

The Fragile Families and Child Wellbeing Study changed its name to The Future of Families and Child Wellbeing Study (FFCWS). Due to the issue date of this document, FFCWS will be referenced by its former name. Any further reference to FFCWS should kindly observe this name change.

Instability in Three-Generation Family Households and Child Wellbeing

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Abstract

This paper investigates to what extent stable and unstable three-generation family households (grandparent, parent and child) are associated with child socioemotional, cognitive and health outcomes over the first three years of a child's life. Using longitudinal data from the Fragile Families and Child Wellbeing Study (N=2,666) differences in the association by mother's relationship status and interactions with nuclear family instability are investigated. Results suggest stable three-generation family households are associated with child wellbeing whereas unstable or transitory three-generation households are not. Living in a stable three-generation family household is associated with more externalizing and internalizing behavior problems as well as higher odds of being overweight. Stable three-generation coresidence is also associated with higher verbal scores. Differences by mother's relationship status reveal a protective association with externalizing behaviors for stably partnered mothers but few interactive effects between nuclear and three-generation family instability. Overall, the results suggest that stable, but not unstable, three-generation family household coresidence is associated with child wellbeing.

A relatively large literature has found that children fare best in married two biological parent households (e.g. McLanahan and Sandefur 1994). Over the last 30 years, large demographic shifts (decreased marriage, increased divorce, and increased non-marital fertility) have led to far fewer children growing up in two-parent married households. Despite these demographic trends, few children are raised by one parent alone. Many children spend time in a three-generation family household, in which a grandparent, parent and child coreside (Edin and Kefalas 2005; Edin and Lein 1997; England and Edin 2009; Stack 1974).

Over the last decade, three-generation family households have increased in prevalence. In 2001, approximately 6% of children lived in a three-generation family household; by 2011, that figure had increased to 8% (Kreider and Ellis 2011; author's calculations from the Current Population Survey). Among urban children born to single mothers, 60% live in three-generation family households during childhood (Pilkauskas 2012). Three-generation households are most common among families with very young children (Fields 2003), families in poverty, and minority households – where disparities in academic, health and behavioral outcomes are largest (Kreider and Ellis 2011; Rouse et al. 2005).

Research has also shown that these households are generally short lived and transitions into and out of three-generation family households are very common (Beck and Beck 1984; Mollborn et al 2012; Pilkauskas, 2012). A growing body of research has found that nuclear family structure instability, or transitions, are associated with poorer child outcomes (Cavanagh et al 2008; Cooper et al. 2009; Fomby and Cherlin 2007; Hill et al. 2001; Osborne and McLanahan 2007; Pong and Ju 2000; Wu and Martinson 1993) but very little research has considered instability at the three-generation family level despite evidence suggesting that transitions are frequent.

Given the trends toward increased three-generation coresidence and the short duration and frequent transitions of these households, it is important to understand whether three-generation coresidence affects child wellbeing and whether instability matters. Although one recent study considers three-generation stability and cognition among two year olds (Mollburn et al. 2012); no studies have investigated whether stability at the three-generation level matters *per se*, and whether it matters for a wider range of child outcomes. In addition, three-generation coresidence is likely to have heterogeneous associations depending on the stability and structure of the nuclear family. Resources, norms and reasons for coresidence are likely to differ by mother's relationship status, which in turn are likely to affect the roles that the grandparents take on in these households. Thus, we might expect to see differences in the association between three-generation coresidence and child wellbeing by mother's relationship status. In addition, if the effect of instability is additive, as suggested by research on nuclear family structure transitions (e.g. Fomby and Cherlin 2007), taking into account nuclear family instability and the instability of the three-generation household may also be important. No study has investigated whether there are interactive effects of nuclear family structure transitions and three-generation family transitions.

To fill these gaps in the literature, this paper uses data from the first three waves of the Fragile Families and Child Wellbeing Study to investigate the associations between stable and unstable (or transitory) three-generation coresidence and child cognitive, socioemotional and health outcomes at age three. This study focuses on early childhood because before school entry, families play a particularly important role in the development of cognitive and social skills as well as physical health (Demo and Cox 2000). In addition, the majority of research on three-generation households has focused on older children (e.g. Deleire and Kalil 2002). Three-

generation households are the focus of this study (rather than extended or multigenerational households) as grandparents (rather than other relatives or non-relatives) are most likely to be involved in childrearing and thus affect child outcomes.

Specifically this study investigates three main questions: 1) Does stability at the three-generation family household level matter? 2) Is there heterogeneity in the effects of three-generation coresidence by mother's relationship status? And, 3) is there an interactive effect of instability at the nuclear family structure level and three-generation household instability?

Theoretical Perspectives

Household Structure and Child Development

The literature on the effects of family structure on child wellbeing is extensive and generally finds that children fare best in married two parent households (McLanahan and Sandefur 1994). This literature posits that differences in child wellbeing by family structure are due to differences in economic, parental and community resources (Becker 1981; Cherlin and Furstenberg 1986; McLanahan and Sandefur 1994). Two parent families (and married households in particular) are generally better equipped financially to purchase goods and services that promote child development, have more parental resources available (to provide supervision and engage in activities, offer emotional and instrumental support) and may have more social capital than single parent families.

A coresident grandparent may also provide economic resources (or opportunities for shared rent or expenses), parental resources such as childcare or role modeling, as well as community resources. Thus we might anticipate that coresidence with a grandparent would be beneficial to children. However, grandparents may equally be a drain on the family system. If grandparents are in failing health, are unemployed, or introduce strain to the family, they may

deplete resources that would otherwise be available for the child. Some research has also found that three-generation coresidence negatively impacts the parenting practices of young single mothers (Black and Nitz 1996; Chase-Landsdale et al. 1994; Spieker and Bensley 1994). In this case, three-generation coresidence could have a negative association with child wellbeing.

Stability and Instability in Three-Generation Family Households

Changes in family structure may also affect child outcomes. Family stress theory (George 1993) posits that instability in nuclear family structure causes disruptions in family functioning and resources that can hinder child development. These changes can cause stress that may affect parenting. Although family stress theory is focused on nuclear family structure transitions, it is also plausible that disruptions at the three-generation family level negatively affect child wellbeing. Moves into and out of three-generation family households are likely to cause disruptions in family resources and increase mother's stress, which in turn affects child wellbeing. We would then expect that transitions at the three-generation family level would also have a detrimental impact on child development.

There are also several reasons to believe that transitions at the three-generation family household level may not be as consequential as nuclear family structure transitions. First, the social meaning of the move, the emotional investment and the merging of financial and other resources may be very different in a nuclear family transition than in a three-generation transition. When a mother moves in with a romantic partner (be it through marriage or cohabitation), the expectation that accompanies that move is likely that the transition is permanent. Thus, the merging and sharing of resources may be much greater in a nuclear family transition, than in the case of a three-generation transition. Research also shows that three-generation family households are generally short lived (Beck and Beck 1984; Oberlander et al.

2009; Pilkauskas 2012). This suggests that three-generation coresidence is not usually a long-term living arrangement which likely affects the integration of resources. Three-generation households may serve more as a safety net, or a temporary buffering as a result of other life or family events, rather than a permanent move and thus, fluctuations may not result in as large a change in resources as a nuclear family transition.

Second, the difference between coresidence with a grandparent and no coresidence may be less stark than the difference between having a coresident father and not. Grandparents who are highly involved are likely to stay involved whether the child is coresident or not. In comparison, breaking up with a partner may mean not only a change in resources, but a much larger change from the child's perspective. Lastly, transitions at the three-generation family household level may be more planned (Osborne et al. 2012), and thus, the level of disruption that occurs may be smaller than in the case of a nuclear family transition. Therefore, it is equally plausible that unlike transitions at the nuclear family level, transitions at the three-generation family level do not have detrimental effects on children.

