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Family Structure and Income During the Stages of Childhood and Subsequent Prosocial Behavior in Young Adulthood

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Abstract

This study investigated whether family structure transition and low income are risk factors in the development of prosocial behavior. Models of young adults' prosocial behavior – charitable giving and volunteering – were estimated as functions of their family structure and income during the stages of childhood. Participants were a representative sample of 1,011 American young adults. In the full sample, family structure transition during adolescence was negatively associated with subsequent charitable giving in young adulthood. Low income during adolescence was negatively associated with both giving and volunteering in young adulthood. European-American young men also exhibited a negative association between family structure transition during adolescence and subsequent volunteering. The results did not seem to describe African-American young adults. Keeping this qualification in mind, the results suggest that adolescence is a sensitive stage in the development of charitable giving and volunteering.

Keywords

charitable giving; divorce; donations; poverty; volunteering

Charitable giving and volunteering are important dimensions of civil society, sufficiently important that public policy seeks to encourage adults to perform these prosocial behaviors. While there has been extensive research on the development of prosocial behavior among children (Eisenberg, Fabes, & Spinrad, 2006), there has been less research about how demographic events in the family lives of children are associated with children's prosocial development, and even less research linking such events to the giving and volunteering they later do as adults. However, Chase-Lansdale, Wakschlag, and Brooks-Gunn (1995) have drawn upon the developmental psychology literature to build a theoretical framework describing the role of the family in the development of children's caring, a construct that encompasses prosocial behavior. Chase-Lansdale et al.'s theory predicts that poverty and marital distress are factors that put the development of caring at risk.

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Since the formulation of Chase-Lansdale et al.'s (1995) theory fifteen years ago, some evidence about volunteering in adolescence has appeared that is consistent with either the prediction about family income (Hart, Atkins, & Ford, 1998, 1999; Uggen & Janikula, 1999; U.S. Department of Education, 1997) or the prediction about family structure (Huebner & Mancini, 2003; Keith, Nelson, Schlabach, & Thompson, 1990; U.S. Department of Education, 1997; Youniss, McLelland, Su, & Yates, 1999), but we know little about whether family structure transition remains a risk factor to prosocial behavior once family income is controlled (or vice versa), and little about whether the risk factors are relevant for prosocial behavior emerging in young adulthood. We have no evidence about whether family structure transition and low income are risk factors for charitable giving, and no evidence about whether the risk factors occurring in different stages of childhood are especially detrimental to prosocial behavior in young adulthood. The objective of the present study is to fill these gaps in knowledge.

What parents can do to promote the development of prosocial behavior

Prosocial moral reasoning develops in stages (Eisenberg and colleagues, 1982, 1983, 1986, 1987, 1989, 1991). Progression through stages is theorized to be invariant, with all stages judged to be important: (a) early childhood because of the development of empathy (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992) as well as cognitive growth; (b) middle-childhood through adolescence because of the development of perspective taking to encompass the needs of an abstract "other," again requiring a combination of both empathic and cognitive development (Hoffman, 2000); and (c) adolescence when helping others in need can be transformed into an internalized value (Eisenberg, 1982, 1986).

Experimental methods have identified three interventions that increase children's performance of prosocial behavior: provide a role-model of the desired prosocial behavior, verbally encourage the desired behavior using other-oriented induction, and reinforce the prosocial behavior with dispositional praise (Eisenberg et al., 2006; Grusec, 1991). This suggests three actions a parent can take to promote children's prosocial development. A fourth action is to provide children opportunities to help others (Eisenberg, 1990).

In addition to these actions, Chase-Lansdale et al. (1995) emphasized that a parent's expression of care and warmth to children is crucial for the development of caring because children learn how to care by being recipients of care. Supporting evidence has been found in a study of teenage volunteers (Wuthnow, 1995) and a study of adolescents' perspective taking (Soenens, Duriez, Vansteenkiste, & Goossens, 2007). There also is evidence that mother-child relationship quality promotes the internalization of prosocial values (Barry, Padilla-Walker, Madsen, & Nelson, 2008). Penner (2004) reported that parental warmth and modeling are linked to adult children's other-oriented empathy and helpfulness, which in turn have been linked to prosocial behaviors, including volunteering (Penner 2002).

Family structure transition and low income can disrupt promotion of prosocial development

Compared to living with two biological parents, other family structures have been associated with a wide range of adverse children's achievement, behavioral, and psychological outcomes: lower test scores, dropping out of high school, neither being employed nor in school, problem behaviors, early childbearing, smoking, and distress (e.g., see McLanahan & Sandefur, 1994). Similarly, low income during childhood has been associated with adverse outcomes (e.g., see Duncan & Brooks-Gunn, 1997). There is debate about whether the associations are causal (family structure: Cherlin et al., 1991; income: Shea, 2000).

To the extent that causality is behind these associations, a suspected mechanism is stress that family structure transition and low income create in the lives of children (family structure: Amato, 2010; low income: Yeung, Linver, & Brooks-Gunn, 2002). Stress also is at the root of Chase-Lansdale et al.'s (1995) theoretical argument that marital distress and poverty are risk factors to children's prosocial development. Chase-Lansdale et al. argued that marital distress implies that children observe models of hostility rather than models of caring. In addition, custodial parents experiencing stress due to marital conflict both pre- and post-divorce must focus on their own family's needs, and hence may be less attentive to the needs of people outside the family, implying less modeling of charitable giving and volunteering, less emphasis on helping people outside the family in everyday encounters, and less frequent provision of opportunities for children to participate in such help. Further, after a divorce there may be less time to take these actions because the custodial parent usually shoulders most of the economic and parenting responsibility for the children. Stress may affect the parent's mental health, anger, and hostility thereby leading to a less nurturing parenting style—implying less use of other-oriented induction and dispositional praise—and a less warm and close parent-child relationship, implying less chance for children to learn how to care by being a recipient of care.

In addition to effects experienced via the parent's stress, children experience their own stress in response to divorce. Chase-Lansdale et al. (1995) argued that children can become psychologically flooded—emotionally over-aroused to the point that they cannot “understand their own emotions or read the emotional cues of others (p. 535).” Over-arousal is thought to inhibit the development of empathy for others and instead lead to personal distress (Hoffman, 2000). A disposition toward personal distress can inhibit prosocial behavior in situations where it is easy to escape the situation without helping (the arousal cost-reward model; Dovidio, Piliavin, Schroeder, & Penner, 2006), and charitable giving and volunteering typically represent situations from which easy escape is possible. Children's over-arousal may make them less attentive to the needs of others because difficulty in regulating emotion is thought to inhibit empathic responses (Eisenberg, 2002). Stress in children may be induced, and these adverse processes continued, when a custodial parent remarries and relationships between all members of the family adjust to the addition of the new step-parent.

Chase-Lansdale et al. (1995) similarly argued that poverty is a risk factor to children's prosocial development primarily because it creates stress in the lives of parents that can weaken the warmth of the parent-child relationship. Stress induced by having to survive on low income is thought to disrupt effective parenting practices and produce harsh parent-child interactions (see, e.g., Conger & Elder, 1994; McLanahan & Sandefur, 1994; McLoyd, 1990; McLoyd, Jayaratne, Ceballo, & Borquez, 1994). There is evidence that the effects of stress are mediated through a parent's mental health and emotions (Conger, Ge, Elder, Lorenz, & Simmons, 1994; McLoyd et al., 1994) as well as anger and hostility (Conger, Conger, & Elder, 1997; Conger et al., 1994). McLoyd et al. (1994) found evidence that economically-induced stress reduces the quality of the parent-child relationship.

