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Changes in wealth in the United States, 1962–1983

Savings, capital gains, inheritance, and lifetime transfers

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Abstract. A simulation model is developed to account for observed changes in mean household wealth both overall and by age cohort over the 1962–1983 period in the United States. There are three major findings. First, capital gains are the major factor explaining overall wealth changes and account for 77% of the simulated growth in wealth over the entire period. Second, for cohorts under age 40, inheritance and inter vivos transfers dominate observed changes in wealth. Indeed, the oldest age groups appear to have transferred sizable amounts of their wealth to younger generations inter vivos, raising the wealth of these younger groups substantially above what it would be based on saving. Third, while differences in portfolio composition favored the younger cohorts over this period, such differences do not explain a large portion of the great variation in real wealth changes by cohort over the two decade period.

I. Introduction

Between 1962 and 1983 the mean net wealth of households in the United States showed a cumulative growth of 49% after accounting for increases due to inflation according to data we cite below – an average annual rate of real growth of approximately 2%. Household balance sheets actually show total household sector wealth *declining* in real terms between 1962 and 1973, largely due to a decline in stock prices in 1973. In this paper we show substantial variation in how growth was spread among different age groups (or birth cohorts) and develop a simulation analysis to explain the observed pattern of wealth changes.

We examine the changes in real net worth of thirteen 5-year birth cohorts over the two decades and the reasons for the differences in growth of real wealth. Our analysis focuses on three factors which influence the growth of household wealth:

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savings from income, revaluation of existing wealth due to changes in asset prices, and transfers of wealth from one household to another. Understanding how changes in the distribution of wealth have come about – in particular, how much is due to period specific events or to cohort effects relative to life-cycle effects – will help in predicting how many of these changes we can expect to continue in the 1990's and beyond and how many may be short-term phenomena.

In this paper, we do not test models of wealth accumulation or of bequests at the individual level, as has been the focus of other studies (Wolfson 1980; Menchik and David 1983, for example). Given the nature of our data we do not attempt to measure the effects of changes in real wealth on within group or overall inequality levels. While previous work has analyzed the income and earnings experiences of different age and birth cohorts during recent decades we focus here on the wealth of cohorts. During the period under study, 1962–1983, real incomes grew by only 36.5% in contrast to the 49% growth in real wealth. Furthermore, real income growth lagged during the latter decade in comparison to the 1962–1973 period, while real wealth growth rebounded from 1973–1983.

Two severe recessions, the entry of the “baby boomers” into the labor market, and the increased labor force participation of married women have all been cited as contributing factors to the decline in real income growth (Levy 1987). For a variety of reasons, the growth (or decline) in real income experienced over the last two decades has varied considerably by age group and by cohort. For example, the average growth in earnings which a male aged 40 would experience by the time he reached the age of 50 ranged from an increase of 25% in the 1960's to a decline of 14% in the 1970's. A growing body of literature (which we will not review here) has examined the reasons for the divergent income growth of successive cohorts as they move through their economic life-cycle (Welch 1979; Freeman 1979; Berger 1984, 1985; Levy 1987; Connelly 1986; Hanoch and Honig 1985).

In contrast to the focus on labor earnings of cohorts in the works cited above, we focus on the changes in real net worth which these cohorts have achieved over this 20-year period. Although some of the same underlying forces are no doubt at work, the very different patterns for the growth of wealth and income suggest that a different analysis is needed.

The timing of economic events or trends such as this decline in real wealth followed by an increase is often critical to the individual or household who experiences them at crucial points in their economic life-cycle. We analyze three effects: life-cycle (age), cohort, and period. Economic theory emphasizes the importance of age, or life-cycle effects which are assumed to be relatively stable across periods and cohorts, in explaining the generation of wealth and its distribution at any one point in time (see Modigliani and Brumberg 1954; Ando and Modigliani 1963; Tobin 1967). Period effects are caused by factors which affect the economy as a whole, including recession, inflation, wartime rationing, and changes in relative rates of return.

Birth year (or cohort) affects the experience of its members in two ways. It interacts with period events such as recession or war to cause particular individuals to experience the same event at different points in their life-cycle. For example, one individual experiences the Great Depression of the 1930's as a child in school, another as a young adult just entering the labor market, a third as a worker with substantial seniority, and a fourth as a retiree. All have lived through the same era, but the immediate and the long-term economic impacts differ because of the different positions in the life-cycle. Thus, cohort effects alter the labor market ex-

periences of individuals and their lifetime income patterns. They affect wealth accumulation through income and savings as well as through changes in the value of assets held by the household.

An additional cohort effect relates to the peculiarities of a particular birth group, such as the “overcrowding” in schools and labor markets which much of the literature cited above emphasizes was important for the “baby boomers”. Those born in relatively large birth cohorts are hypothesized not to fare as well economically as those born in smaller birth cohorts.

It should be noted that one cannot completely separate cohort, period, and life-cycle effects from each other, since they are confounded with one another through a linear dependency. Age is a perfect function of cohort membership and time, cohort membership is a perfect function of age and period, and period is a perfect function of age and cohort membership. In addition, part of the variation in average wealth is due to sampling variation. Later, we provide some speculations on the probable importance of each of these effects in explaining changes in the distribution of wealth by age.

We also distinguish between the wealth growth of two subperiods: 1962–1973 and 1973–1983. As was mentioned above, real wealth growth was much stronger in the second period than the first. In addition, the age-wealth profile flattened out somewhat in the first period and then sharply steepened in the second. We examine the causes for each of these changes.

In the sections below we outline a basic model of wealth growth by cohort (Part II), describe the wealth concept and the data sources used in this analysis (Part III), summarize the actual changes in cohort wealth we found over the two decades (Part IV), describe our simulation model (Part V), and present the results of our simulation (Part VI). In our final section we highlight the most important findings as well as several factors which complicate interpretation of our results.

II. The model

Our model of wealth accumulation posits that additions to wealth are a function of annual income and the savings rate from that income as well as the rates of return earned on various assets and the share of the portfolio held in each asset. Transfers of wealth within the household sector can take the form of inheritances or of gifts (lifetime transfers). Although such transfers do not alter aggregate household wealth they have a significant effect on the relative wealth of different cohorts.

We can represent the increase in cohort wealth in the following manner:

$$W_{ct} = (1 + r_{ct}) W_{c,t-1} + s_{ct} E_{ct} + G_{ct} , \quad (1)$$

where:

W = net worth or wealth (in constant dollars); c = birth cohort (birth year); t = period (date); $a = t - c$, age of cohort; r = real rate of return on wealth; E = real labor earnings plus income transfers; s = savings rate out of E ; G = net inheritances and gifts (in constant dollars).

Thus,

$$\Delta W_{ct} \equiv W_{ct} - W_{c,t-1} = r_{ct} W_{c,t-1} + s_{ct} E_{ct} + G_{ct} . \quad (2)$$

There are three sources of wealth increase. The first is the appreciation of existing wealth, including property income (interest, dividends, and rent). The second is savings out of other sources of income, labor earnings and income transfers. This concept of savings excludes returns on wealth (property income and capital gains) and is close to the NIPA (national income and product accounts) concept of savings.¹ The third includes inheritances and inter vivos transfers.

It is useful to speculate which factors are age-dependent, which are cohort-dependent, and which are period-dependent or dependent on other factors.

1. Return on assets. The return on assets varies considerably by period and among different assets, so that in any period the overall rate of return is heavily dependent on portfolio composition. Insofar as portfolio composition differs among age and birth cohorts, the overall rate of return will likewise be age-dependent and cohort-dependent.

2. Income. The income variable is likely to show all three effects. Period differences in the growth of real income may be due to the business cycle, trends in labor force participation behavior (for example, the growth in two-earner families), changes in the rate of productivity growth in the economy, and policy shifts on transfer payments.² Cohort differences have been alleged to lower average labor earnings for individuals in the baby boom generation. Age also plays a major role in the level of income. Labor earnings typically increase with age until age 50–60 and then decline, while capital income and transfer payments constitute a larger share for the elderly.

