Reciprocity in Parent–Child Relations Over the Adult Life Course

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Objectives. This research assessed how parents' transfers of sentiment, time, and financial assets to their adolescent/young adult children affect the children's propensity in middle age to provide social support to their aging parents. We tested whether the mechanism of long-term intergenerational exchange is better modeled as a return on investment, an insurance policy triggered by the longevity or physical frailty of parents, or the result of altruistic (or other nonreciprocal) motivations on the part of adult children.

Methods. Models were examined with 6 waves of data from the University of Southern California Longitudinal Study of Generations. The sample consisted of 501 children who participated in the 1971 survey and who had at least 1 parent surviving in 1985. Growth curve modeling was applied to predict average levels and rates of change in social support provided to mothers and fathers between 1985 and 1997 as a function of early parental transfers of affection, association, and tangible resources to their children.

Results. Children who spent more time in shared activities with their mothers and fathers in 1971 provided more support to them on average. Receiving greater financial support from parents in 1971 raised the marginal rate at which support provided by children increased over time. Maternal health operated synergistically with early affection to produce greater levels of support. Both levels and rates of increase in support from children were positive, even for children who received no early transfers from their parents.

Discussion. The results offer some support for investment, insurance, and altruistic models of intergenerational exchange. Sharing time in activities provides a direct return to the parent that is characteristic of an investment strategy, whereas financial transfers provide a time-contingent return that is characteristic of an insurance mechanism. That affection triggers greater support to more functionally impaired mothers suggests that emotionally investing in children as a health insurance mechanism may be based on the greater moral equity accorded to mothers. The motivation of adult children to provide social support to their older parents is partially rooted in earlier family experiences and guided by an implicit social contract that ensures long-term reciprocity.

Reciprocity in adult parent–child relations has been the object of much investigation as a principle guiding transfers of time, labor, and financial assets across generations. Studies in this area have examined balance or asymmetry in exchanges between generations at one point in time (Antonucci, 1990), across a set of repeated cross-sectional assessments (Morgan, Schuster, & Butler, 1991), and in the same individuals over time with retrospective reports (Henretta, Hill, Li, Soldo, & Wolf, 1997; Whitbeck, Simons, & Conger, 1991). However, a life-course approach stressing the dynamic aspects of reciprocity calls for long-term data on intergenerational transfers from the same individuals over time. In this investigation we employed longitudinal data over 26 years in the lives of two generations to identify how parents' investment of sentiment, time, and financial resources in their adolescent/young adult children affects the children's propensity in middle age to provide support to their aging parents more than a quarter century later.

This research addressed the basic question of why adult children provide support to their elderly parents. In the absence of bioevolutionary imperatives for such support (reproductive goals are not at issue as they are for parental support to children), one is directed toward explanations that derive from social theories, particularly as they relate to mechanisms of equity and reciprocity in interpersonal exchanges. We addressed this issue by turning attention to the historical antecedents of these later life relationships and proposed three models to explain the nature of the linkage between early involvement of parents and reciprocation by their children in the form of old-age support. In these models support from children was conceptualized as (a) a return on an investment made earlier by the parent, (b) an insurance policy in which earlier transfers to the child are recovered by the parent under conditions of need, and (c) altruism and other nonreciprocal motivations on the part of the child. Both investment and insurance models reflected motivations based on dynamics of lagged reciprocity. We defined lagged reciprocity as the circumstance when the provision of support to older parents was the fulfillment of an obligation to repay a social debt based on that parent's earlier transfers to the child. An investment model held when earlier transfers to the child were unconditionally returned, and an insurance model was valid when earlier transfers to the child were returned only in the event of parental need. Altruism and other nonreciprocal motivations were operating in families when adult children provided support to parents who made few intergenerational transfers to their children when they were younger.
Our theoretical conceptualization integrated several disciplinary traditions in the study of intergenerational transfers within the family. We employed complementary perspectives from sociology, social psychology, and economics to produce an empirical specification that was informed by the assumptions of each. We next review in greater detail the underpinnings of exchange theory as it pertains to the dynamics of long-term serial transfers in intergenerational family relationships.

Exchange Theory

Although economic exchange theory and social exchange theory have some differences, both share the premise that social relationships are governed by a norm of reciprocity—the expectation that a debt should be repaid (Emerson, 1981; Gouldner, 1960; Molm & Cook, 1995). In economic terminology, norms shape preferences in such a way as to make parental repayment preferable to nonrepayment (i.e., avoiding shame, threats to reputation, or guilt). In terms of social exchange theory, adherence to norms grants the individual a social status within the group that confers rights, benefits, and prestige (Homans, 1974). In both contexts, norms enforce and reinforce acts of reciprocity and serve as the implicit reason why preferences for repayment exist at all. Here we review these two scholarly traditions with regard to their explanation of child-provided support to older parents.

