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Intergenerational Transfers and the Accumulation of Wealth

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Abstract

This paper provides evidence on the role of intergenerational transfers as a source of wealth. We use household data on transfers to provide direct estimates of transfer wealth, and we distinguish between intended transfers (for example, gifts to other households) and possibly unintended transfers (bequests). We estimate that intended transfers account for at least 20 percent of net worth, and possible significantly more. Thus a significant portion of U.S. wealth accumulation cannot be explained by the life-cycle model (according to which wealth is accumulated and consumed within a lifetime), even when the model is augmented to allow for bequests. We also show, contrary to many studies of transfers that focus only on bequests, that transfers between living persons are an important component of aggregate transfers.

Intergenerational Transfers and the Accumulation of Wealth

Even though economists have devoted a large amount of attention in recent years to understanding the process of wealth accumulation, fundamental issues remain unresolved. Kotlikoff and Summers (1981, 1988) estimate that transfers account for at least 80 percent of U.S. net worth. Modigliani (1988a, 1988b) calculates the figure as less than 20 percent. Several authors have generated alternative estimates. Kessler and Masson (1989) provide an excellent review of the issues.

This debate has important implications for a number of issues.[1] The effects of government debt, social insurance, and public transfer programs depend on the magnitude and nature of private transfers. The comparative performance of alternative tax structures is affected by private transfers. The relative contributions of life-cycle saving and transfer wealth are important to understanding the dynamics of the distribution of wealth. Finally, evidence on transfer patterns relates to more fundamental modeling issues, such as the adequacy of the life-cycle model in explaining aggregate wealth accumulation or observed saving patterns.

A related, long-standing issue concerns the relative importance of inter vivos transfers (i.e., transfers between living people) and bequests (transfers that occur at the death of the donor). Owing primarily to poor data quality, estimates of the size of inter vivos transfers relative to bequests vary widely. However, the effects of policies such as estate taxes may differ depending on the composition of transfers, and models of alternative motives for private transfers have different implications for the relative magnitudes of the two forms of giving.[2]

This paper presents new evidence on intergenerational transfers as they affect saving behavior and the composition of transfers. Our analysis improves on previous research in two ways. First, we utilize data from the 1983-86 Survey of Consumer Finances (SCF), which contains uniquely detailed micro data on private transfers to and from other households, college expenses paid by parents, inheritances, trusts, life insurance, and bequeathable net worth. We use the SCF to provide direct

estimates of a measure of transfer wealth, thus avoiding several problems, discussed below, with methods used by others to measure transfer wealth.

Second, previous attempts to measure transfer wealth directly (Kotlikoff and Summers, 1981, and Modigliani, 1988a) treat bequests as departures from the life-cycle model. However, bequests are perfectly consistent with life-cycle saving motives when lifespans are uncertain and annuity markets are imperfect (see Davies, 1981, or Abel, 1985, for example). Thus, measures of bequests as a source of wealth are not sufficient to determine whether the life-cycle model adequately describes aggregate wealth accumulation. The existence of unintended bequests is so fundamental a problem in this regard that Kessler and Masson (1989, p. 145) conclude that it is "virtually impossible to distinguish life-cycle from bequest savings."

Our analysis circumvents this problem. Rather than estimate all components of life-cycle saving or intergenerational transfers, we focus on a subset of transfers that are clearly intended. For example, intended transfers would include gifts from parents to adult children living in a separate household. We do not include bequests as intended transfers because of the ambiguities noted above. Focusing on intended transfers allows us to provide a lower bound on the proportion of wealth that is not due to life-cycle wealth accumulation.

Our central results indicate that intended transfers are the immediate source of at least 20 percent of aggregate wealth. Actual wealth due to intended transfers is likely to be higher, and possibly much higher, because intended transfers are probably underreported, because at least some bequests are presumably intended, and for other reasons described below. Thus, our evidence indicates that the life-cycle model does not explain a sizable share of U.S. wealth accumulation even when the model is expanded to allow for bequests. We estimate that bequests, regardless of whether they are intended, account for an additional 31 percent of net worth. We also provide sensitivity

analysis for these results. Finally, we find that inter vivos transfers are about half as large as transfers that occur upon the death of the donor.

Section I describes the SCF and presents summary data on transfers. Section II reviews previous approaches to estimating transfer wealth. In Section III we develop our methodology. Section IV presents the results. Section V is a short conclusion.

I. BACKGROUND DATA ON TRANSFERS

The SCF contains interviews from a random sample of 3,824 U.S. households in 1983, along with a supplemental survey of 438 high-income households.[3] In 1986, 2,822 of these households were reinterviewed, including 359 in the high-income sample. The SCF contains detailed data on wealth, income, demographic variables, and transfers. In 1986, each household head was asked if he or she contributed $3,000 or more to other households in 1983-85.[4] If so, the amount given and the relationship of the recipient household(s) to the respondent were elicited. Similar questions were asked about transfers received from other households. Absence of data on 1983-85 transfers for households with transfers totaling less than $3,000 is the principal shortcoming of the SCF transfer data. We return to this issue at several points below.

