Intergenerational Support in the Context of Diverse Marriage History in Later Life

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Abstract

In recent decades, the proportion of older adults having experienced divorce and repartnering either in earlier or later life stage has substantially increased in the U. S. This study examines the influence of older parents' marriage history on the support they receive from biological and stepchildren. Analyzing nationally representative, longitudinal data on older adults from the Health and Retirement Study (1998-2010), the study conducts random-effects analysis to examine how the timing of parents' divorce and repartnering differentially affects financial support, informal caregiving and help in the future offered by biological and stepchildren. The study finds that divorce and repartnering significant reduces the likelihood of receiving elderly support, with early divorce to be more likely to reduce support from biological children than gray divorce, while repartnering, especially that happened in old age, further lowered the likelihood of receiving support from stepchildren. The study also finds moderating effects of the gender of parents. Early and gray divorce has a larger negative effect for fathers to receive support from biological children, whereas early repartnering brings more disadvantages to mothers in receiving support from stepchildren.

Although divorce rate in the U.S. has been on the decline, the proportion of those having experienced divorce and repartnering has substantially increased among older adults in recent decades (Manning and Brown 2009; Brown and Lin 2012). The baby boomer

generation has a particularly higher level of marital instability than their predecessors. As they enter in old age, their relationship with adult children (both biological and stepchildren) becomes more complex as a consequence of marriage transitions. The ambiguity in the boundary of family thus brings more uncertainty with regard to from whom to expect support and care in old age (Seltzer and Bianchi 2013).

Existing studies have documented that older adults who have ever experienced divorce or repartnering receive less intergenerational support from children than those in intact marriages (de Jong Gierveld and Peeters 2003; Pezzin and Schone1999; Lin 2008; Cooney and Uhlenberg 1990; Eggebeen 1992; Kalmijn 2007). However, little is known about its effect on intergenerational support if divorce or repartnering happens in old age, which is on the rise in recent years (Cooney 1993; Schoen and Standish 2001; Brown, Bulanda, and Lee 2005). For example, divorce at earlier life stage may lead to distant relationship between parents and biological children, which could translate into lower level of support from biological children in old age. In contrast, gray divorce (divorce after age 55) may not have such an influence on intergenerational support from biological children because of a strongly developed relationship in earlier life. In addition, repartnering in earlier time points in life means that stepparents and stepchildren may have opportunities to foster their relations long before stepparents have any need for support, which increases the possibility of receiving support from stepchildren in old age. However, gray repartnering (repartnering after age 55) leaves both stepparents and stepchildren a short period to develop a relationship, while the stepparents' health may begin to deteriorate, thus the level of support provided by stepchildren could be low.

This study examines the implications of increasing complexity of older adults' marriage experiences for receiving intergenerational support. It goes beyond the existing literature in that it not only distinguishes the provision of support from biological children

and stepchildren, but also takes into account the timing of divorce and repartnering. It pays particular attention to the effect of divorce and repartnering in later life, a phenomenon deemed as "the gray divorce revolution", due to its rapid increase in prevalence in recent decades (Brown and Lin 2012). The study posits that gray divorce or repartnering affects elderly support from biological children or stepchildren differently, compared with such events at an earlier time point in life. The study also models how parents' gender and increased needs for help in older age moderate the effect of marriage history on received intergenerational support. The paper uses the Health and Retirement Study (1998-2010), a longitudinal data that includes information on different dimensions of intergenerational support from each of the biological and stepchild to the older adult over time. The data also provides a complete marriage history of the respondents, including the timing of divorce and repartnering.

Literature Review

Existing literature suggests that having the experience of divorce and repartnering significantly reduces the level of contact frequency, financial support and informal caregiving that parents receive from adult children in old age, and this negative effect is particularly salient for older fathers (de Jong Gierveld and Peeters 2003; Pezzin and Schone 1999; Lin 2008; Cooney and Uhlenberg 1990; Eggebeen 1992; Kalmijn 2007). A few studies have differentiated the support provided by biological children and stepchildren for those who get repartnered after divorce. There are mixed findings about who is more likely to provide support to an aging parent. Some researchers found that biological parent-child ties are much stronger and closer than step intergenerational relationships (see review in Becker et al. 2013) and the level of intergenerational exchange is also higher between parents and biological children than that between parents and stepchildren (Pezzin and Schone 1999). However,

some recent studies suggest that in the last two decades, an increasing number of parents include stepchildren in their personal network (Suanet, Van Der Pas and Van Tilburg 2013). Specifically, repartnered older fathers have stronger relations with stepchildren from the current union than with biological children from the prior union (Noel-Miller 2013, Kalmijn 2013). Such stronger relations are manifested in higher contact frequency and higher likelihood of transferring money to adult children.

From the theoretical perspective of exchange theory, support provided by adult children to parents in old age is a reciprocal behavior, which could be related to the resources and time that parents invested in their children in early life. Although little literature addresses this issue directly in stepfamily contexts, with regard to relationship quality, researchers find that the amount of time that parents spend with biological and stepchildren influences the closeness of their relationship. Longer duration of stepparent-stepchild relation increases the relationship closeness thus narrowing the stepgap in within-parent differential in relationship quality with biological and stepchildren (Becker et al. 2013). In regard to intergenerational support in stepfamilies, the amount of intergenerational support for parents could also be associated with the length of time that parents and stepchildren share as family members. Therefore when examining whether biological children or stepchildren provide more support to aging parents, it is important to take into account the timing of parental divorce and repartnering. Existing literature provides inconsistent findings about the influence of the timing of divorce, but little is known about how the timing of repartnering shapes intergenerational support. One study indicates that for both aging mothers and fathers the timing of divorce is not related to adult children's support behavior after controlling for the characteristics of parents and children (Lin 2008). However, some other researches argue that the timing of divorce of parents is critical in determining the level of transfers between them and their adult children. Early divorces have a much larger negative effect on the

intergenerational support for fathers than for mothers, but late divorce of the parent in the child's adulthood results in less or no gender differences in received intergenerational support between mothers and fathers (Kalmijn 2007; Furstenberg, Hoffman, and Shrestha 1995). Few studies specifically discuss the effect of repartnering that happened in old age and the researches about parents who ever experienced repartnering usually focus on the overall support received, without distinguishing how the timing of the event differentially influences stepchildren in providing elderly support. This study addresses these gaps in literature by arguing that whether divorce or repartnering happened in earlier life stage or in old age can be crucial in determining the strength of the bond between parents and biological children and stepchildren alike and it strongly, but differently, influences biological and stepchildren's provision of support to parents in times of need.

