INTER-VIVOS TRANSFERS AND INTERGENERATIONAL EXCHANGE

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Abstract—The surge of interest in intergenerational transfers in the past decade has sparked a debate over the motivation for them. Are transfers given out of altruism or part of an exchange? While each motive is probably at work to some extent, we know little about whether one motive predominates. The question is relevant for issues concerning public income redistribution and inequality in the family but despite its importance, empirical evidence about motives is scarce because of limited data. We investigate a new data set, the National Survey of Families and Households, which remedies many of the shortcomings of other data sets containing private transfer information. We find that empirical patterns for inter-vivos transfers (i.e., transfers between living persons) are more consistent with exchange than altruism.

I. Introduction

EACH year, a great deal of income and wealth is passed from one generation to the next. Though estimates are difficult to pinpoint, the annual flow of bequests, gifts, and support from parents to adult children could well exceed $200 billion in the United States. Kotlikoff and Summers (1981) find that most savings are given as bequests and gifts rather than consumed in retirement. Their finding is controversial (Modigliani, 1988; Gale and Scholz, 1991) but most economists agree that intergenerational transfers are an important feature of the economic landscape. In addition to affecting savings, private transfers influence human capital investments and can help younger families needing assistance with housing down-payments or strapped for funds early in life.

Despite their importance we know little about why transfers occur. One possible motive is altruism. In Becker's (1974) model parents care about the well-being of their progeny, which prompts transfers to children. Another conceivable motive is exchange (Bernheim, Shleifer and Summers, 1985; Cox, 1987). For example, a parent might promise a bequest in exchange for child companionship.

Both altruism and exchange undoubtedly affect transfer behavior but the existing literature provides no consensus as to whether one motive predominates. The few empirical studies have produced conflicting results.

The debate about transfer motives is crucial because the two models predict different private-transfer responses to public transfers. For example, altruists would cut transfers to indigent relatives who can tap increased government aid. But if private transfers are part of an exchange, public transfers need not "crowd out" private ones. In later sections we show that exchange-motivated private transfers can actually reinforce rather than offset the effects of public income redistribution.

Economists are just beginning to investigate the relative strength of private transfer motives. Empirical work on the subject is scarce because of lack of information. Surveys with questions about private transfers are neither common nor comprehensive. Our data set, the National Survey of Families and Households, remedies many existing shortcomings. Before getting to the model and empirical work we summarize the empirical literature on transfer motives to place our findings in perspective.

II. What Do We Learn from the Literature?

Empirical studies of private transfers have yielded mixed results on the question of transfer motives. Menchik (1980) found that estates tend to be divided equally among inheritors. The finding casts doubt on the altruism model, which predicts that donors attempt to equalize the well-being of recipients by giving more to ones with lower income. Tomes (1981) worked with a sample of estates containing information about

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recipients and donors such as income and schooling. Controlling for recipient and donor characteristics, lower recipient income was associated with larger bequests, which accords with altruism.

Equal sharing was much less frequent in Tomes' data set than in Menchik's, but unlike Menchik's data bequests were reported by households rather than taken from actual wills (Menchik, 1988). Menchik's replication of Tomes' sample using actual wills shows that equal sharing predominates. Menchik argues that equal sharing is likely motivated by aversion to the inter-sibling conflict that might arise from appearance of favoritism, and that this aversion dominates altruistic or exchange considerations.

But bequests are not the only way to transfer income; parents can also transfer *inter-vivos*. Inter-vivos transfers are more likely to be intentional and therefore more informative about transfer motives. Using the President's Commission on Pension Policy (PCPP) data set, Cox (1987) found that inter-vivos transfer amounts were positively related to recipient incomes, which contradicts altruism. Patterns for inter-vivos transfers were consistent with exchange.[1] Altonji, Hayashi, and Kotlikoff (1989), using a set of extended families created from the Panel Study of Income Dynamics, find consumption patterns counter to those predicted by altruism.

Bernheim, Shleifer and Summers (1985) explored and tested empirical implications of exchange. They found that parent-child contact increased with the parent's estate, suggesting that parents use bequests to influence child behavior. The positive relationship held only in multiple-child families, so manipulation of children worked only when threats to disinherit were credible. In contrast, Tomes found that inheritances were inversely related to visits children paid to parents. He argued that the result was strong evidence against pure exchange. Despite Menchik's (1988) discovery of measurement error in Tomes' data, the finding suggests that the exchange model deserves further scrutiny.

