Equal Bequests and Parental Altruism: Compatibility or Orthogonality?

Oded Stark

Institut für Höhere Studien (IHS), Wien
Institute for Advanced Studies, Vienna

Equal Bequests and Parental Altruism: Compatibility or Orthogonality?

Oded Stark

Equal Bequests and Parental Altruism: Compatibility or Orthogonality?

Oded Stark

Reihe Ökonomie / Economics Series No. 54

May 1998

Oded Stark
Department of Economics
University of Oslo
P.O. Box 1095 Blindern
N-0317 Oslo, NORWAY
Phone: ++47/22/85 51 12
Fax: ++47/22/85 79 46
and
University of Vienna
Alser Straße 21/9
A-1080 Vienna, Austria

Institut für Höhere Studien (IHS), Wien
Institute for Advanced Studies, Vienna

Abstract

The large amount of equal division of bequests by parents who otherwise would have compensated the earning differences among their children is attributed to the cost associated with unequal bequests. This paper identifies a source of this cost and explains why equal bequests to children whose earnings differ, and parental altruism toward these children, are not mutually exclusive.

Keywords

JEL-Classifications

I. Unequal Earnings and Equal Bequests

Children typically differ in their earnings and parents typically divide their estate equally among their children. These twin observations pose a puzzle to students of the bequest behavior of altruistic parents.

Illuminating evidence pertaining to the first of these two observations is provided by Behrman (1997). Summarizing findings for the U.S. in the 1980s, Behrman reports substantial mean absolute differences in sibling earnings (which eliminates common shocks, such as from the macro economy) and concludes that "if transfers [from parents to children] were to take the form only of bequests, the difference in bequests to children must be of the order of magnitude of $35,000 – $150,000 depending on the children's ages."

Evidence in support of the second of the above two observations is provided by Menchik (1980, 1988), Wilhelm (1996), and Dunn and Phillips (1997). Menchik finds that in the case of the division of large estates in Connecticut (1930-1945), equal bequests predominated, and that in the case of wills in Cleveland (1964-1965), about 80 percent of siblings shared the estate equally. Wilhelm concludes that in the U.S. (1982), 68.6 percent of parents divided their estates exactly equally among their children, and that 88 percent divided their estates approximately equally. Dunn and Phillips find that in the U.S. (1992), 90 percent of parents name all their children as beneficiaries in their wills, and that about 95 percent of these parents report that the will "provides about equally" for all the children.

Bequests to children appear to be orthogonal to their relative earnings.

Evidence that students of bequest behavior are aware of the unequal earnings – equal bequests puzzle, and of their corresponding discomfort, can also be marshalled. Wilhelm concludes that the evidence on bequests is generally inconsistent with the compensatory bequest implication of altruistic models, that the equal division rule somewhat discredits the altruistic explanation of bequest behavior, and that the only parental preferences consistent with equal division are those in which the bequest is "accidental" or those in which utility is gained from the size of the bequest. Laitner

(who presents a model of altruistic parents bequeathing to equally loved children) points out that theory predicts a higher bequest to the child with lower earnings, considers the above-mentioned studies by Menchik, and concludes: "Even if a number of the features of the altruistic model are basically correct, an additional element in practice may be social norms demanding equal or nearly equal division of each household's transfers to its children." Dunn and Phillips state: "An equal division of the estate is not predicted by an altruistic model of resource transfers".

Below we argue that *given* the total size of the bequest, and given that bequests are completely non-accidental (cf. Wilhelm), and absent a recourse to any altruism-overriding norm (cf. Laitner), bequeathing equally to children whose earnings differ *emanates* from (is not contradictory to) parent's altruism toward their children.

II. The Compatibility of Altruism, Equal Bequests, and Unequal Earnings: The Role of Relative Deprivation

Altruism of parents toward their children means that parents care about the well-being of their children. It follows that we should expect parents to refrain from actions that lower the utility of their children.

Ordinarily, children grow up together for a good many years, are regularly referred to each other's performance, are usually urged to follow (or not to follow) the example of other children in their family, and so on. Hence, in general, children constitute a natural and quite cohesive reference group, and tend to engage in intragroup comparisons. These comparisons need not imply, but can give rise to, dissatisfaction, dismay, and displeasure.[1] Parents must be aware of such inclinations and their likely repercussions.