Researchers also found gender differences in the effect of parental divorce and repartnering on upward intergenerational support. Divorce has a negative effect on the quality of intergenerational relationship between parents and biological children, and this negative effect is stronger for fathers than for mothers (Daatland 2007). Compared to men, women generally invest more caretaking time in biological children, they usually have the custody of children after divorce and continually take care of children, and as "kinkeepers" they also spend more time with adult children. Therefore, women may expect more support from biological children in old age, and divorce decreases the support from biological children at a lesser extent for them than for men. At the same time, women are also more likely to experience differentials in support provided by biological children and stepchildren. Researchers suggest that the difference in relationship closeness with biological children and stepchildren is more pronounced for women than for men (Becker et al. 2013). Compared to women, men in general spend less time with children and they tend to invest more equally in biological and stepchildren. After divorce and remarriage, men usually coreside with their

stepchildren and thus have more opportunities to interact with them. However they may have much less interaction with biological children if the mother has repartnered (see review in Becker et al. 2013). Therefore, compare to women, men may receive less support from biological children but more support from stepchildren, thus the differentials of support provided by biological children and stepchildren could be smaller for men than for women.

In addition, previous literature provides inconsistent findings about gender difference in the effect of the timing of divorce on intergenerational support. One study found that the level of support received by divorced fathers is much lower than that received by divorced mothers regardless of the timing of divorce (Lin 2008). But other researchers suggested that early divorce increases the fathers' disadvantage in receiving support or intergenerational exchange in general to a larger extent than a late divorce (Kalmijn 2007; Furstenberg, Hoffman, and Shrestha 1995). This study investigates gender difference in intergenerational support for old adults with diverse marriage history more extensively by asking how gender moderates the effect of timing of divorce and repartnering on different dimensions of support provided by biological and stepchildren.

Furthermore, most existing literature examines intergenerational support for older parents with different marriage experiences at a static time point of life. As parents age, their health condition deteriorates and their need for support and care increases. Children's provision of intergenerational support could change in response to the need of parents but the extent of such change may be different for parents with diverse marriage history and may also be different between biological and stepchildren. No study has examined how parents' changing need for support moderates the effect of marriage history on intergenerational support received from biological or stepchildren. Using random-effects models, this study advances our knowledge by modeling the moderating effect of the time-varying parental need for help.

Research Hypotheses

The extent of intergenerational support from adult children to older parents can vary considerably across children-parents dyads. Both the nature of the dyads as biological children-parents or stepchildren-parents and the length of time the dyads endure for parents and children to spend life together as family members are associated with the extents of upward intergenerational support in parents' old age. This paper examines whether gray divorce or repartnering affects elderly support from biological and stepchildren differently, compared to such events happened at an earlier life stage. The nature of the dyads as biological or step could influence children's provision of intergenerational support. The study first hypothesizes that biological children may be more likely to provide assistance to parents in times of need regardless of parents' marriage history than stepchildren.

From the theoretical perspective of exchange theory, the amount of time and resources parents invest in children in early life stages is positively associated with the support that parents may receive from adult children in old age. For biological child-parent ties, the amount of time that parents and biological children share together to develop intergenerational bond can vary considerably due to parental marriage experience and the timing of parental marriage dissolution. Compared with those who got divorced, older adults in intact marriage share the longest life span with biological children as family members without negative influence of parental divorce and repartnering, which could promote strong intergenerational ties and high level of elderly support from children. Among divorced old adults, those who get gray divorce may maintain a closer relationship with biological children than those divorced earlier, which could translate into higher level of support provided by biological children. Therefore, the second hypothesis of the study is that among biological child-parent dyads, biological children of parents remaining in intact marriage provide the

highest level of support and biological children of parents experienced early divorce provide the least support, while the level of support provided by biological children of parents experienced gray divorce falls in the middle.

For stepchild-parent ties, the length of the life span that stepparents and stepchildren share as family members can be different because of the timing of parental marriage or repartnering. Repartnering in earlier life stages means that stepparents and stepchildren may have a longer time span to foster their relations, which increases the possibility of developing strong intergenerational bonds that could lead to a higher level of elderly support provided by stepchildren to stepparents in times of need. However, with gray repartnering of parents, stepchildren and stepparents have a short period to develop their relationship while stepparents have already enter old age, thus stepchildren may provide little support to stepparents. Therefore, the third hypothesis of the study is that stepchildren of stepparents from a gray repartnering provide a lower level of support than stepchildren of stepparents from an early repartnering.

Gender of the parent could moderate the effects of children's status and parents' marriage history on intergenerational support. For people who divorced in earlier life stage, their relationship with biological children is negatively influenced by marriage dissolution and this negative effect could be stronger for fathers. Mothers usually have custody of biological children and continually take care of them while fathers have more distant relationship with biological children from prior marital union. Thus, early divorced fathers may receive much less support from biological children in later life than early divorced mothers. As for the relationship with stepchildren, if the repartnering happened in early life stage both mothers and fathers may have opportunities to develop intergenerational bonds with stepchildren, but fathers may invest more equally between stepchildren and biological children than mothers. Thus, early repartnered fathers may receive more support from

stepchildren in later life than early repartnered mothers. As for people who divorced or repartnered in old age, both women and men may receive more support from biological children than from stepchildren. The gender difference in received support from biological children as well as that in support from stepchildren may be less prominent. Therefore the fourth hypothesis of the study is that early divorce brings a larger disadvantage to fathers than to mothers in regard to receiving support from biological children in old age, while early repartnering provides fathers a better position than mothers to receive help from stepchildren in later life. In addition, the gender difference in receiving intergenerational support from either biological or stepchildren is smaller among older adults experienced gray divorce or repartnering compare to those who experienced such events in earlier life stage.

As parents age their needs for intergenerational support may change with transitions in life circumstances such as retirement or deterioration of health. Children are more likely to provide support to parents with higher needs for financial or instrumental support. Therefore, the negative effect of parental divorce or repartnering on intergenerational support provided by biological or stepchildren may be reduced by increased parents' need for support. The final hypothesis of the study is that parents' need for support is expected to moderate the influence of children's status and parental marriage history on intergenerational support, with higher needs to be more likely to buffer the negative effect of parents' divorce or repartnering on intergenerational support.

Methods

Data and Measurement

This study uses 7 waves of the Health and Retirement Study (HRS, 1998, 2000, 2002, 2004, 2006, 2008, and 2010). HRS is a nationally representative longitudinal survey of older adults aged 50 and over in the United States. Since this study investigates

intergenerational support from adult children in the context of diverse parental marriage history, respondent-child dyads data is used and the sample is restricted to respondents who have ever married and have at least one child. This allows the sample to have 60,901 respondent-child dyads in 1998, 57,086 in 2000, 53,850 in 2002, 57,850 in 2004, 53,958 in 2006, 51,167 in 2008 and 61,555 in 2010. The attrition rate of the respondent-child dyads due to the death of or the follow-up loss of respondents is about 24.27 percent and 1.84 percent respectively across years. Respondent's marriage could be ended in divorce, widowhood or other unreported reason. Since this preliminary study focuses on marriage ended in divorce, the respondent-child dyads are dropped from the sample if for which the first change of parental marriage after the birth of the biological child is marriage ended in widowhood or other unknown reason. Respondent-child dyads that are missing on any variable included in the analysis are also excluded. Altogether, 51,583 respondent-child dyads are finally included in the sample and each dyad is observed 2.1 times on average from 1998 to 2010, yielding a person-period data set of 108,424 observations.

