

**Family Structure and Child Outcomes:
A High Definition, Wide Angle “Snapshot”**

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Abstract:

Using data from the National Survey of America’s Families (NSAF), this research investigates the relationships between a highly defined set of family structures and a broad set of child outcomes at a particular point in time in a child’s life. A detailed classification of family structures is constructed that clarifies key differences among various types of diverse families, and facilitates equivalencies testing and pairwise comparisons across nontraditional family structures. The NSAF contains a large number of observations for less common, but growing, family structures such as single-father families, grandparent-headed households and cohabiters, which makes such detailed analyses feasible and allows further stratification by child age, gender and race. The data also contains information on child behavioral, educational and physical health outcomes, as well as extensive household characteristics, economic resources and parental behaviors and inputs. Results suggest that differences *across* nontraditional family structures are particularly prominent for child health outcomes and that the gender of the resident parent is empirically important, more so than the presence of a cohabiting or married step-parent. Children in single father families have lesser access to health care yet enjoy better health outcomes than those in other families, even after controlling for economic resources (and inputs). In contrast, few differences are found between grandparent-headed families and other non-parent families. While we explore alternative explanations for these results, our cross-sectional data and complex set of family structure variables preclude isolating causal relationships; instead, our analyses yield empirically important distinctions that point to promising avenues for future research.

Keywords: Family Structure; Child Health & Development; Gender

JEL Codes: I12 Health Production; J1 Demographic Economics

1. Introduction

The relationship between family structure and child outcomes has received a great deal of attention from researchers (e.g., McLanahan and Sandefur 1994, Ermisch and Francesconi 2001, Hill et al 2001, Painter and Levine 2001, Pollak and Ginther 2004, Ribar 2004, Gennetian 2005, McLanahan et al 2005, Biblarz and Stacey 2010, Francesconi et al. 2010), especially the effects of growing up in single-parent and/or blended families. Some, but not all, research finds that children who grow up in non-traditional families fare worse than those who grow up with both biological parents, even after controlling for household resources and/or selection (e.g., Painter and Levine 2001 versus Lang and Zagorsky 2001; see Ribar 2004). Often due to data limitations, most of this research is ‘compartmentalized’ in that it focuses on a limited set of family structures, by omitting or aggregating the less common forms, and a small range of child outcomes. Our goal here is to examine, in a systematic way and using one comprehensive dataset, an extensive range of family structures across a wide spectrum of child outcomes. In this way, we can learn what simplifications and assumptions are supported by the data and which nuances deserve closer attention.

We begin by setting up a classification of family structures (i.e., ‘high definition’), as shown in Figure 1, that lends itself to comparisons and tests of aggregation. This classification and subsequent testing allows us to explore systematically and simultaneously the associations *across* nontraditional families of 1) parental gender (e.g., living with a single mother versus a single father, or a stepmother vs. a stepfather), 2) the extent that another adult is present (e.g., married step vs. cohabiting vs. absent), and 3) living with a grandparent as opposed to some other non-parental arrangement. Separate analyses are undertaken for younger (ages 6-11) and older (ages 12-17) children. We further explore the role of child’s gender, as past studies have found important differences for parental investment by gender (e.g., Mammen forthcoming), and the gender of the single parent and role of cohabitation may have a different intonation for boys versus girls. Blau and van der Klauw (2008) find that the dynamics of family structure (i.e., how they change over time) differ substantially by race; we therefore stratify by race in some analyses as well. Our classification also facilitates broader tests, such as whether all ‘blended families’ or all ‘cohabiting families’ appear equivalent. These tests provide guidance as to what simplifications to

Figure 1 are supported empirically. Our analyses also provide new evidence for two little-studied but increasingly common family structures – single father and grandparent-headed families.

Our study is also one of a very few to consider behavioral, educational and physical health outcomes (i.e., ‘wide angle’) within the same empirical study.¹ Most studies investigate the role of family structure on one aspect of children outcomes, such as educational achievement and/or labor force attachment, emotional/behavior problems, or outcomes such as early childbearing and marriage for adolescents or adults (e.g., Wojtkiewicz 1993, McLanahan and Sandefur 1994, Lang and Zagorsky 2001, Ginther and Pollak 2004). Physical health outcomes are typically considered separately and have received much less attention (Mauldon 1990, Harknett 2009, Bzostek and Beck 2010). Instead, most have studied the effects of income and parental characteristics and behaviors (e.g., Case and Paxson 2002, Case et al. 2005) on child outcomes or have focused on the determinants of *access* and *utilization* of health care (Case and Paxson 2001, Heck and Parker 2002, Gorman and Braverman 2008, Leininger and Ziol-Guest 2008). Does family structure play a different role in these different aspects of child outcomes? Can insights from the more extensive educational/behavioral outcomes research be applied to health outcomes? In addition to addressing these questions, we also investigate the role played by both broad and outcome-specific household inputs: Do these inputs vary in a systematic way and do they explain the differences we see in child outcomes? Exploring the role that (biological and step) parent gender plays in providing health-related and other inputs sheds new light on the stepmother findings of Case and Paxson (2001).

Our high definition, wide angle approach therefore requires a dataset that 1) has a reasonable number of observations for the less common, nontraditional family structures, and 2) has information on a wide array of child outcomes and related inputs, as well as important child and household characteristics. The National Survey of American Families (NSAF) satisfies these requirements. The NSAF consists of three, cross-sectional waves

¹ Dawson (1991) and Hanson (1999) also include a wide set of outcomes, including measures of physical health. Dawson (1991) focuses only on non-traditional families when the mother is present, whereas Hanson (1999) studies the role of parental conflict and how its inclusion affects the estimated impact of divorce. Ermisch and Francesconi (2001) include ‘health’ outcomes but their measures consist of ‘distress,’ a measure of mental health, and smoking behavior. No measures of physical health are included.

(for 1997, 1999 and 2002) on a large number of families and with a special focus on low income families.² The large sample facilitates studying two uncommon but growing family structures that have received relatively little attention in child outcomes research, single fathers (e.g., Brown 2000 and Biblarz and Stacey 2010) and grandparent-headed households (e.g., Casper and Bryson 1998, Simmons and Dye 2003); for example, the 1999 and 2002 surveys combine to provide 1049 grandparent-headed households and 1554 single father households, plus an additional 215 households in the relatively rare case in which a cohabiting (non-married) stepmother is also present (Figure 1). These relatively large numbers also make it possible to investigate possible differences across child age, gender or race/ethnicity and to explore issues such as gender-based bias in reporting outcomes and a further subdivision of ‘non-parent’ families.

The NSAF is a repeated cross-section with no family histories, however, making it difficult to draw causal inferences and impossible to study the effects of the timing or duration of different living arrangements.³ Rather, our analyses are a ‘snapshot’ in that they focus on the relationship between the child’s current outcome and family structure at a single point in time. Our main focus is to compare *across* different types of non-traditional families, so the spurious correlations and selection processes at work may be different and are largely unstudied. With so many different family structures to study, dealing with the possible endogeneity via econometric methods available to cross-sectional data (e.g., matching methods, instrumental variables, bounds

²The 1997 wave of the survey does not contain the same detailed information used to construct our extensive set of family structure variables as the latter two waves (1999 and 2002). Moreover, the 1997 wave contains partial overlaps of sampling units used in the 1999 wave that cannot be identified (Safir et al 2000). We therefore limit our sample to the 1999 and 2002 waves. The nonrandom sample design is adjusted in the empirical analyses by using the survey weights provided.

³ Longitudinal data is clearly superior in this regard in that it allows one to explore the effects of a change in family structure as well as the time spent in each type. However such data rarely, if ever, contains enough observations to permit such a high definition of family structures, much less further stratifications by age, gender or race. For example, the very rich Fragile Families and Child Well-Being Study follows a cohort of fewer than 5000 families in which a child was born between 1998-2000 (<http://www.fragilefamilies.princeton.edu/core.asp>). Wojtkiewicz (1993) in his longitudinal study of an extensive set of family structures has only 252 children who *ever* lived in a single father household and 210 who *ever* lived in a grandparent-only household. His only outcome is high school graduation. Bjorklund et al. 2007, Table 1, using longitudinal data from the Panel Study of Income Dynamics (PSID; N=2308) and National Longitudinal Survey of Youth (NLSY; N=9729) find that less than 3% of the samples *ever* lived with a single dad or *ever* lived with a bio-dad and step mom. Less than 5% ever experienced an ‘other’ (no biological parent) family structure. Painter and Levine (2001) use the National Educational Longitudinal Study in 1988 (NELS88) and find only 178 single father observations and 254 ‘no parent’ observations; they conclude that the small sample size makes analyzing those family structures infeasible. Such small numbers limit statistical power and make further analyses by child age, gender or race/ethnicity impractical.

analyses; see Ribar 2004) does not appear promising.⁴ While we explore further the relationships and key differences uncovered and discuss their likely sources, we do not ascribe a specific explanation. Instead, our goal here is to highlight the interesting differences that appear and the simplifying assumptions that are supported and, in so doing, provide guidance for future research. Our results reveal the strong role of the biological parent's gender in nontraditional families, especially for health inputs and outcomes, and the somewhat surprising similarity between different types of non-parent families.

2. Background and Empirical Approach

Past research on child outcomes and family structure has been reviewed elsewhere (e.g., Haveman and Wolfe 1995, Ginther and Pollak 2004, Ribar 2004, McLanahan et al. 2005, Biblarz and Stacey 2010, Francesconi et al. 2010) and is so extensive that we instead only highlight research that is most relevant to the comparisons and relationships emphasized here. Figure 1 presents our classification of family structure and the number of child observations in our NSAF sample for each type. At the top are three main branches (*A*, *B*, *C*) – representing whether children are living with two, one or neither biological/adoptive (henceforth abbreviated as ‘bio’) parent(s).⁵ Within two bio-parent families, we distinguish between married and cohabiting couples. In one-parent families, the gender of the bio-parent yields two smaller limbs; within each limb, the extent that another adult is present is further distinguished, ranging from absent (single mother/father) to cohabiting to married. No-parent families are delineated into those headed by a grandparent and all other no bio-parent families.

This classification allows us to explore whether common forms of aggregation are supported, such as whether all one-parent families are equal (branch *B* can be aggregated), whether bio-dad-only families are equal (branch *B1* can be aggregated) or whether married blended families are equal ($B1c=B2c$). Likewise, nuanced differences are investigated such as whether cohabiting step families are an intermediate stage between single

⁴ As noted in the data section, the NSAF sampled only one child per household from the 6-17 year old age group analyzed here and includes no family history data, so using within family differences as in Francesconi et al. 2010 is also not possible.

⁵ Empirically, we treat households with two adoptive parents as if they were biological parents – i.e., a traditional household. When only one parent is biological, we treat the household as a blended household and treat adoptive, step and ‘other’ parents/partners as equivalent and instead focus on whether the couple is cohabiting or married. We treat households with only one adoptive parent (and no biological one) similarly. Same-sex couples are extremely rare in our sample with only 73 observations and none report being parents of the child; these families are therefore classified as ‘other non-parent.’ As noted in Section 4, our results are robust to dropping same-sex couples and all cases of ‘adoptive’ parents.

parenthood and a married stepfamily (e.g., $B1a < B1b < B1c$) and whether that varies by bio-parent or child age/gender.⁶ Statistical tests formalizing comparisons are summarized in the Results section.

2.1 Past Research. Our approach is probably closest in spirit to Wojtkiewicz (1993) and Brown (2004).

Wojtkiewicz (1993) initially defines an even larger list of family structures (chiefly by parceling out ‘other’ – C2 – which we subsequently explore as well) and adds the dimension of how long or whether the child has ever lived in certain family structures; however, he omits the issue of cohabitation and his only outcome is high school graduation. In addition, the longitudinal data used yields much smaller numbers of the less common structures than in the NSAF (see footnote 2) and much of his analyses focus on a much smaller set. His purpose is similar to ours – to determine whether additional complexity in family structure definitions is warranted – and he mostly finds that simpler constructs are sufficient. Brown (2004), whose primary focus is cohabitation, also uses the NSAF, stratifies by child age and defines 7 family structures, accomplished by combining $B1b + B2b$, $B1c + B2c$, and $C1 + C2$ in Figure 1. Put differently, she did not differentiate bio-parent gender in cohabiting or step families, nor did she separate grandparent families from all other non-parent families. She also did not consider health outcomes.⁷ Neither study considers the differential impact of family structure by child gender or race.

Hill et al. (2001) is notable because it allows family structure effects to differ by both child gender and race and it considers the role of grandparents. However, it focuses only on bio-mother families and the impact of having either a stepfather or a grandparent co-reside in the household; single father households and grandparent-headed households are included in the residual, ‘other’ category. Using the PSID, its sample size is quite small at 1325 individuals but allows for studying the sequence of arrangements and whether the child ever resided in a given type. The only outcomes studied are completed schooling and nonmarital births. In sum, none of these studies considers health as an outcome or makes the extensive, systematic comparisons considered here.

⁶ Manning and Lamb (2003) make a similar comparison for adolescents between step, cohabiting and single parent families but they omit single dad families (Branch B1) and consider only behavioral/cognitive outcomes. They also do not explore whether the relationships differ for boys versus girls or how younger children are affected. Similarly, Berger et al (2008) compare the parenting practices of different types of fathers, based on biological relationship with the child and marital relationship with the child’s mother; single father families, however, are not considered.

⁷ Sun (2003) and Hofferth (2006) are similar to Brown (2004) but use longitudinal datasets (NELS88 and PSID, respectively) and a slightly more limited set of family structures. Sun (2003) controls in a more symmetric way for parental gender but ignores cohabitation, whereas Hofferth (2006) omits single mother families but focuses more on cohabitation. Neither study includes health outcomes.

The only study we are aware of that focuses on health outcomes and less common family structures is Bramlett and Blumberg (2007), which compares physical and mental health outcomes for children living in single mom, single dad, blended adoptive, blended step, and grandparent families with those living in traditional two-parent families.⁸ They assert being the first to investigate the link between children's physical health and single father families (p. 556). However, cohabitation or the bio-parent gender in blended families is not considered in their study. Gorman and Braverman (2008) and Leininger and Ziolo-Guest (2008) study differences in health care utilization and access of less common family structures, especially single father families. Leininger and Ziolo-Guest (2008) use the NSAF and focus on three family types – married two-parent (*A1* combined with *B1c* and *B2c*), single mothers and single fathers; all others were omitted. Gorman and Braverman (2008) use the NHIS and expand this list by also considering cohabiting families, step families, and other relative families. While both studies emphasize the need for future research of single father families, neither makes a distinction of bio-parent gender in blended or cohabiting families, nor distinguishes among non-parent families.

Most importantly, these last two studies do not consider health outcomes and instead only examine how single father families differ with respect to children's access to and use of medical care, a set of inputs we consider here as well. As such, these studies contribute to a small but growing body of research that finds single father families behave very differently and face different economic circumstances from single mother families (e.g., Paulin and Lee 2002, Kalenkoski et al. 2005, 2007, Ziolo-Guest et al. 2006). Our study contributes to such research by investigating 1) single father differences regarding a broad set of inputs, 2) whether bio-parent gender matters in households with two adults (step-parent and cohabiting families), 3) how the differences in inputs translate into differences in outcomes and 4) whether the role of bio-parent gender differs by child gender or race.

2.2 Conceptual Framework and Empirical Approach. Our conceptual framework and empirical approach derive from a standard household production model in which family structure and parental gender may affect child outcomes via available resources, parental decision-making and the nature of the child outcome production function itself (e.g., Ribar 2004).

Single parent families likely have fewer resources; moreover, observed differences in earnings by gender and marital status suggest that resources may vary across other structures as well. We attempt to identify and control

⁸ Bzostek and Beck (2010), who use the Fragile Families data, also note the relative dearth of child outcome studies considering physical health. Their study focuses on greater complexity in family *instability* – the timing and number of family transitions/disruptions from birth to age 5 – but their analysis is limited to children living with their mothers.

for the role played by resources by estimating three different specifications, ranging from one with only the most basic characteristics to one that includes an extensive set of possibly endogenous household resources and inputs.

Family structure and bio-parent gender can also influence how decisions are made. In households with two adults, if valuation of the child's well-being differs then bargaining strength may affect children's outcomes (e.g., Akashi-Ronquest 2009). Decisions regarding child investments may therefore differ between traditional and blended families if, for example, biological parents value the child's well-being more than step-parents. Likewise, differences may occur across blended families if bargaining strength varies by the union (cohabitation or marriage) or by the bio-parent's gender. Bio-parent gender itself could also influence the valuation of child's well-being and how decisions are made and/or be a relevant input into the production of child outcomes, which could lead to differences between single father and single mother families as well.

Empirical research suggests that important gender differences in parenting practices and child outcomes exist but are difficult to separate from family structure effects. For instance, Case and Paxson (2001) posit that health investments are made primarily by the child's mother (and that stepmothers are weak substitutes). However, they also cannot reject that the health investments made in stepmother families are the same as in single father families, which is consistent with an alternative view that the biological parent makes the health investment and that fathers invest differently than mothers. Biblarz and Stacey (2010) emphasize that observed parental gender differences are often confounded by family structure effects, but in reviewing recent research that mitigates the problem find that differences persist. One such study, Hawkins (2006), finds that parent gender explains most of the variance in parental involvement with adolescents regardless of who actually resides with the child. For example, nonresidential mothers are found to have higher levels of involvement than all types of fathers, and only single fathers come close to the level of involvement of mothers. Thus, bio-parent gender can play a role through bargaining strength, via decisions made by both the residential and non-residential parents and by any direct effect it has as an input. Comparing across different family structures, alternatively holding bio-parent gender, the other adult's relationship to the child and to the parent constant, and considering both inputs and outcomes helps shed light on the source of observed differences in child outcomes.

To our knowledge, no research exists that adapts the standard household production model to consider how non-parent households allocate resources to children. However, it seems likely that the motives are similar to those ascribed to bequests – altruism and exchange for (future, in this case) services.⁹ We presume that the same basic forces apply -- via differences in resources, decision-making and the production process itself. Controlling for resources/inputs and comparing across non-parent families (branch C in Figure 1) reveals how grandparents may differ in their decision-making and production ability from other non-parent caregivers.

Our interpretation is tempered by the knowledge that family structure is a nonrandom event that is likely correlated with unobservable characteristics (leading to omitted variable bias) and may be endogenous (suffer from reverse causality). Biblarz and Stacey (2010) review the evidence on the ‘vastly different processes (that) select men and women into single parenthood.’ Some disadvantage men: such households tend to be newer and formed due to maternal lack of interest or neglect and the children are more likely to have behavioral problems and have switched custody arrangements. The custody arrangements also arise differently; fathers sue for it whereas mothers gain it through mutual agreement. Others disadvantage women: single fathers tend to have more economic resources and enjoy greater social support and psychological well-being, and had fewer children to care for. No-parent families also likely arise from different processes and are more like the result of parental death, incarceration or abuse/neglect (Sun 2003). As summarized in Stewart (2010), grandparents tend to help with children more quickly than other relatives, and children living in other relative families may be associated with looser social and financial ties and less support among family members. Children living with nonrelatives are ‘generally removed from their parent’s homes because of abuse or neglect,’ (Stewart 2010, p. 1080). Such evidence combines to suggest that the selective processes more likely favor grandparent families over other non-parent families. However, given the large number of family structures considered and the nature of the data, the typical methods of dealing with endogeneity (e.g., instrumental variables, modeling the selection process) seem impractical. Our purpose here is to identify those differences that are empirically important without attributing causality.

⁹ See Kopczuk (2010) for a review of possible bequest motives and Li (2006) for a conceptual framework modeling the grandparents’ decision to care for their grandchild and a discussion of their possible motivations, including altruism, exchange and a possible ‘legacy’ effect.

The empirical models estimate child outcomes, Y , as a function of 9 family structure indicators, F (two bio-married, AI , is the reference), household characteristics, X , and, in our main specifications, possibly endogenous household inputs, Z ,

$$(1) Y = \alpha + F\beta + X\gamma (+ Z\delta) + \varepsilon.$$

We address the role of household inputs and their possible endogeneity in two ways. First, we estimate both reduced form (omitting Z) and descriptive, structural form child outcome equations. In this way, we can see how much of the differences across family structures are attributable to differences in inputs. We also estimate secondary equations in which inputs are a function of family structure and household characteristics to reveal the indirect role that family structure plays on child outcomes via inputs,

$$(2) Z = \varphi + F\theta + X\pi + \omega.$$

By testing the equality of various combinations of the family structure coefficients, β and θ , systematic comparisons of the different family structures – and their possible equivalencies – are made.

3. Data

The analyses use the 1999 and 2002 waves of the National Survey of American Families (NSAF), a survey that focuses on the experiences of low income families; appropriate survey weights that adjust for oversampling, undercoverage and nonresponse are used (see Brick et al 1999). The 1997 wave is excluded due to differences in its family structure information and unidentifiable overlaps with the 1999 data (see footnote 2). Only children between 6 and 17 years old are included because the school engagement and behavioral outcomes are not applicable to younger children. As a result, only one child, at most, is included from each household in the sample.¹⁰ The data used are created by combining the Focal Child, Person, Family Respondent and Household data sets to obtain information on the *Most Knowledgeable Adult* (MKA), the household and the child. The family structure indicators are created from the *ULIVARR* variable, which provides an exhaustive list of living arrangements, combined with variables identifying the child's relationship to the MKA.