In addition to mechanisms activated via stress, low income constrains all kinds of family spending, including charitable giving, and therefore reduces a parent's ability to role-model giving. Low income also implies the need to spend more time and attention seeking to replace income, either through job search and/or public assistance, and therefore reduces the time available for a parent to role-model volunteering. Low income reduces the investments parents can make in their children's cognitive development (e.g., see Brooks-Gunn & Duncan, 1997; Hanson, McLanahan, & Thompson, 1997; Smith, Brooks-Gunn, & Klebanov, 1997), and reduced cognitive investment may inhibit the development of perspective taking ability.

Although there is well-developed theory that both family structure transition and low income are risk factors to children's prosocial development, most empirical research has considered one risk factor in isolation from the other. Because family structure transition and low income are highly correlated, a finding that one risk factor in isolation is negatively associated with prosocial behavior may actually be revealing the effect of the omitted risk factor. Only two studies of adolescent volunteering have considered both risk factors in the same model and these have produced mixed results. Lichter, Shanahan, and Gardner (2002) found that time spent in a female-headed household was negatively associated with adolescent girls' volunteering for the mentoring of youth and with adolescent boys' church-related volunteering, and that being born to a teen mother was negatively associated with boy's church-related volunteering. However, inconsistent with the theory, time spent in poverty was positively associated with boys' church-related volunteering. Using a broader measure of volunteering Johnson, Beebe, Mortimer, and Snyder (1998) found that neither living in a non-two-biological-parent structure family nor low-income family was associated with adolescent volunteering. A third study (Dunn et al., 1998) of younger children found that living in a birth-mother-step father structure and the number of previous structure transitions both were negatively associated with prosocial behavior ("helpful kind behavior to others") in middle childhood, though not in early childhood. Income was not associated with prosocial behavior but housing quality—perhaps a better measure of the family's long-term resources—was. Only one study (to our knowledge) has investigated whether the risk factors are relevant for prosocial behavior emerging in young adulthood: Brown and Lichter (2007) found that both (a) being born to a single mother and (b) the time spent in poverty during childhood were negatively associated with volunteering in young adulthood (18–25 years old), but the associations were small and insignificant once current characteristics of the young adults were included in the model.

The present study

Chase-Lansdale et al. (1995) have built a theoretical bridge between the psychology literature about prosocial development and the multidisciplinary literature linking family structure and income to children's outcomes. Their theory predicts family structure transition and low income are risk factors to children's prosocial development. The present study tests these predictions by asking: Are family structure and income during childhood associated with prosocial behavior in young adulthood? The innovations in our study are the use of a more representative sample, a sample large enough to permit estimation of multivariate models, the investigation of charitable giving as well as volunteering, and the investigation of whether family structure transition and low income during different stages of childhood are risk factors for young adults' charitable giving and volunteering. A separate line of research has investigated whether family structure and income in different childhood stages are associated with young adult outcomes such as educational attainment and non-marital births (e.g., Duncan, Brooks-Gunn, Yeung, & Smith, 1998; Hill, Yeung, & Duncan, 2001). Relative to this literature, our innovation is to examine young adult prosocial behavior. There are vast literatures on charitable giving and volunteering (Musick & Wilson, 2008; Vesterlund, 2006), but none of it deals with family structure and income during childhood.

The prosocial development literature has identified important prosocial adaptations in every childhood stage, with no particular stage thought to be sensitive for the development of prosocial behavior. However, there are three reasons that lead us to suspect that adolescence is a sensitive stage, at least for development of the two prosocial behaviors we investigate. First, should a child experience family structure transition or low income in pre-adolescence, there still remain the adolescent years during which a parent seeking to promote prosocial development could compensate for any adverse effects. Second, the effectiveness of role-

modeling desired prosocial behaviors is the most robust result from the experimental literature (Eisenberg et al., 2006), and we think a parent's role-modeling charitable giving and volunteering would be more salient to an adolescent than to a younger child. Third, adolescence is the stage during which caring can be transformed into qualities that "permanently identify the youth and young adult as an individual who does or does not engage in caring behaviors" (Chase-Lansdale et al., 1995 p. 524). Dimensions of a prosocial disposition—including empathic concern, perspective taking, and care orientation—have developed by young adulthood and are correlated with prosocial moral reasoning, which is itself stable in young adulthood (Eisenberg et al., 2002). There is evidence that permanent qualities such as internalized values and moral identity are related to the adulthood prosocial behaviors we study (Aquino & Reed, 2002; Verplanken & Holland, 2002; Wilhelm & Bekkers, 2010). That internalized moral reasoning increases during adolescence, especially among males (Carlo, Eisenberg, & Knight, 1992), implies that family structure transition and low income during adolescence may be especially disruptive of the development of prosocial behaviors facilitated by a higher level of abstract moral reasoning. Hence, all three reasons suggest that adolescence is a sensitive stage for the two prosocial behaviors we investigate. Therefore, we will use our model to test the hypothesis that adolescence is a sensitive stage in the development of charitable giving and volunteering.

Method

Participants

The participants in our study were second generation respondents in the *Panel Study of Income Dynamics (PSID)* (Stafford et al., 2003) who were ages 25–33 years old in 2001, the 1968–1976 birth cohort. We required at least 25 years of age to avoid complications with the transition out of college and no more than 33 years of age so that the oldest young adults in our analysis had spent their entire childhoods in the *PSID*. There were 1,121 young adults satisfying these conditions, but we dropped eight who were not asked the prosocial behavior questions, 97 who during childhood were in a family unit that was non-response in *all* of the years in one of three stages (ages 0–5, 6–11, and 12–16), and five who had missing data on covariates (total dropped $N = 110$). The analysis sample was $N = 1,011$ for the model of charitable giving (572 women and 439 men). Volunteering data were collected in the 2003 wave of the *PSID*, but 57 young adults became non-response between 2001 and 2003: therefore the analysis sample was $N = 954$ for the model of volunteering (544 women and 410 men). Appendix Table A1 (available upon request) describes the characteristics of the 1,121 25–33 year-olds, the analysis samples, and those dropped. Among the young adults dropped because they had been in a non-response family in all the years of a childhood stage, slightly more proportionally were African-American, but African-American young adults were slightly less like to become non-response themselves between 2001 and 2003. It is important to note that those becoming non-response between 2001 and 2003 had less education and were less likely to have given to charity in 2001. Also, young men were somewhat more likely to become non-response between 2001 and 2003. Average young adult income of those dropped was the same as for those retained in the analysis samples.

Measures

We used data from the 1968–2003 waves of the *PSID* and the *PSID*'s supplemental files. A large number of *PSID* data quality studies have been conducted, the overall conclusion from which indicates that the *PSID* is representative of American families (e.g., Fitzgerald, Gottschalk, & Moffitt, 1998; Gouskova & Schoeni, 2007; Hill, 1992). In addition to being representative, the strengths of the *PSID* central to our analysis are its high-quality measurement of family structure (from household listings collected prospectively and

annually), income (Gouskova & Schoeni, 2007), charitable giving, and volunteering (Wilhelm, 2006a; 2006b, Table 3).

Table 1 presents sample means, fractions, and standard deviations of the constructs used in our analysis: Panel A for constructs measured in young adulthood and Panel B for constructs measured in childhood. We used the *PSID* weights in the calculation of descriptive statistics and in the estimation of models. The weights adjust for the over-sampling of low-income families in the original 1968 *PSID* sample design and for subsequent attrition.