Respondents were also asked separately to report any college expenses they paid on behalf of children and any inheritances received in 1983-85. In 1983, respondents reported holdings of trusts and whole and term life insurance. Both waves collected detailed data on bequeathable net worth.

Because the SCF is a previously unexamined source of transfer data, we compare estimates of transfer aggregates from the SCF and other sources in Appendix Table 1. SCF measures of net worth, educational expenses, and trust balances are very similar to those from other sources. The SCF underestimates transfers between households by about one-third relative to the President's Commission on Pension Policy (PCPP) survey. The censoring of transfer amounts at $3,000 may be

TABLE 1

Inter Vivos Transfers and Inheritances, 1983-85

Transfer Category	Participation Rate	Average $ (Participants)	Total $ (Billions)	% in Top Net Worth Decile
Support given > = $3,000	9.4%	16,202	126.1	58.2
Support received > = $3,000	5.3%	14,860	65.1	27.2
College expenses	12.6%	9,373	97.4	42.8
Inheritance received	3.7%	42,729	131.1	60.2

Source: Survey of Consumer Finances. Data are weighted to reflect a cross-section of the U.S. population in 1985 aged 25 and over. Data for heads of households less than 25 years old were excluded because the data are suspected not to be representative of the national sample of such households (Avery and Kennickell, 1988).

responsible for this result. In addition, the PCPP asked specific questions about transfers of durable goods (in kind), which may be underreported in the SCF. Life insurance holdings also appear to be somewhat understated in the SCF. There are few good alternative sources of data on inheritances.

Table 1 shows that fewer than 10 percent of households donated $3,000 or more to other households in 1983-85. The average 3-year gift among donors was $16,202. The second row suggests substantial underreporting of transfers received. This result arises frequently in surveys (see Cox and Raines, 1985, or Modigliani, 1988b).[5] However, the extent of underreporting of transfers received appears to be larger than in some other surveys and may be explained by censoring of the transfer variables at $3,000. For example, if a parent gives $2,500 to each of two children, the SCF would record the parent giving $5,000, but would record each child receiving zero. In the SCF, over 80 percent of transfers to children are given by households with more than one child.[6] One of every eight families reports college expenditures for their children. Among those with positive amounts, the average is $9,373. Fewer than 4 percent of households reported receiving inheritances; the average inheritance received was almost $43,000.

Table 2 documents that most inter vivos transfers are given from older generations to younger generations. About 75 percent of reported transfers are given by parents to their children. There are also sizable flows from children to parents and from grandparents to grandchildren.[7]

Table 3 reports characteristics of the entire sample, givers, recipients, and nonparticipants. Givers are older than average, and have higher income, net worth, and educational levels. Recipients are younger than average, and also have higher levels of income, net worth, and education. In contrast, transfer recipients in the President's Commission on Pension Policy (PCPP) survey have lower income and net worth than average (Cox and Raines, 1985). The difference presumably arises because the PCPP records all transfers, while the SCF records only major gifts. Both givers and recipients in the SCF are more likely to be white. Recipients are less likely to have children, but

TABLE 2

Intergenerational Direction of Transfers, 1983-85

Support Given to	% of Givers Who Give to[a]	Average Transfer|>=$3,000	% of Total Transfers Given
Children	75.4	16,430	74.9
Parents	14.6	8,755	7.7
Grandparents	0.7	7,726	0.3
Grandchildren	11.8	16,272	11.8
Other	11.8	7,633	5.4

Support Received from	% of Recipients Who Received from	Average Transfer|>=$3,000	% of Total Transfers Received
Children	3.6	13,053	3.1
Parents	84.2	14,966	83.6
Grandparents	7.9	15,189	7.9
Grandchildren	1.0	6,175	0.4
Other	8.0	8,998	4.8

Source: Survey of Consumer Finances. Data are weighted to reflect a cross-section of the 1985 U.S. population aged 25 and over.

[a]Households can give to (or receive from) more than one recipient (source). For households that report more than one recipient (source), transfer dollars are allocated equally among the various recipients (sources).

TABLE 3

Mean Characteristics of Selected Groups

Variable	Whole Sample	Givers	Recipients	Nonparticipants
Age (yrs.)	48.7	55.3	41.5	48.5
Avg. income, 1983-85 (current $)	29,499	55,968	36,814	29,075
Net worth, 1985 ($)	144,393	498,902	221,556	102,645
Education (yrs.)	12.4	13.7	14.7	12.1
Nonwhite (%)	18.0	7.5	5.8	19.8
Female head (%)	27.6	24.3	34.2	27.7
Married (%)	59.5	58.8	51.6	60.0
Have children (%)	85.1	87.4	78.5	85.3
Child <=6 yrs (%)	18.5	2.6	27.1	19.2
Expect large inheritance (%)	14.6	20.1	38.8	12.6
Half or more of wealth from transfers (%)	6.8	9.1	17.1	6.0
Buy first house, 1983-85 (%)	6.5	6.4	15.6	6.0
Sample size[a]	2,774	430	166	2,204

Source: Survey of Consumer Finances. Data are weighted to reflect a cross-section of the 1985 U.S. population aged 25 and over.