Transitions at the nuclear family level may also interact, or have an additive effect, with transitions at the grandparent level. Prior research on family structure transitions has found that the number of transitions is associated with child outcomes (Cavanaugh and Huston, 2006; Fomby and Cherlin, 2007; Huston 2008; Osborne and McLanahan 2007). It is also possible that nuclear and three-generation family transitions interact. Instability at both levels may lead to poorer child outcomes. However, if instability at the three-generation level is relatively inconsequential, there may be no effect of instability beyond the nuclear family transitions.

Differences by Mother's Relationship Status

Studying differences in the associations between three-generation family household coresidence and child outcomes by nuclear family structure is important for a few reasons. First, the propensity to live in a three-generation family household greatly varies by nuclear family structure. Although single mothers are by far the most likely to coreside, in early childhood a relatively large percent of married and cohabiting mothers also live in three-generation family households (Pilkauskas 2012). Second, as discussed above, there may be an interactive effect of nuclear family instability with three-generation household instability. Last, the social meaning and norms around three-generation coresidence may differ by nuclear family structure. If the role of the coresident grandparent or the level of engagement varies by mother's relationship status, then we might expect differences in outcomes for children in three-generation family households by these characteristics. In single parent households where there is only one caregiver, the impact of grandparent coresidence (either positive or negative) is likely to be more significant than in a partnered household (or even unstably partnered household) where there is another adult to both serve as parent as well as a gatekeeper of the grandparent's involvement.

Literature Review

Cross sectional studies have found that three-generation family households have increased since the 1980s (Taylor et al. 2010) and the percent of children living in a three-generation family household has gone from 6% of all US children in 2001, to 8% in 2011 (Kreider and Ellis 2011; author's calculations based on the Current Population Survey).

Longitudinal studies have found that over time many more households include three-generations (Beck and Beck 1984, 1989) and that coresidence is generally short lived. In a study of transition patterns in an economically disadvantaged sample, as many as 40% of children lived in a three-

generation household at some point over the first nine years of life, but only 2% coresided stably over that time period and nearly 20% experienced two or more three-generation family transitions (Pilkauskas 2012). Similarly, a study of teen mothers found that 23% had multiple moves in and out of a three-generation family household over the first two years of their child's life (Oberlander et al. 2009). Together, these studies suggest that transitions at the three-generation family household level are very common. Understanding the effects of this type of instability on children is an important next step in the research on the family.

The literature on instability in nuclear family structure (divorce, remarriage, cohabitation or multiple union transitions) has grown over the last decade and has found that these transitions are associated with poorer outcomes for children (Cooper et al. 2009; Cavanagh et al. 2008; Fomby and Cherlin 2007; Hill et al. 2001; Magnuson and Berger 2009; Osborne and McLanahan 2007; Pong and Ju 2000; Wu and Martinson 1993). Very few studies have investigated transitions in three-generation households and child wellbeing. Mollborn and colleagues (2012) used two waves of data (at 9 months and 2 years) to study whether stable coresidence or transitions into or out of three-generation households (as well as other extended households) were associated with cognitive scores. The authors found that stable coresidence was associated with improved cognitive scores for Black children (but not White or Latino) and that transitions were associated with lower scores for White children. Another study of low-income families (children aged 0-4 and 10-14) found that stable coresidence (over two time points) and transitions into coresidence had no association with academic outcomes or positive behavior, but transitioning into a three-generation family household was associated with decreased self regulation (Pittman and Boswell 2007). A third related study found that the length of coresidence

in a single mother three-generation family household was associated with higher reading scores for White children aged 5-15 (Dunifon and Kowaleski-Jones 2007).

Although the current study focuses on stability, a number of other studies have investigated the association between three-generation family coresidence more generally and child outcomes. The findings for young children are very mixed. Studies have found positive, negative and null outcomes for behavior (East and Felice 1996; Foster and Kalil 2007; Leadbeater and Bishop 1994; Pope et al 1993), and improved, worse, or no effect on cognitive outcomes (Kellam et al. 1977; Foster and Kalil 2007; Mollborn et al. 2011; Unger and Cooley 1992). A recent study of children ages 3-5 found no association between coresidence and any school readiness outcomes; however, when the models were run to predict the association for families that were the least likely to coreside, coresidence was associated with improved literacy and problem solving but fewer prosocial behaviors (Augustine and Raley 2012). Extended household coresidence more generally has also been found to be associated with higher reading scores among African American children (Entwisle and Alexander 1996).

Similarly, studies of children in middle childhood have also found both positive and negative associations with child wellbeing and three-generation family coresidence (Pittman and Boswell 2008; Barbarin and Soler 1993; Sonuga Barke and Mistry 2000). For teenagers, the findings are more consistently positive (excepting McLanahan and Sandefur, 1994) and include less peer conflict, fewer behavior and anti-social problems, decreased delinquency and substance abuse and increased graduation rates (Barbarin and Soler 1993; Astone and Washington 1994; Pittman 2007; Ensminger et al. 1983; Deleire and Kalil 2002). Living in an extended household has also been associated with lower rates of deviant behavior among teens (Dornbusch et al.

1984; Stolba and Amato 1993), improved educational outcomes and decreased likelihood of early labor force participation and independence (Aquilino 1996).

The current study builds on prior literature to study whether stable or unstable coresidence with a grandparent over the first three years of life matters for a range of child outcomes. This paper is also the first to study differences in the association by the relationship status of the parent generation, as the role of the grandparent it is likely to vary by this characteristic and to look at potential interactive effects of instability in nuclear family structure and three-generation instability.

Data and Method

Data

Data come from the Fragile Families and Child Well-being Study (FFCWB) which was designed to be representative of births in large U.S. cities (with populations over 200,000). Births were randomly sampled between 1998 and 2000 with an oversample of nonmarital births (Reichman et al. 2001). Mothers and fathers were interviewed soon after the birth of the focal child and follow-up interviews were conducted when the child was approximately one and three years old. The core sample is linked to supplementary data from a collaborative study, the In-Home Longitudinal Study of Pre-School Aged Children (In-Home). The In-Home study was conducted when the children were about three years old and collected additional in-depth data (including the outcome variables studied here) for a sub-sample of respondents.

The study contains an over-sample of non-marital births. As a result, children in the sample are more likely to live in low-income or poor families, to have absent fathers, and to have mothers with lower levels of education than children in a nationally representative sample. The data are not representative of the population of families as a whole but provide a sample that is

very racially diverse and consists of mainly low-income mothers, those who are most likely to reside in a three-generation family household. Thus, the data are well suited to studying the association between three-generation family coresidence and child outcomes.

The sample for the In-Home year three study is 3,288. In order to fully capture household structure over the three waves of data, the sample is restricted to mothers (and their children) who were interviewed in each of the three survey waves reducing the sample to 3,153. Due to missing or incomplete information on the outcome variables, the final analytic sample is approximately 2,666 (varying slightly by outcome).

To investigate whether the missing data were influencing the findings, the data were multiply imputed to calculate values for missing data on covariates (Allison 2002; Rubin 1976). Multiple imputation uses the observed data to impute values for individuals who have missing data. Five data sets were imputed and the estimates were averaged over these data. The findings were very similar; to take a more conservative approach the results using unimputed data are reported here.

Measures

Outcomes

Child wellbeing is assessed using four outcome measures: externalizing behavior, internalizing behavior, Peabody Picture Vocabulary Test (PPVT) and overweight. The FFCWB study collects behavioral measures from the Age 2-3 Child Behavior Checklist (CBCL: Achenbach 1992). Externalizing behavior is assessed using the aggressive subscale of the CBCL and includes items such as anger, defiance or disobedience and the destructive subscale that asks about purposely hurting animals or destroying things. Internalizing behavior includes two subscales – anxious/depressed and withdrawn behaviors. These subscales measure children's

sadness, affection, nervousness and interest. Mother's responses to each item are summed (*0=not true of my child; 1=sometimes/ somewhat true; 2=very/often true*) to create a scale and the scores were normed to have a mean of zero and standard deviation of one. Higher scores reflect more behavior problems.

The PPVT is a test that measures children's cognitive and language skills by asking children to match vocabulary words to pictures (Dunn and Dunn 1997). Children's raw test scores were standardized by the national average performance of similarly aged children. The PPVT scores were then standardized (mean 0, SD 1) where higher scores reflect better vocabulary scores.