3. Savings. There is a vast literature on determinants of household savings rate, including demographic factors, which we shall not review here. Our main interest concerns the three effects noted above. Economists have often used the life-cycle hypothesis to explain differences in savings by age group, based on the idea that individuals (or households) attempt to spread consumption over their lifetime in a pattern which is smoother than that of lifetime incomes (Modigliani and Brumberg 1954; Lydall 1955; Ando and Modigliani 1963). In this model of economic behavior, the young dissave (incur debt) to invest in human capital, consumer durables, or housing while their incomes are still relatively low, the middle-aged begin to retire that debt and build up both real and financial assets, and the elderly draw down wealth in their retirement years.

Savings rates declined considerably between the 1962–1973 and 1973–1983 periods. There are several possible explanations: First, time preferences may change for all age groups within society. Second, there may be institutional changes, such as rising pension and social security wealth, which affect (fungible)

¹ The NIPA concept also excludes capital gains but does include property income from investments. The latter are, however, relatively small in relation to capital gains.

² It may be somewhat of an oversimplification to attribute such changes exclusively to a pure period effect, since average growth in income may itself be a function of age and cohort effects, when the age distribution of the population is changing. For example, the strong economy of the 1950's and 1960's is attributed by some to the high birth rates of the period which stimulated demand.

savings rates. Third, there may be demographic changes, such as smaller family sizes. Fourth, stagnation in real income growth may lower the savings rate (the permanent income hypothesis). Fifth, increased longevity and/or uncertainty over date of death may induce families to save more over time.³

Cohort effects may also play a role. There has been some suggestion, for example, that the Depression generation has tended to be more frugal than others. Our results tend to support this.

4. Inheritances and gifts. Inheritances and gifts are heavily dependent on age. Most transfers occur from bequests and are passed on to the spouse and from the surviving spouse to the children. As a result, inter-cohort transfers are currently received mainly by middle-aged cohorts (ages 45–55). *Intervivos transfers* occur mainly between parents and children. This is likely to show up as negative net transfers for older age groups and positive net transfers for younger ones. Period effects may also be relevant in two ways. First, over the last century, longevity has been increasing, which means that the average age at which inheritances are received has also been rising. Second, social mores regarding bequests and *intervivos* gifts may change over time. There may also be cohort effects if some cohorts are more altruistic than others regarding wealth transfers.

III. Data sources and wealth concept

Our analysis covers two decades by using estimates of the entire household distribution of wealth in the United States for 1962, 1973, and 1983. Each sample includes extensive information on the net worth of households at the microdata level and oversamples for high income households. Wealth and income figures are stated in 1985 dollars using the CPI-All Urban Consumers (which is the standard consumer price index).

Other studies have followed a panel of individuals or households (the Retirement History Survey, for example) while we are dealing with three completely separate samples. For 1962, we use the Federal Reserve Board's *Survey of Financial Characteristics of Consumers* (see Projector and Weiss 1966). Our 1973 wealth data is based on administrative records from income and estate tax as well as census information (rather than survey questions) but is again a stratified random sample of all U.S. households (see Greenwood 1983, for details). The 1983 data are from the Federal Reserve Board's *Survey of Consumer Finances* (see Avery et al. 1984). The survey data report year end wealth and income, while the administrative data reflect an average wealth and income over the year reported. Thus, our 1973 estimate is best thought of as "mid-year" and combined with the 1962 and 1983 data gives us two ten and a half year periods over which to compare changes in wealth. We think this is a useful interval to use, as it allows time for long run changes to occur.

Since we are comparing the experiences of entire birth cohorts over time, as long as each of these samples is representative of the U.S. population we believe that comparability problems are not significant. Obviously, some additional sampling error is introduced by the fact that these are different samples rather than

³ Some of these effects may also be cohort-specific, such as smaller family size, rising retirement wealth, and increasing longevity.

panel data. However, no panel data exists upon which to base an analysis of this kind (the Panel Study of Income Dynamics at the University of Michigan oversamples low-income rather than high-income individuals and top codes a great deal of the information useful in estimating and analyzing wealth). Other panels which contain better wealth information cover shorter spans of time and more limited groups of individuals (only males 45–59 in the National Longitudinal Sample, for example). We believe that the examination of changes in wealth across age groups and cohorts is of equal importance to the analyses of income changes for these groups and that the three samples used here are the best currently available to answer these questions.

Underreporting relative to the national balance sheets occurs in all three samples. Therefore, asset and liability figures for each year have been aligned to national balance sheet totals for the household sector (see Wolff 1987, for a description for the 1962 SFCC and the 1983 SCF; see Greenwood and Wolff 1988, for the 1973 data).⁴

Wealth concept

The concept of wealth used here is that of “fungible wealth”, i.e. that which is saleable and therefore has current market value. We therefore exclude social security or pension wealth, as well as all consumer durable and so-called household inventories.⁵ Net fungible wealth includes owner occupied housing and other real estate, bank deposits and other liquid assets, corporate stock, bonds, and other securities, equity in unincorporated businesses and trust funds, the cash surrender value of life insurance and pension plans less all household debt. Household wealth is counted in the age cohort of the head of household.

Income data

Table 1 shows computations of average income (1985 dollars) by age cohort in each period. Period income is defined as the present value of the income received by the cohort over the respective periods (1962 to mid-1973 and mid-1973 to 1983). The present value is computed as of the end of the period, by the following formula:

$$\bar{E}_{cr} = \sum_{t=0}^{11.5} E_{cr}(1+d_t)^{11.5-t}, \quad (3)$$

⁴ Differences in asset definitions may also affect comparability among the three datasets. The 1962 and 1983 surveys were conducted by the Federal Reserve Board and their asset and liability concepts are quite similar. The 1973 data are developed from a synthetic dataset, and every attempt has been made to make the corresponding wealth categories as similar as possible to the ones used in 1962 and 1983. Resulting errors are reduced by alignment to consistent national balance sheet totals.

⁵ Including social security and pension wealth would have two opposing effects on the distribution of wealth. Pension wealth is distributed in a manner very similar to financial wealth whereas social security wealth is considerably more equally distributed. The net effect of including both would be a more equal distribution of wealth (see Wolff 1988). The effect on the distribution of wealth between different age or cohort groups is more problematic. The same groups of elderly cohorts who have extremely high wealth in our analyses are also those who have received substantial transfer income from social security, because the rates at which they paid into the system are so much lower than the rates being paid now. Those under age 45 today, our lower wealth cohorts, are unlikely to receive transfers of this magnitude because they are followed by smaller, rather than larger, cohort groups. Coupled with the fact that the present value of social security payments is substantially smaller for the young than the old, the inclusion of social security wealth would likely widen the wealth gap between age groups.

Table 1. Mean period income and savings rate by age cohort, 1962–1983^a

Age class (As of beginning of period)	Mean period income		Period income/overall mean		Average savings rate over period	
	1962–73	1973–83	1962–73	1973–83	1962–73	1973–83
20–24	\$ 117 470	\$ 103 500	0.36	0.32	0.0125	–0.0285
25–29	306 124	273 760	0.93	0.86	0.0144	–0.0157
30–34	360 765	342 775	1.09	1.07	0.0714	0.0373
35–39	391 061	386 302	1.19	1.21	0.0520	0.0373
40–44	414 659	419 611	1.26	1.32	0.0733	0.0556
45–49	422 668	434 862	1.28	1.36	0.0719	0.0729
50–54	404 080	418 482	1.23	1.31	0.0815	0.0795
55–59	369 252	383 012	1.12	1.20	0.0904	0.0875
60–64	308 591	323 993	0.94	1.02	0.0737	0.0455
65–69	229 956	244 887	0.70	0.77	0.0571	–0.0025
70–74	190 541	197 400	0.58	0.62	0.0460	0.0003
75–79	190 541	197 400	0.58	0.62	0.0371	0.0003
80 and over					0.0371	0.0003
Mean	\$ 329 643	\$ 319 072	1.00	1.00	0.0591	0.0321

^aAll income figures are in 1985 dollars. Period income is defined as the present value of the income of the cohort over the respective periods (1962 to mid-1973 and mid-1973 to 1983). Overall means for income and savings rates are computed as a weighted average of means by age cohort, with the average number of households in each cohort over the period used as weights. Only households in ages 25–74 are included in the calculation of the mean.

