Are Indian Households Impurely Altruistic? Testing for Bequest Motives and Intergenerational Transfers in India

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Abstract

Households transfer substantial wealth between generations under various motives. Apart from life cycle consumption smoothing and old age security purposes, parents transfer wealth to children with motivations of altruism, exchange, for strategic or risk sharing. Theoretically, altruism predicts a one to one correspondence between parental income and child income. Under exchange, transfer is positively related to the services provided by the child. When strategic motive is operative, the ex ante transfer in motivated by the services provided by each children. This paper empirically examines the transfer motives in India using a 2006-07 primary data from 315 urban households. The decision on transfer is estimated by probit equation and the size of transfer is estimated by Tobit equation with parental and child characteristics. The estimated results show that the basic motivation for transfer is one of exchange. Indian households exchange wealth largely for the support and services provided by the children.

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1. Introduction

Households transfer substantial wealth between generations for various motives. The Life Cycle Hypothesis explains that individuals save (accumulate wealth) during their working ages and dissave for consumption during old age (Modigliani and Brumberg, 1954). However, since death is uncertain, a positive amount of wealth is always left unconsumed and this passes to the next generation as inheritance (Yaari, 1966; Davis, 1981). Apart from these accidental transfers, households intentionally accumulate wealth with the motivation of bequeathing an estate to future generations (Kotlikoff, 1988; Kotlikoff and Summers, 1981). Chief form of such a bequest motive is altruism (Becker, 1974; 1991; 1996). Household members are concerned with the welfare of their children and hence transfer wealth so as to maximize the child's utility. Some times this altruistic motivation may take the form of paternalistic preferences and transfers may be tied to certain specific ways of child behaviour that will increase the utility of parents. There may also be mutual altruism, in that the utility of both parents and children depends on the other's welfare. Parents may also provide gifts and investments on children's human capital like education, and children will in turn provide parental care, time related services and companionship. This type of give and take relationship is the exchange motivation for transfers (Cox, 1987; Bernheim and Stark, 1988). Sometimes inter-vivos transfers (i.e. between living persons) are used when children are liquidity constrained. In contrast to altruistic behaviour, the strategic motive for bequest states that parents use wealth as a bargaining strategy to obtain required services from children and the children are motivated to get larger share from the parental wealth. When the parent has sizable wealth to be bequeathed and if there are more than one child, then the strategy is to divide wealth unequally and credibly threaten children without leaving a bequest or unequal transfers if they do not provide the expected parental needs (Bernhein, Shleifer and Summers, 1985).

Whatever be the motive for private transfers, such bequest motive will have profound implications for policies on public transfers and for income distribution. The famous 'Ricardian equivalence' theorem of Barro (1974) on the link between government borrowing and private consumption is crucially linked to the motives for private transfers. In the macro framework, with altruistically linked households, households could neutralize the forced intergenerational transfers associated with government borrowing by adjusting their own

private intergenerational transfers. Similarly, if households are altruistically linked, the changes in private intergenerational transfers could undo the forced intergenerational transfers associated with social security or public transfers, breaking the connection between public transfers and consumption behaviour. However, under exchange or strategic motive, such neutrality result will not hold. With sizable private intergenerational transfers, the intergenerational transmission of inequality increases, while the intergenerational mobility decreases (Lakshmanasamy, 2009).

This paper attempts to examine the underlying motive for intergenerational transfers in Indian households using a primary data. In this context, it is to be noted that virtually there are no studies on either the motives for bequests or on private intergenerational transfers in India, and probably this is the first attempt in this direction. The remaining part of the paper is organized as follows. Section 2 presents a brief outline of the theories of bequests and intergenerational transfers. In section 3 the empirical evidences on intergenerational transfers are discussed. The empirical strategy in of the paper in estimating the transfer decision and size of transfers are presented in section 4. Section 5 presents the estimated probit and Tobit results and discusses the empirical evidences for bequest motives. Finally, section 6 presents the summary and conclusions of the paper.

2. Theories of Bequests Motives and Intergenerational Transfers

Bequests are universal in all societies. Josiah Wedgwood (1929) states that one-third of wealthy Britain families own their position entirely to inheritance. Kotlikoff and Spivak (1981) and Kotlikoff, Shoven and Spirak (1986) observe that about 80 percent of wealth accumulation in the US can be traced to the bequest motive. Gale and Scholz (1994) estimated that at least 51 percent of household wealth is accounted for by inheritances and other intentional wealth transfers. Wolff (1996) estimated that the top 5 percent of wealth-holders account for 56 percent of private U.S net worth and the top 1 percent alone hold 35 percent. Even after adjusting for private pensions and consumer durables, Laitner (2001) finds the shares as 48 percent and 28 percent respectively. According to Park (2003), 20 to 90 percent of households in developing countries receive private transfers and transfer received comprises 2 to 20 percent of household income on average in developing countries. Kazianga (2006) reports for Burkina Faso that about 39 percent of rural households surveyed in 1994

and 42 percent of those surveyed in 1998 report some transfer activity either as donor, recipient or both. About 40 percent and 43 percent of urban households were involved in some transfer activity in the same period.

As regards the motives for such wealth accumulation and bequest transfers, it is to be noted that most parents are essentially altruistic towards their children in the sense that they care about their children's well-being and consumption (Becker, 1974; Barro, 1974; Becker and Tomes, 1979; Menchik and David, 1983; Lindbeck and Weibull, 1988). Following the Becker's (1974) social interactions framework, the altruistically motivated private transfer is the result of the family's role as an income-equalising institution. Tomes (1981) finds evidence that bequests play a compensatory role in that the income of the bequest recipient and the size of the bequest are inversely related. Theoretically, pure altruism predicts a one to one correspondence between parental income and child income. As child income increases the transfers from parents will be decreased equally.

Pure Altruism

In the standard intergenerational transfers context, a parent lives for two periods 1 and 2, and is altruistic towards his child. With p and c denoting parent and child and U and V representing the respective utility, the parental altruistic utility U is an increasing function of his consumption Cp and of the child's utility V, whose argument is the child's consumption only. Then, the parent maximizes:

$$\text{Max } U\,[C_p, V(C_k)] \tag{1}$$

subject to the budget constraints

$$C_p = Y_p - T \tag{2}$$

$$C_k = Y_k + T \tag{3}$$

$$T \geq 0 \tag{4}$$

where Y are the incomes and T the transfer from parent to child. The intensity of altruism (caring parameter) is measured by the derivative U_v, such that $0 < U_v < 1$. The first order solutions yield

$$- U_c + U_v V_c \leq 0 \tag{5}$$

Then, with transfer constraint (eq.4) not binding, the optimal transfers equalize the respective marginal utilities of consumption:

$$U_c = U_v V_c \tag{5}$$

However, with altruism improving welfare when there is no change in total income, the two budget constraints can be pooled and the respective consumptions can be written as functions of total family income:

$$C_p + C_k = Y_p + Y_k \tag{6}$$

$$C_p = c_p (Y_p + Y_k) \tag{7}$$

$$C_k = c_k (Y_p + Y_k) \tag{8}$$

Then, the child's consumption is increasing in income and the optimal transfers become significant. Rewriting eq.(3), the transfers equation is:

$$T = C_k (Y_p + Y_k) - Y_k \tag{9}$$

Noting that c_k is increasing in income, we get the following derivatives:

$$\frac{\partial T}{\partial Y_p} = c_k' > 0 \tag{10}$$

$$\frac{\partial T}{\partial Y_k} = c_k' - 1 < 0 \tag{11}$$

Substracting eq. (11) from eq. (10) gives the core result, the income derivative property also known as the difference in transfer-income derivative or the redistributive neutrality property;

$$\frac{\partial T}{\partial Y_p} - \frac{\partial T}{\partial Y_k} = 1 \tag{12}$$

The result implies that the child will be compensated by adequate parental transfers when the child's income decreases. Conversely, a rise in income of the child benefits the parent by lowering the transfers, thus raising the parental consumption. Thus, when $dY_p = -dY_k$ is a small income variation such as total income remains constant, the optimal consumption do not change. It is as if parent and child pool their sources.

Thus, if there is an effective altruistic transfer from parents to child, this neutrality property forms the basis for the Ricardian equivalence: in a world where households are linked with positive monetary transfers, government redistribution among them is neutralized by family action. Then, the family transfers is said to crowd out the public transfers. This also

forms the basis of the Becker's (1974) famous Rotten Kid Theorem: even if the child is selfish, as long as the parent is sufficiently altruistic, the child has an incentive to maximize total family income.