¹⁰ The NSAF surveyed one child from the 0-5 age group and one child from the 6-17 age group; if there was more than one child in an age group in the household, one was chosen randomly.

3.1 Child Outcomes, Y. The child outcomes are reported by the MKA and as such may be subject to reporting errors; for example, some studies find evidence that fathers may report more positive health outcomes (discussed in Leininger and Ziol-Guest 2008) or less accurate academic performance (Bird and Berman 1985), an issue we explore further in Section 5. Although many studies of child outcomes, especially those focusing on health or younger children, use reported measures (e.g., Bramlett and Blumberg 2007, Bzostek and Beck 2010 for health; Dawson 1991 and Hanson 1999 for a wide range of outcomes), our results must be viewed with that caveat in mind. We consider three types of outcomes:

Health -- Two variables are included: i) *current health* status (1=poor to 5=excellent), and ii) *limiting condition* (=1) if the child has a physical, learning or mental health condition that limits (his/her) participation in the usual kinds of activities done by most children his/her age and/or limits his/her ability to do regular school work. While current health status is the most commonly used measure, the presence of a limiting condition may be subject to smaller – or at least different – reporting biases and thus may yield additional insights.¹¹

Educational -- The NSAF includes a scale of *school engagement* that assesses the degree to which children aged 6 to 17 are interested in doing or are willing to do school work.¹² The scale ranges from 4 to 16 with a higher score indicating greater school engagement.

Behavioral/emotional -- The NSAF creates two separate indices for *behavioral problems* depending on the child's age (ages 6-11 versus 12-17). The indices are created from six questions asked of the MKA regarding the child's behavior in the last month and range from a value of 6 to 18, with a higher score indicating more

¹¹ However, Baker and Stabile (2004) find substantial measurement error in self-reports of more 'objective' own-health measures (i.e., chronic conditions). Johnston and Propper (2009) find that the bias in self-reported health measures (as compared to objective ones) is strongly related to income, which is another reason why including economic resources could affect our results. See also Frijters and Ulker (2008) for a more expanded discussion and analyses of the challenges in measuring health outcomes.

¹² The scale was created by Jim Connell and Lisa Bridges at the Institute for Research and Reform in Education in California. The MKA is asked how often does the child 1) care about doing well in school, 2) only work on schoolwork when forced to, 3) just do enough schoolwork to get by, and 4) always do homework. Values are assigned from all of the time (=4) to none of the time (=1) and negative measures are reverse coded.

behavioral problems.¹³ The school engagement and behavioral problems indices are also used by Brown (2004), who notes their high quality – i.e., their internal reliability and construct validity.

We stratify the sample into younger (6-11) and older (12-17) children, both because of the separate behavioral indices and because family structure could have different effects by child's age. Moreover, Chow tests support this stratification for all outcomes. Thus, in addition to exploring differences by child gender and race, we allow for differences by child's age throughout the analyses.

3.2 Household Characteristics, X, and Inputs, Z. To deal with possible endogeneity and to explore the possible avenues for family structure to have an effect, three specifications of equation (1) are estimated. The first, *model a*, includes only the *basic* characteristics of the child, MKA and household – the child's age, race and gender, MKA's age, number of children in the household under age 6, number of children between age 6 and 17, regional indicators, and a dummy variable denoting the data is from 2002.¹⁴ The second, *model b*, augments this set with measures of *economic* resources – the MKA's highest education level, MKA's labor force status and family income level.¹⁵

The third adds parental characteristics that are most likely to be endogenous – the MKA's scores on aggravation and mental health scales¹⁶ and household *inputs*. This third model is essentially a structural form, 'descriptive' regression. Our purpose is to identify the extent to which family structure's association with child outcomes is transmitted through these inputs rather than other avenues. Health-specific inputs include whether the child has health insurance at the time of the survey, the child's number of dental visits in the past 12 months, whether the household has a usual source for health care other than the emergency room and whether the child

¹³ Examples include how often the child feels worthless or inferior, been nervous or tense, cannot concentrate, been sad or depressed, does not get along with other kids, acts too young for age, has trouble sleeping, lies or cheats, or does poorly at school. Responses are often true (=3), sometimes true (=2) and never true (=1).

¹⁴ Chow tests performed support pooling the 1999 and 2002 data together, a helpful finding given the rarity of some of the family structures.

¹⁵ Family income is a categorical variable expressed as a percentage of the Federal Poverty Level (FPL). It includes alimony and child support payments as well as any other regular contribution from persons not living in the household.

¹⁶ These scales are derived by summing the MKA's responses to questions about difficulty he/she was having with the child to create an 'aggravation' index and about his/her feelings (e.g., feeling nervous, downhearted, down in the dumps) for a mental health index. Higher scores indicate greater aggravation and better mental health.

received well child care visits in the past 12 months.¹⁷ Educational and behavioral-specific inputs include whether: the child has changed schools in the past 12 months, the child took lessons (computer, music, dance, etc.) after school last year and the child was on a sports team last year. Non-specific inputs are whether the MKA worries that food would run out and whether the household has no phone service.

3.3 Empirical Strategy. In addition to comparing the means of the variables across family structures, as provided in Tables 1 and 2, we estimate equation (1) for the three specifications discussed (*models a-c: basic, economic and inputs*). Such multivariate analyses allow us to control for other household characteristics and test the equality of the associations between the different family structures listed in Figure 1. As the outcomes and most of the inputs are discrete variables, we use both nonlinear methods of estimation (i.e., probit and ordered probit) and linear regression and verify that the findings are similar. Since the estimated coefficients/magnitudes from regression analyses are easier to interpret than those from nonlinear ones, we report and emphasize those results. All models are estimated using the survey weights provided by NSAF.

Given the large number of models estimated, we only summarize the results. We report the regression results from the broadest specification (*inputs*), also summarizing the results from the simpler specifications. The estimates are reported in Table 3 and the results for the equivalence tests performed are reported in Table 4. These models are subjected to a number of sensitivity checks, described at the end of section 4, and the key findings are explored in greater detail in Sections 5 and 6.

4. Main Results

Table 1 reports descriptive statistics for the child outcome measures, by child age and family structure. For the reference family (two-parent married, *AI*), the mean is reported. For all other families, the *difference* between the mean and that of the reference family is reported and statistically significant differences are noted. These simple differences help put our estimated family structure coefficients in context; comparing these differences to the estimated coefficients shows how the observed ‘gap’ is affected by controlling for household characteristics and inputs. Standard deviations are reported as well to further place family structure differences in

¹⁷ These measures are very similar to those used by Leininger and Ziol-Guest (2008) whose primary focus is access to care. The authors further break down insurance coverage into type and duration over the last 12 months, and they do not consider dental visits.

context. Table 1 shows the usual pattern of better child outcomes in two biological/adoptive married parent families compared to other structures; as noted, most of these differences are statistically significant. However, single father families (*B1a*) and, to a lesser extent, father families with a cohabiting or married stepmom (*B1b* or *B1c*), appear to be an exception with regards to health outcomes. Children in grandparent families report the worst current health (have the largest difference), and those in other non-parent families report the most limitations. These patterns echo those of Bramlett and Blumberg (2007), who use a different data source and much more extensive set of health measures. Interestingly, the much studied single mother family tends to be in the middle among the non-traditional families in terms of child outcomes.

Although statistically significant, the magnitudes of the differences are fairly modest. For example, the largest gap in mean current health we observe (grandparent vs. two-parents-married for young children -0.549) is approximately 2/3rds of one standard deviation for children living in two-parent married families (0.817).¹⁸ Likewise, the biggest gaps observed for the other outcomes are all approximately 0.6 to 0.7 of the standard deviations for two-parent families. The differences across nontraditional families tend to be even more modest, both because the gaps are smaller and because the standard deviations are often larger.

Table 2 reports the description and sample means of the household characteristics/inputs, by family structure. Statistically significant differences from ‘traditional’ families are again denoted. For the sake of brevity, we do not stratify by child’s age or report standard deviations. This table confirms the typical finding that household characteristics/inputs also differ significantly by family structure and in such a way – nontraditional families are less advantaged -- that suggests that estimated differences in child outcomes will likely become smaller still in our multivariate models. Children living with two cohabiting, biological parents are considerably younger, not surprising if such couples are more likely to marry as time passes. Unlike Mammen (2008), we find girls are equally likely to live in a two-parent household as are boys (48.9% of the sample are girls). However, those girls living in non-traditional families are much less likely to live with a single father than boys, as found in Bramlett and Blumberg (2007), and they are most likely to live in a single mother or

¹⁸ Recall that the complicated sampling methods in the NSAF require using survey weights which makes the calculation of these measures less straightforward. Standard deviations are calculated via the post-estimation command *estat sd* after *svy, subpop(): mean* in Stata 11.

grandparent household. As shown in Table 2, these are two of the most economically disadvantaged household types and so Mammen's fundamental point about the disadvantages facing girls remains. As has been widely documented (e.g., Fields 2003 and Fuller-Thomson et al. 1997), non-Hispanic Blacks and Hispanics are over-represented in nontraditional family structures; non-Hispanic Blacks are especially over-represented among those children living in single mother, grandparent and other non-parent families.¹⁹ Within bio-mom families, non-Hispanic Blacks fall in their representation with the growing presence of a step father (absent > cohabiting > married), whereas non-Hispanic whites display the opposite. Hispanic children appear much more likely to be living with two biological, cohabiting parents than other groups. These differences suggest that re-estimating the models, stratifying by gender or race, could be informative. Geographic differences are apparent as well, as non-traditional families are least prevalent in the Northeast and most prevalent in the South. Within non-traditional families, grandparent families are far more prevalent in the South and cohabiters are more prevalent in the West. Finally, even within the short period covered by the two waves of our sample, evidence of the growing prevalence of nontraditional families – especially single fathers and cohabiting bio-parents – exists as almost all of the proportions are higher in 2002 than in 1999.

As also found by prior research, non-traditional families suffer fewer economic resources and inputs. Within non-traditional families, bio-father (*B1a-c*) and married step-father families tend to fare the best in terms of economic resources, whereas two-parent cohabiters, grandparent and single mother families fare the worst. The relationships are less clear for inputs and tend to vary by type, although bio-father families (*B1a-c*) again stand out and appear similar to married stepfather families. These families enjoy more economic inputs (i.e., more likely to have health insurance, less likely to worry that food will run out or to not have a phone). They also have less parental aggravation and enjoy greater mental health. However, as found in Gorman and Braverman (2008), who use different data, and Leininger and Ziol-Guest (2008) who also use the NSAF, bio-father families tend to provide fewer health-specific inputs such as well care visits and having a usual source of care; in this case, they diverge from married stepfather families. These descriptive results suggest that bio-father and married stepfather

¹⁹Non-Hispanic Whites, non-Hispanic Blacks and Hispanics account for 63.8%, 15.8% and 15.6% of the total sample, respectively. The remaining 4.7% is 'other,' which includes any other racial/ethnic group such as Asian, Pacific Islander, Native American, etc.

families enjoy a higher economic status, which may result in greater inputs and better emotional well-being for the MKA; yet, such an economic advantage does not translate into greater health inputs in bio-father families.

4.1 Multivariate Analyses. Table 3 reports the full set of results for the *input* (model *c*) specification and summarizes the findings from the other two models (*a* and *b*); Table 4 summarizes the battery of tests and comparisons performed. The *inputs* results are the most conservative because, as is commonly found, the estimated magnitude and statistical significance of the family structure coefficients typically diminish as more variables are added (i.e., *basic* to *economic* to *inputs*). As discussed in Ribar (2004), such a model may over-control for family structure by removing many of the avenues for family structure to have an (indirect) effect. Still, the basic pattern of findings mostly holds across all models. For the educational and behavioral outcomes, nearly all of the family structure coefficients are statistically significant, except for the relatively rare two bio-cohabiter (*A2*) families, and all suggest a lesser outcome than in two bio-parent families. Compared to the gaps found in Table 1, controlling for the full set of household characteristics and inputs reduces the gaps by one- to two-thirds in most cases. The estimated effect of living in a bio-mom family is especially diminished, whereas the impact of living in a bio-dad family – and to a lesser extent a married stepfather family -- is much less affected and occasionally even grows, which is expected given the differences such households face in available resources.

The family structure results for the health outcomes are more mixed and less statistically significant.²⁰ Current health status behaves in a similar way to the other outcomes except for single father households and to a lesser extent cohabiting families (*B1b* & *B2b*). Younger children in such households experience better health outcomes, significantly so for single father households. The single father coefficients for current health are positive in all three models for younger children and, for both age groups, steadily increase as more resources are included, suggesting that controlling for the (lower) health care inputs is important. In fact, the positive gap in younger children's current health found for single father families in Table 1 more than doubles (.13 versus .05) when all inputs are included, although the magnitude remains modest relative to sample variation at about 1/6th of the standard deviation for two-parent-married families (henceforth, *SD*). Still, its size is large relative to the gaps

²⁰ The weaker statistical significance is somewhat expected given that the health measures display less variation (i.e., take on fewer possible values) than the other two.

estimated for most other family structures once household resources and inputs are included. Limiting health conditions display a slightly different pattern. Consistent with the gaps found in Table 1, bio-mother families (*B2a-c*) continue to show a greater incidence for both age groups, while the gap for single father families continues to be negligible. For both health measures, no-parent families are associated with the largest gap, once again consistent with Table 1. Younger children living in grandparent families experience the largest gap in current health (-0.24, more than 0.25 *SDs*) and children of both ages living in other no-parent families experience the largest gap in limiting conditions (+0.12 and +0.05). Overall, then, the gaps in all three types of outcomes reported in Table 1 are diminished but still remain when household characteristics are included – with the exception of single/bio-father households.

Regarding other household characteristics, girls are reported to have better outcomes – with the exception of current health for older girls – after controlling for family structure and different sets of household characteristics and inputs. Differences across race/ethnicity are mixed. Non-Hispanic blacks and Hispanics report poorer current health, but are also less likely to suffer a limiting condition. While their school engagement may be lower, their behavioral problems are also lower. Older parents (as proxied by MKA’s age) seem to have the strongest associations with older children’s outcomes, negatively for health and positively for school and behavioral ones.²¹ Having other children in the household is associated with better, if anything, outcomes. As expected, MKA education and household income are positively associated with child outcomes, while MKA work status is more mixed.

The inputs behave mostly as expected in that they are positively related to child outcomes, but there are also significant crossovers between input-types and different outcomes. The health-related inputs tend to be associated with improved current health but also better school engagement. This result makes sense as a healthy child will likely perform better in school, but it could also be due to the unobservable characteristics likely correlated with these variables; receiving routine care may be a proxy for how the parent(s) performs more generally. Interestingly, though, no beneficial relationship exists with behavioral problems. Being in the same school, on a sports team or taking lessons after school are all associated with better health outcomes as well as

²¹ We explore the possibility that age may be capturing some of the effects of living with a grandparent in section 6.

better educational/behavioral ones. There is also strong evidence of endogeneity of health care inputs as children with health insurance and receiving well care are more likely to have a limiting condition. Such reverse causality may cause the health inputs to appear less productive for health outcomes. Reverse causality may also be responsible for the very strong relationships found between parental emotional well-being and child outcomes. This finding corroborates our concern about the *inputs* model and our assertion that it likely leads to the most conservative estimates of the effects of family structure. It also highlights the value of comparing the results across models *a-c*.

4.2 Comparisons and Equivalencies. Our primary purpose is to determine – for each outcome – what aggregation of family structures is supported by the data and what differences exist that warrant additional attention. Table 4 begins by reporting the broadest comparisons and equivalencies, starting at the upper most branches of Figure 1, and systematically moves down the figure to report more refined comparisons. We use a fairly generous significance level – 10% – to capture all likely statistically significant differences, and we report the findings across all 3 models.

The hypothesis that all family structure coefficients are zero – i.e., that no relationship exists between refined measures of family structure and child outcomes – is firmly rejected across all outcomes and models.²² Likewise, the hypothesis that all nontraditional family structures have the same association with child outcomes is rejected for all outcomes except the school engagement and behavioral problems of older children. The other hypothesis that is firmly rejected for all outcomes and most models is that all two-parent, married (traditional and blended) families are equal, the aggregation assumed by Leininger and Ziol-Guest (2008). However, the results for the health care inputs (based on estimates from equation 2 and reported in Appendix Tables 1 and 2) yield few statistically significant differences and so support aggregating all two-parent married (traditional and blended) in the special case of health inputs.

The other tests reveal greater differences across outcomes, with health outcomes the most likely to show significant differences. The gender of the bio-parent appears particularly important to health outcomes, as the

²² Note that none of the hypotheses are rejected for the current health measure for ages 12-17 when model c is specified. Also, all of the test results are very similar when nonlinear methods of estimation (e.g., ordered probit) are used.

hypotheses that 1) all one bio-parent families are equal, 2) all unmarried, one-bio parent families are equal, and 3) all cohabiting families are equal are each rejected in the majority of models. Within bio-parent gender, however, far fewer differences appear (e.g., single fathers are similar to those who are cohabiting or married) for any of the outcomes. Bio-mom families appear to be different chiefly due to resource differences, as the significance disappears when economic resources are included. The results for no-parent families (i.e., are grandparent families different from other non-parent families?) are more mixed, and reflect the tendency found in Tables 1 and 3 for children in other non-parent families to be most likely to experience a limiting condition.

The second panel of Table 4 makes explicit pairwise comparisons between different types of nontraditional families. Health outcomes again stand out with respect to parental gender. Children living in single father families consistently report better current health and fewer limitations than those in single mother families, with differences that range from .06 to 0.21 *SDs*. This advantage fades, however, as a cohabiting then a married partner is added. In contrast, the coefficient estimates for behavioral and educational outcomes universally suggest the opposite tendency – children living with their bio-mothers (single, cohabiting or married) fare better than those living in corresponding bio-father households – although the differences typically are not statistically significant. Thus, the gender of the bio-parent appears particularly important and its relationship differs depending on the type of outcome. We investigate this issue further in section 5.

Next we perform pairwise comparisons within each bio-parent gender household and study how child outcomes are related to the growing presence of another adult – absent (single) to cohabiting to married.²³ For bio-father families, we find some weak support for single father families having an advantage over married step families for current health, and for cohabiting fathers having an advantage over the other two types in older children's limiting conditions. We find the latter result suspect due to the relatively small number of such households and its complete divergence from that found for younger children. More significant differences appear for bio-mother families, but again seem to be due mostly to differences in inputs. Still, from both the tests and the coefficients it appears as though cohabiting is not an 'intermediate' stage between single and married parents, especially for younger children.

²³ Stratifying by child gender yields even fewer significant comparisons and no particular distinction between boys and girls.

4.3 Sensitivity Checks. Before exploring these differences and patterns in more detail, we note that these results are robust to several broad sensitivity checks.²⁴ First, the results reported above span three different model specifications, ranging from very basic to including a wide range of likely endogenous inputs. Most of our key results extend across all three models. Second, all models are estimated with both regression and nonlinear methods (i.e., simple and ordered probit) and the results are very similar; if anything the health outcomes differences are even stronger and the education/behavior differences are weaker.

Third, we redefine the ‘current health’ variable to be two alternative dichotomous health indicators, which is frequently the approach in past work using health status (e.g., Bramlett and Blumberg 2007 and Case and Paxson 2002). *Health1*=1 if current health is ‘very good’ or ‘excellent,’ and *health2*=1 if current health is ‘good,’ ‘very good’ or ‘excellent.’ The key results in Tables 3 and 4 remain. In particular, children in single-father families enjoy better health outcomes than single-mother ones, with an increased estimated probability of being in the better health category ranging from 0.01 to 0.11 (compared to sample proportions of .82 and .95). However, one comparison is strongly affected. When either dichotomous variable is used, the hypothesis that all married, two-parent families are equal ($A1=B1c=B2c$) cannot be rejected, whereas it is strongly rejected across all models for the more detailed health measure. This result suggests to us that defining health status may be especially important when studying blended versus traditional married families.²⁵

The last robustness check is to omit all family structures with ambiguity in their classification and/or that introduce an additional dimension of possible difference. Being adopted or living with a same-sex couple has the potential to exert an independent effect and both require additional assumptions for classification in Figure 1 (see footnote 5). Likewise, ambiguity exists in classifying ‘other’ parents, a category permitted in the NSAF. We explore taking a much more restrictive approach. Two- and one-parent families are defined based on the number of *biological* parents only. (As before, no-parent families cannot have ‘mother’ or ‘father,’ of any sort - biological, adoptive, step or other - in the definition.) For one-parent, married families, only those with one biological parent

²⁴ All results discussed but not reported are available upon request.