Lastly overweight is assessed using the child's body mass index (BMI) percentile. Following recommendations by the American Obesity Association, this study categorizes children with a BMI at or above the 85th percentile as overweight or obese. The percentiles were calculated using data from the 2000 CDC growth charts and were adjusted to account for the child's age in months, gender, height, and weight. As the percentiles are defined against a fixed base year, more than 15% of children in the sample can be defined as overweight.

Three-Generation Family Household Structure

To study the association between three-generation family coresidence and child outcomes, two measures of three-generation household structure were created. First, a measure that indicated whether the child coresided with a grandparent (either one or both grandparents) at any of the three survey waves was generated ("ever coresident"). Second, a variable categorizing three-generation households as stable or unstable was created. Stable three-generation family households were defined as those households that include a grandmother, grandfather or both, in the household at each survey wave (baseline, year 1 and year 3). Unstable three-generation

family households were defined as households that include any or multiple grandparents in at least one of the survey waves but not all survey waves. Those who never live in a three-generation family household were categorized as “never three-generation”.

Relationship Status

Mother’s relationship status was coded in two ways. In the full regression models mother’s relationship status at the birth of the child was coded as married, single or cohabiting with the baby’s father. For the stratified models, mother’s relationship status was coded as time varying. Three dummy variables were created: one to indicate mothers who were stably married or cohabiting over all three survey waves, another to indicate mothers who were stably single over the three survey waves and a third to indicate “unstable relationship status”. The sample is too small to separate stable cohabiting from stable married. The unstable relationship status includes mothers who started out in a relationship and then broke up as well as mothers who moved into a romantic coresident relationship (or multiple transitions).

Covariates

All of the covariates in the model are measured at the baseline survey with the exception mother’s cognitive score (which is considered an unchanging characteristic) and child’s age. Thus, the covariates predate the measures of child wellbeing. Mother’s race was coded as non-Hispanic White, non-Hispanic Black, Hispanic or other race. Other mother characteristics included in the models are education (coded as less than high school, high school, some college and college), age (coded as a series of dummies for 14-17 years, 18-19, 20-24, 25-34 and 35 and over), immigrant status, mother’s cognitive score (assessed by the Weschler Adult Intelligence Scale – Revised; Wechsler 1981), an indicator that the mother has a drug or alcohol abuse

problem, whether the mother lived with both parents at age 15, and whether the focal child is her first, second, or third/higher order birth.

A number of child characteristics are also included in the models: an indicator of whether the child is a boy, the child's age in months at the time of the outcome (as there was variation in the timing of the follow-up interviews), and a measure of whether the child was born low birth weight. As the grandparent's characteristics are also important predictors of both coresidence and child outcomes, several measures are included: grandmother's education (coded as less than high school, high school, some college, college or more), if either grandparent is an immigrant, if either grandparent was depressed when the mother was growing up, and if either grandparent had a substance (alcohol or drug) problem when the mother was growing up. Due to large amounts of missing information grandfather's education is not included in the analysis.

Method

An ordinary least squares (or logistic regression model in the case of the binary outcome overweight) is used to assess the association between living in a three-generation family household and the level of child behavior, verbal ability and overweight. Equation 1 represents the regression model used in the analyses:

$$Y_{it3} = \beta_0 + \beta_1 3Generation_{it1-3} + \beta_2 X_{it1} + \varepsilon_i \quad (1)$$

where Y_{it3} is the child outcome of interest for child i at time three, $3generation$ is an indicator for living in a three-generation family household stably or unstably over the first three years, and X_i is a vector of mother, child and grandparent characteristics that are associated with both the outcome and the propensity to live in a three-generation family household measured at baseline (with the exception of child's age and mother's cognitive score). ε is the error term. All analyses were run excluding and including the grandparent characteristics and no substantive differences

were found. Analyses are also stratified by relationship status over the three survey waves (stably single, stably partnered and unstable relationship status).

Results

Descriptive Statistics

Table 1 provides weighted descriptive information on three-generation family households in the Fragile Families study. The data are weighted to be nationally representative of births in large US cities. The first row shows the percent of households that are three-generation by the age of the child. At the birth of the focal child, 18% of the children in the sample are living in a three-generation family household. As the child ages, the percent of families that live in a three-generation family household decreases to about 13%. Overall by age 3, 31% of the children in the sample have lived in a three-generation family household at some point (“ever”). Although only 6% live in a three-generation family household stably over this time period, 26% live in a three-generation household at one or two survey waves.

[Table 1 around here]

Differences by relationship status are marked. Mothers who are stably partnered over the focal child’s first three years of life are far less likely to live in a three-generation family household at any age (approximately 7%); however, 20% have lived in a three-generation family household at some point over the first three years. Mothers who are stably single over this time period are the most likely to live in a three-generation family household (51% over the whole period) and among unstably partnered mothers, 47% live in a three-generation household over the first 3 years of the focal child’s life. In terms of three-generation stability, stably single mothers are by far the most likely to stably coreside over all three years (20%), whereas only 8% of unstably partnered mothers and 2% of stably partnered mothers do likewise.

Table 2 provides weighted descriptive information on the child outcome variables by whether children live in a stably coresident, unstably coresident or never coresident three-generation family household. The outcome variables are also broken out by mother's relationship status over the 3 year period (for a full sample description see Appendix Table 1). There are few statistically significant differences on the child outcomes between those who stably coreside and who unstably coreside in a three-generation family household; the only significant difference is for PPVT score where children in stable three-generation households have higher (better) scores. Although the differences between stable and unstable three-generation households are not statistically significant, children who stably live in a three-generation family household have the highest scores on all the outcome variables: more behavior problems, higher verbal scores and higher prevalence of overweight. This general pattern of higher outcome scores among the stably three-generation households also holds for the children whose mothers have unstable partnerships. However, children with stably partnered or stably single mothers who live in stable three-generation households show a different pattern with lower externalizing and internalizing behavior scores, higher PPVT scores and higher prevalence of overweight than children who live in unstable three-generation households, but again these differences are not statistically significant.

[Table 2 around here]

Multivariate Results

In order to investigate whether three-generation coresidence influences child outcomes and whether there are differences in the association by the stability of the three-generation family household, Table 3 reports the main effects coefficients (on three-generation household coresidence) from two different regression models (full regression models are available in

Appendix Table 2). Model 1 presents the results where three-generation coresidence is coded as 1 if the child ever lives in a three-generation family household from birth to age 3 versus never coresident. Model 2 codes three-generation family households as stably coresident from birth to age three, unstably coresident (coresident at some point over the first three waves but not all three waves), and never coresident. Although Model 1 cannot provide any information on whether stability at the three-generation family household level is important, it provides a comparison point to see whether a different pattern emerges depending on whether we account for stability at the three-generation family level.

[Table 3 around here]

In Model 1 where three-generation household coresidence is coded as ever coresident, the associations between coresidence and child outcomes are small (or zero) although it is marginally significant for overweight. Once stability at the three-generation family household level is considered in Model 2, larger, more significant associations with child outcomes emerge for the stably coresident, whereas for the unstably coresident the associations continue to be small and not significant. Specifically, stable coresidence is associated with a nearly 0.17 standard deviation higher externalizing behavior score. In comparison, unstable coresidence is not significantly associated with externalizing behaviors. For internalizing behavior, coresidence is associated with a 0.15 standard deviation higher internalizing behavior score whereas unstable coresidence is not significantly associated. Living in a stably coresidence three-generation family household is also associated with a nearly $\frac{1}{4}$ of a standard deviation higher verbal score and the odds of overweight/obese are 53% higher for these children. With the exception of the internalizing behavior scores, the differences between the stable and unstable three-generation

household coefficients are statistically significant. This suggests that stability at the three-generation family household level may be important to consider when studying child outcomes.