So far the intergenerational transfers has been treated as from a parent and to a child. Even with several potential recipients (children) the intra-generational transfers imply the same results. Then, the parent maximizes the following utility:

$$\text{Max } U \ [C_p, \ V(C_{ki})] \tag{13}$$

There are now three budget constraints along with two non-negativity constraints analogous to eqs. (6-8). Note that the altruism parameter towards the children may be different ($U_{vi} \neq U_{vj}$). Again, with the pooled budget constraint and when the transfer condition is non-binding, the first order conditions [as in eq. (5)] imply that the parent's marginal utility from transferring income is equal to each child's marginal benefit:

$$U_k = U_{vi} V_{ik} \tag{14}$$

Therefore, the parent adjusts his transfers to each child to compensate the differences in siblings income. Thus, the transfer for each child depends not only on his own income and the parent's income, but also on the sibling's income. Then, the transfers to each child can be written as

$$T_i = C_{ki} \ (Y_p + Y_{ki}) - Y_{ki} \tag{15}$$

As consumption is normal, the transfers are compensatory:

$$\frac{\partial T_i}{\partial Y_p} = c'_{ki} > 0 \tag{16}$$

$$\frac{\partial T_i}{\partial Y_{ki}} = c'_{ki} - 1 < 0 \tag{17}$$

Then, it follows that

$$\frac{\partial T_i}{\partial Y_p} - \frac{\partial T_i}{\partial Y_{ki}} = 1 \tag{18}$$

It also follows that the transfers the transfer to one child is an increasing function of the other child's income since

$$\frac{\partial T_i}{\partial Y_{kj}} = c'_{ki} > 0, \quad (i \neq j) \tag{19}$$

Further, the transfer-income derivative is equal to minus one:

$$\frac{\partial T_i}{\partial Y_{ki}} - \frac{\partial T_i}{\partial Y_{kj}} = -1 \quad (i \neq j) \tag{20}$$

This result again is the intra-generational neutrality result. This result also implies the Rotten Brother theorem (Laferrere and Wolff, 2006). Both are respectively natural corollary to the Ricardian equivalence and Rotten Kid theorems. This also ensures no inter-siblings rivalry as the altruistic parent when redistributing income ensures both for the individual and relative position of the children:

$$\frac{\partial T_i}{\partial Y_p} = \frac{\partial T_i}{\partial Y_{kj}} \Rightarrow \frac{\partial T_i}{\partial Y_p} - \frac{\partial T_i}{\partial Y_{kj}} = 0 \tag{21}$$

In the presence of many children, the transfers to each child are substitutes since $\partial T_i / \partial Y_{kj} > 0$ and $\partial T_i / \partial Y_{ki} < 0$. With differing parental altruism between children, it can also lead to unequal transfers as it equalizes the marginal utilities.

It is to be noted here that the intergenerational transfers need not always be purely altruistically motivated. For example, Rosenzweing and Wolpin (1993) and Pollak (1985; 1988) argue that altruistically motivated are tied to parental preferences for the child's use of the transfers.

Impure Altruism or Exchange Motive

In contrast to these pure altruistic motives, under the exchange motive or impure altruism for intergenerational transfers, transfers is a means of exchange in that the parent expects services S from the child in return for transfers T. In this context, Cox (1987; 1995) specifies the nature of the child services as "a more subtle type of service that entails the behavioral constraints associated with attention to parents, companionship, and conforming to parental regulations. This type of service, which involves behavioral control, might not have close market substitutes, particularly if the donor is concerned specifically with the behavior of the recipient" (p.513). Now, the child services directly influences the parent's utility level. The parent is still altruistic, but his altruism is impure as he has an interest in an element of the child's consumption vector, the S, that is costly to the child. Then, the parent's utility function may be changed slightly as

$$U=U[C_p, S, V(C_k, S)] \tag{22}$$

With exchange of S services and transfers T between the impurely altruistic parent and the non-altruistic child, the child enters the relationship only if it does not lower his utility. Defining the child's point $[V(Y_k, 0)=V_0]$ as the child's utility when no exchange takes place (T=0, S=0), the child's participation constraint

$$V(Y_k+T,S) \geq V(Y_k, 0) \tag{24}$$

is then binding. The parent's problem is then

$$\underset{T,S}{Max} U[Y_p - T, S), V(Y_k + T, S)] \tag{25}$$

subject to the participation constraint. The parent no longer influencing the child's utility, the marginal financial transfer does no longer equalize the marginal utilities of consumption ($Y_k > U_v, V_k$). The transfer is now not one of transfer but one of transaction. This transaction is positively related to the parent's income, but negatively related to the child's income, particularly the compensation for the child's disutility has to be higher for a child with high income. Therefore,

$$\partial S / \partial Y_p > 0 \quad \text{and} \quad \partial S/\partial Y_k < 0 \tag{26}$$

As long as the parent is in need of child services, the parental income exerts a positive impact on the service payment to the child. Then, $\partial T / \partial Y_p > 0$.

But, the effect of child's income on T is not clear. Unlike the pure altruistic case, the transfer amount can rise with the child's income if the demand for service by the parents is inelastic. If the child's income increases, so does his threat point Vo and the arent may have to increase his transfer to get the same level of services. Expressing transfers as the product of services and an implicit price p of services (T=pS), Cox (1987) shows that the quantity of services declines with the increase in child income, and hence

$$\frac{\partial T}{\partial Y_k} = \frac{\partial S}{\partial Y_k} p + \frac{\partial p}{\partial Y_k} S \tag{27}$$

will determine the effect of a rise in child's income on transfers.

Strategic Motive

Under strategic considerations, the services provided by the children to a parent are motivated by their expectation of an estate or inheritance. In this model, the parent uses the bequests to influence the ex ante decision of children and hence adopts a manipulative or strategic behaviour. The parent extracts the desired level of child care by threatening to disinherit his children if they do not comply. The strategic motive's differences with the exchange motive are the explicit timing of the transfers and the information sets of the parent and children. While in exchange model the transfers of services and money are simultaneous, under strategic model, a non-revocable will fixes the amount of bequest and the sharing (among children) rule in advance. Then, the parent effectively plays the children against each other and extracts desired care by letting them know he will leave more or all of his wealth to the siblings who best take care of him.

Under the strategic bequest model, the parent's utility function is specified as follows:

$$\underset{s_1,.....,s_n,T}{\text{Max}}\ U = U(C, S_1,........S_n)\ \text{subject to}\ Y_p - T \tag{28}$$

where C_P is consumption of parent, S services provided by each child S_i {i=1, ...n}, Y_p parents wealth, and T bequest to the n children. Then, the children's problem is to:

$$\underset{s_i}{\text{Max}}\ V_i = U(C_{ki}, S_i)\ \text{subject to}\ Y_{ki} - \lambda_{ki}T \tag{29}$$

With $V_S < 0$, each child receives a fraction of λ_{ki} of T in exchange of the services rendered to the parent. Then, the bequest sharing rule λ_{ki} may be expressed as:

$$\lambda_{ki} = \lambda_{ki}(S_1,........,S_n)\ \text{with}\ \sum_{i=1}^{n} \lambda_{ki} = 1 \tag{30}$$

The parent chooses his level of consumption C_P leaving T for bequest and the sharing rule δ_{ki}. The child chooses his optimal attention S_i and receives the predetermined transfer at the death of the parent. Bernheim, Shleifer and Summers (1985) expect a positive relationship between parental wealth and the mean level of child services. In an extended analysis, Bernheim and Severinow (2003) develop a equal division norm equilibrium for bequests from altruism. While Wilhelm (1996) uses bequests, Halvorsen and Thoresan (2005) use inter-vivos transfers in a model of unequal division.

