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Intergenerational Transfers and the Accumulation of Wealth

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Households acquire wealth from two sources: they save out of income they have earned, and they receive transfers from other people. The first method of wealth accumulation goes under the name of life-cycle saving, in which people save during their working lives and dissave after retirement; the second involves either an *inter vivos* transfer (that is, a transfer between living people) or a bequest (a transfer that occurs at the death of the donor). While *inter vivos* transfers and bequests will arise in dynastic models where preferences include a taste for the well-being of one's descendents, few empirical life-cycle models reflect these concerns. Indeed, a sharp debate has arisen over the ability of the simple life-cycle model to explain observed wealth accumulation.

Understanding the relative sizes of these sources of wealth accumulation affects a variety of issues. For example, the effects of government debt, social insurance, public transfer programs, estate taxes, and incentives for charitable giving depend to some extent on the magnitude and nature of private saving and transfers of wealth. Analyses of the inequality of wealth may depend on whether most of wealth is earned or received as transfers. Appropriate policies for encouraging private saving may look rather different, depending on whether most saving is to be consumed later in life or passed along to the next generation. Finally, evidence on transfer patterns relates to more fundamental

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modelling issues, such as the adequacy of the life-cycle model in explaining aggregate wealth accumulation or observed saving patterns.[1]

Although economists have devoted a tremendous amount of attention in recent years to understanding the process of wealth accumulation, even the most fundamental factual issues remain unresolved. The debate has been aired in this journal before: for example, see the exchange between Kotlikoff and Modigliani in the Spring 1988 issue.

Much previous research has focused on direct estimates of life-cycle wealth, defined as the accumulated net surplus of earnings over consumption. These studies then infer the importance of transfer wealth by subtracting estimated life-cycle wealth from net worth. Kotlikoff and Summers (1981, 1988) estimate that life-cycle wealth accounts for at most 20 percent, and under some assumptions less than zero percent, of U.S. net worth. White (1978) and Darby (1979) reach conclusions similar to Kotlikoff and Summers (1981). Modigliani (1988a, 1988b) adjusts the Kotlikoff and Summers calculations for a number of factors and calculates that 80 percent or more of net worth can be explained by life-cycle saving. Ando and Kennickell (1987) estimate life-cycle wealth to be between 60 percent and 85 percent of net worth. All of these direct estimates of life-cycle wealth are sensitive to a variety of assumptions concerning the ages of family formation, retirement, and death; the shape and stability over time of age-earnings and age-consumption profiles and relative wages; and the definition of durable goods as consumption or investment (Blinder, 1988).

A second strand of the literature measures transfer wealth directly through surveys that ask respondents about the percentage of wealth due to transfers. These studies generally suggest that transfers account for less than 20 percent of wealth and hence that life-cycle saving accounts for 80 percent or more of wealth (Modigliani, 1988b; Hurd and Mundaca, 1989).

However, these estimates focus almost exclusively on wealth received through bequests and ignore *inter vivos* transfers. 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).

Yet another approach focuses on simulation models of the behavior of overlapping generations (Masson, 1986; Laitner, 1990; Lord and Rangazas, 1991). This approach is useful for showing, in a particular model, how the shares of life-cycle and transfer wealth in total wealth depend on assumptions concerning behavioral elasticities, credit market constraints, and other factors. However, these models have generated such a wide range of estimates that simulations have done little to reduce the range of plausible estimates.

In the Summer 1989 issue of this journal, Kessler and Masson offer an excellent review of the issues at stake in these various estimates. The central

[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).

problems in this dispute involve issues of interpreting limited data. For example, previous research has treated bequests as departures from the life-cycle model. This treatment would be appropriate if the bequest had been intended, in the sense that the giver planned during his or her life to pass the money along. However, bequests can be accidental rather than intended. In a world with uncertain life span and imperfect annuity markets, life-cycle savers—that is, those who intend to die with nothing in their pockets—will sometimes die earlier than expected and end up leaving bequests (Davies, 1981; Abel, 1985).

Thus, including the contribution of bequests to net worth is perfectly appropriate for measuring the proportion of wealth derived from transfers, but may not be appropriate for determining 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."