Prosocial behavior in young adulthood—We examined two dimensions of prosocial behavior—charitable giving and volunteering—both self-reported by the young adults. Charitable giving was measured with questions about annual giving for five purposes: poverty relief, health, education, combined purposes (such as the United Way, Catholic Charities, the United Jewish Appeal, etc.), and a catch-all “other” category that includes giving to the arts, environmental protection, neighborhood and community organizations, and international relief. Volunteering was measured with questions about annual volunteering through organizations that serve people in need, people in poor health, youth, seniors, organizations seeking to bring about social change, and an open-ended “other” category. In each case data were collected about whether any of the prosocial behavior was performed and if yes, the dollar amount given or the number of hours volunteered. The measures of charitable giving and volunteering did not include donations to religious congregations or volunteering done at or through religious congregations. The development of religious behavior is outside the theoretical framework that we are working with, so we set religious giving and volunteering aside for future analysis. Turning to Table 1 Panel A, 43.1 percent of the young adults gave to charitable organizations, and among those that gave, the average amount given was \$493 (the conditional mean). Fewer young adults volunteered (24.7 percent). The conditional mean hours were 123.

Family structure during childhood—A substantial amount of work was required to construct the childhood family structures—to our knowledge the only previous paper constructing entire-childhood family structures using the *PSID* is Hill et. al (2001)—so herein we briefly describe the two principles that guided our work, but a detailed data construction appendix as well as our computer programs are available upon request. First, we defined “divorce” more broadly than just legal divorce to also include separations, because any separation is a likely indicator of stress in the child’s life. Similarly, “(re)marriage” was defined as a step-parent moving in to live with the child and custodial parent, including cohabitation. Second, we retained young adults in the sample unless they were in a non-response family unit in *all* of the years during one of the three stages. For young adults who were in a response family at least once per stage, but whose family had some non-response years during that stage, we assumed that the child’s family structure remained unchanged during the non-response years. Because children in non-response families tended to have more family structure transitions, keeping them in the sample whenever feasible made sure that we did not systematically exclude children with many transitions.

Table 1, Panel B, Row 1 lists the fraction of young adults who were born into a birth-mother only family structure. Row 2 lists fractions who experienced any transition in family structure by the stage in which the transition occurred (regardless of whether structure at birth was birth-mother only or two-parent). The “any-transition” specification of family structure during childhood is motivated by the theory that any family structure transition, including (re)marriages, may cause stress in the lives of children (Amato, 2010; Wu, 1996; Wu & Martinson, 1993). The any-transition specification restricts the associations with the outcome due to divorces and (re)marriages to be the same (within each stage). To look more

deeply at some results we also estimated models using the “event” specification that allows divorce and (re)marriage to associate differently with the outcome. Divorce and (re)marriage events are listed in Panel B. A Bayesian analysis focused on technical specification issues concluded that the any-transition specification provides a much better fit in the charitable giving model than other family structure specifications, including the event specification (Ottoni-Wilhelm & Bandy, 2010). Both the any-transition and event specifications had explanatory power in the volunteering model.

Family income during childhood—The *PSID*’s long history of income data were prospectively self-reported, during the young adults’ childhood years, by their parents (first generation *PSID* respondents) in responses to over 100 detailed questions asked every year about income from many sources (e.g., labor earnings, asset income, child support, welfare, etc.). In our analysis we used the family’s total income from all sources. Incomes were inflated to 2000 levels using the GDP price index for personal consumption expenditures. Stage-specific family income was created by averaging total family income across the years in each childhood stage. Panel B shows that childhood income increased as children aged and their parents entered the higher earning years of their working lives. As children aged, the standard deviations indicate inequality increased between the families. The fraction of children living in families with “low income”—defined to be average income during the stage being less than \$29,000 to match in 2000 dollars the low income category in Duncan et al. (1998)—declined from 21.5 to 16.7 percent as children aged.

Additional covariates—Panel B continues with two constructs measured during the childhood years: whether the child’s family moved and whether the child’s mother averaged 1,000+ hours of work per year during a childhood stage. Residential moves and family structure transition are not equivalent transitions, but they can occur at the same time. Similarly, custodial parents (typically mothers) may increase hours in the paid labor force. Controlling for these covariates allows us to estimate family structure–prosocial behavior associations apart from co-varying patterns in moves and labor force behavior.

Table 1 Panel A continues with constructs measured in young adulthood that are known to be, or likely to be, determinates of charitable giving and volunteering. Importantly, we controlled for the young adult’s own family income, both in the current year and averaged over the recent past. Hence the childhood family income–prosocial behavior associations we estimated held constant the young adult’s own income. Similarly, childhood family structure is associated with subsequent child-bearing, so we controlled for whether the young adults had children of their own and if so whether their first child was born when the young adult was a teen. The remaining controls were education beyond high school, religious affiliation (no affiliation is the omitted category), race, southern residence, sex, and age.

Empirical approach

We estimated Tobit models (Wooldridge, 2009) because 56.9% of our sample gave zero dollars and 75.3% volunteered zero hours. The Tobit model assumes the errors are normal, so we used the logarithms of giving and volunteering as the dependent variables; the log transforms giving and volunteering into approximately normal random variables. Because the Tobit model is nonlinear, its coefficients cannot be directly interpreted. Therefore we present marginal effects of the covariates on the amount given (or hours volunteered) conditional on those amounts being positive—the counterpart to the conditional mean gift (or hours) presented in Table 1.

A marginal effect can be interpreted as if it were an OLS coefficient, except that the nonlinearity of the Tobit model requires that we calculate the marginal effect at specific

values of the other covariates (we calculated the marginal effects at the average values of the other covariates). Because the dependent variables were the *logarithms* of giving and volunteering, the marginal effect ($\times 100$) of a binary covariate is a percentage change in the dependent variable (conditional on the dependent variable having been greater than zero). The income covariates were entered in log form, as is standard in the giving and volunteering literatures. The marginal effect of a log income covariate is an “elasticity;” an example interpretation will be given in the second paragraph of Results section. In a Tobit model marginal effects on the probability of giving and the conditional amount given are both calculated from the same underlying model (likewise for volunteering). For brevity we do not present the marginal effects on the probabilities, but probability results are qualitatively similar to the conditional amount results (probability results are available upon request).

Results

Table 2 columns (2a) and (2b) compare young adults who spent their entire childhood living with two biological parents to young adults who spent at least one year not in that structure (i.e., having been born into a birth-mother-only structure or having experienced one or more transitions; 39.8 percent of the young adults). Columns (3a) and (3b) compare young adults whose families had middle-to-high income in every childhood stage with young adults whose families had low income in at least one childhood stage. Young adults ever not in a two-biological-parent structure were much less likely to make a charitable gift (34.4 percent versus 48.9 percent), and their average conditional gift also was substantially smaller (\$312 versus \$578). Column 3 shows a similar pattern: young adults ever in a low-income family were much less likely to make a charitable gift (30.2 versus 48.5 percent), and their average conditional gift was smaller (\$327 versus \$536). The volunteering picture was not the same: differences between those always in a two-biological-parent structure and those ever not in this structure were small. Young adults ever in a low-income family were much less likely to volunteer (17.3 percent versus 27.7), but among those who volunteered average conditional hours were higher (145 versus 118).

