THE UNEXAMINED STABLE FAMILY:

AN EXAMINATION OF CHILD WELL-BEING IN STABLE SINGLE PARENT FAMILIES

Claire M. Kamp Dush, Institute for the Social Sciences Post-doctoral Fellow
Evolving Family Theme Project
Bronfenbrenner Life Course Center
Bebee Hall
Cornell University
Ithaca, NY 14850
cmk54@cornell.edu

Rachel Dunifon, Associate Professor
Department of Policy Analysis & Management
Cornell University

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Abstract

Using merged mother-child data from the NLSY79 we examine the well-being of children living with stable single mothers (i.e., mothers who never marry or cohabit), and compare them to children living in other stable families, as well as those who were born to single mothers who then eventually entered a union. We find that, after controlling for characteristics of the child, mother, and family, children of stably married parents experience higher quality home environments than children living with stable-single mothers. We also find that subsequent unions, regardless of type, appear to benefit children who were born to single mothers in terms of their home environment and math scores. Even after these unions dissolve, children whose mother has previously experienced a union fare better than those remaining with a stable-single mother.

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Several studies have documented that children in single-parent families fare worse than their counterparts in married two-parent families (e.g. Chase-Lansdale, Cherlin, & Kiernan, 1995; Cherlin, Chase-Lansdale, & McRae, 1998; McLanahan & Sandefur, 1994). Academics and policy makers alike have argued, based on evidence such as the studies cited above, that married two-parent families are the ideal place for both adults and children to reside (Poponoe, 1995; Waite & Gallagher, 2000). However, there is one missing piece in the single-parent family literature that, if examined, could challenge this view. There is a dearth of *longitudinal* research on single parent families, and in particular, stable single parent families. Could it be that the *stability* of a family structure, rather than the *type* of family structure, is more important for child development? This paper examines how children living with stable single mothers fare compared to children from cohabiting, married, and unstable single mother families using data from the merged mother-child files of the NLSY79.

Specifically, we examine two research questions. First, how do children living with stable single mothers (i.e., mothers who never have married or cohabited) fare compared to children in other types of stable arrangements (stable married or stable cohabiting)? Second, among all children born to single mothers, how do those whose mother never enters a union fare compared to those whose mother eventually does enter a union, even if that union later dissolves? In answering these questions we use lifetime measures capturing the total number of years a child has lived in various family structures up to age 14. To measure child functioning, we focus on three measures of children's cognitive achievement, as well as a measure of the

amount of cognitive stimulation and emotional support provided in the home and a measure of children's socio-emotional adjustment.

Understanding the well-being of children in various types of single-mother families (those who remain single vs. those who entered a union, for example) is important at a time when a variety of new federally funded programs designed to promote marriage have been enacted (Dion, 2005). Such programs are based on the assumption that living with a married parent is better for children than living with a single mother. The results from this study will allow us to understand whether this assumption holds for stable single-mothers, as well as whether unions benefit children, even if they are short-lived.

Background

Single Parents and other Family Structure Types

The number of children living in single-parent families has increased dramatically in the past 30 years. In 2005, 23% of all U.S. children under the age of 18 were living with a single mother; examined separately by race, data show that 16% of White children were living with a single mother in 2005, compared to 50% of Black children. Single parenthood is of concern to policymakers in part because of the high prevalence of poverty among children in such families. In 2005, 41% of families headed by a single mother were in poverty, compared to 9% of families with married parents (U.S. Census Bureau, 2005).

A great deal of prior research has explored the connections between family structure and child development. In general, single parenthood is associated with greater behavior problems, higher rates of teenage pregnancy, and lower academic achievement among children and youth (McLanahan & Sandefur, 1994), compared to living with married parents. Dunifon and Kowaleski-Jones (2002) find that the influence of single parenthood on children can differ by

race, however, with most detrimental influences of single parenthood occurring for White, but not Black, children. Further, studies that have compared children of cohabiting relationships with children in single-parent households have found that children in those two groups have similar outcomes (Acs & Nelson, 2002; Brown, 2004; Manning & Lamb, 2003).

Almost no studies have examined the effects of living in a stable (i.e., never-married, never-cohabited) single-parent family on development. In a notable exception, Teachman (2004) found that women who spent their childhoods in never-married mother-headed families had the lowest levels of education at marriage, married husbands with less education, and were the most likely to have a premarital birth. However, his analysis did not distinguish between women who lived with only their mothers versus women who lived with their mothers and their cohabiting partners during childhood. Kamp Dush (2006) found that adolescents who grew up with stable single mothers through age 16 did not differ from adolescents who grew up with stable married parents on self-esteem or depressive symptoms, both in adolescence and in young adulthood, while adolescents who grew up in unstable families, that is adolescents who experience at least one family structure transition (marriage, divorce, cohabitation, cohabitation dissolution, or death of mother's partner), reported lower self-esteem and depressive symptoms than adolescents from stable married families in both adolescence and young adulthood.

Family Structure Transitions

Children born to single mothers may see their mother enter into new unions over their childhood. Bzostek, Carlson, & McLanahan (2006) find that 12% of cohabiting and single mothers are in new unions by the time their child is 3 years old, and even more, 22%, have formed new partnerships, though they may not be co-residential – yet. They do not, however,

isolate only those women were single at birth. We next turn to the question – how do children in single-mother families compare to children in step-families?

We know from the divorce literature that children in married stepfamilies do not far as well as do children living with both biological parents on measures of academic achievement, behavior problems, and emotional problems (see Amato [1994] and Coleman, Ganong, & Fine [2000] for reviews). Other research indicates that children in married stepfamilies appear for the most part to be similar to children living with single mothers on almost all outcomes measured (Coleman, et al., 2000; Manning & Lamb, 2003). However, most research on step-families does not incorporate measures of the prior family structure experiences of the children in the analyses. That is, most research on step-families does not take into account whether the child was previously in a stable married, two-biological parent family or in a stable single-parent family prior to the step-family. Further, these studies do not discuss "social fathers" that come into the household, or cohabiting step-fathers.

When a single-mother enters into a cohabiting relationship, the role of her partner can be ambiguous, and even detrimental to the child. The children of cohabitating stepfamilies fare worse than their counterparts in married, two-biological-parent families on a variety of factors including academic achievement, delinquency, emotional problems, and behavioral problems (Brown, 2002, 2004; Dunifon & Kowaleski-Jones, 2002; Hoffereth, 2006; Manning & Lamb, 2003; Nelson, Clark, & Acs, 2001; Thomson, Hanson, & McLanahan, 1994). However, Bzostek, et al. (2006) examine new matches made by single and cohabiting mothers after the birth of their child. They compare data on the biological father, collected at birth, with data on the mother's new partner. They find that social fathers, as compared to the biological fathers of these children, are older, have higher levels of educational attainment, are more likely to working

or in school, are less likely to have problems with drugs or alcohol, to have ever seriously hurt the child's mother, and to have ever been in prison or jail. Most of these women who re-partner appear to make better matches than the biological fathers of their children. Therefore, it might be expected that children of single-mothers may have better outcomes if their mother enters into a union with a new partner, particularly if the mother is partnering with high-quality men.