It is possible that the null findings for unstable three-generation family coresidence are a result of a mis-specification of the “unstable” category. There are many alternative ways of specifying the unstable three-generation households (number of coresident years, consecutive or not consecutive years of coresidence, developmental timing of coresidence). In addition, being coresident at the birth of the child and moving out may represent a positive move towards independence; whereas a move in (or multiple moves in and out) could indicate a negative family event or some other type of instability. To test whether the conceptualization of the unstable category was driving the null results, four additional models were run (these regressions are presented in Appendix Table 3). Consistently across all model specifications unstable coresidence was not associated with child outcomes and stable coresidence was associated. These results are consistent with the main results in suggesting that instability or short spells of three-generation coresidence are not associated with child outcomes but stable three-generation coresidence is associated with child outcomes.

It is also possible that the null findings for unstable coresidence are a result of poor or incomplete model specification. If the coefficient on unstable coresidence is picking up the association of other types of instability (nuclear family structure, residential, income) then the net association may be biased towards zero. For example, if a nuclear family structure change occurs and it has a detrimental (negative) association with child outcomes but this change is not controlled in the model, then any type of offsetting (positive) association that temporary coresidence with a grandparent might have on child outcomes may not be detected. To test for this possibility several additional models were run including additional measures of instability:

changes in mother's relationship status over the three years, measures of moves since birth (as a continuous measure and dummy specifications), income stability (log average income) and poverty instability (average income-to-needs and poverty stability - always, sometimes, never poor). The results of these analyses are detailed in Appendix Table 4. Accounting for nuclear family instability, residential instability and income instability has little to no effect on the observed association between stable or unstable three-generation coresidence and child outcomes. These findings suggest that other sources of instability are not driving the observed association between three-generation coresidence and child outcomes.

The literature on child outcomes has found that nuclear family instability is generally associated with poorer outcomes for children. Although the results found here suggest that stability (rather than instability) at the three-generation level is associated with child outcomes, it is also possible that there is an interactive effect between nuclear family instability (or structure) and three-generation household coresidence. To investigate whether there were interactive effects of nuclear family structure and instability with three-generation coresidence, a series of stratified regressions were run by whether a mother is stably partnered, unstably partnered, or never partnered (stably single) over the first three years of the focal child's life. Table 4 reports the main effects coefficients as well as results of Chow tests on the fully interacted models that test for significant differences in the coefficients for three-generation status between each group (stably partnered vs. unstably partnered, stably partnered vs. stably single, unstably partnered vs. stably single).

[Table 4 around here]

Overall the patterns of results in the stratified regressions are similar to the non-stratified regression results. In general, stable three-generation coresidence is associated with child

outcomes and unstable is not, although the difference between these coefficients is not always statistically significant in the stratified models (likely as a result of smaller samples and insufficient power). There are a couple of notable differences in the stratified regressions compared with the full results. First, there is suggestive evidence of a protective association with externalizing behavior problems for children in stable three-generation stably partnered households (and perhaps also internalizing behaviors where the coefficient is now negative). Living in a stably partnered stable three-generation household is associated with a 0.41 standard deviation lower externalizing behavior score that is statistically different from the coefficient for unstably partnered or stably single households. Second, there is suggestive evidence of an interactive effect with the stability of the three-generation household and mother's relationship status for PPVT scores. In the non-stratified regression unstable three-generation households were not associated with PPVT scores; in the stratified models, a negative association for the unstable three-generation unstably partnered households and a positive association for the unstable three-generation but stably single households emerges. Together these findings suggest that there are few differences by mother's relationship status although this may be due to insufficient power to detect differences as the sample sizes are quite small for some groups. In addition, with the exception of PPVT scores, there is little evidence of an interactive effect with three-generation and nuclear family instability.

To test whether further refinement of the unstably partnered category might influence the association between three-generation households and child wellbeing, additional analyses were run breaking out unstably partnered mothers. One analysis broke mothers out into two groups: one where mothers were partnered at the birth and later broke up and another where mothers were single at the birth but later partnered. Another analysis further refined these categories to

study mothers who had multiple partnership transitions. The results from both of these analyses were substantively very similar to those using the overall unstable partnership category (although with lower power associations were sometimes not significant).

Another auxiliary analysis was run stratifying children by their mother's relationship at birth (married, cohabiting and single). These analyses found stronger protective associations of three-generation household for child behaviors (both externalizing and internalizing) for children with married mothers than for mothers who cohabited at birth and the negative associations for children born to single mothers held.

Additional Analyses/Extensions

A number of extensions, or sensitivity analyses, were run to test whether the associations found here were due to potentially important omitted variables. These variables were not included in the main model because of issues of endogeneity, possible reverse causality or because they were measured at one of the follow-up interviews and may be considered time varying. In particular, one may expect that the quality of the relationship of the grandparent generation and the parent generation to greatly affect the roles that grandparents take on in these households (King, Russell and Elder 1995). Although mother's report of her closeness with her mother or father is likely to be influenced by coresidence, a model including a measure of closeness (measured at the year 1 follow up) was added into the regression models as a test. Including closeness in the models did not change the substantive findings.

For both externalizing and internalizing behaviors, the full regression analyses (available in Appendix Table 2) revealed that grandparent depression was associated with higher behavior problem scores (0.17-0.21 standard deviations). To test whether grandparent's depression was acting as a proxy for mother's own depression, additional analyses were run including a measure

of mother's depression. Including mother's depression in the analyses did not alter any of the substantive findings although it was significantly associated with higher externalizing and internalizing behavior scores. In addition, grandparent's depression continues to be significantly associated with child behavior problems.

The child behavior measures are reported by the mother. As a result they may be subject to shared method variance (Bank et al. 1990). An impulsive mother may be more likely to live in a three-generation family household and also report more behavioral problems which could bias the findings. Although the results are robust to the inclusion of many key predictors (substance abuse, cognitive score, depression), two additional analyses were run including measures of mother's impulsive behaviors (from Dickman's impulsivity scale) and a measure of the child's difficult (or easy) temperament at year 1. Again, the inclusion of these measures did not substantively alter the results for child behavior problems.

Mother's PPVT scores and body mass index were also collected in the Fragile Families study. In order to maintain consistency across model specifications these measures were not included in the main models. Mother's PPVT score was included in an auxiliary regression of child's PPVT score on three-generation coresidence. Although mother's PPVT score is significantly associated with child's PPVT score it did not alter the association with three-generation coresidence. Similarly, mother's body mass index was also included in a regression of overweight on three-generation coresidence and again the findings were not substantively altered.

Although the focus of these analyses was to look at three-generation stability and interactions with nuclear family stability, it is also possible that the family structure of the grandparent generation is important in explaining the observed associations. Unfortunately, the

data do not provide any information on the relationships status of the grandparent generation but information on whether the child is coresiding with one or two grandparents is available. In fact, about 12% of the sample lives with both grandparents at some point over the first 3 years of life, about 15% live with just a grandmother and just under 2% of children live with just a grandfather. The preceding analyses did not distinguish between three-generation households that included one or two grandparents but this information could be used as a proxy for the relationship status of the grandparent generation. To study whether the family structure of the grandparent generation changed the observed associations two additional analyses were run. First, the regressions were run restricting the sample to just include households where both grandparents were coresident (versus never) and second, where just the grandmother was coresident. Analyses with just the grandfather were not possible due to small samples. The results from these regressions were very similar to the overall regression models suggesting that relationship status at the three-generation level is not driving the observed results.

Discussion

Three-generation households have increased in prevalence over the last 10 years (Krieder and Ellis 2011) and are more common during early childhood (Fields 2003). Research also shows that these households are relatively short lived and transitions into and out of them are frequent (Beck and Beck 1989; Oberlander et al. 2009; Pilkauskas 2012). Understanding whether stability at the three-generation family household level is associated with child outcomes is important given the literature that shows that nuclear family instability is detrimental to child wellbeing (e.g. Osborne and McLanahan 2007). To investigate whether instability in three-generation coresidence affects child wellbeing this article studied the association between stable and unstable three-generation coresidence and child socioemotional, cognitive and health

outcomes. This study extends prior literature by focusing on three-generation transitions during early childhood, investigating several measures of child wellbeing and by considering interactions between three-generation instability and nuclear family structure and instability.