The analysis presented here circumvents this problem. Using detailed data from the 1983–86 Survey of Consumer Finances, we find that intended transfers—such as gifts from parents to adult children living in a separate household—are the source of at least 20 percent of aggregate wealth. Actual wealth due to intended transfers is likely to be higher, and possibly much higher. This evidence is not subject to the problems of ambiguous interpretation surrounding bequests; it indicates that the simple life-cycle model does not explain an important component of U.S. wealth accumulation. Further, we estimate that bequests, setting aside the question of whether they are intended, account for an additional 31 percent of net worth. Finally, we find that *inter vivos* transfers are about half as large as transfers that occur upon the death of the donor.

Data on Transfers

The Survey of Consumer Finances (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. 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 from 1983–85.[2] 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 transfer data for households with transfers totalling less than $3,000 is the

[2]The SCF instructions to the interviewer state explicitly that alimony and child support should not be included in the answer to this question. It is unclear the extent to which in-kind items such as wedding gifts or gifts of real estate are included, though as described below, the SCF data on transfers are broadly consistent with other sources. For more detailed descriptions of the SCF, see Avery et al. (1984) or Avery, Elliehausen, and Kennickell (1988).

Table 1
***Inter Vivos* Transfers and Inheritances, 1983–85**

Transfer Category	*Participation Rate*	*Average $ (participants)*	*Total $ (billions)*	*% in Top Net Worth Decile*
Support Given > = $3000	9.4%	16,202	126.1	58.2
Support Received > = $3000	5.3%	14,860	65.1	27.2
College Expenses Paid by Parents	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).

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 from 1983–85. In 1983, respondents reported holdings of trusts and whole and term life insurance. Both waves collected detailed data on bequeathable net worth.

Table 1 presents summary data from the SCF on *inter vivos* transfers and inheritances. The first line shows that roughly 10 percent of households donated $3,000 or more to other households from 1983–85. The average three-year gift among donors was $16,202. The second line suggests substantial underreporting of transfers received. This result arises frequently in surveys (Cox and Raines, 1985; Modigliani, 1988b); Kessler and Masson (1989, p. 148) note "people's tendency to admit more easily that they have given than that they have received."[3] Still, even after accounting for the typical underreporting of gifts received, the extent of underreporting appears to be larger in the SCF than in other surveys. A suspected reason is the truncation of transfers at $3,000. As noted below, most reported transfers involve parents giving to children. But if a parent gives, for example, $2,500 to each of two children, the SCF would record the parent giving $5,000 and the children receiving zero. One of every eight families reported college expenditures for their children. Among those with positive amounts, the average was $9,373. Fewer than

[3]Other reasons for underreporting of transfers received include: 1) givers may value their (in-kind) gifts more than the recipients; and 2) transfers could have been given to people outside the survey —for example, people who die or who live outside the United States.

Table 2
Intergenerational Direction of Transfers, 1983–85

Support Given to	*% of Givers Who Give to*[a]	*Average Transfer (that is greater than $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*[a]	*Average Transfer (that is greater than $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).

4 percent of households reported receiving inheritances; among those households, the average inheritance received was almost $43,000.

Table 2 provides information on the characteristics of givers and recipients of transfers. About 75 percent of all reported transfers involve parents giving to children. About 11 percent of reported transfers involve grandparents giving to grandchildren. The probability of giving a major gift rises steadily with the age of the household head, 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.

Table 3 compares characteristics of the entire sample to those of 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.[4] Both givers and recipients in the SCF are more likely to be white. Recipients are less likely to have children, but 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

[4]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.

Table 3
Mean Characteristics of Selected Groups

Variable	*Whole Sample*	*Givers*	*Recipients*	*Non-Participants*
Age	48.7	55.3	41.5	48.5
Avg. Income, 1983–85	29,499	55,968	36,814	29,075
Net Worth, 1985	144,393	498,902	221,556	102,645
Education	12.4	13.7	14.7	12.1
Nonwhite	0.180	0.075	0.058	0.198
Female Head	0.276	0.243	0.342	0.277
Married	0.595	0.588	0.516	0.600
Have children	0.851	0.874	0.785	0.853
Child < = 6 years old	0.185	0.026	0.271	0.192
Expect Large Inheritance	0.146	0.201	0.388	0.126
Half or More of Wealth from Transfers	0.068	0.091	0.171	0.060
Buy First House, 1983–85	0.065	0.064	0.156	0.060
Sample Size[a]	2774	430	166	2204

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% of households reported both giving and receiving transfers.

inheritance. Recipients are more likely to have purchased a first home from 1983–85.

