NONMARKET TRANSFERS AND ALTRUISM

Oded Stark*

Forschungsbericht/
Research Memorandum No. 319
April 1993

*Department of Economics
Harvard University
Littauer Center
Cambridge, Massachusetts 02138
USA

Preliminary versions of this paper were presented at the Royal Economic Society Meeting, Nottingham, March 1990; at the Tenth Anniversary Meeting of the Society for Economic Anthropology, Tucson, April 1990; at the 6th World Congress of the Econometric Society, Barcelona, August 1990; at the American Economic Association Meeting, Washington, D.C., December 1990; and at seminars held at the University of Lund, University of Munich, and the University of Sussex. I benefitted from comments of participants in these meetings and seminars. The paper owes considerable debt to an earlier draft of a paper entitled "Love and Marriage" co-authored with B. Douglas Bernheim. I am indebted to Kenneth J. Arrow, Gary S. Becker, Paul A. Samuelson, to the referees, and especially to Theodore C. Bergstrom for very helpful suggestions.

ABSTRACT

We examine altruistically motivated consumption transfers in an effort to account for nonmarket transfers. We find that altruistic linkages lead to autonomous, negotiation-free transfers, and that such transfers positively respond to stronger altruism. We also find that given fairly natural assumptions concerning the altruism parameters, mutual altruism does not necessarily result in group (social) harmony, even though its rise narrows the conflict range. In spite of enhanced transfers prompted by such a rise, both parties may end up worse off. These results help explain why in some social environments a shift toward market-oriented transfers and exchanges may be quicker than in others, as the disadvantages (decline in utility) associated with intragroup altruistic linkages outweigh the advantages.

I. INTRODUCTION

In all economies, but particularly in less developed countries, a considerable proportion of resource transfers takes place outside the realm of the marketplace: inside families, within households, and among members of kin group or caste. Often it is not all that clear what exactly these transfers "buy": we do not see commodities moving in the reverse direction nor do we observe a flow of easily definable services. For example, households in rural India "purchase" insurance against variability in consumption not from insurance companies but from other households whose sons marry their daughters, and whose incomes exhibit low covariability with their own (Rosenzweig and Stark, 1989). Such actions are different from typical marketplace exchanges where the transfer of a commodity from A to B is accompanied by the transfer of another commodity from B to A and where one of the exchangeables is money, so that it is quite clear what is being bought - and at what price. It is generally argued that nonmarket intra-group transfers are mandated by the insufficient development of markets and that as development proceeds, a larger share of transfers and exchanges is relegated to the marketplace. This reassignment is believed to hasten the pace of economic development as the scope for exchange and trading opportunities increases. This, in turn, should feed back into the production opportunities set by facilitating increased specialization and recourse to comparative advantage.

The precise mechanisms that generate nonmarket transfers are not too well explored. This paper reviews the role of intragroup altruism as one force leading to nonmarket transfers. If individuals receive altruistically motivated transfers which, in a sense to be made precise, are more valuable to them than transfers received through alternative routes, that is markets, then the preference for interaction between altruistically connected individuals will not be wiped out as the economy becomes more market oriented. It is, however, probably inappropriate to view altruism as a static force, ignoring the possibility of those events or actions that lead to its rise or fall (Stark, 1989). Thus if the overall effect of enhanced altruism on a social group is positive, the group is more likely to foster it. In this case the practices based upon it will be more persistent than if the effect is negative. This variation might help explain the different transition rates to transfer regimes that are governed by full market forces.

Suppose that altruism is not invariant to conduct and actions, and that an activity which nurtures altruism precludes engagement in a beneficial market activity. Markets will not develop if the net transfer value arising from the altruism-enhancing (or altruism-preserving) activity is larger than the net value due to the market activity. Moreover, the introduction of markets could crowd out altruistically motivated actions to such an extent that the group concerned may be worse off. Commercialization of blood-giving in the United States may explain why the amount of blood given voluntarily in that country is small and the total (per capita) supply of blood significantly less than in the United Kingdom where giving blood is completely voluntary and unpaid. (It is as if individuals cease to give blood when they see that other people are being paid for it. See Titmuss, 1971 and Arrow, 1974.)