The first aim of this study was to investigate whether stability at the three-generation level matters for early childhood socioemotional, cognitive and health outcomes. The findings of the analyses here suggest that unlike nuclear family structure, instability at the three-generation family household level does not have a detrimental association with child outcomes, but rather a null association. In comparison, stable coresidence is associated with child outcomes: worse externalizing and internalizing behavior scores, better PPVT scores and more overweight. The findings are robust to many alternative specifications of the unstable category and to the inclusion of many additional control variables.

Stably coresiding with a grandparent appears to have mixed associations with child outcomes; verbal ability is better but behavioral skills are worse and it is associated with increased likelihood of being overweight. Although a study of the mechanisms through which grandparents may be affecting these outcomes is beyond the scope of this study, the ways in which grandparents influence each of these outcomes is likely to differ. In terms of behavioral outcomes, the differences between stable and unstable households may be due to differences in parenting in stable three-generation households. Prior studies of single mothers who live with their own mothers have found detrimental associations with parenting quality/behaviors (Chase-Lansdale et al. 1994). If grandparents are more involved in parenting in stably coresiding three-generation households than unstable three-generation households then this may explain differences in behavioral outcomes. In terms of verbal ability, having a stably coresident additional caretaker may mean that children are exposed to more vocabulary and language.

Lastly, for overweight we might have expected that having a stably coresident grandparent would translate to more home cooked meals, which is generally associated with healthier weight. On the other hand, stereotypes of the grandmother who spoils her grandchild with food may also hold. It may also be the case that grandparents are poorly educated on healthy food preparation in general, but that in stably coresident households children are more exposed to grandparent's cooking than in unstably coresident households. Children who stably coreside with grandparents may also engage in less active behaviors that lead to more overweight. Future studies need to consider the mediating pathways through which each of these findings are working.

It is challenging to put the findings here in context with earlier work as very little work has studied stability in three-generation households and those studies that have considered stability look at associations by race/ethnicity or focus on children at different developmental stages. In the study most closely related to this one, Mollborn and colleagues (2012) found that stable coresidence was also associated with improved cognitive scores but only among Black children (not White or Latino children). As was noted in the literature review the research on three-generation family households more generally has found very mixed results in terms of child cognition and behavior and the results here suggest positive associations for cognition and negative associations for behavior.

The second aim of this paper was to study whether there was heterogeneity in the association between three-generation household coresidence and child outcomes by mother's relationship status. Although we expected to see differences by mother's relationships status the evidence for these differences is mixed. Overall, differences by nuclear family structure were minimal; however, there were two notable differences. First, among stably partnered mothers, stable coresidence a three-generation household was associated with lower externalizing

behavior scores. In addition, the coefficient on stable three-generation coresidence among stably partnered mothers for internalizing behaviors was also negative (although relatively small and not significant) suggesting that there may be some sort of protective association with behavior for the children in stably partnered households. In contrast, for children who have unstably partnered or stably single mothers and who stably live in a three-generation household, coresidence is associated with more externalizing and internalizing behavior problems. Differences across these groups may arise due to differences in norms around the role of the grandparent. In a two-parent household grandparent roles may be less defined and parents may do the majority of parenting; whereas in a single parent household (or unstably partnered households) grandparents may take on a primary parenting role thereby diminishing the authority of the mother. This evidence is only suggestive as the sample sizes were very small for these sub-group analyses and future research should replicate these models in a larger sample.

The analyses run by nuclear family structure also revealed a different pattern of results for PPVT scores. In the full sample the association between unstable three-generation coresidence and PPVT scores were close to zero and not significant. In the stratified regressions, the results for stably partnered mothers remained the same but for stably single mothers a positive association with unstable three-generation households emerged whereas a negative association emerged for unstably partnered mothers. This finding suggests that among children with parents who are stably single, any coresidence (stable or unstable) may have a positive association with PPVT scores. On the other hand, the interaction between unstable coresidence in a three-generation family household and having a mother who is unstably partnered, suggests a negative association with PPVT scores. This finding relates to the third aim of this paper which was to investigate if there were interactive effects of three-generation instability with nuclear

family instability. In the case of PPVT there are suggestive findings of an interactive effect but there were no other significant interactions with nuclear family instability.

Overall, this paper does not find much evidence to suggest that there are interactive effects of nuclear family instability and three-generation family stability. Future research that can disentangle married from cohabiting couples or separate couples that divorce from cohabiting couples that break up might find different results. In a larger sample that allows for further refinement, both the level differences by relationship status and the interaction of instability might reveal different results.

This study has several limitations. First, although the FFCWS provides a rich longitudinal sample with many children living in three-generation family households and the ability to study differences by mother's relationship status over time, it does not provide a nationally representative sample. Future research that replicates this study with a nationally representative sample would be of value. This study also focuses on young children from birth to age 3 as family context is particularly important in early childhood; however, additional research that considers stability with children at older ages is needed to understand whether stability at the three-generation household level continues to play a role as children age.

Second, the analyses of stable three-generation family households are based on relatively small samples, but in particular in the stratified regressions. Although statistically significant associations are sometimes found even when the sample is very small (in particular with the stably partnered stable three-generation family households) the findings should be interpreted with caution. Future studies with larger samples are needed to see if these findings hold. In addition, due to small sample sizes cohabiting mothers and married mothers were analyzed as one group. Future research that disaggregates the different types of transitions at the nuclear

family structure level and cohabiters from married mothers would be useful as some research suggests that the type of family structure transitions matter (Osborne et al. 2012). Third, as mentioned earlier, child behaviors are reported by the mother and may be subject to shared method variance. To test whether this was the case a number of auxiliary analyses were conducted and the findings held; however, future studies should look at child behavior rated by another source.

Last, selection is a problem in any study of family or household structure. It is possible that individuals who select into stably coresident three-generation family households are very different from those who do not. However, the descriptive statistics revealed surprisingly few differences between stable and unstable three-generation households suggesting that differences are not due to observable characteristics. In addition, the differences in the association between stable and unstable three-generation family households and child outcomes were robust to many specifications and to the inclusion of many additional variables. The differences in findings between stable and unstable three-generation households may be a result of different types of engagement from grandparents in these households. Studying what precipitates coresidence, as well as grandparent activities within these households, is an area for future research.

Despite some limitations, the findings from this study have implications for social welfare, education and health policy. Low-income and minority children are more likely to live in three-generation family households and these are also the groups of children for whom gaps in school readiness are largest. Understanding how children in three-generation households might differ from other children is important for family researchers interested in family structure and stability but also for practitioners and policy makers who might be interested in targeting

interventions. Three-generation coresidence may serve as a marker for disadvantage in terms of behavioral skills but perhaps an advantage in terms of verbal ability.

As the population ages and grandparents live longer, and as marriage becomes less common (or remains stagnant), the prevalence of three-generation family households is likely to rise. Recent economic downturns have also led to increased multigenerational households (Taylor et al 2010). Future research that continues to investigate the association between these types of households and child wellbeing is important. Although more research is needed, efforts to engage or involve parents may be different for children who live with a grandparent, and programs may be able to reach out to these extended family members to help improve child socioemotional, academic and health outcomes.

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Table 1: Three-Generation Household Status Over Time, Overall, Stable/Unstable and by Relationship Status

	By Age			Total (n=2,666) ^a		
	Birth	Age 1	Age 3	Ever 3-Gen	Stable 3-Gen	Unstable 3-Gen
N	4,898	4,364	4,231	2,666	181	824
Three-generation household	18.02	18.75	12.99	31.44	5.69	25.75
Three-generation household × relationship status						
Stably partnered ^b (n=1,104)	7.41	12.05	6.89	20.06	1.92	18.13
Unstably partnered (n=1,076)	33.56	26.42	18.97	47.02	7.53	39.49
Stably single (n=486)	44.83	42.62	32.81	51.24	20.32	30.93

Note:

Percents are weighted using city weights, N's are unweighted.