To assess the reliability of the SCF transfer data, we compare estimates of transfer aggregates from the SCF to estimates from other sources. SCF measures of net worth in 1983 and 1986 are within 10 percent of figures derived from the *Balance Sheets for the U.S. Economy, 1945–1989* (1990). SCF estimates of annual college expenses paid by parents ($32 billion) are within 10 percent of estimates made by Kotlikoff and Summers (1981), Kurz (1984), and Cox and Raines (1985). Similarly, the SCF estimate of trust balances ($308 billion) almost exactly matches the IRS (1977) estimate, adjusted for inflation. The SCF underestimates *inter vivos* transfers between households by about one-third relative to the President's Commission on Pension Policy (PCPP) survey (as reported in Kurz, 1984; Cox and Raines, 1985). The censoring of transfer amounts at $3,000 may be 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, compared to the estimates in the *1988 Life Insurance Fact Book* (pp. 16–22).

These difficulties notwithstanding, the SCF data appear to be 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. These factors allow us to take a novel approach to the difficult problem of measuring life-cycle and transfer wealth.

Measuring Intended Transfers

We define intended transfers to include support given to other households, trust accumulations, and life insurance payments to children. Although transfers to other households can represent a form of precautionary saving (Kotlikoff and Spivak, 1981), we do not consider such transfers to be part of life-cycle saving because the life-cycle model as commonly formulated ignores inter-household transactions. Intended transfers need not be motivated by altruism.[5]

Our definition of intended transfers differs in several ways from the measure and concept of transfers used by Kotlikoff and Summers and Modigliani. First, we include *inter vivos* transfers, for which they did not have adequate data. Second, we exclude bequests because of uncertainty regarding whether the bequest was intended to have been a transfer. Third, we exclude payments of college expenses, even though they are clearly intentional, because of controversy concerning whether they are appropriately regarded as a transfer. Modigliani (1988a, 1988b) excludes college expenses 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, not 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. We report separate estimates for education and bequests below.[6]

To measure the importance of intended transfers as a source of wealth, we follow an approach used by Kotlikoff and Summers (1981), who implemented the idea with aggregate data. We first calculate an annual flow of intended

[5]For discussions of transfer motives, 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).

[6]Both groups agree that payments for, say, high school education are not considered as transfers from one household to another, because high school students are typically still a member of the same household as their parents.

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 Payments	35.29	1441.5
Bequests	105.00	3708.1
As a % 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.

transfers and then convert the flow to a stock using steady-state assumptions. This produces a lower-bound estimate of wealth due to intended transfers.[7] Details of these calculations can be found in the first part of the Appendix.

The first column of Table 4 presents our estimates that the gross flow of intended transfers in 1986 was about $63 billion, with the majority being support given from one household to another. The annual total of college payments was another $35 billion, and estimated bequests were another $105 billion. Our next task was to convert the annual flow of transfers into a stock of wealth. The equations behind this calculation appear in the second part of the Appendix. The conversion of a flow of transfers into a stock of transfer wealth requires obtaining values for a number of parameters: the flow of transfers in the current year (denoted by t), the growth rate of transfers (n), the interest rate (r), and the ages at which people receive transfers (I), give transfers (G), and die (D).

These parameters can be inferred from a variety of sources. For example, Kotlikoff and Summers (1981) estimate historical averages of a real rate of return of $r = .045$ and a real rate of GDP growth of .035. We set the growth

[7]Life-cycle wealth cannot be inferred by taking the difference between estimated intended transfer wealth and net worth, because some of that difference is due to intended bequests.

rate of transfers equal to the growth rate of income, so that $r - n = .01$ is our central estimate. This value is also consistent with the period 1983–86. For example, we averaged the return on stocks and Aaa bonds, adjusted for a measure of federal tax rates, inflation, and population and productivity growth, and calculated that $r - n = .0095$ for that period (*Economic Report of the President*, 1993, Tables B-4, B-29, B-45, B-69).

As noted above, SCF data show that transfer amounts and the ages at which transfers are given and received vary substantially across household. To allow for such heterogeneity in transfer behavior, we use household-specific data on transfer amounts (t) and the ages at which transfers are given (G) and received (I).[8] 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).