Since the early 1940s, sociologists have been concerned with in-kind and financial transfers among households. Sussman (1953) and others debunked the myth of isolated nuclear families in post-industrial urban society. Subsequent work on kinship networks pointed to the importance of in-kind services transferred between families. Many findings (e.g., Hill (1970)) indicate reciprocity rather than one-way transfers. But reciprocity is not conclusive evidence for exchange because it is also consistent with two-way altruism.

Modeling transfer behavior helps sort out ways to infer motives. Before describing the data and empirical tests, we lay out a simple model that has testable implications about transfer motives.

III. A Model of Transfer Behavior

We derive testable hypotheses about transfer behavior that can be used to confront the data. The model is a variant of that of Cox (1987). Assume two individuals, the donor (say, the parent) and the recipient (the child). The parent's objective function is

$$U_p = U\big(C_p, s, V(C_k, s)\big), \tag{1}$$

where U_p = parent's well-being; V = child's well-being; C_j $j = p, k$ denote parent and child consumption and s denotes services the child provides to the parent.

Equation (1) features both altruism and exchange. The parent cares about the child's well-being ($\partial U_p/\partial V > 0$) and the child provides services: home production, companionship, visits, moral support, or conformity to parental rules, for example. We focus on the case of parent-child conflict in which $\partial V/\partial s < 0$. The first partials of the other arguments in (1) are positive. In particular, the parent enjoys child services. The constraints are $C_p = I_p - T$ and $C_k = I_k + T$, where I_j and T denote j's pre-transfer income and private transfers, respectively.

Both altruism and exchange predict the same qualitative results for the transfer *decision*. The probability that a transfer occurs is positively related to I_p and inversely related to I_k. With exchange, increases in I_p raise the parent's demand price for services; increases in I_k raise the

[1]The PCPP data set, however, does not contain information about incomes of potential donors, except in instances in which transfers occur within households. The lack of information about donor income raises the possibility that the recipient-income coefficient could be affected by omitted-variable bias. Though most evidence suggests the bias would be small (Becker and Tomes, 1986), its direction stacks the cards against the altruism model. The data set in this paper remedies the donor-income deficiencies of the PCPP, and the findings below indicate that any omitted-variable bias in the PCPP estimates is likely to be small.

child's supply price of services. With altruism, the poorer the child is relative to the parent the greater the likelihood a transfer occurs.

The two models part ways when it comes to predictions about the effect of I_k on transfer *amounts*. The sign hypothesis depends on transfer motives. If a parent is effectively altruistic (i.e., wants to increase V), $\partial T/\partial I_k < 0$. Other things equal, children with higher I_k require smaller transfers to attain consumption that is optimal from the parent's point of view. The predicted impact can be large. For example, with Cobb-Douglas preferences and equal weighting of parent and child utility ($U_v = 1$), a dollar increase in I_k is met with a fifty-cent reduction in T.

Suppose private transfers are instead exchange-motivated (i.e., payments for child-services). Assume the terms of the exchange are determined, for example, by Nash bargaining.[2] Transfers can be expressed as $T = ps$, where p denotes the "price" of services. The effect of an increase in I_k on T for a given level of services, $\bar{s}$, is

$$\frac{\partial T}{\partial I_k} = \frac{\partial p}{\partial I_k}\bar{s}. \tag{2}$$

Except for unusual parameter configurations in (1), expression (2) is positive. The implicit price of services increases with I_k. The sign difference runs counter to that of the altruism model, allowing us to test for transfer motives.

The result in (2) demonstrates that public transfers need not "crowd out" private ones. Instead, the effects of public transfers can be *reinforced* by private responses. Raising public transfers improves lower-income individuals' terms of trade in exchange.

How can we speak of altruism and exchange motives separately, when objective function (1) contains both? The reason is that only one motive determines behavior at the margin. To illustrate, suppose the parent dominates the bargaining, constrained only by the condition that the child be no worse off with the bargain than on his own. If this constraint does not bind, the transfer motive is altruistic—the child's well-being increases. Otherwise, the motive is exchange—transfers provide exact compensation for services.[3]

To summarize, if altruism motivates transfers, increases in child income should reduce both the probability and amount of transfers. But with exchange, increases in child income *diminish* the probability that a transfer occurs but *increase* transfer amounts. In addition, the exchange model predicts, almost by definition, that financial transfers given to children are positively associated with services (e.g., contact, help) that children provide to parents.[4] A positive relationship between transfers and services is possible under altruism as well, so such a finding would not convey much information about transfer motives. But a positive relationship is *necessary* for exchange, so finding an *inverse* one (as Tomes did) would convey information by casting doubt on exchange.

