TRANSFERS IN KIND:

WHY THEY CAN BE EFFICIENT AND NON-PATERNALISTIC

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ABSTRACT

The traditional argument predicts that transfers motivated by altruism should always be given in cash rather than in kind, and given unconditionally rather than as matching grants. Observations of the real world indicate that, on the contrary, tied transfers are quite common. In this paper we show that it is not necessarily one of the assumptions of the traditional argument that is incorrect, but rather it may be the logic of the argument itself. In particular, we show that the traditional argument neglects the role that the Samaritan's dilemma may play in determining the form that transfers typically take.

I. Introduction

Consider an environment where one person is sufficiently altruistic towards another that he transfers resources to the other person. The traditional theory of altruism makes a strong prediction concerning the form that such a transfer would take, i.e., whenever possible the transfer should be given in cash rather than in kind, and given unconditionally rather than as a matching grant. The logic of the prediction is simple. A tied transfer places a constraint on the affordable market baskets of the recipient which would not be present if the transfer were given in cash. Since in the traditional theory of altruism the altruist cares about the utility of the recipient and not the composition of his market basket, it would seem that the altruist is never made worse off and perhaps could be made better off by making the transfer in cash rather than tying it in some way.

Despite the appeal of this argument, even casual empiricism indicates that the prediction it makes is refuted in many cases. Transfers from a parent to a child are often tied in some way, for example, a parent who pays for his child's college education. This is equivalent to an unconditional cash transfer only if the parent is willing to make the transfer regardless of how the child plans to spend the money. As Pollak [1988] points out, it is likely that few parents who are willing to pay for a child's college education would also be willing to provide the money if the child intends to contribute it to Green Peace or use it to buy a Mercedes. Also, government transfers to the poor are often made in a tied fashion – food stamps, subsidized housing, and job training programs being just a few cases. It is commonly argued that such government policies are an inefficient method of redistributing income to the poor.

The existence of tied transfers or transfers in kind despite their purported inefficiency invites an explanation. Blackorby and Donaldson [1988] argue that government transfers in kind may be explained as a means of targeting the benefits towards the intended recipients. This occurs because a transfer in kind is more selective in its appeal than a cash transfer. They argue that while a transfer in kind may not be first best Pareto efficient, it may be second best efficient in a world of imperfect information.[1]

Pollak [1988] considers the question of tied transfers within the family, and concludes that one of the assumptions of the traditional altruism argument is invalid. In particular, he asserts that the type of evidence cited above is inconsistent with the notion that parents care only about the utility levels of their children. He proposes what he refers to as the "paternalistic preferences" model. By paternalistic preferences he means that parents "care about their children's consumption patterns even after the children are grown and have left home." Obviously, once it is assumed that an altruist's utility is directly affected by the consumption patterns of the recipient, it is easy to believe that transfers will be given in a tied fashion.[2]

Although we feel that considerations such as targeting and paternalistic preferences may play a role in the existence of tied transfers, we argue that there is another factor that may play an equal or greater role. Pollak is wrong in asserting that the existence of tied transfers implies that one of the assumptions of the traditional altruism argument must be incorrect. Rather, an important alternative is that the logic of the traditional argument is incomplete. In particular, we demonstrate in this paper that, in contrast to the traditional argument, an altrist who cares only about the utility level of a recipient may still wish to transfer resources in a tied fashion.

Further, such tied transfers may in fact be more efficient, not less, than unconditional cash transfers.

The outline for the paper is as follows. Section II provides a verbal discussion for why the logic of the traditional argument is incomplete. Section III works through a formal model of the parent/child relationship, and demonstrates that indeed parents may give tied transfers even if they are purely altruistic. Section IV discusses the relevance of the point for government behavior. Section V presents some concluding remarks.

