(0.365)
PSID = 1	0.259	0.240	0.250	0.044	0.161	0.208
	(0.304)	(0.342)	(0.255)	(0.292)	(0.206)	(0.237)
Disadvantaged	0.137	0.131	-0.151	-0.143	0.255	0.293
Oversample	(0.279)	(0.276)	(0.257)	(0.253)	(0.216)	(0.211)
Female	0.331	0.293	0.056	0.040	0.442*	0.464*
	(0.221)	(0.224)	(0.172)	(0.185)	(0.165)	(0.174)
African-American	0.270	0.403	0.266	0.389	0.052	0.148
	(0.323)	(0.325)	(0.284)	(0.282)	(0.223)	(0.231)
Hispanic	0.181	0.236	-0.324	-0.421	-0.006	0.023
	(0.692)	(0.748)	(0.442)	(0.476)	(0.476)	(0.492)
Birth Order		0.067		0.063		0.034
		(0.075)		(0.065)		(0.047)
Number of Siblings		-0.067		-0.027		-0.036
		(0.078)		(0.067)		(0.065)
Religion		0.947~		0.512		
		(0.464)		(0.459)		
Mother High School		0.213		0.395		0.09
Graduate		(0.281)		(0.260)		(0.203)
Mother Some College		1.061		0.161		1.138*
		(0.549)		(0.428)		(0.419)
Mother's Schooling		0.220		0.088		0.630
Missing		(0.605)		(0.489)		(0.434)
Father High School		0.658~		0.324		0.436~
Graduate		(0.304)		(0.278)		(0.198)
Father Some		0.836		0.415		0.529
College		(0.493)		(0.580)		(0.347)
Father's Schooling		0.092		-0.348		-0.027
Missing		(0.373)		(0.306)		(0.342)
Proportion in	-0.330	-0.231	-0.381	-0.279	-0.130	-0.081
Non-intact Family	(0.274)	(0.292)	(0.200)	(0.213)	(0.195)	(0.222)
Sample Size	265	265	265	265	265	265
Adjusted R-Squared	0.028	0.103	0.034	0.089	0.037	0.083

Notes: Robust standard errors clustered by family in parentheses. p< .05 = ~ and p< .01 = *. R-Squared for probit is a pseudo-R-squared

Table 8
Tests of Mean Differences NLSY-Child Sibling Sample

Test: Mean Outcome Half-Siblings in Stable Blended Families v. Siblings in Traditional Families

Outcome	Mean Half-Siblings	Mean Traditional Families	Test Statistic	P-value
PIAT-Reading Recognition	49.369	57.896	**6.364**	0.000
	(1.228)	(0.572)		
PIAT-Reading Comprehension[a]	46.838	56.696	**6.945**	0.000
	(1.330)	(0.597)		
PIAT-Math	41.627	50.333	**6.830**	0.000
	(1.136)	(0.548)		
Sample Size	418	1861		

Test: Mean Outcome in Traditional families v. Joint Biological in Stable Blended Family Sample

Outcome	Mean Joint Biological	Mean Traditional	Test Statistic	P-value
PIAT-Reading Recognition	49.615	57.896	**4.485**	0.000
	(1.810)	(0.572)		
PIAT-Reading Comprehension[b]	49.645	56.696	**3.333**	0.001
	(2.096)	(0.597)		
PIAT-Math	42.025	50.333	**4.702**	0.000
	(1.724)	(0.548)		
Sample Size	199	1861		

Test: Mean Outcome Joint Biological v. Stepchildren in Stable Blended Families

Outcome	Mean Joint Biological	Mean Stepchildren	Test Statistic	P-value
PIAT-Reading Recognition	49.615	49.145	-0.191	0.848
	(1.810)	(1.675)		
PIAT-Reading Comprehension[c]	49.645	44.994	-1.715	0.087
	(2.096)	(1.713)		
PIAT-Math	42.025	41.264	-0.334	0.738
	(1.724)	(1.503)		
Sample Size	199	219		

Notes: Tests performed on average assessment scores. Traditional defined as observed in the survey as always living with both biological parents. Stepchild defined as ever living with a stepparent. Numbers in **Bold** are statistically significant. [a]353 Half-sibling and 1609 Traditional Family observations. [b]140 Joint biological and 1609 Traditional Family observations. [c]140 Joint biological and 213 Stepchildren observations.