This methodology has the effect of estimating (given these parameters) the wealth accounted for by intended transfers for each household in the SCF. We then weight the figures to represent the national population, sum net intended transfer wealth across all households, and compare that sum to estimates of aggregate net worth.

One issue here concerns the appropriate treatment of interest on previous transfers. Modigliani (1988a) argues that interest on transfers should count as part of life-cycle wealth. However, since the value of a transfer depends on when it was received, we follow most previous researchers in including interest on transfers as part of transfer wealth (Aaron and Munnell, 1992; Blinder, 1988; Darby, 1979; Kessler, 1989; Kotlikoff and Summers, 1981).[9]

The second column of Table 4 shows the result of converting the flow estimates to a stock of wealth. For example, converting the $63 billion flow of intended transfers to a stock (with $r - n = .01$) yields transfer wealth of $2,489 billion. Thus, our central estimate is that intended transfers—defined as *inter vivos* transfers, trust accumulations, and life insurance payments to children—are the source of at least 20 percent of aggregate net worth.

Because transfers are concentrated among the wealthy (see Table 1), there may be significant differences between the contributions of transfers to net worth for the whole economy compared to the contribution for a typical family. In fact, Table 1 shows that most families did not make a major transfer between 1983 and 1986. To ensure that the estimates were not unduly influenced by the

[8]The age of the donor (G) is the age of the household head (averaged with the spouse's age if married). For transfers given to children, I is the average age of all children 18 or over in that household. If there are not children 18 or older, I equals the age of the oldest child. 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.

[9]Even Modigliani (1988a, p. 40) has noted: "One would normally view the life saving of a household as the difference between the value of bequests left and received." 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.

behavior of the very wealthy, we estimated Table 4 without the supplemental high-income subsample. With that adjustment, intended transfers were 17 percent of net worth.

Moving Up from a Lower Bound

Our estimate of the total amount of wealth due to intended transfers is a lower bound. First, our approach implicitly requires that the ratio of transfer flows to income remain constant over time; to put it another way, we are assuming a steady state. However, the limited available evidence suggests that the ratio of transfers to income has fallen over several decades.[10] It is difficult to gauge the quantitative importance of this effect. But if transfer levels in the past were higher than today, then our reliance on 1980s evidence on transfers will understate how important the higher transfers of the past have been in the accumulation of present-day wealth. In this sense, our steady-state approach is biased toward producing a smaller estimate of intended transfer wealth than had actually occurred.

Second, although the SCF contains detailed information on large cash transfers, it is likely that transfers are still underreported because of the absence of explicit questions about in-kind gifts, and because the SCF only records transfers for households that gave $3,000 or more between 1983 and 1985. Data from the President's Commission on Pension Policy (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 noted above, the SCF estimate of noneducational *inter vivos* transfers is one-third smaller than that of the PCPP. If the difference is due to underreporting in the SCF, an additional 7 percent of wealth may be attributable to intended transfers.

Third, we exclude all bequests, when presumably at least some are intended. Table 4 indicates that bequests account for 31 percent of net worth.[11] Thus, our results suggest that intended transfers plus bequests account for at least 51 percent of U.S. net worth. This figure is in the range of estimates

[10]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): "[I]f 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, which are more difficult to bequeath to the next generation than are conventional assets, has risen sharply in the last 30 years.

[11]For comparison, Kotlikoff and Summers (1981) assume that $D = 55$, $G = 45$, $I = 18$ (all in years above 18), and $r - n = 0.01$ in their representative household framework, and estimate that college education expenses accounted for 10.2 percent of wealth and that bequests accounted for 26.4 percent of wealth.

surveyed in Kessler and Masson (1989) for European countries and Canada and is higher than most estimates for the United States. Finally, parental transfers for educational expenses account for an additional 12 percent of net worth.

Of course, these estimates vary both according to definitions of transfers and to the estimate of $r - n$. As noted above, defining transfers as intended transfers and bequests, but not college expenses, and setting $r - n = 0.01$ implies that transfer wealth accounts for 51 percent of wealth accumulation. If $r - n = 0$, this definition of transfer wealth would account for 40 percent of wealth accumulation; if $r - n = .02$, it would rise to 65 percent. Including college expenses as transfer wealth would raise these figures still higher.