The present paper does not attempt to fully explain how an economy governed by altruistically motivated transfers transforms into a market-transfers economy. But it does contribute to understanding why such a transition may or may not take place. The paper draws on the notion that when as an opportunity to trade anonymously a market entails transaction costs that are absent from an altruistically based transfer regime, the market will be "missing" or inactive. Thus, the argument that "market failures eventually give rise to institutional arrangements that act as complete or partial surrogates for what markets do not provide" (De Janvry, Fafchamps, and Sadoulet, 1991) misses the point that causality may run in exactly the reverse direction: The edge that existing (nonmarket) institutional arrangements have over market structures inhibits the evolution of markets and, if markets are created, works against the inclination to transact in them. We return to these points in the Conclusions.

II. TRANSFERS AND ALTRUISM

We formulate a fairly general model of preferences for family members. We focus on situations involving two individuals, F and S (father and son), although the principles discussed here can be generalized to larger groupings and other settings (such as, for example, the case of a sequence of generations caring about their own felicity as well as the utility of the parent generation and the succeeding generation).

Let C denote the sole consumption good, corn, the total amount of which we fix arbitrarily. Suppose all this corn is initially under the father's control. The level of corn consumed by an individual affects his pleasure. We refer to this direct pleasure as "felicity" and describe it by functions $V_F(C_F)>0$, $V_S(C_S)>0$, $C>0$, $V_F'(C_F)>0$, $V_S'(C_S)>0$, where C_F is the consumption of corn by father and C_S is the consumption of corn by son. Each individual cares about his own felicity and the utility of the other. Reflecting the fact that each individual likes to consume corn (own felicity) and wants the other to be happy, utility is given by the following two simultaneous functions:

$$U_F(C_F,C_S) = (1-\beta_F)V_F(C_F) + \beta_F U_S(C_S,C_F) \tag{1}$$

$$U_S(C_S,C_F) = (1-\beta_S)V_S(C_S) + \beta_S U_F(C_F,C_S) \tag{2}$$

We have parameterized altruism by a simple scalar β_i - the weight that one places on the utility of the other relative to one's own felicity. We assume that $0<\beta_i<1$, that is, i attaches a non-negative weight both to his own felicity and to the other's utility; he is neither a masochist nor envious. To flesh out the implication of utility interdependence for preferences over consumption allocations we can solve (1) and (2) in terms of $V_F(C_F)$ and $V_S(C_S)$. This yields:

$$U_F(C_F,C_S) = (1-\alpha_F)V_F(C_F) + \alpha_F V_S(C_S) \tag{3}$$

$$U_S(C_S,C_F) = (1-\alpha_S)V_S(C_S) + \alpha_S V_F(C_F) \tag{4}$$

where $$\alpha_F = \frac{\beta_F(1-\beta_S)}{1-\beta_F\beta_S} \tag{5}$$

and $$\alpha_S = \frac{\beta_S(1-\beta_F)}{1-\beta_F\beta_S} \tag{6}$$

Note that from the restrictions on β_i in the fundamental specification it follows that $\alpha_i>0$ <u>and</u> also, as can easily be verified, that $\alpha_F + \alpha_S<1$.[1]

For analytic simplicity we suppose for now - but see below on generalization to other functional forms - that

$$V_F(C_F) = \ln(C_F) \tag{7}$$

and that

$$V_S(C_S) = \ln(\mu C_S) \tag{8}$$

where $\mu>0$. Since

$$C_F + C_S = C \tag{9}$$

we can solve for the optimal level of the father's consumption of corn by differentiating (3) with respect to the single variable C_F.