Key variables of interest are children's status as biological or stepchildren and the timing of parental divorce for parent-biological child dyads and the timing of parental repartnering for stepparent-stepchild dyads as whether the divorce or repartnering happened in earlier or later life stage. Since old adults may have multiple experiences of divorce and repartnering, the study is cautious about choosing the marriage experience to identify the timing of divorce or repartnering for the parent-child dyad. For parent-biological child dyads, the first change of parents' marriage after the birth of biological children may be the most influential marital change on the intergenerational relationship and the support that adult children may provide to parents in later life. Therefore, the timing of the first parental divorce after the birth of the biological child, as early divorce or gray divorce at age 55 or later, is assigned to the parent-biological child dyads. For stepparent-stepchild dyads, respondents are

most likely to report stepchildren from the current or the most recent marriage. The beginning of this marriage indicates the establishment of intergenerational relationship between the respondent and the stepchildren. Therefore, the timing of the current or the most recent marriage/remarriage, as early marriage or gray repartnering at age 55 or later, is assigned to the stepparent-stepchild dyads. In order to compare intergenerational support between parent-biological child dyads and stepparent-stepchild dyads as well as between parents experienced divorce/repartnering in early and later life stage, the study creates a variable to categorize parent-child/stepparent-stepchild dyads into five groups by the timing of parental divorce or repartnering: (1) biological child with the parent in intact marriage; (2) biological child with the parent experienced gray divorce; (3) biological child with the parent experienced early divorce; (4) stepchild with the stepparent experienced early marriage/remarriage; (5) stepchild with the stepparent experienced gray remarriage. At the stage of preliminary study, cohabitation of respondents are not analyzed separately but coded as marriage. As seen in Figure 1, in the person-period data most parent-child dyads are biological children with the parent in intact marriage (60.58%). Around a quarter of the dyads are biological children with parents have ever experienced divorce, specifically 23.70% of the parents divorced before age 55 while 1.99% of the parents had a gray divorce at or after age 55. Around 14% of the dyads are stepchildren with stepparents, among them 10.70% of the dyads formed in earlier life stage of stepparents before age 55 and 3.03% of the dyads established from a gray remarriage that happened at or after age 55.

- Figure 1 about here-

The study is also interested in whether the effect of children's status and the timing of parental divorce/repartnering on intergenerational support is moderated by parents' gender and need for support. Parents' need for intergenerational support may increase with a deterioration of health or a worsened personal economic condition. The study measures

parents' need for support by their self-reported health status and three dichotomous variables indicating whether parents have long-term care insurance, are receiving pension, or are currently working for pay.

The dependent variables for the analysis are three dichotomous variables measuring different aspects of intergenerational support from each adult child to the aging parent, including whether the child provide any financial support, whether the child provide informal caregiving and whether the child will help the parent in the future. If the amount of financial transfer from the child to the parent since the previous wave is larger than zero, the child is coded as providing financial support to the parent. The child is coded as providing informal caregiving to the parent if the child or his/her spouse helps with either the parent's ADLs, IADLs, or is listed as a helper in the HRS helper file. The child is coded as will help in the future if the respondent says this child would be willing and able to help with basic personal care activities over a long period of time if the respondent needed it.

Predicted probabilities from bivariate analyses show that compare with biological children whose parents are in intact marriage, biological children with parents experienced early or gray divorce are more likely to provide financial support, while stepchildren with stepparents experience either early or gray marriage are much less likely to provide financial support (Figure 2.1). Differences are found in older female and male subsamples. In the female subsample, the dyads having the highest probability of providing financial transfers to parents are biological children with parents experienced gray divorce, while for the male subsample they are the biological children with parents in intact marriage. Stepchildren are found to have much lower probabilities of providing financial support to stepmothers than to stepfathers. In regard to informal caregiving, biological children with parents divorced in old age are most likely to provide informal caregiving and this pattern holds for both female and male parents subsamples (Figure 2.2). Stepchildren have much lower probability of offering

informal caregiving than biological children especially in the stepchild-stepmother dyads. When it comes to whether the child will help the parent in the future, biological children with parents in intact marriage have the highest probability of willingness to help in both the overall sample and the gender subsampels (Figure 2.3). Stepchildren, especially those with stepparents from gray repartnering are less likely to provide help in the future than biological children and such a gap is larger in the female older adults subsample.

-Figure 2.1-2.3 about here-

Bivariate analysis of children's status with the timing of parental divorce/repartnering suggests that the nature of the child-parent dyad is associated with varied intergenerational support provided by adult children to parents and the patterns differ by gender group of the older adults. Nonetheless, upward intergenerational support is also driven by parents' need for help and children's availability to help. It is important to investigate how the observed bivariate relationships change after taking these factors into account. In the following section of the paper, research strategy and multivariate findings are described.

In multivariate analyses, key characteristics of both parents and children are controlled. For parents, the variables include living proximity to the adult child, total number of biological and stepchildren, social economic status as years of education, income, as well as net wealth, and social demographic characteristics as age, current marital status, and race/ethnicity. Parents' attrition status is also controlled by whether died or loss to follow-up during the survey. The variable of loss to follow-up is dropped later from the models due to collinearity. Children's characteristics in control include years of education, income, age, gender, and current marital status. Descriptive statistics of all variables are presented in Table 1.

-Table 1 about here-

Random-Effects Analysis

The study uses random-effects logistic regression to model intergenerational support provided by biological and stepchildren to parents with different marriage history by pooling 7 waves of the HRS data. Compared to a regular regression model that only examines between-individual differences, a random-effects model with panel data is in a much better position to model both between-individual and within-individual differences. It better controls for possible unobserved or unmeasured within-individual error component, which could produce heterogeneity bias in coefficient estimation (Petersen 1993). Compared to a fixed-effects model, the advantage of random-effects model is that time-invariant variables can be included. This study is interested in both time-varying effects such as parents' need for support and time-invariant effects such as children's status as biological or stepchildren, the timing of parental divorce/repartnering specific to each child, and the gender of the parent that together predict intergenerational support from adult children to parents. Therefore, random-effects models are more suitable for this study.