[a]About 1 percent of households reported both giving and receiving transfers.

more likely to have young children. Givers and recipients are both more likely to report that they have obtained at least half of their wealth from gifts and inheritances and more likely to expect to receive an inheritance. Recipients are more likely to have purchased a first home in 1983-85.

These tables show that SCF data are broadly consistent with data from other sources. Where differences do occur, the censoring of transfers biases the SCF data in predictable directions. The SCF also contains new information on college expenses and inheritances, and on age patterns and amounts of transfers. We exploit these factors in the analysis below.

II. PREVIOUS RESEARCH

Kotlikoff and Summers (1981) decompose private net worth into life-cycle wealth (L), the accumulated net surplus of earnings over consumption, and transfer wealth (T), the accumulated net transfers received at each age. Various methods have been employed to estimate L and T.

Kotlikoff and Summers (1981) provide direct estimates of L. They employ data on earnings, consumption, and demographics to estimate that life-cycle wealth accounts for at most 20 percent, and under some sets of assumptions less than 0 percent, of aggregate wealth. These estimates, however, impose a large number of assumptions concerning demographics, earnings and other factors,[8] and are very sensitive to the treatment of durables (Blinder, 1988; Modigliani, 1988a). Variations in the underlying assumptions and in data sources have led to a wide range of other estimates. White (1978) and Darby (1979) reach conclusions similar to Kotlikoff and Summers (1981). Ando and Kennickell (1987) find that life-cycle saving can account for between 60 percent and 85 percent of net worth. Modigliani (1988a, 1988b) estimates that 80 percent or more of net worth can be explained by life-cycle saving.

Estimates from surveys that ask respondents directly about the percentage of wealth due to transfers suggest that transfers account for less than 20 percent of wealth (Modigliani, 1988b; Hurd

and Mundaca, 1989). However, these estimates focus almost exclusively on wealth received through bequests. It is also unclear how respondents define transfers, and whether they adjust the value of transfers received in earlier years to reflect the present value of these transfers (Kessler, 1989).

An alternative approach focuses on overlapping generation simulation models (Masson, 1986; Laitner, 1990; Lord and Rangazas, 1991). This approach is useful for showing, in a particular model, how the share of transfer wealth in total wealth depends on assumptions concerning behavioral elasticities, credit market constraints, and other factors. However, simulations have generated a very wide range of estimates of the magnitude of transfer wealth relative to overall net worth, and thus have not reduced the range of plausible estimates of transfer wealth.

III. METHODOLOGY

We follow a different approach, estimating a measure of transfer wealth directly. This approach was developed by Kotlikoff and Summers (1981), but was not their primary methodology due in part to the absence of detailed household-level data on transfers. We first calculate an annual flow of intended transfers and then convert the flow to a stock using steady-state assumptions.

To construct an estimate of transfer wealth, consider a steady-state, representative-agent economy where the flow of transfers in the current year is given by t and grows at an annual rate of n, and the interest rate is r. Individuals receive transfers at age I, give transfers at age G, and die at age D. Let T be the stock of transfer wealth. T represents the value of net transfers received (currently or in the past) by people currently alive, and is given by the value of all transfers received by people currently alive less the value of all transfers given by people currently alive:

(1)
$$T = \int_I^D te^{(x-I)(r-n)}dx - \int_G^D te^{(x-G)(r-n)}dx.$$

The first term shows that everyone alive and age I or older has received a transfer. A person of age I+X received a transfer of te^{-nX} X years ago, which is currently valued as $te^{(r-n)X}$. The second term shows that everyone alive and aged G or older has also given a transfer. A person of age G+X gave te^{-nX} X years ago, which is currently valued at $te^{(r-n)X}$. Integrating (1) yields[9,10]

(2)
$$T = t\frac{e^{(r-n)(D-I)}}{r-n}(1 - e^{(n-r)(G-I)}).$$

Several issues arise in estimating (2). The first concerns the definition of transfer flows (t). Kotlikoff and Summers (1981) and Modigliani (1988a, 1988b) include bequests of net worth, life insurance payments to children, and trust accumulations. Kotlikoff and Summers also include college expenses; Modigliani does not.[11] We define intended transfers (t) as support given to other households,[12] trust accumulations, and bequests of life insurance to children. Our definition differs from "transfers" defined by previous researchers in that we include transfers to related households (for which they did not have data) but exclude bequests and college expenses. We present separate estimates of college expenses and bequests.