Microeconomic exchange theory.—Exchange models that derive from rational choice theory in classical microeconomics generally assume that individuals tend to engage in actions that maximize personal rewards and minimize personal costs (Becker, 1974). Some applications of economic exchange theory to families have focused on bequests (a promised inheritance delayed until the parent’s death) as an asset that motivates children to provide social support to their elderly parents (Cox, 1987; Henretta et al., 1997). Bernheim, Shleifer, and Summers (1985) extended this theory to the “strategic bequest” motive, where parents withhold intergenerational transfers until death as a means of maintaining a “bargaining chip” that can be played to obtain favors, assistance, and parent–child interaction. This strategy may be especially salient later in life when elderly parents have little choice but to call on their children for such attention. Because the focus of our investigation was on serial patterns of inter vivos transfers, bequests were not specifically addressed. Further, it has been shown elsewhere (Cox & Raines, 1985) that inter vivos transfers make up the bulk of private transfers in the United States. Still, the bequest motivation serves as a powerful metaphor for understanding how intergenerational transfers are guided by principles of exchange and reciprocity.

Several other theories in the rational choice tradition of microeconomics have stressed self-interested motivations in intergenerational transfers: the rotten child and the demonstration effect hypotheses. Becker (1974) described how superficially altruistic behavior can be manifested even by a rotten or selfish child. In our application, this may occur if the putatively selfish or rotten child has transferred resources to an altruistic parent (one for whom the utility function of that child is an argument in his or her utility function). Under these conditions, the rotten child expects that the parent will redistribute resources to compensate for his or her sacrifice. The demonstration effect proposes that adult children have an incentive to support their aging parents to demonstrate to their own children the importance of providing such support, from which they hope to eventually benefit (Cox & Stark, 1992). In this formulation, adult children are behaving in a manner that will indirectly provide rewards as a form of generalized exchange.

Although self-interested motivations are useful for understanding the mutuality of more immediate intergenerational exchanges, they tend to minimize the importance of giving and receiving over the history of these long-term relationships. In this investigation we focused on serial patterns of inter vivos transfers over the life course of the parent–child relationship. Our models tested the assumption that the intergenerational contract, enforced by the norm of reciprocity, compels adult children to repay long-term social debts to their parents. Thus, any immediate “leverage” wielded by parents to control the actions of children (as is suggested in the case of bequests) gives way to obligations based on a “fairness” norm—the notion that social and economic debts should be repaid. In another sense, the benefits of meeting the expectation to reciprocate are intrinsic to the importance placed on continuing the relationship amicably.

Social exchange theory.—Where microeconomics tends to focus only on the exchange transactions themselves, social exchange theory incorporates the relationship between the exchange partners, their history of transactions, and their mutual interdependence into its framework. Molm and Cook (1995, p. 210) put it this way: “Whereas classical microeconomic theory typically assumed the absence of long-term relations between exchange partners and the independence of sequential exchange transactions, social exchange theory took as its subject matter . . . the more or less enduring relations that form between specific partners.” Sociologists analyze the relationship itself and the social structures that govern the value attached to particular behaviors, the tolerance of dependence, and the expectation for reciprocation (including type and timing) in that particular relationship. Giving to others and building an obligation for later repayment is considered the social glue out of which emerges small group stability—including family solidarity (Homans, 1950). Mutual dependence builds cohesion in relationships with high levels of primacy and to which there are few alternatives, such as those that tend to be found in families (Emerson, 1962).

In addition, sociologists extend classical economic exchange theory by proposing that resources other than financial assets can be used as a currencies of exchange (Emerson, 1981; Homans, 1974). Social exchange theorists have argued that the norm of reciprocity is a principle of obligation to repay, in some fashion, the receipt of valued assets, services, or sentiments (Gouldner, 1960). Thus, approval, affirmation, and emotional support—if they are valued resources when provided by that particular partner—tend to attract reciprocation. This reciprocation need not be immediate or made in units equivalent to the initial investment for
the exchange to be considered balanced over the long term (Hollstein & Bria, 1998). For instance, parental investments of time or emotion in their dependent children may later be reciprocated with instrumental forms of assistance from them as adults.

A general model of exchange.—Thus, economists and sociologists incorporate self-interested motivations and the norm of reciprocity in social exchanges between generations. Both would argue that adult children feel that (a) they should repay parents for transfers made to them earlier in life and (b) their repayment to parents should be proportional to what they received. However, an important refinement to both of these approaches would specify the conditions under which adult children are motivated to repay earlier parental transfers to them. We proposed that it is necessary to consider whether the growing needs of aging parents serve as a catalyst to repayment. By taking need into account, we were able to test if the norm of reciprocity results in the production of an investment strategy or an insurance policy for the parent.

