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Abstract

We study the nature and pattern of *inter vivos* two-sided intergenerational transfers of money and time between parents and adult children. Using data the 1988 cross-section of the PSID, we examine empirically the existence of altruism and exchange between two successive generations. Our empirical findings support the notion that intergenerational transfers are motivated by altruism. They do not support the presence of an exchange motive.

JEL Classification: C25, C35, J13, J14
Keywords: *Inter vivos* intergenerational transfers, Altruism, Exchange

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The data used in the estimations of this paper have been archived with the Survey Research Center of the University of Michigan.

1 Introduction

During the past two decades resource transfers among family members and across generations have received particular attention by economists. This has, in part, been motivated by the difficulty the life cycle-permanent income theory has faced in explaining the savings behavior of households [Menchik and David (1983); King (1985); Kotlikoff (1987); Hayashi, Ando and Ferris (1988); Hurd (1987, 1989, 1990)]. Intergenerational transfers of resources are found to play an important role in capital accumulation and distribution of income [Kotlikoff and Summers (1981, 1986, 1988), and Gale and Scholz (1991)], and in consumption smoothing [Kan (1996)].

Intergenerational transfers may occur in a variety of ways. Transfers can take place while donors are alive (i.e., *inter vivos* transfers) or they occur after the death of donors as planned, or unplanned, bequests. Transfers may also take place in both directions. That is, parents may transfer to children and children may transfer to parents. Transfers can be non-monetary or in-kind, e.g., in terms of time help to parents or in the form of payment of costs of education. *Inter vivos* transfers are an important mechanism of intergenerational transfers [see Kotlikoff and Summers (1981, 1986, 1988), Kotlikoff (1987)], but have received much less attention, perhaps because of unavailability of suitable data. Cox and Raines (1983), Kurz (1984), Cox (1987), Cox (1990), Cox and Rank (1992) and Kan (1996) are notable exceptions.

While the magnitude and importance of intergenerational transfers are largely confirmed, the underlying motives are less well understood. Empirical work has aimed at determining the dominant motive of intergenerational transfers. The two major competing hypotheses are: the altruism hypothesis, that is, transfers are made out of a donor's concern over the wellbeing of the recipient; and the exchange hypothesis, that is, monetary transfers are made in lieu of payments for services received. Early studies of transfer motives mainly pertain to bequest behavior. The altruism hypothesis has been controversial. Some findings are supportive [Tomes (1981, 1988)] while others are not [Menchik (1980); Menchik (1988); Wilhelm (1990)]. The exchange motive of bequest was proposed first by Bernheim, Schleifer, and Summers (1989).

Findings supporting both the altruism hypothesis and the exchange hypothesis of *inter vivos* intergenerational transfers have also been reported in the literature. Cox (1987) and Cox and Rank (1992) develop cooperative game-theoretic models and test empirically whether intergenerational

transfers are made by parents out of altruism or in exchange for children's services. Their test rests on the implications of their behavioral model that if altruism is the dominant motive, a negative relationship between income and monetary transfers will *not* be observed. However, both a positive and a negative such relationship are consistent with the exchange hypothesis. They obtain a positive relationship between earnings and money transfers received, which leads them to reject the altruism hypothesis.

Cox (1987) is the first to examine the motives of *inter vivos* transfers. More recently, Altonji, Hayashi and Kotlikoff (1992a) and Pollack (1993), are motivated by issues similar to those taken up in the present study, use the same data as in the present study, but employ theoretical and empirical approaches which are different from ours. While Altonji, Hayashi and Kotlikoff (1992a) conduct their empirical work based on Cox's (1987) behavioral model, Pollack (1993) explores a cooperative bargaining model to obtain empirical implications of an altruism vs. an exchange motive for transfer behavior of parents and children. It appears, however, that the behavioral implications are invariant to the game-theoretic solution concept being adopted. In their empirical work, both Altonji, Hayashi and Kotlikoff (1992a) and Pollack (1993) match households with their parents in the sample and study the interaction between a household and *each* of the living parents (including in-laws). In the present study we treat parents (including in-laws) as a *group* so as to simplify econometric modeling. Differences in data setups lead to different empirical methods employed in the three papers.

The three papers complement each other in providing a comprehensive study of the motive of transfers using different data setups and econometric specifications. The conclusions drawn by the three papers are quite similar. They all accept the altruism motive for intergenerational transfers. Furthermore, these findings are in agreement with those obtained by McGarry and Schoeni (1994), which are based on data from the Health and Retirement Survey (and to some extent from 1988 PSID as well), who find a negative relationship between a respondent's earnings and the amount of monetary transfers that he/she receives.

While altruism is identified by Altonji, Hayashi and Kotlikoff (1992a), Pollack (1993), and McGarry and Schoeni (1994), as well as the present study, as the major motivation underlying *inter vivos* intergenerational transfers, based on panel data from the 1976–1987 PSID, Altonji, Hayashi

and Kotlikoff (1992b) reject the existence of perfect altruism in extended families. Taken together, these findings imply that *inter vivos* intergenerational transfers are likely to be altruistically motivated with the degree of altruism being less that perfect.