II. The Significance of the Samaritan's Dilemma

The flaw in the traditional altruism argument is that it ignores the role played by the Samaritan's dilemma (see Buchanan [1975], and Bruce and Waldman [1986] for earlier discussions of the Samaritan's dilemma).[3] The Samaritan's dilemma is fairly simple. Consider a situation in which an altrist will transfer resources to the recipient if the recipient comes upon hard times. The Samaritan's dilemma is simply that the recipient, if he anticipates that the altruist will act in this manner, will make decisions which make the probability of his becoming impoverished "too high". A simple example of this scenario can occur in the family environment. In a pure altruism model, the size of the bequest from a parent to his child will depend negatively on the wealth that the child has at the time of the bequest. In turn, if the child realizes that his wealth at the time of the bequest can affect its size, he may very well overconsume in periods prior to the bequest.

Once it is recognized that altruism may induce such behavior, it is reasonable, as Becker and Murphy [1988] point out, that altruists may take actions in order to give recipients better incentives. *One such action is* *to transfer resources in a tied fashion.* To see why this is so we need to complicate the above scenario only slightly. Consider again a world with an altruist and a recipient, but now assume that there are two different dates at which the altruist can transfer resources to the recipient. Using the above logic, the recipient would likely use any first period transfer in a manner which makes his probability of becoming impoverished at the later date too high. Hence, if the altruist transfers resources to the recipient at the earlier date, he will want to transfer them in a manner which minimizes such behavior. In other words, the altruist may tie the earlier transfer because an untied transfer would be used in an inefficient manner.

A simple example of this scenario again arises in the family environment. As discussed above, the size of the bequest from parent to child is likely to depend negatively on the wealth of the child at the time of the bequest, which in turn may lead the child to overconsume in periods prior to the bequest. Now suppose the parent is considering giving his child an inter vivos transfer as well as a bequest. If the inter vivos transfer is given in cash, the child will likely use "too much" of the transfer to increase current consumption (or equivalently he will save and invest too little). Anticipating this, the parent may decide to tie the transfer, if he can, so that the child is forced to use much of it for increased savings. For example, the parent may decide to give the transfer in the form of a college education or a down payment on a house – two of the examples Pollak cited as proof that parents cannot be motivated by purely altruistic preferences.

III. A Model of "Pure" Altruism Within the Family

The model we consider in this section formalizes the intuition of the previous section for the case of pure altruism within the family.[4] We assume that the parent and child co-exist for two periods indexed t=1,2. The cash transfer from parent to child in period t is denoted T_t and the parent's own consumption in period t is denoted C_t^p. The parent derives utility from his own consumption in the two periods and from the utility of the child. In particular, it is assumed that the parent's utility function takes the form

(1) $$U^p = v_1(C_1^p) + v_2(C_2^p) + \omega U^c,$$

where U^h denotes the utility of the child and parent for h=c,p respectively, $v_t(.)$ is the period t sub-utility function of the parent where $v_t' > 0$, $v_t'(0) = \infty$, $v_t'' < 0$, and $\omega > 0$ denotes the altruism parameter.[5] The child's utility function is given by

(2) $$U^c = \mu_1(C_1^c) + \mu_2(C_2^c),$$

where $\mu_t' > 0$, $\mu_t'(0) = \infty$ and $\mu_t'' < 0$. Note that the parent respects the child's preferences and is "purely" altristic in this sense.

We assume that the parent is endowed with a fixed initial wealth A and can freely borrow and lend at a fixed interest rate r. The parent's intertemporal budget constraint is given by equation (3) below.

(3) $$(1+r)(C_1^p + T_1) + C_2^p + T_2 = A(1+r)$$

Following Bernheim and Stark [1987], we assume that the parent chooses his first period consumption level before the child chooses his investment and consumption levels. This simplifies the mathematics without changing the qualitative nature of the results.

In order to give the parent a reason to make a transfer in the first period we assume that the child does not have access to capital markets.[6] Also, for simplicity we assume that the child is totally dependent on the parent for resources[7] and consumes according to

$$C_1^c = T_1 - I \tag{4.1}$$

$$C_2^c = T_2 + F(I), \tag{4.2}$$

where C_t^c denotes consumption by the child in period t and I denotes investment (say, in human capital). F(.) is the investment production function and is assumed to satisfy $F(0)=0$, $F'(0)>(1+r)$, $F'(.)>0$ and $F''(.)<0$.[8]