If children’s return of support to parents is proportional to the parents’ initial contribution to them, but not contingent on the parents’ current needs, then an investment model would be a better representation of the process. In this model the return on the initial investment is fixed and, thus, redeemed by the parent under most conditions as an earned reward. Becker and Tomes (1976) used such a model when they theorized that parents’ early investments in children’s education (human capital) are designed to maximize a return on their investment. Empirical results on this issue are mixed. Research by Behrman, Pollak, and Taubman (1982) demonstrated that parents’ primary investment concern is with promoting equality among their children and not reciprocity. However, another study of parental financial support to adult children found that those siblings who received sizable financial transfers from older parents were the ones most likely to provide social support to those parents, suggesting a quid pro quo in observed transfers over time (Henretta et al., 1997).

An insurance model of parent-child exchange would hold if children’s return of parental contributions was both proportional to the initial investment and took place when the parents were in greatest need. In this model parents make contributions of affect, time, and financial assets to children with the expectation that those children will reciprocate by responding to negative contingencies that emerge later in life, including health declines, widowhood, and financial hardship following retirement.

Economists, in particular, have considered investment in children as a means to reduce the risk of having unmet financial needs in old age. Kotlikoff and Spivak (1981) theorized that family formation serves as an alternative annuities market that insures against deficits that might occur as a result of an unexpectedly long life. Investment in children has also been considered as a rational alternative to the purchase of long-term care insurance (Pauly, 1990). Thus, the impact of depleting one’s savings and developing chronic illness in old age is mitigated by the willingness of children to reciprocate for earlier investments made in them by their parents. Services such as companionship that do not have clear market alternatives may be even more likely to be included in an informal insurance contract.

The notion of a support bank, developed by Antonucci (1990) to interpret serial patterns of intergenerational exchange over the life course is consistent with insurance and investment models of reciprocity. In this paradigm she uses the metaphor of a bank to describe the lagged dynamics of reciprocity in intergenerational relationships. A support bank symbolically serves as a repository of equity that parents build early in the family life cycle by investing in their children’s well-being. This social capital is withdrawn later in life in the form of social support from children at any time, but especially when the parents develop age-associated dependencies. Importantly, this model highlights that, although at any one point in time exchanges between parents and children may appear to be unbalanced, reciprocity is observed when the balance of exchanges over the life of the relationship is tallied. Thus, partners in the intergenerational relationship variously play the role of provider and of receiver, depending on the type and timing of their developmental needs. The life-course perspective provides an additional lens through which to view the interdependence of family members. This paradigm considers human development as a relational process of linked lives through time and stresses the importance of long-term relationships in shaping the resources and well-being of individuals as they age (Bengtson, Biblarz, & Roberts, in press; Elder, 1994).

Altruism and other theories.—Several theories offer alternative explanations for why adult children who received little or no transfers from parents nevertheless provide support to them in the absence of a discernable social debt. Among these is the theory that altruistic motivations guide family members to provide support to each other. This paradigm, intergenerational exchanges are driven unconditionally by the needs of potential support recipients—rather than by the principle of reciprocity (Stark, 1995; Stark & Folk, 1998).

Results of empirical research are mixed as to whether parental transfers to adult children are altruistically motivated. Some research has found little support for altruism (Altonji, Hayashi, & Kotlikoff, 1992, 1997); other research has found that the principle of need tends to drive inter vivos economic or time/labor transfers between generations (Dunn & Phillips, 1997; Laitner & Juster, 1996; McGarry, 1999; McGarry & Schoeni, 1995). Looking at point-in-time, inter vivos transfers, Cox (1987) found that parental transfers to children are in effect payments for services rendered, supporting an exchange hypothesis over altruism. However, aside from studies of the bequest motivation, little research has focused on whether support provided by adult children to their aged parents is altruistically motivated or driven by antecedent intergenerational transfers.

As we have mentioned earlier, the rotten child hypothesis and the demonstration effect serve as alternative explanations to altruism for why adult children who in childhood received little nurturing from their parents may still provide support to them in later life. We labeled these explanations, along with altruism, as nonreciprocal motivations because...
they do not require an exchange deficit that favors the parent as a precondition for supportive behavior by the child.

Conceptual Model

In this study, we examined whether emotional, time, and financial investments made by parents in their late-teen and young-adult children are reciprocated by the children in the form of social support provided to their older parents up to 26 years later. These three investments corresponded to dimensions of intergenerational solidarity, a paradigm developed by Bengtson and colleagues for distinguishing the ties that bind the generations in the family (Bengtson & Roberts, 1991; Mangen, Bengtson, & Landry, 1988; Roberts & Bengtson, 1990). Emotional investment in the child corresponded to affectual solidarity, the amount of time spent in shared activities with the child corresponded to associational solidarity, and financial transfers made to the child corresponded to functional solidarity.