With few exceptions[1] little emphasis has been given to in-kind (e.g, education and time) *inter vivos* intergenerational transfers. On the other hand, most previous works study only transfers by parents to children. Notable exceptions are Grossman (1982) and Kimball (1987).[2] The empirical evidence, which is extensively discussed in Section 2 below, indicates that transfers in both directions, i.e., by parents to children and by children to parents, do occur and are substantial.

We examine empirically *inter vivos* intergenerational transfers in a more general manner than earlier works by incorporating both transfers of money and time and by taking into consideration transfers in both directions. We use econometric methods involving limited dependent variables to study the nature and pattern of *inter vivos* intergenerational transfers and to test the existence of altruism and exchange in the context of intergenerational transfers of money and time. Our empirical analysis suggests that parents and their adult children are altruistic toward each other in making transfers and that exchange is not an important component of the parent-child relationship. The empirical findings also point to an asymmetric pattern in intergenerational transfers behavior. A high degree of heterogeneity is found among parents in our sample. Parents' 'altruism' is not of uniform intensity and plays an important role in parents' decisions to give transfers to their children. In contrast, we do not find the same degree of heterogeneity among adult children as among parents. We interpret this as implying that adult children's transfers to parents are mainly based on their parents' needs. While parents' time transfers to their children do not have a significant effect on their children's money transfers, time transfers given by adult children to their parents are found to cause an increase in the likelihood of transfers (both of time and money), and in the amount, should transfer occur, which are made by parents to their children.

The organization of the paper is as follows. Section 2 describes details of the data which serves to motivate We discuss our econometric methods and empirical results in Section 3. Section 4

[1] Adams (1980) and Cremer, Kessler and Pestieau (1992) examine transfers in terms of education in addition to monetary transfers.

[2] We believe that Grossman (1982) was the first paper to model parents' caring for children and children's caring for parents and to explore theoretically the efficiency role of such two-directional care in overlapping-generations models. See also Blanchard and Fischer (1989), 107–110, who draw on Kimball (1987).

concludes.

2 Data

Our empirical work is based on cross-sectional data from the 1988 wave of the Panel Study of Income Dynamics (PSID). The 1988 PSID cross-section contains a sample of 7114 households. The data include detailed information about households' socioeconomic characteristics, e.g, income, labor supply, family composition, education, health, etc. Some information pertaining to parents of household heads and spouses is also available and includes net wealth, total income, education level, age, house value and whether parents are still married to each other.

Specifically, the 1988 questionnaire of the PSID gives special emphasis on *inter vivos* transfers between the respondents and their parents by including a major supplement asking households about dollar amounts and time help received from, and given to, other family members. Respondents were asked whether the head or the wife had received any money or help from any people outside the family unit, and, if they had, what the amounts were in 1987. About 21.1% of the households reported receiving money, averaging \$2326.4, and about 29.6% of them reported received help in terms of time, averaging 337.3, hours in 1987. Households were also asked if they had given any money or help to other family members, relatives and friends (i.e., parents, siblings, children, ex-spouses, relatives, friends, etc), and, if they had, what the amounts were. About 16.1% of the households transferred money, averaging \$3310.0, to those people, whereas, 33.8% of them transferred time with an average of 383.4 hours to them.

We use "offspring" households as the units of observation. In our econometric work, we model parents (including in-laws) of a household as a group that makes collective decisions about transfers of money and time to an offspring household[3]. By aggregating in this fashion, we reduce substantially the dimensions of the analytic model. Transfers by parents and in-laws as a group to a child are defined as functions of the group's average characteristics. That is, we add up the incomes of all parents of a household and divide the total with the number of parents who were alive during the survey period to derive the average income level of parents (AVEPTINC). There are three more

[3]Because we do not need to use data on the exact amounts of transfers made by each of the parents, data from the main file, instead of those from the special supplement, are used.

variables that are constructed for the same reason and in like manner: average net wealth of parents (AVEPNET), average education level of parents (AVEPEDUC), and average distance between the household and parents (AVEPMILE). A caveat is that the behavior of the parents and the in-laws may not be symmetric such that certain aspects of their transfers behavior may be obscured by modeling them as a group.

The full 1988 wave of the PSID data contains 7114 households. We exclude households who have no parents alive. This reduces the sample size by 20.1%. Moreover, due to missing values in the data, especially the household net worth data, we have a further reduction by about 15.3%. Parents' data (e.g., income, education level and distance from the households) have 29.0% missing values. As a result, we end up with a sample containing 3418 households, which constitute our basic sample. The PSID data contain a non-random subsample of poor households. In order to make our data more representative of the United States population, we use in our estimations the weights provided by the PSID. The descriptive statistics of our sample are displayed in Table 1.

3 Econometric Models and Empirical Results

Our empirical investigation seeks answers to several questions concerning the nature of *inter vivos* intergenerations transfers, such as what is the predominant motive of transfers, whether parents and adult children behave symmetrically in giving transfers, and what is the relationship between money transfers and time transfers. We try to answer these questions using econometric methods which recognize the mixed discrete-continuous nature of the data.