IV. The Data-set and Sample

We use the National Survey of Families and Households (NSFH) to test for transfer motives. The NSFH is especially well-suited for our purposes because it contains information on private inter-vivos transfers, measures of in-kind services (contact and help), and parental characteristics we use to measure parental permanent income.

The NSFH is an interview survey of 13,017 households conducted between March 1987 and May 1988. It contains a main sample of 9,643 and an over-sample: a double-sampling of blacks, Puerto Ricans, Chicanos, single parents, persons with step-children, cohabiting persons, and newlyweds.[5] The NSFH randomly determines the primary respondent, who is usually the householder or the householder's spouse. In a few cases an adult child or other relative was selected and since our focus is inter-household transfers from parents to children, we deleted these cases. For

[2] The Nash-bargained solution can be sketched as follows. Define parent and child "threat points," U_0 and V_0, as the well-being associated with severing their relationship (i.e., $T = s = 0$). The Nash solution is the pair (T, s) that maximizes the product $(U - U_0) \times (V - V_0)$.

[3] The dominant-parent assumption is implicit in the altruism model, so that other bargaining frameworks (e.g., Nash) fall into the realm of exchange rather than altruism.

[4] Stepping outside the simple model, parental compensation for services need not be contemporaneous. Parents may defer payments as bequests to insure that they have the "last word" in bargaining with children (Bernheim, Shleifer, and Summers, 1985). Alternatively, parents might pay for services in advance if their children face liquidity constraints early in life (Cox, 1990).

[5] Detailed information about the NSFH is available in Sweet et al. (1988).

the same reason we deleted respondents who had one or more parents or in-laws living with them and those who had no living parents or in-laws. We also deleted non-married co-habitors, cases with missing values for age, earnings or education, or extreme values for income or transfers (more than $10 million and $0.9 million, respectively). Finally, we deleted the over-sample, and we treat our sample as a self-weighting one.[6]

V. The Empirical Framework

We focus first on the transfer decision. Both altruism and exchange predict that the probability of a transfer is inversely related to the income of potential recipients (I_k) and positively related to that of donors (I_p). Exchange considerations imply that the probability of a transfer is related to the amount of services (s) the respondent provides to parents. Since exchange need not be contemporaneous and evidence from the kinship-interaction literature indicates that demographic variables matter for parent-child interaction, we include indicators of marital status and gender.[7]

Recent evidence indicates that transfers are used in part to help households overcome constraints on borrowing (Cox, 1990; Cox and Jappelli, 1990). If capital markets are imperfect, transfers depend on the relationship between current and permanent income and the timing of transfers will be important. So we enter permanent income variables—education, race (as well as marital status and gender) along with age in the transfer decision function. This vector is denoted by **D** and it also contains the number of siblings and living parents and household size. Indexing households by i and adding a stochastic component, the latent variable for the transfer decision is

$$t_i = b_0 + b_1 I_{ki} + b_2 I_{pi} + b_3 s_i + b_4 \mathbf{D}_i + \epsilon_i \quad (3)$$

and

$$T_i > 0 \quad \text{iff } t_i > 0, \qquad T_i = 0 \quad \text{otherwise.}$$

The sign hypotheses for the first two variables are $b_1 < 0$, $b_2 > 0$, regardless of motive. The exchange model predicts a positive coefficient for b_3, though this is consistent with reciprocal altruism as well.

The key to inferring transfer motives is a possible sign difference for the recipient-income coefficient in the decision versus amount equation. Exchange predicts a *negative* effect of recipient income on the probability of transfer receipt but a *positive* effect on amounts, given a transfer occurs. Altruism predicts a negative sign for recipient income in each equation.

A basic estimating equation for transfer amounts is

$$T_i = c_0 + c_1 I_{ki} + c_2 I_{pi} + c_3 s_i + c_4 \mathbf{D}_i + E(\eta_i | T_i > 0) \quad (4)$$

where η_i is a random error component. The sign hypothesis for c_1 is positive under exchange and negative under altruism.[8]

VI. Variables

Transfers: Respondents were asked to report the value of gifts and loans over $200 received from other households in the last five years. They also identified the source of the transfer (parent, child, grandparent, etc.). Respondents were asked the same questions for transfers they gave. Our measure of transfers is the positive difference between amounts received and amounts given to parents.