Sources: Income – *Current Population Reports*, 1962, 1968, 1973, 1978, and 1983; intervening years by interpolation. Savings rates – *Consumer Expenditure Surveys*, 1962, 1972–73, and 1983.

where E_{ct} is the average income of cohort c in year t (in 1985 dollars) and d_t is the real discount rate in year t (the 10 year treasury bill rate minus the CPI). Income data by age group are taken from the 1962, 1968, 1973, 1978, and 1983 Current Population Reports and translated into cohort income numbers. Intervening years were estimated by interpolation. Census income includes property income (underreported by at least 50%) as well as labor earnings and transfers and is thus an imperfect proxy for our desired income figure. However, no data on labor earnings and transfers is available at the cohort level. Given the underreporting of property income and the greater information introduced into the analysis by cohort specific rates of growth, we believe that this is the best income information to use for such an analysis. In looking at Table 1 it should be noted that the relatively low figures for the youngest and oldest age cohorts reflect, in part, low labor force participation rates at either the beginning or the end of the period.

Savings data

Savings rates (also shown in Table 1) are computed from the Consumer Expenditure Surveys (CES) in 1962, 1972–73 and 1983, again the only source where savings by age group is available. Although the National Income and Product Account (NIPA) concept of saving would be preferable to the CES, which treats housing expenditures as consumption rather than savings and thus understates

the savings rates of the young, we believe that the use of cohort-specific CES savings rates as a proxy is preferable to using non-age-specific NIPA rates. Savings rates for ten year age groups were computed as the average of the rate at the beginning of the period and the rate at the end of the period where no midpoint data existed. Average savings rates for cohorts have been computed from age-specific savings rates by using the age rate appropriate to the cohort at the beginning of the period and the age rate appropriate at the end (sometimes the same age group, sometimes not).

Rates of return

Table 2 shows real cumulative returns for six asset groups: real estate, time deposits, financial securities, corporate stock, unincorporated business equity, and demand deposits. Over the 1962–1983 period real estate appreciated by 48%. Corporate stock appreciated by about 80% over the two decades, with more of the increase during the first period. In contrast, unincorporated business which yielded by far the highest return over the two decades of any asset group at 277% (based on the ratio of gross investment in unincorporated business to their net worth from the Federal Reserve Board Flow of Funds data) showed a far greater gain in value during the second period.

Financial securities had very low returns in both subperiods. Government bonds showed a small positive return over the full period, while long-term corporate bonds declined in value. Savings and time deposits depreciated by 7%, due to the much higher inflation rate in the 1973–1983 period. Both demand deposits and household debt depreciated by over 70% over the two decades. Based on the CPI, the loss in value was almost twice as great in the 1973–1983 period as in the preceding decade.

Portfolio composition

In Table 3 we show eight groups of household assets and one of debt for 1962 and 1983. Over the two periods (Panel 3), owner-occupied housing increased in importance in the household portfolio, from 26% of gross assets in 1962 to 31% in 1983. Unincorporated business equity and other real estate also increased in importance (6.3% to 15.1% and 15.5% to 19.1%, respectively). In contrast, financial securities, stocks, and trust fund equity as a group declined from 32% of gross assets to 16%. Corporate stock alone dropped from 20% to 9% of gross assets. These increases and declines were evident for almost every age group. Bank deposits and total debt have remained relatively constant as a proportion of gross assets.

IV. Basic data results

Age-wealth profiles

Although the focus of our analysis is on the wealth profiles of various cohorts over the two decade period, it is helpful to begin with the age-wealth profiles for the beginning, middle, and end of this period. For the three years shown in Fig. 1, 1962, 1973, and 1983 (see also Panel A of Table 4) the cross-sectional data follow

Table 2. Real cumulative returns by asset type, 1962–1983 (percentage increase over the period)

	1962–73 m ^a	1973 m ^a –83	1962–83
A. Total real estate ^b	22.4	21.0	48.0
B. Savings and time deposits ^c	16.2	–19.5	–6.5
C. Financial securities ^d			
1. U.S. Treasury bill yields	10.2	6.8	17.7
2. Intermediate government bonds	9.8	–0.7	9.0
3. Long-term corporate bonds	–0.8	–18.0	–18.7
4. Geometric average of rows 2 and 3	4.4	–9.8	–5.9
D. Corporate stock			
1. Common stock yields ^d	64.0	9.9	80.2
2. Standard and Poor 500 index ^e	44.1	26.2	81.8
E. Unincorporated business equity ^f	39.9	169.3	276.8
F. Demand deposits ^g	–31.9	–55.4	–69.7
G. Household debt ^g	–31.9	–55.4	–69.7

^aSeries are from 1962 to mid-year 1973, and from mid-year 1973 to 1983.

^b*Sources* 1962–80: Richard Ruggles and Nancy D. Ruggles, “Integrated Economic Accounts for the United States”, ISPS Working Paper No. 841, Yale University, November, 1981, Table 2.40. Results are based on the revaluation of real estate as a percent of initial real estate value in each year. 1980–83: Board of Governors of the Federal Reserve System, *Balance Sheets for the U.S. Economy, 1949–88*, October, 1989, p. 15.

^cComputations based on interest rate ceilings at savings and loan associations, 1966–81, for savings deposits divided into the following categories:

1. *Single maturity*, less than \$ 100000

a. 30 to 89 days; b. 90 days to 6 months; c. 6 months or over

2. *Multiple maturity*

a. 30 to 89 days; b. 90 days or over

and on interest rate ceilings on deposit interest rates at commercial banks, 1962–83, divided into the following categories:

1. *Savings deposits*

a. Under 12 months; b. 12 months or over

2. *Time deposits*

a. 30 to 90 days; b. 90 days to 6 months; c. 6 months or over; d. 6 to 12 months; e. 12 months or over

Annual interest rate calculated as an unweighted average of time and savings deposits that have pertinent data. Source for savings and loan data: Patrick I. Mahoney, Alice P. White, Paul F. O’Brien, and Mary M. McLaughlin, “Responses to Deregulation: Retail Deposit Pricing from 1983 through 1985”, Board of Governors of the Federal Reserve System, Staff Study 151, 1987, Appendix, pp. 21–30. Source for commercial bank data: Board of Governors of the Federal Reserve System, “61st Annual Report, 1974”, Table 13, p. 30; and Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*, Vol. 70, No. 1, January, 1984, Table 1.16, p. A8.

^dSource: Ibbotson and Sinquefeld (1989), Exhibit 18, pp. 65–66.

^eSource: Council of Economic Advisers, *Economic Report of the President, 1984*, Table B90, p. 323.

^fThis is based on the percent change in the total value of non-farm unincorporated business, defined as the ratio of gross investment to the net worth of the nonfarm, noncorporate sector. Source for net worth: Board of Governors of the Federal Reserve System, “Balance Sheets For the U.S. Economy 1948–87”, April 1988, pp. 17–20. Sources for gross investment: Board of Governors of the Federal Reserve System, “Flow of Funds Accounts 1946–75”, December 1975, pp. 13–15; Board of Governors of the Federal Reserve System, “Flow of Funds Accounts 1976–83”, Fourth Quarter 1985, pp. 8–9.

^gInverse of the Consumer Price Index (CPI). Source: Council of Economic Advisers, *Economic Report of the President, 1984*, Table B-52.