²⁵ The equivalency of all cohabiting families ($A1=B1b=B2b$) is also affected. When ‘fair’ and ‘poor’ health are isolated (*health2*), we now reject this hypothesis in models *a* and *b*, similar to what is found for limiting condition in Table 4.

and one ‘step’ parent are included. For one-parent, cohabiting families, only those with one biological parent and a ‘partner’ of opposite sex (as opposed to ‘mother’/‘father’ of some type) are included. The vast majority of omitted family structures contain a very small number of observations. By far the most significant cuts are married, two-adoptive parents families (n =528, which had been included as ‘traditional’ families, *A1*) and married, biological mother/adoptive father families (n=246, previously included in ‘step-father, married’ families, *B2c*). Overall, 1333 observations are eliminated from the analyses as a result. Re-estimating the models with this smaller sample yields very similar results to those reported above.

5. Further Analyses – Living with Dad

All of our results suggest that significant differences exist by gender of the bio-parent and that these differences are most acute for health outcomes, and indeed may go the opposite way for behavioral/educational ones. One explanation is the difference in the way mothers and fathers report their child’s outcomes, as suggested in previous research (e.g., Leininger and Ziol-Guest 2008 for health; Bird and Berman 1985, and Davé and Nazareth 2008 for educational and behavioral outcomes). Our large sample size allows us to explore this hypothesis by investigating the effects of the MKA’s gender. As expected, the gender of the MKA is very highly correlated with family structure – e.g., MKA gender is overwhelming male (female) in single father (mother) families. In traditional families, the MKA is typically female (presumably the mother). Still, as the top of Table 5 shows, these correlations are not perfect, especially in families with two adults, which allow us to control for the gender of the reporting adult in two exercises. First, we re-estimate our models for traditional, two-parent families only and include MKA gender as an additional variable. Second, we add MKA gender to the models *a-c* above and repeat all of the tests in Table 4. The lower panel of Table 5 reports the results for the MKA gender coefficients and, for the second exercise, the family structure coefficients as well.

In both exercises and across health measures/models, the estimated coefficients on MKA gender suggest that female MKAs are associated with lesser health outcomes, but they are only consistently statistically significant in the simpler models (*a* and sometimes *b*). These exercises thus provide some support for the assertion by Leininger and Ziol-Guest (2008) and others cited therein that mothers tend to report lesser health outcomes than fathers— especially for younger children and for reported health status. For educational and

behavioral outcomes, the MKA gender coefficients are less significant and their sign is very sensitive to the model estimated.

Does MKA gender explain the differences in health outcomes observed between bio-mother and bio-father families? Not entirely. While adding the MKA gender to the model reduces the size of the differences between the estimated effects and the number of equivalencies rejected, especially for model *c*, the same basic differences exist and are still sometimes statistically significant. Given the very high correlation between MKA gender and the gender of the single bio-parent, we view the persistent differences to be evidence that gender-reporting bias – while likely important – is not the whole story.

5.1 The Possible Role of Child Gender and Race. The differences in child health outcomes could of course be due to selection, as fathers receiving custody is not a random process (see Raley and Bianchi 2006, and Biblarz and Stacey 2010), or reverse causality as poor child health may cause marital disruptions or impede marriage for the mother (e.g., Corman and Kaestner 1992 and Reichman et al. 2004). The lower level of health inputs combined with the better health outcomes of single father families is suggestive of selection – healthier children in nontraditional families are more likely to live with their fathers. Past work has asserted that boys are also more likely to live with their fathers (e.g., Mammen 2008, Biblarz and Stacey 2010) and that boys receive more attention from their fathers (e.g., Raley and Bianchi 2006, Mammen 2009). It is therefore possible that any causal effects could differ by child gender as well, and so we re-estimate the main specifications stratifying by child's gender and, alternately, race.

The results for bio-father vs. bio-mother comparisons are reported in Table 6 for each of these groups. The top panel for each age group, comparing child outcomes of single fathers to those of single mothers, makes clear that the positive association between health outcomes and single fathers extends across gender and race.²⁶ However, the effects are stronger for boys than for girls, especially for older children, a result that is not only due to the larger number of boys in such households (and thus greater precision); the estimated gaps are larger for boys as well. For the two other one bio-parent households (cohabiting and step-married, the bottom two panels),

²⁶For completeness, we report the results for the 'all other' racial category, but given its very small sample size we do not discuss the results.

the relationship between bio-parent gender and health outcomes is once again eroded but still shows a weak advantage for bio-father families that extends across gender and race.

The relationships between bio-parent gender and behavioral and educational outcomes are more mixed and fewer differences are statistically significant. One suggestive pattern regarding behavioral problems hints of an interaction between bio-parent and child gender that may differ by age. The pattern suggests that selection may be at work as the advantage in behavioral outcomes shifts from bio-fathers for younger boys to bio-mothers for older ones; perhaps boys with the most behavioral problems end up living with their fathers as they grow older. However, the same is not true for girls. These patterns seem mostly limited to whites and, again, are not nearly as statistically robust as the relationship between bio-parent gender and child health outcomes.

5.2 Inputs and Bio-Parent Gender. Having established that differences in child health outcomes by bio-parent gender are persistent and fairly universal, we now explore possible explanations, beginning with the difference in inputs revealed in Table 1 and as found by Gorman and Braverman (2008) and Leininger and Ziol-Guest (2008). We estimate the relationship between inputs and gender of the single bio-parent by estimating equation (2) for models $a - b$ and performing the same tests as in Table 4.²⁷ The comparisons for one-bio parent households by gender are summarized in Table 7; the full set of results and tests are summarized in Appendix Tables 1 and 2. Single father families are consistently associated with fewer health inputs, although the differences are universally statistically significant only for older children. In contrast, they enjoy significantly more of the general inputs. Recall that these patterns are evident in the simple descriptive statistics presented in Table 1; this exercise verifies that the same pattern remains even after controlling for economic resources and other characteristics. The difference in health inputs declines with the growing presence of another adult (single to cohabiting to married) and is even reversed in some cases (insurance status of younger children). Several of the non-health inputs – especially food insecurity and parent’s mental health and aggravation – are consistently better in bio-father households regardless of whether a female is present. These results seem unlikely to be due to gender-based reporting bias because they remain even in the models we estimate above that include the MKA’s gender. The evidence suggests that bio-father – especially single father – households are fundamentally different in terms of

²⁷ Recall that model c includes the inputs, Z , and so cannot be estimated here.

both inputs and health outcomes, even after controlling for economic resources and other characteristics. Our results also lend an alternative perspective to the stepmother results of Case and Paxson (2001), by suggesting that it is living with the biological father – rather than having a stepmother – that leads to less health care. (Case and Paxson 2001 did not consider explicitly single-parent families.) In our analyses, adding a stepmother to a bio-father household *closes* the health care gap.²⁸

Next, we investigate whether public insurance such as Medicaid or SCHIP is playing a role in the differential health care inputs enjoyed by these families. Figures 2A-F report the child's source of health insurance by family income level for single mother vs. single father families. Children in single mother families are more likely to have public insurance and less likely to have employer insurance – or to be uninsured – than those in single father families, *at every income level*. Thus, the greater incidence of public insurance (and lower rate of uninsurance) of children in single mother families is not due solely to their lower income levels. One explanation is that men may value health insurance less – in general – than women do. Performing a similar exercise for the MKA's insurance status (presumably the parent's insurance status) shows similar patterns to Figure 2 but also reveals some interesting differences by income. At very low levels of income (< poverty level), single fathers and mothers have similar uninsurance rates for themselves – while the children of single mothers have much lower rates than their counterparts in single father families. At low levels (1.5 to 3 times the poverty level), both men and their children have higher uninsurance rates than single mother families. At the highest income level, single fathers are less likely to be uninsured than single mothers while their children continue to be more likely to be uninsured compared to children in single mother families. Thus, the differences in child uninsurance rates by income and bio-parent gender are not reflected in the uninsurance rates of their parents.

Finally, we report how child uninsurance rates vary as another adult is added to the household, building on our multivariate results that suggest the health care gap closes. Figure 3 reports the child uninsurance rates, by income level, of single father/mother families vs. bio-father/mother (which includes cohabiting and married partners). At every income level, adding a male partner increased or left unchanged the uninsurance rate whereas

²⁸ This conclusion is verified by performing the pairwise comparisons in Table 4 for the input equations (reported in Appendix Table 2, part 1). Married stepmother families frequently are significantly associated with greater health care inputs than either single father or cohabiting stepmother families.

adding a female partner had the opposite effect. Repeating the same exercise for the child's type of insurance (unreported) suggests that this tendency may be coming from changes to employer insurance – adding a male partner *reduces* slightly the probability of having it while adding a female increases it, especially for moderate/low income levels. Interestingly, adding a female partner lowers the incidence of public insurance, while adding a male partner has little effect.

5.3 The Nonresidential Parent. Another way that households may differ by bio-parent gender is through the actions of the nonresidential parent. Hawkins et al (2006) and Stewart (2010) reveal that nonresidential mothers tend to be more involved/have more contact with their children than nonresidential fathers. This involvement could thus be an unobserved input correlated with bio-parent gender and may help explain the differences we see. The pattern of better health outcomes and lower health inputs in bio-father families could be due to nonresidential parents, especially mothers, taking some of the responsibility for health care. Moreover, the closing gap we see when a partner is added could be the result of reduced nonresidential parental involvement in such families, as suggested by Stewart (2010) who uses the 1997 wave of the NSAF.

The NSAF contains four types of information on the nonresidential parent: i) whether the child's parents were married when the child was born (*HPARMAR*), ii) whether the child's biological parent is living elsewhere (*HFBIO*, *HMBIO*), iii) how often the child sees the nonresidential parent (*HFSEE*, *HMSEE*) and iv) whether the nonresidential parent makes financial contributions to the child (*HFFIN*, *HMFIN*). No information exists on how nonresidential parental inputs are spent (e.g., whether the mother takes the child to the doctor). Still, we investigate whether these measures vary systematically by family structure and are associated with child outcomes and inputs.

Figures 4-6 summarize these four pieces of information for each one-parent family structure (Branch B in Figure 1). The relationships are similar across child age and gender and so are reported only for the full sample. Figures 4A and 4B show that children in bio-father families are more likely to have parents who were married at his/her birth and yet are less likely to have a biological mother living elsewhere. These findings suggest that the selection processes and unobservable characteristics differ by bio-parent gender, as bio-father families appear more likely to have arisen from an intact (married) family in which a parent has died. Figures 5A and B strongly

confirm the findings of past research that nonresidential mothers have more contact/are more involved with their children than nonresidential fathers. Between 25% and 30% of children did not see their nonresidential father at all in the last 12 months, whereas the corresponding percentage is approximately 10% for nonresidential mothers. Likewise, the most common category for nonresidential mothers is the most frequent – more than once a week – whereas the most common category for nonresidential fathers is none. Also evident is that the presence of a partner appears to inhibit the contact the nonresidential parent has with the child, another finding in past research. Thus, if contact with the nonresidential parent is an important input into child health outcomes – which we explore shortly – then these patterns help explain the differences we see in child outcomes.

Figure 6, however, reveals that nonresidential fathers are more likely to make financial contributions than nonresidential mothers. The presence of a partner reduces the involvement of the nonresidential parent in this regard as well. Therefore, differences in both time and money spent by the nonresidential parent may help explain the closing gap between bio-father and bio-mother families as a partner is added. Whether nonresidential parent inputs can explain the differences in health outcomes depends on the relative importance of time versus money to child health.

To explore this issue, we estimate a final set of descriptive regressions. For each of four family types – single mother vs. single father, all bio-mom vs. all bio-dad – we estimate all inputs and outcomes using model specification *b* augmented with these four variables.²⁹ We simplify the ‘see’ variable to be a dummy that is equal to one if the child sees the nonresidential parent at least weekly. All missing, inapplicable, etc. values are set to zero, as many are due to there being no biological parent living elsewhere, and so that all observations may be used. Table 8 summarizes the results of these exercises for the two key variables of time and money provided by the nonresidential parent. Both time and money tend to have a positive relationship with all three types of child outcomes. For health outcomes, the relationships appear stronger for parental time, especially for older children, and extend to all four types of families. There is also some evidence that the nonresidential mother has a unique

²⁹Specification *b* is the broadest model that can be estimated for both outcomes and inputs, and so we choose it for comparability across measures.

influence on the health inputs the child receives, which is diminished as a partner is added to the household. Financial contributions have a weaker effect and only for single-/bio-mom households.

The results for the other outcomes and inputs reveal similar relationships, although contact with the nonresidential father appears especially important. The likely endogeneity of the parental aggravation and mental health measures is apparent, as they are both strongly correlated to contact with the nonresidential parent. Well-functioning families and less problematic children likely have mentally healthier parents and a better relationship with their nonresidential parent, again highlighting the challenges of dealing with endogeneity and unobservable characteristics in such models.

In sum, these exercises suggest fundamental differences by parent gender in the way single bio-parent families are formed, make decisions regarding inputs, interact with the nonresidential parent and, ultimately, produce child outcomes. These differences are especially apparent in the realm of child health. The positive relationship found between child health outcomes and living with a single father is very robust and extends across gender and race, although it appears strongest for boys. The advantage over single mother families occurs whether or not we control for the (lower) health-related inputs provided in such families and cannot be explained fully by gender-based reporting bias, although such a bias is plainly evident. The lower levels of health care inputs observed for such families are in part due to differences in public insurance participation and, in contrast to Case and Paxson (2001), are softened by the addition of a cohabiting or married step-parent. The effects of adding a partner and/or contact with the nonresidential parent hint at more fundamental differences in the way mothers and fathers value health inputs. With our cross-sectional data, we cannot discern if these relationships are truly causal or due to differences in selection processes. Nonetheless, our descriptive analyses suggest several possible avenues for parental gender to have an effect and they echo the conclusion of Biblarz and Stacey (2010) that the gender of the bio-parent is strongly associated with child well-being.

6. Further Analyses – Living with No Parent(s)

In this section, we explore further a somewhat surprising, ‘non-result’ from our main analyses – the lack of a consistent difference between grandparent and other nonparent families. Table 2 reveals that such families are far more common for non-Hispanic black children. Our first step, then, is to check whether pooling the races

together is obscuring importance differences by examining the results and tests for models stratified by race, as we did for one-parent families in Table 6. This analysis reveals few new insights; the strongest finding is that the advantage enjoyed by grandparent families regarding a limiting condition occurs only for non-Hispanic black children. Some evidence also exists that behavior problems may be lesser in grandparent families for older, non-Hispanic white children. Overall, though, the differences are rarely significant and fluctuate in direction.

Another possibility is that MKA age is capturing the differential effects of grandparent families and so we try excluding it from the models. This exercise strengthens the few differences already evident. Specifically, the disadvantage of grandparent families in child's current health is now statistically significant in more models, and their advantage in older children's behavior is significant across models *a-c*. Otherwise, this exercise does not alter the basic findings.

Next, we explore possible differences in inputs. Estimating the inputs as dependent variables in models *a* and *b* (equation 2, results reported in Appendix Tables 1 and 2) reveals that neither family type consistently has an advantage, although there are a few suggestive results. Compared to other non-parent families (*C2*), MKA's in grandparent families with young children have poorer mental health, and older children in grandparent families participate in fewer extra-curricular activities (*sports* and *lesson*). Grandparent households do however, provide older children with greater health inputs (*insured* and *usual care*), controlling for economic resources. Looking once again at insurance status reveals that this difference is not driven strongly by differences in public insurance participation. However, since we control for these inputs in various ways, these patterns do not explain the lack of a difference in outcomes. Moreover, looking at the inputs and other influences we don't control for – the nonresidential parent information – reveals a strong advantage for grandparent families over other non-parent forms. Compared to other non-parent families, children living in grandparent families are more likely to 1) have parents who were married at their birth, 2) have one or more biological parents living elsewhere, 3) see their biological parents more frequently, especially their mothers, and 4) receive more financial contributions from their parents. Yet, we do not see these advantages translate into better observed child outcomes.

Finally, we consider that 'other' nonparent families have been too broadly defined. We therefore further classify 'other' families, *C2* in Figure 1, into 'other-kin' (n=599) – *C2'* and 'non-kin' (n=353) – *C3'*, and re-

estimate the models and perform the tests with 10 family structure indicators instead of 9.³⁰ This exercise also reveals whether further refinements to one ‘branch’ of family structures affects the results for other ‘branches.’ Table 9 reports the family structure coefficient results and summarizes the comparisons and joint tests regarding these three types of non-parent families. Note that the estimates for the other two branches (*A* and *B* in Figure 1) are barely affected; likewise, their test results are nearly identical and so are not reported.

The results for no-parent families (Branch *C*) are also barely altered by this finer distinction. Children in grandparent families still suffer poorer current health than other families; children in ‘other’ non-parent families – other-kin for younger and non-kin for older children – are still the most likely to suffer a limiting condition. The one relationship that is altered by this distinction is once again the behavioral problems of older children. Non-kin families are consistently associated with reported worse behavior of older children. All of these exercises therefore suggest that real differences exist for this outcome – although statistical significance is usually eliminated in our richest model. For younger children, the joint hypothesis that all non-parent structures are equivalent ($C1=C2=C3$) is rarely rejected, which further confirms the findings from the main models. For older children, our results suggest that their limiting conditions and behavioral problems may be lesser in grandparent families although the results are not strongly robust.

7. Concluding Remarks

Our purpose is to study the relationship between a highly defined set of family structures and a broad set of child outcomes at a particular point in time in a child’s life. We propose a classification of family structures, shown in Figure 1, which facilitates testing several equivalencies and making pairwise comparisons. The goal is to uncover instances in which finer distinctions of family structure or different facets of child well-being prove empirically important and others in which simplifying assumptions/aggregations are supported.

Our results echo most of the vast literature on child outcomes in finding that nontraditional families are associated with lesser child outcomes, even after controlling for a large list of economic resources and inputs.

Whether or not two-parent, cohabiting families (*A2* in Figure 1) should be classified as nontraditional is not

³⁰The nonresidential parent information suggests that ‘other-kin’ families are an intermediate form between grandparents and ‘non-kin’ families – i.e., they are more advantaged than non-kin families but less advantaged than grandparents in terms of the nonresidential parents’ behavior.

entirely clear, and our results suggest they fall in between traditional families (*AI*) and other nontraditional families. We find that while they tend to be associated with lesser child outcomes, the differences are rarely statistically significant once resources and inputs are controlled for, which is not surprising as we find them to be one of the most economically disadvantaged groups. Moreover, their equivalence with step cohabiting households (*B1b* and *B2b*) is rejected about half of the time, regardless of whether inputs/resources are included. In contrast, we soundly reject that married step-parent families (*B1c* and *B2c*) are equivalent to traditional families (*AI*) in terms of child outcomes, although the differences are less prominent for the provision of inputs. Taken together, these findings suggest that living with both biological parents is the more empirically important distinction for child well-being than if the household is headed by a married couple or not.

We also soundly reject the hypothesis that all non-traditional families (Branches *B* and *C*) are equivalent. Within families with only one bio-parent present (Branch *B*), the gender of the bio-parent – and perhaps the gender of the child as well – is the important distinction. We find strong differences between single father and single mother households, especially for health outcomes and/or for boys. We are much more likely to reject the equivalence across the secondary branches of Figure 1 (e.g., *B1-a* vs. *B2-a*) than within such a branch (e.g., *B1-a* vs. *B1-b*). These results build upon our conclusion above in that the presence (and gender) of a biological parent is the more important distinction than the presence of another adult or the nature of that relationship; as such, they echo the conclusion of Biblarz and Stacey (2010). They also cast a different light on the stepmother findings of Case and Paxson (2001). We find that living with the biological father is the key distinction and that adding a married stepmother to the household is associated with improved health care received by the child. Our findings caution against aggregating bio-father and bio-mother families, especially for single-parent families and when health outcomes are the focus. Exploring whether these differences are truly causal or are instead due to selection in custody awards and/or reverse causality effects on (re)marriage and marital stability is a promising avenue for future research. Our results make clear, however, that single-father households are associated with fewer health inputs *and* better child health outcomes compared to single-mother households.

Within no-parent families (Branch *C*), we find surprisingly few persistent differences between those headed by grandparents versus other non-parental families, even when a further distinction is made between other

kin and non-kin families (i.e., subdividing *C2*). Making this extra distinction within Branch *C* also has no substantial impact on the results for the other two branches, a reassuring result for the vast majority of studies that mostly ignore these households. The differences between grandparent and other non-parent families that do arise are primarily for child current health (children from grandparents households fare worse), limiting health condition (children from grandparents households fare better), and behavior problems of older children (children from non-kin households fare worse), but they are typically not robust across different model specifications. Given that children in such families are likely to have experienced more family disruption and distress (children are typically separated from their parents due to parental youth or neglect, drug abuse or incarceration; e.g., see Minkler 1999), it is somewhat surprising that the estimated magnitude of the effects is so similar across branches *B* and *C*. We suspect that such families have the greatest differences in terms of their histories and so our ‘snapshot’ approach likely suffers the most limitations for this type of household. Their relative rarity, however, makes obtaining longitudinal data that is sufficient for studying these issues a challenge.