Table 3 presents the associations, estimated from tobit models, between childhood family structure/income and subsequent giving and volunteering in young adulthood. Young adults who experienced a family structure transition specifically in adolescence made smaller conditional gifts (Model 1: $b = -.474$, $t = -4.18$, $p < .000$); the estimate indicates the conditional gifts were 47.4 percent smaller than the conditional gifts of young adults who were in a two-biological-parent structure throughout childhood. Log family income specifically in adolescence was positively associated with conditional gifts ($b = .427$, $t = 3.24$, $p = .001$). Hence, low family income in adolescence was associated with smaller conditional gifts in young adulthood. The interpretation of the .427 elasticity estimate is that a 10 percent lower family income during adolescence is associated with a 4.27 percent smaller gift by the young adult. In Model 2 when controls for childhood and young adulthood characteristics were added, including the young adult's own income, the associations with adolescent structure transition and log family income became smaller, though still large in practical terms ($b = -.228$, $t = -1.92$, $p = .055$ and $b = .283$, $t = 2.34$, $p = .019$, respectively). The adolescent structure transition was just above the .05 significance level, while the log family income association was more precisely estimated.

Models 3 and 4 present the corresponding associations for young adult volunteering. The association with adolescent structure transition in the model with controls (Model 4) was similar in magnitude to that in the giving model (Model 2) but not significant ($b = -.220$, $t = -1.28$, $p = .020$). The adolescent log family income association in Model 3 was similar in magnitude to that in the giving model (column 1) and just above the .05 significance level (b

= .345, $t = 1.91$, $p = .056$). The estimate was little changed upon adding the controls in Model 4 ($b = .340$, $t = 1.87$, $p = .061$). Also upon adding the controls, the estimated positive association between being born in a birth-mother only structure and subsequent volunteering increased and became significant ($b = .811$, $t = 2.36$, $p = .018$). The added control that led to this counterintuitive result in moving from Model 3 to Model 4 is race.

Results for the additional childhood/adulthood controls are not displayed in Table 3, but are available upon request in Appendix Table A2. In addition, the results in Table 3 were robust to adding further controls to model the young adults' own family structures and numbers of children in more detail (available upon request in Appendix Table A3). While the further controls were not significant, upon adding controls for the young adult's own marital status (legally married, co-residing, divorced) the adolescent structure transition estimate moved just below the .05 significance level in the giving model ($b = -.234$, $t = -1.99$, $p = .047$).

Tables 4 (charitable giving) and 5 (volunteering) present the results by race and sex. Because the numbers who gave/volunteered within each race $\times$ sex sub-sample were small relative to the 26 independent variables we used, the tables also present results using just the seven family structure and income variables. Even so, the sub-sample of African-American young adults was too small to analyze separately by sex (for example, there were only eight African-American men in our sample who did volunteering). Table 4 row 3 shows that for each sub-sample the negative adolescent transition–giving association estimated without controls for childhood/adulthood characteristics was large and significant (Models 1, 3, and 5). The point estimate for African-American young adults in Model 2 with controls was similar in magnitude to that seen in Table 3 Model 2, but with the smaller sample size the estimate is no longer just above .05 significance. Similarly, the point estimate for European-American young men in Model 4 was larger in magnitude than that seen in Table 3 Model 2, but again with the smaller sample size it was less precisely estimated. For European-American young women the point estimate fell to essentially zero ($b = -.019$). For all European-American young adults (men and women) the association was similar to Table 3 Model 2, but also less precisely estimated ($b = -.241$, $t = -1.69$, $p = .092$). Precision was lost not because the point estimates were different, but because adolescent family structure transition was much more strongly correlated with the other controls in the European-American sub-sample ($R^2 = .220$) than in the full sample used in Table 3 ($R^2 = .166$), which was reflected in the standard errors ($SE = .143$ vs. $.119$).

Table 4 row 7 shows that the positive adolescent income–giving association was imprecisely estimated for African-American young adults (Model 1) and dropped close to zero upon adding the controls (Model 2). The magnitude of the association was similar to that seen in Table 3 Model 2 for European-American young men, but not precisely estimated. The magnitude was yet larger for European-American young women and statistically significant ($.450$, $t = 2.37$, $p = .018$). The point estimate for all European-American young adults was similar to Table 3 Model 2 and significant ($b = .293$, $t = 2.00$, $p = .045$).

Continuing with family income but moving on to the results about volunteering (Table 5), the positive adolescent income–volunteering association seen in Table 3 Model 4 did not obtain among African-American young adults in Table 5 Model 2. For European-American young men the magnitude of the association was large and precisely estimated ($b = .804$, $t = 2.91$, $p = .004$). For European-American young women the estimate was positive but not significant. The point estimate for all European-American young adults was similar to Table 3 Model 4, both in magnitude and precision ($b = .385$, $t = 1.85$, $p = .065$).

There was no evidence of a negative adolescent family structure transition–volunteering association among African-American young adults (Table 5 Models 1 and 2), and for

European-American young women the estimate was negative but small in magnitude and insignificant (Models 5 and 6). However, for European-American young men the adolescent family structure transition–volunteering association was negative, large, and precisely estimated ($b = -.583$, $t = -2.27$, $p = .023$). Estimates from an “event” specification of Model 4, in which divorce and (re)marriage within each childhood stage were allowed to have different associations with volunteering, indicated that the large negative association was due to (re)marriages in adolescence ($b = -.959$, $t = -3.71$, $p < .001$; not shown in Table 5). (The restrictions imposed by the any-transition specification in Model 4—that within-stage divorce and (re)marriage associations are equal—can be rejected for the sub-sample of European-American men: $p = .032$. The same restrictions could not be rejected in Table 3 Models 2 and 4: $ps = .521$ and $.663$.)

One family structure result in Table 5 was counterintuitive and robust: for African-American adults there was a significantly positive middle childhood transition–volunteering association ($b = .484$, $t = 2.39$, $p = .017$). Estimates from an event specification of family structure indicated that the association was due to divorces in middle childhood ($b = .798$, $t = 2.79$, $p = .005$; not shown in Table 5). We will return to this point in the discussion. There were two other counterintuitive results (a positive association between being born in a birth-mother only structure and subsequent volunteering for African-American adults, and a negative middle childhood income–volunteering association for European-American men), but these appeared to be less robust: statistical significance obtained only after adding controls for childhood/adulthood characteristics (i.e., going from Model 1 to 2, and from Model 3 to 4, respectively).

Discussion

Our reading of the overall pattern of results from the full sample in Table 3 is that they generally support Chase-Lansdale et al.’s (1995) predictions that poverty and marital distress are risk factors to children’s prosocial development. Further, it is these risk factors specifically during adolescence that matter for the types of prosocial behavior we examined. The strongest result is that having lived in a family with low income during adolescence is negatively associated with subsequent charitable giving. Second, having experienced a transition in family structure during adolescence is negatively associated with subsequent giving. The estimate on which this result is based is highly significant in the model without other controls, while just over the five percent significance level in the model including an extensive set of controls for other childhood and young adult characteristics. Third, low income during adolescence is negatively associated with subsequent volunteering; although here the estimate is just over the five percent significance level in models both with and without the controls. Fourth, although there is not significant evidence of a negative association between a transition in family structure during adolescence and subsequent volunteering in the full sample, there is a significant negative association in the sub-sample of European-American young men (Table 5). Hence, the support for Chase-Lansdale et al.’s (1995) predictions comes from the pattern of the two results that just missed five percent significance in combination with the adolescent income–giving result and, for European-American young men, the adolescent family structure transition–volunteering result.