Total Parental Income: Parental income is imputed from earnings functions estimated within the sample for men and women. The NSFH contains information on parental schooling, occupation and age. We use the estimations to impute permanent income for parents by substituting their characteristics into the respondent earnings functions to predict parental earnings at a standardized age (45). We also impute a cohort effect (three-quarters of one percent) to reflect

[6] We discuss results from alternative sample-selection criteria below. A referee points out that since most national surveys, the NSFH included, are based on clustered survey samples, significance tests can be rendered non-conservative as a result.

[7] Sociologists have found that female adult children provide more services (e.g., companionship, help with home production and assistance during illness) than males (Hill, 1970; Leigh, 1982; Stoller, 1983). Married family units have been found to provide less assistance to other households than single ones (Tomes, 1981; Stoller, 1983).

[8] Actually, the difference in predictions for current income under the two regimes is much stronger than a possible sign difference. The predicted offsets are dollar-for-dollar holding the sum of donor and recipient income constant, so the hypothesized value of $c_1 - c_2$ is -1.

TABLE 1.—PROBIT AND GENERALIZED TOBIT ESTIMATES FOR TRANSFERS RECEIVED
(*t*-values in parentheses)

	(1) Probit[a]		(2) Generalized Tobit	
Variable	Coefficient	Variable Mean	Coefficient	Variable Mean
Constant	−1.734	1.000	6539.31	1.000
	(−8.45)		(0.42)	
Earnings	-0.162×10^{-5}	34,234	0.055	35,775
	(−2.43)		(3.12)	
Years of Education	0.084	13.488	183.762	14.410
	(7.86)		(0.36)	
Age	−0.010	37.820	182.395	34.476
	(−3.37)		(2.09)	
Married, Spouse Present	−0.017	0.629	−2113.75	0.647
	(−0.18)		(−0.97)	
Non-married Female	−0.015	0.236	−3467.25	0.211
	(−0.19)		(−2.07)	
Black	−0.466	0.080	393.299	0.032
	(−4.21)		(0.10)	
Number of Siblings	−0.034	5.142	−31.498	4.386
	(−4.28)		(−0.12)	
Household Size	0.011	2.903	665.836	2.902
	(0.57)		(1.54)	
Number of Parents Alive	−0.092	2.330	−2587.72	2.660
	(−1.61)		(−2.06)	
Total Parental Income	0.115×10^{-4}	49,318	0.052	61,429
	(5.62)		(0.77)	
Contact	0.638×10^{-3}	138.40	1.106	153.94
	(2.37)		(0.16)	
Help	0.119	0.422	−1091.15	0.522
	(2.39)		(−0.90)	
Selectivity Variable	—	—	−5967.25	1.110
	—		(−0.80)	
Dependent Variable Mean	0.259		Dependent Variable Mean	6,460.84
Observations	3,643		Observations	945
Households Receiving a Transfer	945		R^2	0.05
Likelihood at Binomial	−2085.4		*F*-statistic	3.863
Log likelihood	−1868.3			

[a] Dependent variable = 1 if net transfer received, 0 otherwise

productivity increases.[9] Total parental income is the sum of imputed parental incomes for living parents and in-laws.

Contact: This variable is the number of visits and telephone calls made to respondent's and spouse's parents during the survey year. Respondents reported frequency of contact, which we translate into number of contacts: not at all—0; about once a year—1; several times a year—6; one to three times a month—24; about once a week—52; several times a week—100. We add visits and telephone calls and aggregate across parents and in-laws.

Help: Survey respondents reported informal help given from five categories: babysitting, transportation, repairs, work around the house, and advice. Our help measure is a dummy variable that takes on a value of one if the respondent reported giving help to parents.

VII. Estimates

Main Results

We estimate equation (3) using probit and equation (4) using generalized Tobit (table 1).

[9] The cohort effect is one-half the average increase in output per person-hour from 1957 to 1985. The earnings functions are estimated using Heckman's (1979) generalized Tobit and are available on request. For in-laws, only schooling and age are available, so to impute their permanent income we repeat the process above omitting occupation from the earnings function estimates. We exclude observations with missing information relevant for imputation of parental income.