Finally, we also find that the relationship between family structure and physical health outcomes often differs substantially from its relationship with behavioral and educational outcomes, outcomes which have been much more widely studied. While our analyses suggest that nontraditional families tend to suffer poorer outcomes for all three types of outcomes, the differences *across* nontraditional families are most pronounced for health outcomes. However, our child outcome measures are reported by the most knowledgeable adult (MKA) at the time of the survey; as such, they differ both in their timing and possible reporting bias from the more typically studied educational and behavioral outcomes – e.g., educational attainment/high school graduation, earnings, or premarital childbearing. A promising avenue for future research is to investigate the relationship between family structure and similarly objective measures of health attained as a young adult, thereby sidestepping the potential parental-gender bias in reporting and shedding additional light on cumulative health effects.³¹ How does the adult health status of children raised in single father households compare to those raised in single mother households? Does the impact of duration, timing or sequence of family structures differ by the gender of the biological parent?

³¹ Case et al. (2005) provide convincing evidence that childhood health and economic circumstances have strong effects on adult health, educational attainment and economic status, but family structure is not included – other than the mother’s marital status at the time of birth.

What is the cause of the differing behaviors of single fathers versus single mothers, documented here and elsewhere (e.g., Braverman and Gorman 2008; Kalenkoski et al 2007; Ziol-Guest et al 2006), and how do they evolve over the life-cycle of the household? What role does the nonresidential parent play and does it differ by gender? The results of our research strongly suggest that future research into single father families – how they are formed, how they make decisions, how their children ultimately fare – is warranted.

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Table 1. Child Outcomes by Family Structure and Child Age

	Two parents- married (A1)	Two parents- cohabiting (A2)	Single father (B1-a)	Step mother- cohabiting (B1-b)	Step mother- married (B1-c)	Single mother (B2-a)	Step father cohabiting (B2-b)	Step father- married (B2-c)	Grand parent (C1)	Other- non parental (C2)
Current Health Status (values: 1-5)										
ages 6-11	4.414	-0.260***	0.046	0.037	-0.037	-0.288***	-0.187**	-0.132***	-0.549***	-0.235***
S.D.	(0.817)	(0.967)	(0.737)	(0.707)	(0.730)	(1.006)	(1.018)	(0.827)	(1.064)	(0.859)
ages 12-17	4.372	-0.345***	-0.032	-0.100	-0.165**	-0.365***	-0.384***	-0.093**	-0.458***	-0.233***
S.D.	(0.832)	(1.135)	(0.893)	(0.809)	(0.853)	(1.092)	(1.030)	(0.891)	(1.108)	(0.804)
Has health condition that limits activity: (values: 0,1)										
ages 6-11	0.079	-0.014	-0.001	0.135	0.015	0.061***	0.119***	0.059***	0.113***	0.165***
S.D.	(0.264)	(0.248)	(0.273)	(0.398)	(0.271)	(0.350)	(0.407)	(0.342)	(0.404)	(0.393)
ages 12-17	0.100	0.003	0.027	-0.037	0.028	0.081***	0.084***	0.058***	0.057**	0.092***
S.D.	(0.296)	(0.342)	(0.362)	(0.232)	(0.318)	(0.403)	(0.377)	(0.371)	(0.423)	(0.367)
School Engagement: (values: 4-16)										
ages 6-11	13.46	-0.512***	-0.426**	-0.512	-0.513*	-0.697***	-1.102***	-0.413***	-0.938***	-1.358***
S.D.	(2.296)	(2.579)	(2.566)	(2.481)	(2.641)	(2.744)	(3.165)	(2.513)	(2.715)	(3.071)
ages 12-17	13.087	-1.057**	-0.906***	-1.698***	-1.355***	-1.04***	-1.253***	-0.956***	-0.973***	-1.280***
S.D.	(2.704)	(3.649)	(3.394)	(2.876)	(3.328)	(3.176)	(2.893)	(3.128)	(3.270)	(2.871)
Behavioral Problems Index: (values: 6-18)										
ages 6-11	7.675	0.356**	0.417***	0.720*	0.589*	0.643***	1.121***	0.532***	1.225***	0.973***
S.D.	(1.800)	(2.116)	(2.054)	(2.060)	(2.134)	(2.270)	(2.573)	(2.189)	(2.592)	(2.042)
ages 12-17	7.663722	0.831***	0.724***	1.180**	8.636***	0.980***	1.162***	0.772***	0.766***	1.285***
S.D.	(1.862)	(2.259)	(2.271)	(2.508)	(2.179)	(2.461)	(2.160)	(2.395)	(2.632)	(2.308)
N (ages 6-11)	12445	445	704	108	344	4454	720	1630	498	350
N (ages 12-17)	11675	178	850	107	642	4647	584	2210	551	602

Notes: 1) Except the "two parents-married" column showing means of child outcomes as the benchmark for comparison, all other columns show the difference-in-means between "two parents-married" and the non-traditional families.
2)*** indicates the difference-in-means between the nontraditional family and married two-parent family is statistically different at 1%, ** at 5%, * at 10% level.
3) Standard deviations (S.D.) are shown for outcomes (not difference in outcomes) in parentheses.
4) Means, standard errors (used for testing) and standard deviations are all obtained by using the survey sample weights.

Table 2. Descriptions and Means of Household Characteristics and Inputs, by Family Structure

	Two parents- married (A1)	Two parents- cohabiting (A2)	Single father (B1-a)	Step mother- cohabiting (B1-b)	Step mother- married (B1-c)	Single mother (B2-a)	Step father- cohabiting (B2-b)	Step father- married (B2-c)	Grand parent (C1)	Other- non parental (C2)
Child, MKA and Household Characteristics (included in Models a-c)										
Age (value:6-17)	11.344	9.532***	11.508	11.223	12.487***	11.446	11.286	11.953***	11.348	12.516**
Girl	0.489	0.487	0.413***	0.478	0.469	0.511*	0.486	0.471	0.508	0.469
Non-Hispanic White	0.732	0.427***	0.719	0.724	0.709	0.408***	0.572***	0.671***	0.365***	0.463***
Non-Hispanic Black	0.069	0.194***	0.142***	0.177*	0.140*	0.369***	0.176***	0.135***	0.465***	0.330***
Hispanic	0.142	0.336***	0.101***	0.084**	0.117	0.188***	0.220***	0.160	0.164	0.151
Any other ethnicity	0.057	0.044	0.038**	0.016***	0.034**	0.035***	0.033**	0.034***	0.006***	0.056
MKA's age (values: 18-85)	40.227	35.894***	42.164***	37.504***	37.734***	37.797***	34.845***	36.060***	56.814***	39.002**
Number of children under 5 years old (values: 0-6)	0.318	0.454***	0.113***	0.382	0.468***	0.314	0.401**	0.470***	0.255**	0.480***
Number of children ages 6-17 (values: 1-10)	2.122	1.970**	1.839***	2.394	2.428*	2.093	2.258	2.151	1.951**	2.464***
Northeast	0.196	0.212	0.170*	0.090***	0.125***	0.180**	0.187	0.128***	0.150***	0.169
West	0.238	0.320**	0.274	0.270	0.216	0.217**	0.264	0.222	0.188**	0.221
Midwest	0.255	0.179***	0.206**	0.227	0.286	0.199***	0.258	0.233	0.162***	0.245
South	0.311	0.289	0.351	0.413*	0.373**	0.404***	0.291	0.417***	0.501***	0.365*
Year 2002	0.500	0.558*	0.520	0.623**	0.508	0.507	0.488	0.503	0.526	0.494
Economic Characteristics (added to Models b,c)										
MKA has no High School	0.116	0.370***	0.155**	0.152	0.140	0.230***	0.311***	0.164***	0.380***	0.183**
MKA has High School diploma	0.237	0.278	0.267	0.257	0.294**	0.262**	0.285*	0.267**	0.216	0.322***
MKA has some college education	0.299	0.263	0.305	0.450**	0.296	0.351***	0.303	0.400***	0.252**	0.308
MKA has a bachelor or higher degree	0.348	0.089***	0.273***	0.140***	0.271***	0.157***	0.101***	0.170***	0.152***	0.188***
MKA is working	0.727	0.648**	0.842***	0.905***	0.801**	0.745*	0.670**	0.713	0.401***	0.699
Family income below 100%FPL	0.071	0.216***	0.107***	0.062	0.075	0.376***	0.169***	0.080	0.323***	0.188***
Family income between 100% and 200% FPL	0.174	0.338***	0.211**	0.258	0.153	0.298***	0.256***	0.213**	0.259***	0.320***
Family income above 200% FPL	0.756	0.446***	0.682***	0.680	0.772	0.326***	0.575***	0.707***	0.418***	0.492***
Inputs (added to Model c)										
Child has health insurance	0.907	0.788***	0.873**	0.917	0.911	0.863***	0.824***	0.885*	0.861**	0.819***
Number of dental visits last year (values: 0-12)	2.109	1.583***	1.964*	1.389***	2.150	1.829	1.988	2.118	1.755***	1.848*
Has usual source for health care	0.944	0.896***	0.886***	0.849**	0.918	0.900***	0.908**	0.919***	0.912*	0.858***
Child received well care last year	0.586	0.608	0.537*	0.550	0.533	0.623***	0.573	0.581	0.637*	0.635*
Child in the same school last year	0.860	0.811	0.825**	0.799	0.780***	0.771***	0.744***	0.785***	0.756***	0.713***
Child took lessons after school last year	0.371	0.251***	0.299***	0.253**	0.295**	0.279***	0.232***	0.307***	0.286***	0.250***
Child on sports team last year	0.593	0.368***	0.524***	0.564	0.471***	0.443***	0.402***	0.526***	0.474***	0.400***
Worried whether food would run out	0.159	0.414***	0.201**	0.202	0.192	0.494***	0.442***	0.267***	0.310***	0.334***
Household doesn't have phone	0.020	0.038	0.037	0.011	0.007**	0.046***	0.061*	0.035	0.041	0.047*
MKA aggravation scale score (values: 4-16)	5.990	6.347**	5.922	6.286	6.215**	6.706***	6.738***	6.189***	7.005***	6.754***
MKA 100 mental health scale (values: 25-100)	81.540	77.675***	80.439*	79.727	81.119	74.828***	73.665***	79.129***	77.232***	79.359***
Notes: 1)*** indicates the difference-in-means between the nontraditional family and married two-parent family is statistically different at 1%, ** at 5%, * at 10% level.										
2) Means and standard errors (used for testing) are obtained by using the survey sample weights.										

Table 3. OLS Regression Results For Child Outcomes

	Health Outcomes				School Engagement		Behavioral Problems	
	Current		Limiting		Age 6-11	Age 12-17	Age 6-11	Age 12-17
	Age 6-11	Age 12-17	Age 6-11	Age 12-17				
Family Structure								
Two parents-cohabiting (A2)	0.00 (0.09)	-0.05 (0.11) ^a	-0.04 (0.02)**	-0.05 (0.04)	-0.09 (0.19) ^a	-0.25 (0.49) ^a	0.05 (0.14) ^{a,b}	0.19 (0.33) ^{a,b}
Single father (B1-a)	0.13 (0.04)** ^{a,b}	0.00 (0.05)	-0.01 (0.01)	0.01 (0.02)	-0.24 (0.17) ^a	-0.65 (0.25)** ^{a,b}	0.31 (0.14)** ^{a,b}	0.62 (0.12)** ^{a,b}
Single mother (B2-a)	-0.04 (0.03) ^{a,b}	-0.05 (0.03)** ^{a,b}	0.01 (0.01) ^{a,b}	0.03 (0.01)** ^{a,b}	-0.20 (0.11)** ^{a,b}	-0.37 (0.11)** ^{a,b}	0.15 (0.08)** ^{a,b}	0.29 (0.07)** ^{a,b}
Step mother-cohabiting (B1-b)	0.05 (0.10)	-0.01 (0.15)	0.12 (0.09)	-0.06 (0.03) ^a	-0.58 (0.43)	-0.93 (0.44)** ^{a,b}	0.80 (0.34)** ^{a,b}	0.67 (0.40)** ^{a,b}
Step father-cohabiting (B2-b)	0.06 (0.08)	-0.13 (0.09) ^{a,b}	0.06 (0.03)** ^{a,b}	0.03 (0.03) ^{a,b}	-0.51 (0.30)** ^{a,b}	-0.47 (0.16)** ^{a,b}	0.35 (0.16)** ^{a,b}	0.45 (0.16)** ^{a,b}
Step mother-married (B1-c)	-0.03 (0.10)	-0.12 (0.09) ^{a,b}	0.01 (0.03)	0.01 (0.03)	-0.54 (0.27)** ^{a,b}	-0.84 (0.31)** ^{a,b}	0.67 (0.25)** ^{a,b}	0.64 (0.18)** ^{a,b}
Step father-married (B2-c)	-0.07 (0.04) ^{a,b}	0.00 (0.04)	0.03 (0.02)** ^{a,b}	0.03 (0.02)** ^{a,b}	-0.20 (0.12)** ^{a,b}	-0.53 (0.10)** ^{a,b}	0.29 (0.09)** ^{a,b}	0.44 (0.08)** ^{a,b}
Grandparent (C1)	-0.24 (0.09)** ^{a,b}	-0.09 (0.07) ^{a,b}	0.06 (0.04) ^{a,b}	-0.02 (0.02) ^a	-0.48 (0.24)** ^{a,b}	-0.70 (0.21)** ^{a,b}	0.69 (0.19)** ^{a,b}	0.38 (0.19)** ^{a,b}
Other-non parental (C2)	-0.08 (0.09) ^a	0.00 (0.07) ^a	0.12 (0.04)** ^{a,b}	0.05 (0.03)** ^{a,b}	-0.91 (0.31)** ^{a,b}	-0.56 (0.23)** ^{a,b}	0.64 (0.17)** ^{a,b}	0.68 (0.20)** ^{a,b}
Child, MKA and Household Characteristics (included in Models a-c)								
Age	-0.01 (0.01)	-0.01 (0.01) ^{a,b}	0.01 (0.00)** ^{a,b}	-0.01 (0.00)** ^{a,b}	-0.11 (0.02)** ^{a,b}	0.01 (0.02)	0.10 (0.01)** ^{a,b}	-0.02 (0.01)
Girl	0.10 (0.02)** ^{a,b}	-0.03 (0.02) ^b	-0.06 (0.01)** ^{a,b}	-0.07 (0.01)** ^{a,b}	1.02 (0.07)** ^{a,b}	1.45 (0.06)** ^{a,b}	-0.43 (0.04)** ^{a,b}	-0.37 (0.04)** ^{a,b}
Non-Hispanic Black	-0.16 (0.04)** ^{a,b}	-0.27 (0.04)** ^{a,b}	-0.03 (0.02)	-0.03 (0.01)**	-0.10 (0.13) ^a	-0.03 (0.09) ^a	-0.21 (0.10)**	-0.12 (0.07)*
Hispanic	-0.26 (0.03)** ^{a,b}	-0.39 (0.03)** ^{a,b}	-0.02 (0.01) ^{a,b}	-0.03 (0.01)** ^{a,b}	-0.34 (0.08)** ^{a,b}	-0.07 (0.11) ^a	-0.12 (0.06)** ^b	-0.09 (0.08)
Any other ethnicity	-0.21 (0.06)** ^{a,b}	-0.15 (0.06)** ^{a,b}	-0.02 (0.01)	-0.05 (0.02)** ^{a,b}	-0.31 (0.17)** ^{a,b}	-0.00 (0.18)	-0.16 (0.12)	-0.39 (0.11)**
MKA's age	-0.00 (0.00)	-0.01 (0.00)** ^{a,b}	-0.00 ^a (0.00)	0.00 (0.00)*	0.00 (0.00) ^a	0.02 (0.01)** ^{a,b}	-0.00 (0.00) ^a	-0.01 (0.00)** ^{a,b}
Number of children under 5	0.01 (0.02)	-0.01 (0.02) ^a	-0.01 (0.00)** ^{a,b}	-0.01 (0.01)	0.06 (0.04)	-0.07 (0.07) ^a	-0.00 (0.03) ^a	0.02 (0.05)
Number of children ages 6-17	0.01 (0.02) ^a	0.01 (0.01) ^a	0.00 (0.00) ^a	-0.00 (0.00)	-0.00 (0.04) ^a	0.14 (0.04)** ^{a,b}	-0.14 (0.02)** ^{a,b}	-0.07 (0.02)**
West	0.00 (0.03)	-0.04 (0.04)	-0.03 (0.01)** ^{a,b}	0.00 (0.01)	-0.13 (0.10)	-0.10 (0.10)	0.07 (0.05)	0.19 (0.07)**
Midwest	0.04 (0.03) ^b	-0.05 (0.03)	-0.01 (0.01)	0.02 (0.01)	-0.17 (0.10)** ^{a,b}	-0.02 (0.10)	0.09 (0.06)	0.18 (0.07)**
South	0.02 (0.02)	0.00 (0.03)	0.01 (0.01)	-0.01 (0.01)	-0.05 (0.09)	-0.11 (0.10) ^a	0.10 (0.06)	0.14 (0.06)**
Year 2002	-0.07 (0.02)** ^{a,b}	0.02 (0.02)	0.01 (0.01) ^{a,b}	0.01 (0.01)	-0.37 (0.06)** ^{a,b}	-0.39 (0.06)** ^{a,b}	0.08 (0.05)	0.17 (0.05)** ^{a,b}

Table 3. OLS Regression Results For Child Outcomes (continued)

	<u>Health Outcomes</u>				<u>School Engagement</u>		<u>Behavioral Problems</u>	
	<u>Current</u>		<u>Limiting</u>		<u>Age 6-11</u>	<u>Age 12-17</u>	<u>Age 6-11</u>	<u>Age 12-17</u>
	<u>Age 6-11</u>	<u>Age 12-17</u>	<u>Age 6-11</u>	<u>Age 12-17</u>				
MKA has High School diploma	0.13 (0.05) ^{***b}	0.24 (0.04) ^{***b}	-0.01 (0.01) ^b	-0.02 (0.02)	-0.01 (0.11)	0.08 (0.09) ^b	0.02 (0.07) ^b	-0.22 (0.08) ^{**b}
MKA has some college education	0.18 (0.04) ^{***b}	0.26 (0.04) ^{**b}	0.01 (0.01)	-0.04 (0.02) ^{**b}	0.14 (0.10) ^b	0.16 (0.09) ^{**b}	0.01 (0.07) ^b	-0.14 (0.07) ^{**b}
MKA has a bachelor or higher degree	0.23 (0.05) ^{***b}	0.29 (0.05) ^{***b}	-0.02 (0.01) ^b	-0.05 (0.02) ^{***b}	0.20 (0.10) ^b	0.48 (0.10) ^{***b}	-0.02 (0.07) ^b	-0.23 (0.08) ^{***b}
MKA is working	-0.01 (0.03)	-0.00 (0.03)	-0.03 (0.01) ^{***b}	-0.03 (0.01) ^{**b}	-0.15 (0.08) [*]	-0.12 (0.08)	0.03 (0.05)	-0.03 (0.07) ^b
Family income below 100% FPL	-0.09 (0.04) ^{**b}	-0.05 (0.05) ^b	0.02 (0.01) ^b	-0.01 (0.02)	-0.09 (0.11) ^b	0.23 (0.13) [*]	-0.00 (0.09) ^b	-0.12 (0.09)
Family income between 100% and 200% FPL	-0.02 (0.03) ^b	-0.05 (0.03) ^b	0.03 (0.01) ^{**b}	0.00 (0.01) ^b	-0.07 (0.07) ^b	-0.06 (0.10) ^b	0.07 (0.07)	-0.04 (0.07)
Inputs (added to Model c)								
Child has health insurance	0.07 (0.04) [*]	0.09 (0.04) ^{**}	0.02 (0.02)	0.05 (0.01) ^{***}	-0.02 (0.11)	-0.08 (0.15)	0.04 (0.08)	0.16 (0.08) [*]
Number of dental visits last year	0.01 (0.01)	0.01 (0.00)	0.00 (0.00) [*]	-0.00 (0.00) ^{**}	0.05 (0.02) ^{***}	0.02 (0.01)	0.02 (0.01)	-0.01 (0.01)
Has usual source for health care	0.04 (0.04)	0.01 (0.04)	0.00 (0.02)	0.01 (0.02)	0.07 (0.15)	0.29 (0.13) ^{**}	0.06 (0.12)	-0.01 (0.08)
Child received well care last year	-0.02 (0.02)	0.03 (0.03)	0.04 (0.01) ^{***}	0.03 (0.01) ^{***}	0.09 (0.06)	0.12 (0.08)	0.12 (0.05) ^{**}	0.06 (0.05)
Child in the Same School last year	0.04 (0.03)	0.03 (0.03)	-0.03 (0.01) ^{***}	-0.04 (0.01) ^{***}	0.05 (0.08)	0.19 (0.08) ^{**}	-0.16 (0.07) ^{**}	-0.34 (0.06) ^{***}
Child took lessons after school last year	0.03 (0.02)	0.06 (0.02) ^{**}	-0.02 (0.01) ^{**}	-0.02 (0.01) ^{***}	0.31 (0.06) ^{***}	0.43 (0.07) ^{***}	-0.06 (0.05)	-0.21 (0.04) ^{***}
Child on sports team last year	0.13 (0.02) ^{***}	0.16 (0.02) ^{***}	-0.04 (0.01) ^{***}	-0.06 (0.01) ^{***}	0.25 (0.06) ^{***}	0.70 (0.06) ^{***}	-0.26 (0.05) ^{***}	-0.47 (0.04) ^{***}
Worried whether food would run out	-0.09 (0.02) ^{***}	-0.20 (0.03) ^{***}	0.04 (0.01) ^{***}	0.06 (0.01) ^{***}	-0.26 (0.09) ^{***}	-0.32 (0.11) ^{***}	0.23 (0.06) ^{***}	0.26 (0.07) ^{***}
Household doesn't have phone	-0.02 (0.11)	0.13 (0.09)	0.03 (0.03)	-0.03 (0.04)	-0.21 (0.26)	0.22 (0.32)	0.17 (0.18)	-0.44 (0.24) [*]
MKA aggravation scale score	-0.03 (0.01) ^{***}	-0.04 (0.01) ^{***}	0.02 (0.00) ^{***}	0.02 (0.00) ^{***}	-0.25 (0.02) ^{***}	-0.31 (0.02) ^{***}	0.36 (0.02) ^{***}	0.39 (0.01) ^{***}
MKA 100 mental health scale	0.01 (0.00) ^{***}	0.01 (0.00) ^{***}	-0.00 (0.00) ^{***}	-0.00 (0.00) ^{***}	0.01 (0.00) ^{***}	0.01 (0.00) ^{***}	-0.03 (0.00) ^{***}	-0.03 (0.00) ^{***}
N	21698	22046	21698	22046	21531	21798	21613	21950

Notes: 1) The coefficients and standard errors shown are taken from model c (including all basic, economic and inputs variables as independent variables) by Ordinary Least Squares (OLS) regression.