The point estimates imply large associations. Using the estimates from models including the full set of controls, a young adult who experienced a family structure transition during adolescence is predicted to give 22.8 percent less than a young adult who did not experience a transition (conditional on them both giving a positive amount). A young adult who experienced poverty-level income during adolescence is predicted to give 23 percent less than a young adult whose family had average income (again conditional on giving; the respective income levels are \$20,000 and \$50,000). The corresponding prediction for

volunteering is 28 percent fewer hours associated with poverty-level income during adolescence (conditional on both young adults in the comparison doing some volunteering).

That the results pertain to family structure transition and low income specifically during adolescence, and not during earlier stages of childhood, suggests that adolescence is a sensitive stage in the development of charitable giving and volunteering. Because the internalization of values can begin during adolescence (Eisenberg, 1982, 1986), the results are consistent with the idea that the internalized values stage is important in the development of prosocial behavior. Along this line, the results are congruent with direct evidence linking internalized values and moral identity to charitable giving and volunteering (Aquino & Reed, 2002; Verplanken & Holland, 2002; Wilhelm & Bekkers, 2010). An interesting question for future research is whether family transition/low income during adolescence are risk factors for other types of prosocial behavior, such as blood donation, that also have been linked to internalized values.

The results have two practical implications. First, the results suggest the need to undertake more than the usual amount of action to promote the development of charitable giving and volunteering behavior among adolescents in families experiencing structure transition or low income. Unfortunately the results do not allow us to make strong recommendations to social workers, family counselors, and parents about which specific actions to take, but the developmental psychology literature indicates that role-modeling, verbal encouragement using other-oriented induction, dispositional reinforcement, providing opportunities to help others, and showing care for the adolescent him or herself would likely be effective. Second, and more generally, adolescence is a stage during which actions to promote the development of charitable giving and volunteering behavior are if anything more important, not less important, than actions in earlier childhood. This is important to recognize because there is evidence that parents take less action, not more, during adolescence: 72 percent of parents of 10–12 year-olds talk to their children about giving money to charity, but this drops to 60 percent among parents of 13–18 year-olds (authors' calculations using the *PSID's Child Development Supplement*).

There are several limitations to our study that should be kept in mind while interpreting the results. First, because the models estimated for race and sex sub-samples necessarily involved smaller sample sizes, we interpret these results primarily as raising some qualifications about the main results from the full sample and as suggesting important questions for future research. Models for the European-American sub-sample generally produced point estimates similar to those from the full sample, although with the smaller sample sizes there is less precision. That the point estimates of the adolescent family structure transition-giving/volunteering associations are larger for European-American young men than for young women, as is the adolescent family income-volunteering association, while the estimate of the family income-giving association is stronger for women, suggests future work to explain this pattern. For instance, it may be that volunteering – giving of one's time to help others – is less at risk among adolescent girls because that type of prosocial behavior is more heavily promoted through chore assignment to girls, although a link between chore assignment in the family and prosocial behavior toward those outside the family has not been established (Grusec, Goodnow, and Cohen 1996).

For the sub-sample of African-American young adults, although the adolescent family structure transition-giving point estimates were similar in magnitude to the estimates from the full sample, in the sub-sample model with controls the estimate is much less precisely estimated. In contrast, point estimates for the other three adolescent associations were close to zero, and family structure transition during middle childhood had a counter-intuitive

positive association with subsequent volunteering. The stress relief hypothesis (Wheaton, 1990) is a potential explanation for the counter-intuitive result—although a middle childhood divorce would create acute stress during middle childhood, it relieves chronic stress that otherwise would have persisted into adolescence as a risk factor that leads to lower subsequent volunteering. That the transitions behind the middle childhood transition–volunteering association are divorces is consistent with a stress relief explanation, and there is previous evidence consistent with the stress relief hypothesis for several young adult outcomes (psychological well-being, number of close relatives, number of close friends, and happiness in intimate relationships; see Booth & Amato, 2001). However, because of the smaller size of the African-American sub-sample, we interpret these results as a qualification that we do not have evidence that Chase-Lansdale et al.'s (1995) predictions apply to African-American adolescents, which suggests an interesting agenda for further research.

The second limitation is that the evidence we presented is correlational. Of course, family transition and low income during adolescence were measured nine or more years prior to the giving and volunteering measurements, ruling out reverse-causality. As is the case with many studies of relationships between family structure and income during childhood and child outcomes, and despite the controls we use, there is the potential that unmeasured factors influence both family structure/income and also influence parental efforts to promote their children's prosocial development. Future work with child- and sibling- fixed effects could address these concerns to the extent that the unmeasured family process variables do not vary over time. While one cannot conclude from our results that family structure transition causes less subsequent giving (unless one makes a strong assumption that there are no omitted family process variables confounding that interpretation), the results that transition during adolescence—but not transition during middle childhood—have negative associations with subsequent giving and (among European-American young men) volunteering allows one to conclude under somewhat weaker assumptions that adolescence is a sensitive stage. The weaker assumptions are that any omitted family process variables are common between families that have transitions during adolescence and families that have transitions during middle childhood (and hence can be “netted out” by comparing the adolescence transition association to the middle childhood transition association), and that the timing of family structure transition is exogenous to the timing of parental efforts to promote children's prosocial development. The same argument holds for the associations involving family income during adolescence.

Third, the results do not indicate which mechanisms—role-modeling, verbal encouragement, reinforcement, providing opportunities to help others, providing care and warmth, dimensions of parenting style, and/or children's own over-arousal—mediate the associations. This suggests obvious direction for future research, and progress may be possible using the *PSID's Child Development Supplement*.

In conclusion, the present study provides evidence (a) that family structure transition and low income, specifically during adolescence, are risk factors for subsequent charitable giving in young adulthood; (b) that low income, again during adolescence, is a risk factor for subsequent volunteering; and (c) that family structure transition during adolescence is a risk factor for subsequent volunteering but only for European-American young men. Chase-Lansdale et al. (1995) have built a theoretical bridge between the psychology literature about prosocial development and the multidisciplinary literature linking family structure and income to children's outcomes. The present study provides empirical support for that bridge. Stage-based theories of prosocial development are central in psychology and have been supported by evidence from young children's laboratory behavior. The present study provides evidence that a stage-based theory also is necessary for understanding policy-

relevant prosocial behavior in young adulthood. The evidence points to adolescence as a sensitive stage in the development of charitable giving and volunteering.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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References