Our aim was to study whether these three types of intergenerational transfers made early in the family life cycle were later reciprocated in the form of (a) higher levels of social support to parents and/or (b) greater rates of increase in social support to parents over the course of later life. We also examined whether (a) and (b) were contingent on parental frailty as a triggering mechanism of support. If transfers operate under the principle of investment, then children who received more valued resources from their parents should reciprocate more by providing higher average levels of social support than children who received fewer such resources from their parents. If early transfers from parents operate under the principle of insurance, then reciprocation by children would be contingent on the aging and/or the functional health of the parent (i.e., parental longevity and increasing disability would drive higher rates of return per unit of the early transfer). In our formulation, an insurance mechanism is not necessarily mutually exclusive with an investment mechanism. Parental contributions may yield both direct and contingent dividends, much as an annuity generates interest income before it pays a lump sum benefit in the event of death. A subsidiary proposition specified that altruism and other nonreciprocal motivations would be operating if, among adult children who received no early transfers, (a) the average level of social support provided was significantly above zero and/or (b) the rate of social support provided increased significantly over time.

Methods

Sample

We addressed our research questions using data from the University of Southern California Longitudinal Study of Generations, a study of 2,044 individuals, aged 16–91, from 328 three-generation families. Eligible sample members were generated from the families of grandparents randomly selected in 1971 from the membership of a large (840,000-member) prepaid health maintenance organization in the Los Angeles area. The sample pool was generally representative of White, economically stable middle- and working-class families. Self-administered questionnaires were mailed to the grandparents and their spouses (G1), their adult children (G2), and their adolescent grandchildren (G3). Surviving respondents were surveyed again in 1985, 1988, 1991, 1994, and 1997. The unique longitudinal and intergenerational design of this survey provided us an opportunity to prospectively examine the long-term effects of early family relationships by assessing these relationships at the time they were experienced. Thus, we were able to avoid some of the problems associated with retrospective reports, namely that the conditions of current relationships may color memories of earlier family life.

The subsample for this analysis comprised G3 respondents who (a) participated in 1971 and in at least one other survey and (b) had at least one parent surviving to 1985. Almost 70% of the children in this generation fit the criteria for inclusion, resulting in 501 respondents. From this group we derived an analytic sample consisting of 416 child—mother relationships and 317 child—father relationships with variation in the dependent variable over time. The number of measurements obtained from children between 1985 and 1997 were as follows (presented in terms of relationships with mothers/fathers): 14%/18% with two measurements, 13%/15% with three measurements, 20%/17% with four measurements, and 54%/50% with five measurements.

Children ranged in age from 16 to 26 years in 1971, with an average age of 19 years, and 59% were daughters. About 60% lived with at least one parent in 1971. Some of the same children appeared in both analytic samples because of the joint survival of their parents. The mean age of the parents in 1971 was 43 years for mothers and 46 years for fathers. By 1997, surviving mothers and fathers averaged 69 and 72 years old, respectively.

Dependent Variable

Social support to each parent served as the time-varying dependent variable in this analysis. Social support was operationalized as assistance provided by adult children to each of their parents in 1985, 1988, 1991, 1994, and 1997. At each wave of measurement, support provided to parents in the following five areas were assessed: shopping/transportation, financial support, emotional support, discussing important life decisions, and information/advice. We dichotomously scored (0 = “not provided”; 1 = “provided”) each indicator and summed them to create an additive scale ranging from 0 to 5 at each time period. Reliability of these scale items ranged from .62 to .70 across the five waves of measurement. The means of this scale across each year of measurement revealed a steady rise in the amount of support provided to each parent over the 12-year period (Table 1).

Independent Variables

Early transfers from mothers and fathers were reported separately by the adolescent and young adult children in 1971 (see Table 2). Three types of transfers—time/activities, emotional, and financial—were measured with a protocol developed by Bengtson and colleagues that corresponded to associational, affectual, and functional solidarity between generations (see Mangen et al., 1988, for psychometric properties of each scale). Amount of time spent in shared activities was measured as the sum of five items representing the degree of associational solidarity with mothers.
Financial support, and information and advice. Transportation/shopping, discussing important life decisions, emotional support, household chores, and take care of personal hygiene, with difficulty was measured as the ability of the parent to walk up stairs, walk more than a block, prepare meals, do household chores, and take care of personal hygiene, with each item rated by the parent on a scale of 1–4, where 1 = “almost never” and 7 = “almost every day.” Reliability of items was .90 and .88 for association with mothers and fathers, respectively. The total scale score had a range of 0–35, with the sample averaging 16.9 (SD = 6.4) in relations with mothers and 15.3 (SD = 6.1) in relations with fathers.