One caution about these results concerns the possible historical uniqueness of the sample period. In 1981, the limit on annual tax-free *inter vivos* gifts was raised from $3,000 to $10,000, which could have induced additional, historically atypical transfers. However, other changes in 1981 reduced the costs of bequeathing wealth relative to making *inter vivos* transfers: 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. 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. The net effect of all of the changes introduced in 1981 on the relative price of *inter vivos* giving is uncertain.

The price-sensitivity of *inter vivos* giving is also uncertain. Along with discussing the tax factors mentioned here, 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 estates given to spouses is sensitive to the size of the spousal estate tax exemption, 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 note 10). Thus, there is no reliable evidence that the 1981 tax changes raised transfers in the early 1980s above historical levels.

The Relative Size of *Inter Vivos* Transfers and Bequests

Economists have been divided over the relative size of *inter vivos* transfers and bequests after death. Tomes (1981) suggests that *inter vivos* transfers are rare, except perhaps among the wealthy. Modigliani (1988a, 1988b) ignores *inter vivos* 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). In contrast, 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*. The SCF evidence can offer another perspective on this dispute. 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.[12] Adjusting for possible underreporting of *inter vivos* transfers in the SCF relative to the PCPP, as mentioned earlier, would imply that about 43 percent of transfers occur *inter vivos*. But although an important component of transfers occurs between living persons, some of these *inter vivos* transfers may very well be disguised bequests either to avoid estate taxes or to evade asset limitations in means-tested programs such as nursing home care financed by Medicaid. Regardless of their motivation, it appears that at least one-third of total transfers occur between living people rather than upon the death of the donor.

Conclusion

The simple life-cycle model implies that "the bulk of wealth might be acquired not by integenerational transfers, but instead be accumulated from scratch by each generation to be consumed eventually by the end of life" (Modigliani, 1988b, p. 16). This paper rejects that view. Using detailed household-level information on *inter vivos* transfers, wealth, and related items, we estimate that intended transfers account for at least 20 percent of U.S. wealth and possibly more.

When bequests are added, the figure rises to at least 51 percent of net worth accumulation. If college expenses are added, it climbs still higher. It is somewhat controversial to count these as departures from the life-cycle model. After all, in a world of imperfect annuity markets, even a perfectly rational life-cycle saver will sometimes end up dying earlier than expected and leaving an unintentional bequest. Moreover, college spending probably does contain an element of supporting a dependent. However, it also seems reasonable to say that not all bequests are mistakes by life-cycle savers, and not all college tuition represents child support. At a minimum, a significant minority of wealth is accumulated in a manner outside the simple life-cycle model.

This evidence is consistent with a growing body of research that suggests that the classic life-cycle saving motives either omit or downplay some important components of capital accumulation. Extensive discussions of data patterns that appear to be inconsistent with the life-cycle hypothesis are provided by Bernheim (1991), Bernheim, Schleifer, and Summers (1985), Cox (1987), and

[12]The extent of underreporting of transfers received relative to transfers given is similar for *inter vivos* transfers and bequests. In each case, reported transfers received are between 38 percent and 41 percent of reported transfers given.

Kotlikoff (1988). We view the life-cycle model as an important organizing framework for understanding the consumption behavior of households. Given the size of clearly intended transfers, however, a complete understanding of many issues, such as the effects of liquidity constraints, fiscal policy and charitable giving, depends on a better understanding of the degree to which transfers respond to economic incentives.

Appendix
Detailed Methodology of the Estimates

Calculating Intended Transfers

As noted in the text, 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. The groups are children, parents, grandchildren, and grandparents. Transfers to siblings and friends, which are included in the SCF, are not included in the estimates presented here. 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.

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 (which understates transfer flow through life insurance if husbands are more heavily insured than wives); 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.[13] The probability of dying within a year is based on 1986 life tables, controlling for age, sex, and race (U.S. Department of Health and Human Services, 1986, p. 10). For people over 85, mortality rates are taken from the *1988 Life*

[13]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.

Insurance Fact Book, p. 113, and reduced by a small, uniform percentage to equate the rates for 85 year olds in the two sources.

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

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.

From Annual Flow of Transfers to Total Stock

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:

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

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 age 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,

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

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 $T = t(G - I)$.

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