Table 3. Portfolio composition by 10-year age class, 1962 and 1983 (percent of gross assets)

Age class	Number of households (1000 s)	House	Other real estate	Demand deposits	Time deposits	Bond	Stocks	Trusts	Business equity	Total debt ^a	
<i>1. 1962</i>											
All	57926	26.1	6.3	3.8	15.9	7.7	19.9	4.7	15.5	14.1	
Under 25	2763	49.7	5.0	8.0	21.8	2.4	2.8	8.2	2.2	92.0	
25-34	10004	38.1	2.4	2.7	11.4	2.6	6.3	27.1	9.3	37.3	
35-44	12008	33.5	7.3	3.1	15.6	5.0	7.6	8.6	19.2	23.9	
45-54	11863	32.2	6.4	3.6	16.9	6.7	14.3	1.1	18.9	17.7	
55-64	10403	21.1	6.8	3.9	15.3	8.8	25.1	1.8	17.2	6.9	
65-74	7101	17.0	7.9	4.1	15.9	10.5	30.6	0.6	13.3	3.9	
75 and over	3784	17.6	2.7	6.3	19.8	12.1	35.3	1.8	4.5	2.7	
<i>2. 1983</i>											
All	83914	30.5	15.1	2.6	16.5	4.2	9.2	2.7	19.1	13.3	
Under 25	6724	50.8	10.6	6.4	22.6	0.0	2.9	1.0	5.8	50.0	
25-34	18944	48.0	12.8	2.7	15.6	1.6	2.4	2.1	14.9	37.4	
35-44	16381	43.5	13.7	2.6	14.8	2.5	4.2	0.7	18.2	26.2	
45-54	13101	29.8	13.6	1.7	12.7	2.6	6.4	7.4	25.8	13.0	
55-64	12630	26.4	13.9	3.0	17.9	5.1	10.9	1.4	21.5	8.3	
65-74	10157	20.9	21.5	2.9	18.0	7.0	14.6	1.0	14.0	2.2	
75 and over	5977	23.5	11.7	3.8	25.0	6.4	16.6	1.4	11.6	2.5	
<i>3. Comparison by age cohort</i>											
		Housing		Demand and time deposits		Bonds, stocks, and trusts		Business equity and other real estate		Total debt	
		1962	1983	1962	1983	1962	1983	1962	1983	1962	1983
All		26.1	30.5	19.7	19.2	32.3	16.1	21.8	34.2	14.1	13.3
Under 25		49.7	50.8	29.8	29.0	13.3	3.8	7.2	16.4	92.0	50.0
25-34		38.1	48.0	14.1	18.3	36.0	6.0	11.7	27.7	37.3	37.4
35-44		33.5	43.5	18.8	17.3	21.2	7.4	26.4	31.8	23.9	26.2
45-54		32.2	29.8	20.4	14.4	22.1	16.4	25.3	39.4	17.7	13.0
55-64		21.1	26.4	19.3	20.9	35.8	17.4	23.9	35.4	6.9	8.3
65-74		17.0	20.9	20.0	20.9	41.8	22.6	21.2	35.5	3.9	2.2
75 and over		17.6	23.5	26.1	28.9	49.1	24.4	7.2	23.2	2.7	2.5
<i>4. Comparison by birth cohort</i>											
		Housing		Demand and time deposits		Bonds, stocks, and trusts		Business equity and other real estate		Total debt	
		1962	1983	1962	1983	1962	1983	1962	1983	1962	1983
	1962										
Birth cohort	Age class	1962	1983	1962	1983	1962	1983	1962	1983	1962	1983
1898-07	55-64	21.1	23.5	19.3	28.9	35.8	24.4	23.9	23.2	6.9	2.5
1908-17	45-54	32.2	20.9	20.4	20.9	22.1	22.6	25.3	35.5	17.7	2.2
1918-27	35-44	33.5	26.4	18.8	20.9	21.2	17.4	26.4	35.4	23.9	8.3
1928-37	25-34	38.1	29.8	14.1	14.4	36.0	16.4	11.7	39.4	37.3	13.0
1938-42	20-24	49.7	43.5	29.8	17.3	13.3	7.4	7.2	31.8	92.0	26.2

Table 3 (continued)*5. Real cumulative rates of return by age class, 1962–73 and 1973–83^b*

Age class (beginning of period)	1962–73 m period		1973 m–83 period	
	Gross assets	Net worth	Gross assets	Net worth
All	30.8	41.2	27.4	36.5
Under 25	20.5	621.3	20.0	72.0
25–29	27.8	84.0	23.1	62.0
30–34	34.9	66.4	24.5	55.1
35–39	30.3	54.2	24.9	46.3
40–44	27.0	42.7	24.9	44.0
45–49	27.0	40.9	30.9	42.0
50–54	29.7	41.4	28.3	34.8
55–59	33.0	37.9	28.3	34.7
60–64	31.1	35.6	27.3	31.8
65–69	32.4	35.4	26.8	28.5
70–74	34.1	36.2	29.6	30.3
75–79	31.5	33.8	28.3	30.5
80 and over	33.7	34.7	25.9	26.4

^a *Key:*

House (Housing): Owner-occupied housing

Other real estate: Other real estate

Demand deposits: Cash, currency, and demand deposits

Time deposits: Time deposits, money market funds, and IRAs (1983)

Bonds: Other fixed-interest financial securities

Stocks: Corporate stock, including mutual funds

Trusts: Net equity in personal trusts and estates

Business equity: Net equity in unincorporated farm and non-farm businesses

Total Debt: Mortgage, installment, consumer, and other debt

^b Percentage increase over period. Calculations based on Returns-2 (see footnote to Table 5).

the predicted hump-shaped pattern fairly closely, with the exception of a few “dips” in mean wealth among the late middle-aged and the young elderly.⁶ Mean wealth increases with age until age 69 or so and then declines. The results are generally consistent with the life-cycle model of wealth accumulation. However, as Shorrocks (1975) and Jianakoplos et al. (1989) have demonstrated, a cross-sectional profile cannot be taken as confirmation of the life-cycle hypothesis for two reasons. In an economy with rising productivity levels, successive cohorts are likely to have rising incomes (and wealth) so that the lower wealth of the very old is a cohort rather than a life-cycle effect. On the other hand, the correlation of mortality rates with wealth among the elderly will result in a higher mean wealth for survivors than would have existed for the entire group (see Wolff 1988 for a more extended discussion).

⁶ Age-wealth profiles were also calculated using median cohort wealth rather than mean, with quite similar results.

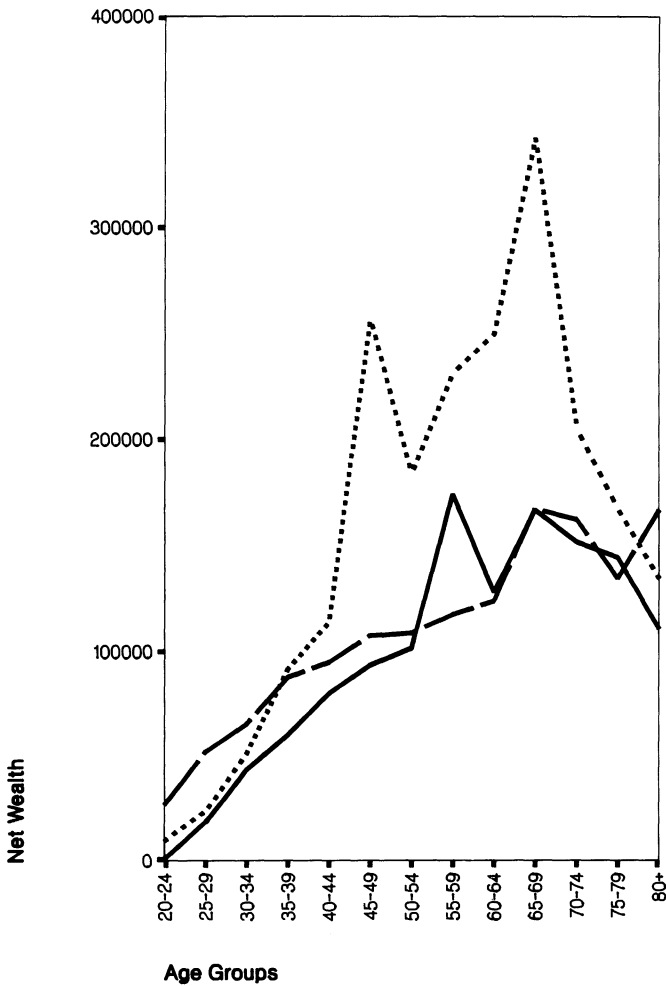


Fig. 1. Net wealth of age groups (in 1985 dollars). 1962 Data: Projector and Weiss 1965; 1973 Data: Greenwood 1983; 1983 Data: Wolff 1987a; Avery et al. 1984. — net wealth 1962, --- net wealth 1973, ····· net wealth 1983