Finally, it is assumed that the parent will not transfer resources in the first period sufficient to make the second period transfer non-operative. Although we do not formally incorporate it into the model, we could justify this assumption by having the child choose an action in the second period which affects the level of family income. If the action which is optimal for the child is sufficiently different from that which maximizes family income, the parent will want to make the second period transfer operative. As long as the second period transfer is operative, the child is "forced" to choose an action which maximizes family income rather than his own wealth (this is the so-called "Rotten kid theorem", see Becker [1974, 1976]).[9]

Before proceeding with the analysis we introduce the following notation. An asterisk denotes the equilibrium choice of a variable by the parent or child. For some variables, we will need to compare the equilibrium choices with the choices which would be made if certain variables were held fixed which are not fixed in equilibrium. For example, we need to compare the level of investment actually chosen by the child to that which would be chosen if the first <u>and</u> second period transfers were thought of as fixed by the child. A bar over a variable denotes that it is fixed. Thus, $I^*(\bar{T}_1^*,\bar{T}_2^*)$ denotes the investment choice which would be made by the child if the parental transfers were thought of as fixed at the equilibrium values T_1^* and T_2^*.

Finally, a double asterisk denotes the values of the choice variables which are first best from the parent's perspective. In particular, I^{**}, T_t^{**}, C_t^{c**}, and C_t^{p**} satisfy the first order conditions

(5.1) $$F'(I^{**})=1+r$$

(5.2) $$\mu_1'(C_1^{c**})=(1+r)\mu_2'(C_2^{c**})$$

(5.3) $$v_1'(C_1^{p**})=(1+r)v_2'(C_2^{p**})$$

(5.4) $$v_2'(C_2^{p**})=\omega\mu_2'(C_2^{c**}),$$

where $C_1^{c**}=T_1^{**}-I^{**}$, $C_2^{c**}=T_2^{**}+F(I^{**})$, and the parent's intertemporal budget constraint is satisfied. That is, efficiency requires that the child's return on investment at the margin and each individual's intertemporal marginal rate of substitution (minus one) equals the external real interest rate facing the family through parental borrowing and lending. Also, the marginal utility of the parent from second period consumption must equal the marginal utility he derives from the child's second period consumption.

This completes the set-up and we now proceed to the analysis. In what follows we consider three different assumptions concerning the form that the first period transfer can take. The three assumptions are that the transfer: (i) must be given in cash; (ii) can be given partly or wholly in kind; and (iii) can take the form of a matching grant.

A) Unconditional Cash First Period Transfer

When the parent completes a cash transfer in the first period before the child makes his investment decision it is described as an unconditional first period transfer. In this case the following proposition can be proved.

Proposition 1: If the parent makes a cash transfer prior to the first period investment and consumption decisions of the child, then $I^* < I^*(\bar{T}_1^*, \bar{T}_2^*)$ and $C_1^{c*} > C_1^{c*}(\bar{T}_1^*, \bar{T}_2^*)$.

Proposition 1 states that, given a first period transfer that is unconditional and in cash, the child will spend too little for investment purposes and too much for consumption. "Too little" and "too much" are in comparison to the case where the same second period transfer can be precommitted by the parent in some way. In the absence of such a precommitment, the child overconsumes and underinvests in order to reduce the consumption opportunities he takes forward into the second period. He does this in the knowledge that the parental transfer in the second period will be larger the smaller his own consumption opportunities when that period arrives. This is an illustration of what we have previously referred to as the Samaritan's dilemma.

From a mathematical standpoint the reason that proposition 1 holds can be seen by comparing the first order conditions which define I^* and $I^*(\bar{T}_1^*, \bar{T}_2^*)$. Suppose the child takes both the first and second period transfers as fixed at their equilibrium values. Then his investment choice, $I^*(\bar{T}_1^*, \bar{T}_2^*)$, is the value for I which solves equation (6).

$$-\mu_1'(T_1^* - I) + F'(I)\mu_2'(T_2^* + F(I)) = 0 \qquad (6)$$

In contrast, the equilibrium choice of investment, I^*, reflects the child's knowledge that as he invests more in period 1 he lowers the transfer he receives in period 2. That the second period transfer behaves in this way can be ascertained mathematically by totally differentiating the equation which defines T_2^*, i.e., $v_2'(C_2^{p*})=\omega\mu_2'(C_2^{c*})$. Hence, I^* is defined by (7).