Emotional intimacy was measured as the sum of 10 items representing affectual solidarity with mothers and fathers. These items reflected the perceived level of trust, fairness, respect, understanding, and affection in the relationship with each parent. Each item was rated on a scale of 0–5, where 0 = “not at all” and 5 = “extremely.” Reliability coefficients were .93 and .91 for affection with mothers and fathers, respectively. The total scale score had a potential range of 0–50. The sample mean of the scale was 37.2 (SD = 8.3) in relations with mothers and 35.9 (SD = 9.1) in relations with fathers.

Financial assistance, a form of functional solidarity, was measured by a single item concerning the amount of monetary support provided by each parent ("none," "a little," "some," and "quite a bit"). This variable was scored on a scale of 0–3 with a mean of 1.6 (SD = 1.2) in relations with mothers and 1.9 (SD = 1.2) in relations with fathers.

Correlations among the three types of transfers were moderate to low, ranging from a high of .29 (between association and affection in relations with mothers) to a low of .01 (between affection and financial in relations with fathers). This suggested that these three transfers represent unique ways that parents invest in their children and, thus, could be treated independently.

Our interest in physical vulnerability of parents as a triggering mechanism caused us to include a scale of functional impairment as a predictor of support flows. Functional difficulty was measured as the ability of the parent to walk up and down stairs, walk more than a block, prepare meals, do household chores, and take care of personal hygiene, with each item rated by the parent on a scale of 1–4, where 1 = “no difficulty” and 4 = “unable to do.” Because the design of the survey instrument included functional health measures only in the last two waves of the survey it was not possible for us to effectively include functional health as a time-varying covariate. Thus, we took the latest available data reported by each parent to create an additive scale score to denote functional impairment, ranging from 5 (“no difficulties”) to 20 (“unable to perform any task”). Reliability coefficients of these measures were .85 in 1994 and .77 in 1997. For 35 mothers and 81 fathers who dropped out of the study before 1994, we imputed functional impairment (using multiple regression) from the most recently available data in 1985, 1988, or 1991 using somatic symptoms (e.g., “I cannot get going”) and self-rated health as instrumental variables. After inserting imputed values, the mean functional impairment score was 6.0 (SD = 2.1) for mothers and 6.7 for fathers (SD = 1.3). Functional impairment scores of parents were matched to their children’s survey responses and included as a fixed effect in Level 2 equations.

We also controlled for covariates that have been found to be associated with intergenerational transfers. These included parent’s and child’s age, gender of child, the highest education achieved by the child, and whether the child resided with the target parent in 1971. Functional impairment and all control variables were centered at their respective means.

**Statistical Procedure**

We used six waves of data to examine whether early transfers from parents to children were reciprocated in the form of old-age support. Because of our interest in initial levels and rates of increase in support provided, we used hierarchical linear modeling (HLM) to (a) investigate growth curves in the amount of social support provided to parents between 1985 and 1997 and (b) examine sources of heterogeneity in those initial levels and rates of increase as they relate to the amount of early transfers to the child (Bryck & Raudenbush, 1992). HLM is particularly useful in examining trajectories in multiwave data, particularly when some respondents have incomplete data over time. Further, this technique allowed us to use the passage of time as a proxy for the accumulation of age-related deficits in the older generation.

The application of HLM required specifications at two levels of analysis. At the first level, we used a maximum likelihood approach to regress time-varying social support
measures for each child on time of measurement. These regressions generated random intercepts and slopes that described person-specific growth curves. The equation was specified for each respondent as

\[ y_{ij} = a_j + b_j t_{ij} + u_{ij}, \]

where \( y_{ij} \) is the social support index and \( t_{ij} \) is the time value for the \( j \)th child at the \( t \)th year of measurement. The estimate \( a_j \) is the random intercept evaluated at the mean of time, \( b_j \) is the random slope, and \( u_{ij} \) is the disturbance term. Estimates of randomly varying coefficients were stabilized through an empirical Bayes/maximum likelihood estimation procedure that “shrinks” unreliable Level 1 estimates (those with large standard errors and/or based on a small number of data points) toward an overall solution (see Bryck & Raudenbush, 1992). The time variable was operationalized as survey year centered by its grand mean. Although grand mean centering produces an equivalent linear model to that using raw scores, parameter estimates may differ from models without centering or that use other types of centering (see Kreft & De Leeuw, 1998). In our application of centering, the random intercepts were evaluated 5.7 years after 1985, or approximately 1991. Our centering strategy was based on the premise that the best single estimate of the level of support provided by each individual would be obtained at the midpoint of the 12-year interval. At the second level of analysis, we estimated the aggregate level and rate of change with the following fixed effects equations:

\[ a_j = g_{00} + w_0 j, \]
\[ b_j = g_{10} + w_1 j, \]

where \( g_{00} \) represents the estimated value of social support in approximately 1991 (the mean time value), \( g_{10} \) represents the estimated slope between 1985 and 1997, and \( w_0 \) and \( w_1 \) are error terms signifying person-specific deviations from the fixed effect estimates of \( g_{00} \) and \( g_{10} \), respectively. The two gamma coefficients provided the necessary information for us to summarize the height and shape of the growth curve for the sample.