2) *** on standard errors indicates the coefficients from model c are statistically significant at 1%, ** at 5%, * at 10% level.

3) Superscripts **a, b** refer to the coefficients from the basic model (**a**) and/or economic model (**b**) are significant at least at 10% level.

Table 4. Effects of Family Structure: Equivalency and Comparison

Tests performed (refers to Figure 1)	Health Outcomes				School Engagement		Behavioral Problems	
	Current		Limiting		Age 6-11	Age 12-17	Age 6-11	Age 12-17
	Age 6-11	Age 12-17	Age 6-11	Age 12-17				
1. Equivalency								
No effect of non-traditional families [†] ($A2=B=C=0$) with two-parent cohabiting	Reject ^{a,b,c}	Reject ^{a,b}	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b,c}
($B=C=0$) without two-parent cohabiting	Reject ^{a,b,c}	Reject ^{a,b}	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b,c}
All nontraditional families equal [†] ($A2=B=C$) with two-parent cohabiting	Reject ^{a,b,c}	Reject ^{a,b}	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b}		Reject ^{a,b,c}	
($B=C$) without two-parent cohabiting	Reject ^{a,b,c}	Reject ^{a,b}	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b}		Reject ^{a,b,c}	
All one bio-parent families equal ($B1=B2$)	Reject ^{a,b,c}	Reject ^{a,b}	Reject ^{a,b,c}	Reject ^{a,b}	Reject ^a			
All no-parent families equal ($C1=C2$)	Reject ^a	Reject ^a		Reject ^{b,c}				
All cohabitating families equal ($A2=B1b=B2b$)			Reject ^{a,b,c}	Reject ^{a,b,c}			Reject ^{a,b,c}	
All married, two-parent families equal ($A1=B1c=B2c$)	Reject ^{a,b}	Reject ^{a,b}	Reject ^{a,b}	Reject ^{a,b}	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b,c}
One unmarried bio-parent families equal ($B1a=B1b=B2a=B2b$)	Reject ^{a,b,c}	Reject ^{a,b}	Reject ^{a,b,c}	Reject ^{a,b,c}				Reject ^c
All bio-dad families equal ($B1a=B1b=B1c$)								
All bio-mom families equal ($B2a=B2b=B2c$)		Reject ^{a,d}			Reject ^a		Reject ^a	Reject ^a
2. Comparison (> or <);‡								
Single mom vs. single dad ($B1a$ vs. $B2a$)	dad> mom ^{a,b,c}	dad> mom ^{a,b}	dad> mom ^{a,b}	dad> mom ^{a,b}			dad>mom ^d	mom>dad ^c
Cohabiting bio-mom vs. bio-dad ($B1b$ vs. $B2b$)				dad> mom ^{a,b,c}				
Married bio-mom vs. bio-dad ($B1c$ vs. $B2c$)								
Bio-Dad with presence of other female ($B1a$ vs. $B1b$; $B1b$ vs. $B1c$; $B1c$ vs. $B1a$) abs vs. coh vs. mar	abs> mar ^c	abs> mar ^d		coh> mar ^{a,b,c} ,abs ^{a,c}				
Bio-Mom with presence of other male ($B2a$ vs. $B2b$; $B2b$ vs. $B2c$; $B2c$ vs. $B2a$) abs vs. coh vs. mar	mar> abs ^a	mar> abs ^{a,b} ,coh ^{a,b}	abs ^b , mar ^{ab} > coh	mar>abs ^a	mar> abs ^a , coh ^{a,b}		mar> abs ^a , coh ^{a,b}	mar> abs ^a , coh ^{a,b}
Grandparent vs. Other non-parent ($C1$ vs. $C2$)	other> grand ^a	other> grand ^a		grand> other ^{a,c}				
<p>Notes: 1) Superscripts a, b, c refer to whether the hypothesis of equality was rejected at a 10% significance level in the basic (<i>a</i>), economic (<i>b</i>) and inputs (<i>c</i>) models.</p> <p>2) † Including or excluding <i>A2</i> (cohabiting two parents) has no effect on test results.</p> <p>3) ‡ The equality of family structure coefficients was tested; the sign is based on the magnitude of the estimated effect and reflects which family structure has more positive (good) or less detrimental effect.</p>								

Table 5. The Effect of MKA Gender on Child Outcomes

Panel A - Distribution of MKA gender by family structure										
	Two parents- married (A1)	Two parents- cohabiting (A2)	Single father (B1-a)	Step mother- cohabiting (B1-b)	Step mother- married (B1- c)	Single mother (B2-a)	Step father- cohabiting (B2-b)	Step father- married (B2- c)	Grand parent (C1)	Other-non parental (C2)
Age 6-11										
MKA male	2,612	79	664	82	174	13	25	186	42	73
MKA female	9,833	366	40	26	170	4,441	695	1,444	456	277
Age 12-17										
MKA male	2,722	32	831	88	382	16	26	253	73	139
MKA female	8,953	146	19	19	260	4,631	558	1,957	478	463
N	24120	623	1554	215	986	9101	1304	3840	1049	952

Panel B - Regression Results									
	Health Outcomes				School Engagement		Behavioral Problems		
	Current		Limiting		Age 6-11	Age 12-17	Age 6-11	Age 12-17	
	Age 6-11	Age 12-17	Age 6-11	Age 12-17					Age 6-11
<i>Only two parents-married families</i>									
MKA female	-0.07 (0.03)** ^{a,b}	-0.03 (0.03) ^{a,b}	0.00 (0.01) ^a	0.02 (0.01) ^{a,b}	0.06 (0.10)	0.07 (0.09)	-0.15 (0.07)**	-0.10 (0.06) ^{*a}	
N	12445	11675	12445	11675	12337	11565	12398	11628	
<i>Full Sample</i>									
MKA female	-0.08 (0.03)** ^{a,b}	-0.03 (0.03) ^{a,b}	0.01 (0.01) ^a	0.01 (0.01) ^{a,b}	0.06 (0.09)	-0.01 (0.08) ^a	-0.13 (0.07)*	-0.06 (0.06) ^{a,b}	
Two parents-cohabiting (A2)	0.01 (0.09)	-0.05 (0.11) ^a	-0.04 (0.02)**	-0.05 (0.04)	-0.09 (0.19) ^a	-0.25 (0.49) ^a	0.05 (0.14) ^{a,b}	0.19 (0.33) ^{a,b}	
Single father (B1-a)	0.07 (0.04)*	-0.02 (0.05) ^a	-0.01 (0.02)	0.02 (0.02) ^a	-0.20 (0.17) ^a	-0.66 (0.25)** ^{a,b}	0.22 (0.15) ^{a,b}	0.58 (0.13)** ^{a,b}	
Single mother (B2-a)	-0.02 (0.04) ^{a,b}	-0.04 (0.03) ^{a,b}	0.01 (0.01) ^{a,b}	0.03 (0.01)** ^{a,b}	-0.22 (0.11) ^{*a,b}	-0.37 (0.11)** ^{a,b}	0.17 (0.07)** ^{a,b}	0.30 (0.08)** ^{a,b}	
Step mother-cohabiting (B1-b)	-0.01 (0.10)	-0.03 (0.15)	0.13 (0.09) ^a	-0.06 (0.03)	-0.54 (0.44)	-0.94 (0.44)** ^{a,b}	0.72 (0.34)** ^{a,b}	0.63 (0.40) ^{a,b}	
Step father-cohabiting (B2-b)	0.07 (0.08)	-0.13 (0.09) ^{a,b}	0.06 (0.03)** ^{a,b}	0.03 (0.03) ^{a,b}	-0.52 (0.30) ^{*a,b}	-0.47 (0.16)** ^{a,b}	0.36 (0.16)** ^{a,b}	0.46 (0.16)** ^{*a,b}	
Step mother-married (B1-c)	-0.06 (0.09)	-0.14 (0.09) ^{a,b}	0.01 (0.03)	0.02 (0.03)	-0.52 (0.28) ^{*a,b}	-0.85 (0.31)** ^{a,b}	0.63 (0.25)** ^{a,b}	0.61 (0.19)** ^{a,b}	
Step father-married (B2-c)	-0.06 (0.04) ^{a,b}	0.01 (0.04)	0.03 (0.02) ^{*a,b}	0.03 (0.02)** ^{a,b}	-0.21 (0.12) ^{*a,b}	-0.52 (0.10)** ^{a,b}	0.30 (0.09)** ^{a,b}	0.44 (0.08)** ^{a,b}	
Grandparent (C1)	-0.23 (0.10)** ^{a,b}	-0.09 (0.07) ^{a,b}	0.06 (0.04) ^{a,b}	-0.02 (0.02)	-0.49 (0.25) ^{*a,b}	-0.70 (0.21)** ^{a,b}	0.72 (0.19)** ^{a,b}	0.39 (0.19)** ^{a,b}	
Other-non parental (C2)	-0.08 (0.09) ^a	0.00 (0.07) ^a	0.12 (0.04)** ^{a,b}	0.05 (0.03)** ^{a,b}	-0.92 (0.31)** ^{a,b}	-0.56 (0.23)** ^{a,b}	0.64 (0.17)** ^{a,b}	0.68 (0.20)** ^{a,b}	
N	21698	22046	21698	22046	21531	21798	21613	21950	

Notes: 1) The coefficients and standard errors shown are taken from model c (including all basic, economic and inputs variables as independent variables) by OLS regression.

2) *** on standard errors indicates the coefficients from model c are statistically significant at 1%, ** at 5%, * at 10% level.

3) Superscripts **a, b** refer to the coefficients from the basic model (**a**) and/or economic model (**b**) are significant at least at 10% level.

Table 6. Child Outcome Comparison By Biological Parent Gender - Across Child Gender And Race

Age 6-11							
		Girl (n=10,614)	Boy (n=10,999)	Hispanic (n=3,509)	Non-Hispanic Black (n=2,913)	Non-Hispanic White (n=14,505)	All Other (n=771)
Panel A. Single bio-mom vs. bio-dad (B1a vs. B2a)							
Health Outcomes	Current	dad>mom ^{a,b}	dad>mom ^{a,b,c}	dad>mom ^{a,b,c}	dad>mom ^{a,b,c}	dad>mom ^{a,b,c}	mom>dad ^c
	Limiting	dad>mom ^{a,b}	dad>mom ^{a,b}		dad>mom ^a	dad>mom ^{a,b}	
School Engagement					mom>dad ^{b,c}	dad>mom ^{a,b,c}	mom>dad ^c
Behavioral Problems			dad>mom ^{a,b}			dad>mom ^{a,b}	
Panel B. Cohabiting bio-mom vs. bio-dad (B1b vs. B2b)							
Health Outcomes	Current						dad>mom ^{a,b,c}
	Limiting			dad>mom ^{a,b,c}	dad>mom ^{a,b}		
School Engagement							
Behavioral Problems					dad>mom ^{a,b,c}	mom>dad ^c	
Panel C. Married bio-mom vs. bio-dad (B1b vs. B2b)							
Health Outcomes	Current			dad>mom ^{a,b}	dad>mom ^{a,b,c}		
	Limiting	dad>mom ^{a,b,c}					
School Engagement							mom>dad ^{a,c}
Behavioral Problems						mom>dad ^c	
Age 12-17							
		Girl (n=10,690)	Boy (n=11,260)	Hispanic (n=2,812)	Non-Hispanic Black (n=2,790)	Non-Hispanic White (n=15,709)	All Other (n=735)
Panel A. Single bio-mom vs. bio-dad (B1a vs. B2a)							
Health Outcomes	Current		dad>mom ^{a,b}	dad>mom ^{a,b}	dad>mom ^{a,b,c}	dad>mom ^{a,b}	mom>dad ^{a,b,c}
	Limiting		dad>mom ^{a,b}	dad>mom ^{a,b}	dad>mom ^{a,b,c}		
School Engagement				dad>mom ^{a,b}			
Behavioral Problems		dad>mom ^a	mom>dad ^c	dad>mom ^{a,b}		mom>dad ^c	mom>dad ^{b,c}
Panel B. Cohabiting bio-mom vs. bio-dad (B1b vs. B2b)							
Health Outcomes	Current	dad>mom ^{a,b,c}					
	Limiting	dad>mom ^{a,b,c}	dad>mom ^{a,b,c}		dad>mom ^{a,b}	dad>mom ^{a,b,c}	
School Engagement							mom>dad ^c
Behavioral Problems							
Panel C. Married bio-mom vs. bio-dad (B1b vs. B2b)							
Health Outcomes	Current		mom>dad ^b	dad>mom ^a	mom>dad ^{a,b,c}		
	Limiting	dad>mom ^{a,b,c}		dad>mom ^c			
School Engagement					mom>dad ^{a,b,c}		dad>mom ^{a,b}
Behavioral Problems			mom>dad ^{b,c}				

Notes: 1) ">" indicates the family structure before the sign is associated with more desirable outcomes than the family structure after the sign, regardless the outcomes are positive or negative.
2) Subscript "a" indicates independant variables include basic child, MKA and family characteristics, "b" indicates that economic resources are added and "c" indicates that both economic resources and inputs are added.

Table 7. Inputs Comparison by Biological Parent Gender

		Single bio-mom vs. bio-dad (B1a vs. 2a)	Cohabiting bio-mom vs. bio-dad (B1b vs. B2b)	Married bio-mom vs. bio-dad (B1c vs. B2c)
Age 6-11				
Health Inputs	Child has health insurance		dad>mom ^{a,b}	dad>mom ^{a,b}
	Number of dental visits last year (values: 0-12)		mom>dad ^{a,b}	
	Has usual source for health care	mom>dad ^b		
	Child received well care last year			
Educational Inputs	Child in the same school last year			
	Child took lessons after school last year			
	Child on sports team last year			
General Inputs	Worried whether food would run out	dad>mom ^{a,b}	dad>mom ^{a,b}	dad>mom ^a
	Household doesn't have phone		dad>mom ^{a,b}	dad>mom ^{a,b}
	MKA aggravation scale score (values: 4-16)	dad>mom ^{a,b}	dad>mom ^{a,b}	
	MKA 100 mental health scale (values: 25-100)	dad>mom ^{a,b}	dad>mom ^{a,b}	dad>mom ^{a,b}
Age 12-17				
Health Inputs	Child has health insurance	mom>dad ^{a,b}		
	Number of dental visits last year (values: 0-12)	mom>dad ^b	mom>dad ^{a,b}	
	Has usual source for health care	mom>dad ^{a,b}	mom>dad ^b	
	Child received well care last year	mom>dad ^{a,b}		mom>dad ^{a,b}
Educational Inputs	Child in the same school last year	dad>mom ^{a,b}		
	Child took lessons after school last year			
	Child on sports team last year		dad>mom ^{a,b}	mom>dad ^b
General Inputs	Worried whether food would run out	dad>mom ^{a,b}	dad>mom ^a	dad>mom ^a
	Household doesn't have phone		dad>mom ^a	
	MKA aggravation scale score (values: 4-16)	dad>mom ^{a,b}		
	MKA 100 mental health scale (values: 25-100)	dad>mom ^{a,b}		

Notes: 1) ">" indicates the family structure before the sign is associated with higher level of inputs than the family structure after the sign, regardless the inputs are positive or negative.
2) Subscript "a" indicates independent variables include basic child, MKA and family characteristics, "b" indicates that economic resources are added and "c" indicates that both economic resources and inputs are added.
3) The full set of estimated coefficients and tests are reported in Appendix Tables 1 and 2.

Table 8. The Non-Residential Parent: Contact and Financial Contribution

		father_see	mother_see	father_see	mother_see	father_fin	mother_fin	father_fin	mother_fin	
		singlemom	singledad	all bio-mom	all bio-dad	singlemom	singledad	all bio-mom	all bio-dad	
Health Outcomes	Current	Age 6-11	0.08 (0.06)	0.01 (0.09)	0.07 (0.05)	-0.02 (0.09)	0.12 (0.06)*	0.01 (0.08)	0.13 (0.05)**	0.10 (0.07)
		Age 12-17	0.14 (0.08)*	0.22 (0.11)*	0.11 (0.05)**	0.12 (0.09)	0.08 (0.07)	-0.15 (0.12)	0.01 (0.05)	0.04 (0.10)
	Limiting	Age 6-11	-0.02 (0.02)	-0.11 (0.05)**	-0.05 (0.02)**	-0.07 (0.04)*	-0.02 (0.02)	0.04 (0.04)	-0.03 (0.02)*	0.04 (0.04)
		Age 12-17	-0.06 (0.03)**	-0.05 (0.04)	-0.04 (0.02)*	-0.07 (0.04)*	-0.00 (0.03)	0.06 (0.04)	-0.02 (0.02)	-0.02 (0.03)
	School Engagement	Age 6-11	0.22 (0.14)	0.29 (0.38)	0.21 (0.13)	0.03 (0.41)	-0.10 (0.15)	0.69 (0.36)*	0.04 (0.14)	0.94 (0.39)**
		Age 12-17	0.60 (0.22)**	0.58 (0.50)	0.39 (0.18)**	0.23 (0.48)	0.21 (0.17)	-0.30 (0.53)	0.25 (0.15)*	0.20 (0.42)
Behavioral Problems	Age 6-11	-0.42 (0.13)**	-0.22 (0.30)	-0.43 (0.12)**	0.08 (0.30)	-0.01 (0.15)	-0.03 (0.32)	-0.01 (0.13)	-0.31 (0.31)	
	Age 12-17	-0.37 (0.15)**	-0.54 (0.26)**	-0.27 (0.12)**	-0.14 (0.26)	-0.31 (0.15)**	0.30 (0.31)	-0.24 (0.11)**	-0.00 (0.22)	
Health Inputs	Child has health insurance	-0.01 (0.02)	0.12 (0.04)**	-0.00 (0.02)	0.06 (0.03)*	0.02 (0.02)	0.06 (0.04)	0.03 (0.02)*	0.02 (0.03)	
	Number of dental visits last year (values: 0-12)	0.04 (0.08)	0.18 (0.18)	-0.00 (0.07)	0.13 (0.15)	0.13 (0.08)	0.15 (0.16)	0.10 (0.08)	0.07 (0.16)	
	Has usual source for health care	-0.01 (0.02)	0.06 (0.02)**	-0.01 (0.01)	0.01 (0.03)	0.02 (0.02)	0.05 (0.03)	0.02 (0.01)	0.01 (0.03)	
	Child received well care last year	0.01 (0.02)	0.02 (0.05)	0.01 (0.02)	-0.04 (0.04)	-0.04 (0.02)*	-0.00 (0.05)	-0.02 (0.02)	0.07 (0.05)	
	Child in the same school last year	0.06 (0.02)**	0.02 (0.03)	0.05 (0.02)**	0.02 (0.02)	0.02 (0.02)	0.02 (0.04)	0.01 (0.02)	0.03 (0.03)	
Educational Inputs	Child took lessons after school last year	0.05 (0.02)**	0.06 (0.04)	0.03 (0.02)	0.04 (0.04)	-0.00 (0.02)	0.09 (0.05)*	-0.01 (0.02)	0.08 (0.04)**	
	Child on sports team last year	0.04 (0.02)	-0.04 (0.04)	0.05 (0.02)**	0.01 (0.04)	0.03 (0.02)	0.06 (0.05)	0.03 (0.02)*	0.02 (0.05)	
	Worried whether food would run out	-0.09 (0.02)**	-0.10 (0.04)**	-0.07 (0.02)**	-0.04 (0.03)	-0.01 (0.02)	-0.02 (0.04)	-0.02 (0.02)	-0.01 (0.03)	
General Inputs	Household doesn't have phone	0.01 (0.01)	0.00 (0.02)	0.01 (0.01)	-0.01 (0.01)	-0.03 (0.01)**	-0.02 (0.02)	-0.02 (0.01)*	-0.01 (0.01)	
	MKA aggravation scale score (values: 4-16)	-0.21 (0.09)**	-0.38 (0.14)**	-0.19 (0.08)**	-0.24 (0.12)*	-0.07 (0.09)	-0.19 (0.18)	-0.02 (0.06)	-0.21 (0.15)	
	MKA 100 mental health scale (values: 25-100)	1.34 (0.67)**	3.92 (1.19)**	1.56 (0.60)**	1.84 (0.83)**	0.73 (0.63)	-0.98 (1.19)	0.09 (0.57)	-0.38 (0.97)	

Notes: 1) Dependent variables are shown in rows and selected independent variables are shown in columns.