Yet, there may be consequences for the children of single-mothers as to what type of union their mother chooses to enter. Children living in cohabiting step-families may differ from those in married-couple step-families for a variety of reasons. Some research suggests that children's relationships with cohabiting male partners may be qualitatively different from those with men who are married to their mothers. For example, Furstenberg and Harris (1993) find that marriage, whether to a biological or a step-father, is positively associated with teens' attachment to a father-figure which, subsequently, leads to better youth outcomes, including higher levels of educational attainment, lower rates of depression, and lower rates of teen pregnancy and imprisonment. This suggests that it is marriage, rather than the presence of an additional adult in the household, that is associated with positive outcomes among children, indicating that cohabitation may be more similar to single-parenthood than marriage in its effects on children.

Conversely, social support theories suggest that the mere presence of an additional adult in the household might lead to better outcomes among children due to the increased support received by parents and greater opportunities to monitor their children compared to single-parent families. However, this research is mixed. For example, Simons and Johnson (1996) find that it is not merely the presence of an adult in the home, but the presence of a spouse, that generates increased social support, noting that support from a non-spouse promotes maternal well being, but does not benefit children directly. Thus, it is unclear whether the presence of a cohabiting

partner may be associated with positive outcomes for children born to single mothers, possibly due to an increase in social support for the mother, or whether such support is only present and beneficial for children in the context of a marital relationship.

Data

The National Longitudinal Survey of Youth 1979 (NLSY79) is a survey designed to gather information at multiple points in time on the labor market experiences of groups of men and women. The 1979 cohort was a nationally representative sample of 12,686 men and women between the ages of 14 to 22 in 1979. Data were collected annually from 1979 through 1994, and biannually thereafter. We rely on data collected through 2004, the most recent year available. Sample design procedures oversampled blacks, Hispanics, and economically disadvantaged non-blacks/non-Hispanics. Starting in 1986, the children of the women of the NLSY79 (CNLSY79) have been assessed every two years. The children as of 2004 were mostly below the age of 29 and it is estimated that the sample includes about 90% of the children born to the NLSY79 women (Center for Human Resource Research, 2004). We use in our analyses detailed information on the child's home environment as well as their cognitive and socioemotional development, gathered biennially for children aged 4-15 between 1986-2004.

A key limitation of the NLSY mother-child data is the lack of information on children's fathers. The structure of the data means that children are only followed when they live with their mothers. Therefore, the sample does not contain any children living with only their fathers, or with fathers and stepmothers. Additionally, because all data reports come from the child's mother, the data contain limited information on the child's father. Despite these shortcomings, the NLSY has several strengths making the data well suited for our purposes. The main strength lies in the fact that children in this study have been followed since birth, giving us extensive

background information on the living arrangements, income status, employment status, and other important aspects of the lives of children and their mothers over a child's entire lifespan.

To create the data used for this project, we created a stacked person-year file for the mothers, with a line of data for each interview year between 1979 and 2004 (e.g. 1979-1994, 1994, 1998, 2000, 2002, 2004). We used this stacked person-year file to create a family structure history for each mother, as described below. After coding of the family structure histories were completed, we merged a stacked version of the children's data into the mother's data. Children were dropped if the child's birth year was missing (n = 3) or if the relationship status of the mother at birth was missing (n = 1). Hence our sample included data from 4,910 mothers and 11,428 children.

Measures

Independent Variables

After constructing the sample, we coded each child's family structure history using a series of constructed variables available in the NLSY79 data that assess the total number of partners the mother had ever had by a given wave , as well information on her current relationship, if any (i.e, whether married or cohabiting; see Appendix 1 for more details on these variables). Missing data could occur for any of three reasons. First, data were only collected every other year beginning in 1994, and hence was missing every other year from there forward. Second, for the 10% of children born before 1979, information on early family structure transitions was missing. Third, when mothers missed waves or experienced multiple transitions in a given year, family structure change is underestimated as the constructed variables do not take into account changes between waves.

To address issues of missing data, we supplement information from the created variables with a a series of marital history and transition variables measuring months and years of relationship initiations and terminations (see Appendix 2 for a description of the variables used to code missing years). For situations in which the retrospective reports conflicted with the relationship status reported at a given wave (i.e., the respondent retrospectively reported living with a partner in a given year, but did not report them as in the household at the interview date of that year), we used the reported family structure at the time of the interview.

Using these measures, we created family structure histories at each year, which were then merged with the child data. Hence, for all years between 1970 (the earliest date of birth in the NLSY79 Children and Young Adult dataset) and 2004, we coded family structure in 181,481 person years of data, 28% of which were coded using retrospective data. (Because respondents were not asked about missed cohabitations until 2002, we underestimate the experience of short-term cohabiting relationships).

After completing these steps, we created the following exclusive dichotomous measures of family structure capturing the child's lifetime family structure experiences at each year that a child was assessed: stable single parent (has always lived with a single mother), stable cohabiting parents (has always lived with cohabiting parents), stable union parents (child was born to cohabiting parents who eventually marry), stable married parents (has always lived with married parents), unstable cohabiting mother (currently lives with a cohabiting mother and her partner but has not in the past), unstable single mother (currently lives with a single mother but has not in the past), and unstable married mother (currently lives with a married mother and her husband but has not in the past). Various combinations of these family structure dichotomies comprise the key independent variables in our analyses.

Dependent Variables

Test Scores. To capture children's cognitive achievement, we use the math, reading comprehension, and reading recognition achievement assessments, which are taken from the Peabody Individual Achievement Tests (PIAT). Children ages 5 and older were administered these tests at each of the biennial assessments. The *mathematics assessment* consists of eighty-four multiple-choice items of increasing difficulty. It begins with such early skills as recognizing numerals and progresses to advanced concepts in geometry and trigonometry. A child looks at each problem and then chooses an answer by pointing to or naming one of four options. Children enter the assessment at an age-appropriate item and establish a basal by attaining five consecutive correct responses. Testing stops when the child responds incorrectly to 5 out of 7 items. Our analysis is of the raw-score responses to these questions.

The PIAT *reading recognition* assessment measures word recognition and pronunciation ability. This assessment contains 84 items, each with 4 options, which increase in difficulty from preschool to high school levels. Skills assessed include matching letters, naming names, and reading single words aloud. The NLSY's PIAT *reading comprehension* test measures a child's ability to understand sentences that he or she reads silently. A child reads a sentence, and then selects one of four pictures which best portrays the meaning of the sentence. The scoring and scaling procedures for both reading tests are similar to that of the PIAT math assessment. Both the PIAT mathematics and reading assessments are considered to be highly reliable and valid and their widespread use is evident in the psychological and sociological literature. (Baker, Keck, Mott, & Quinlan, 1993).

HOME scores. We also use our family structure measures to predict measures of the cognitive stimulation and emotional support provided in the child's home. In the NLSY,

assessments of children's home environments are derived from the Home Observation for Measurement of the Environment (HOME) scales (Bradley & Caldwell 1984a, 1984b). We use the total HOME score, which captures both the degree of appropriate cognitive stimulation and emotional support directed toward the child. The HOME scales were developed to identify and describe homes of infants and young children who were at significant developmental risk; they have been effectively used to identify home environments associated with impaired mental development, and poor school performance (Bradley, 1985).