$$-\mu_1'(T_1^*-I)+[\frac{\partial T_2^*}{\partial I}+F'(I)]\mu_2'(T_2^*+F(I))=0, \tag{7}$$

where $\frac{\partial T_2^*}{\partial I}<0$. Given $\mu_t''<0$ for t=1,2 and $F''<0$, a comparison of (6) and (7) immediately yields $I^*<I^*(\bar{T}_1^*,\bar{T}_2^*)$. In turn, $C_1^{c*}>C_1^{c*}(\bar{T}_1^*,\bar{T}_2^*)$ then follows from the child's budget constraint.

It should be noted that although we can establish that the child invests too little with respect to a situation in which he receives the same but fixed levels of parental transfers, it is not generally the case that the child will invest too little relative to the first best level I^{**}. The reason is that in response to the underincentive for the child to invest, the parent may make a first period transfer that is larger than T_1^{**}. The subsequent result is that the higher first period transfer can in fact actually induce the child to invest more than I^{**} (although it would still be an underinvestment relative to the equilibrium values for the transfers). Nevertheless, even though the equilibrium investment may be greater than the first best level, it is still the child's incentive to underinvest which stops the parent from achieving his first best preferred outcome.

B) First Period Transfer Made in Kind

We now consider cases where the parent can tie the first period transfer in some way. The first possibility is that the parent can make transfers in kind, i.e., the parent can make part or all of the first period transfer in the form of an investment on the child's behalf. In this case, it must be assumed that the child cannot undo the action of the parent by liquidating the investments made on his behalf and consuming the proceeds. If these conditions are met, and it seems reasonable they would be for some kinds of parental transfers, then proposition 2 below holds (a formal proof is provided in the Appendix).

Proposition 2: Suppose the parent makes a transfer prior to the first period investment and consumption decisions of the child, and in making the transfer he has the option as discussed above of making some or all of it in kind. In this case he will make I^{**} of the transfer in kind with the subsequent result being $I^{*}=I^{**}$ and $C_1^{c*}=C_1^{c**}$.

Proposition 2 tells us that the model works in exactly the fashion the discussion in Section 2 suggests. That is, the parent will make a tied transfer when possible, because by doing so he can avoid the inefficiencies identified in proposition 1. The logic is straightforward. The problem found in proposition 1 was that, from a parental perspective, the child's incentive to invest from his first period transfer is too low. By tying the transfer the parent places a lower bound on the amount of the transfer which can be used for investment. What this means is that the parent can ensure that any first period transfer is allocated in an efficient fashion, which in turn implies the parent can achieve his preferred first best result by transferring T_1^{**} and tying I^{**} of it.

C) First Period Transfer as a Matching Grant

Even if the parent is restricted to making cash transfers and cannot affect the child's investment directly as assumed above, the transfer can be effectively tied by the parent if the child must commit to one of his first period choices before the parent makes all of the first period transfer. For example, the parent may observe the level of investment chosen by the child before choosing the total level of the first period transfer. The child will then infer how the parent's maximizing choices regarding the size of T_1 and T_2 will depend on his own choice, and will take this dependency into account when choosing the level of investment.

To analyze this possibility we consider a situation in which the parent has three opportunities to make transfers to the child. He can make part of the first period transfer before the child makes any first period decision. He makes the remainder of the first period transfer after the child commits to an investment level, but before he decides on a consumption level.[10] Finally, the parent makes a second period transfer as before. It is assumed that once the child makes his investment decision he cannot change it after the first period transfer has been completed, otherwise we return to the unconditional cash transfer case. We now state our final proposition.[11]

<u>Proposition 3</u>: Suppose the parent can make part of the first period transfer prior to the child committing to any first period decisions, and the rest of the first period transfer after the child has committed to an investment decision. In this case, if $I^{**} \leq C_1^{c**}$, then $I^* = I^{**}$ and $C_1^{c*} = C_1^{c**}$.