All differences by relationship status are significantly different at $p < 0.01$ except for unstable three-generation coresidence differences between unstably partnered and stably single.

^a Sample is restricted to those who are surveyed in all waves and complete on externalizing behavior.

^b Stably partnered refers to married or cohabiting with the same partner over all three survey waves.

Table 2: Outcome Variables by Three-Generation Family Type and by Relationship Status (N=2,666)

	Full Sample (N=2,666)				Stable Partnered (N=1,104)			Unstable (N=1,076)			Stable Single (N=486)				
	Stable	Unstable	Never		Stable	Unstable	Never	Stable	Unstable	Never	Stable	Unstable	Never		
Externalizing (Mean)	14.71	13.52	11.52	*#	9.74	12.01	11.06	16.27	13.88	12.71	15.69	16.92	12.20		
(SD)	(8.82)	(8.81)	(6.81)		(3.01)	(5.84)	(5.75)	(9.02)	(9.52)	(8.67)	(10.21)	(13.67)	(9.49)		
Internalizing (Mean)	10.11	9.13	7.27		8.39	8.68	6.82	11.21	9.24	8.22	10.39	10.16	8.45		
(SD)	(8.07)	(6.81)	(5.07)		(3.97)	(5.54)	(4.17)	(10.20)	(7.06)	(6.82)	(7.51)	(7.38)	(7.12)		
PPVT (Mean)	89.1	80.6	89.21	+#	88.76	80.53	91.09	#	91.55	79.36	84.94	+#	86.71	84.18	89.35
(SD)	(14.89)	(16.88)	(15.13)		(10.99)	(12.44)	(13.28)		(11.60)	(20.24)	(16.24)		(20.77)	(19.02)	(20.19)
Overweight/obese (%)	36.71	28.75	28.77	*	43.33	25.49	25.43		30.77	31.30	34.26	+	38.86	30.31	35.92
Relationship Status (%)															
Stably partnered	20.18	42.00	69.54	+*#											
Unstably partnered	37.94	43.92	22.13	#											
Stably single	41.89	14.08	8.34	+#											
N	181	824	1661		20	203	881		64	438	574		97	183	206

Note

Means and percents are weighted using city weights.

+ Denotes a statistically significant difference at $p < 0.05$ between stable and unstable.

* Denotes a statistically significant difference at $p < 0.05$ between stable and never.

Denotes a statistically significant difference at $p < 0.05$ between unstable and never.

Table 3: Main Effects Coefficients from Regressions of Three-Generation Coresidence on Child Outcomes - Overall and Stable/Unstable Specifications

	Externalizing		Internalizing		PPVT		Overweight (Odds Ratio)	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Three-Generation coresidence	0.06		0.06		0.00		1.22+	
	(0.04)		(0.05)		(0.04)		(1.73)	
Stable Three -Generation		0.17*		0.15*		0.23**		1.53***
		(0.06)		(0.06)		(0.08)		(3.34)
Unstable Three -Generation		0.04		0.04		-0.04		1.17
		(0.05)		(0.05)		(0.04)		(1.26)
Test Stable vs Unstable		+				**		*
Observations	2,335	2,335	2,319	2,319	2,021	2,021	2,040	2,040
R-squared	0.078	0.079	0.116	0.116	0.196	0.200		

Note:

Robust standard errors in parentheses for externalizing, internalizing and PPVT. T-Statistics in parentheses for overweight.

***p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 4: Stratified Regressions of Three-Generation Coresidence on Child Outcomes - by Mother's Relationship Status

	Externalizing			Internalizing			PPVT		Overweight (Odds Ratio)			
	Stably	Unstable	Stably	Stably	Unstable	Stably	Stably	Unstable	Stably	Stably	Stably	
	Partnered		Single	Partnered		Partnered	Partnered		Partnered	Partnered	Partnered	Partnered
Stable 3 Gen	-0.41** (0.12)	0.19+ (0.11)	0.34* (0.15)	-0.07 (0.23)	0.19+ (0.09)	0.21 (0.16)	0.17 (0.21)	0.26* (0.11)	0.24+ (0.14)	1.41 (0.63)	2.12* (2.21)	1.39 (0.75)
Unstable 3 Gen	0.11 (0.09)	0.05 (0.06)	-0.03 (0.13)	0.02 (0.08)	0.10 (0.07)	-0.02 (0.14)	-0.03 (0.10)	-0.19** (0.05)	0.22+ (0.11)	0.93 (-0.42)	1.29 (1.42)	1.40 (1.13)
Test Stable vs Unstable	**		*					**				
Observations	987	930	418	975	933	407	784	862	373	838	833	367
R-squared	0.078	0.087	0.105	0.113	0.114	0.143	0.276	0.154	0.149			

Note:

Robust standard errors in parentheses for externalizing, internalizing and PPVT. T-Statistics in parentheses for overweight.

***p<0.001, ** p<0.01, * p<0.05, + p<0.1

Appendix Table 1: Sample Descriptives by Three-Generation Family Type and by Relationship Status (N=2,666)

	Full Sample (N=2,666)				Stable Partnered (N=1104)			Unstable (N=1,076)			Stable Single (N=486)					
	Stable	Unstable	Never		Stable	Unstable	Never	Stable	Unstable	Never	Stable	Unstable	Never			
Externalizing	14.71 (8.82)	13.52 (8.81)	11.52 (6.81)	*#	9.74 (3.01)	12.01 (5.84)	11.06 (5.75)	16.27 (9.02)	13.88 (9.52)	12.71 (8.67)	15.69 (10.21)	16.92 (13.67)	12.20 (9.49)	#		
Internalizing	10.11 (8.07)	9.13 (6.81)	7.27 (5.07)		8.39 (3.97)	8.68 (5.54)	6.82 (4.17)	11.21 (10.20)	9.24 (7.06)	8.22 (6.82)	10.39 (7.51)	10.16 (7.38)	8.45 (7.12)			
PPVT	89.10 (14.89)	80.60 (16.88)	89.21 (15.13)	+#	88.76 (10.99)	80.53 (12.44)	91.09 (13.28)	#	91.55 (11.60)	79.36 (20.24)	84.94 (16.24)	+#	86.71 (20.77)	84.18 (19.02)	89.35 (20.19)	
Overweight/obese	36.71	28.75	28.77	*	43.33	25.49	25.43		30.77	31.3	34.26	+	38.86	30.31	35.92	
<i>Mother's Characteristics</i>																
Relationship Status																
Stable Partnered	20.18	42.00	69.54	+*#												
Unstable	37.94	43.92	22.13	#												
Stable Single	41.89	14.08	8.34	+*												
Race/Ethnicity																
Black non-Hispanic	52.69	43.50	30.38	*#	18.04	24.57	16.08		64.99	52.48	62.25	*#	58.24	71.89	65.43	
White non-Hispanic	13.90	18.32	35.80	*#	48.9	21.53	45.12		4.83	18.76	14.44	+*	5.25	7.39	14.66	
Hispanic	30.36	30.53	26.54		27.77	38.68	28.82		27.47	26.08	21.87		34.23	20.14	19.84	
Other non-Hispanic	3.05	7.65	7.28	*	5.30	15.22	9.98		2.70	2.68	1.43		2.28	0.57	0.26	
Education																
Less than high school	32.94	32.61	23.47		42.8	24.92	17.99		10.37	37.57	36.07		39.37	40.56	35.75	
High school degree	35.49	50.26	30.16	#	24.98	56.15	23.75		31.32	45.91	44.76		44.33	45.85	44.79	
Some college	28.18	12.88	19.69		21.21	10.47	21.82	#	47.69	15.22	14.04		15.68	12.99	16.91	
College and above	2.84	4.25	26.68	*#	12.01	8.46	36.43	#	0.62	1.3	5.12		0.43	0.59	2.55	
Age																
14-17	11.47	3.78	0.16	*#	0.00	0.43	0.04		2.82	5.38	0.25	#	24.83	8.79	0.92	*
18-19	20.32	20.69	5.82	*#	13.94	5.50	2.06		5.82	14.29	7.40		6.12	16.40	4.34	
20-24	37.03	35.79	22.01	*#	30.37	19.91	17.08		43.16	52.05	35.45	#	34.70	32.43	27.39	
25-34	29.89	35.6	52.55	*#	40.28	60.93	57.40		36.76	17.05	42.43	#	18.66	17.91	39.94	#
35+	1.28	4.13	19.46	*#	3.88	7.57	22.34	*	0.00	1.75	8.23	*#	1.19	1.36	25.23	*#
Immigrant	21.96	23.27	23.92		36.12	47.25	0.65		20.76	6.20	10.51	+*	16.23	4.93	14.19	
Cognitive score	7.04 (2.78)	6.71 (2.66)	7.24 (2.84)	#	6.91 (2.44)	6.77 (1.72)	7.56 (2.55)		6.74 (2.36)	6.76 (3.28)	6.71 (3.17)		7.37 (3.10)	6.36 (3.34)	5.86 (2.71)	
Substance abuse	0.72	1.74	1.06		1.7	0.16	0.65		0.25	2.93	1.39	+	0.67	2.75	3.64	+