The second issue concerns the interest on previous transfers. Modigliani (1988a) argues that interest on transfers should count as part of life-cycle wealth. However, the value of a transfer depends on when it was received, so we follow most previous researchers in including interest on transfers as part of transfer wealth (see Aaron and Munnell, 1992; Blinder, 1988; Darby, 1979; Kessler, 1989; and Kotlikoff and Summers, 1981).[13]

Finally, (2) is written for a representative household and thus does not allow for heterogeneity in transfer behavior. However, Tables 1 and 2 show that transfer amounts and the ages of donors and recipients vary substantially across households. To allow for heterogeneity in transfer behavior, we

estimate (2) for each household, using household-specific data on transfers and age.[14] We then sum transfer wealth across households and compare it to aggregate net worth in the SCF.

Data and parameters to estimate (2) are taken from a variety of sources. Kotlikoff and Summers (1981) estimate historical averages of r=.045 and n=.035. We use r-n=.01 as our central estimate.[15] The age of the donor (G) is the age of the household head (averaged with the spouse's age if married) and taken from the SCF. To estimate the age of death (D), we use 1986 life expectancy tables and control for the sex, age, and race of the household head and spouse (U.S. Department of Health and Human Services, 1986, p. 11). For transfers given to children, I is the average age of all children 18 or over. If there are no children 18 or older, I equals the age of the oldest child.[16] For gifts to grandchildren, I is assumed to be the child's age less 25. For transfers given to parents, I is the average age of all living parents of the head and spouse. For gifts to grandparents, I is the parents' age plus 25.

As mentioned above, intended transfers consist of inter vivos transfers, life insurance proceeds to children, and trust accumulations. To calculate inter vivos transfers, we divide the annual flow of transfers given equally among the groups to which the household gave funds.[17] The groups are children, parents, grandchildren, and grandparents.[18]

To calculate life insurance flows to children we (i) calculate the face value of 1983 term and whole life insurance holdings less the cash value of life insurance, because cash value can be used as a form of saving; (ii) adjust each household's 1983 insurance value by 28.32 percent to account for growth in average insurance holdings per insured household between 1983 and 1986 (1990 Life Insurance Data Book, p. 22); (iii) attribute half of life insurance to each of the head and spouse for married couples;[19] and (iv) assume that if the head is married when he or she dies, children, if any exist, obtain 25 percent of the insurance proceeds; if the head is single or if the husband and wife die

in the same year, children receive 75 percent.[20] The probability of dying within a year is based on 1986 life tables, controlling for age, sex, and race.[21]

Trust holdings are reported separately in the 1983 wave only. For households with children, we estimate transfer flows through new contributions to trusts by adjusting the 1983 balance by 18.31 percent (to reflect overall growth in net worth between 1983 and 1986 in the SCF), and multiplying that value by 0.05 to reflect new trust contributions.[22]

Parental contributions to college expenses are taken from the SCF. Transfers to children through bequests are based on 1986 net worth (excluding pensions) less estimated trusts. As with life insurance, if the head is married and dies, children obtain 25 percent of the estate; if the head is single or if the husband and wife die in the same year, children receive 75 percent.

IV. RESULTS

Table 4 presents estimates of (2). The flow of intended transfers in 1986 is estimated to be about $63 billion. Converting the flow to a stock (with r-n=.01) yields transfer wealth of $2,489 billion. Thus, our central estimate is that intended transfers are the source of at least 20 percent of aggregate net worth reported in the SCF. Inter vivos transfers constitute the majority of intended transfers. To ensure that the estimates were not being unduly influenced by the behavior of the very wealthy, we estimated Table 4 without the high-income sample. In this case (not shown), intended transfers were 17 percent of net worth.

Several factors make our estimates a lower bound for transfer wealth. First, by invoking a steady-state assumption, (2) implicitly requires that the ratio of transfer flows to income remain constant over time. However, the limited available evidence suggests the ratio has fallen over several decades.[23] If the ratio has fallen, our steady-state assumption of a constant ratio at current levels

TABLE 4

Intergenerational Transfers as a Source of Capital Accumulation, 1986

Transfer Category	Annual Flow ($ billions)	Stock of Transfer Wealth ($ billions) (r - n = 0.01)
Support Given to:		
Children	32.69	1346.7
Parents	3.37	-104.3
Grandparents	0.07	-4.0
Grandchildren	5.05	416.2
Trusts	14.17	576.1
Life insurance	7.84	258.3
Totals		
Intended transfers	63.19	2489.3
College expenses	35.29	1441.5
Bequests	105.00	3708.1
As % of net worth[a]		
Intended transfers	0.53	20.8
College expenses	0.29	12.0
Bequests	0.88	31.0

Source: Authors' calculations from the Survey of Consumer Finances.

[a]Aggregate net worth in the SCF in 1986 is $11,976 billion.

will understate the importance of transfer wealth. It is difficult, however, to gauge the quantitative importance of this effect.

Second, although the SCF contains detailed information on large cash transfers, it is likely that transfers are still underreported because of the absence of information on in-kind gifts, and because the SCF only records transfers for households that gave $3,000 or more over 1983-85. Data from the PCPP indicate that one-third of all noneducational inter vivos transfers consisted of "durables (in kind)" or "use of property." In both cases, the PCPP specifically asked questions about these items (Cox and Raines, 1985). As shown in the Appendix, the SCF estimate of noneducational inter vivos transfers is roughly one-third smaller than the PCPP estimate. If the difference is due to underreporting, an additional 7 percent of wealth may be attributable to intended transfers.