The evidence supports the exchange motive for transfers and casts doubt on altruism. Recall that altruism implies a negative coefficient for respondent earnings in both the probit and amount equations. Exchange predicts that the coefficient changes sign: negative in the probit (column 1), positive in the amount equation (column 2). We find the exchange pattern. The negative impact of earnings on the probability of transfer receipt is statistically significant but small: a $20,000 increase in earnings reduces the probability of receiving a transfer by 1 percentage point. The same boost in earnings increases transfer amounts by $1,100.

Altruism predicts that a dollar increase in the earnings of recipients, coupled with a dollar decline in the earnings of donors, should reduce transfers by one dollar. So the coefficient of recipient earnings minus the coefficient of parental earnings, under the null hypothesis of altruism, should sum to -1. The actual point estimate of this sum, from table 1, column 2, is 0.003. The altruism hypothesis is rejected.[10]

Further, we find that contact and help are positively related to the probability of transfer receipt (table 1, column 1). Increasing contact from zero to 200 or giving help to parents is each associated with about a 4 percentage-point increase in the probability of receipt. The two variables do not enter significantly in the transfer amount equation. The coefficient for help is negative, but an inverse relationship between service measures and transfer amounts received need not refute exchange. If demand for child services is price inelastic, an increase in the quantity of services would be associated with a decrease in transfers.

Additional Findings

The probit estimates in table 1 indicate that transfers are targeted to the well-educated and young, which accords with other studies (Cox, 1987, 1990; Cox and Jappelli, 1990). One explanation has to do with borrowing constraints. Younger people have more difficulty getting bank loans (Jappelli, 1990) and those with more education have higher future earning potential, which increases their demand for loans. Education may pick up effects of past transfers as well.

Parental income is positively associated with both the incidence and amount of transfers, though the coefficient in the amount equation is not precisely estimated. The number of living parents is inversely related to transfer amounts, indicating that higher per capita parental income leads to larger transfers. We also re-estimated the generalized Tobit in table 1 omitting parental variables to check the sensitivity of the child-earnings coefficient to omission of donor income.[11] The child-earnings coefficient was only two-tenths of a cent larger in this instance, which suggests that any omitted-donor-income bias from the use of data sets with incomplete donor-income information (e.g., the PCPP) is likely to be small.

Blacks and respondents with a lot of siblings are less likely to get a transfer. The first result is consistent with findings from other data sets (Cox, 1987; Cox and Jappelli, 1990). Marital status and gender have negligible effects on the incidence of transfers, and non-married females receive smaller transfers. These results differ from earlier studies. Findings from the PCPP (Cox, 1987) and the Survey of Consumer Finances (SCF) (Cox and Jappelli, 1990) show that female-headed households are more likely to receive an inter-vivos transfer. One interpretation of the result is that women are involved in the provision of inter-household services, which earlier studies did not control for. Including services would dilute the estimated impact of female status on transfers. But dropping contact and help to replicate earlier

[10] The Wald test-statistic for the altruism hypothesis is 166.79, which is significant at any popular level. We also investigated the possible endogeneity of earnings in the generalized Tobit to see whether the positive coefficient for earnings is simply the artifact of simultaneity bias. Such bias could be present if, for example, parents make large human-capital transfers that boost earning potential of children and there are large fixed effects for transfers. We added instrumental variables for earnings and schooling using the following: parental education, parental occupation, number of siblings, race, marital status, receipt of public assistance in childhood, mean county income, county percentages of high-school dropouts and college graduates, and cubics in age and spouse's age. A Hausman-Durbin-Wu misspecification test (Hausman, 1978; Nakamura and Nakamura, 1981) generates $\hat{\chi}^2_2 = 3.42$, which is not significant at even the 0.10 level ($\chi^2_{10} = 4.61$).

[11] Results available on request.

studies more closely does not affect the female-status coefficient much.[12]

Inter-vivos gifts reported in the NSFH are non-trivial in terms of incidence and magnitude. Twenty-four percent of respondents were net recipients (table 1). The average amount among recipients, aggregated over five years was $6,461 or $1,292 at an annual rate.

VIII. A Proxy-Variable Approach

A possible objection to the specification in table 1 is that the coefficients for contact and help could reflect mutual altruism rather than exchange. We supplement our findings by using distance as a proxy for services. Distance is correlated with services because it increases the cost of providing them. Money can be transferred over long distances at trivial cost, but help and companionship are more easily delivered when donor-recipient pairs are geographically close.

But to be a useful proxy distance must not be correlated with altruism. One might argue that more affectionate parent-child pairs might live closer, imparting a spurious relationship between distance and altruistic financial transfers. But Adams (1968) found little relationship between self-reported measures of affection and geographic distance. The major determinants of distance from parents are likely to be labor-market factors that have little to do with altruism.