Lived with both parents at age 15	42.82	39.74	54.72	#	32.96	49.42	62.75	40.23	35.24	38.23	50.00	24.83	32.84	+		
First birth	65.15	46.20	35.52	+*	48.08	35.55	38.24	61.42	53.12	26.74	#	76.75	56.60	36.10	*	
Second birth	24.16	29.70	32.85		49.35	33.68	34.21	14.61	25.96	28.99		20.65	29.50	31.7		
Third or later birth	10.57	23.94	31.62	+*	2.57	30.77	27.55	*	14.61	20.97	44.23	#	2.60	12.49	32.21	+*
<i>Child's Characteristics</i>																
Child's age - Year 3	34.61	34.77	34.49		34.52	34.37	34.21	34.45	35.18	35.14	34.81	34.67	35.1			
	(2.05)	(2.31)	(1.88)		(1.31)	(1.74)	(1.37)	(1.80)	(2.46)	(2.85)	(2.61)	(2.92)	(3.01)			
Child is a boy	60.15	49.95	56.57		74.07	47.53	61.28	47.8	52.14	45.44	64.62	50.31	46.76	*		
Low birth weight	17.10	6.67	7.22		22.89	3.44	4.10	20.00	7.52	12.54	11.75	13.49	18.95			
<i>Grandparent Characteristics</i>																
Grandmother's Education																
Less than High School	15.06	27.05	22.22		36.25	41.06	23.67	17.93	16.53	18.46	1.92	15.95	19.77	+*		
High School	62.90	55.83	46.98		44.07	50.43	42.67	69.96	57.55	55.57	65.72	67.43	63.81			
Some college	14.08	7.79	14.09	#	4.08	3.20	13.96	#	8.26	11.90	16.42	24.42	9.31	8.41	*	
College and above	7.95	9.34	16.7		15.6	5.31	19.69	#	3.85	14.02	9.74	7.94	7.30	8.01		
Immigrant	25.64	31.11	34.09		31.41	50.50	41.34	27.99	14.82	17.26	32.11	23.04	21.02			
Depressed	27.45	27.31	30.61		40.52	22.19	31.08	31.68	31.25	31.00	17.32	30.29	25.69			
Substance abuse	22.57	31.53	27.48		31.35	26.19	23.71	22.06	37.81	36.39	18.81	28.04	35.29			
N	181	824	1661		20	203	881	64	438	574	97	183	206			

Note

Means and percents are weighted using city weights.

+ Denotes a statistically significant difference at $p < 0.05$ between stable and unstable.

*Denotes a statistically significant difference at $p < 0.05$ between stable and never.

Denotes a statistically significant difference at $p < 0.05$ between unstable and never.

Appendix Table 2: Full Regressions of Three-Generation Coresidence on Child Outcomes - Overall and Stable/Unstable Specifications

	Externalizing		Internalizing		PPVT		Overweight (Odds Ratio)	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Three-Generation coresidence	0.06 (0.04)		0.06 (0.05)		0.00 (0.04)		1.22+ (1.73)	
Stable Three -Generation		0.17* (0.06)		0.15* (0.06)		0.23** (0.08)		1.53*** (3.34)
Unstable Three -Generation		0.04 (0.05)		0.04 (0.05)		-0.04 (0.04)		1.17 (1.26)
Single	0.24*** (0.06)	0.23*** (0.06)	0.26*** (0.06)	0.25** (0.06)	-0.05 (0.08)	-0.07 (0.08)	1.22* (2.03)	1.20+ (1.81)
Cohabiting	0.15** (0.05)	0.15** (0.05)	0.13** (0.04)	0.13** (0.04)	-0.01 (0.06)	-0.01 (0.06)	1.24+ (1.81)	1.24+ (1.84)
Black	-0.02 (0.06)	-0.02 (0.06)	-0.04 (0.07)	-0.03 (0.07)	-0.46*** (0.08)	-0.46*** (0.08)	0.91 (-0.71)	0.90 (-0.73)
Hispanic	0.04 (0.08)	0.03 (0.08)	0.07 (0.07)	0.07 (0.07)	-0.26** (0.07)	-0.26** (0.07)	1.81*** (3.42)	1.80*** (3.44)
Other	0.28+ (0.14)	0.27+ (0.14)	0.30* (0.12)	0.29* (0.12)	-0.14 (0.11)	-0.16 (0.11)	0.97 (-0.13)	0.96 (-0.19)
High school	-0.04 (0.05)	-0.04 (0.05)	-0.16* (0.06)	-0.16* (0.06)	-0.02 (0.05)	-0.02 (0.05)	0.98 (-0.18)	0.98 (-0.16)
Some college	-0.13+ (0.06)	-0.13+ (0.06)	-0.36*** (0.07)	-0.36*** (0.07)	0.25*** (0.06)	0.25*** (0.06)	1.13 (1.23)	1.13 (1.19)
College or more	-0.22* (0.09)	-0.21* (0.09)	-0.46*** (0.11)	-0.46*** (0.11)	0.76*** (0.15)	0.76*** (0.15)	1.17 (0.75)	1.17 (0.75)
14-17	0.34* (0.14)	0.32* (0.14)	0.27 (0.23)	0.25 (0.22)	-0.03 (0.17)	-0.05 (0.16)	1.01 (0.03)	0.98 (-0.05)
18-19	0.23* (0.09)	0.23* (0.08)	0.02 (0.12)	0.02 (0.12)	-0.07 (0.13)	-0.07 (0.13)	0.81 (-0.91)	0.81 (-0.92)
20-24	0.22** (0.06)	0.22** (0.06)	0.09 (0.07)	0.09 (0.07)	-0.06 (0.10)	-0.06 (0.10)	1.03 (0.17)	1.03 (0.16)
25-34	0.12+ (0.07)	0.12+ (0.07)	0.04 (0.06)	0.04 (0.06)	-0.00 (0.09)	-0.00 (0.09)	0.94 (-0.35)	0.94 (-0.35)
Immigrant	-0.10 (0.09)	-0.10 (0.09)	-0.02 (0.08)	-0.02 (0.08)	-0.25* (0.09)	-0.24* (0.10)	0.99 (-0.02)	1.01 (0.02)
Cognitive score	-0.01 (0.01)	-0.01 (0.01)	-0.04*** (0.01)	-0.04*** (0.01)	0.03* (0.01)	0.03* (0.01)	0.99 (-0.91)	0.99 (-0.91)
Substance abuse	0.04 (0.15)	0.05 (0.15)	0.08 (0.12)	0.09 (0.12)	0.09 (0.10)	0.11 (0.10)	1.12 (0.46)	1.14 (0.52)
Lived with both parents at 15	0.01 (0.02)	0.00 (0.02)	-0.01 (0.04)	-0.02 (0.04)	0.04 (0.05)	0.03 (0.05)	1.17 (1.64)	1.15 (1.52)
First birth	-0.19** (0.06)	-0.20** (0.06)	-0.17** (0.05)	-0.17** (0.05)	0.12 (0.07)	0.10 (0.07)	0.96 (-0.28)	0.95 (-0.37)
Second birth	-0.04 (0.07)	-0.04 (0.07)	-0.05 (0.07)	-0.05 (0.07)	0.01 (0.07)	0.00 (0.07)	0.96 (-0.27)	0.96 (-0.28)