Other Variables

Using the household roster, we have coded whether or not a grandparent is present in the home at each interview for which we have data. This information allows us to examine whether grandparent presence plays an important role in predicting child well-being in stable single-mother families by breaking the family structure categories listed above into those in which a grandparent was present and those in which one was not. For example, we distinguish stable single parent families with no grandparent from stable single parent families with a grandparent.

Control Variables

Analyses will control for child age, sex, race and ethnicity (using a dummy indicating whether the child is Hispanic), and include time-varying covariates for mother's education (highest grade completed), employment status (using a dummy indicating whether the mother was employed at the time of the interview), total annual family income, whether the family received cash assistance in the past calendar year, number of children in the household, and the number of family structure transitions at a given point. Analyses including children who have experienced family structure transitions also include controls for the duration since the most recent family structure disruption a child has experienced at each assessment point. Finally, we

take advantage of the rich nature of the NLSY79 data to capture characteristics of mothers and their backgrounds that precede their fertility and union-formation behavior. These measures include the mothers' Armed Forces Qualifying Test (AFQT) score (a measure of IQ taken in 1980), a dummy indicating whether the mother lived with both parents when she was aged 14, a scale indicating whether the mother's own parents provided a stimulating learning environment when the mother was 14 (specifically, whether they subscribed to newspapers and magazines, and had a library card), and a scale indicating whether the mother participated in two or more delinquent behaviors at age 14. Controlling for these measures allows us to capture mothers' own family background, as well as some maternal characteristics, all preceding the family structure and child outcome measures we examine here.

Results

Descriptive Statistics

Descriptive statistics on the dependent and independent variables are reported in Table 1. In particular, the full sample N's as well as the n's by age categories for each family structure type can be seen in Table 2. As shown in Table 1, there are some interesting differences in variable means by family structure type. Across stable family types, stable married parents, children born to single-mothers who are living in a married step-family, and children born to single mothers who are currently living with a single mother after a union dissolution each report mean HOME, math, reading recognition, and reading comprehension scores higher than the full sample mean. In contrast, children living with stable cohabiting, union, and single parents, and children born to single parents who are currently in a cohabiting step-family report lower mean HOME, math, reading recognition, and reading comprehension scores. Only children living with

stable married parents report BPI scores lower than the full sample mean, while each other family structure type reports higher behavior problems.

With regard to the child demographic characteristics, Black children made up the highest proportion (76%) of the stable single mother group, and the lowest proportion (13%) of the stable married parent group. Hispanic children made up the highest proportion (31%) of the stable cohabiting family group, and the lowest proportion (13%) of the stable single-mother group. White children were the highest proportion (65%) of the stable married group, and the lowest proportion (12%) of the stable single-mother group. The youngest children were found in the stable cohabiting family group, due to the short-term nature of cohabiting unions, while the oldest children were found in the group of children born to single mothers who were currently in a single mother family after a union dissolution. These children were older by definition, as they had to experience a single-mother family and a step-family at different separate waves, hence it took a longer period of time for them to experience these transitions. Finally, the group with the highest proportion (56%) of boys was the stable union group. Perhaps cohabiting mothers with sons were more successful in getting the father to marry them. Lundberg, McLanahan, and Rose (2005) find in the Fragile Families and Child Well-being data that infant sons are more likely to receive their fathers' name at birth and receive more caretaking from both married and unmarried fathers than do daughters. Thus, unmarried fathers with sons may be more likely to marry the mother of their child, and in fact, Dahl and Moretti (2007) find that a first-born daughter is less likely to be living with her father and among women who have taken an ultrasound test during pregnancy, mothers who have a boy are more likely to be married at delivery than mothers who have a girl. On the other hand, the group with the lowest proportion (48%) of boys was the group of children born to single mothers who were currently in a married step-family. Perhaps

the boys in these families served as a deterrent when mothers' wanted to enter new unions, potentially through behavior problems.

Turning to the mother's characteristics, the oldest mothers were found in the group of children born to single mothers who were currently in a single mother family after a union dissolution, again because it took more time for such transitions to take place, compared to the stable groups. The youngest mothers were in the stable single-mother group. The most educated mothers, the greatest proportion (74%) of mothers living with both parents at age 14, and mothers with the highest mean AFQT scores were all in the stable married family group, while the least educated mothers, lowest proportion (43%) of mothers living with both parents at age 14, and mothers with the lowest mean AFQT scores were in the stable single mother group. In terms of mother's delinquency at age 14, mothers in stable married families had the lowest mean delinquency, while mothers in stable union families had the highest rates at age 14.

Finally, in terms of family and work characteristics, stable cohabiting families reported the most children in the household while children born to single-mothers who were living with a single-mother after a union dissolution reported the fewest children. Further, stable married parent families reported the highest earnings and the lowest proportion (3%) receiving welfare, while the stable cohabiting families reported the lowest earnings and greatest proportion (59%) receive welfare. At the same time, the stable cohabiting families, along with the stable single-mother families, both reported the lowest proportion of employed mothers (41%), while among both the mothers in stable married parent families and in the group of children born to single-mothers who were currently in a married step-family over 60% of the mothers were employed. For those children from unstable families, i.e. children born to single mothers who are currently living in a married step-family, a cohabiting step-family, or their single mother after a union

dissolution, children who are living with their single mother after a union dissolution report the highest number of family structure transitions, while children living in a married step-family report the fewest. Further, children living in married step-families report the longest current family structure duration, while children have been in their cohabiting step-family structure for the shortest time. These mean comparisons highlight many interesting differences between these groups, and also point to the need to carefully account for selection factors when comparing across family structure types.

Turning to the stability of family types, Table 2 highlights that 66% of children were born to married mothers while 28% were born to single mothers and 6% were born to cohabiting mothers. Children spent longer periods of their childhood in stable married parent families, where by age 14, 54% of children born to married parents were still living with intact-married parents. On the other hand, only 9% of those children born to cohabiting parents who never marry are still with their intact cohabiting parents while 40% of children born to cohabiting parents who do marry are still with their intact married (previously cohabiting) parents. For those children born to single-mothers, 28% are still living with their stable single mother at age 14. Therefore, many of these children experience unions across their childhood. Indeed, by age 14, 33% of the children have are in a married step-family, 10% are in a cohabiting step-family, and 29% have experienced a union dissolution. As was discussed in the introduction, the family structures of children growing up in the 1980s, 1990s, and 2000s are very much dynamic, and subject to change.

Stable Family Comparisons

Pooled-time series results. To examine our first research question, *How do children living with stable single mothers (i.e., mothers who never have married or cohabited) fare*

compared to children in other types of stable arrangements (stable married or stable cohabiting), we do two analyses: 1) a pooled time-series, and 2) propensity score matching. We begin with the pooled time series and use person-year stacked data containing multiple observations for each child (see Table 3). This is a repeated cross-section design, in which standard errors are corrected for the fact that the same child is observed multiple times. Specifically, we run a pooled time-series regression among only children living in stable families, using as independent variables the indicator of living in a stable single-mother family (the excluded group), stable cohabiting parents, stable union parents, and stable married parents. The dependent variables in these models were the HOME, BPI, and the PIAT sub-scores: math, reading recognition, and reading comprehension. We control for a variety of child demographic variables, mother and family background and economic characteristics.