2) In addition to the two nonresidential parent variables shown and all independent variables in economic model (b), whether the child's parents were married at the child's birth and whether the child has a biological parent living elsewhere are included.

3) *** on standard errors indicates the coefficients are statistically significant at 1%, ** at 5%, * at 10% level.

4) All bio-mom samples include single mother, cohabiting stepfather and married stepfather families. All bio-dad samples include single father, cohabiting stepmother and married stepmother families.

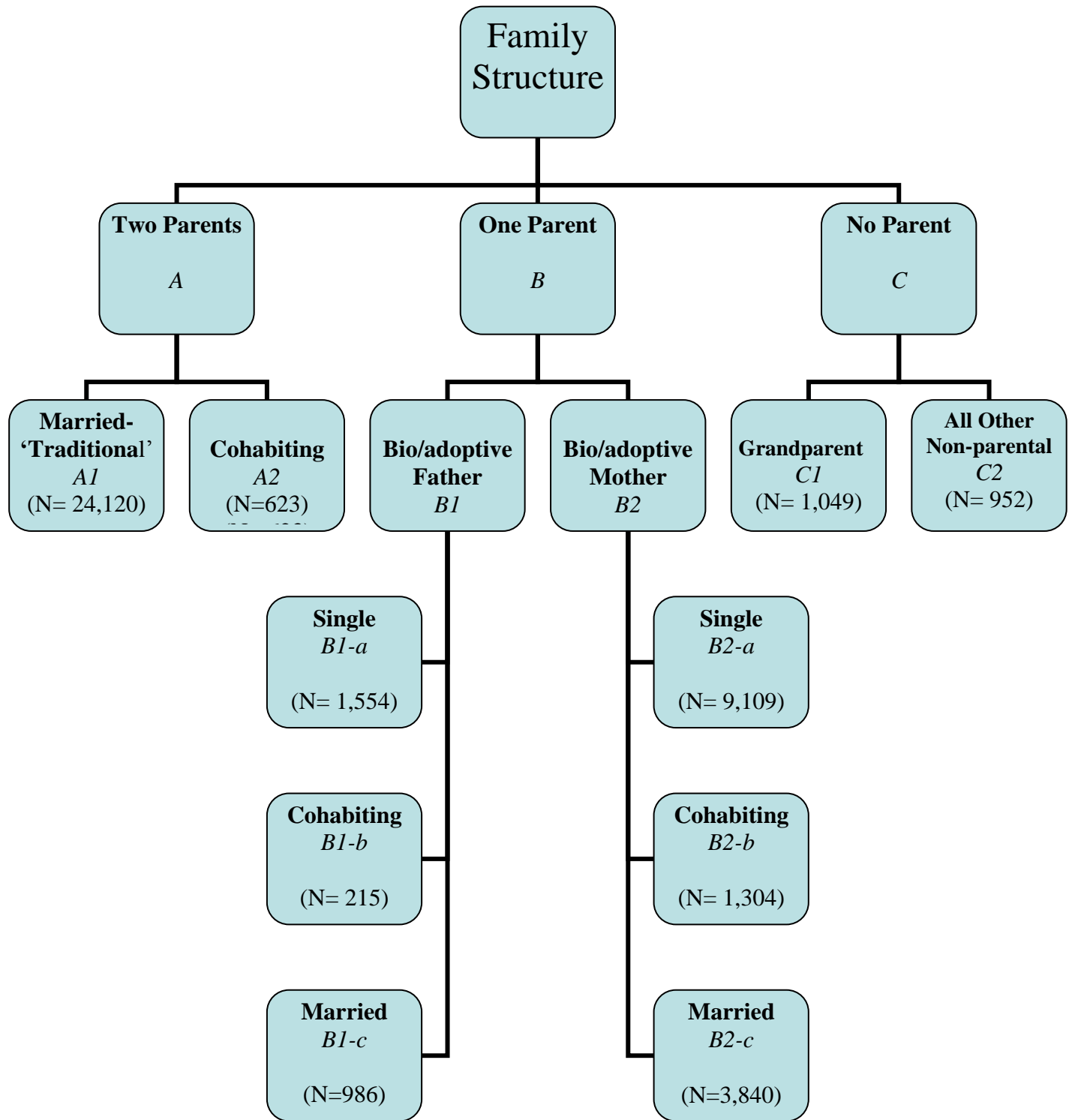
Table 9. Child Outcome Differences Between Grandparent, Other-kin and Non-kin Families

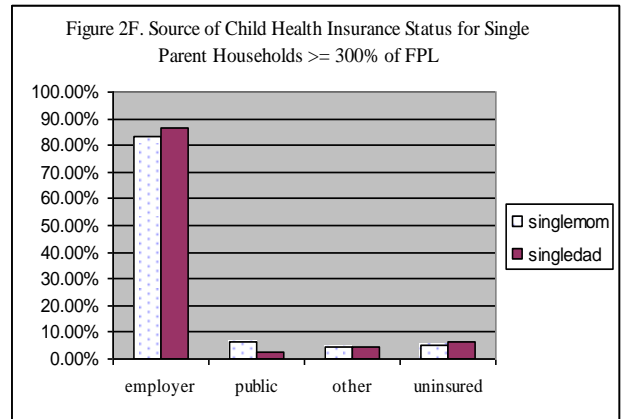
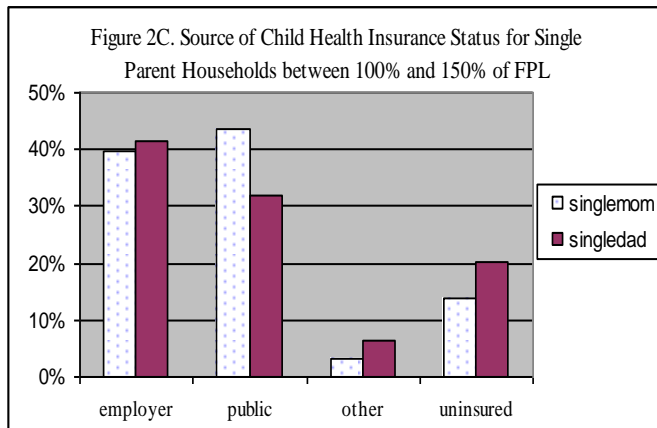
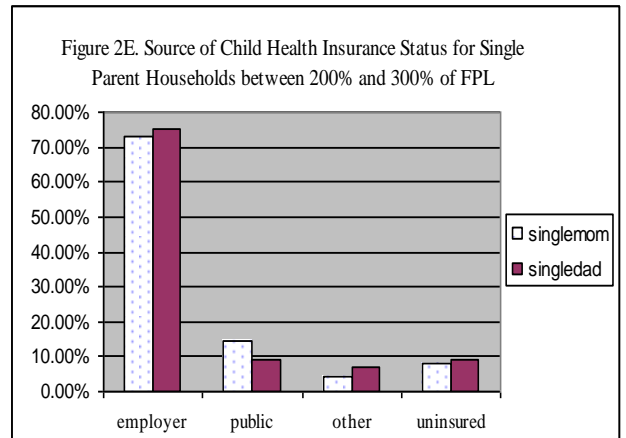
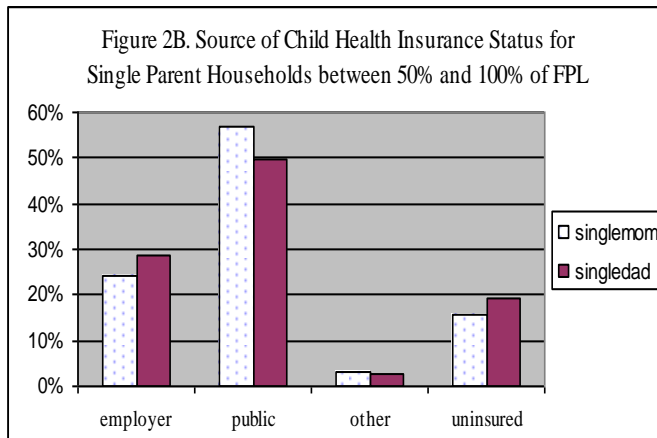
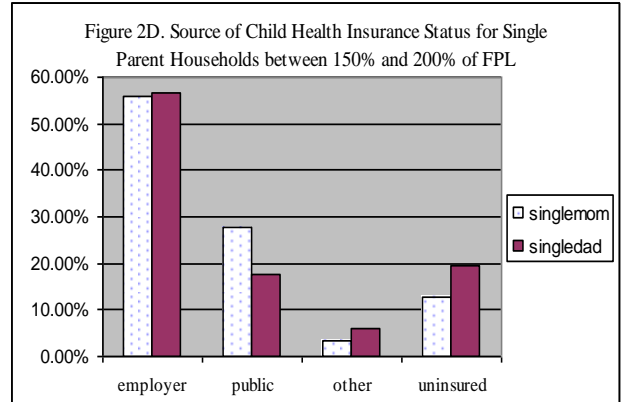
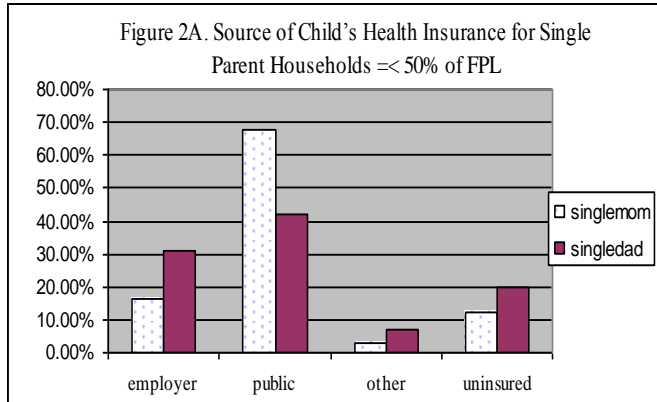
Panel A: Coefficients Estimates								
Family Structure	Health Outcomes				School Engagement		Behavioral Problems	
	Current		Limiting		Age 6-11	Age 12-17	Age 6-11	Age 12-17
Two parents-cohabiting (A2)	0.00 (0.09)	-0.05 (0.11) ^a	-0.04 (0.02)**	-0.05 (0.04)	-0.09 (0.19) ^a	-0.25 (0.49) ^a	0.05 (0.14) ^{a,b}	0.19 (0.33) ^{a,b}
Single father (B1-a)	0.13 (0.04)** ^{a,b}	0.00 (0.05)	-0.01 (0.01)	0.01 (0.02)	-0.25 (0.17) ^a	-0.65 (0.25)** ^{a,b}	0.31 (0.14)** ^{a,b}	0.62 (0.12)** ^{a,b}
Single mother (B2-a)	-0.04 (0.03) ^{a,b}	-0.05 (0.03) ^{a,b}	0.01 (0.01) ^{a,b}	0.03 (0.01)** ^{a,b}	-0.21 (0.11) ^{a,b}	-0.37 (0.11)** ^{a,b}	0.15 (0.08) ^{a,b}	0.29 (0.07)** ^{a,b}
Step mother-cohabiting (B1-b)	0.05 (0.10)	-0.01 (0.15)	0.12 (0.09)	-0.06 (0.03) ^a	-0.58 (0.43)	-0.93 (0.44)** ^{a,b}	0.80 (0.34)** ^{a,b}	0.67 (0.40) ^{a,b}
Step father-cohabiting (B2-b)	0.06 (0.08)	-0.13 (0.09) ^{a,b}	0.06 (0.03)** ^{a,b}	0.03 (0.03) ^{a,b}	-0.51 (0.30) ^{a,b}	-0.47 (0.16)** ^{a,b}	0.35 (0.16)** ^{a,b}	0.45 (0.16)** ^{a,b}
Step mother-married (B1-c)	-0.03 (0.10)	-0.12 (0.09) ^{a,b}	0.01 (0.03)	0.01 (0.03)	-0.54 (0.27) ^{a,b}	-0.84 (0.31)** ^{a,b}	0.67 (0.25)** ^{a,b}	0.64 (0.18)** ^{a,b}
Step father-married (B2-c)	-0.07 (0.04) ^{a,b}	0.00 (0.04)	0.03 (0.02) ^{a,b}	0.03 (0.02)** ^{a,b}	-0.20 (0.12) ^{a,b}	-0.52 (0.10)** ^{a,b}	0.29 (0.09)** ^{a,b}	0.44 (0.08)** ^{a,b}
Grandparent (C1)	-0.24 (0.09)** ^{a,b}	-0.09 (0.07) ^{a,b}	0.07 (0.04) ^{a,b}	-0.02 (0.02) ^a	-0.49 (0.24)** ^{a,b}	-0.70 (0.21)** ^{a,b}	0.69 (0.19)** ^{a,b}	0.38 (0.19)** ^{a,b}
Other kin (C2')	-0.07 (0.12)	-0.00 (0.08)	0.19 (0.06)** ^{a,b}	0.04 (0.03) ^{a,b}	-1.52 (0.49)** ^{a,b}	-0.43 (0.25) ^{a,b}	0.70 (0.24)** ^{a,b}	0.53 (0.20)** ^{a,b}
Non-kin (C3')	-0.09 (0.14)	0.02 (0.11)	0.05 (0.04) ^{a,b}	0.09 (0.05) ^{a,b}	-0.26 (0.37)	-0.85 (0.38)** ^{a,b}	0.57 (0.23)** ^{a,b}	1.00 (0.35)** ^{a,b}
N	21698	22046	21698	22046	21531	21798	21613	21950

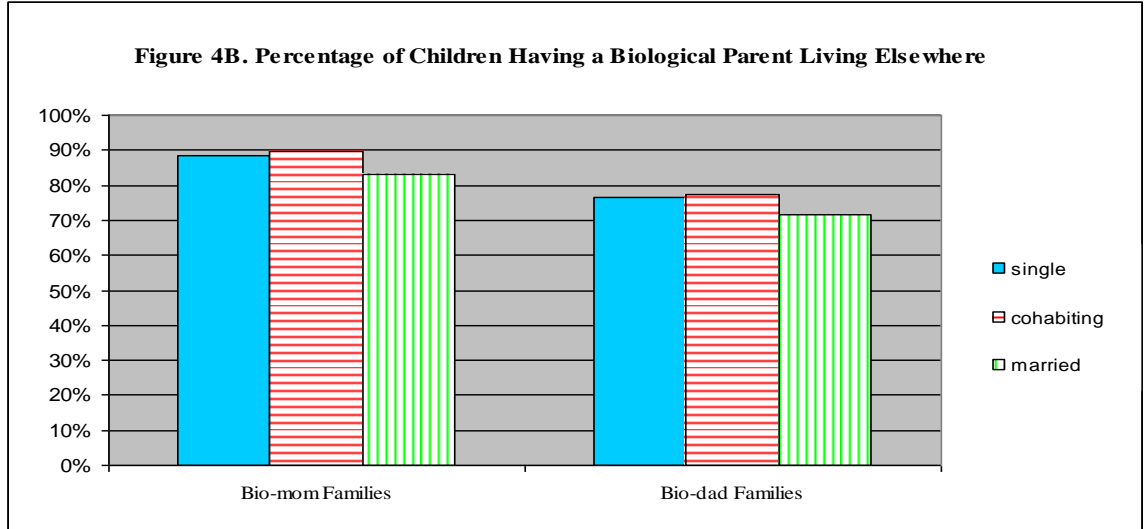
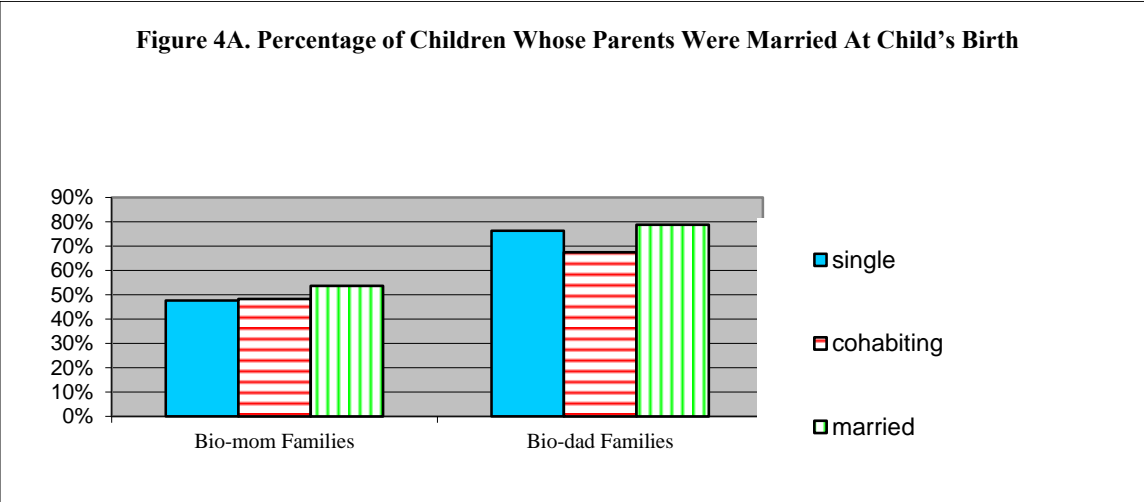
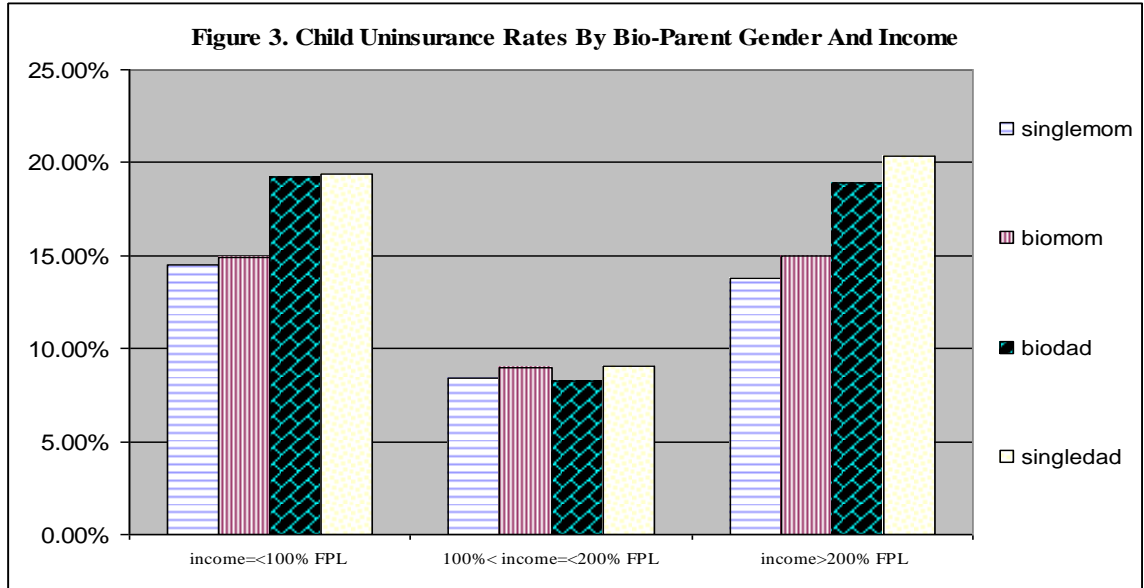
Panel B: Equivalency and Comparison Test								
No effect of non-parent families (C1=C2'=C3'=0)	Reject ^{a,b,c}	Reject ^a	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b,c}	Reject ^{a,b,c}
All non-parent families equal (C1=C2'=C3')	Reject ^a	Reject ^a		Reject ^{b,c}				Reject ^{a,b}
Grandparent vs. Other kin (C1 vs. C2')	otherkin > grand ^a	otherkin > grand ^a	otherkin > grand ^c		otherkin > grand ^{b,c}			
Grandparent vs. Non-kin (C1 vs. C3')	non-kin > grand ^a	non-kin > grand ^a		grand > non-kin ^{a,b,c}			non-kin > grand ^a	grand > non-kin ^{a,b}
Other kin vs. Non-kin (C2' vs. C3')			non-kin > otherkin ^{a,b,c}		non-kin > otherkin ^{a,b,c}			otherkin > non-kin ^{a,b}

Notes: 1) The coefficients and standard errors shown are taken from model *c* (including all basic, economic and inputs variables as independent variables).
 2) *** on standard errors indicates the coefficients from model *c* are statistically significant at 1%, ** at 5%, * at 10% level.
 3) For Panel A, superscripts **a**, **b** refer to the coefficients from the basic model (a) and/or economic model (b) are significant at least at 10% level.
 4) For Panel B, the equality of family structure coefficients was tested; the sign ">" is based on the magnitude of the estimated effect and reflects which family structure has more positive (good) or less detrimental effect; superscripts a, b, c respectively indicate test results are statistically significant at least at 10% level for model *a*, *b*, *c*.