This proposition can be understood by considering what happens if $I^{**} \leq C_1^{c**}$ and the parent gives an initial cash transfer equal to I^{**}. The child can spend all of the transfer on investment or keep some of it for consumption. Once the child makes his decision, however, the investment level is fixed so the levels of subsequent transfers determine the child's first and second period consumption levels. What happens is that after the child's investment choice, the parent chooses the total size of T_1 and T_2 so that expressions analogous to (5.2) thru (5.4) are satisfied. Given this, the child can do no better than to invest all of the initial component of the first period transfer. Notice that this result is just an application of the "Rotten Kid theorem". Since all transfers are still operative after the child has effectively made his only decision, he chooses to maximize family income rather than his own consumption opportunities providing his utility enters as a normal good in the parent's preferences, as is the case with additively separable utility.[12]

The above scenario can also be interpreted in terms of a matching grant. The child could have chosen not to invest all of the initial I^{**} cash transfer. He doesn't do this because he realizes that such an action cannot increase his consumption. Any part of the transfer that the child doesn't invest can and will be more than offset by the size of the remaining first period transfer that the parent chooses to make. That is, the parent increases the cash transfer to the child more than dollar for dollar with the level of investment chosen by the child up to the level I^{**}.

One question concerns the restriction $I^{**} \leq C_1^{c**}$. Suppose $I^{**} > C_1^{c**}$ and the parent gave an initial cash transfer equal to I^{**}. The child would now have the option of investing zero (or very little) and in this way ensuring himself the ability to overconsume in the first period. This was not an option when $I^{**} \leq C_1^{c**}$ because then he could not guarantee overconsumption even by investing zero (see footnote 12). The result is that when $I^{**} > C_1^{c**}$ the parent may not be able to achieve his first best preferred outcome because of the incentive for the child to overconsume. Another way to think of this result is again in terms of the Rotten Kid theorem. The Rotten Kid theorem says that if the child behaves in a way which leaves both remaining transfers operative, then he must choose the investment level which maximizes family income. However, when $I^{**}>C_1^{c**}$ a plausible alternative is to invest so little that the incremental first period transfer becomes non-operative. Given this is the case, the Rotten Kid theorem no longer states that the investment choice must maximize family income.

Finally, it is of interest to note that in proposition 3 we are really considering the case which is least favorable for our argument. For example, if we were to reverse the order of moves in the first period, i.e., if the child made his consumption choice first and his investment choice second, then the statement of the proposition would not require any restriction analogous to $I^{**}\leq C_1^{c**}$. The logic is that, since the child's incentive is to overconsume, the parent would always be able to achieve his first best preferred outcome by setting the initial transfer equal to C_1^{c**}. Similarly, if after the initial transfer the child had the option of which choice to make first, the proposition would again require no restriction analogous to $I^{**}\leq C_1^{c**}$. What happens in this case is the parent achieves his first best preferred outcome by making the initial part of the first period transfer equal to the minimum of C_1^{c**} and I^{**}.

IV. Government Policies

The argument of this paper – formalized in the previous section for the parent/child relationship – applies equally to tied transfers made by the government. For whatever reasons, governments may choose the level of transfers on the basis of the utility of the recipient households, i.e., they may act as if altruistic. The implication of our analysis is that in such a setting it may be more efficient, not less, to make government transfers conditional or in kind. Unlike Blackorby and Donaldson [1988] who conclude that in kind transfers may be second best in a world of imperfect information, our analysis implies that conditional transfers may be required to achieve first best efficiency in a world of perfect information.

Consider the three government programs mentioned in the introduction: food stamps, subsidized housing, and job training programs. In each case the fact that the transfer is given in a tied fashion can be interpreted as an attempt by the government to avoid the problem of the Samaritan's dilemma. The most clear cut case is probably that of job training programs. Recipients realize that if they acquire sufficient job skills and leave the welfare rolls, much of the return to the training will be received by tax payers who now have a lower tax burden. In other words, if a cash transfer is given, from an economic efficiency standpoint the incentive for the individual to purchase job training will be too low. Hence, in order to avoid this Samaritan's dilemma type inefficiency, the government may decide to tie the transfer so that only job training can be purchased. A similar argument may explain the appeal of "workfare". The employed recipient not only earns wages but also acquires on-the-job skills which reduce the probability that he will be on welfare in the following period. Without the tie of welfare to employment, the recipient would value the acquisition of these skills too little.