Table 9
NLSY-Child Blended Family Estimates of the Effect of Family Structure on Assessment Outcomes

	Reading Recognition		Reading Comprehension		Math Test Scores	
Variable	**OLS (A)**	**OLS (B)**	**OLS (A)**	**OLS (B)**	**OLS (A)**	**OLS (B)**
Intercept	62.531*	22.869	87.854*	26.162	53.486*	2.933
	(3.757)	(18.321)	(3.855)	(17.111)	(3.240)	(15.943)
Age	-1.380*	-1.403*	-3.957*	-3.817*	-0.417	-0.406
	(0.485)	(0.516)	(0.417)	(0.443)	(0.323)	(0.369)
Female	5.300~	6.140~	3.385	3.906	0.171	-0.535
	(2.421)	(2.572)	(2.306)	(2.330)	(2.058)	(2.085)
African-American	-6.574	-6.245	-7.827~	-7.285~	-12.757*	-13.249*
	(4.053)	(3.980)	(3.753)	(3.569)	(3.403)	(3.327)
Hispanic	-9.375~	-6.098	-8.939~	-4.708	-11.253*	-8.563~
	(4.107)	(3.923)	(3.592)	(3.187)	(3.578)	(3.492)
Number of Siblings		-3.705*		-2.853~		-1.127
		(1.384)		(1.396)		(0.965)
Religion		2.743		1.332		1.326
		(3.257)		(3.079)		(2.788)
Family Income		4.297~		6.135*		4.682*
		(1.901)		(1.593)		(1.581)
Mother High School Graduate		1.300		0.616		4.057
		(3.943)		(3.904)		(3.195)
Mother Some College		9.881		10.191		12.074~
		(5.649)		(5.550)		(4.714)
Low Birth Weight		-3.623		-6.267		-4.484
		(4.895)		(5.021)		(3.090)
Lives with Stepfather	4.406	2.514	4.533	3.610	1.438	-0.209
	(3.254)	(3.413)	(3.191)	(3.374)	(2.557)	(2.528)
Lives with Single Mother	1.581	8.032	1.277	8.380~	-1.736	3.947
	(3.767)	(4.598)	(3.891)	(4.206)	(2.992)	(3.432)
Sample Size	1031	866	822	696	1031	866
R-Squared	0.045	0.136	0.146	0.243	0.060	0.128

Notes: Robust standard errors clustered by family in parentheses. p< .05 = ~ and p< .01 = *. R-Squared for probit is a pseudo-R-squared. Estimates use all observations without missing data.

APPENDIX A: DATA CONSTRUCTION AND VARIABLE DEFINITIONS

Appendix A: Data construction and variable definitions

A. Identifying Blended Families

In order to facilitate comparisons of outcomes for half-siblings in blended families we need to identify these households. Although the NLSY contains information on multiple sibling households, the data do not explicitly report whether a pair of siblings are half or full. The PSID does identify half-siblings in the Family Relationship file. However, to facilitate comparisons across the data sets, we use the same identification approach for each. To identify half-siblings in the data, we compare measures of family structure in a household.

We use a similar approach to identify stable blended families in the NLSY-Child data. We identify half-siblings within a household using the following criteria: A) one sibling reports living with a father and the other reports not living with a father; or B) both siblings report not living with a father but report fathers living at different distances from the child; or C) one child reports the father is dead while the other does not. To make our NLSY-Child stable blended-family sample more nearly comparable to the NLSY stable blended-family sample, we impose the additional restriction that at least one child in the household reports having lived with both biological parents from birth until the time of the survey.

Table A.1 contains the definitions of the variables used in this analysis.