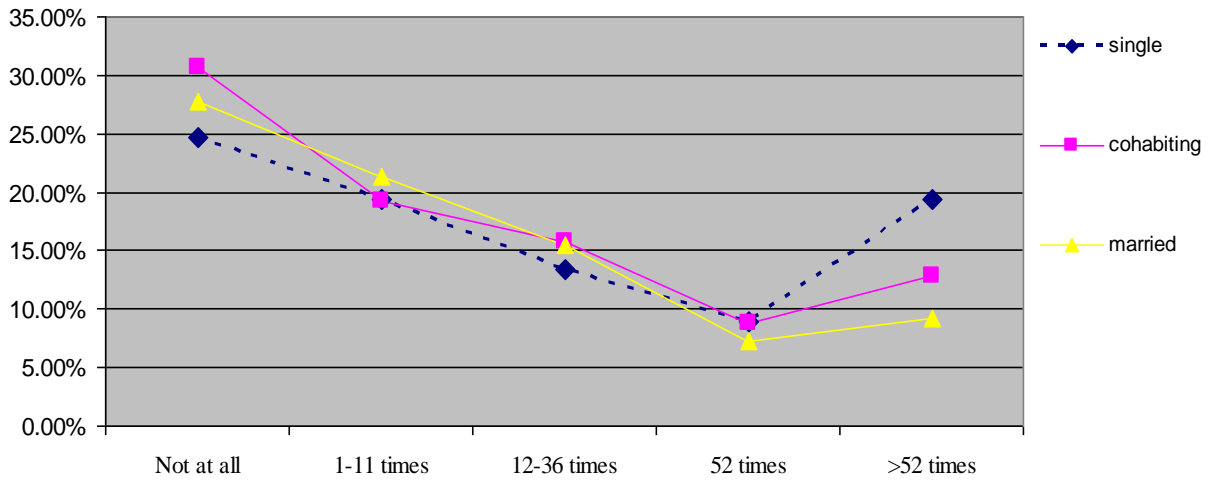
Figure 1. Classification of Family Structures
 (N=number of observations in the NSAF 1999 and 2002 sample)







**Figure 5A. Number of Times Child Saw Nonresidential Father In Last 12 Months
By Bio-mom Family Type**



**Figure 5B. Number of Times Child Saw Nonresidential Mother In Last 12 Months
By Bio-dad Family Type**

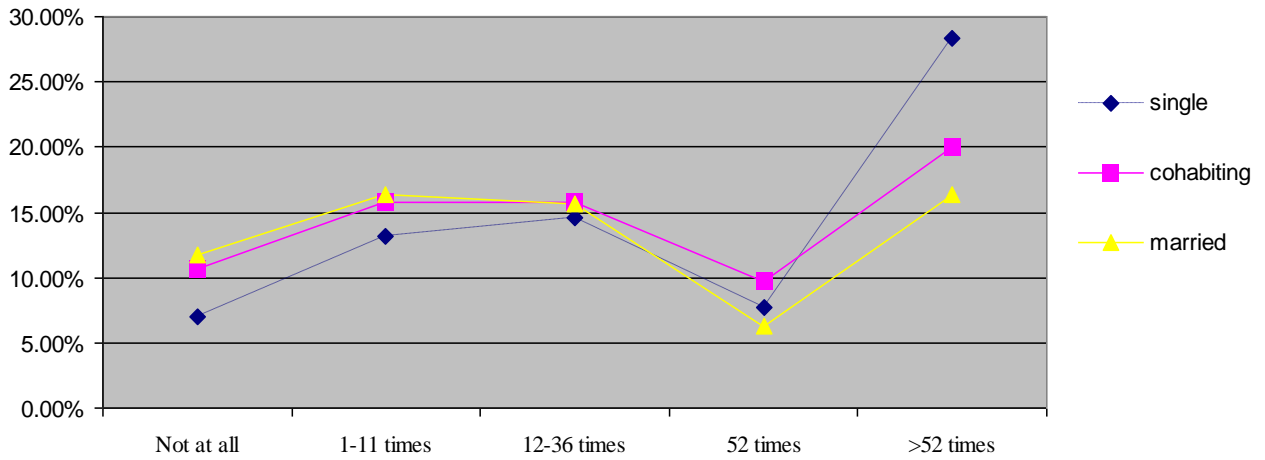
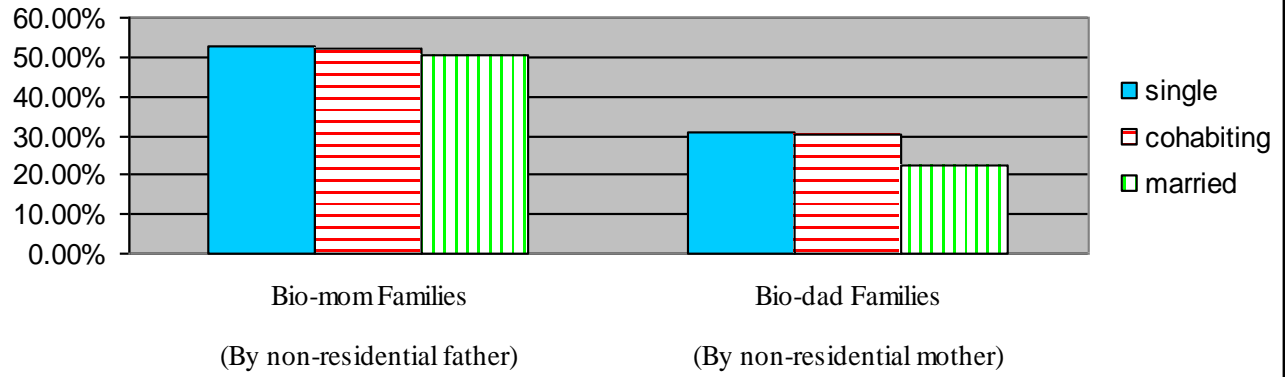


Figure 6. Percentage of Children Receiving Financial Contributions From Nonresidential Parent



Appendix Table 1A. Regression Results for Health Inputs as Dependent Variables

	Health Inputs							
	Insured		Dental		Usu_care		Well_care	
	Age 6-11	Age 12-17	Age 6-11	Age 12-17	Age 6-11	Age 12-17	Age 6-11	Age 12-17
Family Structure								
Two parents-cohabiting (A2)	-0.04 (0.03) ^a	-0.08 (0.06) ^a	-0.11 (0.10) ^a	-0.38 (0.26) ^a	-0.01 (0.02)	-0.01 (0.04)	0.03 (0.04)	-0.07 (0.07)
Single father (B1-a)	-0.01 (0.03)	-0.05 (0.02) ^{**a,b}	-0.01 (0.09)	-0.24 (0.10) ^{**a,b}	-0.05 (0.02) ^{**a,b}	-0.06 (0.02) ^{***a,b}	0.01 (0.04)	-0.09 (0.03) ^{***a,b}
Single mother (B2-a)	0.01 (0.01) ^a	0.02 (0.01) ^{*a,b}	0.07 (0.05)	-0.05 (0.09) ^a	0.01 (0.01) ^a	0.00 (0.01) ^a	0.02 (0.02)	0.02 (0.01)
Step mother-cohabiting (B1-b)	0.06 (0.02) ^{***a,b}	-0.02 (0.05)	-0.36 (0.22) ^a	-0.87 (0.18) ^{***a,b}	-0.07 (0.04) ^{*a,b}	-0.11 (0.06) ^{*a,b}	0.12 (0.08)	-0.13 (0.09)
Step father-cohabiting (B2-b)	-0.01 (0.03)	-0.05 (0.03) ^{*a,b}	0.16 (0.15)	-0.02 (0.22)	-0.01 (0.02)	0.00 (0.02)	0.00 (0.04)	-0.01 (0.03)
Step mother-married (B1-c)	0.06 (0.02) ^{**a,b}	-0.01 (0.03)	0.15 (0.15)	-0.03 (0.21)	-0.00 (0.03)	-0.03 (0.03)	0.07 (0.06)	-0.08 (0.04) ^{**a,b}
Step father-married (B2-c)	0.01 (0.02)	-0.01 (0.01)	-0.02 (0.07)	0.16 (0.13)	-0.00 (0.01)	-0.02 (0.01)	0.04 (0.03)	0.01 (0.02)
Grandparent (C1)	0.02 (0.04)	0.03 (0.03) ^a	0.02 (0.12)	0.12 (0.17) ^a	0.04 (0.02)	-0.01 (0.03) ^a	0.08 (0.05) ^{*b}	0.07 (0.04)
Other-non parental (C2)	-0.06 (0.04) ^a	-0.03 (0.03) ^a	-0.04 (0.10)	-0.04 (0.22)	-0.00 (0.02)	-0.08 (0.03) ^{***a,b}	0.11 (0.04) ^{**a,b}	0.03 (0.03)
Child, MKA and Household Characteristics (included in Models a,b)								
Age	-0.00 (0.00)	-0.01 (0.00) ^{*a,b}	0.05 (0.01) ^{***a,b}	-0.06 (0.02) ^{**a,b}	-0.01 (0.00) ^{***a,b}	-0.01 (0.00) ^{**a,b}	-0.03 (0.00) ^{***a,b}	-0.02 (0.00) ^{***a,b}
Girl	-0.02 (0.01) ^{**a,b}	-0.00 (0.01)	0.03 (0.04)	0.12 (0.05) ^{**a,b}	-0.00 (0.01)	-0.00 (0.01)	-0.02 (0.01)	0.01 (0.01)
Non-Hispanic Black	0.00 (0.02)	-0.01 (0.01) ^a	-0.21 (0.07) ^{***a,b}	-0.41 (0.09) ^{***a,b}	-0.04 (0.01) ^{***a,b}	-0.04 (0.01) ^{***a,b}	0.15 (0.02) ^{***a,b}	0.15 (0.02) ^{***a,b}
Hispanic	-0.09 (0.02) ^{***a,b}	-0.10 (0.01) ^{***a,b}	-0.21 (0.05) ^{***a,b}	-0.41 (0.09) ^{***a,b}	-0.06 (0.01) ^{***a,b}	-0.10 (0.01) ^{***a,b}	0.05 (0.02) ^{**a,b}	0.01 (0.02)
Any other ethnicity	-0.02 (0.02)	-0.04 (0.02) ^{**a,b}	-0.01 (0.09)	-0.13 (0.19)	-0.05 (0.02) ^{***a,b}	-0.08 (0.02) ^{***a,b}	0.06 (0.03) ^{*a,b}	-0.03 (0.03)
MKA's age	0.00 (0.00) ^a	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00) ^{***b}	-0.00 (0.00)
Number of children under 5 years old	-0.00 (0.01) ^a	-0.00 (0.01) ^a	-0.11 (0.02) ^{***a,b}	-0.11 (0.07) ^a	0.01 (0.00)	0.01 (0.01)	-0.03 (0.01) ^{***a,b}	-0.03 (0.01) ^{**a,b}
Number of children ages 6&17	-0.01 (0.01) ^a	-0.01 (0.01) ^{*a,b}	-0.00 (0.02) ^a	-0.02 (0.03) ^a	0.01 (0.00) ^{***b}	-0.00 (0.00) ^a	-0.01 (0.01) ^a	-0.00 (0.01)
West	-0.03 (0.01) ^{***a,b}	-0.03 (0.01) ^{**a,b}	-0.11 (0.06) ^{*a,b}	-0.07 (0.09)	-0.03 (0.01) ^{**a,b}	-0.03 (0.01) ^{**a,b}	-0.23 (0.02) ^{***a,b}	-0.26 (0.02) ^{***a,b}
Midwest	-0.04 (0.01) ^{***a,b}	-0.02 (0.01) ^{*a,b}	-0.15 (0.06) ^{**a,b}	-0.19 (0.11) ^{*a,b}	-0.02 (0.01) ^{**a,b}	-0.01 (0.01)	-0.24 (0.02) ^{***a,b}	-0.20 (0.02) ^{***a,b}
South	-0.07 (0.01) ^{***a,b}	-0.05 (0.01) ^{***a,b}	-0.22 (0.06) ^{***a,b}	-0.14 (0.10) ^a	-0.03 (0.01) ^{**a,b}	-0.05 (0.01) ^{***a,b}	-0.25 (0.01) ^{***a,b}	-0.23 (0.01) ^{***a,b}
Year 2002	0.03 (0.01) ^{***a,b}	0.02 (0.01) ^{**a,b}	0.04 (0.04)	-0.01 (0.06)	0.00 (0.01)	0.01 (0.01) ^a	0.03 (0.01) ^{***a,b}	0.04 (0.01) ^{***a,b}

Appendix Table 1A. Regression Results for Health Inputs as Dependent Variables

(continued)

Economic Characteristics (added to Model b)								
MKA has High School diploma	0.07 (0.02)*** ^b	0.11 (0.02)*** ^b	0.08 (0.08)	0.22 (0.10)** ^b	0.04 (0.01)*** ^b	0.05 (0.01)*** ^b	0.04 (0.02)* ^b	0.05 (0.02)** ^b
MKA has some college education	0.08 (0.02)*** ^b	0.14 (0.02)*** ^b	0.13 (0.07)* ^b	0.43 (0.10)*** ^b	0.04 (0.01)*** ^b	0.08 (0.01)*** ^b	0.03 (0.02)* ^b	0.08 (0.02)*** ^b
MKA has a bachelor or higher degree	0.11 (0.02)*** ^b	0.15 (0.02)*** ^b	0.23 (0.08)*** ^b	0.67 (0.10)*** ^b	0.05 (0.02)*** ^b	0.07 (0.01)*** ^b	0.11 (0.02)*** ^b	0.15 (0.02)*** ^b
MKA is working	0.02 (0.01)** ^b	0.01 (0.01)	0.01 (0.06)	0.11 (0.07)	0.00 (0.01)	0.00 (0.01)	-0.01 (0.01)	-0.02 (0.02)
Family income below 100% FPL	-0.09 (0.02)*** ^b	-0.08 (0.02)*** ^b	-0.27 (0.07)*** ^b	-0.33 (0.10)*** ^b	-0.08 (0.01)*** ^b	-0.05 (0.02)*** ^b	-0.03 (0.02)* ^b	-0.01 (0.02)
Family income between 100% and 200% FPL	-0.07 (0.01)*** ^b	-0.11 (0.01)*** ^b	-0.31 (0.03)*** ^b	-0.37 (0.10)*** ^b	-0.03 (0.01)*** ^b	-0.03 (0.01)*** ^b	-0.03 (0.01)** ^b	-0.05 (0.02)*** ^b
N	21698	22046	21698	22046	21698	22046	21698	22046

Notes: 1) The coefficients and standard errors shown are taken from model **b** (including all basic and economic variables as independent variables).

2) *** on standard errors indicates the coefficients from model **b** are statistically significant at 1%, ** at 5%, * at 10% level.

3) Superscripts **a**, **b** refer to the coefficients from the basic model (**a**) and/or economic model (**b**) are significant at least at 10% level.

Appendix Table 1B. Regression Results for Educational Inputs as Dependent Variables

	Educational Inputs					
	Same_sch		Lesson		Sports	
	Age 6-11	Age 12-17	Age 6-11	Age 12-17	Age 6-11	Age 12-17
Family Structure						
Two parents-cohabiting (A2)	0.04 (0.03)	-0.18 (0.09)* ^{a,b}	-0.02 (0.03) ^a	0.07 (0.08) ^a	-0.08 (0.03)** ^{a,b}	-0.02 (0.02)
Single father (B1-a)	-0.09 (0.02)** ^{a,b}	0.01 (0.02)	-0.07 (0.03)** ^{a,b}	0.03 (0.02) ^a	-0.06 (0.03)* ^{a,b}	0.02 (0.01) ^{a,b}
Single mother (B2-a)	-0.05 (0.02)** ^{a,b}	-0.06 (0.02)** ^{a,b}	-0.04 (0.02)** ^{a,b}	0.20 (0.01)** ^{a,b}	-0.06 (0.02)** ^{a,b}	0.00 (0.01) ^a
Step mother-cohabiting (B1-b)	-0.03 (0.05)	-0.07 (0.07)	-0.02 (0.08)	0.05 (0.08)	-0.16 (0.06)** ^{a,b}	-0.01 (0.01) ^a
Step father-cohabiting (B2-b)	-0.12 (0.04)** ^{a,b}	-0.04 (0.03) ^a	-0.06 (0.03)** ^{a,b}	0.17 (0.04)** ^{a,b}	-0.15 (0.03)** ^{a,b}	-0.01 (0.01)
Step mother-married (B1-c)	-0.13 (0.05)** ^{a,b}	-0.04 (0.03)	-0.04 (0.04)	0.04 (0.03)	-0.07 (0.05)	-0.01 (0.01)
Step father-married (B2-c)	-0.06 (0.02)** ^{a,b}	-0.05 (0.02)** ^{a,b}	-0.03 (0.02) ^a	0.08 (0.02)** ^{a,b}	-0.03 (0.02)	0.01 (0.01)
Grandparent (C1)	-0.13 (0.04)** ^{a,b}	-0.11 (0.04)** ^{a,b}	-0.04 (0.04) ^a	0.04 (0.04) ^a	-0.01 (0.04) ^a	-0.05 (0.02)** ^b
Other-non parental (C2)	-0.11 (0.04)** ^{a,b}	-0.14 (0.03)** ^{a,b}	-0.08 (0.03)* ^{a,b}	0.09 (0.04)** ^{a,b}	-0.07 (0.04)* ^{a,b}	0.02 (0.02)
Child, MKA and Household Characteristics (included in Models a,b)						
Age	-0.00 (0.00)	0.01 (0.00)** ^{a,b}	0.02 (0.00)** ^{a,b}	0.00 (0.00) ^a	0.04 (0.00)** ^{a,b}	0.00 (0.00)
Girl	0.01 (0.01)	0.02 (0.01)** ^{a,b}	0.18 (0.01)** ^{a,b}	-0.02 (0.01)* ^{a,b}	-0.17 (0.01)** ^{a,b}	0.00 (0.01)
Non-Hispanic Black	-0.08 (0.02)** ^{a,b}	-0.03 (0.02) ^a	0.06 (0.02)** ^{a,b}	0.09 (0.02)** ^{a,b}	-0.10 (0.02)** ^{a,b}	0.01 (0.01) ^a
Hispanic	-0.01 (0.01)	-0.01 (0.02)	-0.02 (0.01) ^a	0.08 (0.01)** ^{a,b}	-0.07 (0.01)** ^{a,b}	-0.02 (0.01) ^a
Any other ethnicity	-0.04 (0.03)	-0.02 (0.03)	0.11 (0.03)** ^{a,b}	0.06 (0.03)** ^{a,b}	-0.19 (0.03)** ^{a,b}	0.00 (0.01)
MKA's age	0.00 (0.00)** ^{a,b}	0.00 (0.00)** ^{a,b}	0.00 (0.00)** ^{a,b}	-0.00 (0.00)** ^{a,b}	-0.00 (0.00)* ^{a,b}	0.00 (0.00)
Number of children under 5 years old	-0.01 (0.01) ^a	-0.00 (0.01)	-0.01 (0.01) ^a	0.01 (0.01) ^a	-0.02 (0.01)** ^{a,b}	-0.00 (0.01)
Number of children ages 6&17	-0.00 (0.01)	0.00 (0.01)	-0.03 (0.01)** ^{a,b}	0.01 (0.01)* ^{a,b}	-0.01 (0.01)** ^{a,b}	0.01 (0.01) ^a
West	-0.02 (0.01)	-0.02 (0.01)	0.00 (0.01)	0.02 (0.01)* ^{a,b}	-0.02 (0.01)	0.01 (0.01)** ^b
Midwest	0.01 (0.01)	0.02 (0.01)* ^{a,b}	-0.03 (0.01)* ^{a,b}	0.00 (0.01)	-0.02 (0.02) ^a	0.03 (0.01)** ^{a,b}
South	-0.00 (0.01)	0.01 (0.01)	-0.04 (0.01)** ^{a,b}	0.02 (0.01) ^a	-0.02 (0.01) ^a	0.02 (0.00)** ^{a,b}
Year 2002	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)	0.01 (0.01)	-0.02 (0.01)** ^b	-0.01 (0.01)* ^{a,b}

Appendix Table 1B. Regression Results for Educational Inputs as Dependent Variables
(continued)

Economic Characteristics (added to Model b)						
MKA has High School diploma	0.03 (0.02) ^{*b}	0.00 (0.02)	0.01 (0.02)	-0.05 (0.02) ^{**b}	0.09 (0.02) ^{***b}	-0.07 (0.02) ^{***b}
MKA has some college education	0.02 (0.02)	-0.01 (0.02)	0.11 (0.02) ^{***b}	-0.06 (0.02) ^{***b}	0.18 (0.02) ^{***b}	-0.08 (0.02) ^{***b}
MKA has a bachelor or higher degree	0.01 (0.02)	0.00 (0.02)	0.25 (0.02) ^{***b}	-0.13 (0.02) ^{***b}	0.27 (0.02) ^{***b}	-0.08 (0.02) ^{***b}
MKA is working	0.03 (0.01) ^{**b}	0.03 (0.01) ^{**b}	0.01 (0.01)	-0.03 (0.01) ^{***b}	0.01 (0.01)	-0.03 (0.01) ^{***b}
Family income below 100% FPL	-0.02 (0.02)	-0.03 (0.02)	-0.08 (0.02) ^{***b}	0.26 (0.02) ^{***b}	-0.16 (0.02) ^{***b}	0.05 (0.01) ^{***b}
Family income between 100% and 200% FPL	0.02 (0.01)	-0.03 (0.02) ^{*b}	-0.06 (0.02) ^{***b}	0.18 (0.02) ^{***b}	-0.11 (0.02) ^{***b}	0.01 (0.01)
N	21698	22046	21698	22046	21698	22046

Notes: 1) The coefficients and standard errors shown are taken from model **b** (including all basic and economic variables as independent variables).