- Amato PR. Research on divorce: Continuing trends and new developments. *Journal of Marriage and the Family*. 2010; 72:650–666.
- Aquino K, Reed A II. The self-importance of moral identity. *Journal of Personality and Social Psychology*. 2002; 83:1423–1440. [PubMed: 12500822]
- Barry CM, Padilla-Walker LM, Madsen SD, Nelson LJ. The impact of maternal relationship quality on emerging adults' prosocial tendencies: Indirect effects via regulation of prosocial values. *Journal of Youth and Adolescence*. 2008; 37:581–591.
- Booth A, Amato PR. Parental predivorce relations and offspring postdivorce well-being. *Journal of Marriage and Family*. 2001; 63:197–212.
- Brooks-Gunn J, Duncan GJ. The effects of poverty on children. The future of children: Children and poverty. 1997; 7:55–71. Retrieved from http://futureofchildren.org/futureofchildren/publications/docs/07_02_03.pdf.
- Brown, JB.; Lichter, DT. Childhood disadvantage, adolescent development, and pro-social behavior in early adulthood. In: Macmillan, R., editor. *Advances in life course research* Volume 11. Constructing adulthood: Agency and subjectivity in adolescence and adulthood. Oxford, UK: Elsevier/JAI Press; 2007. p. 149–170.
- Carlo G, Eisenberg N, Knight GP. An objective measure of adolescents' prosocial moral reasoning. *Journal of Research on Adolescence*. 1992; 2:331–349.
- Chase-Lansdale PL, Wakschlag LS, Brooks-Gunn J. A psychological perspective on the development of caring in children and youth: The role of the family. *Journal of Adolescence*. 1995; 18:515–556.
- Cherlin AJ, Furstenberg FF Jr, Chase-Lansdale PL, Kiernan KE, Robbins PK, Morrison DR, Teitler JO. Longitudinal studies of the effects of divorce on children in Great Britain and the United States. *Science*. 1991; 252:1386–1389. [PubMed: 2047851]
- Conger, RC.; Conger, KJ.; Elder, GH, Jr. Family economic hardship and adolescent adjustment: Mediating and moderating processes. In: Duncan, GJ.; Brooks-Gunn, J., editors. *Consequences of growing up poor*. New York, NY: Russell Sage Foundation; 1997. p. 288–310.
- Conger, RC.; Elder, GH, Jr. *Families in troubled times*. New York, NY: Aldine De Gruyter; 1994.
- Conger RC, Ge X, Elder GH Jr, Lorenz FO, Simmons RL. Economic stress, coercive family process, and developmental problems of adolescents. *Child Development*. 1994; 65:541–561. [PubMed: 8013239]
- Dovidio, JF.; Piliavin, JA.; Schroeder, DA.; Penner, LA. *The social psychology of prosocial behavior*. Mahwah, NJ: Lawrence Erlbaum Associates; 2006.
- Duncan, GJ.; Brooks-Gunn, J. Income effects across the life span: Integration and interpretation. In: Duncan, GJ.; Brooks-Gunn, J., editors. *Consequences of growing up poor*. New York, NY: Russell Sage Foundation; 1997. p. 596–610.

- Duncan GJ, Brooks-Gunn J, Yeung WJ, Smith JR. How much does childhood poverty affect the life chances of children? *American Sociological Review*. 1998; 63:406–423. Retrieved from <http://www.jstor.org/stable/2657556>.
- Dunn J, Deater-Deckard K, Pickering K, O'Connor TG, Golding J. the ALSPAC Study Team. Children's adjustment and prosocial behaviour in step-, single-parent, and non-stepfamily settings: Findings from a community study. *Journal of Child Psychology and Psychiatry*. 1998; 39:1083–1095. [PubMed: 9844979]
- Eisenberg, N. The development of reason regarding prosocial behavior. In: Eisenberg, N., editor. *The development of prosocial behavior*. New York, NY: Academic Press; 1982. p. 219-250.
- Eisenberg, N. Altruistic emotion, cognition, and behavior. Hillsdale, NJ: Lawrence Erlbaum Associates; 1986.
- Eisenberg, N. Prosocial development in early and mid-adolescence. In: Montemayor, R.; Adams, GR.; Gullota, TP., editors. *From childhood to adolescence: A transitional period (Advances in adolescent development)*. Newbury Park, CA: Sage; 1990. p. 240-269.
- Eisenberg N. Distinctions among various modes of empathy-related reactions: A matter of importance in humans. *Behavioral and Brain Sciences*. 2002; 25:33–34.
- Eisenberg, N.; Fabes, RA.; Spinrad, TL. Prosocial development. In: Eisenberg, N.; Damon, RW.; Lerner, M., editors. *Handbook of child psychology, Volume 3, Social, emotional, and personality development (6th edition)*. Hoboken, NJ: John Wiley & Sons; 2006. p. 646-718.
- Eisenberg N, Guthrie IK, Cumberland A, Murphy BC, Shepard SA, Zhou Q, Carlo G. Prosocial development in early adulthood: A longitudinal study. *Journal of Personality and Social Psychology*. 2002; 82:993–1006. [PubMed: 12051585]
- Eisenberg N, Lennon R, Roth K. Prosocial development: A longitudinal study. *Developmental Psychology*. 1983; 19:846–855.
- Eisenberg N, Miller PA, Shell R, McNally S, Shea C. Prosocial development in adolescence: A longitudinal study. *Developmental Psychology*. 1991; 27:849–857.
- Eisenberg, N.; Mussen, PH. *The roots of prosocial behavior in children*. New York, NY: Cambridge University Press; 1989.
- Eisenberg N, Shell R, Pasternack J, Lennon R, Beller R, Mathy RM. Prosocial development in middle childhood: A longitudinal study. *Developmental Psychology*. 1987; 23:712–718.
- Fitzgerald J, Gottschalk PP, Moffitt R. An analysis of sample attrition in panel data: The Michigan Panel Study of Income Dynamics. *Journal of Human Resources*. 1998; 33:251–299. Retrieved from <http://www.jstor.org/stable/146433>.
- Gouskova, E.; Schoeni, RF. Technical Series Paper #07-01. Ann Arbor: Institute for Social Research, The University of Michigan; 2007. Comparing estimates of family income in the Panel Study of Income Dynamics and the March Current Population Survey, 1968–2005. Retrieved from http://psidonline.isr.umich.edu/Publications/Papers/tsp/2007-01_Comparing_Estimates_PSID.pdf
- Grusec, JE. The socialization of altruism. In: Clark, MS., editor. *Prosocial behavior*. Newbury Park, CA: Sage Publications; 1991. p. 9-33.
- Grusec JE, Goodnow JJ, Cohen L. Household work and the development of concern for others. *Developmental Psychology*. 1996; 32:999–1007.
- Grusec JE, Redler E. Attribution, reinforcement, and altruism: A developmental analysis. *Developmental Psychology*. 1980; 16:525–534.
- Hanson, TL.; McLanahan, S.; Thompson, E. Economic resources, parental practices, and children's well-being. In: Duncan, GJ.; Brooks-Gunn, J., editors. *Consequences of growing up poor*. New York, NY: Russell Sage Foundation; 1997. p. 190-238.
- Hart D, Atkins R, Ford D. Urban America as a context for the development of moral identity in adolescence. *Journal of Social Issues*. 1998; 54:513–530.
- Hart D, Atkins R, Ford D. Family influences on the formation of moral identity in adolescence: Longitudinal analysis. *Journal of Moral Education*. 1999; 28:375–386.
- Hill, MS. *The panel study of income dynamics*. Newbury Park, CA: Sage; 1992. Retrieved from <http://www.sagepub.com/booksProdDesc.nav?prodId=Book3626>
- Hill MS, Yeung WJ, Duncan GJ. Childhood family structure and young adult behaviors. *Journal of Population Economics*. 2001; 14:271–299.