This yields

$$\frac{dU_F(C_F,C_S)}{dC_F} = \frac{d}{dC_F}\ [(1-\alpha_F)\ln C_F+\alpha_F\ln(\mu(C-C_F))]$$

$$= \frac{1-\alpha_F}{C_F} - \frac{\mu\alpha_F}{\mu(C-C_F)}$$

From the first order condition we thus obtain

$$(\frac{C_F}{C_S})_F = \frac{1-\alpha_F}{\alpha_F} \tag{10}$$

where the subscript F indicates that this is the optimal consumption ratio arising from the father's optimization.

In a similar way we can derive the consumption ratio which is optimal from the son's point of view:

$$(\frac{C_F}{C_S})_S = \frac{\alpha_S}{1-\alpha_S} \tag{11}$$

From inspection of (10) and (11) it follows that

$$\left(\frac{C_F}{C_S}\right)_F > \left(\frac{C_F}{C_S}\right)_S \Longleftrightarrow \frac{1-\alpha_F}{\alpha_F} > \frac{\alpha_S}{1-\alpha_S} \Longleftrightarrow \alpha_F+\alpha_S<1 \;; \tag{12}$$

since the R.H.S. inequality indeed holds, we conclude that the father's optimal allocation is such that he wishes to consume a larger proportion of corn than his son wishes him to consume. However, this does not necessarily imply a conflict. In Figure 1, point B represents the father's preferred ratio whereas point A represents the son's preferred ratio. To be sure, if the prevailing allocation is anywhere between 0 and A, that is, the son receives more than his preferred ratio while the father receives less than his preferred ratio, both father and son would favor transfer of corn from son to father. If the existing allocation is anywhere to the right of B, both parties will favor transfer of corn from father to son. However, should the initial allocation lie anywhere between A and B, there will not be blissful unanimity: a conflict will arise as the father would like to move right toward B, whereas the son would like to move left toward A.

Several implications can now be drawn. First, mutual altruism intersected with certain initial allocations of the consumption good results in mutually agreeable transfers; individuals who are altruistically linked can expect automatic (negotiation-free or conflict-free) transfers should the initial allocation be unfavorable to them (in the sense of falling outside AB). It is this feature of "guaranteed" transfers that accounts for the strong attraction of being associated with a kinship network even if anonymous markets exist. Note in particular that if father and son happen to experience an initial ratio to the left of A (a consensus for reallocation in favor of