A closer look at Panel A shows that despite an overall similarity in pattern, a shift away from the young and the very old to the middle-aged occurred over the two decades. Younger families had a higher mean wealth relative to the overall mean in 1973 than in 1962. By 1983, the new cohorts of young were relatively worse off than those of 1962. The very elderly (70 and over) were 46% above overall mean wealth in 1962 but only 22% above the overall mean in 1983. At the same time, the mean wealth of middle-aged families (those with heads 45–69) was 74% greater than the overall mean in 1983, compared to 35% greater in 1962. Over the two decades, the age-wealth profile became steeper and peak wealth moved to an older age group. The 1983 peak of 2.38 times the overall mean was for the 65–69 age group while the 1962 peak of 1.82 times the average was in the 55–59 bracket.

Table 4. Ratio of mean household net worth by age and birth cohort to the overall mean, 1962–83

A. Age cohort	Year			Annual growth rate of wealth, 1962–83 (percentage)
	1962	1973	1983	
All	1.00	1.00	1.00	1.90
20–24	0.01	0.27	0.05	10.97
25–29	0.20	0.52	0.17	1.15
30–34	0.46	0.65	0.35	0.61
35–39	0.64	0.87	0.63	1.88
40–44	0.84	0.94	0.78	1.52
45–49	0.98	1.06	1.77	4.71
50–54	1.06	1.07	1.27	2.74
55–59	1.82	1.16	1.61	1.33
60–64	1.34	1.22	1.73	3.12
65–69	1.74	1.65	2.38	3.38
70–74	1.58	1.60	1.43	1.41
75–79	1.51	1.33	1.17	0.68
80 and over	1.16	1.64	0.93	0.88
Under 65	0.87	0.86	0.85	1.80
65 and over	1.56	1.57	1.62	2.08

B. Birth cohort	1973 age class	Year			Annual growth rate of wealth, 1962–83 (percentage)	
		1962	1973	1983		
Before 1884	}	1.16				
1884–88		1.51				
1889–93		80 and over	1.58	1.64		
1894–98		75–79	1.74	1.33		
1899–1903		70–74	1.34	1.60	0.93	0.20
1904–08		65–69	1.82	1.65	1.17	-0.21
1909–13		60–64	1.06	1.22	1.43	3.31
1914–18		55–59	0.98	1.16	2.38	6.13
1919–23		50–54	0.84	1.07	1.73	5.33
1924–28		45–49	0.64	1.06	1.61	6.33
1929–33	40–44	0.46	0.94	1.27	6.71	
1934–38	35–39	0.20	0.87	1.77	12.38	
1939–43	30–34	0.01	0.65	0.78	23.70	
1944–48	25–29		0.52	0.63		
1949–53	20–24		0.27	0.35		
1954–58				0.17		
1959–63				0.05		
All		1.00	1.00	1.00	1.97	

Sources: 1962 – Survey of Financial Characteristics of Consumers; 1973 – Tax-Census Merge File (Greenwood 1983); 1983 – Survey of Consumer Finances.

The results also indicate that the age-wealth profile is far from invariant over time, as standard versions of the life-cycle model often suggest. Indeed, the shape of the age-wealth profile at any point of time reflects not only life-cycle effects but cohort and period effects as well.

Cohort-wealth profiles

In Panel B we show the same wealth results by birth cohort, instead of age cohort. The results are striking. Annual rates of increase in mean wealth by birth cohort range from 23.7% to -0.2% .⁷ Increases in net worth are consistently higher the younger the age cohort – a relationship surprisingly robust across the nine birth cohorts. This is consistent with the results seen above in our discussion of changing age-wealth profiles, for the younger birth cohorts in this table are precisely those who were middle-aged in 1983. Figure 2 shows the change in real net wealth over the two decades at the cohort level. The two oldest cohorts show a slight decline across the period; all others show increases but at very different rates.

Cohort real income changes

In the aggregate, we find no growth in mean household real income between the two periods, a result consistent with other research focussing on both earnings and family income since 1973 (see for example, Levy 1987). From Table 1, period mean income rises with age cohort and peaks somewhere in the 45–55 age group before declining again in both periods. The relative level of cohort income declined between the two periods for families in the three youngest five year groups and rose for higher age cohorts. Age groups 45 and over gained in *absolute* as well as in relative terms.

Cohort saving rates

Also from Table 1, we see life-cycle and period effects in the rates of saving. In both periods, the savings rate increases with age (peaking at 55–59) and then declines. Though savings rates differ by birth cohort, the striking similarity in the age-savings profiles in the two periods suggests a strong life-cycle component in savings behavior. However, there is a pronounced decline in the savings rate between the two periods – from an average of 5.9% between 1962 and 1973 to an average of 3.2% in the 1973–1983 period, consistent with the previous literature on the decline in the overall United States savings rate. At the cohort level, the savings rate fell for all but one group (those 45–49 in 1962 and 65–69 in 1983) between the two periods.

Portfolio composition

In Table 3 (Panels 3, 4, and 5) we see the differences in portfolio composition by cohort and how these interact with the differential rates of return on assets previously presented in Table 2 to create substantial differences in the cumulative real rate of return on assets over the two periods and between different cohorts. Average returns declined somewhat in the second period, reflecting declines in returns on all but unincorporated business equity. For both periods, average returns on gross assets increase slightly with age, although the differences are small. In

⁷ The former number should be interpreted with some caution, as it was calculated based on the very low mean wealth of households headed by an individual under age 25 in 1962 from the 1962 SFCC (\$ 762 in 1985 dollars). There were relatively few of these households in comparison with today in addition to the fact that many individuals under age 25 are still part of another household.

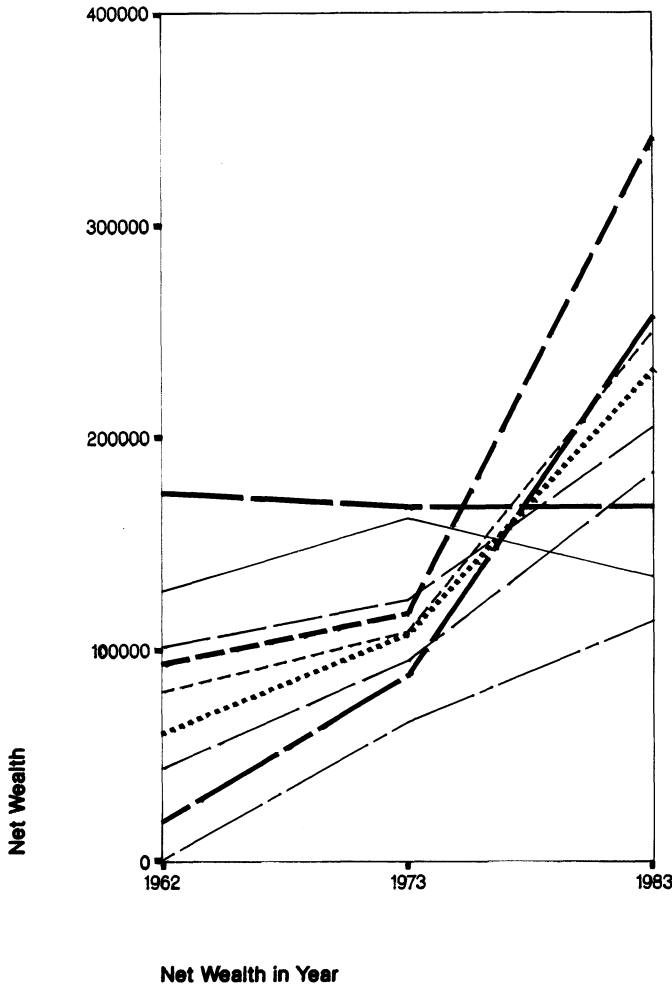


Fig. 2. Net wealth by cohort (in 1985 dollars). Data source: See Legend Fig. 1. — cohort 4; 60–64 years in 1962, ——— cohort 5; 55–59 years in 1962, ——— cohort 6; 50–54 years in 1962, - - - cohort 7; 45–49 years in 1962, - - - cohort 8; 40–44 years in 1962, ··· cohort 9; 35–39 years in 1962, ——— cohort 10; 30–34 years in 1962, — cohort 11; 25–29 years in 1962, — cohort 12; 20–24 years in 1962