---

[1] A child's dismay from an unfavorable comparison with his siblings can be further attributed to the presumptions that the child cares about the strength of the feelings that his parents have for him, and that the absolute and relative size of his bequest reveals the strength of these feelings (the bequest is a function of his parents' otherwise unobservable altruism coefficient).

2

Suppose, for a moment, that the only argument in children's utility function is a relative deprivation associated with their income: $U^i = U(\text{RD}(y^i))$ where U^i and y^i are child i's utility and income, respectively, $U(0) \geq 0$, $U(x|x > 0) < 0$, and $U' < 0$. Suppose that children's only source of income is parental bequest. Define relative deprivation associated with absolute income y as $\text{RD}(y) = \int_y^\infty h[1 - F(x)] dx$ where $F(\cdot)$ is the cumulative distribution of income, ∞ stands for the highest income in the reference group, and h is a function $h(0) = 0$, $h' > 0$. For simplicity's sake, take $h[1 - F(x)] = 1 - F(x)$. Integration by parts gives $\text{RD}(y) = \int_y^\infty [1 - F(x)] dx$

$= [1 - F(y)] E(x - y|x > y)$, that is, relative deprivation is the product of two terms: the proportion of those in the individual's reference group who are richer than the individual, and their mean excess income.[2, 3] If the parents bequeath unequally, then all children except the one receiving the largest bequest will be relatively deprived.[4]

---

[2] Denote $v = 1 - F(x)$ and $du = dx$ so that $dv = -f(x)dx$ and $u = x$. Thus,

$\text{RD}(y) = \int_y^\infty [1 - F(x)] d(x) = [1 - F(x)] x \big|_y^\infty + \int_y^\infty x f(x) dx$. Assuming a finite variance,

$\lim_{y \to \infty} [1 - F(y)] y = 0$. To see this note that $1 - F(y) = P(Y \geq y) \leq P(|Y| \geq y) \leq \frac{1}{y^2} Var Y$

(where the last inequality is Chebyshev's inequality). Hence, $\lim_{y \to \infty} [1 - F(y)] y \leq \lim_{y \to \infty} \frac{Var Y}{y} = 0$. In

addition, $f(x|x > y) = \frac{1}{1 - F(y)} f(x)$. We therefore get

$\text{RD}(y) = -[1 - F(y)] y + \int_y^\infty [1 - F(y)] x f(x|x > y) dx$

$= -[1 - F(y)] y + [1 - F(y)] E(x|x > y) = [1 - F(y)][E(x|x > y) - E(y|x > y)]$

$= [1 - F(y)] E(x - y|x > y)$.

[3] The theory of relative deprivation and reference groups has been developed and tested first in social psychology and more recently in economics (Stark, 1991).

[4] All else held constant, greater inequality will result in greater relative deprivation; for example, if there are 2 children and 4 income units to be bequeathed, application of the equation

$\text{RD}(y) = [1 - F(y)] E(x - y|x > y)$ results in relative deprivation of 1 if the bequests are (1,3), and of 2 if the bequests are (0,4).

The children's aggregate utility is less than it would be under equal sharing. However, children derive positive utility from income along with negative utility from the relative deprivation, if any, associated with not having the higher income that others in their reference group have. If $U^i = U(y^i, \mathrm{RD}(y^i))$ with $U_I > 0$, $U_{II} = 0$, $U_2 < 0$, then when all children have the same utility function and when all income accruing to children is due to parental bequests, parents can assume that their children will attain a higher utility by bequeathing to them equally rather than unequally.

Normally though, children have available to them income that accrues from own effort (and, presumably, luck) that is separate from and independent of bequests. The very nature of the accrual of this income implies that when it comes to comparisons within the group of children, such income will be referred to differently than income arising from parental bequests: $U^i = U(y^{Oi}, y^{Pi}, \mathrm{RD}(y^{Pi}))$ where y^{Oi} and y^{Pi} are own and parental-originated income, respectively. If we take $U^i = V(y^{Oi}) + W(y^{Pi}, \mathrm{RD}(y^{Pi}))$, parents who are aware of a particular child having, or being likely to have, a low y^{Oi}, and consequently, a low V and a high V', and who may consider bequeathing more to that child than to other children, need to trade off such a scheme against an equal bequests scheme since the former option is inherently associated with the relative deprivation of all other children. Thus, even if children's own earnings differ, parents who refrain from dividing their estate unequally cannot be considered nonaltruistic toward their children.