3.1 Tobit Estimation and Results

We first use a tobit model to estimate the decisions of the amounts of transfers given and received by an agent: GIVEMP, which denotes the amount of *money* transfers a household gives to its parents; GIVETP, which denotes the amount of *time* transfers a household gives to its parents; RECMP, which denotes the amount of *money* transfers a household receives from its parents; and RECTP, which denotes the amount of *time* transfers a household receives from its parents. Details on the construction of all the variables used in our empirical work is given in Appendix A. Denoting the *latent* amounts of the various transfers for the ith observation of household-parents by Y_{ji}^*, where

$j \in \{\text{GIVEMP}, \text{GIVETP}, \text{RECMP}, \text{RECTP}\}$, we assume that this amount is a linear function of both the parents and the children's characteristics, X_{pi} and X_{ki}:

$$Y_{ji}^{*} = \gamma_{pj} X_{pi} + \gamma_{kj} X_{ki} + \epsilon_{ji}, \tag{1}$$

where ϵ_{ji} is a normally distributed[4] unobservable variable known only to the ith pair of parent and child. We could observe Y_{ji}^{*} only if it is greater than zero,

$$Y_{ji} = \begin{cases} Y_{ji}^{*}, & \text{if } Y_{ji}^{*} > 0, \\ 0, & \text{otherwise}, \end{cases} \tag{2}$$

where Y_{ji} is the observed amount of transfers. In other words, the transfer amounts are censored if the desirable amounts are below zero. Therefore, if $Y_{GIVEMPi}$=0, instead of making money transfers to his parent, the child may desire a transfers from his parent. The results of the tobit estimations are presented in Table 2.

Existence of Altruism and Exchange

In the following we examine which specification is more consistent with the pattern of interaction revealed by the PSID data. The tobit results show that, as indicated by the negative coefficients of the variable PHEALTH for the amount of money transfers from parents (RECMP) and amount of time from parents (RECTP) (see columns RECMP and RECTP, Table 2), parents with poor health are likely to make smaller transfers (especially time transfers) to children. Yet, a household (i.e., adult child) is more likely to give *both* time and money transfers to parents if parents have poor health. This is demonstrated by the positive coefficients of PHEALTH for the amount of money transfers given to parents (GIVEMP) and the amount of time transfers given to parents (GIVETP) (see columns GIVEMP and GIVETP, Table 2). However, from the result it seems that parents are not so altruistic as their adult children. The negative coefficient of HHEALTH for the amount of money transfers received from parents (RECMP) (in Table 2) reveals that parents tend to make smaller money transfers to a household if its head has poor health. These findings suggest that parents and their children exhibit different degrees of altruism toward each other, with children being more altruistic to parents than the other way round.

[4]We did not allow for correlation between the ϵ's. The estimated coefficients are consistent even though they are not efficient. The correlation between the unobservables is addressed by using bivariate probit models below.

A household is likely to transfer more money to parents who live further away as indicated by the positive coefficient of the variable AVEPMILE for GIVEMP. The significant positive coefficient suggests that money and time transfers from children to parents are substitutes for one another. Consequently, if it is more difficult to transfer time to parents due to physical distance then money transfers are more likely to be made. In contrast, the coefficient of AVEPMILE for RECMP presents us with a different picture of the (money) transfers behavior of parents. If parents and their children live farther apart, parents make smaller money transfers to their children. It is likely that contacts between parents and their children enhance the degree of parents' altruism toward their children. However, children's altruism toward their parents is not affected by their contacts. This argument is actually consistent with the results on the variables PHEALTH and HHEALTH discussed earlier. With the head being in poor health, the amount of time transfers (and contact) is low. Even though a household under such circumstances is likely to need more time transfers from parents, it actually receives less time transfers from them.

From the coefficient of PPOOR in the GIVEMP equation we may infer whether or not the observed transfers behavior is actually part of "intertemporal trade" (of money transfers) between parents and children. If the household head's parents were poor when he grew up, it would have been difficult for his parents to transfer much money or pay for children's education cost for him. If, in making money transfers to parents, intertemporal trade of transfers is involved so that a household would give money transfers to parents only if the head has received money transfers from parents earlier, then we would expect the coefficient of PPOOR not to be significant for GIVEMP. This is not the case, however, with the tobit results which we interpret as rejection of the intertemporal trade hypothesis concerning children. In fact, money transfers are made by offspring households to parents altruistically rather than as an obligation under an intertemporal trade agreement between them and their parents.

One may contest the hypothesis of altruistic transfers from children to parents with the conjecture that households may give transfers to parents not expecting any immediate return but instead expecting to get a larger share of their parents' bequests. We can examine this hypothesis by looking at the effects of the number of siblings (of the head and wife of a household).

If children were to give transfers to parents in order to maximize their share of parents' bequests, they would be more likely to give transfers to their parents the more siblings the head and wife have. The rationale is that siblings could be potential contestants for bequests from parents. However, according to the tobit results, contrary to the bequests conjecture, as indicated by the negative (but insignificant) coefficients of SIBLING for the amount of money transfers given to parents (GIVEMP) and amount of time transfers given to parents (GIVETP), the more siblings there are, the less of both money and time transfers a household would give to parents.