Results from Table 3 show that, overall, children from stable-married families fare better than children from stable-single parent families in terms of HOME scores and math, reading recognition, and reading comprehension scores, but do not differ in terms of behavior problems. Further, children from both stable cohabiting and stable union families report higher HOME scores than do children from single-parent families. However, children from stable cohabiting and stable union families do not significantly differ from children in stable-single parent families in terms of behavior problems, math, reading recognition, or reading comprehension scores. Thus, it appears, that children in two-parent families, regardless of the type, are advantaged with richer home environments compared to children in stable single-mother families, but that in terms of math and reading abilities, the advantaged home environment only translates into advantaged skills for children from stable married families, as compared to children from stable-single mother families.

Additional analyses. Children living with single mothers are more likely than other children to also have a grandparent in the household. According to the 2005 Current Population Survey (CPS), 13% of Black children living with a single mother, and 14% of White children living with a single mother, also lived with a grandparent; such children are almost three times as likely to live with a grandparent as children living with a married mother (U.S. Census Bureau, 2005). It is possible that the well-being of children in stable single-mother families may differ depending on whether a grandparent lives in the household. To test this the stable single-mother group was sub-divided into those with and those without a grandparent in the household. Twenty-eight percent of the stable single mothers were living with grandparents in the household. In results not shown, we find few differences in child outcomes, such that children living with stable single mothers, regardless of whether or not there is a grandparent in the home, report poorer HOME, math, and reading recognition and comprehension scores. We also find that both groups of children in stable single-mothers report poorer HOME scores than do children living with stable cohabiting or stable union families. In one exception to previous results, we find that only children living with their stable single-mother and a residential grandparent report more behavior problems than do children living with their stable married parents. In analyses where we vary the excluded group and compare the groups of stable single-mothers with and without grandparents with each other, we find no significant differences.

Propensity score matching results. We next use propensity score matching to extend the analyses shown in Table 3. First, we examine whether the disparities between children from stable married parent and stable single mother families grow over time by examining mean differences in our outcomes by age. Further, in order to address concerns that our stable single mothers are a very select sample with distinct and perhaps important unmeasured differences

compared to the stable married parents, we attempt to control for observable differences both

prior to the birth of the child and over time, carefully isolating an appropriate comparison sample

of children from stable married parent families. We chose to focus solely on the comparison

between stable single-mothers and stable married parents because this contrast is where the most

significant findings emerged in Table 3 (children in all other groups are excluded from the

analysis).

When conducting a propensity score analysis, there are several matching estimators from

which to choose. Morgan and Harding (2006), in a review of matching estimators, argue that

nearest neighbor caliper matching with replacement, interval matching, and kernel matching are

all closely related. For this analysis, we use nearest neighbor caliper matching with replacement

and an exact match on age. There are several steps to carrying out this matching method. First,

in order to do an exact match on age, we rounded child age to the nearest who number, and then

created categorical variables in which $1 = 0 – 2$ years, $2 = 3 – 4$ years, $3 = 5 – 6$ years, $4 = 7 – 8$

years, $5 = 9 – 10$ years, $6 = 11 – 12$ years, and $7 = 13 - 14$ years. Note that the numbers of

children in each of the stable categories reduces over time, both due to attrition and to children

experiencing family structure changes and leaving the "stable" sample. We then conducted a

series of probit regression, separately for each age category, using race, child gender, mother's

age and highest grade completed, and mother's family structure, literacy, AFQT, delinquency at

age 14, as well as the number of children in the household, family income, mother's employment

status, and welfare receipt to predict a dummy variable that equals one if the child is in a stable

single-mother family and zero if the child is in a stable married parents family, saving the

predicted probability of membership in single-mother families as our propensity scores. After

obtaining a propensity score for each age category, Leuven and Sianesi's (2003) matching

estimator for Stata, *psmatch2* was used[1]. The propensity scores calculated from the probit were used in analyses using single nearest-neighbor matching with replacement. Thus, the children in our "treatment" group, the children of stable-single mother families, are matched to their nearest neighbor in the stable-married group, i.e. the child in the stable-married group with the closest propensity score (i.e., propensity to live with a stable single mother) to the treated child's own. In the event of ties, or when children in the non-treated group have identical propensity scores, the matched child nearest to the treated child is selected. Therefore, we ensured that our data were in random order before we ran the procedure. Further, a matched child is allowed to be used more than once and is not withdrawn from the pool after a match, allowing each child to find his or her best match from the entire pool for stable-married parent family children. Finally, we also set a limit, or caliper, on the distance from which the matched child's propensity score could fall from the treated child's propensity score. We first use a more stringent caliper 0.01, where between 62% and 93% of our sample is "on common support", or, put another way, where between 62% and 93% of children from stable single-mother families find a match. Because the sample-size drops due to the stringency of the matching estimator, this could bias us against detecting group differences ; therefore, we also report results from a more lenient caliper of 0.03, in which over 95% of our sample is on common support. Table 4 shows the percentage of children from stable-single parent families that were on common support, (i.e., found matches from the pool of stable-married parents), by caliper, age, and outcome.

Table 4 presents the average HOME, BPI, reading and math scores for children of stable single mothers and their matches living with stable married mothers, with stars indicating instances in which these means differ. Results for the HOME scale are consistent with our

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[1] Other estimators also exist for Stata (see Morgan and Harding for a review), but *psmatch2* is one of the more popular and user-friendly of the matching estimators available, and comparisons among matching estimators has not shown a clear advantage to one estimator over another.

findings from the pooled time-series showing advantages for children of stable married mothers. When matching at the more stringent 0.01 caliper, children from stable married parent families have significantly higher mean HOME scores in each age group except for the 5 to 6 year old age group, where the difference between the two means reaches the $p < 0.10$ significance level. The results for the matching with the less stringent 0.03 caliper were largely similar, except that the difference between means in the 5 to 6 year old age group and the 11 to 12 year old age group both failed to reach significance, even at the $p < 0.10$ level. Therefore, the propensity score matching results, even with a more stringent common support criteria, replicated our pooled time series results, suggesting that children's home environments are more rich in stable married parent households as compared to stable single parent households, even after taking into account a variety of differences between the two households.

Regression results in Table 3 indicated no significant difference between children from stable married parent families and stable single-mother families in terms of behavior problems. The propensity score matching results in Table 4 largely confirm this, and also indicate that in adolescence, (13 to 14 year olds), the children from stable single parent families report fewer behavior problems than the children in stable married parent families. These results were found at both caliper levels. This result is intriguing, and perhaps an avenue for future research should be to extend these analyses to the adolescent data from these children to see whether the children of stable single parent families may experience a benefit in early adolescence, perhaps due to an increased sense of self-efficacy due to greater responsibility in the household as compared to their counterparts in two parent households. At the 0.03 caliper level only, the 7 to 8 year old children in stable single-mother families also reported less behavior problems than children in

stable married-parent families – however, this result did not hold once at the more stringent 0.01 matching criteria.