Third, we exclude all bequests when presumably at least some are intended. We estimate that bequests account for 31 percent of net worth.[24] If we include bequests (to be comparable to other studies), transfer wealth is at least 51 percent of net worth. This figure is higher than any previous study for the United States and is in the range of estimates surveyed in Kessler and Masson (1989) for European countries and Canada. In any case, it should be clear that 20 percent is a lower bound for the true importance of intended transfers as a source of wealth.[25] We also estimate that parental transfers for educational expenses account for an additional 12 percent of net worth.[26]

Table 5 reports the results of sensitivity analysis for changes in the definition of transfer flows (t) and r-n. The estimates of transfer wealth rise with the estimate of r-n. Using SCF data, the Kotlikoff and Summers (1981) transfer definition, and r-n=0.01 implies that transfer wealth accounts for 50 percent of wealth accumulation. This is somewhat higher than the 45 percent reported in footnote 10, primarily because our estimates of bequests are higher. The transfer definition used by Modigliani (1988a, 1988b) results in a higher estimate of transfer wealth than that generated by using intended transfers.[27]

TABLE 5

Sensitivity Analysis:
Intergenerational Transfers as a Source of Capital Accumulation (%)

Transfer Definition[a]	Alternative Values for Interest Rate Minus Rate of Population Growth (r - n) 0.00	0.01	0.02
Intended transfers	14.7	20.8	29.9
Kotlikoff and Summers (1981)	39.5	50.0	64.8
Modigliani (1988a)	31.5	37.9	46.4
Modigliani (1988a) + Inter vivos transfers[b]	41.1	51.8	66.6
All transfer components	49.1	63.8	84.9

Source: Authors' calculations from the Survey of Consumer Finances.

[a]Transfer definitions are given by the following table:

Transfer Category	Intended Transfers	Kotlikoff and Summers (1981)	Modigliani (1988a)
Inter vivos gifts	yes	no	no
Trusts	yes	yes	yes
Life insurance	yes	yes	yes
Bequests	no	yes	yes
College expenses	no	yes	no

[b]This is equivalent to intended transfers plus bequests.

The evidence presented above is consistent with a growing body of research that suggests that life-cycle saving motives omit an important component of capital accumulation. Bernheim (1991), Bernheim, Schleifer, and Summers (1985), Cox (1987), and Kotlikoff (1988) provide extensive discussions of data patterns that appear to be inconsistent with the life-cycle hypothesis. Hayashi, Ando, and Ferris (1988) provide corroborating evidence for Japan.

One qualification to our results concerns the possible historical uniqueness of the sample period. In 1981 the limit on annual tax-free inter vivos gifts was raised to $10,000 from $3,000, which could have induced additional, historically atypical, transfers. However, 1981 saw several other changes as well.[28] The maximum estate tax rate fell to 50 percent from 70 percent. The exemption on estate value rose to $600,000 from $175,625. The marital deduction in estates was extended without limit. These changes reduced the costs of bequeathing wealth relative to making inter vivos transfers. In addition, the highest marginal income tax rate fell to 50 percent from 70 percent, reducing the tax benefits of inter vivos gifts or bequests. Thus, the net effect of all of the changes introduced in 1981 on the relative price of inter vivos giving is uncertain. In addition, the price-sensitivity of inter vivos giving is also uncertain. Pechman (1987) and Bernheim (1987) emphasize the importance of non-tax factors in estate and gift decisions. Although Bernheim (1987) shows that the percentage of estate given to spouses is sensitive to the change in marital deductions, there is no direct evidence on how inter vivos giving is affected by taxes. Finally, several studies suggest that transfer wealth declined in importance between 1960 and the early 1980s (see footnote 23). Thus, there is no reliable evidence that the 1981 tax changes raised transfers in the early 1980s above historical levels.

We now turn to the second issue described at the beginning of the paper, the relative importance of inter vivos transfers and bequests. Tomes (1981) suggests that inter vivos transfers are rare, except perhaps among the wealthy. Modigliani (1988a, 1988b) ignores such transfers in

calculating transfer wealth. Bernheim, Schleifer, and Summers (1985) note that pure altruism models should generate substantial amounts of inter vivos giving, to overcome borrowing constraints faced by the recipient and/or to minimize the dynastic family's tax bill. They find support for the strategic bequest motive in the "apparent insignificance of gifts" (p. 1069). However, data in Kurz (1984) suggest that almost all transfers occur inter vivos and data in Cox (1987) and in Cox and Raines (1985) suggest that between 60 and 67 percent of transfers occur inter vivos. Each of these studies focuses exclusively on one or the other type of transfer.