If the variances of \( w_0 j \) and \( w_1 j \) were significant, then \( a_j \) and \( b_j \) could be said to vary randomly across the \( j \) individuals in the sample, and it then becomes possible for us to test for sources of between-subject variation in these random coefficients. If \( x \) is a variable describing the baseline parental transfer to children (in 1971), then the following equations estimate the effect of that transfer on the height and shape of the growth curve of social support provided to parents over time:

\[ a_j = g_{00} + g_{01} x_j + w_0 j, \]
\[ b_j = g_{10} + g_{11} x_j + w_1 j. \]

In these bivariate models \( g_{01} \) and \( g_{11} \) are estimates of the linear relationship between \( x \) and the two random effects \( a_j \) and \( b_j \). Control variables are added to these second-level equations as appropriate. When control variables are centered at their respective means, the fixed intercepts \( g_{00} \) and \( g_{10} \) are interpreted as the predicted level and slope for social support provided by the “average” adult child when parental transfer \( x \) is set at zero. If significant, these intercepts would confirm an altruism/nonreciprocal model of support because they would demonstrate support flows to parents who made no initial investment in their child. Because estimation of standard errors of the gamma coefficients takes into account error variance at the unit or participant level, these coefficients are considered to have high degrees of power and precision (see Kreft & De Leeuw, 1998). In addition, because standard error estimates are based on the error variance pooled across all participants who provide data, they are not affected by the fact that participants with only two measurements have no error variance (see Bryck & Raudenbush, 1992).

We took sample selection bias due to attrition of adult children into account by weighting the sample in all HLM equations by the inverse of their predicted probability of post-1971 retention (details on the computation of this instrumental variable—a variant of the Heckman (1979) procedure—are available from the authors).

### Results

We first reviewed the overall patterns of social support provided to parents over time. Table 3 shows the “intercept only” equations (i.e., no predictor variables) that revealed the summary growth curves in support provided to mothers and fathers over time. The level and rate of increase were statistically significant for both sets of relationships. Predicted values from these equations revealed a clear rise in support provided to both mothers and fathers over time (Figure 1). Because a quadratic term for the time variable was not significant in the equation, this linear specification was the best representation of the time trend. As expected, support to mothers occurred at a higher level than support to fathers.

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<th>Predictor of Random Effects</th>
<th>Estimates</th>
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<td>Random intercept: Support provided to parent 5.7 years after 1985</td>
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<tr>
<td>Intercept (SE)</td>
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<td>1.406 (0.052)**</td>
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<td>Random slope: Linear growth rate in support to parent (1985–97)</td>
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<tr>
<td>Intercept (SE)</td>
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<td>1.413 (0.074)**</td>
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<tr>
<th>Random Effects</th>
<th>Estimates</th>
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<tr>
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***p < .001.
provided to fathers, and this gap remained fairly consistent over the 12 years of follow-up.

The error variance for each of the random effects shown in Table 3 revealed significant between-subject heterogeneity, leading us to examine sources of this variation in the height and in the acceleration of the growth curves. Table 4 shows parameter estimates of the effects of early (1971) transfers from parents on the level (in 1991) and rate of change (between 1985 and 1997) in social support provided to each parent. The three transfer variables were tested first individually and then added together in the same model. In all equations, control variables were applied. Model 1 shows that the association with mothers and fathers in 1971 predicted higher average levels of support provided, with greater amount of time spent in shared activities increasing the support provided by children in approximately 1991. However, there was no impact of early association on rates of increase in support provided over the 12-year time interval.

In Model 2 we present the influence of emotional intimacy with parent on the provision of social support. Receiving more affection from mothers and fathers in 1971 was associated with providing greater social support to them in about 1991. Similar to the earlier model, rates of increase in social support were not sensitive to the size of the initial investment of emotion in children by mothers or by fathers.

Model 3 shows that the amount of baseline financial transfers made by fathers was positively associated with the average support provided by children to their fathers in 1991. Financial support from mothers positively influenced the rate of change in support provided, such that greater financial contributions were related to sharper increases in the amount of support provided to mothers over the 12-year period \((p < .07)\). No such relationship was observed for fathers.

Finally, in Model 4, we included the three initial transfer variables in the same equation simultaneously. In the equation predicting average support in 1991, only association with parents was a significant predictor of the amount of support to both mothers and fathers. The direct nature of the exchange suggested an investment mechanism of reciprocity with regard to earlier time transfers by parents. The average return of social support on emotional investments in children—significant in Model 1—appeared to be explained by the higher frequency of interaction and shared activities found in emotionally closer relationships.