The case of food stamps and subsidized housing work similarly. Assume that the consumption of food has an effect on health. If given a cash transfer recipients may purchase "too little" food because they do not pay their own medical bills. The government can avoid this inefficiency by tying the transfer so that only food can be purchased.[13] Similarly, assume that the quality of housing for a welfare family has an effect on the probability the next generation will also find itself on welfare. If given a cash transfer, recipients may purchase too few housing services because some of the return would be received by future tax payers. That is, some of the return is the lowered tax burden of future tax payers due to the presence of fewer individuals on the welfare rolls. Again, the government avoids this inefficiency by tying the transfer so that only housing can be purchased.

Another interesting point is that this perspective can also explain some government policies which seem paternalistic, but which do not directly concern the tying of transfers from the government. In fact, no positive net transfers need be involved. One example is government restrictions on gambling. A potential gambler who is near the cut off point for government assistance involves a Samaritan's dilemma type problem. If the individual gambles and wins, he retains all his winnings whereas if he loses, at least some of his losses will be replaced by government transfers. Hence, from an economic efficiency standpoint his incentive to gamble is too high. The government avoids this problem not by tying potential transfers, but rather by simply making gambling illegal.[14] A similar argument can be applied to the government policy of making some types of insurance mandatory.

A second example is that of forced saving such as in a social security system. Individuals who expect that they will receive transfers should they be destitute in old age will consume too much and save too little. Consequently the government may want to force the individual to save by taking some of his income when he is young and giving him a non-liquid "bank account" in the form of future social security benefits. Of course, to the extent that the social security contributions are used to finance contemporaneous social security benefits, the economy in aggregate may still overconsume because of the social security wealth effect (see Feldstein (1974)).[15]

V. Conclusion

The traditional theory of altruism predicts that transfers should always be given in cash rather than in kind, and unconditionally rather than as matching grants. Observations of the real world, however, indicate that tied transfers are quite common. In this paper we have shown that it is not necessarily one of the assumptions of the traditional theory which is incorrect, but rather it may be the logic of the argument itself. Once one incorporates the Samaritan's dilemma into the analysis of what form transfers should take, altruism no longer implies that unconditional cash transfers will be preferred. Tied transfers and other apparently paternalistic policies may, in fact, serve the purpose of economic efficiency.

Appendix

Proof of Proposition 2: Given Proposition 1, if by tying the first period transfer the parent can achieve the outcome which is first best from the parent's perspective, then he will tie the first period transfer in the manner which achieves this result. Let the parent's first period consumption choice be that which characterizes his first best outcome. Now suppose the parent makes a first period tied transfer equal to I^{**}, and a non-tied transfer equal to C_1^{c**}. In utilizing this transfer the child is restricted to consuming an amount less than or equal to C_1^{c**}. Hence, (7) holds if $C_1^{c*}<C_1^{c**}$.

If $C_1^{c*}<C_1^{c**}$ then $I^*>I^{**}$, which implies $F'(T_1^*-C_1^{c*})<1+r$. Also, if $C_1^{c*}<C_1^{c**}$, we know $\mu_1'(C_1^{c*})>\mu_1'(C_1^{c**})$. Hence, if $C_1^{c*}<C_1^{c**}$, (7) implies

$$\mu_1'(C_1^{c**})-(1+r)\mu_2'(F(T_1^*-C_1^{c*})+T_2^*)<0. \tag{A1}$$

If $C_1^{c*}<C_1^{c**}$ then $T_1^*-C_1^{c*}>I^{**}$, i.e., the child is carrying more wealth into the second period than $F(I^{**})$. Further, for this case it is easy to demonstrate that the child's consumption in the second period would be greater than C_2^{c**}. This implies $\mu_2'(F(T_1^*-C_1^{c*})+T_2^*)<\mu_2'(C_2^{c**})$. (A1) now yields that if $C_1^{c*}<C_1^{c**}$, then

$$\mu_1'(C_1^{c**})-(1+r)\mu_2'(C_2^{c**})<0. \tag{A2}$$

(A2) contradicts (5.2) which means that if the parent ties the transfer in the manner described, then $C_1^{c*}=C_1^{c**}$.