In addition, if children gave time transfers to parents as a *quid pro quo* for a larger share of parents' bequests, we would expect children to make more time transfers to richer parents. On the contrary, such a bequests motive hypothesis is not supported by the evidence. The coefficient of AVEPNET (parent's average net wealth) is negative (but statistically insignificant) for the amount of time transfers given to parents (GIVETP). This result contradicts the claim that children tend to give time transfers to richer parents.

3.2 Bivariate Probit

We explore the potential mutual dependence in the structure of intergenerational transfers of money and time (i.e., the four discrete events GMP, GTP, RMP and RTP) by estimating a set of bivariate probit models. The estimation of a bivariate probit model is accomplished by estimating a pair of probit equations allowing for correlation between the error terms of the two equations. The results of the six bivariate probit models (that is all possible pairwise combinations of the four discrete events) are presented in Table 3. In those tables, the estimated correlation coefficient of the error terms in each of the bivariate probit models is denoted by ρ. The discrete decisions of agent i are denoted by

$$I_{ji} = \begin{cases} 1 & \text{if } \overline{\gamma}_{pj} X_{pi} + \overline{\gamma}_{kj} X_{ki} + u_{ji} > 0, \\ 0 & \text{otherwise,} \end{cases} \tag{3}$$

where $j \in \{$ GMP,GTP,RMP,RTP$\}$, and u_{ji} is normally distributed with zero means and $\text{CORR}(u_{ji}, u_{j'i}) = \sigma_{j,j'}$, $j \neq j'$ and $j, j' \in \{$GMP,GTP,RMP,RTP$\}$.[5]

[5] We have also estimated a multivariate probit model which allows for correlation among the four discrete events of transfers. Numerical integrations for the maximum likelihood estimation is performed by a method of simulation (the *GHK* algorithm). The results are consistent with those obtained with the bivariate models, and, thus, are not reported here to avoid redundancy.

It is particularly interesting to look at the bivariate probit results on the two pairs of discrete events: {GMP,GTP} and {RMP,RTP}. It is because the correlation coefficients could be interpreted as an estimate of the dispersion of the unobserved heterogeneity in the transfers decisions. The estimated correlation coefficient for {GMP,GTP} is positive with small numerical value (0.082007) and it is not very significant statistically. This might imply that, in general, offspring households as a group are not very diverse in terms of the degree of filial piety toward their parents (after their observed socioeconomic characteristics are controlled for). Another interpretation is that the degree of affection adult children have toward their parents does not play a decisive role in adult children's transfer decisions. In fact, it is consistent with the tobit results discussed earlier. According to the tobit results, offspring households make time and/or money transfers to parents who are in need of help. It is demonstrated by the strong statistical significance of such variables as PHEALTH and PPOOR which reflect parents' neediness of help. These two pieces of empirical evidence together imply that offspring households transfers are mainly determined by parent's needs.

The bivariate results on {RMP,RTP} depict a different pattern of *inter vivos* transfers given by parents to their adult children. The correlation coefficient estimated in the bivariate probit model is numerically small but is statistically significant. This indicates that parents' degree of benevolence toward their adult children is heterogeneous. The transfers decisions, according to this result, depend pretty much on the unobserved element of altruism in the intergenerational relationship. We concluded from the discussion of the tobit results that parents are basically altruistic to their adult offsprings. However, parents' transfers do not increase with the children's needs, e.g., when HHEALTH=1. Combining the tobit results and the bivariate probit results, we could see that idiosyncracies in the parent-child interaction, rather than the offspring households' needs, play an important role in parents' transfers decisions.

The bivariate probit results for {GMP,GTP} and {RMP,RTP} (together with the tobit results) reveal an asymmetric pattern of *inter vivos* intergenerational transfers between parents and their adult offspring. Offspring households are objective in their transfer making behavior in the sense that parents' needs are important determinants of the likelihood and of the amounts of transfers given to parents. Conversely, parents' transfers behavior is, to some extent, influenced by their

affection toward their adult offspring.

We now turn to the bivariate probit results for {RMP,GTP} and {GMP,RTP}. Again, consistent with the previous findings, we find an asymmetric pattern of transfers from the results. The correlation coefficient from the {GMP,RTP} model is negative but statistically insignificant, whereas, the correlation coefficient from the {RMP,GTP} model is positive and significant. From these results (and the previous bivariate probit results) it seems that time transfers given by children could enhance the parents' degree of altruism while children's money transfers does not have that effect. A priori, one could also interpret these results in another way: children's degree of altruism could be raised by parent's money transfers but not time transfers. However, we adopt the former view because it is more consistent with the previous findings and the findings from the {GTP,RTP} model discussed below. As discussed earlier in the tobit results analysis, parents' transfers (especially time transfers) depend on their children's ability to give time transfers (or *contacts*). This is also present in the biviariate probit results. The effects of adult children's time transfers given to their parents could be found also in the bivariate probit results for {GTP,RTP}, where the estimated correlation coefficient is strongly positive in terms of its numerical value and statistical significance. If a child transfers time to his parents, it is more likely that parents would give him *both* money and time transfers.