Finally, for the PIAT math, reading recognition, and reading comprehension subscales, the pooled time-series regression results (Table 3) indicated advantages for children from stable married parent families. However, these results were not replicated in the propensity score analysis. Indeed, the only age group that experienced a married-parent advantage was the 11 to 12 year olds. Children in this age group who lived with stable married parents reported higher test scores than did children who lived with stable single-mothers, regardless of the caliper level. However, for none of the other ages were there significant mean differences between stable married and stable single families, suggesting that in most age ranges, children in stable single-parent families do not fare worse than children in stable married parent families in terms of test scores.

Transitions in Single Mother Families

We next turn to our second research question: *among all children born to single mothers, how do those whose mother never enters a union fare compared to those whose mother eventually does enter a union, even if that union later dissolves?* We again conduct a pooled time series and use a repeated cross-section design with person-year stacked data containing multiple observations for each child. We restrict our sample to children born to single mothers. We then use our longitudinal data to track the children in and out of various family structures. Thus, at each time point, children are divided into four categories: stable single-mother family, married step-family, cohabiting step-family, and single-mother family after union dissolution. These measures are used to predict the HOME, BPI, and the PIAT tests. We again control for a

variety of child demographic variables, mother and family background and economic characteristics.

Results from these analyses can be seen in Table 5. We find that children born to single mothers who currently reside in married step-families and cohabiting step-families report higher HOME scores than do children living in stable single-parent families. Additionally, children born to single mothers who currently live with their single mother after a union dissolution report lower HOME scores than do stable single-mothers. These results would seem to indicate that while unions, regardless of their type, appear to increase the quality of the home environment for children born to single mothers, when those relationships end, children living with newly single mothers are worse off in terms of the quality of their home environment than if their mother had stayed stably single.

We find no significant differences for behavior problems, regardless of the family structure type. However, for math scores, we find that among children born to single-mothers, those children currently living in a married step-family, cohabiting step-family, or with their single-mother after a union dissolution each report higher math scores than children still living with their stable single mother. We also find that these results do not extend to reading scores, save one instance – we find that children living with their single mother after a union dissolution have higher reading recognition scores than do children living with a stable single mother. It appears then that the children born to single mothers currently living in cohabiting or married step-families are advantaged in both their home environments and their math scores, indicating that in this instance, even with the complexities of step-family life, children are better off residing in a married family than continuing with their lone single-mother. On the other hand, among children born to single mothers who are currently residing with their single mother after a

union dissolution, the results are more mixed such that these children appear to have poorer home environments but better reading and math scores than children living with their stable single-mothers. We performed some additional analyses to attempt to shed some light on the mixed picture these results presented.

Additional analyses. The first extension of this model was to divide the children born to single mothers who are currently living with their single mother after dissolution into two groups – single after divorce and single after cohabitation dissolution. Of the dissolutions experienced, 63% were divorces while 37% were cohabitation dissolutions. Results (not shown) indicated that children who were living with their newly single mothers after a divorce were driving the positive effects. Specifically, among children born to single mothers, those who were living with their single-mother after a divorce reported better math and reading recognition scores than children living with a single mother who had never entered a union. Further, children who were living with their single mother after a cohabitation dissolution had poorer home environments but were otherwise not significantly different from children living with their stable single mother. Hence, while both cohabiting and marital unions appear to benefit the children of single-mothers while they are intact, after their dissolution, the children born to single-mothers only continue to benefit from their time in an intact family if the previous family was a married step-family.

Turning to our final analysis, consider that single mothers who never have a union may do so for multiple reasons. For instance, a single mother may remain so because she cannot find a suitable partner, because she does not believe it would be good for her child(ren) to re-partner, or she may have personality or mental health issues that impede her from re-partnering (and may also influence her ability to parent well). We therefore divided our stable single mothers group

into two distinct groups: stable single mothers who never partner, and stable single mothers who partner at some point in the future. Of the full sample of stable single mothers, 54% never re-partner during our observation period, while 46% do re-partner. We then re-ran our analysis to see if these two groups were different one from another in terms of the child outcomes examined. In results not shown, we find no significant differences by whether or not the stable single mothers ever re-partner or never re-partner. Hence these results indicate that though we do not know why these women are remaining single, the children of these women who remain partner-less do not seem to suffer for it as compared to children whose mothers eventually do re-partner.

Discussion

This paper attempts to examine one of the more important questions in family structure research: are children more influenced by the type family structure in which they live, or the stability of their living arrangements over time? Current policy initiatives in the U.S. assume both – that marriage should be promoted to unmarried parents, but also that these marriages should be "healthy" or stable. We attempt to see if these suggestions are warranted using a large national dataset.

Overall, we find mixed evidence regarding the superiority of marriage as a family structure. In a pooled-time series regression framework, we find evidence that stable unions, both cohabiting and married, are associated with improved home environments compared to living with a single mother who never enters a union, even after taking into account a variety of child, mother, family, and economic characteristics. However, in terms of academic abilities, we find only that children living with stable married parents fare better, reporting higher math, reading recognition, and reading comprehension scores, while children in stable cohabiting families do not.

Propensity score analysis was used to test the robustness of these findings. Results from the propensity score analysis confirm that children in stable married parent families report better home environments than children living in stable single-parent families. On the contrary, we find little evidence of a difference in math, reading recognition, and reading comprehension scores between the children of stable married parents and stable single parents when we carefully isolate the comparison sample of stable married parents using a propensity score. Thus, we conclude that there is strong evidence overall that children living in stable unions are advantaged in terms of their home environments as compared to children living with stable single-mothers. However, we find mixed evidence regarding a marital advantage in terms of test scores, suggesting that the stability of family structure matters more for children's academic skills than does the type of family structure in which a child resides.

However, this does not answer another key question– do children living with formerly stable single-mothers benefit when their mother enters a new union – and if there is a benefit – does it continue after the union dissolves? We examine this by again turning to the pooled time-series regression framework. Overall, we find that among all children born to single mothers, children who are currently residing in cohabiting or married step-families report better home environments and math scores than their counterparts in stable single-mother families (i.e., with mothers who have never entered a union). On the other hand, children born to single mothers who are currently residing with their single mother after a union dissolution report poorer home environments but better math scores than children living with their stable single mothers. To better understand this contradiction, we divided the children living with their single mothers after a union dissolution into two groups – single mothers after a divorce and single mothers after a cohabitation dissolution. Results indicated that children living with a single mother after a

divorce demonstrated better math and reading recognition scores than children living with their stable single mothers, while children living with their single mother after a cohabitation dissolution did not. Thus, both cohabiting and marital unions appear to benefit the children born single-mothers while they last. Yet after their dissolution, the children born to single-mothers only continue to benefit from their time in these unions if the union was marital. In fact, results show that children who previously experienced a cohabiting step-family are worse off in terms of their home environment than if their mothers had not partnered at all.

From a policy standpoint, our results seem to have two messages. First, we find that overall, there are few advantages to marriage (or even unions in general) when stable marriage is compared with stable parenthood, with an exception being improved home environments for children of stably married parents, though these improved home environments do not seem to increase math or reading scores. Second, we find that children in single-mother families may benefit when their mother enters into a marriage, even after it ends.