III.   Additional Analysis

To see more closely the relationship between the bequest behavior of parents and their altruistic feelings toward their children, consider a two-child family. The children's utilities are

$$U^1 = V(y^1 + b^1)$$
$$U^2 = V(y^2 + b^2) + W(\mathrm{RD}(b^2))$$

where $V(\cdot)$ is the child's utility over total income, defined to be the sum of own earnings and the bequest b^i, with $V' > 0$; and $W(\cdot) < 0$ is the reduction of the second child's utility by relative deprivation if $b^1 > b^2$, with $W' < 0$ and $W(0) = 0$. Without loss of generality, assume that $y^1 < y^2$. Thus, if the relative deprivation term is neglected and the parents care equally about the well-being of their two children, the altruistic parents will compensate the poorer child with a larger bequest, $b^{1*} > b^{2*}$. (As in the preceding section, we assume that child 1 does not receive higher utility from the relative satisfaction of inheriting more than his sibling.) Using the functional form of RD$(\cdot)$ as above, we get RD$\left(b^2\right) = \frac{1}{2}\left(b^1 - b^2\right) = b^1 - \bar{b}$, where $\bar{b} = \frac{b^1 + b^2}{2}$. Thus, as the bequest of the first child increases relative to the bequest of the second child, the second child's utility declines, as does the utility of the altruistic parents. The altruistic parents trade off this utility decline against the advantage of providing a larger bequest to the poorer child.

Consider the division of the estate conditional on the amount to be bequeathed already having been established (this amount is determined by the parents' marginal rate of substitution between own consumption and the children's incomes). If the parents care equally about their two children, they will seek to maximize $\alpha U^1 + \alpha U^2$, where $0 < \alpha < 1$ is an altruism coefficient. From the ensuing first order condition we get $V'\left(y^1 + b^1\right) = V'\left(y^2 + 2\bar{b} - b^1\right) - W'\left(b^1 - \bar{b}\right)$. For $b^1 > \bar{b}$, the term on the left hand-side of this last equation is the marginal benefit to the parent of bequeathing more than $\bar{b}$ to the poorer child. The first term on the right hand-side is the marginal cost of doing so in terms of reduced utility of the richer child. In the standard altruistic model, these two terms are the only terms that matter. (When the two children's utilities are valued equally, if $y^1 < y^2$, the altruistic parents must set $b^{1*} > b^{2*}$, and if $2\bar{b} \geq y^2 - y^1$, $y^1 + b^{1*} = y^2 + b^{2*}$, else V' (earnings + bequest) of child 1 > V' (earnings + bequest) of child 2, which is a violation of the above first order condition.) The second term on the right hand-side is the additional marginal cost arising from the relative deprivation that child 2 senses when child 1 receives a bequest that is larger than child 2's bequest. Under equal bequests the second

marginal cost term vanishes, $W'\left(b^1 - \overline{b}\right)\Big|_{b^1 = b^2 (=\overline{b})} = W'(0) = 0$, in which case $V'\left(y^1 + \overline{b}\right) > V'\left(y^2 + \overline{b}\right)$.