The multivariate analysis begins with comparison of financial support, informal caregiving and willingness to help in the future between different biological child-parent and stepchild-parent dyads by separate random-effects logistic regression models. The models are illustrated by the follow equation:

$$Y_{ijt} = \beta_0 + \beta_1 H_{ij} + \beta_2 M_{ijt} + \beta_3 F_{ij} + \beta_4 N_{ijt} + \beta_5 C1_{ijt} + \beta_6 C2_{ij} + \alpha_{ij} \quad (1)$$

Y_{ijt} is the intergenerational support (either financial support, informal caregiving, or willingness to help in the future) from child *i* to parent *j* at time *t* (1998, 2000, 2002, 2004, 2006, 2008, 2010). Independent and control variables are added to the model step by step. For each dependent variable, the analysis begins with a model including the key time-

invariant independent variable of children's status with the timing of parental divorce/repartnering (H_{ij}). Then the variable of parents' current marital status, which is time-varying, is added since intergenerational support may also depend on whether parents are currently married, divorced/separated or widowed (M_{ijt}). Parents' gender as whether female or not (F_{ij}) and time-varying variables measuring parents' need for support (N_{ijt}) are then added to the model. Finally, time-varying or time-invariant parents' and children's characteristics are added as control variables ($C1_{ijt}$ and $C2_{ij}$). α_{ij} indicates the effect of unobserved variables. The residual is treated as a time-invariant random variable and is assumed to take a normal distribution. All the estimated coefficients of the independent variables in the model represent weighted averages of the within-individual (i.e., change across waves) and between-individual effects (Gould 2001).

In the second step, the study examines whether parents' gender and need for help moderate the effect of children's status with the timing of parental divorce/repartnering on intergenerational support. Interactions terms between the variable of children's status with the timing of parental divorce/repartnering and parent's gender, self-reported health, whether having long-term care insurance, whether currently receiving pension, as well as whether currently working for pay are added to equation (1) and tested one at a time. Interaction effects are tested for all three dependent variables about intergenerational support. All the models adjust standard errors for the clustering in household in the data.

Results

Results of random-effects models examining the effect of children's status and the timing of parental divorce/repartnering on different aspects of intergenerational support from adult children to older parents are presented in Tables 2-3. For each dependent variable, the analysis begins with a model including the key independent variable of children's status with

parental marriage history. Then different groups of other predictors are added step by step. The decreasing BIC for the nested models for each dependent variable indicates that the model fit becomes better as the predictors are added. The effects of the children's status with parental marriage history variable remain robust across nested models, so the study presents only the full models in Table 2.

-Table 2 about here-

The results clearly suggest that children's status as biological or step children as well as the child-specific timing of parental divorce and repartnering influence different aspects of upward intergenerational support in distinctive ways. In terms of financial support, the likelihood of providing monetary transfers is significantly different between biological and stepchildren, with the latter being much less likely to provide such support. Compare with biological children of parents in intact marriage, the odds of giving financial transfers are not significantly different for biological children with parents ever divorced. However, stepchildren are only 0.449 times as likely as biological children with parents in intact marriage to provide financial assistance to stepparents from an early parental marriage and 0.508 times as likely to provide such support to stepparents from a gray repartnering. As regard to informal caregiving, a clear order of decreased odds of providing support is observed across the categories of the key independent variable. Compare between the biological children-parents dyads and the stepchildren-stepparents dyads, biological children are more likely to provide the help than stepchildren. While comparing within the biological dyads and step dyads, the shorter time the dyads endure the lower the probability of support is found. Relative to biological children with parents in intact marriage, gray divorce of the parents does not significantly reduce the odds of providing informal caregiving by children, but if parental divorce happened in earlier life stage, the odds ratio of providing support by biological children declines to 0.735. The odds ratio of providing informal caregiving further

decreases for stepchildren, with them are only 0.303 times as likely to provide the help to stepparents from an early parental marriage, and are even more unlikely, with an odds ratio of 0.195, to provide the support to stepparents from a parental remarriage in old age. When it comes to whether the children would be willing and able to help with basic personal care activities over a long period of time if the respondent needed it in the future, the results suggest that parental divorce decreases the likelihood of biological children's wiliness to help in the future at similar extent for early divorce and gray divorce. Biological children are 0.291 and 0.290 times less likely to offer support in the future respectively to parents experienced gray divorce and early divorce than to parents in intact marriage. Stepchildren show a much lower likelihood of willingness to help in the future. Compared to biological children with parents in intact marriage, stepchildren are 0.779 times less likely to offer future help to stepparents from an early parental marriage and are 0.801 times less likely to help stepparents from a gray parental repartnering in the future.

Other independent variables behave in the expected directions for the three different aspects of intergenerational support. It is worth noting that after adding parents' current marriage status to the model, the direction of the coefficients for the two categories of biological children-parents dyads in the key independent variable change from positive to negative in models of financial support and informal caregiving. This suggests that although parents' marriage history predicts variations in actual support provided by adult children, the support also depends on parents' current marital status, with currently divorced and widowed parents being more likely to receive support from children. In addition, mothers tend to be more likely to receive financial support and instrumental support from children than fathers, but are less likely to have children being willing to help in the future. Worse health status, indicating a higher need for support, is associated with higher likelihood of receiving financial as well as instrumental support from adult children. However, it is found that as

health condition deteriorates, the odds of children's willingness to help in the future significantly decrease. Having long-term care insurance, suggesting a lower need for economic support, is associated with lower likelihood of receiving financial assistance and help in the future. Currently receiving a pension increases the odds of receiving future help. Parents who are currently working for pay, indicating a lower demand for both financial and instrumental support, is associated with smaller odds of children's provision of informal caregiving but larger odds of receiving support in times of need in the future.

The study further tests the hypothesis of whether the negative effect of parental divorce and repartnering on intergenerational support are moderated by parents' gender and need for support. The variable of children's status with parental marriage history is interacted with parents' gender, self-reported health, as well as whether parents have long-term care insurance, are currently receiving pension, and are currently working for pay. All the interaction terms are tested for the three different aspects of intergenerational support. The statistically significant findings are presented in Table 3. Results suggest that gender of the parent significantly moderates how children's status and parental marriage history influence children's provision of financial support and help in the future. Odds-ratios of the gender interaction effects are presented in Figure 3. Compare with older mothers in intact marriage, mothers experienced divorce are more likely to receive financial support, with mothers having gray divorce experience to be the most likely to receive the assistance, followed by those experienced early divorce. Yet for older fathers, divorce significantly reduces their likelihood of receiving financial support from biological children, especially the gray divorce. Stepmothers have much lower likelihood of receiving financial support from stepchildren, especially from the stepchildren come with an early marriage. In contrast, repartnering, especially that happened in earlier life stage, has a much smaller negative effect on older fathers for receiving stepchildren's financial assistance. In sum, divorce brings advantages to

older mothers but disadvantages to older fathers in receiving biological children's financial support. However having experienced repartnering, especially in earlier life stage, has a much larger negative effect for mothers than for fathers on receiving financial assistance from the stepchildren come with that marriage. In regard to children's help in the future, early divorce decreases the likelihood of receiving biological children's help in future for both older mothers and fathers, with a much larger extent for older fathers. Older mothers and fathers are even more unlikely to receive future help from stepchildren come with an early marriage, and the negative effect is much larger for the stepchildren-stepmother dyads. Results presented in Model 6 in Table 3 suggest that parents' health status also moderates the effect of children's status and parents' marriage history on future help for parents. For parents with very good health status, gray divorce does not reduce much the likelihood of receiving future help from biological children, as the odds ratio of receiving help is 0.919 compared to those in intact marriage. However, if parents have fair health status, gray divorce largely lowers their likelihood of receiving future support, as the odds ratio decreases to 0.510.