Table A.1
Outcome and Family Structure Variable Definitions: PSID, NLSY, and NLSY-Child

Outcome Variables:	**Definitions:**
PSID and NLSY	
Years of Schooling	NLSY: Maximum years of schooling observed 1985-1994 PSID: Maximum years of schooling observed 1985-1997
High School Graduate = 1	Indicator: Completed high school by 1994 in NLSY by 1997 in PSID
College Attendance = 1	Indicator: Attended college by 1994 in NLSY by 1997 in PSID
College Graduate = 1	Indicator: Completed college by 1994 in NLSY by 1997 in PSID
NLSY-Child	
Peabody Individual Achievement Tests Reading Recognition Reading Comprehension Math Percentile Scores	Nationally-normed percentile scores
NLSY and PSID Family Structure Variables:	**Definitions:**
NLSY Proportion defined as**:**	Years living in a given family structure(child ages 0-16) divided by 17
PSID Proportion defined as**:**	Years observed between 1968-85 (child ages 1-16) in a given family structure, divided by total years observed between 1968-85 (child ages 1-16)
Proportion Lived in Traditional Family	Living with both biological parents and biological siblings only
Proportion Lived with Single Parent	Living with either single mother or single father and no stepparent
Proportion Lived in a Blended Family	Living with stepparent and biological parent who are married; or living with both biological parents and at least one half-sibling
Proportion Lived in Other Family Structure	Living without a biological parent and with other relatives, foster care, etc.
Lived in Traditional Family Continuously = 1	Indicator variable where proportion lived with both biological parents =1
Lived in Single Parent Family = 1	Indicator variable where ever lived with a single parent and never lived with a stepparent
Lived in Blended Family = 1	Indicator variable where ever lived in a blended family
Lived in Other Family Structure = 1	Indicator variable where ever lived without both biological parents

Table A.1
Outcome and Family Structure Variable Definitions: PSID, NLSY, and NLSY-Child

NLSY-Child Family Structure Variables:	**Definitions**
Note: All Children in the NLSY-Child Sample live with their biological mother.	
Lived in Traditional Family	Indicator for 1986, 1988, 1990, 1992, and 1994
Lived with Single Mother	Indicator for 1986, 1988, 1990, 1992, and 1994
Lived in Blended Family	Indicator for 1986, 1988, 1990, 1992, and 1994
Other Independent Variables:	
Female = 1	Indicator: Female = 1
African American = 1	Indicator: African-American=1
Hispanic = 1	Indicator: Hispanic=1
Birth Order	NLSY and PSID: Number of older siblings + 1
Number of Siblings	NLSY: Average of number of siblings reported in 1979 and 1993 PSID: Average number of siblings 1968-1985 NLSY-Child: Total number of siblings 1994
Practiced Religion = 1	Indicator: child practiced religion=1
Family Income	NLSY: Log of Family Income 1979 PSID: Log of Average Family Income 1968-1985 NLSY-Child: Log of Family Income in 1986, 1988, 1990, 1992, 1994 deflated by PCE deflator (1992=100)
Mother High School Graduate = 1	Indicator: Biological Mother is high school graduate
Mother Some College = 1	Indicator: Biological Mother has more than 12 years of schooling
Mother's Schooling Missing = 1	Mother's education information missing
Father High School Graduate = 1	Indicator: Biological Father is high school graduate
Father Some College = 1	Indicator: Biological Father has more than 12 years of schooling
Father's Schooling Missing = 1	Father's education information missing
Age	NLSY-Child: Age in 1986, 1988, 1990, 1992, 1994
Low Birth Weight	Indicator for birth weight below 5.5 pounds

APPENDIX B: SUPPLEMENTARY TABLES

Table B.1
NLSY Sibling Estimates of the Effect of Family Structure on Schooling Outcomes
Alternative Specification with Family Structure Indicator Variables