Limitations

There are limitations to this study. First, due to the design of the NLSY79, we underestimate short-term cohabitations that occur prior to 2002. Second, we are not able to confirm that the partner or husband of the mother is the biological father. Third, we are not able to ascertain why the mothers are single. There are a variety of reasons why a mother may remain single, including a lack of partners, personality or mental health issues, or a belief that remaining a single-mother will benefit the child. We do attempt to address this indirectly though distinguishing between those mothers who never have unions versus those mothers that eventually have unions, and we find no significant differences between these groups.

Despite these limitations, this study has many strengths, lying mainly in our ability to capture stability and change in children's living arrangements over their entire childhoods, and to relate these to a wide range of important child developmental outcomes. Doing so allows us to better understand whether and how a variety of living arrangements influence children.

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Appendix 1.

The NLSY79 created a series of constructed variables for each survey year that provides information regarding the respondent's relationship status. First, all surveys were examined to match names of spouses and/or partners for the entire administration of the NLSY79 from 1979 to 2002. The first variable, *partner number*, provides information about the respondent's total number of spouses and/or partners since 1979 and can range from 0 to 9. The mothers' *partner number* is 0 when she has never been married or never cohabited, and increments by 1 each wave that a new partner is noted in the household (Note, in the NLSY, cohabitation is defined as living with an opposite sex adult as a partner). If the same spouse or partner resides with the respondent during the next survey round, the *partner number* remains the same. If the respondent has a new spouse or partner, the next available number is given to that person. If in a later survey round the respondent is reunited with a previous spouse or partner, the partner number does not increase, and the code for that year reflects that partner's original number. Second, a unique code is assigned to each the spouse/partner at a particular interview date such that the variable *partner relationship code* is coded 1 for a spouse, 33 for a cohabiting partner, and in instances where the exact relationship was undetermined in a given round, the partner was given a code of 36 (n = 723). This situation arises most often when an opposite sex partner is reported in the household roster, but not as a cohabiting partner. We recode these individuals as cohabiting partners. If no spouse or partner is present at a given survey point, but the respondent has reported a spouse/partner in the past, their *partner relationship code* will be zero, and the *partner relationship code* is missing if the respondent has never reported a partner.

Appendix 2.

The retrospective indicators of family structure include the month and year the respondent began a first, second, or, beginning in 1988, a third marriage and the month and year a first or second marriage ended, as well as the month or year of the most recent marriage and the month or year during which the first marriage ended, all since the last interview date. Beginning in 1980, a variable *Change(s) in Marital Status since the Last Interview* was also added, as well as the month and year of the change. Changes included separation, divorce, reunited, widowed, and remarried. Further, for cohabitation, from the 1990 and 1992 2004 surveys, the following information was collected: (1) regarding current cohabiting partners: the month and year the respondent and his/her opposite-sex partner began living together; (2) whether the respondent lived with his/her spouse before marriage; (3) the month and year the respondent and his/her spouse began living together; and (4) whether the respondent and his/her spouse lived together continuously until marriage. Beginning in 2002, respondents were asked whether they lived with a partner for at least three months during any marital gaps lasting 3 months or more since the last interview, as ascertained by the marital change variables and the months and dates recorded for marriages and divorces. If the respondent reports she did live with a partner for 3 months or more during the gap, the month and year of the start and end date of the cohabitation if it had ended were recorded, and for those that had not ended, respondents were asked whether or not they lived together continuously and whether or not they had subsequently married the partner. It was possible for respondents to report on multiple cohabitations lasting 3 months or more during a given gap, but the most reported was 2. Given all of this retrospective data, we coded the *partner number* and *partner relationship code* variables in missing years between the years of 1970 and 2004 for the full sample of mothers, and based on this coding, we corrected

subsequent instances of the *partner number* variable if the NLSY missed a relationship (note, in

all cases prior to 2000, the only missed relationship measured was cohabitation).

Table 1. *Descriptive Statistics for Full Sample and by Family Structure Type.*

	Full Sample	Stable				Born to Single Mom, currently in		
		Married	Cohabit	Union	Single	Step, Married	Step, Cohabit	Single, prior union
HOME	97.80	102.35	90.16	96.79	85.28	98.53	91.76	86.40
	(16.16)	(13.73)	(16.37)	(14.56)	(16.93)	(14.48)	(16.71)	(16.52)
BPI	8.56	7.71	9.84	8.82	9.98	9.09	10.84	10.30
	(6.09)	(5.64)	(7.52)	(5.85)	(6.55)	(6.04)	(7.03)	(6.68)
Math	36.41	37.14	30.59	34.10	32.53	37.51	35.12	38.62
	(17.25)	(17.86)	(18.53)	(16.84)	(16.05)	(16.13)	(16.30)	(15.69)
Reading recognition	39.65	40.27	31.69	37.60	35.69	41.40	37.73	42.18
	(19.13)	(19.76)	(17.71)	(19.12)	(17.60)	(18.34)	(17.52)	(18.00)
Reading comprehension	36.18	36.85	29.52	33.65	32.26	37.70	34.70	38.37
	(16.39)	(17.06)	(15.32)	(16.23)	(14.69)	(15.63)	(14.79)	(15.15)
Race								
Black	0.34	0.13	0.28	0.27	0.75	0.47	0.49	0.64
	(0.47)	(0.34)	(0.45)	(0.44)	(0.43)	(0.50)	(0.50)	(0.48)
Hispanic	0.20	0.22	0.31	0.24	0.13	0.22	0.24	0.18
	(0.40)	(0.42)	(0.46)	(0.43)	(0.33)	(0.41)	(0.43)	(0.38)
White	0.46	0.65	0.42	0.49	0.12	0.31	0.26	0.18
	(0.50)	(0.48)	(0.49)	(0.50)	(0.33)	(0.46)	(0.44)	(0.39)
Child age	6.96	6.42	4.73	6.38	6.80	9.01	8.10	9.99
	(4.13)	(4.02)	(3.86)	(3.99)	(4.02)	(3.68)	(3.99)	(3.38)
Child male	0.51	0.52	0.50	0.56	0.52	0.48	0.50	0.51
	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)
Mother age	32.94	33.19	31.90	32.31	31.71	32.94	32.33	34.01
	(5.66)	5.54)	(5.61)	(5.47)	(5.70)	(5.91)	(5.45)	(5.79)
Mother's highest grade completed	12.34	12.90	11.13	11.87	11.60	11.90	11.25	11.44
	(2.55)	(2.69)	(2.01)	(2.42)	(2.13)	(2.12)	(2.10)	(2.07)
Mother lived with both parents at age 14	0.63	0.74	0.55	0.62	0.43	0.56	0.44	0.47
	(0.48)	(0.44)	(0.50)	(0.49)	(0.49)	(0.50)	(0.50)	(0.50)
Mother's literacy age 14	1.83	2.06	1.74	1.83	1.44	1.67	1.57	1.51
	(1.07)	(1.03)	(1.04)	(1.06)	(1.04)	(1.05)	(1.00)	(1.05)
Mother's AFQT age 14	33.50	49.90	43.04	31.42	17.57	25.38	19.93	19.42
	(27.35)	(28.41)	(21.72)	(23.98)	(17.61)	(21.74)	(19.01)	(17.76)
Mother's delinquency age 14	0.34	0.28	0.36	0.46	0.34	0.35	0.42	0.38
	(0.46)	(0.45)	(0.48)	(0.50)	(0.47)	(0.48)	(0.49)	(0.48)
Number of children	2.38	2.42	2.51	2.44	2.30	2.39	2.31	2.28
	(1.25)	(1.14)	(1.45)	(1.28)	(1.37)	(1.29)	(1.47)	(1.48)
Family income (in thousands)	41.64	56.50	11.90	34.18	14.43	40.10	12.83	16.66
	(70.64)	(83.87)	(12.56)	(60.97)	(35.98)	(52.46)	(12.33)	(27.04)
Mother's employment status	0.56	0.60	0.41	0.59	0.41	0.62	0.46	0.56
	(0.50)	(0.49)	(0.49)	(0.49)	(0.49)	(0.48)	(0.50)	(0.50)
Welfare receipt – all sources	0.14	0.03	0.59	0.10	0.42	0.09	0.31	0.28
	(0.35)	(0.17)	(0.45)	(0.30)	(0.49)	(0.28)	(0.46)	(0.45)
Number of transitions[1]	1.27	n/a	n/a	n/a	0	1.80	2.27	2.73
	(1.62)					(1.49)	(1.81)	(1.45)