-Table 3 about here-

-Figure 3 about here-

Discussion and Conclusion

Findings from the analysis suggest that parents with diverse marriage history receive different level of intergenerational support from biological and stepchildren. The nature of the intergenerational ties as biological or step influences the level of elderly support. The timing of parental divorce and repartnering also significantly differentiates the likelihood of receiving support in both parent-biological child and stepparent-stepchild dyads. Consistent with the first hypothesis, stepchildren are much less likely to provide financial support, informal caregiving as well as future help to parents than biological children regardless of the

timing of parental divorce or repartnering. This confirms the findings by some researchers that biological child-parent ties have a higher extent of strength and closeness than step intergenerational ties, which may translate into a higher level of intergenerational exchange (Pezzin and Schone 1999).

The study finds evidence to support the second hypothesis. Among biological child-parent dyads, parents' divorce significantly reduces the likelihood for biological children to provide informal caregiving and future help. The timing of parental divorce also makes a difference. As for informal caregiving, the negative effect of divorce is only observed for such event happened in earlier life stage of the parents. However, the study also finds that neither early or gray parental divorce decreases the likelihood of financial transfers from biological children. The different influences of parental divorce and the timing of divorce on different dimensions of intergenerational support have interesting implications. Informal caregiving is the kind of assistance requiring a higher intensity of interaction and devotion of time and emotion, thus may be more sensitive to the length, the closeness and the strength of intergenerational ties. Compared to parents experienced early divorce, parents in intact marriage or experienced gray divorce nurture the relationship with biological children for a longer time span, which could promote their chance of receiving instrumental help from biological children in times of need. Different from informal caregiving, children's willingness to help in the future is associated with the occurrence of parental divorce but not the timing of it. The dissolution of marriage comes along with the negative effect on parent-child relationship no matter it comes earlier or later, and therefore could reduce children's willingness to help. However, among biological intergenerational ties, the provision of financial support may be more likely to be driven by parents' need for economic assistance and children's availability to provide it rather than parents' divorce experience.

The third hypothesis is also supported by the findings. Among stepchild-stepparent dyads, compared to stepchildren with stepparents from an early parental marriage, although gray repartnering does not mean a lower likelihood of receiving financial transfers, it is associated with both reduced likelihood of receiving informal caregiving and help in future from stepchildren. This confirms the argument that compared to gray repartnering, such an event happened in earlier life stage brings stepparents and stepchildren a longer time span to foster their relations, which increases the possibility of developing strong intergenerational bonds that may entail higher level of elderly support provided by stepchildren to stepparents in old age.

Interesting results are found about gender differences in the effect of parental marriage history on intergenerational support provided by biological or stepchildren, which support hypothesis four. In regard to receiving financial support from biological children, divorce has different effect for older mothers and fathers by bringing advantages to mothers but disadvantages to fathers, especially to fathers who experienced gray divorce. Early divorce also exerts a much larger negative effect on older fathers in terms of receiving children's future help. These results are consistent with arguments from existing literature. Women may maintain a closer relationship with biological children than men after divorce, which could bring them higher possibility of receiving support in old age. However, on the other hand, the effect of repartnering, especially of that happened in earlier life, shows an opposite pattern on older mothers and fathers. Early repartnering brings much larger negative effect for mothers than for fathers on both receiving financial assistance and help in the future from stepchildren come with that marriage. After early repartnering men are more likely to coreside only with stepchildren if the custody of biological children is awarded to the mother, while mothers are more likely to coreside with both biological and stepchildren and having a closer relationship with biological children than stepchildren, while fathers in general tend to

invest more equally in biological and stepchildren (Becker et al. 2013). Therefore fathers may have a better position to receive old age support from stepchildren in later life.

Counter to the last hypothesis, the study does not find that parental need for support could reduce the negative effect of parents' divorce or repartnering on intergenerational support. Rather better health status may entail a higher possibility of receiving future help from biological children for those experienced gray divorce. In addition, the study does not find significant moderating effect of parents' health on other kinds of elderly support such as financial assistance and informal caregiving. The study also finds no evidence for the moderating effect of parents' economic need.

The preliminary study has several limitations. First, the predictors in the model have missing values to different extent. To simply drop the missing values may bring bias to the estimation. The study will test different imputation methods to deal with the missing values. Second, the dependent variables of financial support and informal caregiving are rather crude. It only measures the probability of receiving support without any information about the actual amount, which could largely vary across parent-child dyads. However, the distribution of the amount of financial transfers and the hours of informal caregiving from the data are very skewed, which even with transformation can hardly meet the multivariate normality assumption (Lin 2008). Third, contact between older parents and adult children is also another important aspect of intergenerational support. Due to the different nature of the support, the pattern of how it is influenced by parents' marriage history and other parents' and children's characteristics may be different from that for monetary transfers and instrumental help. The research is going to examine this question in a non-coresidence subsample of children-parents dyads in the next step. Finally, although the study gains a better focus on the effect of divorce and repartnering by excluding the biological children-parents dyads with the parental marriage ended in widowhood, the picture about the influence

of older adults' diverse marriage history on received elderly support is missing a part about how widowhood in later life driven adult children's support differently from other marriage experiences. The future study is going to include this group of people and compare across more extensive categories of marriage history.