- Hoffman, ML. Empathy and moral development: Implications for caring and justice. Cambridge, UK: Cambridge University Press; 2000.
- Huebner AJ, Mancini JA. Shaping structured out-of-school time use among youth: The effects of self, family, and friend systems. *Journal of Youth and Adolescence*. 2003; 32:453–463.
- Johnson MK, Beebe T, Mortimer JT, Snyder M. Volunteerism in adolescence: A process perspective. *Journal of Research on Adolescence*. 1998; 8:309–332.
- Keith JG, Nelson CS, Schlabach JH, Thompson CJ. The relationship between parental employment and three measures of early adolescent responsibility: Family-related, personal, and social. *Journal of Early Adolescence*. 1990; 10:399–415.
- Lichter DT, Shanahan MJ, Gardner EL. Helping others? The effects of childhood poverty and family instability on prosocial behavior. *Youth and Society*. 2002; 34:89–119.
- McLanahan, S.; Sandefur, G. Growing up with a single parent. Cambridge, MA: Harvard University Press; 1994.
- McLoyd V. The impact of economic hardship on black families and children: Psychological distress, parenting and socioemotional development. *Child Development*. 1990; 61:311–346. Retrieved from <http://www.jstor.org/stable/1131096>. [PubMed: 2188806]
- McLoyd V, Jayaratne TE, Ceballo R, Borquez J. Unemployment and work interruption among African-American single mothers: Effects on parenting and adolescent socioemotional functioning. *Child Development*. 1994; 65:562–589. Retrieved from <http://www.jstor.org/stable/1131402>. [PubMed: 8013240]
- Musick, MA.; Wilson, J. Volunteers: A social profile. Bloomington, IN: Indiana University Press; 2008.
- Penner LA. Dispositional and organizational influences on sustained volunteerism: an interactionist perspective. *Journal of Social Issues*. 2002; 58:447–467.
- Penner LA. Volunteerism and Social Problems: Making Things Better or Worse? *Journal of Social Issues*. 2004; 60:645–666.
- Ottoni-Wilhelm M, Bandy R. Stage-specific family structure models: Implicit parameter restrictions and Bayesian model comparison with an application to prosocial behavior. 2010 Unpublished manuscript.
- Shea J. Does parents' money matter? *Journal of Public Economics*. 2000; 77:155–184.
- Smith, JR.; Brooks-Gunn, J.; Klebanov, PK. Consequences of living in poverty for young children's cognitive and verbal ability and early school achievement. In: Duncan, GJ.; Brooks-Gunn, J., editors. *Consequences of growing up poor*. New York, NY: Russell Sage Foundation; 1997. p. 132-189.
- Soenens B, Duriez B, Vansteenkiste M, Goossens L. The intergenerational transmission of empathy-related responding in adolescence: The role of maternal support. *Personality and Social Psychology Bulletin*. 2007; 33:299–311. [PubMed: 17312313]
- Stafford, FP.; Schoeni, RF.; Eccles, JS.; McGonagle, K.; Yeung, WJ.; Wallace, RB. The Panel Study of Income Dynamics. Ann Arbor, MI: Institute for Social Research, The University of Michigan; 2003. Wave XXXIII [machine-readable data file] / Director and Principle Investigator, F. P. Stafford; Associate Director and Principle Investigator R. F. Schoeni; Co-Principle Investigators, J. S. Eccles, K. McGonagle, W. J. Yeung, & R. B. Wallace. Retrieved from <http://simba.isr.umich.edu/Zips/ZipMain.aspx>
- Uggen C, Janikula J. Volunteerism and arrest in the transition to adulthood. *Social Forces*. 1999; 78:331–362. Retrieved from <http://www.jstor.org/stable/3005799>.
- U.S. Department of Education, National Center for Education Statistics. Student participation in community service activity. 1997. (NCES 97-331). Retrieved from <http://nces.ed.gov/pubs97/97331.pdf>
- Verplanken B, Holland RW. Motivated decision making: Effects of activation and self-centrality of values on choices and behavior. *Journal of Personality and Social Psychology*. 2002; 82:434–447. [PubMed: 11902626]
- Vesterlund, L. Why do people give?. In: Steinberg, R.; Powell, WW., editors. *The nonprofit sector: A research handbook* (2nd edition). New Haven, CT: Yale University Press; 2006. p. 568-590.

- Wheaton B. Life transitions, role histories and mental health. *American Sociological Review*. 1990; 55:209–223. Retrieved from <http://www.jstor.org/stable/2095627>.
- Wilhelm MO. New data on charitable giving in the PSID. *Economics Letters*. 2006a; 92:26–31.
- Wilhelm, MO. The 2003 Center on Philanthropy Panel Study user's guide. 2006b. Unpublished manuscript. Retrieved from https://resources.oncourse.iu.edu/access/content/user/mowilhel/Web_page/data.htm
- Wilhelm MO, Bekkers R. Helping behavior, dispositional empathic concern, and the principle of care. *Social Psychology Quarterly*. 2010; 73:11–32.
- Wooldridge, JM. *Introductory econometrics: A modern approach* (4th edition). Mason, OH: Thompson South-Western Cengage Learning; 2009.
- Wu LL. Effects of family instability, income, and income instability on the risk of a premarital birth. *American Sociological Review*. 1996; 61:386–406. Retrieved from <http://www.jstor.org/stable/2096355>.
- Wu LL, Martinson BC. Family structure and the risk of a premarital birth. *American Sociological Review*. 1993; 58:210–232. Retrieved from <http://www.jstor.org/stable/2095967>.
- Wuthnow, R. *Learning to care: Elementary kindness in an age of indifference*. New York, NY: Oxford University Press; 1995.
- Yeung WJ, Linver MR, Brooks-Gunn J. How money matters for young children's development: Parental investment and family processes. *Child Development*. 2002; 73:1861–1879. Retrieved from <http://www.jstor.org/stable/3696422>. [PubMed: 12487499]
- Youniss J, McLellan JA, Su Y, Yates M. The role of community service in identity development: Normative, unconventional, and deviant orientations. *Journal of Adolescent Research*. 1999; 14:248–261. Retrieved from <http://jar.sagepub.com/content/14/2/248.full.pdf+html>.
- Zahn-Waxler C, Radke-Yarrow M, Wagner E, Chapman M. Development of concern for others. *Developmental Psychology*. 1992; 28:126–136.

Table 1

Constructs used in the analysis

Panel A. Constructs measured in young adulthood			
	<i>M (SD)</i>		
Charitable giving			
Fraction giving	.431 (.496)		
Conditional mean gift ^a	493 (1,798)		
Volunteering			
Fraction volunteering	.247 (.432)		
Conditional mean hours ^a	123 (261)		
Additional covariates			
Income - current	50,523 (42,185)		
Income - average past five years	42,477 (29,968)		
Have children	.479 (.500)		
Had first child as a teen	.168 (.374)		
Any post-high school education	.533 (.499)		
Catholic	.207 (.405)		
Protestant	.456 (.498)		
Jewish or other religious affiliation	.126 (.332)		
African-American	.151 (.359)		
Resides in the south	.394 (.489)		
Female	.534 (.499)		
Age	28 (2.4)		

Panel B. Constructs measured during childhood			
	Stages		
	Early childhood (ages 0 – 5)	Middle childhood (ages 6 – 11)	Adolescence (ages 12 – 16)
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Family structure			
Born in a birth-mother only family	.098 (.298)		
Any transition	.167 (.373)	.211 (.108)	.190 (.392)
Divorce	.133 (.309)	.169 (.375)	.161 (.368)
(Re)marriage	.079 (.270)	.120 (.325)	.102 (.303)
Family income			
Income	45,783 (25,241)	55,637 (42,905)	63,530 (49,656)
Low income (less than \$29,000)	.215 (.441)	.173 (.378)	.167 (.373)
Other constructs			
Moved	.710 (.454)	.500 (.500)	.368 (.483)
Mother averaged 1,000+ hours paid work during the stage	.233 (.423)	.451 (.498)	.600 (.490)

Note. The statistics are weighted. Dollar amounts are in 2000 dollars. The sample size for the analysis of charitable giving is 1,011, and the sample size for the analysis of volunteering is 954. We use the volunteering data from the 2003 *PSID* because that wave's improved instrument design

facilitates respondent recall of volunteer hours. The 2003 sample size is a little smaller because 57 young adults dropped from the study between 2001 and 2003. When we estimate volunteering models we use 2003 versions of the young adult covariates.