Table 1. *Descriptive Statistics for Full Sample and by Family Structure Type* (continued).

| | Full Sample | Stable | | | | Born to Single Mom, currently in | | |
		Married	Cohabit	Union	Single	Step, Married	Step, Cohabit	Single, prior union
Duration since last fam.	3.42	n/a	n/a	n/a	0	6.90	3.58	5.84
structure transition[1]	(4.81)					(5.34)	(3.34)	(4.80)

Notes: [1]The number of transitions and duration since last family structure transition variables are 0 for stable families and only have a value for unstable families. Further, the full sample means for these variables are only reported for all children, over time, that were born to single mothers. These variables are not used in analyses with other stable family structure groups.

Table 2. *Percent in Family Structure Type by Age.*

| | Percent of children still in stable family type: | | | | Percent of children born to single mothers in: | | |
	Married	Cohabit	Union	Single	Step, Married	Step, Cohabit	Single, after dissolution
Birth	100%	100%	100%	100%			
N at birth	7487	380	335	3222			
1 year	95.93%	71.39%	93.43%	80.35%	13.06%	6.59%	0.00%
2 year	90.66%	54.37%	85.93%	71.04%	17.37%	8.16%	3.43%
3 year	85.79%	41.78%	78.44%	63.03%	21.54%	8.78%	6.65%
4 year	81.49%	34.20%	72.04%	56.68%	23.83%	10.33%	9.16%
5 year	77.31%	28.27%	67.91%	51.67%	26.35%	10.54%	11.44%
6 year	74.36%	25.16%	64.40%	47.23%	27.67%	10.45%	14.65%
7 year	70.94%	20.07%	60.07%	42.96%	29.04%	10.45%	17.55%
8 year	68.02%	17.77%	57.73%	39.55%	30.23%	10.95%	19.28%
9 year	65.13%	15.93%	53.79%	36.79%	30.58%	11.39%	21.24%
10 year	62.96%	13.39%	50.00%	35.08%	30.47%	10.92%	23.53%
11 year	60.33%	13.81%	47.74%	33.22%	30.63%	11.25%	24.90%
12 year	58.11%	12.05%	44.05%	30.98%	31.55%	11.12%	26.35%
13 year	55.87%	9.76%	41.04%	29.63%	32.32%	10.89%	27.15%
14 year	53.63%	8.90%	40.40%	28.11%	32.93%	10.05%	28.91%

Table 3. *Repeated cross-section regression results for child well-being measures by type of stable family structure.*

	HOME	BPI	Math	Reading Recognition	Reading Comprehension
Stable married family	9.03**	-0.40	1.02*	1.22*	1.73**
	(0.48)	(0.29)	(0.41)	(0.51)	(0.40)
Stable cohabiting family	3.94**	0.97	0.18	-1.77	-0.57
	(1.02)	(0.90)	(1.38)	(1.38)	(1.15)
Stable union family	6.28**	0.19	0.56	1.25	0.87
	(0.79)	(0.45)	(0.64)	(0.77)	(0.64)
Stable single family	-	-	-	-	-
Race					
Black	-4.10**	0.24	-1.70**	-0.10	-0.53
	(0.42)	(0.24)	(0.38)	(0.47)	(0.37)
Hispanic	-0.97**	-0.34	-0.71*	0.79*	0.23
	(0.37)	(0.21)	(0.32)	(0.40)	(0.33)
White	-	-	-	-	-
Child age	0.53**	-0.01	5.24**	5.73**	4.91**
	(0.03)	(0.02)	(0.04)	(0.05)	(0.04)
Child male	-1.56**	0.92**	0.19	-1.87**	-1.36**
	(0.24)	(0.14)	(0.21)	(0.26)	(0.22)
Mother age	-0.29**	-0.12**	0.13**	0.08**	0.01
	(0.03)	(0.02)	(0.02)	(0.03)	(0.02)
Mother's highest grade	0.64**	-0.19**	0.38**	0.45**	0.36**
completed	(0.07)	(0.04)	(0.06)	(0.07)	(0.06)
Mother lived with both	-0.37	-0.79**	-0.10	0.18	-0.01
parents at age 14	(0.30)	(0.17)	(0.24)	(0.30)	(0.25)
Mother's literacy age 14	1.89**	-0.19*	0.33**	0.40*	0.37**
	(0.15)	(0.09)	(0.12)	(0.16)	(0.12)
Mother's AFQT age 14	0.07**	0.00	0.09**	0.10**	0.10**
	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)
Mother's delinquency age 14	0.02	0.35*	0.49*	0.38	0.48*
	(0.27)	(0.16)	(0.23)	(0.28)	(0.23)
Number of children	-1.56**	-0.25**	-0.34**	-0.65**	-0.59**
	(0.12)	(0.06)	(0.10)	(0.12)	(0.10)
Family income	0.00**	-0.00**	0.00**	0.00**	0.00*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Mother's employment status	-0.90**	-0.18	-0.12	-0.32	-0.20
	(0.23)	(0.13)	(0.21)	(0.26)	(0.22)
Welfare receipt – all sources	-4.73**	1.08**	-0.48	-1.21*	-0.66
	(0.48)	(0.28)	(0.40)	(0.49)	(0.40)
Constant	90.16**	16.30**	-25.18**	-25.52**	-18.07**
	(0.99)	(0.57)	(0.89)	(1.10)	(0.90)
Observations	23173	15914	13703	13653	13382
Children	6735	5416	4891	4882	4855
F	272.62**	38.03**	1843.03**	1607.65**	1525.93**
R-squared	0.31	0.07	0.74	0.72	0.70

Robust standard errors in parentheses. * $p < .05$. ** $p < .01$.