2) *** on standard errors indicates the coefficients from model b are statistically significant at 1%, ** at 5%, * at 10% level.

3) Superscripts **a, b** refer to the coefficients from the basic model (**a**) and/or economic model (**b**) are significant at least at 10% level.

Appendix Table 1C. Regression Results for General Inputs as Dependent Variables

	General Inputs							
	Worry_food		No_phone		Aggravation		Mental health	
	Age 6-11	Age 12-17	Age 6-11	Age 12-17	Age 6-11	Age 12-17	Age 6-11	Age 12-17
Family Structure								
Two parents-cohabiting (A2)	0.13 (0.04)*** ^{a,b}	-0.10 (0.05)** ^{a,b}	-0.00 (0.02)	-0.14 (0.06)** ^{a,b}	0.23 (0.14) ^a	0.61 (0.37) ^a	-2.53 (0.92)*** ^{a,b}	-1.34 (2.89)
Single father (B1-a)	0.02 (0.03) ^a	-0.03 (0.03)	0.02 (0.02) ^a	-0.06 (0.02)** ^{a,b}	-0.17 (0.12)	0.11 (0.13)	-1.98 (0.86)** ^{a,b}	0.08 (0.77)
Single mother (B2-a)	0.15 (0.02)** ^{a,b}	-0.05 (0.02)** ^{a,b}	-0.00 (0.01) ^a	-0.04 (0.02)** ^{a,b}	0.48 (0.07)** ^{a,b}	0.70 (0.05)** ^{a,b}	-4.01 (0.52)** ^{a,b}	-6.21 (0.51)** ^{a,b}
Step mother-cohabiting (B1-b)	-0.05 (0.05)	-0.14 (0.06)** ^{a,b}	-0.03 (0.02)	0.16 (0.06)** ^{a,b}	0.02 (0.22)	0.58 (0.29)* ^{a,b}	2.36 (2.12)	-6.23 (2.08)** ^{a,b}
Step father-cohabiting (B2-b)	0.19 (0.03)** ^{a,b}	-0.09 (0.03)** ^{a,b}	0.04 (0.04)	-0.09 (0.03)** ^{a,b}	0.76 (0.23)** ^{a,b}	0.60 (0.19)** ^{a,b}	-7.60 (1.89)** ^{a,b}	-5.42 (1.00)** ^{a,b}
Step mother-married (B1-c)	-0.03 (0.05)	-0.05 (0.04)	-0.05 (0.02)** ^{a,b}	-0.12 (0.03)** ^{a,b}	-0.10 (0.17)	0.32 (0.14)** ^{a,b}	1.90 (1.09)* ^{a,b}	-1.90 (0.92)** ^{a,b}
Step father-married (B2-c)	0.04 (0.02)** ^{a,b}	-0.02 (0.02)	0.01 (0.01)	-0.05 (0.02)** ^{a,b}	0.18 (0.07)** ^{a,b}	0.20 (0.10)** ^{a,b}	-1.66 (0.60)** ^{a,b}	-2.45 (0.63)** ^{a,b}
Grandparent (C1)	0.03 (0.04) ^a	-0.08 (0.03)** ^{a,b}	0.01 (0.03) ^a	0.04 (0.04) ^a	0.80 (0.25)** ^{a,b}	0.56 (0.21)** ^{a,b}	-3.05 (0.99)** ^{a,b}	-2.32 (1.14)** ^{a,b}
Other-non parental (C2)	0.03 (0.04) ^a	-0.07 (0.03)** ^{a,b}	-0.01 (0.02)	-0.15 (0.03)** ^{a,b}	0.62 (0.24)** ^{a,b}	0.54 (0.18)** ^{a,b}	1.20 (1.07)	-2.96 (1.11)** ^{a,b}
Child, MKA and Household Characteristics (included in Models a,b)								
Age	-0.00 (0.00)	-0.03 (0.00)** ^{a,b}	0.00 (0.00)	-0.04 (0.00)** ^{a,b}	0.02 (0.02)	-0.01 (0.01)	-0.08 (0.12)	-0.08 (0.12)
Girl	-0.00 (0.01)	0.12 (0.01)** ^{a,b}	0.00 (0.01)	-0.11 (0.01)** ^{a,b}	-0.12 (0.04)** ^{a,b}	-0.06 (0.04)	0.33 (0.32)	0.10 (0.31)
Non-Hispanic Black	0.09 (0.02)** ^{a,b}	0.09 (0.02)** ^{a,b}	-0.01 (0.01)	-0.01 (0.02) ^a	0.41 (0.09)** ^{a,b}	0.39 (0.09)** ^{a,b}	1.29 (0.62)** ^b	2.03 (0.58)** ^{a,b}
Hispanic	0.07 (0.02)** ^{a,b}	0.04 (0.02)** ^b	-0.03 (0.01)** ^b	-0.01 (0.02) ^a	-0.03 (0.07)	0.15 (0.06)** ^{a,b}	1.34 (0.51)** ^b	0.72 (0.46)
Any other ethnicity	0.04 (0.02)** ^b	0.06 (0.03)* ^{a,b}	0.03 (0.02)* ^{a,b}	-0.13 (0.03)** ^{a,b}	0.46 (0.12)** ^{a,b}	0.45 (0.13)** ^{a,b}	0.22 (0.72)	-0.68 (0.94)
MKA's age	-0.00 (0.00)** ^{a,b}	0.00 (0.00) ^a	-0.00 (0.00) ^a	0.00 (0.00) ^a	0.01 (0.00)** ^{a,b}	0.01 (0.00)	0.02 (0.02) ^a	0.06 (0.03)* ^{a,b}
Number of children under 5 years old	-0.01 (0.01) ^a	0.01 (0.01)	0.01 (0.01)* ^{a,b}	0.00 (0.01)	0.16 (0.04)** ^{a,b}	0.04 (0.06)	0.71 (0.24)** ^b	0.65 (0.31)** ^b
Number of children ages 6&17	0.01 (0.01) ^a	-0.01 (0.01) ^a	0.02 (0.01)** ^{a,b}	0.01 (0.01)	0.19 (0.03)** ^{a,b}	0.15 (0.03)** ^{a,b}	-0.04 (0.23) ^a	0.01 (0.20) ^a
West	0.03 (0.01)** ^{a,b}	-0.03 (0.02)	0.00 (0.00)	-0.02 (0.01)	-0.14 (0.05)** ^{a,b}	-0.19 (0.07)** ^{a,b}	0.94 (0.45)** ^{a,b}	1.29 (0.45)** ^{a,b}
Midwest	-0.03 (0.01)** ^b	-0.02 (0.02)	0.03 (0.01)** ^{a,b}	0.02 (0.02)	-0.09 (0.07)	-0.12 (0.07)* ^{a,b}	0.86 (0.56)	0.90 (0.46)* ^{a,b}
South	0.01 (0.01) ^a	-0.05 (0.02)** ^{a,b}	0.03 (0.01)** ^{a,b}	-0.06 (0.02)** ^{a,b}	-0.14 (0.05)** ^{a,b}	-0.11 (0.06)* ^b	1.20 (0.46)** ^{a,b}	0.92 (0.42)** ^b
Year 2002	0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)	-0.02 (0.01)	-0.05 (0.04)	-0.04 (0.05)	-0.27 (0.30)	0.14 (0.33)

Appendix Table 1C. Regression Results for General Inputs as Dependent Variables

(continued)

Economic Characteristics (added to Model b)								
MKA has High School diploma	-0.06 (0.02) ^{***b}	0.02 (0.02)	-0.08 (0.02) ^{***b}	0.09 (0.02) ^{***b}	-0.28 (0.10) ^{***b}	-0.05 (0.10)	3.22 (0.82) ^{***b}	0.98 (0.74)
MKA has some college education	-0.06 (0.02) ^{***b}	0.09 (0.02) ^{***b}	-0.09 (0.02) ^{***b}	0.15 (0.02) ^{***b}	-0.29 (0.10) ^{***b}	-0.08 (0.08)	3.06 (0.74) ^{***b}	1.83 (0.61) ^{***b}
MKA has a bachelor or higher degree	-0.13 (0.02) ^{***b}	0.21 (0.02) ^{***b}	-0.10 (0.02) ^{***b}	0.20 (0.02) ^{***b}	-0.23 (0.10) ^{**b}	-0.10 (0.09)	4.34 (0.76) ^{***b}	2.48 (0.64) ^{***b}
MKA is working	-0.02 (0.01) ^{**b}	0.01 (0.01)	-0.02 (0.01) ^{**b}	0.03 (0.01) ^{**b}	-0.08 (0.06)	-0.11 (0.06) ^{*b}	1.65 (0.40) ^{***b}	2.62 (0.43) ^{***b}
Family income below 100% FPL	0.26 (0.02) ^{***b}	-0.05 (0.02) ^{**b}	0.05 (0.01) ^{***b}	-0.07 (0.02) ^{***b}	0.05 (0.10)	0.19 (0.13)	-4.91 (0.73) ^{***b}	-4.69 (0.83) ^{***b}
Family income between 100% and 200% FPL	0.18 (0.01) ^{***b}	-0.05 (0.02) ^{***b}	0.00 (0.01)	-0.06 (0.02) ^{***b}	-0.18 (0.06) ^{***b}	0.06 (0.06)	-1.02 (0.39) ^{**b}	-1.80 (0.49) ^{***b}
N	21698	22046	21698	22046	21698	22046	21698	22046

Notes: 1) The coefficients and standard errors shown are taken from model **b** (including all basic and economic variables as independent variables).

2) *** on standard errors indicates the coefficients from model **b** are statistically significant at 1%, ** at 5%, * at 10% level.

3) Superscripts **a**, **b** refer to the coefficients from the basic model (**a**) and/or economic model (**b**) are significant at least at 10% level.

Appendix Table 2A. Effects of Family Structure: Equivalency and Comparison for Health Inputs

Tests performed (refers to Figure 1)	Health Inputs							
	Insured		Dental		Usu_care		Well-care	
	Age 6-11	Age 12-17	Age 6-11	Age 12-17	Age 6-11	Age 12-17	Age 6-11	Age 12-17
1. Equivalency								
No effect of non-traditional families [†] ($A2=B=C=0$) with two-parent cohabiting	reject ^a	reject ^{a,b}	reject ^a	reject ^{a,b}	reject ^a	reject ^{a,b}		reject ^{a,b}
($B=C=0$) without two-parent cohabiting	reject ^a	reject ^a		reject ^{a,b}	reject ^a	reject ^{a,b}		reject ^{a,b}
All nontraditional families equal [†] ($A2=B=C$) with two-parent cohabiting	reject ^a	reject ^{a,b}		reject ^{a,b}				reject ^{a,b}
($B=C$) without two-parent cohabiting	reject ^a	reject ^{a,b}		reject ^{a,b}		reject ^{a,b}		reject ^{a,b}
All one bio-parent families equal ($B1=B2$)	reject ^a	reject ^{a,b}		reject ^{a,b}		reject ^b		reject ^{a,b}
All no-parent families equal ($C1=C2$)		reject ^b				reject ^b		
All cohabitating families equal ($A2=B1b=B2b$)	reject ^{a,b}		reject ^a	reject ^{a,b}				
All married, two-parent families equal ($A1=B1c=B2c$)	reject ^{a,b}							
One unmarried bio-parent families equal ($B1a=B1b=B2a=B2b$)	reject ^{a,b}	reject ^b		reject ^{a,b}	reject ^b	reject ^{a,b}		reject ^{a,b}
All bio-dad families equal ($B1a=B1b=B1c$)	reject ^{a,b}	reject ^a		reject ^{a,b}				
All bio-mom families equal ($B2a=B2b=B2c$)	reject ^a	reject ^{a,b}		reject ^a				
2. Comparison (> or <)[‡]								
Single mom vs. single dad ($B1a$ vs. $B2a$)		mom> dad ^{a,b}		mom> dad ^b	mom> dad ^b	mom> dad ^{a,b}		mom> dad ^{a,b}
Cohabiting bio-mom vs. bio-dad ($B1b$ vs. $B2b$)	dad> mom ^{a,b}		mom> dad ^{a,b}	mom> dad ^{a,b}		mom> dad ^b		
Married bio-mom vs. bio-dad ($B1c$ vs. $B2c$)	dad> mom ^{a,b}							mom> dad ^{a,b}
Bio-Dad with presence of other female ($B1a$ vs. $B1b$; $B1b$ vs. $B1c$; $B1c$ vs. $B1a$) abs vs. coh vs. mar	coh ^{a,b} ,mar ^{a,b} >abs	mar> abs ^a	mar> coh ^{a,b}		mar> abs ^a ,coh ^a			
Bio-Mom with presence of other male ($B2a$ vs. $B2b$; $B2b$ vs. $B2c$; $B2c$ vs. $B2a$) abs vs. coh vs. mar	mar> abs ^a	abs ^{a,b} ,mar ^a >coh		mar> abs ^a				
Grandparent vs. Other non-parent ($C1$ vs. $C2$)		grand> other ^b				grand> other ^b		

Notes: 1) Superscripts **a**, **b** refer to whether the hypothesis of equality was rejected at a 10% significance level in the basic (*a*) and

2) † Including or excluding A2 (cohabiting two parents) has no effect on test results.

3) ‡ The equality of family structure coefficients was tested; the sign is based on the magnitude of the estimated effect and reflects which family structure has more positive (good) or less detrimental effect.

Appendix Table 2B. Effects of Family Structure: Equivalency and Comparison for Educational Inputs

	Educational Inputs					
	Same_sch		Lesson		Sports	
	Age 6-11	Age 12-17	Age 6-11	Age 12-17	Age 6-11	Age 12-17
1. Equivalency						
No effect of non-traditional families [†] ($A2=B=C=0$) with two-parent cohabiting ($B=C=0$) without two-parent cohabiting	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}
All nontraditional families equal [†] ($A2=B=C$) with two-parent cohabiting ($B=C$) without two-parent cohabiting	reject ^{a,b}	reject ^{a,b}		reject ^a	reject ^{a,b}	reject ^{a,b}
All one bio-parent families equal ($B1=B2$)		reject ^a		reject ^a	reject ^{a,b}	reject ^{a,b}
All no-parent families equal ($C1=C2$)				reject ^a		reject ^{a,b}
All cohabitating families equal ($A2=B1b=B2b$)	reject ^{a,b}					reject ^{a,b}
All married, two-parent families equal ($A1=B1c=B2c$)	reject ^{a,b}	reject ^{a,b}	reject ^a			reject ^{a,b}
One unmarried bio-parent families equal ($B1a=B1b=B2a=B2b$)		reject ^{a,b}			reject ^b	reject ^{a,b}
All bio-dad families equal ($B1a=B1b=B1c$)						reject ^{a,b}
All bio-mom families equal ($B2a=B2b=B2c$)			reject ^a	reject ^{a,b}	reject ^{a,b}	
2. Comparison (> or <)[‡]						
Single mom vs. single dad ($B1a$ vs. $B2a$)		dad> mom ^{a,b}				
Cohabiting bio-mom vs. bio-dad ($B1b$ vs. $B2b$)						dad> mom ^{a,b}
Married bio-mom vs. bio-dad ($B1c$ vs. $B2c$)						
Bio-Dad with presence of other female ($B1a$ vs. $B1b$; $B1b$ vs. $B1c$; $B1c$ vs. $B1a$) abs vs. coh vs. mar						coh> abs ^{a,b} , mar ^{a,b}
Bio-Mom with presence of other male ($B2a$ vs. $B2b$; $B2b$ vs. $B2c$; $B2c$ vs. $B2a$) abs vs. coh vs. mar			mar> abs ^a ,coh ^a	mar> abs ^a ,coh ^{a,b}	abs ^{a,b} , mar ^{a,b} >coh mar>abs ^a	mar> coh ^a
Grandparent vs. Other non-parent ($C1$ vs. $C2$)				other> grand ^a		grand> other ^{a,b}

Notes: 1) Superscripts **a**, **b** refer to whether the hypothesis of equality was rejected at a 10% significance level in the basic (*a*) and economic (*b*) models.

2) † Including or excluding A2 (cohabiting two parents) has no effect on test results.

3) ‡ The equality of family structure coefficients was tested; the sign is based on the magnitude of the estimated effect and reflects which family structure has more positive (good) or less detrimental effect.

Appendix Table 2C. Effects of Family Structure: Equivalency and Comparison for General Inputs

	General Inputs							
	Worry_food		No_phone		Aggravation		Mental health	
	Age 6-11	Age 12-17	Age 6-11	Age 12-17	Age 6-11	Age 12-17	Age 6-11	Age 12-17
1. Equivalency								
No effect of non-traditional families [†] ($A2=B=C=0$) with two-parent cohabiting	reject ^{a,b}	reject ^{a,b}	reject ^a	reject ^a	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}
($B=C=0$) without two-parent cohabiting	reject ^{a,b}	reject ^{a,b}	reject ^a	reject ^a	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}
All nontraditional families equal [†] ($A2=B=C$) with two-parent cohabiting	reject ^{a,b}	reject ^{a,b}	reject ^a	reject ^a	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}
($B=C$) without two-parent cohabiting	reject ^{a,b}	reject ^{a,b}	reject ^a	reject ^a	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}
All one bio-parent families equal ($B1=B2$)	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}	reject ^a	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}
All no-parent families equal ($C1=C2$)			reject ^a	reject ^b			reject ^{a,b}	
All cohabitating families equal ($A2=B1b=B2b$)	reject ^{a,b}	reject ^a	reject ^a		reject ^{a,b}		reject ^{a,b}	
All married, two-parent families equal ($A1=B1c=B2c$)	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}		reject ^{a,b}	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}
One unmarried bio-parent families equal ($B1a=B1b=B2a=B2b$)	reject ^{a,b}	reject ^{a,b}	reject ^a	reject ^a	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}
All bio-dad families equal ($B1a=B1b=B1c$)			reject ^{a,b}	reject ^a	reject ^b		reject ^{a,b}	reject ^{a,b}
All bio-mom families equal ($B2a=B2b=B2c$)	reject ^{a,b}	reject ^{a,b}			reject ^{a,b}	reject ^{a,b}	reject ^{a,b}	reject ^{a,b}
2. Comparison (> or <):‡								
Single mom vs. single dad ($B1a$ vs. $B2a$)	dad> mom ^{a,b}	dad> mom ^{a,b}			dad> mom ^{a,b}	dad> mom ^{a,b}	dad> mom ^{a,b}	dad> mom ^{a,b}
Cohabiting bio-mom vs. bio-dad ($B1b$ vs. $B2b$)	dad> mom ^{a,b}	dad> mom ^a	dad> mom ^{a,b}	dad> mom ^a	dad>mom ^{a,b}		dad> mom ^{a,b}	
Married bio-mom vs. bio-dad ($B1c$ vs. $B2c$)	dad> mom ^a	dad> mom ^a	mom>dad ^{a,b} mar ^{a,b} ,coh ^{a,b} >abs				dad> mom ^{a,b}	
Bio-Dad with presence of other female ($B1a$ vs. $B1b$; $B1b$ vs. $B1c$; $B1c$ vs. $B1a$) abs vs. coh vs. mar	mar> abs ^a			coh ^{a,b} ,mar ^{a,b} >abs	coh ^b ,mar ^b >abs		coh> abs ^{a,b} ,mar ^b abs ^{a,b} ,mar ^{a,b} mar>abs ^{a,b} >coh	
Bio-Mom with presence of other male ($B2a$ vs. $B2b$; $B2b$ vs. $B2c$; $B2c$ vs. $B2a$) abs vs. coh vs. mar	mar> abs ^{a,b} ,coh ^{a,b}	mar> abs ^{a,b} ,coh ^{a,b} coh>abs ^a			mar> abs ^{a,b} ,coh ^{a,b}	mar> abs ^{a,b} ,coh ^{a,b}	mar> abs ^{a,b} ,coh ^b abs ^{a,b} ,coh ^{a,b}	
Grandparent vs. Other non-parent ($C1$ vs. $C2$)			other> grand ^a	grand> other ^b	other> grand ^b		other> grand ^{a,b}	

Notes: 1) Superscripts **a**, **b** refer to whether the hypothesis of equality was rejected at a 10% significance level in the basic (*a*) and economic (*b*) models.

2) † Including or excluding *A2* (cohabiting two parents) has no effect on test results.

3) ‡ The equality of family structure coefficients was tested; the sign is based on the magnitude of the estimated effect and reflects which family structure has more positive (good) or less detrimental effect.