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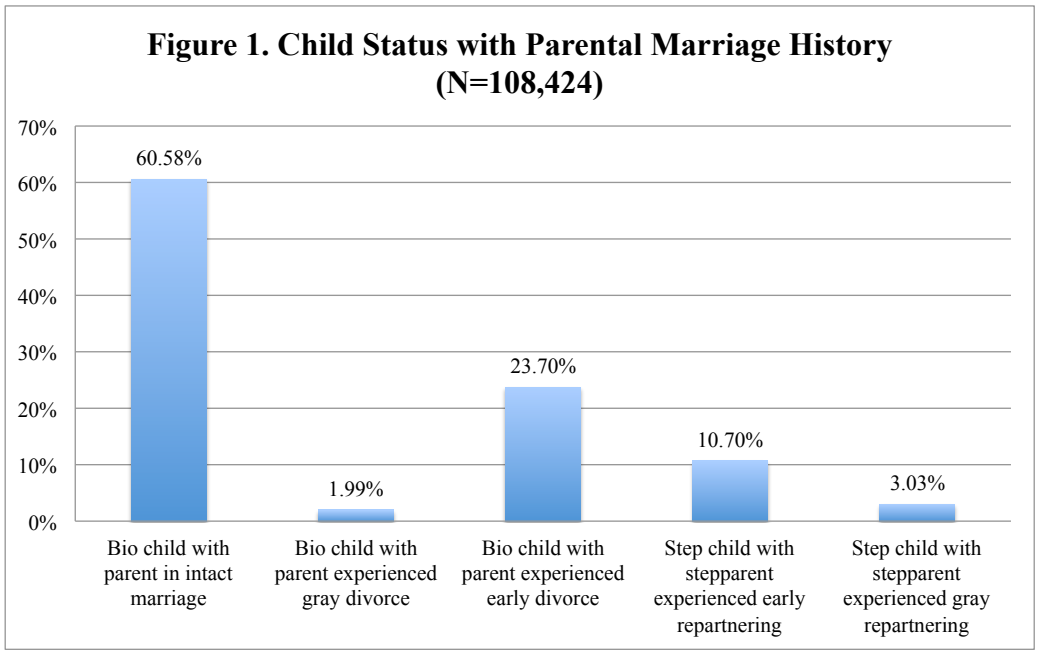
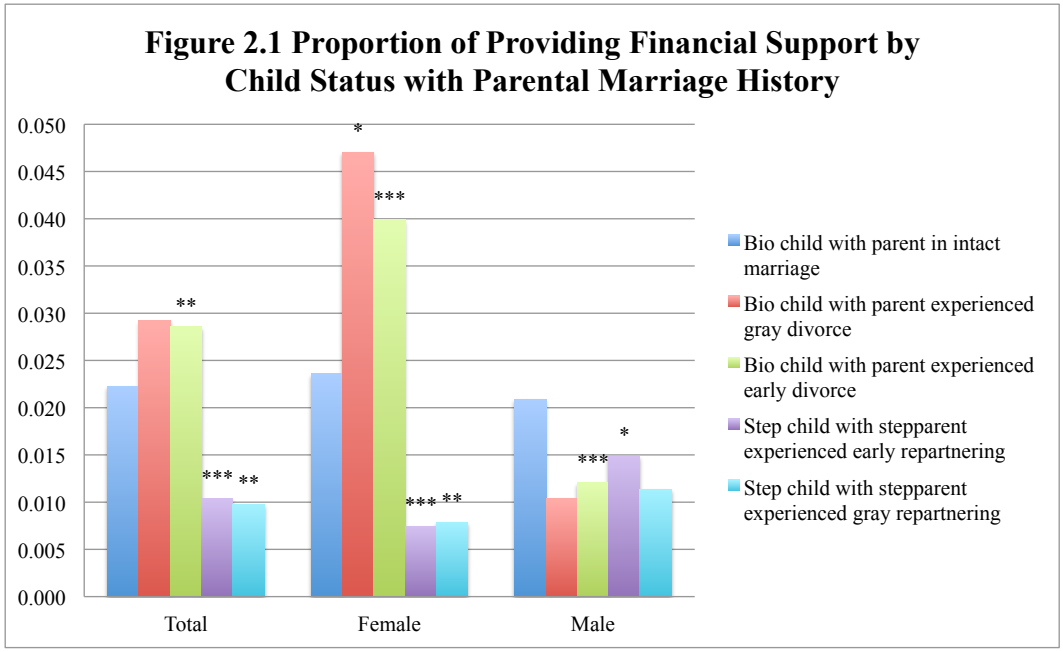


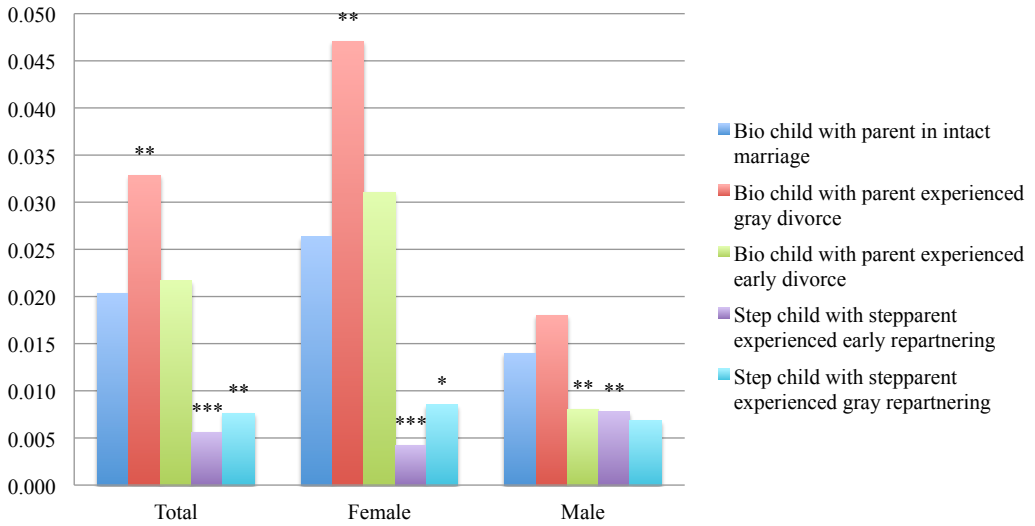
Figure 1. Child Status with Parental Marriage History
(N=108,424)
70%
60%
50%
40%
30%
20%
10%
0%
60.58%
1.99%
23.70%
10.70%
3.03%
Bio child with parent in intact marriage
Bio child with parent experienced gray divorce
Bio child with parent experienced early divorce
Step child with stepparent experienced early repartnering
Step child with stepparent experienced gray repartnering



*p<0.05; **p<0.01; ***p<0.001

Notes: Adjusted Clustering in the Data. Bio kid with parent in intact marriage is the reference group in bivariate analyses.

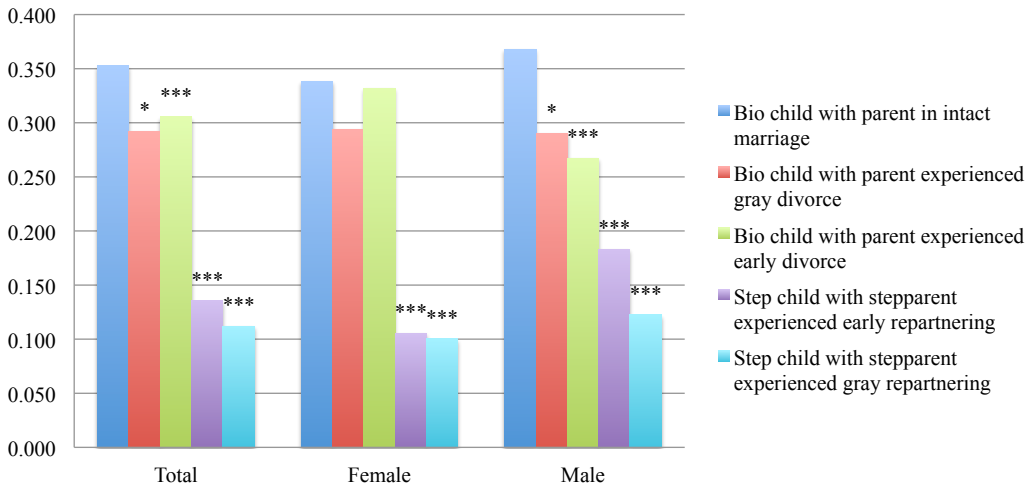
Figure 2.2 Proportion of Providing Informal Caregiving by Child Status with Parental Marriage History



*p<0.05; **p<0.01; ***p<0.001

Notes: Adjusted Clustering in the Data. Bio kid with parent in intact marriage is the reference group in bivariate analyses.