3. The Empirics of Intergenerational Transfers

In the intergenerational transfers literature, altruism is observed as a prominent bequest motive. Altruistic bequest implies that household might leave an intentional bequest to its off-spring. In other words, altruistic parents bequeath because they derive utility from the utility or lifetime resources of their children. Barro (1974) and Becker and Tomes (1979) observed that children with low earnings enjoy larger bequest from the parents. But, Menchik (1980) disagrees with them. He argues that parents generally bequeath equal amount to their children. In the US, bequests tend to be equally shared among siblings, while gifts rather go to poorer children (Wilhelm, 1996; McGarry, 1999; 2001). However, Tomes (1988) argues that the bequests by parents is unequal. Menchik (1988) cast doubt on this result by replicating Tomes' sample using probate records and finds that most parents were equal dividers. Altonji, Hayashi and Kotlikoff (1992; 1997) observed that parents bequeath less to the children whose income level is higher.

One important source of evidence on the bequest motive is the study of the consumption and savings behaviour of the elderly. Even casual observation gives the impression that the elderly continue to save even in retirement. Mirer (1979) and Menchik and David (1983) show that the wealth holdings of elderly households tend to increase with age. Alessipe, Lusardi and Kapteyn (1999) study explains that a large fraction of elderly households continue to accumulate wealth, even if the average household decumulates wealth. The savings behaviour of German households as observed by Borsch-Supan (1992; 1994) and Schnabel (1999) confirms two observations: that the average net worth of elderly German households increases with age, and that the average as well as median savings rates are positive, i.e. more than half of German households actually continue to save in retirement. Jurges (2001) examined age-wealth profiles from German socio-economic panel in search of an operative bequest motive for savings, and the analysis shows that wealth profiles of elderly households with children decline less or increase more than those of their childless counterparts; however, the differences are not statistically significant. In contrast, consistently and significantly steeper wealth trajectories are obtain for elderly households with a declared bequest motive than for households that do not declare such a savings motive.

This behaviour is in stark contrast to the simple life cycle theory of savings which predicts that people save during their working years and dissave in old age as shown by Modigliani and Brumberg (1954). It is however compatible with a bequest motive for savings. Positive savings rate or increasing wealth level among the elderly may not be a proof for bequest motive. Davies (1981), Borsch-Supan and Stahl (1991) and Borsch-Supan (1992) observe that elderly households may save for precautionary motive. In other words, the elderly people may opt for savings to face unprecedented expenditure such as sudden sickness or need for long term care or the desire for social status rather than for bequest. Same type of observation as found in Davies (1981), Hubbard, Skinner and Zelder (1995). Therefore, in the presence of co-existing savings motives, especially with precautionary motive, it is impossible to identify an operative bequest motive from the shape of aggregate wealth profiles or the magnitude of savings rates.

An alternative test for the bequest motive is whether the savings or consumption behaviour of individuals with children differs from the behaviour of individuals without children. Hurd (1987) finds lower dissaving rates for elderly without children, an observation clearly at odds with a bequest motive for savings. Kuehlwein (1993) finds evidence in favour of a bequest motive, which is, however, equally prevalent among households with and without children. Blinder, Gordon and Wise (1990) finds a positive but weak effect of the number of children as an estimate of planned bequests. But, Jurges (2001) argues that the inference of a bequest motive form the existence of children may be misleading. Though wealth profiles of elderly households with children may decline less or increase more than those of their counterpart without children, the differences are not statistically significant in most cases.

Laitner and Juster (1996) made a study about bequest intention of retirees. They split a sample of retirees according to their sentiments about leaving an estate. Based on separate wealth regressions for both groups, Laitner and Juster estimate that at age 65 households interested in leaving an estate have accumulated on average at least 40 percent more net worth than those without such an interest. Hurd (1987) argues that parents without a bequest motive consume their resources faster compared to the parents with bequest motive. However, the asset decumulation rate remains more or less the same in both the groups. According to Bernheim, Shleifer, and Summers (1985) children of richer parents spent more

time with their parents, whereas children of poor parents mostly stay away from their parents. In this sense, children of richer parents obviously are much closer to them because of the fear of disinheritance. They shower more love, care and attention to enjoy bequests from their rich parents. Naturally the children of poor parents do not have this fear.

A single test for altruistic motive for transfers is the test on transfer derivative. The transfer income derivative, i.e. a unit increase in parental income combined with a unit decrease in child income should yield a transfer response of one unit, is the focal point of several empirical studies. A negative effect of the recipient's income on the transfers received holds under altruism, while a positive value is consistent with exchange motive. And it is the difference in transfer-income derivative that is worth noting. Cox and Rank (1992) finds a very low (0.003) difference in transfer-income derivative, using an imputed measure of parental income. In the US, Altonji, Hayasi and Kotlikoff (1997) find a positive but low (0.13) difference estimate (0.04 for parent's income and -0.09 with regard to child's income), a value much low to validate pure altruism. However, in a developing country, Indonesia, Raut and Tran (2005) estimate the difference of 0.956 which is consistent with the altruism. Though evidence on non-white countries are rare, Japanese are more altruistic than the Americans (Horioka et al. 2000).

Tomes (1981), Altonji, Hayasi and Kotlikoff (1997), Laitner and Ohlsson (2001) and Halvorsen and Thoresen (2005) find the transfer income derivative to be significantly negative. This confirms the standard hypothesis that a child with low income will receive a larger transfer from his parent than a child with higher income, all other things equal. However, the strong neutrality prediction of the altruism hypothesis is not strongly supported by the data (Laferrere and Wolff, 2002). Moreover, in one child families the recipient income derivative is significantly higher than that in multiple child families, and the latter is non-linear, implying larger degree of parental compensation (Halvorsen and Thoresen, 2005). Cox, Eser and Jimenez (1998) investigating the downward transfer behaviour in Peru, show that the probability of transfer receipt is inversely related to income. But the effect of income on transfer amount is first positive and then negative. At incomes lower levels increases in income are associated with higher transfer amounts. A one inti increase in income prompts a .162 intis increase in transfer amounts. In the case of estimation for the child-to-parent transfer, like downward transfers, the probability of transfer receipt is inversely related to

income. Income increases at the first stage of the income spline is associated with increased transfer amounts. Thus, many empirical studies find weak support for the predictions of the altruistic model and there are evidences that parents often transfer equal amounts to their children (Menchik, 1980). Hence, recently in many studies the analysis has been extended from two generations to three generations (Cox and Stark, 1996; Arrondel and Mason, 2001; 2005), leading to demonstration effects, indirect reciprocity, upward or downward transfers hypotheses (Cox and Stark, 1996 1988; Jellal and Wolff, 2002). Non-altruistic transfer behaviour has been observed in the presence of annuity insurance (Kotlikoff and Spivak, 1981; Kotlikoff, Shoven and Spivak, 1986). These findings seem to contradict with pure altruism, but consistent with the impure altruism or exchange type bequest transfers.

Under exchange, transfer is positively related to the services provided by the child. When strategic motive is operative, the service provided by each child in the family is positively related to the size of the potential wealth of parents. The arrangement involves parents agreeing to transfer their assets to their children upon their death as a quid-pro-quo to the support payments from the children when the parents are aged and needs support. Bernheim, Shleifer and Summers (1985) found evidence in the Longitudinal Retirement History Survey that children visited and called their parents more frequently when their parents had larger amounts of bequeathable wealth. They interpret this finding as evidence of an exchange theory of transfers in which bequests are made to children in exchange for their earlier attention and care.

Economics theories predict that inheritances will compensate for earnings differences between siblings as well as between parents and children. Wilhelm (1996) who tests the equal sharing hypothesis with data on estate–income tax match of 1982, finds among the 4188 descendents who bequeathed directly to natural born or adopted children, majority of all wealthy descendents bequeath equally to their children. Over two thirds (68.6 percent) of the descendents divided their estates exactly equally among their children, and over three quarters (76.6 percent) divided their estates so that each child received within ± 2 percent of the average among children in the family. Further, empirical approaches to strategic behaviour use the differences in the transfer pattern in single child and more than one child families. Generally, it is observed in the literature that there is not much difference between the two types of families in their bequest patterns.

4. The Estimation Strategy

The estimation strategy proceeds in two steps. First, a transfer decision is to be made. Secondly, the transfer size is to be decided. The transfer decision is a latent variable, and the transfer size is conditional on transfer decision. The general transfer function is specified as:

$$T_{ij} = f(Y_j^p, Y_i^k, X_{ij}) + u_{ij} \qquad i = 1,....., N \qquad j = 1,....., P \qquad (31)$$

where T is the transfer to child i by parent j, y are the incomes of parent and children, X is a vector of controls describing both donor and recipient characteristics that contribute to determine transfers, and u is the error term.