	Years of Schooling		High School Graduate		College Attendance		College Graduate	
	OLS	OLS	Probit	Probit	Probit	Probit	Probit	Probit
Variable	**(A)**	**(B)**	**(A)**	**(B)**	**(A)**	**(B)**	**(A)**	**(B)**
Intercept	13.300*	8.439*	1.252*	-1.755*	-0.072	-2.496*	-0.957*	-3.073*
	(0.076)	(0.568)	(0.048)	(0.420)	(0.040)	(0.384)	(0.046)	(0.484)
Disadvantaged Oversample	-0.907*	-0.328*	-0.473*	-0.192~	-0.402*	-0.136~	-0.301*	-0.058
	(0.116)	(0.111)	(0.079)	(0.081)	(0.059)	(0.069)	(0.065)	(0.088)
Female	0.419*	0.436*	0.246*	0.312*	0.224*	0.249*	0.167*	0.210*
	(0.066)	(0.062)	(0.047)	(0.055)	(0.039)	(0.045)	(0.049)	(0.056)
African-American	0.042	0.644*	0.166	0.445*	0.028	0.367*	-0.122	0.130
	(0.118)	(0.111)	(0.086)	(0.090)	(0.064)	(0.074)	(0.068)	(0.086)
Hispanic	-0.272	0.448*	-0.090	0.188	-0.038	0.364*	-0.311*	-0.045
	(0.149)	(0.141)	(0.090)	(0.097)	(0.077)	(0.089)	(0.096)	(0.116)
Birth Order		0.047~		0.026		0.018		-0.008
		(0.024)		(0.018)		(0.017)		(0.024)
Number of Siblings		-0.120*		-0.065*		-0.062*		-0.026
		(0.022)		(0.016)		(0.016)		(0.021)
Religion		0.500*		0.451*		0.179		0.052
		(0.188)		(0.116)		(0.115)		(0.151)
Family Income 1979		0.346*		0.230*		0.176*		0.168*
		(0.052)		(0.040)		(0.036)		(0.046)
Mother High School Graduate		0.558*		0.288*		0.293*		0.193~
		(0.094)		(0.085)		(0.064)		(0.081)
Mother Some College		1.279*		0.419*		0.786*		0.403*
		(0.130)		(0.129)		(0.087)		(0.099)
Mother's Schooling Missing		-0.138		-0.152		-0.034		-0.054
		(0.145)		(0.111)		(0.108)		(0.171)
Father High School Graduate		0.398*		0.417*		0.197*		0.116
		(0.096)		(0.083)		(0.066)		(0.082)
Father Some College		1.543*		0.853*		0.831*		0.511*
		(0.124)		(0.143)		(0.080)		(0.091)
Father's Schooling Missing		0.067		0.089		0.010		-0.157
		(0.113)		(0.085)		(0.083)		(0.125)
Single Parent = 1	-0.314*	-0.110	-0.266*	-0.187~	-0.159~	-0.037	-0.137	-0.054
	(0.110)	(0.109)	(0.074)	(0.086)	(0.062)	(0.074)	(0.079)	(0.093)
Blended Family = 1	-0.676*	-0.342*	-0.242*	-0.139	-0.394*	-0.203~	-0.645*	-0.530*
	(0.115)	(0.113)	(0.086)	(0.098)	(0.074)	(0.083)	(0.113)	(0.128)
No Parents = 1	-1.023*	-0.552~	-0.668*	-0.567*	-0.490*	-0.295	-0.143	0.110
	(0.235)	(0.237)	(0.123)	(0.146)	(0.146)	(0.170)	(0.168)	(0.197)
Sample Size	4674	3817	4674	3817	4674	3817	4674	3817
R-Squared	0.075	0.289	0.052	0.166	0.036	0.162	0.044	0.115

Notes: Robust standard errors clustered by family in parentheses. p< .05 = ~ and p< .01 = *. R-Squared for probit is a pseudo-R-squared.

Table B.2
PSID Sibling Estimates of the Effect of Family Structure on Schooling Outcomes
Alternative Specification with Family Structure Indicator Variables