^aConditional on the set of young adults with amounts/hours greater than zero.

Table 2
Charitable giving and volunteering in young adulthood by family structure and income during childhood

Sample:	All	Always two biological parents	Ever not two biological parents	Always middle- or high-income	Ever low-income
	(1)	(2a)	(2b)	(3a)	(3b)
Characteristic	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Childhood family structure and income					
Ever not two-biological-parent	.398 (.490)	0	1	.278 (.448)	.688 (.464)
Ever low-income	.293 (.455)	.151 (.359)	.506 (.501)	0	1
Charitable giving in young adulthood					
Fraction giving	.431 (.496)	.489 (.500)	.344 (.476)	.485 (.500)	.302 (.460)
Conditional mean gift ^a	493 (1,798)	578 (2,149)	312 (.474)	536 (1,997)	327 (540)
Volunteering in young adulthood					
Fraction volunteering	.247 (.432)	.263 (.441)	.223 (.417)	.277 (.448)	.173 (.379)
Conditional mean hours ^a	123 (261)	127 (295)	117 (187)	118 (268)	145 (232)

Note. The statistics are weighted.

^aConditional on the set of young adults with amounts/hours greater than zero.

Table 3

Tobit estimates of the association between family structure and income during childhood and subsequent giving and volunteering in young adulthood

Parameter	<u>Logarithm amount given</u>		<u>Logarithm hours volunteered</u>	
	Model 1	Model 2	Model 3	Model 4
Family structure during childhood				
Stage 1 any transition	.009 (.149)	.018 (.145)	.022 (.238)	-.050 (.219)
Stage 2 any transition	.099 (.132)	.207 (.132)	.184 (.201)	.325 (.191)
Stage 3 any transition	-.474 ** (.113)	-.228 (.119)	-.287 (.181)	-.220 (.173)
Born in a birth-mother only structure	-.076 (.178)	-.028 (.175)	.433 (.301)	.811 * (.344)
Family income during childhood				
Stage 1 Logarithm of income	.027 (.166)	-.032 (.147)	.195 (.211)	.228 (.205)
Stage 2 Logarithm of income	.019 (.208)	-.172 (.189)	-.114 (.233)	-.233 (.238)
Stage 3 Logarithm of income	.427 ** (.132)	.283 * (.121)	.345 (.180)	.340 (.182)
Controls for childhood/adulthood characteristics	No	Yes	No	Yes
Log likelihood	-23,584	-22,210	-16,554	-16,156

Note. The dependent variable in models 1 and 2 is the logarithm of the dollar amount given to charitable organizations ($N = 1,011$), and in models 3 and 4 is the logarithm of the number of hours volunteered ($N = 954$). The estimates are from weighted tobit models: they are the marginal effects on the dependent variable conditional on the dollars given/hours volunteered being greater than zero. The family structure variables are 0/1 indicator variables, and therefore the corresponding estimates are percentage effects. For example, the interpretation of the -474 estimate in model 1, row 3 indicates that young adults who experienced a family structure transition during adolescence gave 47.4 percent less in young adulthood (conditional on their having given more than zero). The estimates on the logarithm of income are elasticities. For example, the interpretation of the $.427$ estimate in model 1, row 7 indicates that a young adult whose family had 10 percent higher income during adolescence, gave 4.27 percent more in young adulthood (again, conditional on having given more than zero). Models 2 and 4 include all the controls for childhood and young adult characteristics described in Table 1. Standard errors are in parentheses.

*
 $p < .05$.

**
 $p < .01$.

Tobit estimates of the association between family structure and income during childhood and subsequent giving in young adulthood: By race and sex

Table 4

Parameter	Logarithm amount given						
	African-American			European-American			
	Men and Women		Men	Women		Men and Women	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Family structure during childhood							
Stage 1 any transition	-.070 (.202)	-.085 (.152)	.357 (.339)	.177 (.363)	-.185 (.210)	-.036 (.192)	.090 (.188)
Stage 2 any transition	.161 (.209)	.164 (.156)	.116 (.256)	.374 (.313)	.105 (.193)	.246 (.187)	.229 (.165)
Stage 3 any transition	-.412* (.179)	-.211 (.155)	-.594** (.206)	-.325 (.218)	-.420* (.175)	-.019 (.209)	-.241 (.143)
Born in a birth-mother only structure	.298 (.228)	.271 (.149)	-.194 (.438)	-.246 (.422)	-.216 (.385)	-.594* (.264)	-.316 (.252)
Family income during childhood							
Stage 1 Logarithm of income	.213 (.228)	.079 (.160)	.123 (.331)	.062 (.301)	-.285 (.276)	-.225 (.240)	-.063 (.187)
Stage 2 Logarithm of income	-.132 (.268)	-.020 (.171)	.249 (.437)	-.060 (.406)	-.081 (.293)	-.387 (.263)	-.138 (.245)
Stage 3 Logarithm of income	.300 (.216)	.063 (.156)	.322 (.246)	.265 (.225)	.484* (.195)	.450* (.189)	.293* (.146)
Controls for childhood/adulthood characteristics	No	Yes	No	Yes	No	Yes	Yes
Sample size	287		346		378		724
Number who gave	69		153		176		329
Log likelihood	-2,195	-1,958	-10,418	-9,555	-10,723	-10,122	-20,098

Note. See the note in Table 3. Models 2, 4, 6, and 7 include all the controls for childhood and young adult characteristics described in Table 1. Standard errors are in parentheses.

* $p < .05$.

** $p < .01$.

Tobit estimates of the association between family structure and income during childhood and subsequent volunteering in young adulthood: By race and sex

Table 5

Parameter	Logarithm hours volunteered						
	African-American			European-American			
	Men and Women		Men	Women			Men and Women
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Family structure during childhood							
Stage 1 any transition	-.089(.301)	-.323 (.207)	-.078 (.397)	-.056 (.361)	-.032 (.351)	.048 (.342)	-.017 (.270)
Stage 2 any transition	.699* (.309)	.484* (.203)	.473 (.372)	.546 (.384)	-.110 (.283)	.139 (.275)	.264 (.228)
Stage 3 any transition	.111 (.313)	.066 (.206)	-.821** (.261)	-.583* (.256)	-.102 (.278)	-.113 (.270)	-.331 (.197)
Born in a birth-mother only structure	.378 (.286)	.558* (.225)	1.687 (1.068)	2.363(1.358)	.457 (.599)	.570 (.615)	.935 (.543)
Family income during childhood							
Stage 1 Logarithm of income	.159 (.288)	.194 (.202)	.147 (.398)	.440 (.399)	.078 (.337)	.073 (.329)	.149 (.251)
Stage 2 Logarithm of income	-.229(.436)	.248 (.239)	-.369 (.399)	-.894* (.377)	.063 (.376)	.102 (.380)	-.175 (.278)
Stage 3 Logarithm of income	.237 (.367)	-.042 (.215)	.581* (.282)	.804** (.276)	.202 (.294)	.243 (.283)	.385 (.209)
Controls for childhood/adulthood characteristics	No	Yes	No	Yes	No	Yes	Yes
Sample size	273		322		359		681
Number who volunteer	36		65		102		167
Log likelihood	-1,576	-1,404	-6,087	-5,838	-8,576	-8,344	-14,533

Note. See the note in Table 3. Models 2, 4, 6, and 7 include all the controls for childhood and young adult characteristics described in Table 1. Standard errors are in parentheses.

* $p < .05$.

** $p < .01$.