Our distance variable is the average distance of the respondent from parents and in-laws. The results using distance as a proxy for services are presented in table 2. Distance is inversely related to the probability of transfer receipt, which is expected if transfers are payments for in-kind services that are more costly to provide over longer distances. A four-hundred-mile increase in distance is associated with about a 0.7 percentage-point decline in the probability of receiving a transfer. Distance enters negatively in the transfer amount equation as well but the coefficient is imprecisely estimated.

The finding that distance is inversely related to the probability of transfer receipt casts doubt on the idea that transfers are given with no strings attached. The cost of making a financial transfer is negligible. If transfers were motivated solely by altruism, distance should not matter for the transfer decision.[13]

In addition to distance, we added two other proxies in table 2: presence of a non-working female in the respondent household and a dummy indicating whether parents were married and living together. The first variable reflects the idea that women are disproportionately involved in the provision of parental services and being a nonworker may make time demands more flexible so the household can provide more services to parents. The second variable is an indicator of parental demand for contact. A priori, its sign hypothesis is ambiguous: if parents are together, a given visit confers more total utility but parents without spouses might have a higher demand for companionship.

We find that presence of a female nonworker enters negatively in the probit but positively in the generalized Tobit but neither coefficient is significant at conventional levels. The net effect is to raise expected receipts by $72, though the negative coefficient in the probit equation is counter to existing findings about female status and provision of services.[14] The probability of transfer receipt rises by 4.7 percentage points when parents live together, suggesting that the demand for contact increases in this instance.[15]

[12] Results available on request. One possible explanation for the differences in findings for female status is the wording of the surveys. The question dealing with inter-vivos transfers in the SCF contains the phrase "financial support" in addition to "gifts" from relatives. The PCPP contains a detailed module that measures inter-vivos transfers from a variety of sources, and includes intra-household transfers between persons aged 18 and over. The NSFH asks only about gifts from other households but uses a longer time frame which makes transfer incidence higher than that of other surveys. So the inter-vivos transfer measures of the different surveys are not strictly comparable. We explore further the issue of gender effects below.

[13] The only caveat is that donors who are close might be more aware of recipient needs though it is unclear whether increased awareness would raise financial transfers.

[14] Non-work status could be picking up the effects of the presence of young children, but, consistent with other studies of inter-vivos transfers, the coefficient of a dummy variable for children under age 5 proved negligible and insignificant in other regressions we estimated.

[15] Experiments with parental health-status variables failed to uncover any significant effects. Parental health enters with an ambiguous sign, a priori, since it may raise the amount of contact parents want but lower their ability to make financial transfers.

TABLE 2.—PROBIT AND GENERALIZED TOBIT ESTIMATES FOR TRANSFERS RECEIVED DISTANCE AS PROXY FOR SERVICES
(t-values in parentheses)

	(1) Probit[a]		(2) Generalized Tobit	
Variable	Coefficient	Variable Mean	Coefficient	Variable Mean
Constant	−1.555	1.000	7354.10	1.000
	(−7.81)		(0.49)	
Earnings	-0.176×10^{-5}	34,234	0.057	35,775
	(−2.60)		(3.11)	
Years of Education	0.082	13.448	142.836	14.410
	(7.68)		(0.28)	
Age	−0.011	37.820	193.320	34.476
	(−3.76)		(2.08)	
Married, Spouse Present	0.079	0.629	−2125.69	0.647
	(0.81)		(−0.95)	
Non-married Female	0.021	0.236	−3816.52	0.211
	(0.27)		(−2.28)	
Black	−0.445	0.080	689.335	0.032
	(−4.01)		(0.18)	
Number of Siblings	−0.037	5.142	−25.942	4.386
	(−4.55)		(−0.09)	
Household Size	0.010	2.903	579.807	2.902
	(0.52)		(1.34)	
Number of Parents Alive	−0.114	2.330	−2807.88	2.660
	(−1.92)		(−2.04)	
Total Parental Income	0.111×10^{-4}	49,314	0.048	61,429
	(5.49)		(0.69)	
Distance	-0.584×10^{-4}	431.54	−0.334	397.68
	(−2.12)		(−0.45)	
Parents Together	0.155	0.585	826.047	0.732
	(2.43)		(0.51)	
Non-working Female	−0.089	0.154	2031.16	0.171
	(−1.43)		(1.35)	
Selectivity Variable	—	—	−6597.50	1.111
	—		(−0.85)	
Dependent Variable Mean	0.259		Dependent Variable Mean	6460.84
Observations	3,643		Observations	945
Households Receiving a Transfer	945		R^2	0.05
Likelihood at Binomial	−2085.4		F-statistic	3.793
Log likelihood	−1869.3			

[a] Dependent variable = 1 if net transfer received, 0 otherwise.