Since the data pertains to a specific time period, parents may very well end up in a corner solution with no transfers reported, either because of survey design or because there is actually no transfers. In other words, zero transfer observations include parents who will make or have made a transfer in other times and families in which parents who will never make transfers or children who might never receive transfers. Because of this censored sample, OLS estimates will result in biased estimates. Therefore, we use Tobit model to account for the presence of non-participant households when analysing the transferred amount:

$$T_{ij}^* = \beta_1 Y_j^p + \beta_2 Y_i^k + \beta_x X_{ij} + \varepsilon_{ij} \qquad (32)$$

where

$$T_{ij} = \begin{cases} T_{ij}^* & \text{if } T_{ij}^* > 0 \\ 0 & \text{if } T_{ij}^* \le 0 \end{cases}$$

and T_{ij}^* is the latent indicating transfer to child i by parent j. The corresponding transfer decision estimation is by Probit model.

Cox (1987) has shown that irrespective of the motivation for transfers, the comparative statics results for transfer decision are the same. The latent variable that determines the transfer decision is inversely related to the child's income level and positively related to the parent's income level. For given endowment marginal utility, $(\partial U / \partial C_i)^0$, $i = p, k$, a transfer will take place if only $(\partial U / \partial C_p)^0 < (\partial U / \partial C_k)^0$. Then, the latent variable T* may be written as

$$(\partial U / \partial C_k)^0 - (\partial U / \partial C_p)^0 \qquad \qquad (33)$$

and T>0 iff T*>0, T=0 otherwise. This implies that

$$(\partial T * / \partial Y_k) < 0, \ (\partial T * / \partial Y_p) > 0. \qquad \qquad (34)$$

However, with respect to the relationship between the transfer amount and the recipient's income, the results need not be observationally equivalent. The pure altruistic model predicts that an increase parental income increases the transfers while an increase in the child income reduces the size of transfers. While in the exchange model, the effect of an increase in parental income is still positive, the effect of an increase in child income on transfers is ambiguous due to the presence of the cost of child services (Cox, 1987). Transfers are used to equate the parent's marginal utility of consumption with the child's marginal utility of consumption, and value of child the services is chosen to equate the parent's marginal utility of services with the child's marginal disutility of services, both from the parent's perspective. Under strategic motive, a positive and significant relationship between the bequeathable wealth of parents and the attention (the time spend with parent) they receive from children, as the parent wishes to increase the amount of attention received from children (Bernheim, Shleifer and Summers, 1985). However, Perozek (1998) shows that the positive effect of bequeathabe wealth on attention is not robust, and family and child characteristics, particularly the family size, are likely to influence the amount of parental attention. Hence, the effect of parental income on transfers is expected to be positive as an increase in income increases the bequeathable wealth, while the effect of an increase in income of the child on transfers again may be positive or negative. An increase in child income may allow the child to provide more attention and services to the parent, and at the same time, the increase in the value of child's time may make child services costly. Hence, the exchange and strategic motives become indistinguishable empirically. An alternative test for strategic motive would be to examine the case of single child and more than one child families. Under strategic motive, parents should receive differential care from children in many child families. Hence, the paper examines the nature of care in single child and multi-child families to test for the strategic motive for transfers. Thus the ultimate aim of the paper is to empirically test all the three motives for bequests with a view to identify the underlying motive for bequests and intergenerational transfers in India.

5. The Empirical Results

This paper empirically tests the transfer behaviour in India using a primary data collected from 315 households during September 2006 and September 2007 in two wards of Chennai. The theoretical approach followed is the standard utility maximization approach in which the parent cares about his own consumption and the recipients utility under altruism and in the exchange and strategic model the services provided by children to parent enters as an argument in both the parent's and child's utility functions. In this paper the concepts of private transfers, bequests and intergenerational transfers are used interchangeably. The definition of transfers in this paper include both inter-vivos transfers (gifts) and bequest transfers. Further, transfers are both physical and financial in nature. All physical transfers including fixed assets are converted to monetary values. In the case of child services, though the questionnaire asked direct questions on the number of visits to parental home, time and money spent by children on parents, only few households reported such services. Hence, this paper uses the parental expectation and satisfaction with respect to child services in terms of care and attention to measure child services. The decision on transfers is modeled as a probit equation which estimates the effects of background characteristics on the probability of transfers. The size of transfers is estimated by Tobit equation, given that a positive decision on transfers has been taken by the donor.

From the household data presented in Table–1, it is observed that the average size of transfers is about Rs.2,15,500 among Indian households, out of which bequests form substantial part. Here transfers include both bequests and gifts. Female children receive larger transfers compared to male children. This is because a major part of transfers or gifts to female children is in the form of dowry comprising money, jewels and property, given for marriage. There are not much differences in transfers among various religious, caste and socio-economic groups. Service providing children receive higher transfers. Elderly parents also transfer substantially. Thus, it can be inferred from the descriptive statistics that almost all households in India, who have reasonable wealth and earnings, involve in intergenerational transfers.

Table-2 which presents the descriptive statistics shows that the average age of father is 52 years and he earns about Rs.12,150 per month. The mother also earns nearly three fourths

of male, about Rs.10,000 per month. The average earnings of children is also substantial, the first child earning around Rs.10,000 per month and the second child earning about Rs.7,700 per month. Total household income is about Rs.22,200 per month. Given that sizable household members earn reasonable income, the household savings is also high in most households. It is also observed from the savings of households (not reported here), while most elderly people save in financial form, non-elderly and working households prefer to save in physical form, reflecting their liquidity requirements and need for accumulation respectively. The dissaving of the elderly is also less compared to the regular households, again reflecting the fact that the retired do not decumulate wealth and in fact continue to save for future generations. This is also reflected in the intergenerational transfers. The elderly households not only give more gifts and bequests to children, but also the size of transfers is much larger than the size of bequests of currently working households. This evidence is in support of the operative bequest motive among urban households in India. It can be observed that about 80 percent of households transfer wealth. Majority of them are transferring equally among children and more are willing to transfer equally to children. Nearly 33 percent of households reported receiving child services, while 45 percent of household expect children to provide services. About 50 percent of households receive child support and attention.

Table–3 presents the probit estimates of transfer decision of households. The probit estimates of transfer decision show that there is a strong positive influence of parental earnings on the transfer decision. The coefficient of the earnings of father is positive and highly significant in all specifications. The earnings of children weakly influence the likelihood of parental transfers. While the coefficient on first child earnings is positive and insignificant, the coefficient of earnings of second child is negative and significant only at 10 percent level. In the specification with household level income only, the earnings of children become significant at 10 percent level. The effect of non-labour income of the household on the transfer decision is significantly and strongly positive. The age of the father has no impact on the probability of transfers, a result that supports the continued accumulation by the elderly households. While the age of child 1 increases the probability of transfers, age of child 2 decreases the likelihood of favouring a transfer. This is expected, as the mean age of child 2 is about 21 years, they are yet to be considered for transfers by the parent, whereas most of the first children have completed their education and entered the labour force and many of them are married who need financial support. It seems there is no impact of education on the

likelihood of transfers as none of the coefficients of education are statistically significant. While parental education positively influences the likelihood of transfers, education of children reduces the probability of transfers. Backward and general communities influence the transfer decision positively. Male children have higher probability of receiving transfers. The marital status has a negative effect on transfers.

The weak effect of earnings of children on the probability of transfers has been used in the literature to reject the altruistic hypothesis. In order to explore the connection between income and transfers further, Cox (1987) differentiates between the transfer decision in independent (single-family) units and multiple-family units and observes opposite effects which he interprets as a contradiction to altruism and evidence for exchange version. Similarly, we report the probit coefficients in Table – 4 for nuclear and extended families, and observe that again the coefficients on child income are insignificant and change the signs in the two specifications, similar to the findings of Cox (1987). The sign of parental income coefficient has also changed from nuclear to extended families. Thus, the probit results do not provide support for the predictions of the altruistic version of the intergenerational transfers hypotheses. In general, the results show only marginal differences between the nuclear and extended families in transfer decision.