contrast, the return on net worth *declines* almost monotonically with age, from 72% for the youngest group in 1983 to 26.4% for the oldest. This is due largely to the greater percent of housing equity and housing debt held by younger families in both periods. The differences in returns are greater between young and old cohorts in the latter period when inflation was higher, as one would expect.

Portfolio composition shows strong life-cycle effects. Both housing and debt decrease rather systematically with age as a percent of gross assets. In contrast, both financial securities (bonds) and corporate stock systematically increase in importance with age as a component of the household portfolio. Net equity in unincorporated business rises with age as a percent of gross assets (peaking at age 35–44 in 1962 and 45–54 in 1983), and then declines.

V. Simulation model of cohort wealth changes

We use a simulation analysis to model the changes in wealth of each of the five year cohorts which would have occurred based on the wealth model outlined in Sect. II. Results of the simulation of changes in overall mean wealth are shown in Table 5 while the results of simulation by cohort are shown in Table 6. Average income growth and savings rates by group for each of the ten year periods, as well as the portfolio composition of the cohort and the economy wide rates of return

Table 5. Simulated sources of growth in mean aggregate household wealth, 1962 – 1983^a

<i>A. 1962 – 1973</i>							
	Initial mean wealth (1962)	Actual mean wealth (1973)	Simulated mean wealth (1973)	Ratio of simulated to actual wealth (1973)	Sources of growth (percentage dist.)		
					Savings	Appreciation of W_{62}	Savings
Returns-1	95 629	101 207	124 242	1.23	29.3	67.8	2.8
Returns-2	95 629	101 207	128 178	1.27	27.0	70.0	3.0
Returns-3	95 629	101 207	123 615	1.22	29.7	67.5	2.8
Returns-4	95 629	101 207	127 551	1.26	27.3	69.7	2.9
Unwtd. Ave.	95 629	101 207	125 897	1.25	28.3	68.8	2.9
<i>B. 1962 – 1983</i>							
	Initial mean wealth (1962)	Actual mean wealth (1983)	Simulated mean wealth (1983)	Ratio of simulated to actual wealth (1983)	Sources of growth (percentage dist.)		
					Savings	Appreciation of W_{62}	Savings
Returns-1	95 629	142 534	153 324	1.08	19.0	74.5	6.5
Returns-2	95 629	142 534	152 032	1.07	19.3	74.7	6.0
Returns-3	95 629	142 534	151 513	1.06	19.4	74.2	6.4
Returns-4	95 629	142 534	150 221	1.05	19.7	74.3	6.0
Unwtd. Ave.	95 629	142 534	151 773	1.07	19.4	74.4	6.2

^aAll figures are in 1985 dollars. Calculations correct for growth in the number of households over the periods. Real cumulative rates of returns in percentage, based on alternative choices of yields in Table 2, are as follows:

	Real estate	Time deposits	Financial securities	Corporate stocks	Business equity	Demand deposits	Household debt
Returns-1							
1962 – 73 m	22.4	16.2	10.2	44.1	39.9	-31.9	-31.9
1973 m – 83	21.0	-19.5	6.8	26.2	169.3	-55.4	-55.4
Returns-2							
1962 – 73 m	22.4	16.2	10.2	64.0	39.9	-31.9	-31.9
1973 m – 83	21.0	-19.5	6.8	9.9	169.3	-55.4	-55.4
Returns-3							
1962 – 73 m	22.4	16.2	4.4	44.1	39.9	-31.9	-31.9
1973 m – 83	21.0	-19.5	-9.8	26.2	169.3	-55.4	-55.4
Returns-4							
1962 – 73 m	22.4	16.2	4.4	64.0	39.9	-31.9	-31.9
1973 m – 83	21.0	-19.5	-9.8	9.9	169.3	-55.4	-55.4

Table 6. Simulations of wealth accumulation by age cohort, 1962–83, based on initial wealth, savings, inheritances and asset appreciation^a

<i>A. Actual and simulated mean wealth by age cohort, 1973 and 1983</i>								
Age cohort	1973	1973	1973 Ratio of		1983	1983	1983 Ratio of	
	Actual wealth	Simulated wealth	Unadjusted	Adjusted ^b	Actual wealth	Simulated wealth	Unadjusted	Adjusted ^b
20–24	27402	1148	0.04	0.03	7624	1083	0.14	0.13
25–29	52750	4061	0.08	0.06	23818	3801	0.16	0.15
30–34	66005	15099	0.23	0.18	50165	7046	0.14	0.13
35–39	88016	49702	0.56	0.44	90236	14828	0.16	0.15
40–44	95065	116180	1.22	0.96	110570	54672	0.49	0.46
45–49	107488	146618	1.36	1.07	251670	120294	0.48	0.45
50–54	108774	180723	1.66	1.31	180664	225066	1.25	1.16
55–59	117420	198302	1.69	1.33	229994	278040	1.21	1.13
60–64	123742	205200	1.66	1.31	246268	329620	1.34	1.25
65–69	167158	273484	1.64	1.29	338971	332835	0.98	0.92
70–74	162042	221852	1.37	1.08	203521	308772	1.52	1.42
75–79	134731	236273	1.75	1.38	166441	377968	2.27	2.12
80 +	166350	209401	1.26	0.99	133169	292270	2.19	2.05
Mean	101207	126797	1.27	1.00	142534	142399	1.07	1.00

<i>B. Sources of growth in simulated mean wealth by age cohort, 1962–83 (percentage distribution)</i>							
Age cohort	1983			Appreciation of			All sources
	Savings	Inheritance	Initial wealth	Savings	Inheritance	Total	
20–24	0.0	94.9	1.0	0.0	4.1	5.2	100.1
25–29	0.0	88.4	0.8	0.0	10.9	11.6	100.0
30–34	(45.7)	125.2	0.7	(6.2)	26.0	20.5	100.0
35–39	(31.0)	108.6	0.4	(4.9)	26.8	22.3	100.0
40–44	27.3	44.7	13.4	1.9	12.7	28.0	100.0
45–49	18.1	40.5	28.2	1.9	11.3	41.4	100.0
50–54	24.6	32.9	29.2	4.5	8.9	42.5	100.0
55–59	24.8	26.0	36.2	5.7	7.4	49.2	100.0
60–64	24.9	23.2	38.0	7.3	6.6	51.9	100.0
65–69	27.0	17.9	42.8	7.6	4.7	55.1	100.0
70–74	22.7	12.8	53.5	8.3	2.8	64.5	100.0
75–79	14.6	5.6	71.3	7.6	0.9	79.9	100.0
80 +	12.8	2.7	78.2	5.8	0.4	84.5	100.0
All	19.3		74.7	6.0		80.7	100.0

Table 6 (continued)