Predicting the rate of increase in support in our saturated model, we found that greater financial support provided to children at baseline almost significantly raised the marginal rates at which support provided to mothers \((p < .07)\) and fathers \((p < .08)\) increased over time. Because the effects of financial transfers were time dependent, these findings were consistent with an insurance model of exchange. Indeed, the results strengthened with affection and association factors controlled (especially for fathers), suggesting that the effect of financial assistance was suppressed in Model 3 by the relationship strain experienced by some children who were economically dependent on their parents. Further, the constants (fixed intercepts) in each equation, representing the effects among those children who received no support from their parents, were all statistically significant, suggesting that altruistic or other nonreciprocal motivations may have been driving their positive levels and increasing rates of support.

Our final set of tests involved identifying the extent to which physical impairment of each parent triggered a return to the equity built from earlier transfers. In Table 5 we show the interaction terms between the functional limitation of each parent and the three transfers from parents in 1971. The only significant interaction term was between functional limitation and affection with mother in predicting the average amount of support provided to them in approximately 1991. This positive coefficient indicated that func-
Our results reveal partial support for each of the three models of intergenerational exchange. Both mothers and fathers who shared more activities with their children—a proxy for the transfer of the valued resource of time—receive higher levels of support from them, suggesting an investment model of intergenerational transfers. That the return gained by parents is proportional to their initial investment suggests that families function as a forum for direct—although not necessarily simultaneous or equivalent—reciprocity between generations.

By contrast, the reciprocation of early financial transfers to children emerges only over time (financial support did not differentiate level of initial support), suggesting a latency in the response of adult children that is more characteristic of an insurance mechanism. The question remains why financial support to children is the only transfer of the family transfers itself. Financial transfers are not likely to produce the direct “purchase” of support because norms of family life mitigate the use of purely instrumental strategies in kinship groups (Litwak, 1985; Parsons, 1944; Parsons & Bales, 1955). Alternatively, parents who are best equipped to financially assist their children earlier in life may have sufficient resources to remain independent until late in life.

Our most consistent finding is that even under what may be considered to be estranged circumstances—when the early parent–child relationship was emotionally distant, had no time commitment, and involved no financial support—the amount of support provided to parents increases as they age. This suggests a form of altruism whereby children re-
spend over time to the age-related needs of their parents in
spite of the poor quality of their earlier relationships. Supportive behavior of this type may likely be linked to a sense of filial duty on the part of such children (see Richlin-Klonksy & Bengtson, 1996). Research that delves more deeply into the underlying nature of altruistic motivations may well discover another currency of intergenerational value related to the investment of moral capital in children—transferred through early socialization to norms of familism. The use of time to proxy the multiple changes occurring in the older parents may also relate to changes occurring among the children. The expanded duration of the relationship may provide greater opportunity for children, as middle-aged adults, to get to know their parents and empathize with them, increase the emotional maturity needed by children to overcome a legacy of historically weak attachment styles, or be correlated with children having greater resources and fewer competing demands placed on them.

Whether the inclination to return greater amounts of social support over time is contingent on processes particular to old age that lie beyond functional health (such as widowhood, retirement, income loss) can only be inferred from the time trends in the data. It is also not possible for us to know whether adult children are consciously motivated by an explicit sense of obligation to reciprocate for past transfers or whether parents made strategic investments in their children with the expectation of old-age support. However, the lagged nature of the exchange is consistent with the notion that social support is dependent on earlier financial and emotional investments made by parents when triggered by dependency. That interactions with health of parent are not found with regard to slopes should not be surprising because health of parent was included only as a fixed effect in the model. The goal remains for future research to specify which ontogenic changes are most associated with increasing flows of support.

Clearly, economic support from each parent is, in most cases, a joint transfer from common parental assets. Consistent results on this dimension are reflected in the high correlation between parents in financial transfers made to children. Indeed, the correlation between mothers and fathers (for children who responded about both) was high for all transfers (.84 for affection, .85 for association, and .82 for financial), suggesting that it may be more appropriate for researchers to consider the aggregate amount of parental transfers when parents share a common household.

Evidence that functional limitations act as a trigger of equity “withdrawal” is found with regard to average levels of support to mothers as a function of early affection. This finding suggests that moral capital resides more with frail older mothers in terms of the proportionate reciprocation to emotional succor that mothers provided earlier to their children. No interactions with health are found in predicting intercepts or slopes in support to fathers. Early bonding with the maternal figure in the family, so important for the healthy development of the child, also appears to be at the heart of what may be called healthy family development in later life when the physical frailty of parents is most likely to elevate the importance of supportive kinship ties.