In an empirical specification, the coefficient on children's earnings in a parental division of bequests equation reflects the relative strengths of the compensation of the poorer children, motivated by parental concern over children's total incomes, and the parents' desire to hold down the relative deprivation cost of unequal division. A finding of a zero coefficient on a child's earnings need not be interpreted as evidence against altruism; rather the "total income" component of the parents' bequest motive is weak in comparison to the component arising from the relative size of the bequest.
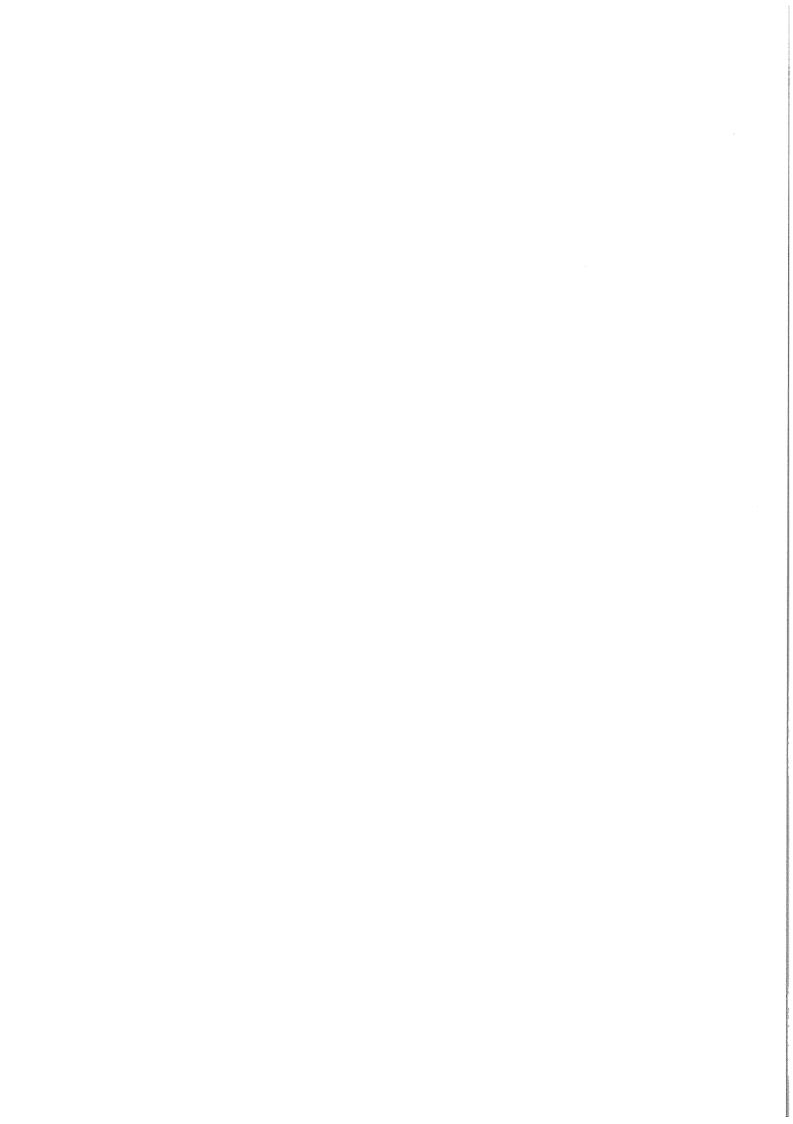
IV. Conclusions

The large amount of equal division of bequests by parents who otherwise would have compensated the earning differences among their children could be attributed to the cost associated with unequal bequests. This paper identifies a source of this cost and explains why equal bequests to children whose earnings differ, and parental altruism toward these children, need not be mutually exclusive.

The above line of reasoning gives rise to testable implications. (1) A large number of children is less likely to constitute a coherent reference group as opposed to a small number of children. Therefore, the likelihood and incidence of intragroup comparisons and the feeling of relative deprivation to which such comparisons may give rise will be lower in a larger group. In such a case, unequal bequests will bring about less relative deprivation. We should thus expect to observe a more unequal division in large families. This is exactly what Wilhelm finds (p. 880). (2) Controlling for the number of children, a greater locational dispersion of mature children will likely weaken the extent of intragroup comparisons and hence be associated with more unequal divisions. (3) When inter-birth intervals are long, children spend less time growing up together than when births are closely spaced. The incidence of

unequal division of bequests can be expected to rise in families with long inter-birth intervals.

References

Behrman, Jere R. (1997). "Intrahousehold Distribution and the Family." In Mark R. Rosenzweig and Oded Stark (eds.) *Handbook of Population and Family Economics*. Amsterdam: North-Holland.

Dunn, Thomas A. and Phillips, John W. (1997). "The Timing and Division of Parental Transfers to Children." *Economics Letters* 54, pp.135-137.

Laitner, John. (1997). "Intergenerational and Interhousehold Economic Links." In Mark R. Rosenzweig and Oded Stark (eds.) *Handbook of Population and Family Economics*. Amsterdam: North-Holland.

Menchik, Paul. (1980). "Primogeniture: Equal Sharing and the US Distribution of Wealth." *Quarterly Journal of Economics* 94, pp. 299-316.

Menchik, Paul. (1988). "Unequal Estate Division: Is it Altruism, Reverse Bequests, or Simply Noise?" In D. Kessler and A. Masson (eds.) *Modelling the Accumulation and Distribution of Wealth*. Oxford: Clarendon Press.

Stark, Oded. (1991). *The Migration of Labor*. Oxford and Cambridge, MA: Basil Blackwell.

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