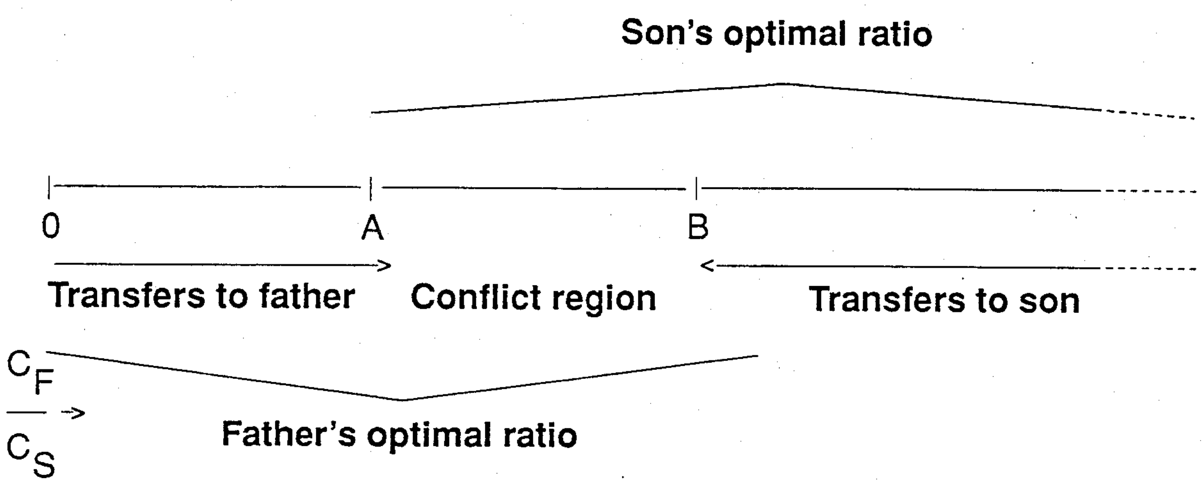

Figure 1 Optimal consumption ratios

the father), it is immaterial who decides how to divide consumption; whether the son controls the stock of corn - in which case he will transfer corn to the father - or the father does - in which case he will retain the corn.

Second, although the presence of altruism narrows the domain of conflict (in the absence of altruism $\beta_F = \beta_S = 0$ - each party would like to consume the entire supply of corn leaving zero quantity to the other party) it does not eradicate it. The result that altruism does not necessarily eliminate conflicts about consumption allocations is clearly true in a model of one-sided altruism - for example, in a model where a parent's utility depends on own consumption, the number of children, and the utility attained by each child, and where the parent spends his earnings and inheritance on own consumption, on bequests to children, and on costs of raising children. It is not too difficult to show that in this setup, optimization by the parent could result in a conflict with the children who want larger bequests than the parent is willing to give. (Barro and Becker, 1989). But what is a bit more revealing is that two-sided (mutual) altruism does not necessarily eliminate conflicts over allocations either.

Third, suppose the father's altruism toward his son rises. How will the distribution of corn be affected by such an increase? Put differently, what happens to consumption choices when the father becomes "more loving"? Given the interdependence of the utility functions, the answer to this question is not obvious. We know that β_F, the relative weight the father attaches to the utility of his son, reflects the intensity of his altruism. Thus, we need examine the sign of a change in the optimal ratio with respect to a change in β_F. We obtain

$$\frac{\partial(\frac{C_F}{C_S})_F}{\partial \beta_F} = \frac{-\frac{d\alpha_F}{d\beta_F}}{\alpha_F^2} < 0 \tag{13}$$

with the inequality sign arising from $\frac{d\alpha_F}{d\beta_F} > 0$ as can be verified by inspection of (5). Thus, if the son succeeds in raising his father's altruism toward him, B in Figure 1 shifts to the left so that, for example, more initial allocations result in conflict-free transfers from father to son. Note, however, that although the conflict range is declining in the intensity of the father's altruism toward his son, it is not wiped out (that is, as long as $\alpha_F + \alpha_S < 1$).

Fourth, suppose that a bumper crop (or, in another context, a public transfer) raises the quantity of corn available for distribution and consumption. How would transfers be affected? Since constraint (9) would now merely change to $C_F + C_S = kC$ $k>1$, optimization will result in (10) and (11) as before. Hence, (12) continues to hold and A and B in Figure 1 do not shift. (Indeed, for the chosen logarithmic specification of the utility functions, the preferred point B has both father's and son's consumptions rise in exactly the same proportion as the family's total corn. And likewise with regard to preferred point A.) Potential conflicts over consumption allocations are not a declining function of the total quantity of the consumption good. It appears then, not surprisingly, that the son's route to higher utility is a larger quantity of C available for total consumption - regardless of how this greater quantity is distributed (inspect (4)) - or a stronger father's altruism. However, only the latter can secure a distribution which is at once conflict-free <u>and</u> more favorable.