The Tobit estimates of intergenerational transfers are presented in Tables 5, 6 and 7. In all these Tobit estimates the second column reports the coefficient estimates for non-logarithmic income variables, and the remainging columns 3, 4, 5 and 6 report the Tobit estimates for the logarithmic values of both the dependent variable (transfers) and the income variables. In column 3, only the parental and children income are included. In column 4, only the household income and combined children income are used. While column 5 includes parental characteristics, column 6 uses child characteristics also. In testing for altruistic motive, the Tobit estimates in Table–5 show that the effect of earnings of father on the size of transfers is significantly positive in all specifications. The employment status of parents influences the size of transfers significantly and positively. However, the earnings of children, though negative in some specifications, are weak and significant only at 10 percent level that too with respect to second child earnings only. While the theory predicts that the effect of child earnings on transfers to be negative, the results show positive or negligible negative effects. Hence, the support for altruistic motive is weak in this data set. The community

variables have positive effect on transfer amout. Compared to parental characteristics, child characters seem to have more influence on the size of parental transfers.

In comparison to the lack of support for the altruistic model, there is strong empirical support for impure altruism or exchange motive in the data. The Tobit estimates of transfers presented in Table–6, testing for exchange motive, show strong and significant positive effect of children income on transfers. The coefficients of extended family, expectation of child services and actual child services provided by children are all positive and statistically significant. The community effects are statistically significant at 10 percent level and are positive. Under exchange motivation for transfers both parental characteristics and child characters seem to have strong influence on the size of parental transfers. Thus, overall the support for exchange motive is strong.

The estimated Tobit coefficients in the strategic model reported in Table–7 again shows weak estimates for children earnings. The effect of bequeathable wealth and number of children, though positive, are not statistically significant. Again the parental characteristics, have no influence on transfer size compared to child characteristics. As an another test of strategic behaviour, this paper uses the idea that if the parent's strategy is effective, it might be reflected in the nature of care given by children and there should be significant differences in the care in single and more than one child families. Under strategic motive, parents should receive differential care from children in multiple child households. Hence, probit estimation is used for analyzing the care received in single and multiple children families. In the strategic bequest estimations presented in Table–8 bequeathable wealth has no significant impact on the (best) care received by parents in the case of multiple children families, while the coefficient on number of children is significant at only 10 percent level. However, there is not much significant difference between the results of care received in single and multi-child families. Age and age of parents seem not to influence the size of transfers. These results are reinforced by the Tobit coefficients of bequeathable wealth and number of children presented in Table–9, which reports estimates for attention received in only male and only female child families. Thus, it appears that households receive sizable child services irrespective of parental transfers and the parental care and attention are equally provided by each of the children in the household, irrespective of sex, number and income of children and the size of parental income and beaqueathable income. Hence, there is no need for manipulative strategy

on the part of both parents and children and it seems that the services given by the children are reasonably compensated with bequest transfers.

6. Conclusion

Households transfer substantial wealth between generations under various motives. Apart from considerations of old age security and life cycle consumption smoothing, parents transfer wealth to children under pure altruism, mutual altruism, exchange or for strategic and risk sharing motives. When parents desire such sizable bequests they save more in the working age and dissave less in the retired life or old age. With strong bequest motive, they continue to save or accumulate wealth in their later part of the life cycle. However, different theories predict different motives for savings and transfers and they have different implications for household behaviour. This paper has tested the altruistic, exchange and strategic motivations for bequest transfer in urban households using a primary survey. A household utility maximization framework is followed in the theoretical analysis of bequest motives and the econometric approach followed are the probit method for transfer decision of the parent and Tobit method for the size of transfers. The results of this paper have shown that households transfer sizable accumulated wealth to children and the basic motivation is largely of exchange type. While the effect of parental income on transfers is significantly positive, the altruistic motive, which predicts negative effect for child income, is not strongly supported by the data as the coefficients on the income of children are weak. However, there is a strong empirical support for positive effect of child services on transfer size and this child support is equally provided by all children in the household. This result implies no need for strategic behviour on the part of parents. Thus, Indian households exchange accumulated wealth for the services provided by their children in the intergenerational context.

References

Alessie, R. A. Lusardi and A. Kapteyn (1999), "Saving after Retirement: Evidence from Three Different Surveys," *Labour Economics*, 6, 277-310.

Altonji, J.G., F. Hayashi and L.J. Kotlikoff (1992), "Is the Extended Family Altruistically Linked? Direct Tests Using Micro Data", *American Economic Review*, 82, 1177-1198.

Altonji, J.G., F. Hayashi and L.J. Kotlikoff (1997), "Parental Altruism and Inter-vivos Transfers: Theory and Evidence", *Journal of Political Economy*, 105, 1121-1166.

Arrondel, L. and A. Mason (2001), "Family Transfers Involving Three Generations", *Scandinavian Journal of Economics*, 103, 415-443.

Arrondel, L. and A. Mason (2005), "Altruism, Exchange or Indirect Reciprocity: What Do the Data on Family Transfers Show?", in L.A. Gerard-Varet, S.C. Kolm and J. Mercier-Ythier (eds.): *Handbook on the Economics of Reciprocity, Giving and Altruism*, North Holland: Elseiver.

Barro, R.J. (1974), "Are Government Bonds Net Wealth?" *Journal of Political Economy*, 82, 6, 1095-1117.

Becker, G.S. (1974), "A Theory of Social Interactions", *Journal of Political Economy*, 82, 6, 1063-1093.

Becker, G.S. (1991), *A Treatise on the Family*, Cambridge: Harvard University Press.

Becker, G.S. (1996), *Accounting for Tastes*, Cambridge: Harvard University Press.

Becker, G.S. and N. Tomes (1979), "An Equilibrium Theory of the Distribution of Income and Intergenerational Mobility", *Journal of Political Economy*, 87, 1153-1189.

Bernheim, D.B. and S. Severinov (2003), "Bequests as Signals: An Exploration for the Equal Division Puzzle?", *Journal of Political Economy*, 111, 733-764.

Bernheim, B. D., A. Shleifer and L.H. Summers (1981), "The Strategic Bequest Motive", *Journal of Political Economy*, 93, 1045-1076.

Bernheim, D.B. and O. Stark (1988), "Altruism Within the Family Reconsidered: Do Nice Guys Finish Last?", *American Economic Review*, 78, 1034-1045.

Blinder, A.S., R. Gordon and D.E. Wise (1990), "Social Security, Bequests and the Life-cycle Theory of Saving: Cross-Sectional Tests", in A.S. Blinder (ed.): *Inventory Theory and Consumer Behaviour*, New York: Harvester Whearsheaf, 229-281.

Borsch–Supan, A. (1992), "Savings and Consumption Patterns of the Elderly the German case," *Journal of Population Economics*, 5, 289-303.

Borsch-Supan, A. (1994), "Savings in Germany – Part 2: Behavior", in J.M. Poterba (ed): *International Comparisons of Household Survey*, Chicago: University of Chicago Press.

Borsch-Supan, A. and K. Stahl (1991), "Life Cycle Savings and Consumption Constraints," *Journal of Population Economics*, 4, 233-255.

Cox, D. (1987), "Motives for Private Income Transfers," *Journal of Political Economy*, 95, 3, 508-546.

Cox, D. and M.R. Rank (1992), "Inter Vivos Transfers and Intergenerational Exchange", *Review of Economics and Statistics*, 74, 305-314.

Cox, D. and O. Stark (1996), "Intergenerational Transfers and the Demonstration Effect," Mimeo, Boston College and Harvard University.

Cox, D. and O. Stark (1998), "Financial Transfers to the Elderly and the Demonstration Effect", Mimeo, Boston College and Harvard University.

Cox, D., Z. Eser and E. Jimenex (1998), "Motives for Private TransfersOver the Life Cycle: An Analytical Framework and Evidence for Peru", *Journal of Development Economics*, 55, 57-80. World Bank.

Davies, J.B. (1981), "Uncertain Lifetime, Consumption, and Dissaving in Retirement", *Journal of political Economy*, 89, 561-577.

Gale, W.G. and J.K. Scholz (1994), "Intergenerational Transfers and the Accumulation of Wealth", *Journal of Economic Perspectives,* 8, 4, 145-60.

Halvorsen, E. and T.O. Thoresen (2005), "The Relationship between Altruism and Equal Sharing", Discussion Paper No.439, Statistics Norway.

Horioka, C.Y., H.Fujisaji, W. Watanable and T. Kuno (2000), "Are Americans More Altruistic than the Japanese? A US-Japan Comparison of Savings and Bequests Motives", *International Economic Journal*, 14, 1, 1-31.