IX. Other Findings

This section summarizes a variety of additional empirical results.[16] One problem for married couples is that the connection between financial transfers received and services could be spurious. Suppose a couple receives money from one set of parents but visits and helps the other. Though they receive financial transfers and give services there is no reciprocity. How do we know that contact with, say, the husband's parents is what triggers financial transfers from them?

We addressed this question by focusing on married couples and disaggregating variables into husband- and wife-specific values. We estimated a bivariate probit that regresses transfer occurrence from husband's and wife's parents separately, expressed as a function of services to husband's and wife's parents.[17] The results are

[16] Detailed estimates are contained in an appendix available on request.

[17] We also include spouse-specific variables for earnings, education, number of siblings and living parents, and parental income.

summarized below:

Variable	Transfer Received from Husband's Parents: Coefficient	Asymptotic *t*-value
Contact with Husband's Parents	0.104×10^{-2}	1.77
Contact with Wife's Parents	-0.227×10^{-3}	−0.47
Help—Husband's Parents	0.097	1.08
Help—Wife's Parents	−0.113	−1.30

Variable	Transfer Received from Wife's Parents: Coefficient	Asymptotic *t*-value
Contact with Husband's Parents	-0.408×10^{-3}	−0.71
Contact with Wife's Parents	0.151×10^{-2}	3.16
Help—Husband's Parents	0.054	0.59
Help—Wife's Parents	0.146	1.76

The results are consistent with the idea that financial transfers are payments for services. Transfers from the husband's parents are positively related to contact and help targeted to them, but not to services targeted to the wife's parents. A similar pattern emerges for transfers from the wife's parents.

Next we investigated whether our results are sensitive to the deletion of the oversample by including it and weighting observations by the inverse of the probability of sample inclusion. The results are similar to those reported above.[18] We also looked into whether the affluent behave differently by stratifying our sample to households earning $45,000 or more (roughly the uppermost quintile). In this sample the pattern of earnings effects on transfers is the same as reported above, but contact is not significantly related to transfer receipt. A possible explanation is that the more affluent can afford substitutes for child companionship. Alternatively, contact could be a poorer indicator of child services in upper-income samples.

Finally, recall that the initial impetus for the inquiry into transfer motives stemmed from concerns about the impact of public income redistribution on transfer behavior. A detailed investigation of the connection between public and private transfers is difficult with the NSFH because state indicators are not available, which precludes measuring, for example, the generosity of Aid to Families with Dependent Children and modelling welfare participation decisions. (An analysis of the connection between public and private transfers using the PCPP, which contains state codes, is contained in Cox and Jakubson (1991).) The NSFH contains an aggregate measure of public assistance income, which we included in the private-transfer functions along with the other regressors. These estimates indicate that public transfers are inversely related to the probability of private transfer receipt but unrelated to private transfer amounts. The estimates indicate that public transfers do "crowd out" the *incidence* of private transfers (consistent with both altruism and exchange) but need not crowd out private-transfer amounts.[19] In light of our evidence for private-transfer motives, the impact of public transfers is likely to be different from that predicted by the altruist model.

X. Conclusion

We find that transfer behavior fits the exchange model more closely than the altruism model. Respondent earnings affects the probability of transfer receipt and transfer amounts in opposite ways, as predicted by the exchange model. And the probability of receiving a transfer is positively related to measures of child services, which is consistent with exchange.

The finding that recipient earnings and transfer amounts received are positively related agrees with findings from other studies of inter-vivos transfer behavior. The result does not appear to be the artifact of omitted donor income, because we can control for donor permanent income in the NSFH. Future modeling of family transfer behavior should come to grips with this robust empirical finding.

[18] A referee suggested that we investigate whether the results are sensitive to a further modification—weighting the main-sample observations by the inverse of the probability of fulfilling the sample-selection criteria in section IV. These estimates are also similar to those reported above.