Suppose (7) and (8) are replaced by

$$V_F(C_F) = \gamma C_F^{\gamma} \tag{7'}$$

and

$$V_S(C_S) = \gamma C_S^{\gamma} \tag{8'}$$

for any $\gamma<1$. The analysis as per equations (9) through (12) follows through as before, except that the optimal consumption ratios now appear as

$$\left(\frac{\tilde{C}_F}{\tilde{C}_S}\right)_F = \frac{1-\alpha_F}{\alpha_F} \tag{10'}$$

and

$$\left(\frac{\tilde{C}_F}{\tilde{C}_S}\right)_S = \frac{\alpha_S}{1-\alpha_S} \tag{11'}$$

where $\tilde{C}_F = C_F^{1-\gamma}$ and $\tilde{C}_S = C_S^{1-\gamma}$. From inspection of (10') and (11') it follows that $\left(\frac{\tilde{C}_F}{\tilde{C}_S}\right)_F > \left(\frac{\tilde{C}_F}{\tilde{C}_S}\right)_S \iff \alpha_F+\alpha_S<1$ which brings us back to Figure 1, except that $\frac{\tilde{C}_F}{\tilde{C}_S}$ substitutes for $\frac{C_F}{C_S}$.

Two remarks are in order. First, the preceding four results are not specific to logarithmic utility functions. They hold under an alternative (exponential) specification of the utility function. Indeed, the results arising from using logarithmic or exponential utility functions are due to these specifications representing homothetic utility functions over allocations.

Second, it is of interest to see whether the result pertaining to the increase in the family's corn is general. It turns out that as long as $V_F(C_F)$ and $V_S(C_S)$ are strictly concave functions, an increase in the family's corn results in the father's preferred allocation having greater consumption both for himself and for his son. A symmetric statement applies to the son. When preferences are additively separable and the consumption functions are strictly concave, all goods are normal goods and therefore, a larger quantity of C, regardless of its distribution, is sure to raise the son's utility (see Becker, 1974).

Finally, even though a rise in the intensity of the father's altruism entails larger transfers of corn to the son, how would the utilities of the father and his son be affected by such a rise? To obtain an answer we first note that from (10) - the father's optimal choice - we get $C_S = \alpha_F C$ and $C_F = (1-\alpha_F)C$. Substituting these, (7) and (8) into (3) yields

$$U_F(C_F,C_S) = (1-\alpha_F)\ln[(1-\alpha_F)C] + \alpha_F\ln(\mu\alpha_F C) \qquad (14)$$

From the same substitution into (4) we further obtain

$$U_S(C_S,C_F) = (1-\alpha_S)\ln(\mu\alpha_F)C + \alpha_S\ln[(1-\alpha_F)C] \qquad (15)$$

where, to reiterate, it is understood that we have substituted for the father's optimal choice. Differentiating (14) and (15) with respect to β_F yields[2]

$$\frac{dU_F(C_F,C_S)}{d\beta_F} = \frac{d\alpha_F}{d\beta_F}\ln\frac{\mu\alpha_F}{1-\alpha_F} \qquad (16)$$

$$\frac{dU_S(C_S,C_F)}{d\beta_F} = -\frac{d\alpha_S}{d\beta_F}\ln\frac{\mu\alpha_F}{1-\alpha_F} + \frac{d\alpha_F}{d\beta_F}\,\frac{1-\alpha_F-\alpha_S}{\alpha_F(1-\alpha_F)} \qquad (17)$$

Consider first equation (16) - the change in the father's utility resulting from a change in his altruism toward his son. Since $\frac{d\alpha_F}{d\beta_F} > 0$ we conclude that for sufficiently small μ, increased altruism always makes the father worse off.[3] Next, we turn our attention to (17). Note that the second term is non-negative. However, $\frac{d\alpha_S}{d\beta_F} < 0$ (from (6)) so that for sufficiently small μ the first term is negative. Indeed, by choosing μ small enough, we can always make the first (negative) term dominate the second (non-negative) term. Thus if we raise the father's altruism toward his son, both father and son may be worse off despite the transfers (recall (13)) from father to son! Although consumption transfers play a positive role in enhancing utility, this role can be dominated.[4]

It is useful to check how general is the result that with utility interdependence, a rise in altruism that leads to consumption transfers could make the transferring party worse off. In particular, does the result depend on the underlying specification of the utility functions? Does it hinge on the parameterization of a rise in the father's altruism being expressed through an increase in β_F? Or on the asymmetry imposed on the problem in equations (7) and (8)? The answers to all these questions are negative.