	Years of Schooling		High School Graduate		College Attendance		College Graduate	
	OLS	OLS	Probit	Probit	Probit	Probit	Probit	Probit
Variable	(A)	(B)	(A)	(B)	(A)	(B)	(A)	(B)
Intercept	13.358*	6.619*	1.469*	-1.891	-0.093	-5.845*	-0.666*	-5.222*
	(0.108)	(1.340)	(0.087)	(1.193)	(0.070)	(1.037)	(0.079)	(1.409)
Disadvantaged	-0.605*	-0.053	-0.296~	-0.014	-0.314*	0.057	-0.387*	-0.041
Oversample	(0.148)	(0.129)	(0.117)	(0.119)	(0.095)	(0.097)	(0.118)	(0.122)
Female	0.282*	0.311*	0.069	0.104	0.299*	0.357*	0.131	0.138
	(0.083)	(0.075)	(0.078)	(0.080)	(0.060)	(0.064)	(0.072)	(0.078)
African-American	-0.171	0.460*	0.027	0.419*	-0.086	0.369*	-0.352*	0.058
	(0.151)	(0.140)	(0.123)	(0.129)	(0.099)	(0.104)	(0.122)	(0.133)
Hispanic	-0.217	0.444	-0.247	0.143	0.076	0.533*	-0.224	0.093
	(0.367)	(0.328)	(0.249)	(0.266)	(0.195)	(0.195)	(0.317)	(0.318)
Birth Order		-0.016		-0.027		-0.012		0.003
		(0.021)		(0.020)		(0.019)		(0.026)
Number of Siblings		-0.163*		-0.092*		-0.122*		-0.152*
		(0.034)		(0.034)		(0.030)		(0.040)
Religion		-0.551		-0.488		-0.368		-0.588
		(0.470)		(0.319)		(0.312)		(0.385)
Family Income 1979		0.649*		0.355*		0.555*		0.477*
		(0.119)		(0.110)		(0.094)		(0.127)
Mother High School		0.322*		0.353*		0.143		0.036
Graduate		(0.105)		(0.105)		(0.085)		(0.111)
Mother Some College		1.217*		0.967*		0.814*		0.500*
		(0.180)		(0.252)		(0.135)		(0.163)
Mother's Schooling		0.057		0.097		0.036		0.171
Missing		(0.270)		(0.278)		(0.281)		(0.274)
Father High School		0.352*		0.251~		0.301*		0.174
Graduate		(0.124)		(0.127)		(0.095)		(0.126)
Father Some College		0.952*		0.359		0.660*		0.578*
		(0.176)		(0.210)		(0.120)		(0.150)
Father's Schooling		0.498*		0.193		0.401*		0.323
Missing		(0.173)		(0.165)		(0.150)		(0.229)
Single Parent = 1	-0.673*	-0.511*	-0.588*	-0.529*	-0.406*	-0.311~	-0.539*	-0.492*
	(0.144)	(0.166)	(0.132)	(0.168)	(0.109)	(0.138)	(0.152)	(0.187)
Blended Family = 1	-0.426*	-0.186	-0.353*	-0.326*	-0.160	0.017	-0.372*	-0.238~
	(0.128)	(0.114)	(0.108)	(0.109)	(0.085)	(0.087)	(0.108)	(0.112)
No Parents = 1	-1.063*	-0.577~	-0.918*	-0.720*	-0.495*	-0.142	-0.794~	-0.579
	(0.255)	(0.243)	(0.215)	(0.223)	(0.178)	(0.192)	(0.324)	(0.345)
Sample Size	1980	1980	1980	1980	1980	1980	1980	1980
Adjusted R-Squared	0.091	0.256	0.058	0.133	0.045	0.162	0.098	0.203

Notes: Robust standard errors clustered by family in parentheses. p< .05 = ~ and p< .01 = *. R-Squared for probit is a pseudo-R-squared.

Table B.3
Tests of Mean Differences in NLSY Sibling Sample

Test: Mean Outcome Half-Siblings in Stable Blended Families v. Siblings in Traditional Families

Outcome	Mean Half-Siblings	Mean Traditional Families	Test Statistic	P-value
Years of Schooling	12.318	13.125	**5.255**	0.000
	(0.148)	(0.040)		
High School Graduate	0.786	0.879	**2.779**	0.006
	(0.033)	(0.006)		
College Attendance	0.292	0.456	**4.327**	0.000
	(0.037)	(0.009)		
College Graduation	0.026	0.150	**8.645**	0.000
	(0.013)	(0.006)		
Sample Size	154	3263		