Child's age- 3 year	-0.04***	-0.04***	-0.02+	-0.02+	0.02	0.02	1.03	1.03
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(1.34)	(1.38)
Boy child	0.14***	0.14***	0.09**	0.09**	-0.13**	-0.13**	0.98	0.98
	(0.02)	(0.02)	(0.03)	(0.03)	(0.04)	(0.04)	(-0.17)	(-0.22)
Low birth weight	0.13+	0.13+	0.15+	0.15+	-0.27*	-0.27*	0.66*	0.66*
	(0.07)	(0.07)	(0.08)	(0.08)	(0.11)	(0.11)	(-2.40)	(-2.44)
Grandmother high school	0.01	0.01	0.01	0.01	0.27***	0.26***	1.10	1.09
	(0.08)	(0.08)	(0.08)	(0.08)	(0.06)	(0.06)	(0.65)	(0.61)
Grandmother some college	0.03	0.02	-0.06	-0.07	0.23**	0.22**	0.95	0.94
	(0.10)	(0.10)	(0.10)	(0.10)	(0.06)	(0.06)	(-0.35)	(-0.44)
Grandmother college or more	-0.10	-0.11	-0.08	-0.09	0.26***	0.25***	1.18	1.17
	(0.09)	(0.09)	(0.08)	(0.08)	(0.06)	(0.06)	(0.75)	(0.71)
Grandparent immigrant	-0.09+	-0.10+	-0.02	-0.02	-0.09	-0.10	1.02	1.01
	(0.05)	(0.05)	(0.06)	(0.06)	(0.07)	(0.08)	(0.11)	(0.07)
Grandparent depressed	0.21***	0.21***	0.18***	0.18***	0.07	0.08	1.01	1.02
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.15)	(0.21)
Grandparent substance abuse	0.10*	0.10*	0.02	0.02	0.03	0.03	0.86+	0.86+
	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)	(-1.76)	(-1.73)
Constant	0.96**	0.96**	0.80*	0.80*	-0.74	-0.74	0.15*	0.15*
	(0.32)	(0.33)	(0.31)	(0.31)	(0.47)	(0.47)	(-2.23)	(-2.24)
Observations	2,335	2,335	2,319	2,319	2,021	2,021	2,040	2,040
R-squared	0.078	0.079	0.116	0.116	0.196	0.200		

Note:

Robust standard errors in parentheses for externalizing, internalizing and PPVT. T-Statistics in parentheses for overweight.

***p<0.001, ** p<0.01, * p<0.05, + p<0.1

Appendix Table 3: Regressions of Three-Generation Coresidence on Child Outcomes - Alternative Stability Specifications

	Externalizing Behavior				Internalizing Behavior				PPVT				Overweight (Odds Ratios)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Stable (3 waves)	0.18*	0.18*	0.18*	0.18**	0.14*	0.15*	0.14*	0.14*	0.22**	0.22*	0.22*	0.22*	1.52***	1.52***	1.51***	1.53***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.08)	(0.08)	(0.08)	(0.08)	(3.31)	(3.31)	(3.22)	(3.23)
1 Wave	0.01	0.02	0.02		0.06	0.06	0.06		0.00	0.01	0.01		1.22	1.22	1.22	
	(0.05)	(0.05)	(0.05)		(0.06)	(0.06)	(0.06)		(0.05)	(0.05)	(0.05)		(1.57)	(1.57)	(1.55)	
2 Waves	0.10				-0.00				-0.13*				1.08			
	(0.07)				(0.07)				(0.06)				(0.40)			
2 waves, consecutive		0.11				0.03				-0.14*				1.08		
		(0.08)				(0.07)				(0.07)				(0.40)		
2 waves, not consecutive		0.06				-0.11				-0.11				1.07		
		(0.12)				(0.13)				(0.15)				(0.21)		
2 waves, birth and year 1			0.13				0.01				-0.21*				1.00	
			(0.09)				(0.07)				(0.08)				(0.01)	
2 waves, year 1 and 3			0.06				0.06				0.05				1.29	
			(0.16)				(0.12)				(0.14)				(1.00)	
2 waves, not consecutive			0.06				-0.11				-0.11				1.06	
			(0.12)				(0.13)				(0.15)				(0.20)	
In at birth, move out				0.02				0.01				-0.07				1.17
				(0.03)				(0.04)				(0.04)				(1.03)
Out at birth, move in				0.04				0.06				0.10				1.40*
				(0.14)				(0.12)				(0.07)				(2.35)
Multiple moves				0.18+				0.07				-0.09				0.97
				(0.09)				(0.08)				(0.08)				(-0.12)
Observations	2,335	2,335	2,335	2,335	2,319	2,319	2,319	2,319	2,021	2,021	2,021	2,021	2,040	2,040	2,040	2,040

Note:

Robust standard errors in parentheses for externalizing, internalizing and PPVT. T-Statistics in parentheses for overweight.

***p<0.001, ** p<0.01, * p<0.05, + p<0.1

Model (1) Simple count model

Model (2) Accounts for consecutive/not consecutive waves

Model (3) Accounts for timing of consecutive coresidence

Model (4) Takes into account starting point of coresidence

Appendix Table 4: Regressions of Three-Generation Coresidence on Child Outcomes - Relationship, Residential and Income Stability

	Externalizing Behaviors				Internalizing Behavior				PPVT				Overweight (Odds Ratio)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Stable 3 gen	0.17**	0.16*	0.20**	0.18*	0.15*	0.14*	0.16*	0.16**	0.23**	0.21**	0.25**	0.22**	1.53**	1.54**	1.47**	1.50**
	(0.06)	(0.07)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.05)	(0.08)	(0.07)	(0.08)	(0.08)	(3.34)	(3.10)	(2.90)	(3.00)
Unstable 3 gen	0.04	0.04	0.03	0.04	0.04	0.05	0.04	0.04	-0.04	-0.04	-0.05	-0.03	1.17	1.19	1.18	1.17
	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(1.26)	(1.43)	(1.33)	(1.25)
Stable single		0.08				0.09				0.05				1.08		
		(0.06)				(0.06)				(0.05)				(0.45)		
Stable cohab		-0.02				-0.05				0.07				1.21		
		(0.05)				(0.05)				(0.05)				(1.39)		
Stable married		-0.18*				-0.18**				0.09				0.95		
		(0.07)				(0.06)				(0.09)				(-0.25)		
1 move			0.02				0.01				0.05				0.78***	
			(0.05)				(0.04)				(0.04)				(-3.16)	
2 moves			0.04				0.03				0.09				0.89	
			(0.05)				(0.06)				(0.05)				(-0.97)	
3+ moves			0.17+				0.10+				0.04				1.07	
			(0.09)				(0.06)				(0.07)				(0.66)	
Always poor				0.19*				0.36***				-0.18**				0.61***
				(0.08)				(0.07)				(0.06)				(-4.26)
Sometimes Poor				0.11*				0.19**				-0.19**				0.86
				(0.05)				(0.05)				(0.06)				(-1.34)
Test Stable vs																
Unstable	+		**	+			+	**	**	**	**	**	+	+	+	+
Observations	2,335	2,335	2,335	2,335	2,319	2,319	2,319	2,319	2,021	2,021	2,021	2,021	2,040	2,040	2,040	2,040

Note:

Robust standard errors in parentheses for externalizing, internalizing and PPVT. T-Statistics in parentheses for overweight.

***p<0.001, ** p<0.01, * p<0.05, + p<0.1

Model (1) Original model

Model (2) Including time varying relationship status

Model (3) Including number of moves since birth.

Model (4) Always, sometimes, never poor since birth