Age cohort (end of period)	1962-73		1962-83		1962-73		1962-83	
	Cohort mean savings	Ratio to overall mean	Cohort mean savings	Ratio to overall mean	Cohort mean inheritance	Ratio to overall mean	Cohort mean inheritance	Ratio to overall mean
20-24	(289)	(0.02)	0	0.00	1304	0.09	940	0.03
25-29	(415)	(0.02)	0	0.00	4001	0.28	3290	0.12
30-34	2384	0.14	(3183)	(0.14)	6909	0.49	8717	0.32
35-39	5127	0.29	(4570)	(0.20)	12886	0.92	16032	0.59
40-44	23261	1.33	14742	0.64	20933	1.49	24173	0.89
45-49	24003	1.37	19054	0.82	24995	1.78	42566	1.58
50-54	30961	1.76	45811	1.98	29433	2.09	61110	2.26
55-59	32947	1.88	54644	2.36	26834	1.91	57440	2.13
60-64	33121	1.89	63117	2.72	20906	1.49	58692	2.17
65-69	32484	1.85	65340	2.82	10171	0.72	43314	1.60
70-74	24318	1.39	47369	2.04	4368	0.31	26783	0.99
75-79	14718	0.84	31892	1.38	1483	0.11	12145	0.45
80 +	7800	0.44	18937	0.82	259	0.02	3990	0.15
Mean	17554	1.00	23169	1.00	14049	1.00	27020	1.00

^aThe simulation is based on the rates of return in the set, Returns-2 (see notes to Table 5). All figures are in 1985 dollars. Calculations correct for the growth in the number of households over the periods.

^bRatios of simulated to actual mean wealth by age cohort are normalized so that the ratio of simulated to overall mean wealth is unity.

on the various asset categories are used to model predicted changes in wealth due to savings or revaluation of assets. In addition, we model inheritances by using gender and age-specific mortality rates and transferring wealth to a surviving spouse or in their absence to the next generation.

The real mean wealth of each cohort is expected to grow over each decade as a result of cohort savings, the return on assets held, and inheritances. Unexplained changes in wealth may be due to changes in portfolio composition (initially assumed to remain constant over the period), or to lifetime transfers, which cannot be modelled based on the available data, or to generation-skipping inheritances. While a substantial portion of the total value of inheritances for any one year is known from the estate tax returns of the donor, no national data on recipients exists.

Our approach borrows from both Masson (1986) and Wolfson (1980) who also examined cohort wealth patterns, but we do not test different patterns of family formation and dissolution as Masson did or of bequest patterns as Wolfson did. Our interest is in the differences in wealth growth across cohort rather than within each cohort.

Our starting point for each simulation is mean wealth by age cohort in 1962. We convert each multi-year (mainly, 5-year) age group into single year age groups. In each group, mean wealth is assumed to be the same for all ages within the five year span (greater age detail is not available because of limited sample size). Age category "80 and over" is assumed to include households between 80 and 99 in 1962. The simulation is performed on an annual basis and by single year age groups.

At the beginning of each year wealth (and its components) is converted from cohort household averages to total wealth of the group using the number of households in the group (see Appendix Table 1). Intervening years between 1962, 1973, and 1983 are estimated by interpolation. At the end of each year, after changes in wealth due to asset price fluctuations, saving, bequests and inheritance have occurred, wealth is converted back to a household average on the basis of a household count that takes account of the number of deaths during the year.⁸

Also at the beginning of each year, the value of each asset (and of debt) is changed according to its rate of return (see Table 2 for a review of the various rates by period). We employ four different sets of returns on the various assets in four separate simulations to test the sensitivity to each (see footnote to Table 5). On the basis of cohort saving rates and annual income (Table 1), saving out of income is added to wealth. Total dollars saved in that year are distributed at the end of the year to each asset in proportion to its importance as a share of gross assets.

Deaths occur at the end of year, based on gender and age specific mortality rates (Appendix Table 5). We model the inheritance process based on the assumption that wealth is passed first to a surviving spouse and then upon the death of that spouse (if no remarriage occurs in the interim) is passed to the generation containing the decedent's children. The inheriting cohort is based on the average age difference between mother and child (Appendix Table 3) for female decedents. For male decedents, we incorporate the average age difference between husband and wife (Appendix Table 4)⁹. We cannot know the number or age of children born to a household once they have left that household. Thus in contrast to some other prior research we do not examine the division among these children but simply pass the wealth to the cohort in which the children are most likely to be found. All households in a cohort are treated identically regarding the age and existence of children.¹⁰

Average household wealth is recalculated for each cohort at year's end by adding up the total wealth of each of the three household types (two person, single male, and single female) and then dividing by a household count determined by the number of households at the beginning of the year minus the number of households lost via death. Each year the household counts are realigned to meet Census figures.

The simulation of growth in overall mean wealth in Table 5 is much simpler because bequests are not included. Mean savings rate and annual income are computed from a weighted average over age cohorts. For each period, weights are based on the average proportion of total households at the beginning and end of the period.

⁸ The household count for the highest age group "80 and over" is treated somewhat differently since official statistics do not include a count for those over 99 years of age. A simulated count is maintained and to keep the total number of households the same as in the published data, the number of households with heads between age 80 and age 99 is proportionately reduced each year.

⁹ The earliest figures available for age of mother at birth are for those mothers born in 1891. For those in the analysis who were born earlier the figure for 1891 was used.

¹⁰ For two-parent households, no bequests occur because at the time of the husband (or wife's) death there is only an intra-cohort transfer of wealth to the surviving spouse. For single households, wealth is bequeathed to a child if the household head is old enough to have a child twenty years of age or older. If they are not, wealth stays within the cohort on the assumption that it is bequeathed to a sibling of roughly the same age. Different types of bequests occur simultaneously.

The simulations are run in two "sweeps": 1962–1973 and 1962–1983. For the latter, there is no break in 1973.

VI. Simulation results

Growth in aggregate household wealth

If the household sector were completely closed, there would be only two components in the accumulation of total household wealth: savings and the appreciation in value of existing wealth. Bequests and inheritances would net out to zero for the sector as a whole. Growth in mean household wealth would also depend on the increase in the number of households over time.

Our simulations of total household wealth yield mean estimates slightly above the actual mean (see Table 5). We hypothesize that the discrepancy is due to wealth transfers from the households sector to the government and non-profit sectors which are not accounted for in our model. The former occurs whenever estate or probate taxes are paid or when estates without heirs occur. Transfers to the non-profit sector are primarily made up of gifts and grants.

We find that most of the increase in household wealth is made up of capital gains rather than savings from income, despite the fact that our model *understates* capital appreciation. For the 1962–1983 period, savings account for 16% of the average growth in household wealth, capital gains on initial wealth for 77%, and capital gains on savings for 7%. This basic pattern holds for both subperiods. Capital gains for outweigh savings in importance regardless of whether the gains on saving are treated as saving or as capital appreciation. Peek (1986) also found that capital gains were more important than saving over the period 1951–1985. He estimated that for the entire period the ratio of the absolute value of capital gains to an expanded concept of saving including consumer durables was 1.32.

Wealth accumulation by age cohort

Actual wealth is far greater than simulated wealth for younger cohorts, while the reverse is true for older cohorts, as Table 6 (Panel A) shows. This is true across both subperiods. With a few exceptions, the ratio of simulated to actual wealth increases directly with age. When the ratios by age are normalized so that the overall ratio is unity, mean wealth is underestimated for cohorts below 50 and overestimated for those above 50. A variety of factors may explain this pattern but we believe that the presence of inter vivos transfers from older age groups to children and grandchildren may be the most important. These were not included in the simulation model because there is insufficient information on these transfers at the microeconomic level to warrant even hypothesizing about them. Anecdotal evidence suggests that they are increasingly important in the modern United States, so that their omission would leave a large residual between simulated and actual wealth in exactly the direction which we have found.