However, regarding the strong positive correlation coefficient in the {GTP,RTP} model, it is possible that parents' and children's *reciprocity* in giving time transfers and their *comparative advantage* in home production play an important role in the pattern of *inter vivos* intergenerational transfers.[6] Comparative advantages in home production may be expressed as

$$u_{pl}|_{t_p=0} < u_{kt}|_{t_p=0} \quad \text{and/or} \quad u_{kl}|_{t_k=0} < u_{pt}|_{t_k=0}.$$

Reciprocity could be incorporated in the model by making β_p and β_k endogenous:[7]

$$\frac{\partial \beta_p}{\partial t_k} > 0 \quad \text{and} \quad \frac{\partial \beta_k}{\partial t_p} > 0.$$

Here, as based on our empirical findings discussed above, we interpret *reciprocity* as voluntary return of favors rather than obligation of repayment. Our empirical findings suggest that the reciprocity

[6] Terry Gorman suggests that the strong positive correlation coefficient may be a result of measurement errors in GIVETP and RECTP.

[7] We did not take it into account in our analytical specification.

effect of children's time transfers on parents' transfers (both time and money) is particularly strong. This implies that contacts between children and parents enhance parents' altruism toward them, but not the other way round.

4 Conclusions

We study in this paper the nature and pattern of *inter vivos* intergenerational transfers. Unlike previous studies, which mostly concentrate on transfers of money by parents to children, we study two-directional *inter vivos* intergenerational transfers, (i.e., from children to parents, including in-laws, and from parents to children), involving two commodities, i.e., money and time.

The empirical work is based on a supplement of the 1988 cross-sectional data of the PSID, which details information on two-sided *inter vivos* transfers of time and money. Our econometric models recognize the discrete-continuous nature as well as the possible simultaneity of transfer decisions of various directions and types. Our empirical findings suggest that parents and their adult children are mutually altruistic when making transfers. The findings point to the absence of an exchange motive in intergenerational transfers. However, heterogeneity is found to be significant among parents. Heterogeneity could be interpreted as an indication of dispersion of altruism which plays an important part in parents' transfers decisions. In contrast, we do not find the same degree of heterogeneity among adult children. This suggests that dispersion of altruism among children is not important. Children's decision are determined mainly by their parents' needs (and their own ability to make transfers). Moreover, parents' transfers (both money and time) given to parents are positively correlated with time transfers by children. This suggests that parents' degree of altruism is a function of the extent of contacts with their adult children.

The findings of this study provide answers to some issues concerning public policy. We find that parents and children are altruistic to each other in making transfers while exchange is absent. This suggests that public transfers (in terms of money) could "crowd-out" private transfers (both money and time). This crowding out effect is particularly strong on transfers that parents receive from children, whose transfers decisions are mainly based on parents' need. The effectiveness of public transfers programs on the well being of elderly citizens may be discounted by the contraction of private transfers from children.

Nevertheless, the benefits that a household obtains from a public transfers program would be shared by altruistically linked (and equally poor or poorer) households. The altruistically linked households may benefit indirectly from public transfer programs through increased transfers (of both time and money) from the household which actually receives public transfers. Redistribution effects of public transfers is particularly strong if the public transfers are given to adult children households rather than to parents households.

As a result, for a public transfer program to be effective, the recipient's family background should be controlled for. If an applicant has parents or children who are in a financial position to provide private transfers, public transfers are likely to crowd out private transfers and, hence, would be ineffective. On the other hand, if a recipient of public transfers has equally poor parents or children, public transfers would be effective because the recipient is unlikely to have any other support and public transfers would be redistributed to other needy (and altruistically linked) households.

We find that, in general, elderly parents receive transfers (in terms of time, especially) from their children if they are in need of help. However, geographical distance is shown to have strongly negative effects on the likelihood and amount of time transfers parents receive from their children. In most industrial societies, geographical mobility is usually high so that the physical distance between parents and their adult children can be large, affecting care children may wish to provide to their parents.

A Definitions of Variables

GIVEMP: the sum of all amounts of *money* transfers *given* by a household to its parents and in-laws in the year 1987.

GIVETP: the sum of all amounts of *time* transfers *given* by a household to its parents and in-laws in the year 1987.

RECMP: the sum of all amounts of *money* transfers *received* by a household from its parents and in-laws in the year 1987.

RECTP: the sum of all amounts of *time* transfers *received* by a household from its parents and in-laws in the year 1987.

GMP: whether the household *gave* any money transfers to parents of the head or wife. GMP=1, yes; GMP=0, no.

GTP: whether a household *gave* any time transfers to its parents or in-laws. GTP=1, yes; GTP=0, no.

RMP: whether a household *received* any money transfers from its parents or in-laws. RMP=1, yes; RMP=0, no.

RTP: whether a household *received* any time transfers from its parents or in-laws. RTP=1, yes; RTP=0, no.

HAGE: age of the household head.

HAGESQ: square of the household head age

MS: marital status of the household head.
MS=1, married (or has co-habitor for more than one year); MS=0, single.