Test: Mean Outcome in Traditional families v. Joint Biological in Stable Blended Family Sample

Outcome	Mean Joint Biological	Mean Traditional	Test Statistic	P-value
Years of Schooling	12.479	13.125	**3.225**	0.002
	(0.196)	(0.040)		
High School Graduate	0.822	0.879	1.262	0.211
	(0.045)	(0.006)		
College Attendance	0.315	0.456	**2.537**	0.013
	(0.055)	(0.009)		
College Graduation	0.041	0.150	**4.479**	0.000
	(0.023)	(0.006)		
Sample Size	73	3263		

Test: Mean Outcome Joint Biological v. Stepchild in Stable Blended Family Sample

Outcome	Mean Joint Biological	Mean Stepchild	Test Statistic	P-value
Years of Schooling	12.479	12.173	1.042	0.299
	(0.196)	(0.219)		
High School Graduate	0.822	0.753	1.043	0.299
	(0.045)	(0.048)		
College Attendance	0.315	0.272	0.588	0.558
	(0.055)	(0.050)		
College Graduation	0.041	0.012	1.087	0.280
	(0.023)	(0.012)		
Sample Size	73	81		

Notes: Traditional defined as observed in the survey as always living with both biological parents. Stepchild defined as ever living with a stepparent. Numbers in **Bold** are statistically significant.

Table B.4
Tests of Mean Differences in PSID Sibling Sample

Test: Mean Outcome Half-Siblings in Stable Blended Families v. Siblings in Traditional Families

Outcome	Mean Half-Siblings	Mean Traditional Families	Test Statistic	P-value
Years of Schooling	12.522	13.150	**3.513**	0.001
	(0.168)	(0.060)		
High School Graduate	0.838	0.910	**2.002**	0.048
	(0.035)	(0.009)		
College Attendance	0.360	0.456	**1.973**	0.051
	(0.046)	(0.015)		
College Graduation	0.090	0.196	**3.522**	0.001
	(0.027)	(0.012)		
Sample Size	111	1038		

Test: Mean Outcome in Traditional Families v. Joint Biological in Stable Blended Family Sample

Outcome	Mean Joint Biological	Mean Traditional	Test Statistic	P-value
Years of Schooling	12.549	13.150	**2.773**	0.007
	(0.208)	(0.060)		
High School Graduate	0.902	0.910	0.197	0.845
	(0.042)	(0.009)		
College Attendance	0.373	0.456	1.186	0.241
	(0.068)	(0.015)		
College Graduation	0.039	0.196	**5.197**	0.000
	(0.027)	(0.012)		
Sample Size	51	1038		

Test: Mean Outcome Joint Biological v. Stepchild in Stable Blended Family Sample

Outcome	Mean Joint Biological	Mean Stepchild	Test Statistic	P-value
Years of Schooling	12.549	12.500	0.148	0.883
	(0.208)	(0.258)		
High School Graduate	0.902	0.783	1.741	0.085
	(0.042)	(0.054)		
College Attendance	0.373	0.350	0.244	0.808
	(0.068)	(0.062)		
College Graduation	0.039	0.133	-1.807	0.074
	(0.027)	(0.044)		
Sample Size	51	60		

Notes: Traditional defined as observed in the survey as always living with both biological parents. Stepchild defined as ever living with a stepparent. Numbers in **Bold** are statistically significant.

Table B.5
NLSY Blended Family Sample Estimates
of the Effect of Family Structure on Educational Outcomes