Hubbard, G.R., J. Skinner and S.P. Zeldes (1995), "Precautionary Saving and Social Insurance", *Journal of Political Economy,* 103, 360-399.

Hurd, M.D. (1987), "Savings of the Elderly and Desired Bequests," *American Economic Review*, 77: 298-311.

Jellal, M. and F-C. Wolff (2002), "Altruistic Bequests with Inherited Tastes", *International Journal of Business and Economics*, 1, 2, 95-113.

Jurges, H. (2001), "Do Germans Save to Leave an Estate? An Examinations of the Bequest Motive", *Scandinavian Journal of Economics*, 103, 3, 391-414.

Kazianga, H. (2006), "Motives for Household Private Transfers in Burkina Faso", *Journal of Development Economics*, 79, 73-117.

Kotlikoff, L.J. (1988), "Intergenerational Transfers and Savings", *Journal of Economic Perspectives,* 2 (2): 41-58.

Kotlikoff, L.J. and A. Spivak (1981), "The Family as an Incomplete Annuity Market", *Journal of Political Economy*, 89, 372-391.

Kotlikoff, L.J. and L.H. Summers (1981), "The Role of Intergenerational Transfers in Aggregate Capital Accumulation", *Journal of Political Economy*, 89, 4, 706-32.

Kotlikoff, L.J., J. Shoven and A. Spivak (1986), "The Effect of Annuity Insurance on Savings and Inequality," *Journal of Labour Economics*, 4, 3, Part 2, S183-S207.

Kopczuk,W. and J. Lupton (2007), "To Leave or Not to Leave: The Distribution of Bequest Motives", *Review of Economic Studies*, 74, 207-235.

Kuehlwein, M. (1993), "Life-cycle and Altruistic Theories of Saving with Lifetime Uncertainty", *Review of Economics and Statistics*, 75, 38-47.

Laferrere, A. and F-C. Wolff (2006), "Microeconomic Models of Family Transfers", in S.C. Kolm and J. Mercier-Ythier (eds.): *Handbook on the Economics of Giving, Reciprocity and Altruism*, North Holland: Elseiver, Ch. 12.

Laitner, J. (2001), "Wealth Accumulation in the U.S: Do Inheritance and Bequest Play a Significant Role?", Mimeo, University of Michigan.

Laitner, J. and T.F. Juster (1996), "New Evidence on Altruism: A Study of TIAA – CREF Retirees", *American Economic Review*, 86, 893-908.

Laitner, J. and H. Ohlsson (2001), "Bequest Motives: A Comparison of Sweden and the United States", *Journal of Public Economics*, 79, 205-236.

Lakshmanasamy, T. (2009), ""Unequal Chances: The Intergenerational Transmission of Economic Advantage under Marital Sorting" in Bhaskar Dutta, Tridip Ray and E. Somanathan (eds.): *New and Enduring Themes in Development Economics*, New York: World Scientific Publishing, pp.41-56.

Lindbeck, A. J.W. Weibull (1988), "Altruism and Time Consistency: The Economics of Fait Accompli", *Journal of Political Economy*, 96, 1165-1182.

McGarry, K. (1999), "Inter-vivos Transfers and Intended Bequests", *Journal of Public Economics*, 73, 321-351.

McGarry, K. (2001), "The Cost of Equality: Unequal Bequests and Tax Avoidance", *Journal of Public Economics*, 79, 179-204.

Menchik, P.L. (1980), "Primogeniture, Equal Sharing and the U.S. Distribution of Wealth", *Quarterly Journal Economics*, 94, 2, 299-316.

Menchik, P. (1988), "Unequal Estate Division: Is it Altruism, Reverse Bequests, or Simply Noise?" in D. Kessler and A. Masson (eds.): *Modelling the Accumulation and the Distribution of Wealth,* New York: Oxford University Press, 105-116.

Menchik, P. and M. David (1983), "Income Distribution, Lifetime Saving and Bequests", *American Economic Review*, 73, 4, 672-96.

Mirer, T.M. (1979), "The Wealth-age Relation among the Aged", *American Economic Review*, 69, 435-443.

Modigliani, F. and R. Brumberg (1954), "Utility Analysis and the Consumption Function: an Interpretation of Cross-section", in K.K. Kurihara (ed.): *Post-Keynesian Economics*, New Brunswick, NJ: Rutgers University Press, 358-436.

Park, C. (2003), "Inter-household Transfers between Relatives in Indonesia: Determinants and Motives", *Economic Development and Cultural Change*, 5, 4, 929-994.

Perozek, M.G. (1998), "A Reexamination of the Strategic Bequest Motive", *Journal of Political Economy*, 106, 423-445.

Pollak, R.A. (1985), "A Transaction Cost Approach to Families and Households", *Journal of Economic Literature*, 23, 581-608.

Pollak, R.A. (1988), "Tied Transfers and Paternalistic Preferences", *American Economic Review*, 78, 248-250.

Raut, L.K. and L.H. Tran (2005), "Parental Human Capital Investment and the Old-Age Transfer from Children: Is It a Loan Contract or Reciprocity for Indonesian Families?", *Journal of Development Economics*, 77, 389-414.

Rosenzweig, M.R. and K.I. Wolpin (1993), "Intergenerational Support and the Life-Cycle Incomes of Young Men and Their Parents: Human Capital Investments, Coresidence, and Intergenerational Financial Transfers", *Journal of Labor Economics*, 11, 84-112.

Schnabel, R. (1999), "Life-Cycle Wealth and Savings in West Germany", Discussion Paper No.99-43, University of Mannheim.

Stank, O. (1995), *Altruism and Beyond: An Economic Analysis of Transfers and Exchanges within Families and Groups*, Cambridge: Cambridge University Press.

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

Tomes, N. (1988), "Inheritance and Inequality within the Family: Equal Division among Unequal, or Do the Poor Get More?" in D. Kessler and A. Masson (eds.): *Modelling the Accumulation and the Distribution of Wealth*. New York: Oxford University Press, 79-104.

Wedgwood, J. (1929), *The Economics of Inheritance*, London: Routledge.

Wilhelm, M.O. (1996), "Bequest Behavior, and the Effect of Heir's Earnings: Testing the Altruistic Model of Bequests", *American Economic Review*, 86, 874-892.

Wolff, E.N. (1996), "International Comparisons of Wealth Inequality", *Review of Income and Wealth*, 42, 4, 433-451.

Yaari, M.E. (1966), "Uncertain Lifetime, Life Insurance, and the Theory of the Consumer", *Review of Economic Studies*, 137-150.

Table – 1. Average Size of Transfers by Characteristics

Transfer Recipients	Mean Transfers	S.D	Nos.
Transfers received by Children	215487.75	21759.10	253
Gift Received by Children	41794.81	57078.87	154
Bequest Received by Children	221576.04	20550.50	217
Transfers received by Male Child 1	169657.60	19922.70	158
Transfers received by Female Child 1	181057.05	22727.40	149
Transfers received by Male Child 2	132793.27	19815.70	104
Transfers received by Female Child 2	174553.28	10239.50	122
Transfers received by Married Child 1	140448.60	17561.90	107
Transfers received by Unmarried Child 1	194177.00	22855.60	200
Transfers received by Earning Child 1	127221.37	16412.90	131
Transfers received by Earning Child 2	111383.93	17564.40	56
Transfers among Hindus	155995.20	20501.30	229
Transfers among Christians	191179.25	23558.50	53
Transfers among Muslims	198676.47	23706.70	51
Transfers among General Community (OC)	212375.00	222257.67	60
Transfers among BC/MBC	162286.96	20755.80	207
Transfers among SC/ST	170468.75	22300.10	48
Transfer among Service Providing Children	109976.40	193758.88	106
Transfers among Child Service Expected	193123.20	250720.11	142
Transfers among Child Service Not Expected	156617.90	175144.15	173
Transfers among Working Parent Households	184918.60	222345.41	253
Transfers among Elderly Parent Households	124741.90	162202.05	62
Transfers among All Male Children Households	120489.80	147089.45	49
Transfers among All Female Children Households	179369.70	212965.90	61
Transfers among Male and Female Children Households	158639.10	218087.90	115
Transfers among Equal Attention Households	246584.00	221608.32	213