Table 4. *Propensity score matching results for mean differences on HOME, BPI, and PIAT sub-scales for children from stable single-mother and stable married parent families by child age.*

| | caliper = 0.01 | | | | caliper = 0.03 | | | |
| | Single | Married | | On | Single | Married | | On |
	M^1	M	SE^2	support[3]	M	M	SE	support
HOME								
Ages 0 - 2	86.79*	95.80*	2.01	88%	86.63*	95.78*	2.81	99%
Ages 3 - 4	84.85*	90.22*	2.17	93%	84.70*	90.58*	2.35	100%
Ages 5 - 6	85.61	90.02	2.37	79%	85.31	90.98	3.96	99%
Ages 7 - 8	83.60*	92.68*	2.64	86%	83.77*	92.66*	3.44	100%
Ages 9 - 10	84.80*	95.92*	3.13	92%	84.63*	95.96*	3.32	100%
Ages 11 - 12	86.55*	97.13*	2.78	70%	86.65	93.30	4.45	100%
Ages 13 - 14	85.24*	97.62*	3.56	80%	85.36*	95.00*	3.45	96%
BPI								
Ages 3 - 4	10.48	10.13	1.38	62%	10.26	10.39	1.53	84%
Ages 5 - 6	9.62	9.71	0.85	80%	9.70	9.91	1.37	99%
Ages 7 - 8	10.37	11.93	1.06	86%	10.43*	13.13*	1.35	100%
Ages 9 - 10	10.24	12.93	1.48	89%	10.23	12.81	1.61	100%
Ages 11 - 12	9.40	9.60	1.09	73%	9.95	9.67	1.67	100%
Ages 13 - 14	9.62*	14.18*	1.77	80%	9.39*	13.32*	1.71	97%
Math								
Ages 5 - 6	12.55	12.63	0.73	74%	12.33	13.03	1.27	99%
Ages 7 - 8	22.94	23.42	1.56	84%	22.56	23.08	2.06	100
Ages 9 - 10	37.10	38.84	2.47	90%	36.80	38.90	2.62	100%
Ages 11 - 12	44.77*	50.03*	1.92	72%	44.04*	53.04*	2.99	100%
Ages 13 - 14	48.51	50.9	3.88	79%	48.83	50.8	3.77	96%
Reading Recognition								
Ages 5 - 6	14.67	15.19	0.92	74%	14.61	15.78	1.54	99%
Ages 7 - 8	26.86	25.38	1.44	84%	26.49	24.80	1.89	100%
Ages 9 - 10	39.59	38.97	2.64	91%	39.38	38.87	2.81	100%
Ages 11 - 12	47.62*	53.23*	2.54	73%	46.98*	57.64*	3.96	100%
Ages 13 - 14	52.01	55.43	4.39	79%	52.55	55.40	4.30	96%
Reading Comprehension								
Ages 5 - 6	14.43	15.30	0.88	74%	14.39	16.04	1.45	99%
Ages 7 - 8	25.00	23.79	1.33	84%	24.66	23.22	1.75	100%
Ages 9 - 10	35.28	34.77	2.42	90%	35.11	34.38	2.57	100%
Ages 11 - 12	41.70*	47.56*	1.97	72%	41.26*	48.69*	2.99	100%
Ages 13 - 14	45.81	48.76	3.78	79%	45.99	49.37	3.70	96%

Notes: [1]Reported are the means for each group based on the ATT, the average treatment effect of the treated, where the treated group is children from stable single-mother families. [2]Standard errors in matching estimators should be interpreted with caution, see Morgan & Harding (2006) for a discussion. Standard errors reported in the regression results are more reliable. [3]On [common] support indicates the percent of children from stable single-parent families who were matched. * $p < 0.05$

Table 5. *Repeated cross-section regression results for child well-being measures for children born to single-mothers by type of family structure.*

	HOME	BPI	Math	Reading Recognition	Reading Comprehension
Stable single family	-	-	-	-	-
Married step-family	5.51**	-0.62	1.39*	0.88	0.56
	(0.76)	(0.42)	(0.58)	(0.75)	(0.60)
Cohabiting step-family	3.12**	0.01	1.46*	0.57	0.33
	(0.84)	(0.47)	(0.65)	(0.81)	(0.65)
Single mother after union	-2.56**	-0.46	1.82**	1.64*	1.05
dissolution	(0.86)	(0.45)	(0.61)	(0.81)	(0.64)
Race					
Black	-2.83**	-0.93*	-1.74**	-0.35	-0.34
	(0.67)	(0.36)	(0.48)	(0.64)	(0.53)
Hispanic	1.49*	-1.61**	-0.12	2.05**	1.71**
	(0.73)	(0.42)	(0.54)	(0.71)	(0.58)
White	-	-	-	-	-
Child age	0.35**	-0.03	4.53**	4.88**	4.12**
	(0.06)	(0.03)	(0.06)	(0.07)	(0.06)
Child male	-1.64**	1.18**	0.02	-2.29**	-1.27**
	(0.44)	(0.23)	(0.30)	(0.40)	(0.31)
Mother age	-0.55**	-0.06*	0.11**	0.08	-0.07*
	(0.05)	(0.02)	(0.03)	(0.04)	(0.03)
Mother's highest grade completed	0.81**	-0.19**	0.24*	0.25*	0.24*
	(0.13)	(0.07)	(0.09)	(0.13)	(0.10)
Mother lived with both	-0.97*	-0.56*	-0.36	-1.06**	-0.73*
parents at age 14	(0.46)	(0.24)	(0.30)	(0.41)	(0.32)
Mother's literacy age 14	2.11**	-0.13	0.50**	0.71**	0.50**
	(0.23)	(0.12)	(0.16)	(0.21)	(0.16)
Mother's AFQT age 14	0.10**	-0.01	0.09**	0.14**	0.12**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Mother's delinquency age 14	0.47	0.99**	0.11	-0.33	-0.05
	(0.47)	(0.25)	(0.33)	(0.42)	(0.33)
Number of Children	-1.55**	-0.11	-0.63**	-0.92**	-0.81**
	(0.17)	(0.08)	(0.12)	(0.16)	(0.13)
Number of family structure	0.08	0.34**	-0.25	-0.33	-0.04
transitions	(0.24)	(0.13)	(0.17)	(0.23)	(0.17)
Duration of since last family	0.42**	0.03	-0.09	-0.00	0.06
structure transition	(0.08)	(0.04)	(0.06)	(0.08)	(0.07)
Family income	0.00**	-0.00**	0.00	0.00*	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Mother's employment status	-0.22	-0.56*	0.28	0.12	0.44
	(0.44)	(0.22)	(0.30)	(0.38)	(0.30)
Welfare receipt – all sources	-3.46**	0.92**	0.02	-0.36	-0.07
	(0.49)	(0.25)	(0.33)	(0.42)	(0.35)
Constant	94.33**	15.08**	-15.87**	-15.05**	-7.11**
	(1.95)	(0.94)	(1.40)	(1.74)	(1.41)
Observations	9027	7275	6709	6688	6528
Children	2428	2321	2225	2222	2212

Table 5. *Repeated cross-section regression results for child well-being measures for children born to single-mothers by type of family structure* (continued).

	HOME	BPI	Math	Reading Recognition	Reading Comprehension
F	88.95**	13.96**	624.58**	528.19**	525.71**
R-squared	0.26	0.06	0.70	0.66	0.65

Robust standard errors in parentheses. * $p < .05$. ** $p < .01$.