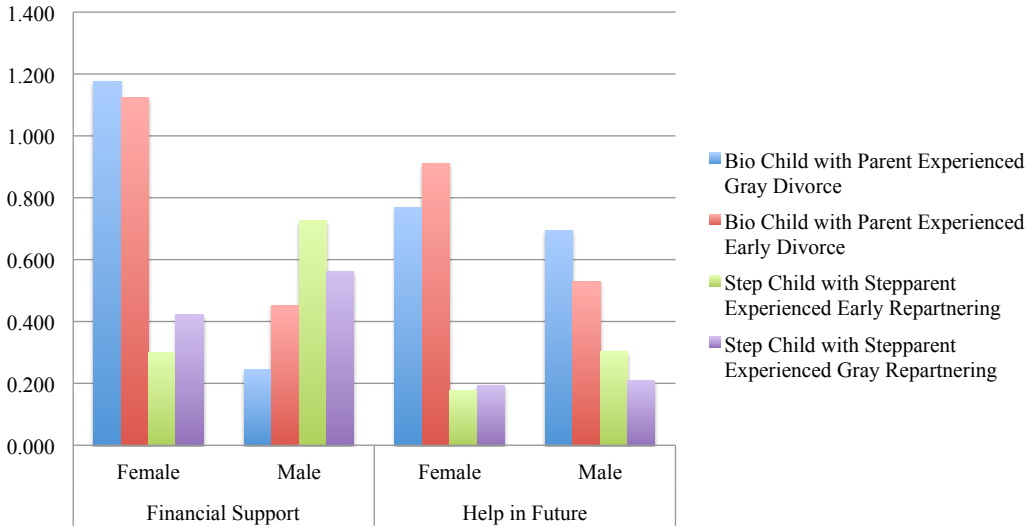
Figure 2.3 Proportion of Providing Help in Future by Child Status with Parental Marriage History



*p<0.05; **p<0.01; ***p<0.001

Notes: Adjusted Clustering in the Data. Bio kid with parent in intact marriage is the reference group in bivariate analyses.

Figure 3. Odds Ratio of Child Status on Financial Support and Help in Future by Gender of the Parent



Notes: Adjusted Clustering in the Data. Bio kid with parent in intact marriage is the reference group.

Table 1. Descriptive Statistics for Dependent Variables and Other Independent Variables, HRS, 1998-2010 (N=108,424)

	Mean	SD
Financial Support (Yes=1, No=0)	0.022	(0.148)
Informal Caregiving (Yes=1, No=0)	0.019	(0.136)
Will Help in Future (Yes=1, No=0)	0.310	(0.462)
Parent Characteristics		
Current Marital Status		
Divorced/Separated	0.103	(0.304)
Widowed	0.084	(0.277)
(Ref. Cat.=Married/Partnered)		
Female (Yes=1, No=0)	0.542	(0.498)
Self-Reported Health		
Good	0.312	(0.464)
Fair	0.178	(0.382)
Poor	0.076	(0.265)
(Ref. Cat.=Very Good)		
Has Long-Term Care Insurance (Yes=1, No=0)	0.115	(0.319)
Currently Receiving Pension (Yes=1, No=0)	0.256	(0.437)
Currently Working for Pay (Yes=1, No=0)	0.451	(0.498)
Living Proximity to Child		
Within 10 Miles	0.310	(0.463)
More than 10 Miles	0.566	(0.496)
(Ref. Cat.=Coresidence)		
Number of Biological Children	3.474	(1.963)
Number of Step Children	0.717	(1.520)
Education (Years)	12.613	(3.115)
Income (Ln)	10.624	(1.283)
Net Wealth (/100,000)	1.273	(5.149)
Age	64.571	(9.701)
Race/Ethnicity		
Black Non-Hispanic	0.116	(0.320)
Hispanic	0.090	(0.286)
Other Non-Hispanic	0.021	(0.144)
(Ref. Cat.=White Non-Hispanic)		
Deceased (Yes=1, No=0)	0.155	(0.362)
Loss to Follow Up (Yes=1, No=0)	0.005	(0.074)
Child Characteristics		
Education (Years)	13.874	(2.253)
Income		
10K-35K	0.275	(0.446)
35K-70K	0.342	(0.474)
70K+	0.240	(0.427)
(Ref. Cat.=<10K)		
Age	37.812	(9.937)
Female (Yes=1, No=0)	0.498	(0.500)
Current Marital Status		
Married/Partnered	0.625	(0.484)
Other	0.023	(0.150)
(Ref. Cat.=Not Married)		

Table 2. Random-Effects Logistic Regression Models on Upward Intergenerational Support, HRS, 1998-2010