[19] The coefficients for public assistance income are as follows: probit, -0.658×10^{-4} ($t = -2.01$), generalized Tobit, 0.08 ($t = 0.08$). The probit coefficient indicates that a $5,000 increase in public-assistance income reduces the probability of private-transfer receipt by 9 percentage points.

REFERENCES

Adams, Bert N., *Kinship in an Urban Setting* (Chicago: Markham, 1968).

Altonji, Joseph G., Fumio Hayashi, and Laurence J. Kotlikoff, "Is the Extended Family Altruistically Linked? Direct Tests Using Microdata," National Bureau of Economic Research Working Paper No. 3046 (July 1989).

Barro, Robert J., "Are Government Bonds Net Wealth?" *Journal of Political Economy* 82 (Nov./Dec. 1974), 1095–1117.

Becker, Gary S., "A Theory of Social Interactions," *Journal of Political Economy* 82 (Nov./Dec. 1974), 1063–1093.

Becker, Gary S., and Nigel Tomes, "Human Capital and the Rise and Fall of Families," *Journal of Labor Economics* 4 (July 1986), S1–S39.

Bernheim, B. Douglas, Andrei Shleifer, and Lawrence H. Summers, "The Strategic Bequest Motive," *Journal of Political Economy* 93 (Dec. 1985), 1045–1076.

Cox, Donald, "Motives for Private Income Transfers," *Journal of Political Economy* 95 (June 1987), 508–546.

———, "Intergenerational Transfers and Liquidity Constraints," *Quarterly Journal of Economics* 105 (Feb. 1990), 187–217.

Cox, Donald, and Tullio Jappelli, "Credit Rationing and Private Transfers: Evidence from Survey Data," this REVIEW 72 (Aug. 1990).

Cox, Donald, and George Jakubson, "The Connection between Public Transfers and Private Interfamily Transfers," mimeographed, Boston College, 1991.

Gale, William G., and John Karl Scholz, "Intergenerational Transfers and the Accumulation of Wealth," mimeographed, University of California at Los Angeles, 1991.

Hausman, Jerry A., "Specification Tests in Econometrics," *Econometrica* 46 (Nov. 1978), 1251–1271.

Heckman, James J., "Sample Selection Bias as Specification Error," *Econometrica* 47 (Jan. 1979), 153–161.

Hill, Reuben, *Family Development in Three Generations: A Longitudinal Study of Changing Family Patterns of Planning and Achievement* (Cambridge, MA: Schenkman, 1970).

Jappelli, Tullio, "Who Is Credit Constrained in the U.S. Economy?" *Quarterly Journal of Economics* 105 (Feb. 1990), 219–234.

Kotlikoff, Laurence J., and Lawrence H. Summers, "The Role of Intergenerational Transfers in Aggregate Capital Accumulation," *Journal of Political Economy* 89 (Aug. 1981), 706–732.

Leigh, Geoffrey K., "Kinship Interaction over the Family Life Span," *Journal of Marriage and the Family* 44 (Feb. 1982), 197–208.

Menchik, Paul L., "Primogeniture, Equal Sharing, and the U.S. Distribution of Wealth," *Quarterly Journal of Economics* 94 (Mar. 1980), 299–316.

———, "Unequal Estate Division: Is It Altruism, Reverse Bequests, or Simply Noise?" in Denis Kessler and Andre Masson (eds.), *Modelling the Accumulation and Distribution of Wealth* (Oxford: Oxford University Press, 1988).

Modigliani, Franco, "The Role of Intergenerational Transfers and Life Cycle Saving in the Accumulation of Wealth," *Journal of Economic Perspectives* 2 (Spring 1988), 15–40.

Nakamura, Alice, and Masao Nakamura, "On the Relationships among Several Specification Error Tests Presented by Durbin, Wu and Hausman," *Econometrica* 49 (Nov. 1981), 1583–1588.

Stoller, Eleanor P., "Parental Caregiving by Adult Children," *Journal of Marriage and the Family* 45 (Nov. 1983), 851–858.

Sussman, Marvin B., "The Help Pattern in the Middle Class Family," *American Sociological Review* 28 (Feb. 1953), 22–28.

Sweet, James, Larry Bumpass, and Vaughn Call, "The Design and Content of the National Survey of Families and Households," Working Paper NSFH-1, Center for Demography and Ecology, University of Wisconsin-Madison (1988).

Tomes, Nigel, "The Family, Inheritance, and the Intergenerational Transmission of Inequality," *Journal of Political Economy* 89 (Oct. 1981), 928–958.