We refer to equations (3) and (4) and consider once again the case where the father has a total fixed amount of corn available for consumption $\overline{C}$. Suppose the felicity functions are such that for any $C \geq 0$, $V_F(C_F) = V_S(C_S) = V(C)$. As before, we solve for the optimal level of the father's consumption of corn. If the father is not altruistic toward his son at all, that is, if $\alpha_F = 0$, the father chooses C to maximize $V_F(C_F) = V(C)$ subject to $C \leq \overline{C}$. The father's utility will be $V(\overline{C})$. Now for another extreme, suppose $\alpha_F = \frac{1}{2}$. Then the father would want to maximize (see equation (3)) $\frac{1}{2}V_F(C_F) + \frac{1}{2}V_S(C_S)$ subject to $C_F + C_S \leq \overline{C}$. If the father's preferences (V_F in equation (3)) are strictly convex, he will choose $C_F=C_S=\frac{\bar{C}}{2}$ and his utility will be $\frac{1}{2}V(\frac{\bar{C}}{2})+\frac{1}{2}V(\frac{\bar{C}}{2})=V(\frac{\bar{C}}{2})$. The father is worse off than when he is perfectly selfish - it is as if he has two stomachs to fill; no extra pleasure arises from altruism toward his son. Note, in particular, that the same argument follows through for <u>small</u> increases in α_F. One way of intuitively interpreting this result is that in the model utilized here, a perfectly nonaltruistic father who consumes $\bar{C}$ and has no interest in his son will be exactly as well off as he would be if he had enough corn so that both he and his son could consume the same amount $\bar{C}$.

Further examination of the inverse altruism - well-being relationship is offered in the appendix.

III. CONCLUSIONS

We have examined altruistically motivated consumption transfers as part of an effort to account for nonmarket transfers. We have seen that altruistic linkages lead to autonomous, negotiation-free transfers, and that such transfers respond positively to stronger altruism. The demonstration that altruism reduces transaction costs may be seen as a rationale for the persistence of nonmarket transfers. But we have also seen that given our quite natural assumptions concerning the altruism parameters, mutual altruism does not necessarily result in group (social) harmony, even though its rise narrows the conflict range. In spite of enhanced transfers prompted by such a rise, both parties may end up worse off. (O. Henry provides a moving illustration of such an outcome in the "Gift of the Magi.") These results help explain why in some social environments a shift toward market-oriented transfers and exchanges may be quicker than in others, as the disadvantages (decline in utility) associated with intragroup altruistic linkages outweigh the advantages.

An earlier paper (Stark, 1989) raises the point that while an economy with substantial altruism will be Pareto superior to an economy with no altruism, an economy with a little altruism may be inferior to an economy with no altruism at all. This unhappy, second-best type result comes from the fact that altruism can increase possibilities for exploitation and limit the availability of credible strategies, narrowing the range of possible beneficial social arrangements. This may explain the prevalence of economies of self-interested people rather than altruistic people. (Bernheim and Stark, 1988 provides a more complete explanation of this result.) Perhaps the results in the present paper, that altruism does not eliminate conflict and that altruism can actually make everyone worse off support the view that exploitation and strategic behavior nudge agents toward self-interested behavior in markets. A fuller investigation of how the rise and fall of altruism impinge on the evolution of markets awaits research by economists and other social scientists.