HBLACK: whether the race of the race of the household head is black. HBLACK=1, yes; HBLACK=0, no.

SIBLING: the total number of siblings of the head and spouse.

HHREARN: average hourly earnings of the head.

NETWORTH: net worth of the household divided by 10000.

HEDUC: education of the head of household.
HEDUC=1, 0-5 grades;
HEDUC=2, 6-8 grades;
HEDUC=3, 9-11 grades;
HEDUC=4, 12 grades;
HEDUC=5, 12 grades plus non-academic training;
HEDUC=6, some college, no degree; associate's degree
HEDUC=7, college BA and no advanced degree mentioned;
HEDUC=8, college, advanced or professional degree;
HEDUC=0, could not read or write.

KIDS: the number of children younger than 13.

HHEALTH: whether the household head's health is poor.
HHEALTH=1, yes; HHEALTH=0, no.

PHEALTH: the number of parents (of the head and wife) who have poor health.

AVEPNET: the average net worth of the parents (of the head and wife) who are alive (in thousands).

AVEPTINC: the average income (in thousands) of the parents (of the head and wife) who are alive.

WHREARN: the average hourly earnings of the wife.
If there is no wife in the household then WHREARN=0.

PPOOR: whether the head's parents were poor when the head grew up.
PPOOR=1, yes; PPOOR=0, no.

AVEPMILE: the average distance (in miles) between the household's residence and those of the parents and in-laws.

AVEPEDUC: average education level of the (alive) parents and in-laws.
AVEPEDUC=1, 0-5 grades;
AVEPEDUC=2, 6-8 grades;
AVEPEDUC=3, 9-11 grades;
AVEPEDUC=4, 12 grades;
AVEPEDUC=5, 12 grades plus non-academic training;
AVEPEDUC=6, some college, no degree; associate's degree
AVEPEDUC=7, college BA and no advanced degree mentioned;
AVEPEDUC=8, college, advanced or professional degree;
AVEPEDUC=0, could not read or write.

B Tables

Table 1: Means of The Full Sample

Descriptive Statistics: All Observations (3418)				
Variable	**Mean**	**Std. Dev.**	**Minimum**	**Maximum**
GMP	0.41252E-01	0.19890	0.	1.000
GTP	0.36103	0.48037	0.	1.000
RMP	0.22411	0.41705	0.	1.000
RTP	0.30661	0.46115	0.	1.000
GIVEMP	61.487	720.40	0.	0.2500E+05
GIVETP	126.48	446.78	0.	8760.
RECMP	428.71	2628.9	0.	0.6200E+05
RECTP	115.47	416.11	0.	8760.
HAGE	36.280	10.838	17.00	89.00
HAGESQ	1433.7	924.65	289.0	7921.
MS	0.60328	0.48929	0.	1.000
HBLACK	0.33616	0.47246	0.	1.000
SIBLING	5.2902	4.3993	0.	31.00
HHREARN	10.124	8.9634	0.	99.99
WHREARN	4.1337	6.2669	0.	99.99
NETWORTH	65.897	298.35	0.	10000.
KIDS	0.95260	1.1369	0.	8.000
HEDUC	4.9506	1.6606	1.000	8.000
HHEALTH	0.24868E-01	0.15575	0.	1.000
PHEALTH	0.19514	0.44703	0.	3.000
PPOOR	0.33996	0.47377	0.	1.000
AVEPNET	29.670	131.80	0.	5000.
AVEPTINC	5.6360	17.077	0.	400.0
AVEPMILE	2.6198	1.0667	0.	4.000
AVEPEDUC	3.6069	1.4332	0.	8.000
Observations	3418			