Table 6 provides evidence on the relative magnitudes of the two types of transfers. Due to the suspected underreporting of transfers received, we make separate comparisons of transfers received and transfers given. The table shows that about one-third of both transfers received and transfers given occur inter vivos in the SCF, with the remaining two-thirds occurring upon death, via bequests of net worth or life insurance proceeds.[29] Adjusting for possible underreporting of inter vivos transfers in the SCF relative to the PCPP (Appendix Table 1) would imply that about 43 percent of transfers occur inter vivos. These results indicate that an important component of transfers occurs between living persons. However, noting that some of the inter vivos transfers may very well be disguised bequests (to avoid estate taxes) strengthens the conclusion that more transfers occur upon the death of the donor than between living people.

VI. CONCLUSION

The pure life-cycle model implies that "...the bulk of wealth might be acquired not by intergenerational transfers, but instead be accumulated by scratch by each generation to be consumed eventually by the end of life" (Modigliani, 1988a, p. 16). This paper decisively rejects that view. Using detailed household-level information on inter vivos transfers, wealth, and related items, we

TABLE 6

The Relative Magnitude of Annual Bequests and Inter Vivos Transfers

	Transfers Given	Transfers Received
Inter vivos transfers ($ billions)	55.4	21.7
Support given to other HHs	41.2[a]	21.7[b]
Trust accumulations	14.2[a]	(N.A.)
Bequests ($ billions)	112.8	43.7[b]
of net worth	105.0[a]	(N.A.)
of life insurance	7.8[a]	(N.A.)
Ratio of inter vivos transfers to total transfers	0.33	0.33

Source: Authors' calculations from the Survey of Consumer Finances.

[a]Based on calculations in Table 4.
[b]Reported in the Survey of Consumer Finances.
(N.A.)=Not Available

estimate that intended transfers and bequests account for at least 51 percent of net worth accumulation.

Nevertheless, a life-cycle model augmented with imperfect annuity markets, and hence accidental bequests, is perfectly consistent with life-cycle saving as the dominant motivation for saving. Hence, we also show that intended transfers, excluding bequests, account for at least 20 percent of U.S. net worth accumulation. For several reasons described above, the true figure is likely to be higher, and possibly much higher. These results indicate that at least a significant minority of wealth is accumulated in a manner outside the pure life-cycle model, even when bequests are incorporated into that model. Finally, we estimate that a substantial portion, at least one-third, of transfers occurs inter vivos.

Our emphasis on intended transfers, rather than on all transfers, avoids several problems faced by earlier studies of transfers and capital accumulation. For example, Kessler and Masson (1989) raise issues concerning whether it is possible to establish the true nature of bequest motives, whether there are other reasons to save besides bequests and life-cycle motives, whether the steady-state assumption is valid, and whether heterogeneity matters in explaining the role of transfers in wealth accumulation. In each case, by using household data to examine intended transfers, rather than using aggregate data to examine all forms of transfers, we are either able to address the issue directly (e.g., heterogeneity) or show that our approach generates a lower bound for the true importance of intended transfers (e.g., the treatment of bequests).

APPENDIX

Appendix Table 1 provides estimates of aggregate transfers and related variables from the SCF and from alternative sources. The first two rows show that the SCF underestimates aggregate net worth by about 10 percent in 1983 and 1986 when compared to Flow of Funds data. The SCF records transfers given to other households of $42 billion per year for 1983-85. This figure is about one-third smaller than the analogous figure in the President's Commission on Pension Policy (PCPP). The censoring from below of the SCF data may account for this discrepancy.

Estimated college expenses paid by parents in the SCF are very close to estimates obtained by adjusting figures from Kotlikoff and Summers (1981) and from the PCPP. The SCF underestimates the value of 1983 term and whole life insurance holdings by about 30 percent compared to industry statistics. Most of the discrepancy is due to underreporting of insurance holdings among households that report having insurance. Trust balances in the SCF are very similar to estimated trust balances from IRS data. Reported inheritances received in the SCF are $43.7 billion annually. An alternative estimate from the PCPP is $30.8 billion, but there appear to be problems with the PCPP data in this regard (see Kurz, 1984).

Sources:

Net worth: Figures are taken from the Federal Reserve Board's (FRB) Balance Sheets for the U.S. Economy, 1945-89 (Board of Governors of the Federal Reserve System, 1990, pp. 5-6). Because the SCF measures wealth at the time of the surveys, mid-1983 and mid-1986, the FRB figures are averages of end-of-year figures for 1982 and 1983 and for 1985 and 1986.

Transfers Given: Kurz (1984, p. 6) calculates that annual transfers (other than inheritances and transfers within the household) in the PCPP in 1979 were "about $63 billion." Cox and Raines (1985, Table 13.4) show that of total transfers including inheritances, college expenses accounted for 22.9 percent and inheritances accounted for 25.7 percent. This implies that noneducational transfers are 69.2 percent (=1-.229/(1-.257)) of inter vivos transfers and equaled $43.6 billion in 1979. We assume that the ratio of transfers to income (or net worth) was constant from 1979 to 1984. Adjusting $43.6 billion for the rise in income (or net worth) from 1979 to 1984 (see Economic Report of the President

(ERP), 1993, Table B-1, and Balance Sheets for the U.S. Economy, 1945-89, pp. 5-6) yields an estimate of 1984 transfer flows of $65.6 billion (or $61.6 billion).