Table – 2. Descriptive Statistics of Variables

Variable	Mean	SD
Age of Male	51.45	8.55
Earnings of Male	12146.19	7348.23
Education of Male	13.44	2.82
Male Salary Employee	0.22	0.41
Earnings of Female	9885.96	7170.61
Age of Child 1	24.42	9.28
Education of Child 1	13.61	3.30
Earnings of Child 1	9876.33	4147.95
Age of Child 2	21.27	8.74
Education of Child 2	12.29	3.79
Earnings of Child 2	7657.14	2634.24
Earnings of Children 1 and 2	12406.71	11730.78
Parental Earnings	13935.08	10255.92
Household Income	22203.33	12936.44
Non-labour income	2347.302	1982.214
Bequeathable Income	64560.19	61745.73
Transfers	173074.30	212981.90
Ln (Earnings of Child1)	3.28	0.30
Ln (Earnings of Child2)	1.23	0.21
Ln (Transfers)	11.65	0.09
Ln (Earnings of Male)	9.26	0.05
Ln (Household Income)	9.87	0.53
Ln (Children Income)	9.27	0.51
Ln (Bequeathable Income)	8.21	1.06
Ln (Non-labour Income)	5.72	3.64
Transfer - yes	0.80	0.40
Equal Transfers	0.68	0.47
Willing to Transfer Equally	0.94	0.23
Joint Family	0.71	0.46
Providing Child Services	0.33	0.47
Expecting Child Care	0.45	0.50
Receiving Child Attention	0.49	0.50

Table – 3. Probit Estimates of Transfer Decision
Dependent Variable: Transfers=1, 0 otherwise

Variable	Eq. with earnings	Eq. with income	Eq. with non-labour income	Eq. with family characteristics
Father earnings	.000032* (2.85) [.0000114]			.00003* (2.34) [.0000068]
Mother earnings	-	-	-	.000034 (1.43) [.0000115]
Child 1 earnings	.0000062 (0.45) [.00000216]	-	-	.000012 (0.56) [.0000039]
Child 2 earnings	-.000045+ (1.93) [-.0000156]	-	-	-.000016 (-0.55) [-.00000544]
Household income	-	.000036* (3.80) [.0000123]	-	-
Parental income	-	-	.000025* (2.23) [.00000847]	-
Children income	-	-.000033+ (1.76) [-.0000114]	.0000128 (1.08) [.00000 433]	-
Non-labour income	-	-	.000101* (2.36) [.0000341]	.000093* (2.17) [.0000314]
Father age	-	-	.0204811 (1.25) [.0069071]	.021082 (1.28) [.0071074]
Father education	-	-	.058846+ (1.86) [.0198454]	.061692+ (1.86) [.0207986]
Child 1 age	-	-	.0127746 (0.64) [.0043081]	.015382 (0.77) [.0051859]
Child 1 education	-	-	.0138705 (0.44) [.0046777]	.003780 (0.12) [.0012744]
Child 2 age	-	-	-.021866 (-1.48) [-.0073742]	-.020548 (-1.38) [-.0069277]
Child 2 education	-	-	-.01497 (-0.58) [-.0050488]	-.009127 (-0.34) [-.0030769]
Forward community	-	-	.575764* (2.07) [.1713411]	.574845* (2.05) [.1710402]
Backward community	-	-	.176859* (2.78) [.0605349]	.18531* (2.81) [.0634476]
Child 1 male	-	-	.336428* (2.07) [.1131381]	.327544+ (1.99) [.1101342]
Child 1 married	-	-	-.5155+ (-1.92) [-.1802673]	-.458275+ (1.68) [-.159755]
Constant	.1563383 (0.91)	-.063384 (-0.37)	-2.1702* (-2.65)	-2.146* (-2.61)
Log Likelihood	-188.22526	-186.67372	-171.1072	-171.34834
Pseudo R^2	0.0362	0.0441	0.1239	0.1226
Chi-square	14.14	17.24	48.38	47.90

* Significant at 5 percent level   + Significant at 10 percent level

'z' values in parentheses   Marginal effects in brackets

Table – 4. Probit Estimates of Transfer Decision in Nuclear vs Extended Families
Dependent Variable: Transfers=1, 0 otherwise

Variable	Nuclear family		Extended family	
	Coefficient	Marginal effect	Coefficient	Marginal effect
Father earnings	.0000431* (2.28)	.0000152	-.000036* (-2.37)	-.00001033
Mother earnings	.0000222 (0.86)	.00000782	.0000317 (0.41)	.00000649
Child 1 earnings	.0000202 (0.76)	.00000712	-.00008+(-1.80)	-.0000164
Child 2 earnings	.0000337 (0.84)	.0000119	-.0000601 (-1.00)	-.0000123
Non-labour income	.0000647+ (1.82)	.0000228	.000199+ (1.73)	.0000408
Father age	-.0123825 (-0.60)	-.0043617	.1440609* (2.79)	.0294854
Father education	.0345053 (0.87)	.0121544	-.044638 (-0.44)	-.0091363
Child 1 age	.0152742 (0.65)	.0053803	-.0312495 (-0.55)	-.0063959
Child 1 education	-.0370673 (-0.91)	-.0130568	.0843311 (1.03)	.0172603
Child 2 age	-.0069331 (-0.42)	-.0024422	-.0611539 (-1.16)	-.0125166
Child 2 education	-.0315026 (-1.03)	-.0110967	.0365784 (0.46)	.0074866
Forward community	.408207* (2.24)	.1336548	.8469125* (2.06)	.1241315
Backward community	.2775301* (2.00)	.099378	.189099* (2.32)	.0370894
Child 1 male	.165013+ (1.84)	.0580000	.2709506+ (1.59)	.0563322
Child 1 married	-.2873008 (-0.89)	-.1035845	-.6838062 (-0.86)	-.1493175
Constant	.1549014 (0.13)		-5.042238* (2.88)	
Log Likelihood	-120.46889		-32.25045	
Pseudo R^2	0.1568		0.3573	
Chi-square	44.80		35.86	
N	219		96	

* Significant at 5 percent level   + Significant at 10 percent level

'z' values in parentheses

Table – 5. Tobit Estimates of Intergenerational Transfers: Altruistic Model
Dependent Variable: Transfers

Variable	Transfers	Ln (Transfers)	Ln (Transfers)	Ln (Transfers)	Ln (Transfers)
Ln (Father's earnings)	12.17872* (6.59)	.9589712* (7.91)	-	.910088* (6.82)	.9487073* (5.87)
Ln (Child 1 earnings)	-4.178699+ (-1.70)	.0090961 (0.57)	-	- .0095467 (-0.51)	-.0005211 (-0.02)
Ln (Child 2 earnings)	-2.404979 (-0.55)	.0496872+ (1.68)	-	.0502443+ (1.87)	.0499428+ (1.92)
Ln (Household income)	-	-	.840835* (3.11)	-	-
Ln (Children income)	-	-	-.0315754 (-0.15)	-	-
Father age	-	-	-	-.023726+ (-1.86)	-.0170623 (-1.16)
Father education	-	-	-	.0352784 (1.15)	.0422445 (1.43)
Forward community	-	-	-	.0296976+ (1.72)	.0133442+ (1.89)
Backward community	-	-	-	.332631+ (1.69)	.2562907+ (1.72)
Father salary employee	-	-	-	.951485* (3.77)	.7662007* (2.73)
Child1 age	-	-	-	-	.0436974* (2.60)
Child 1 education	-	-	-	-	-.11090* (-4.16)
Child 2 age	-	-	-	-	-.05855* (-4.50)
Child 2 education					.0969805* (4.35)
Child 1 male	-	-	-	-	.192821+ (1.82)
Child 1 married	-	-	-	-	.0425147 (0.18)
Constant	16327.24 (0.53)	2.720575* (2.37)	3.397813 (1.37)	2.030128 (1.39)	3.751851* (2.50)
Log Likelihood	-3535.2816	-380.63077	-155.7162	-367.46495	-353.9791
Pseudo R^2	0.0073	0.0699	0.0352	0.1020	0.1350
Chi-square	52.00	57.19	11.35	83.52	110.49

* Significant at 5 percent level   + Significant at 10 percent level   't' values in parentheses

Table – 6. Tobit Estimates of Intergenerational Transfers: Exchange Model
Dependent Variable: Transfers