We now have that if the first period transfer is tied in the manner described, then the first period investment and consumption decisions of the child are first best from the parent's perspective. It should also be clear that the parent will then be able to achieve the second period consumption levels which are first best by having a second period transfer equal to $C_2^{c**}-F(I^{**})$. Note, it should also be clear that given these transfers,

$C_1^{c**} = C_1^{c*}(\bar{T}_1, \bar{T}_2)$. Or overall, since the parent can achieve his first best outcome by tying the first period transfer, he will tie the transfer with the subsequent result being $I^* = I^{**}$ and $C_1^{c*} = C_1^{c*}(\bar{T}_1^*, \bar{T}_2^*) = C_1^{c**}$.

Footnotes

[1]See also the earlier discussions of Diamond and Mirrlees [1978], Nichols and Zeckhauser [1982], and Dye and Antle [1986].

[2]For other recent work related to Pollak's notion of paternalistic preferences see Bernheim et al. [1985] and Cox [1987].

[3]See also Thompson [1980], Bergstrom [1984], Bernheim and Stark [1987], and Lindbeck and Weibull [1987].

[4]The model we consider in this section is similar to those considered by Becker [1974, 1976] and Bruce and Waldman [1986].

[5]For simplicity we assume that the parent's utility function is additively separable in all arguments including the child's utility. This simplifies the algebra considerably and involves no loss in generality for the qualitative conclusions in this paper.

[6]Cox [1988] and Cox and Jappelli [1988] give evidence that the recipients of private transfers are often persons who face capital market constraints. Also, see Altig and Davis [1988] for an earlier study which considers the interaction between intergenerational altruism and capital market constraints. Note, however, that they do not allow for strategic interaction on the part of the agents and hence do not capture the role that the Samaritan's dilemma can play in the existence of tied transfers.

[7]Exogenous fixed income in each period can be included in the T_t terms although the size and timing of such receipts must be such that the parent wants to make a positive transfer in each time period. Also, the upper limit on borrowing could be positive rather than zero given a similar stipulation that transfers must remain positive.

[8]This specification rules out saving as well as borrowing. However, saving can easily be incorporated by assuming there is a value $\hat{I}$, where $\hat{I}$ is the smallest investment level for which $F'=1+r$, and that $F'(I)=1+r$ for all $I \geq \hat{I}$.

[9]Let I^{**} and C_2^{c**} be the investment level and second period consumption level for the child which is first best from the parent's perspective. We also assume $F(I^{**})<C_2^{c**}$. That is, if the child invests in the manner which is first best from the parent's perspective, the second period transfer will be operative.

[10]The purpose of this preliminary transfer is to give the child the resources to invest since we are assuming the child has no resources of his own.

[11]The qualitative nature of the results would remain unchanged if we reversed the order in which the decisions are made. Note also, as stated, for proposition 3 we assume that when the consumption decision is made the child cannot increase the investment. The proposition would also hold if it was instead assumed that at the time of the consumption decision it is not possible to make any investment whose return is greater than (1+r), but it is possible to save (see footnote 8).

[12]It is possible that if the child invested a small amount of the initial transfer the remaining first period transfer would become non-operative. However, since this would entail a consumption level for the child no greater than C_1^{c**}, such a choice could not be optimal for the child.

[13]Of course it must be assumed that food stamps and other transfers in kind will actually increase the consumption of the good in question. This

requires that the value of the in-kind transfer exceeds what the recipient would have otherwise spent on the commodity.

[14]The recent move towards legalized gambling may seem puzzling in this regard. But note that gambling is usually legalized under circumstances that permit the government to collect sizable revenues, either in the form of taxes or profits from government lotteries. Such revenues may outweigh the costs to the government of the Samaritan's dilemma in this context.

[15]See Lindbeck and Weibull [1987] for an earlier discussion of the relationship between social security and the Samaritan's dilemma.

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