Table 2: Tobit Models*

Univariate Tobit				
Variable	**GIVEMP**	**GIVETP**	**RECMP**	**RECTP**
Constant	-12937.	987.83	-4962.3	891.08
	(-4.938)	(5.346)	(-2.649)	(4.168)
HAGE	44.437	-39.548	-94.962	-25.841
	(0.419)	(-4.571)	(-0.991)	(-2.332)
HAGESQ	0.34077	0.50521	-0.70212E-01	0.64603E-01
	(0.294)	(5.109)	(-0.060)	(0.468)
MS	-514.93	25.452	-525.52	-94.604
	(-0.937)	(0.550)	(-1.208)	(-1.965)
HBLACK	-5250.1	-522.04	-5524.3	-586.42
	(-4.417)	(-8.503)	(-8.026)	(-8.945)
SIBLING	-109.76	-13.778	-249.02	-22.945
	(-1.667)	(-2.744)	(-4.746)	(-4.193)
HHREARN	49.019	-6.8031	-20.599	-7.3039
	(2.617)	(-3.229)	(-1.066)	(-2.909)
WHREARN	62.601	-5.4692	-10.050	3.7837
	(2.428)	(-1.703)	(-0.353)	(1.208)
NETWORTH	0.72777	0.11125	-1.4556	-0.19004
	(2.365)	(2.595)	(-1.558)	(-1.454)
KIDS	-543.40	-13.304	-213.94	139.53
	(-2.035)	(-0.728)	(-1.206)	(7.559)
HEDUC	336.12	38.840	615.97	38.031
	(2.360)	(3.093)	(5.065)	(2.776)
HHEALTH	-17516.	-336.77	-1977.6	-104.10
	(-0.171)	(-2.707)	(-1.237)	(-0.694)
PHEALTH	530.59	218.37	76.655	-122.93
	(1.218)	(5.831)	(0.191)	(-2.741)
PPOOR	1928.1	14.253	-562.34	-62.458
	(3.943)	(0.344)	(-1.322)	(-1.366)
AVEPNET	0.32483	-0.95057E-01	2.4339	0.33380
	(0.268)	(-0.760)	(2.510)	(2.885)
AVEPTINC	18.012	3.0108	6.5708	-0.16700
	(1.991)	(3.427)	(0.799)	(-0.195)
AVEPMILE	471.87	-229.87	-335.46	-201.14
	(2.252)	(-13.810)	(-2.207)	(-11.534)
AVEPEDUC	-447.94	-32.049	820.37	-2.8467
	(-2.492)	(-2.241)	(6.402)	(-0.194)
σ	5150.9	786.90	6697.8	776.83
	(14.494)	(46.861)	(36.868)	(42.685)
LLF	-1791.5	-10377.4	-9596.1	-9022.1
Observations	3418	3418	3418	3418

*T-statistics are in parentheses.