College Expenses: Kotlikoff and Summers (1981, p. 729) estimate that parental contributions were $10.3 billion in 1974. Adjusting this figure by the rise in aggregate tuition and fees paid from 1974 to 1984 (Statistical Abstract of the United States, 1990, Table no. 264, p. 157)[30] yields an estimate of $32.3 billion. An alternative estimate of $19.4 billion (30.8 percent of $63 billion) is based on the PCPP data for 1979. Adjusting for the rise in tuition and fees from 1979 to 1984 yields an estimate of $34.9 billion.

Trusts: According to the U.S. Internal Revenue Service (1977, p. 21), net income from trusts in 1974 (the most recent year for which we could find such data) was $10.295 billion. Assuming that trusts earned the Aaa bond rate of .0857 in 1974 (ERP, 1993, B-69) yields a balance of $124.1 billion. Adjusting this figure for the change in net worth between 1974 and 1983 yields an estimate of $309.3 billion in 1983 trust wealth.

Inheritances: Kurz (1984) reports that aggregate inheritances in the PCPP are $9.3 billion but states that this "appears low." Using the figures in Cox and Raines, aggregate inheritances would be .257 * $63 billion / (1-.257), or $21.8 billion. Adjusting this figure for the change in net worth from 1979 to 1984 yields an estimate of $30.8 billion. However, the PCPP inheritance data appear to be questionable.

APPENDIX TABLE 1

Estimated Net Worth and Transfer Flows

Variable	SCF[a]	Alternative Estimate	Source[b]
Net worth ($ billions)			
1983	10,082	11,120	Balance Sheets for the U.S. Economy, 1945-89
1986	11,930	12,891	
Inter vivos transfers given, annual, 1983-85 ($ billions)	42.0	65.6 61.6	Kurz (1984), Cox and Raines (1985), adjusted
College expenses paid by parents, annual, 1983-85 ($ billions)	32.5	32.3	Kotlikoff and Summers (1981), adjusted
		34.9	Kurz (1984), Cox and Raines (1985), adjusted
Trusts balances, 1983 ($ billions)	308.9	309.3	IRS (1975), adjusted
Life insurance, 1983			
Total ($ billions)	3457	4965	1988 Life Insurance Fact Book, pp. 16-22
% of HH with LI	76.0	81.0	
Average|LI>0 ($)	54,523	73,100	
Inheritances received, annual, 1983-85 ($ billions)	43.7	30.8	Kurz (1984), Cox and Raines (1985), adjusted

[a]SCF data are weighted to reflect a cross-section of the U.S. population in 1985 aged 25 and over.

[b]Sources are described in detail in the Appendix.

Notes

[1]For more details, see the discussions in Aaron and Munnell (1992), Bernheim, Schleifer, and Summers (1985), Cox (1987, 1990), Cox and Jakubson (1989), Kotlikoff (1988), Kotlikoff and Summers (1981), and Modigliani (1988b).

[2]We do not examine the motivation for transfers. Intentional transfers have been attributed to altruism and self-interested exchange. Alternatively, bequests (but not other transfers) may be accidental and reflect the combination of uncertain lifespan and imperfect annuity markets. See Abel (1985), Bernheim (1991), Bernheim, Schleifer and Summers (1985), Cox (1987), Davies (1981), Hurd (1987, 1989), Kotlikoff and Spivak (1981), Menchik (1980, 1988), Menchik and David (1983), and Tomes (1981).

[3]See Avery et al. (1984) or Avery, Elliehausen, and Kennickell (1988) for descriptions of the SCF.

[4]The SCF instructions to the interviewer state explicitly that alimony and child support should not be included in the answer to this question.

[5]Kessler and Masson (1989, p. 148) note "...people's tendency to admit more easily that they have given than that they have received."

[6]Transfers given could also exceed transfers received because givers value their (in-kind) gifts more than the recipients do or because transfers could have been given to people outside the survey--for example, people who die or who live outside the U.S.

[7]Given the data in Table 2, the age profile of transfers is not surprising. The probability that a household gives a major gift rises steadily as the head ages, peaking at 16 percent among 55-64 year olds. The probability of receiving a transfer peaks at 9 percent in the 35-44 age group.

[8]Assumptions must be made, for example, about ages of family formation, retirement, and death; the shape and stability over time of age-earnings and age-consumption profiles and relative wages.

[9]Equation (2) includes Modigliani's (1988a) correction of an earlier formulation by Kotlikoff and Summers (1981). If r=n, l'Hopital's rule implies that T=t(G-I).