APPENDIX

Suppose we represent the father's and the son's preferences, and utility interdependence by

$$U_F(C_F,U_S) = V_F(C_F) + \delta_F U_S(C_S,U_F) \qquad (1')$$

$$U_S(C_S,U_F) = V_S(C_S) + \delta_S U_F(C_F,U_S) \qquad (2')$$

where $0\leq\delta_i\leq1$, i=F,S; increase in altruism is defined as increase in δ_i. Solving in terms of consumption, we obtain

$$U_F(C_F,C_S) = \frac{1}{1-\delta_F\delta_S} V_F(C_F) + \frac{\delta_F}{1-\delta_F\delta_S} V_S(C_S) \qquad (3')$$

$$U_S(C_S,C_F) = \frac{1}{1-\delta_F\delta_S} V_S(C_S) + \frac{\delta_S}{1-\delta_F\delta_S} V_F(C_F) \qquad (4')$$

We look at the following example. Suppose the felicity functions are $V_F(C_F) = V_S(C_S) = V(C)$ for all C>0. If the father is not altruistic toward his son at all, that is if $\delta_F=0$ and $\overline{C}$ is total corn available for consumption, the father chooses C to maximize $V_F(C_F)=V(C)$ subject to $C\leq\overline{C}$. His utility will be $U(\overline{C})$. Now, if the father has $\delta_F=1$ and $\delta_S=0$, and if the father's preferences are strictly convex, he will choose $C_F = C_S = \frac{\overline{C}}{2}$ and his utility will be $V(\frac{\overline{C}}{2})+V(\frac{\overline{C}}{2})$. If preferences are strictly convex and $V(0)\geq0$, we have $V(\frac{\overline{C}}{2})+V(\frac{\overline{C}}{2})>V(\overline{C})$, a case where increase in altruism has a positive effect on utility. <u>However</u>, if preferences are strictly convex and $V(0)<0$, then depending on the shape of the V(C) function and on $\overline{C}$, $V(\frac{\overline{C}}{2})<\frac{1}{2}V(\overline{C})$, so that again, as we raise the father's altruism toward his son, the father may be worse off. This last case is portrayed in Figure 2.