	Model 1 Financial Support	Model 2 Informal Caregiving	Model 3 Help in Future
Intercept	-6.025 ***	-8.444 ***	0.112
	(0.508)	(0.583)	(0.265)
Bio Child with Parent Experienced Gray Divorce	-0.376	-0.297	-0.344 **
	(0.327)	(0.266)	(0.130)
Bio Child with Parent Experienced Early Divorce	-0.185	-0.307 *	-0.342 ***
	(0.105)	(0.139)	(0.050)
Step Child with Stepparent Experienced Early Repartnering	-0.800 ***	-1.192 ***	-1.509 ***
	(0.162)	(0.240)	(0.071)
Step Child with Stepparent Experienced Gray Repartnering	-0.677 **	-1.634 ***	-1.616 ***
	(0.214)	(0.399)	(0.127)
(Ref. Cat.=Bio Child with Parent in Intact Marriage)			
Parent Characteristics			
Current Marital Status			
Divorced/Separated	0.873 ***	1.515 ***	0.233 **
	(0.124)	(0.182)	(0.067)
Widowed	0.654 ***	1.542 ***	0.176 **
	(0.138)	(0.137)	(0.065)
(Ref. Cat.=Married/Partnered)			
Female (Yes=1, No=0)	0.260 ***	0.868 ***	-0.153 ***
	(0.041)	(0.105)	(0.034)
Self-Reported Health			
Good	0.159 *	0.785 ***	-0.146 ***
	(0.076)	(0.152)	(0.034)
Fair	0.466 ***	2.110 ***	-0.576 ***
	(0.085)	(0.154)	(0.048)
Poor	0.616 ***	3.010 ***	-1.260 ***
	(0.122)	(0.171)	(0.079)
(Ref. Cat.=Very Good)			
Has Long-Term Care Insurance (Yes=1, No=0)	-0.461 ***	-0.253	-0.115 *
	(0.131)	(0.164)	(0.052)
Currently Receiving Pension (Yes=1, No=0)	-0.126	-0.206	0.150 ***
	(0.076)	(0.106)	(0.043)
Currently Working for Pay (Yes=1, No=0)	0.031	-1.996 ***	0.263 ***
	(0.067)	(0.182)	(0.038)
Living Proximity to Child			
Within 10 Miles	-1.300 ***	-1.605 ***	0.091 *
	(0.114)	(0.115)	(0.038)
More than 10 Miles	-1.287 ***	-3.401 ***	-0.950 ***
	(0.110)	(0.140)	(0.039)
(Ref. Cat.=Coresidence)			
Number of Biological Children	-0.027	-0.150 ***	0.060 ***
	(0.024)	(0.024)	(0.013)
Number of Step Children	-0.007	0.066	-0.034
	(0.035)	(0.044)	(0.021)
Education (Years)	-0.013	-0.055 **	-0.020 *
	(0.012)	(0.017)	(0.008)
Income (Ln)	-0.187 ***	-0.078 **	-0.005
	(0.023)	(0.028)	(0.016)
Net Wealth (/100,000)	-0.291 **	-0.020	-0.004
	(0.101)	(0.018)	(0.004)
Age	0.003	0.059 ***	-0.019 ***
	(0.006)	(0.008)	(0.003)
Race/Ethnicity			
Black Non-Hispanic	1.090 ***	0.295 *	-0.011
	(0.108)	(0.140)	(0.060)
Hispanic	1.074 ***	-0.230	-0.265 ***
	(0.129)	(0.169)	(0.075)
Other Non-Hispanic	1.494 ***	-0.123	-0.140
	(0.156)	(0.310)	(0.149)
(Ref. Cat.=White Non-Hispanic)			
Deceased (Yes=1, No=0)	0.162	0.879 ***	-0.247 ***
	(0.087)	(0.108)	(0.058)
Child Characteristics			
Education (Years)	0.090 ***	0.016	-0.003
	(0.019)	(0.022)	(0.006)
Income			
10K-35K	1.355 ***	-0.165	0.341 ***
	(0.141)	(0.104)	(0.036)
35K-70K	1.818 ***	-0.294 *	0.469 ***
	(0.156)	(0.129)	(0.041)
70K+	2.668 ***	-0.313	0.496 ***
	(0.169)	(0.160)	(0.047)
(Ref. Cat.=<10K)			
Age	0.013 *	-0.001	0.003

	(0.006)	(0.007)	(0.002)
Female (Yes=1, No=0)	0.013	0.855 ***	0.804 ***
	(0.066)	(0.080)	(0.021)
Current Marital Status			
Married/Partnered	-0.365 ***	0.200 *	0.235 ***
	(0.085)	(0.090)	(0.025)
Other	0.244	-0.020	-0.017
	(0.196)	(0.197)	(0.065)
(Ref. Cat.=Not Married)			
BIC	20160.370	13273.030	118059.400
Wald Chi-Square	1606.750	1844.970	6316.680
Rho	0.509	0.549	0.403
Degrees of Freedom	33	33	33
N	108424	108424	108424

*p<0.05; **p<0.01; ***p<0.001

Notes: Standard errors adjusted for 11706 clusters in the data.

Table 3. Random-Effects Logistic Regression Models on Upward Intergenerational Support with Statistically Significant Interaction Effects, HRS, 1998-2010

	Model 4 Financial Support	Model 5 Help in Future	Model 6 Help in Future
Intercept	-5.901 ***	0.134	0.119
	(0.510)	(0.265)	(0.265)
MAIN EFFECTS			
Bio Child with Parent Experienced Gray Divorce	-1.408 *	-0.364 *	-0.085
	(0.557)	(0.184)	(0.171)
Bio Child with Parent Experienced Early Divorce	-0.792 ***	-0.636 ***	-0.320 ***
	(0.143)	(0.067)	(0.063)
Step Child with Stepparent Experienced Early Repartnering	-0.321	-1.189 ***	-1.584 ***
	(0.184)	(0.092)	(0.092)
Step Child with Stepparent Experienced Gray Repartnering	-0.577 *	-1.568 ***	-1.768 ***
	(0.266)	(0.146)	(0.162)
(Ref. Cat.=Bio Child with Parent in Intact Marriage)			
Female (Yes=1, No=0)	0.068	-0.240 ***	-0.151 ***
	(0.039)	(0.038)	(0.034)
Self-Reported Health			
Good	0.154 *	-0.148 ***	-0.153 ***
	(0.075)	(0.034)	(0.040)
Fair	0.445 ***	-0.584 ***	-0.577 ***
	(0.084)	(0.047)	(0.057)
Poor	0.591 ***	-1.268 ***	-1.217 ***
	(0.121)	(0.079)	(0.096)
(Ref. Cat.=Very Good)			
INTERACTION EFFECTS			
Bio Child with Parent Experienced Gray Divorce*Female	1.571 *	0.101	
	(0.632)	(0.281)	
Bio Child with Parent Experienced Early Divorce*Female	0.910 ***	0.543 ***	
	(0.127)	(0.076)	
Step Child with Stepparent Experienced Early Repartnering*Female	-0.879 ***	-0.539 ***	
	(0.219)	(0.116)	
Step Child with Stepparent Experienced Gray Repartnering*Female	-0.286	-0.076	
	(0.388)	(0.223)	
Bio Child with Parent Experienced Gray Divorce*Good			-0.334
			(0.208)
Bio Child with Parent Experienced Gray Divorce*Fair			-0.588 *
			(0.281)
Bio Child with Parent Experienced Gray Divorce*Poor			-0.438
			(0.483)
Bio Child with Parent Experienced Early Divorce*Good			-0.021
			(0.075)
Bio Child with Parent Experienced Early Divorce*Fair			-0.002
			(0.098)
Bio Child with Parent Experienced Early Divorce*Poor			-0.218
			(0.164)
Step Child with Stepparent Experienced Early Repartnering*Good			0.114
			(0.119)
Step Child with Stepparent Experienced Early Repartnering*Fair			0.152
			(0.161)
Step Child with Stepparent Experienced Early Repartnering*Poor			0.434
			(0.225)
Step Child with Stepparent Experienced Gray Repartnering*Good			0.464
			(0.251)
Step Child with Stepparent Experienced Gray Repartnering*Fair			0.051
			(0.346)
Step Child with Stepparent Experienced Gray Repartnering*Poor			-0.096
			(0.827)
BIC	20130.960	117939.600	118165.500
Wald Chi-Square	1638.210	6394.530	6348.300
Rho	0.504	0.401	0.402
Degrees of Freedom	37	37	45
N	108424	108424	108424

*p<0.05; **p<0.01; ***p<0.001

Notes: Standard errors adjusted for 11706 clusters in the data. All models include same covariates as models in Table 2. Results for models with informal caregiving as the dependent variable are not presented because no significant interaction effect is found.