[10]To illustrate how (2) can be used, Kotlikoff and Summers calculate that in 1974 t = $45.4 billion, where t includes bequests of net worth ($26.4 billion) and life insurance ($2.5 billion), trust contributions ($6.2 billion), and college expenses paid by parents ($10.3 billion). Setting D=55, G=45, and I=15 (all in years above 18), and r-n=.01 yields transfer wealth of $1,755 billion, or about 45 percent of 1974 private net worth of $3,884 billion.

[11]College expenses are clearly intended. Modigliani (1988a) argues that they should not be counted against the life-cycle model because college students are still--in his view--mainly dependents. Kotlikoff (1988) argues that the fungibility of money implies that what matters is the value of resources transferred rather than the form the resources take. Thus, if cash transfers to a 21-year-old count as transfers, then educational payments to that same 21-year-old should also count.

[12]Although transfers to other households can represent a form of precautionary saving (see Kotlikoff and Spivak, 1981, for example), we do not consider such transfers to be part of life-cycle saving, because the life-cycle model as commonly formulated ignores interhousehold transactions. Intended transfers need not be motivated by altruism.

[13]Even Modigliani (1988a, p. 40) has noted: "One would normally view the life[-cycle] saving of a household as the difference between the value of bequests left and received" (emphasis added). Recognizing that the value of a bequest depends on when it was given, we conclude it is appropriate to include the interest on previous transfers as part of transfer wealth. Blinder (1988) provides further discussion of these issues.

[14]That is, in the estimates below t, I, G, and D are all household-specific.

[15]This is also consistent with data for 1983-86. Averaging the return on stocks and Aaa bonds,

and adjusting for federal tax rates, inflation, and population and productivity growth yields r-n=.0095 (Economic Report of the President, 1993, Tables B-4, B-29, B-45, B-69).

[16]These assumptions bias downward the transfer wealth estimate relative to using the average age of all children.

[17]In principle, we could use transfers received or transfers given, but not both. However, due to the suspected underreporting of transfers received and to remain consistent with the variable describing college support given, we use transfers given when calculating the flow.

[18]Transfers to siblings and friends, which are included in the SCF, are not included in the estimates presented below.

[19]This will lead to an understatement of transfer flows through life insurance if husbands are more heavily insured than wives.

[20]These figures are based on Davies (1982), who surveys both British and American sources and finds that allocating 25 percent (100 percent) to children when the head is married (single) is appropriate. We reduce the 100 percent to 75 percent to reduce further the likelihood that we overestimate insurance flows. Also see Bradford (1986, p. 171), who calculates that only about 5 percent of the gross value of large estates in 1983 were given to charity.

[21]U.S. Department of Health and Human Services (1986, p. 10). For people over 85, mortality rates are taken from the 1988 Life Insurance Fact Book, p. 113, and reduced by a small, uniform percentage to equate the rates for 85-year-olds in the two sources.

[22]This figure is based on the annual growth rate of new trusts created from 1960-1974, IRS (1973, p. 46) and IRS (1977, p. 24). The cumulative growth rate was 5.68 percent.

[23]Lampman and Smeeding (1983) find that transfer flows have fallen slightly in relation to income since 1929. Ando and Kennickell (1987) estimate that the share of life-cycle wealth in aggregate wealth rose to 75 percent in 1980 from 60 percent in 1960. Hurd and Mundaca (1989) compare

answers to survey questions about the importance of gifts and inheritances in the 1962 Survey of Financial Characteristics of Consumers and the 1983 SCF. They conclude (p. 753): "if anything, the general impression...is that saving from earnings has become more important" in the 1983 survey. Auerbach, Kotlikoff, and Weil (1992) show that the proportion of wealth of the elderly held in annuities has risen sharply in the last 30 years. Annuities are more difficult to bequeath to the next generation than conventional assets.

[24]In comparison, the aggregate numbers from 1962 used by Kotlikoff and Summers and reported in footnote 10 indicate that bequests accounted for 26.4 percent of wealth.

[25]Perhaps surprisingly, heterogeneity across households in transfer amounts and age patterns of giving and receiving appears to have only a modest effect on the results. In Table 4, the ratio of transfer wealth to transfer flows is 39.4 for intended transfers, 40.8 for college expenses, and 35.3 for bequests. Using the representative agent assumptions in footnote 10 would yield a ratio of 38.7.

[26]Estimates using the 1962 data from Kotlikoff and Summers (1981) described in footnote 10 generate an estimate of 10.2 percent.

[27]These estimates use Modigliani's definition of transfer flows (t), but unlike Modigliani (1988a, 1988b) include interest on previous transfers as part of transfer wealth.

[28]Pechman (1987) and Bernheim (1987) provide excellent discussions of these changes.

[29]Data in the table indicate that the extent of underreporting of transfers received relative to transfers given is almost exactly the same for inter vivos transfers and bequests. In each case, transfers received are about 38.8 percent of transfers given.

[30]Our 1974 estimate of tuition and fees paid is based on the 1975 figure reduced by the percentage change in the higher education price index for 1974-75 (no. 263, p.157) and the annualized percentage change in the number of students in college from 1972-75 (no. 254, p. 152).

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