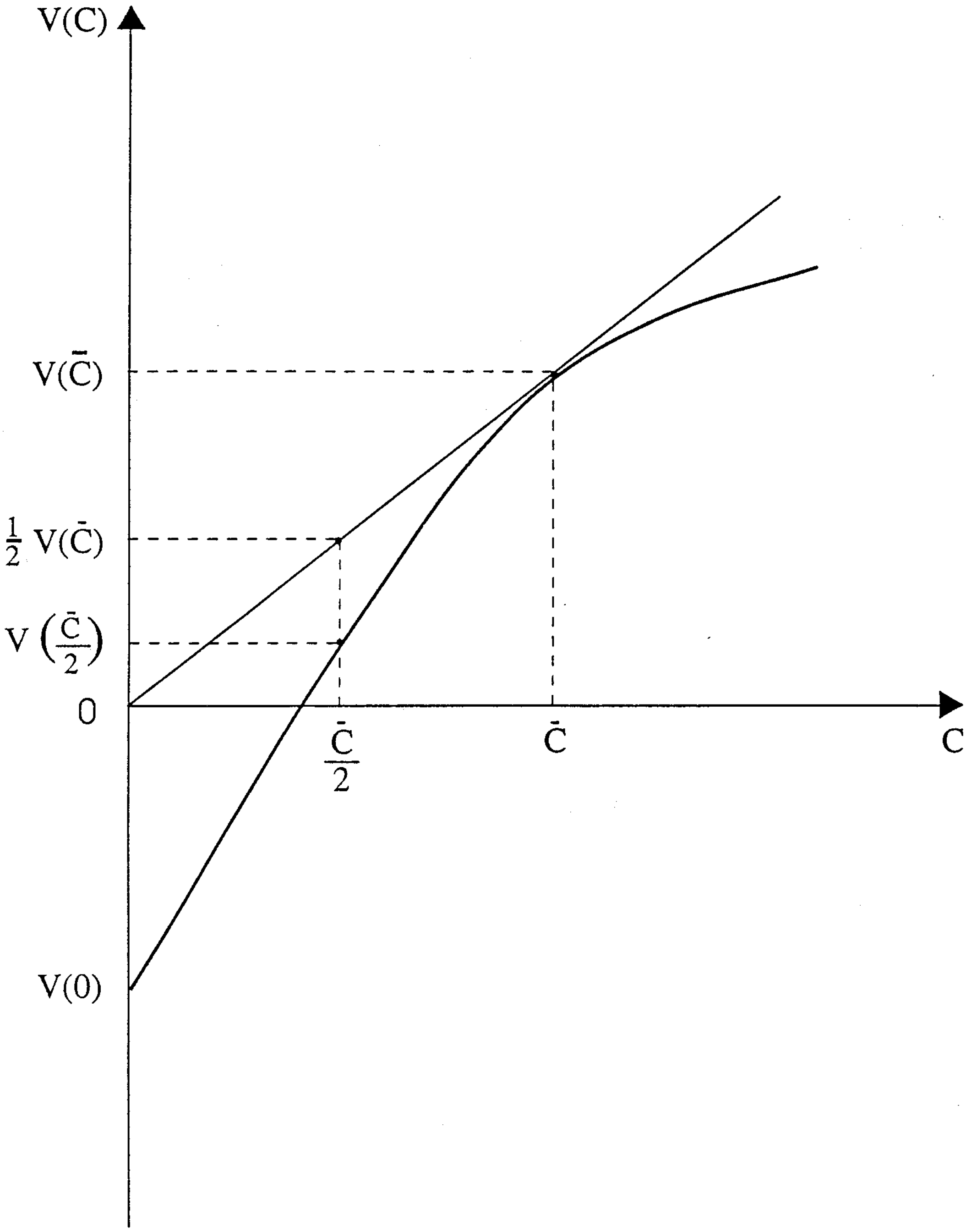

Figure 2 Convex preferences and V(0) < 0: an example

NOTES

1. If one <u>begins</u> with equations (3) and (4) rather than with equations (1) and (2) then there is no apparent reason to impose the restriction that $\alpha_F + \alpha_S < 1$. When $\alpha_F + \alpha_S > 1$, F and S will have disagreements in which each wants the other to accept a larger share of the communal corn. We ignore such a case for two reasons. First, it strikes us as more natural to take (1) and (2) as the fundamental specification of preferences rather than (3) and (4). While individuals may be able to observe each other's levels of happiness, they certainly cannot apprehend each other's felicity directly. That $\alpha_F + \alpha_S < 1$ then follows from the absence of envy and masochism in the fundamental specification. Second, if one wishes to consider cases in which $\alpha_F + \alpha_S > 1$ then one can simply think of individual F (S) as S (F). When an individual cares more about another person than about himself, then the individual is essentially the other so the two can simply be renamed. Our results then refer to questions such as what happens (for instance, to economic performance) as altruism falls from excessive levels.

2. It may strike the reader as peculiar to differentiate with respect to β_F since β_F is a preference parameter. We interpret this procedure as follows. The father's altruism for the son may depend upon various external events. The derivatives would then describe the effects of altruism-enhancing events on well-being. In a context somewhat different from the one studied here, for instance, a marriage market, we can envision i (F) as selecting a marriage partner j (S) from a continuum of alternatives (that is, there is a potential partner for

each ($\beta_i\beta_j$) combination). The derivatives would then describe the effects on well-being of varying one's marriage partner.

3. Note that by substituting genetic fitness for utility (see Becker, 1976), Wilson's 1975 argument that altruism reduces personal fitness may not only be vindicated but broadened: altruism may actually reduce group fitness.

4. Note that for this result to hold, μ being "sufficiently small" constitutes a sufficient condition, not a necessary condition. We know from (5) that $\mu\frac{\alpha_F}{1-\alpha_F} = \mu\frac{\beta_F-\beta_F\beta_S}{1-\beta_F}$. Thus $\mu\frac{\alpha_F}{1-\alpha_F} < 1$ will hold for some pairs (β_F,β_S) even if $\mu = 1$.

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