	Years of Schooling		High School Graduate		College Attendance	
	OLS	OLS	Probit	Probit	Probit	Probit
Variable	(A)	(B)	(A)	(B)	(A)	(B)
Intercept	11.918*	10.704*	0.793*	0.074	-0.910*	-1.314*
	(0.378)	(0.758)	(0.294)	(0.597)	(0.283)	(0.444)
Disadvantaged	0.119	0.095	-0.023	0.038	0.130	0.122
Oversample	(0.344)	(0.353)	(0.351)	(0.321)	(0.320)	(0.331)
Female	0.423	0.331	0.167	0.090	0.488~	0.561~
	(0.285)	(0.296)	(0.206)	(0.243)	(0.221)	(0.238)
African-American	0.593	0.681	0.262	0.450	0.247	0.379
	(0.424)	(0.372)	(0.392)	(0.387)	(0.353)	(0.374)
Hispanic	0.403	0.445	-0.375	-0.431	0.169	0.258
	(0.717)	(0.733)	(0.489)	(0.485)	(0.519)	(0.533)
Birth Order		0.138		0.180		0.076
		(0.106)		(0.098)		(0.073)
Number of Siblings		-0.057		-0.061		-0.046
		(0.084)		(0.080)		(0.075)
Religion		0.738		0.309		
		(0.528)		(0.477)		
Mother High School		-0.160		-0.071		0.019
Graduate		(0.390)		(0.315)		(0.325)
Mother Some College		0.941		0.141		1.230*
		(0.561)		(0.448)		(0.426)
Mother's Schooling		-0.089		-0.364		0.625
Missing		(0.792)		(0.637)		(0.563)
Father High School		0.594		0.366		0.266
Graduate		(0.389)		(0.360)		(0.285)
Father Some		1.348~				0.803
College		(0.563)				(0.416)
Father's Schooling		0.069		-0.326		-0.026
Missing		(0.388)		(0.336)		(0.370)
Proportion in	-0.665	-0.602	-0.406	-0.350	-0.325	-0.377
Non-intact Family	(0.364)	(0.386)	(0.231)	(0.272)	(0.261)	(0.306)
Sample Size	154	154	154	139	154	143
Adjusted R-Squared	0.06	0.165	0.037	0.111	0.045	0.123

Notes: Robust standard errors clustered by family in parentheses. p< .05 = ~ and p< .01 = *. R-Squared for probit is a pseudo-R-squared. Some variables and observations are omitted from Model (B) because their inclusion predicts the outcome perfectly.

Table B.6
PSID Blended Family Sample Estimates
of the Effect of Family Structure on Educational Outcomes

	Years of Schooling		High School Graduate		College Attendance	
	OLS	OLS	Probit	Probit	Probit	Probit
Variable	(A)	(B)	(A)	(B)	(A)	(B)
Intercept	12.371*	12.278*	1.419*	1.213~	-0.809*	-1.059~
	(0.391)	(0.661)	(0.389)	(0.592)	(0.304)	(0.541)
Disadvantaged	0.024	0.203	-0.396	-0.258	0.332	0.470
Oversample	(0.459)	(0.409)	(0.397)	(0.403)	(0.290)	(0.263)
Female	0.296	0.362	-0.142	-0.051	0.443	0.456
	(0.379)	(0.389)	(0.315)	(0.302)	(0.277)	(0.282)
African-American	-0.015	0.216	0.293	0.259	-0.073	-0.009
	(0.491)	(0.549)	(0.400)	(0.428)	(0.292)	(0.321)
Hispanic						
Birth Order		0.066		0.011		0.037
		(0.114)		(0.085)		(0.065)
Number of Siblings		-0.242		-0.066		-0.081
		(0.199)		(0.148)		(0.125)
Religion						
Mother High School		0.477~		0.671~		0.147
Graduate		(0.378)		(0.342)		(0.280)
Mother Some College						
Mother's Schooling		0.910				0.610
Missing		(0.689)				(0.441)
Father High School		0.815		0.269		0.669*
Graduate		(0.430)		(0.414)		(0.239)
Father Some		0.341		-0.354		0.243
College		(1.001)		(0.715)		(0.683)
Father's Schooling						
Missing						
Proportion in	-0.041	0.117	-0.405	-0.353	0.032	0.122
Non-intact Family	(0.419)	(0.492)	(0.333)	(0.398)	(0.301)	(0.348)
Sample Size	111	111	111	109	111	111
Adjusted R-Squared	0.007	0.089	0.034	0.092	0.027	0.068

Notes: Robust standard errors clustered by family in parentheses. p< .05 = ~ and p< .01 = *. R-Squared for probit is a pseudo-R-squared. Some variables and observations are omitted from Model (B) because their inclusion predicts the outcome perfectly.