Variable	Transfers	Ln (Transfers)	Ln (Transfers)	Ln (Transfers)	Ln (Transfers)
Ln (Father's earnings)	11.4853* (5.82)	.9483166* (7.25)	-	.8511476* (5.41)	.7280051* (4.69)
Ln (Child 1 earnings)	-4.458826+ (-1.80)	.0001914+ (1.81)	-	.0025214+ (1.83)	.0060624* (2.29)
Ln (Child 2 earnings)	-1.370264 (-0.30)	.0522131* (2.18)	-	.050727* (2.12)	.0499213* (2.09)
Ln (Household income)	-	-	.9944009* (3.63)	-	-
Ln (Children income)	-	-	.1306393* (2.62)	-	-
Extended family	29508.23 (0.96)	.4385525* (2.74)	.462949* (2.39)	.4055103* (2.50)	.3100895* (2.02)
Expecting child care	11912.61 (0.44)	.0925479+ (1.70)	.2570883+ (1.85)	.0402987* (2.30)	.1273708* (2.94)
Receiving child services	67235.44* (2.16)	.1704694+ (1.71)	.0761701+ (1.78)	.1248042* (2.77)	.1548468* (2.10)
Father age	-	-	-	-.00107 (-0.09)	-.0024902 (-0.18)
Father education	-	-	-	.056381+ (1.85)	.0619095* (2.13)
Forward community	-	-	-	.1050019+ (1.74)	.0834531+ (1.86)
Backward community	-	-	-	.299502* (2.47)	.2244188* (1.99)
Father salary employee	-	-	-	.0983199 (0.58)	.1360828 (0.85)
Child1 age	-	-	-	-	.054014* (3.30)
Child 1 education	-	-	-	-	-.1291635* (4.98)
Child 2 age	-	-	-	-	-.05766* (-4.41)
Child 2 education	-	-	-	-	.0929215* (4.13)
Child 1 male	-	-	-	-	.193864+ (1.81)
Child 1 married	-	-	-	-	.0291889 (0.12)
Constant	44219.31 (0.82)	3.4395* (2.74)	3.15338 (1.30)	3.480004* (2.37)	5.095753* (3.37)
Log Likelihood	-3531.6137	-374.33517	-150.8571	-340.22649	-314.09451
Pseudo R^2	0.0083	0.0853	0.1053	0.2953	0.3347
Chi-square	59.34	69.78	21.07	78.0	110.26

* Significant at 5 percent level   + Significant at 10 percent level   't' values in parentheses

Table – 7. Tobit Estimates of Intergenerational Transfers: Strategic Model
Dependent Variable: Transfers

Variable	Transfers	Ln (Transfers)	Ln (Transfers)	Ln (Transfers)	Ln (Transfers)
Ln (Father's earnings)	11.52997* (4.38)	.7128808* (4.39)	-	.6527261* (3.68)	.6063717* (3.57)
Ln (Child 1 earnings)	-4.577092+ (-1.74)	-.016423 (-0.94)	-	-.0065353 (-0.31)	-.0199911 (-0.87)
Ln (Child 2 earnings)	-2.962172 (-0.65)	.0391509 + (1.59)	-	.0449846+ (1.77)	.0420182+ (1.69)
Ln (Household income)	-	-	.5918761* (2.82)	-	-
Ln (Children income)	-	-	.0689089 (0.30)	-	-
Ln (Bequeathable wealth)	1.48293 (0.65)	.0636896 (0.75)	.1158531 (0.99)	.0679616 (0.79)	.0582028 (0.70)
No. of children	5801.898 (0.27)	.1125229 (1.01)	.2213802 (1.29)	.094584 (0.85)	.0791206 (0.47)
Father age			-	-.0073382 (-0.63)	-.0088212 (-0.61)
Father education	-	-	-	.0305096 (0.97)	.0348089 (1.15)
Forward community	-	-	-	.1085262 (0.45)	.1121166 (0.49)
Backward community	-	-	-	-.2385434 (-1.17)	-.1753699 (-0.91)
Father salary employee	-	-	-	.0260143 (0.15)	.0604859 (0.38)
Child1 age	-	-	-	-	.0529169* (3.18)
Child 1 education	-	-	-	-	-.1325937* (-5.14)
Child 2 age	-	-	-	-	-.062388* (-4.53)
Child 2 education	-	-	-	-	.0955276* (3.97)
Child 1 male	-	-	-	-	.1096057+ (1.78)
Child 1 married	-	-	-	-	.1444274 (0.60)
Constant	8083.617 (0.15)	4.859947* (3.85)	4.431957 (1.66)	5.392317* (3.59)	6.226101* (4.22)
Log Likelihood	-3535.1613	-346.47851	-151.71969	-343.53499	-326.595
Pseudo R^2	0.0073	0.0620	0.1388	0.1700	0.2159
Chi-square	52.24	45.84	12.26	51.73	85.61

* Significant at 5 percent level   + Significant at 10 percent level   't' values in parentheses

Table – 8. Probit Estimates of Child Services: Strategic Model
Dependent Variable: Receiving Care from Children

Variable	All families		Single child families		Multiple children families	
	Coefficient	Marginal effect	Coefficient	Marginal effect	Coefficient	Marginal effect
Ln (Bequeathable wealth)	.2020196+ (1.75)	.080085	.5568771+ (1.90)	.1497411	.1072251 (1.24)	.042188
Forward community	.2707955+ (1.92)	.107658	.4141082+ (1.69)	.1239198	.2663193+ (1.82)	.1027614
Backward community	.8441538* (3.58)	.318360	.8129684+ (1.71)	.2022892	.8879076* (3.20)	.3428852
Father age	.0232272+ (1.75)	.009207	.0378303 (1.04)	.0101724	.0213173 (1.33)	.0083875
Father retired	.1042836 (0.36)	.041453	.1912415 (0.33)	.0544999	-.0064007 (-0.02)	-.002519
Extended family	.1896418 (1.04)	.074708	-.2831889 (-0.74)	-.071251	-.1980776 (-0.92)	-.078269
No. of children	.5417179* (4.17)	.214750	-	-	.344977+ (1.70)	.1356845
Constant	-1.37137 (1.54)		1.413365 (0.83)		-.6680045 (-0.66)	
Log Likelihood	-174.21214		-36.776445		-133.45366	
Pseudo R^2	0.1428		0.2070		0.2675	
Chi-square	58.04		19.20		29.33	
N	294		89		226	

* Significant at 5 percent level   + Significant at 10 percent level

Z-statistics in parentheses

Table – 9. Probit Estimates of Child Services: Strategic Model
Dependent Variable: Equal Attention Received from Children

Variable	Multiple child families		Male child families		Female child families	
	Coefficient	Marginal effect	Coefficient	Marginal effect	Coefficient	Marginal effect
Ln (Bequeathable wealth)	.0586963 (0.61)	.0206211	.160378 (0.77)	.0621585	.0372252 (0.15)	.0112836
Forward community	.1690602+ (1.80)	.0577517	.237448+ (1.79)	.0933412	.4154084+ (1.85)	.1349877
Backward community	.054154+ (1.79)	.0191112	.013131* (2.02)	.0050927	.2875149+ (1.76)	.0854159
Father age	-.0213295 (-1.06)	-.0074935	-.0225517 (-0.48)	-.0087405	.0220226 (0.39)	.0066754
Father education	.1318791* (3.46)	.0463316	.0876858+ (1.78)	.0339848	.1802339* (2.01)	.0546318
Father retired	.4318663 (1.23)	.1403229	.0695619+ (1.70)	.0268231	.971275+ (1.80)	.3052325
Extended family	.4168998+ (1.76)	.1391735	.5139378+ (1.96)	.1901163	.0396949+ (1.87)	.0121109
No. of children	.1066307+ (1.79)	-.0374614	.289273+ (1.76)	.112115	.1115547+ (1.88)	.033814
Child 1 married	.563928* (2.00)	.2049266	.2498465 (0.36)	.0973019	.265378* (2.91)	.1132333
Child 1 male	.0962499* (2.48)	.0338555	-	-	-	-
Constant	.5311835 (0.40)		2.208581 (0.69)		-1.528239 (-0.45)	
Log Likelihood	-117.39116		-98.636022		-102.624922	
Pseudo R^2	0.1896		0.2118		0.3551	
Chi-square	78.91		87.10		94.92	
N	226		49		61	