The parental transfer measures, particularly financial, are weak in several respects. In the absence of indicators of quantity and quality of financial assistance, we relied on an ordinal measure. Such a measure is not sensitive to the likelihood that the dollar amount and type of the transfer vary depending on the age of the child. However, in tests we performed of interactions between each of the transfers and the age and living arrangements of children, we found no evidence that these characteristics condition the relationships observed. Another issue revolves around the possibility that measures of transfers are biased because they are subjective and reflect only the children’s perception of the events; children may ignore actual transfers or falsely perceive transfers in their absence. The subjective basis of these measures typically produces biases such that children tend to underestimate the magnitude of transfers, although correlations between the reports of the two generations have been observed to be high (Giarrusso, Stallings, & Bengtson, 1995).

There are alternative explanations for how transfers between generations are serially linked that are consistent with our findings. Fixed personality characteristics and family culture may determine support flows that give the appearance of reciprocity. Parents may be more giving to children with “compliant” personalities, who are then more likely to provide support to their parents as a result of this personality characteristic. Alternatively, exchanges that are seem-

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**Table 5. Interaction Effects of Transfers to Children in 1971 and Parent’s Functional Difficulty on Social Support Provided to Mothers and Fathers From 1985 to 1997**

<table>
<thead>
<tr>
<th>Model Parameters</th>
<th>Mother</th>
<th>Father</th>
</tr>
</thead>
<tbody>
<tr>
<td>Random intercept: Support provided</td>
<td></td>
<td></td>
</tr>
<tr>
<td>to parent 5.7 years after 1985; interaction of parent’s functional difficulty with</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association with parent 1971</td>
<td>−.005</td>
<td>.001</td>
</tr>
<tr>
<td>Affection from parent 1971</td>
<td>.006**</td>
<td>−.003</td>
</tr>
<tr>
<td>Financial support from parent 1971</td>
<td>.018</td>
<td>.017</td>
</tr>
<tr>
<td>Random slope: Linear growth rate in support to parent (1985–97); interaction of parent’s functional difficulty with</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Association with parent 1971</td>
<td>−.001</td>
<td>−.004</td>
</tr>
<tr>
<td>Affection from parent 1971</td>
<td>−.001</td>
<td>−.006</td>
</tr>
<tr>
<td>Financial support from parent 1971</td>
<td>.036</td>
<td>−.038</td>
</tr>
</tbody>
</table>

**Notes:** The following variables were controlled and mean centered: gender, age, and education of child; coresidence of child with parent in 1971; and age and functional difficulty of parent. $n = 416$ for mother models and $n = 317$ for father models.

**p < .01; ***p < .001.**
ingly based on reciprocity may result from a family culture that governs both partners’ transfers to each other (see Henrietta et al., 1997). For instance, strong norms of family responsibility may pervade a family and spuriously drive both parental transfers and support from children. A fixed effects model that examines within-family effects would hold such family effects constant by estimating differential transfer-return rates for children in the same families. The response patterns in the Longitudinal Study of Generations did not permit the identification of such a model. However, we have, to some degree, remedied the influence of competing explanations by controlling for education and gender—both of which are related to norms regarding family support patterns (Silverstein, Parrott, & Bengtson, 1995).

The findings of this investigation illuminate some of the principles that guide the serial transfer of resources across generations in the family. The availability of long-term longitudinal data has enabled us to test models that inform theories of reciprocity and altruism in intergenerational family relationships. These models also have the potential to highlight some important policy considerations as well. Economists (Barro, 1974; Becker, 1974) have pointed out that public programs that mandate intergenerational transfers, such as Social Security, are less effective when intergenerational relations operate under principles of reciprocity. If publicly mandated transfers are too low, altruistic children will make up the difference with private voluntary contributions to their parents, keeping the total transfer constant. In contrast, these public programs will have the greatest effect on those who are not altruistically motivated, because they compel even the most reluctant children to transfer (indirectly in this case) at least some resources to their parents. It would appear that support programs do have a real impact on older adults, insofar as exchanges are, to some degree, guided by an intergenerational quid pro quo.

In conclusion, we suggest that the motivation of adult children to provide social support to their older parents is rooted in earlier family experiences and guided by an implicit social contract that ensures long-term reciprocity. Intergenerational family relationships observe many of the same exchange dynamics that provide stability to small social groups. However, the long time lag between investment and return on investment is what may differentiate exchanges in intergenerational relationships from exchanges in other relationships, such as friendships, where the demand to reciprocate is more immediate. Thus, parents interested in optimizing their chances of receiving old-age support would do well to invest in their children well before they, the parents, reach old age. That even parents with minimal investments can expect some support from their children further highlights the complexities in understanding this most fundamental of interpersonal relationships.

Acknowledgments

This research was supported by the following grants from the National Institute on Aging: R01-AG07977, R29-13237, and T32-AG00037.

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Received April 19, 2000

Accepted May 8, 2000

Decision Editor: Fredric D. Wolinsky, PhD