Table 3: Bivariate Probit

	(a) GMP and GTP		(b) RMP and RTP		(c) GMP and RTP		(d) GMP and RMP		(e) RMP and GTP		(f) RTP and GTP	
Variable	**GMP**	**GTP**	**RMP**	**RTP**	**GMP**	**RTP**	**GMP**	**RMP**	**GTP**	**RMP**	**GTP**	**RTP**
Constant	-2.3812	1.8351	-0.4956E-01	1.4408	-2.3812	1.4408	-2.3812	-0.4956E-01	1.8351	-0.4956E-01	1.8204	1.4406
	(-4.381)	(7.080)	(-0.150)	(4.344)	(-4.392)	(4.369)	(-4.382)	(-0.151)	(7.044)	(-0.150)	(6.990)	(4.542)
HAGE	0.1347E-02	-0.7649E-01	-0.4302E-01	-0.4818E-01	0.1347E-02	-0.4818E-01	0.1347E-02	-0.4302E-01	-0.7649E-01	-0.4302E-01	-0.7559E-01	-0.4975E-01
	(0.056)	(-6.365)	(-2.404)	(-2.744)	(0.056)	(-2.771)	(0.056)	(-2.424)	(-6.346)	(-2.414)	(-6.267)	(-3.044)
HAGESQ	0.5014E-04	0.8082E-03	0.2207E-03	0.1022E-03	0.5143E-04	0.1033E-03	0.5135E-04	0.2214E-03	0.8081E-03	0.2207E-03	0.7974E-03	0.1354E-03
	(0.182)	(5.898)	(0.967)	(0.453)	(0.188)	(0.462)	(0.187)	(0.978)	(5.892)	(0.971)	(5.803)	(0.653)
MS	0.8960E-01	0.3657	-0.1200E-01	0.1541	0.8960E-01	0.1541	0.8960E-01	-0.1200E-01	0.3657	-0.1200E-01	0.3598	0.1480
	(0.720)	(5.591)	(-0.171)	(2.218)	(0.720)	(2.209)	(0.719)	(-0.172)	(5.577)	(-0.172)	(5.507)	(2.160)
HBLACK	-0.2252E-01	-0.5005E-01	-0.1561	-0.6565E-01	-0.2252E-01	-0.6565E-01	-0.2252E-01	-0.1561	-0.5005E-01	-0.1561	-0.5414E-01	-0.6042E-01
	(-0.144)	(-0.635)	(-1.632)	(-0.806)	(-0.144)	(-0.813)	(-0.145)	(-1.664)	(-0.633)	(-1.654)	(-0.683)	(-0.758)
SIBLING	-0.1045E-01	-0.6831E-02	-0.3610E-01	-0.3135E-01	-0.1045E-01	-0.3135E-01	-0.1045E-01	-0.3610E-01	-0.6831E-02	-0.3610E-01	-0.6591E-02	-0.3086E-01
	(-0.717)	(-0.986)	(-4.564)	(-4.132)	(-0.724)	(-4.202)	(-0.713)	(-4.677)	(-0.982)	(-4.658)	(-0.956)	(-4.199)
HHREARN	0.9270E-02	-0.1008E-01	-0.6167E-02	-0.1264E-01	0.9270E-02	-0.1264E-01	0.9270E-02	-0.6167E-02	-0.1008E-01	-0.6167E-02	-0.97912E-02	-0.1021E-01
	(1.869)	(-3.706)	(-2.207)	(-3.445)	(1.882)	(-3.551)	(1.857)	(-2.201)	(-3.656)	(-2.223)	(-3.595)	(-2.764)
WHREARN	0.1798E-01	-0.1682E-02	-0.7826E-03	0.6423E-02	0.1798E-01	0.6423E-02	0.1798E-01	-0.7826E-03	-0.1682E-02	-0.7826E-03	-0.1311E-02	0.6157E-02
	(3.749)	(-0.366)	(-0.165)	(1.295)	(3.740)	(1.281)	(3.742)	(-0.165)	(-0.364)	(-0.164)	(-0.285)	(1.248)
NETWORTH	-0.1157E-04	0.8531E-09	-0.2937E-03	-0.1401E-03	-0.1153E-04	-0.1395E-03	-0.1166E-04	-0.2940E-03	0.2742E-06	-0.2937E-03	-0.2575E-06	-0.1889E-03
	(-0.127)	(0.000)	(-1.402)	(-0.661)	(-0.130)	(-0.666)	(-0.132)	(-1.453)	(0.003)	(-1.456)	(-0.003)	(-1.018)
KIDS	-0.11384	0.3457E-01	0.1057E-01	0.2744	-0.1138	0.2744	-0.1138	0.1057E-01	0.3457E-01	0.1057E-01	0.3691E-01	0.2732
	(-2.029)	(1.401)	(0.375)	(11.001)	(-2.030)	(11.087)	(-2.046)	(0.380)	(1.401)	(0.380)	(1.499)	(11.075)
HEDUC	0.3902E-01	0.3694E-01	0.8033E-01	0.6892E-01	0.3902E-01	0.6892E-01	0.3902E-01	0.8033E-01	0.3694E-01	0.8033E-01	0.3599E-01	0.7408E-01
	(1.304)	(2.089)	(4.197)	(3.528)	(1.330)	(3.618)	(1.339)	(4.287)	(2.087)	(4.280)	(2.043)	(3.951)
HHEALTH	-3.5160	-0.3760	-0.5714	-0.1336	-3.5160	-0.1336	-3.5160	-0.5714	-0.3757	-0.5714	-0.3713	-0.8042E-01
	(0.000)	(-2.127)	(-2.302)	(-0.587)	(0.000)	(-0.590)	(0.000)	(-2.315)	(-2.280)	(-2.212)	(-2.285)	(-0.377)
PHEALTH	0.1855	0.3250	-0.2326E-01	-0.1288	0.1855	-0.1288	0.1855	-0.2326E-01	0.3250	-0.2326E-01	0.3220	-0.1292
	(2.141)	(6.064)	(-0.358)	(-2.075)	(2.140)	(-2.091)	(2.147)	(-0.361)	(6.020)	(-0.358)	(6.022)	(-2.133)
PPOOR	0.4533	0.5496E-02	-0.1181	-0.8526E-01	0.4533	-0.8526E-01	0.4533	-0.1181	0.5497E-02	-0.1181	0.3340E-02	-0.7955E-01
	(4.537)	(0.096)	(-1.727)	(-1.310)	(4.581)	(-1.328)	(4.571)	(-1.761)	(0.096)	(-1.762)	(0.059)	(-1.260)
AVEPNET	0.3295E-04	0.7170E-04	0.4227E-03	0.8264E-04	0.3306E-04	0.8246E-04	0.3292E-04	0.4226E-03	0.7175E-04	0.4227E-03	0.7255E-04	0.1259E-03
	(0.064)	(0.490)	(2.639)	(0.296)	(0.065)	(0.467)	(0.062)	(3.628)	(0.348)	(2.970)	(0.470)	(0.729)
AVEPTINC	0.3406E-02	0.3692E-02	0.1492E-02	0.1725E-02	0.3406E-02	0.1725E-02	0.3406E-02	0.1492E-02	0.3692E-02	0.1492E-02	0.3527E-02	0.1793E-02
	(1.140)	(3.261)	(1.137)	(1.145)	(1.131)	(1.225)	(1.074)	(1.145)	(3.206)	(1.205)	(3.132)	(1.286)
AVEPMILE	0.1085	-0.3204	-0.3850E-01	-0.2993	0.1085	-0.2988	0.1085	-0.3850E-01	-0.3204	-0.3850E-01	-0.3199	-0.3115
	(2.187)	(-13.618)	(-1.599)	(-12.042)	(2.200)	(-12.246)	(2.251)	(-1.616)	(-13.563)	(-1.611)	(-13.625)	(-12.979)
AVEPEDUC	-0.1009	-0.4217E-01	0.1325	-0.2903E-02	-0.1009	-0.2903E-02	-0.1009	0.1325	-0.4217E-01	0.1325	-0.4279E-01	-0.2947E-02
	(-2.612)	(-2.085)	(6.348)	(-0.135)	(-2.617)	(-0.136)	(-2.525)	(6.362)	(-2.085)	(6.402)	(-2.124)	(-0.139)
ρ	0.82007E-01		0.68747E-01		-0.42267E-01		0.36094E-01		0.71423E-01		0.58373	
	(1.348)		(2.030)		(-0.698)		(0.420)		(2.154)		(24.053)	
LLF	-2520.2		-3397.5		-2250.8		-2220.8		-3681.5		-3520.7	
Observations	3418											

*t-statistics are in parentheses.

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