One simple experiment might indicate why it is hard to account for the wealth of the younger age cohorts by savings (and the capital gains on these savings) alone. In 1983, the average wealth of age cohort 35–39 was \$90200. The accumulated income of this age group (from the time that they were age 20 and onward) was \$332000. If this group experienced the average rate of return on their

household portfolio, then their annual savings rate would have to be 21% for them to have achieved an average wealth of \$ 90200 in 1983, in contrast to a CES-based savings rate of about 1%. A savings rate of 11% would have resulted in an average wealth of only its actual value. Thus, it appears clear that a substantial portion of their wealth must have come from transfer.

Other factors which may contribute to the difference include (1) age-related bias in the CES saving rates, (2) other measurement errors systematically correlated with age and (3) generation-skipping in the bequest process. First, since the CES calculation of savings excludes housing expenditures, younger families reported savings will be understated relative to the actual rate including housing purchases. Older families whose total savings reflect a higher proportion of financial savings relative to real estate will have less bias in their savings rate. Second, if rates of return differ by age group (younger families buy riskier assets which happen to yield higher return during the period in question) and we use the economy wide rate of return across all age cohorts, we would understate the expected growth in wealth of the young in our simulation.

Third, our bequest process results in inheritances going to the cohort most likely to include the decedents' children. When grandchildren inherit, this will raise the actual wealth of their cohort above simulated wealth (it should result in a corresponding decrease in actual relative to simulated wealth for the parental cohort, which does not seem to be observed here, however). We considered two other sources of bias which we think are unlikely to be important. Since marriage can increase the mean wealth of resulting households while divorce decreases it, marriage between the young and divorce of the middle-aged (without remarriage) could affect such estimates. However, experimentation with different marriage and divorce rates in our simulation failed to explain much of the discrepancy. Lastly, if younger households were more active investors, they could be adjusting their portfolios to changing asset yields more quickly than older households. In fact, they appear to be more locked into owner-occupied housing with less possibility of responding to changing asset yields.¹¹

In defense of our estimates, it should be stressed that for the 1962–1983 simulation, our estimated 1983 mean household wealth differed by *only 7%* from the actual figure (see Table 5). Indeed, we *overestimated* actual wealth by this amount. Thus, unless our rate of return estimates are severely deficient, our age-specific savings figures are unlikely to be too far off the mark (despite the various criticisms of savings estimates based on the CES data).¹²

¹¹ On the other hand, the inverse correlation between wealth and mortality rates will bias downward our simulated estimate of the wealth of older households. If the wealthy live longer, then the mean wealth bequeathed is higher in our simulations than in actuality.

¹² Simulated wealth is 22 to 27% above actual wealth for mid-1973, a larger margin of error than the simulation ending in 1983 shows. This is probably due, in part, to the fact that 1973 was a very volatile year in the United States stock and real estate markets. Over the course of 1973, the total value of corporate stock fell by 24% and the total value of real estate fell by 17%. Since corporate stock and real estate represent a substantial part of total household wealth, changes in their valuation have a significant effect on total wealth values.

We use here the average of 1972 end-of-year and 1973 end-of-year household balance sheet wealth totals to get a "mid-year" estimate for 1973. This is more appropriate than the year end value because a great portion of the microdata estimates were derived from flow data on income tax returns. The actual timing of when household took the gains, losses, or income reported on their year-end income tax return is not available. Thus, it is not surprising that in a year of rapidly changing wealth values, our simulation results are somewhat off the mark.

We conclude that inter vivos transfers are accounting for a substantial part of the difference between actual and simulated wealth. The youngest cohorts (those under 40 in 1983) can trace up to 85% of their wealth from such transfers. Those cohorts between 40 and 49 may trace more than half. We estimate that cohorts aged 50–64 in 1983 have given away as much as 20% of their wealth, those 70–74 about 40% and those 75 and over had bequeathed half their net worth in advance of death in such transfers.

Our results strongly suggest that several cohorts failed to make such transfers. In 1973 the cohort aged 70–74 showed simulated mean wealth close to actual. This is the same group whose age-wealth profile displayed an unusual dip in 1962 (ages 60–64). In 1983, the peak wealth cohort (ages 65–69) shows actual wealth *greater* than simulated wealth. In fact, its wealth is 2.4 times greater than average wealth, a peak much greater than that of 1962 or 1973. Both of these groups experienced the Great Depression of the 1930's during their working lives and probably suffered through a decade of unusually low earnings at that time. Perhaps this experience of economic deprivation resulted in more stingy behavior toward their children than they experienced from their parents – in any case more wealth must have been given to this group than to its successors through lifetime transfers.

Panels B and C of Table 6 shows the sources of growth in simulated wealth by age cohort. In both the 1962–1973 (not shown) and the 1962–1983 simulations (Panel B), savings as a proportion of simulated cohort wealth is highest for age groups 40 to 74, where it accounted for around a quarter of total wealth accumulation. For older age groups the proportion is lower, between 13% and 19% in the two simulations.

Younger age groups show a lower proportion due to savings also, but there are important differences between the two simulations (see Panel C). In the first, savings are negative for the 1944–1953 birth cohort (20–29) in 1973), but average almost 15% of total growth in wealth for the 1934–1943 birth cohort (30–39). However, the simulation ending in 1983 shows savings *still* negative for the 1944–1953 birth cohort, in spite of the fact that they have reached their thirties. The new cohort of those in their twenties shows zero savings, rather than the negative in 1973 of the 1944–1953 birth cohort. Negative savings appear to be a cohort effect (defect!) characterizing the first half of the baby boom generation.

Inheritances. Despite the fact that most bequests go to households in their fifties and sixties (due to the longevity of their parents¹³) inheritances account for a much higher *share* of simulated mean wealth for younger age groups than older ones (Panel B). The ratio of inheritance to total wealth declines almost monotonically with age in both simulations.

Capital gains. Appreciation of assets as a source of wealth growth is more important for older age cohorts than younger ones (Panel B). In fact, capital gains as a proportion of the growth in net worth rises almost monotonically from 5% for the youngest cohort to 85% or more for the oldest in both simulations. Most capital gains are on existing wealth, but appreciation of inherited wealth is impor-

¹³ For males life expectancy rose from 66.8 years in 1962 to 67.6 in 1973 and 71.0 in 1983. For females, the corresponding figures are 73.4, 75.3 and 78.1.

tant for younger cohorts, particularly in the 1962–1973 simulation. Capital gains on period savings are relatively unimportant for any age group. These conclusions proved robust when subject to a variety of alternative assumptions about rates of return on assets.

VII. Concluding remarks

Several important implications can be drawn from this analysis. Underlying economic, demographic, and social factors seem to have as much to do with patterns of wealth accumulation as do saving for retirement or bequests. Modigliani and Kotlikoff disagree on the relative importance of life-cycle savings versus intergenerational transfers in household wealth accumulation (see Kessler and Masson 1989 for a good summary as well as Kotlikoff and Summers 1981; Modigliani 1988; Kotlikoff 1988; Blinder 1988; Wolff 1988). While Modigliani argued that intergenerational transfers account for only 20% of household wealth, Kotlikoff puts the figure closer to 80%. Our results indicate that inheritance alone contributed 32% of the overall growth in wealth over the two decades. Inter vivos transfers appear to be over half of the wealth of cohorts under 50 in 1983 although they net out to zero for the household sector as a whole in our analysis. If we assume that age cohorts 50 and over received the same percentage of their wealth at age 50 from intergenerational transfers as those under 50, then we estimate that 65% of the growth in household wealth between 1962 and 1983 was accounted for by intergenerational transfers.

We conclude with some caveats. Although the distribution of wealth tends to be very stable when measured over long periods of time, year to year fluctuations in the value of total wealth (“booms and busts” in the value of stocks, farm land, oil wells, and real estate) can be substantial. Hence, one is always in danger when drawing conclusions about point to point changes using arbitrarily chosen points in time. If our first period had ended in 1972 (rather than 1973), prior to the stock market decline, changes in wealth would have diverged from what we show here. Similarly, if we were able to measure wealth changes between 1973 and 1979 or 1980 we would undoubtedly get smaller real wealth changes. Timing is extremely critical when measuring wealth because of the year to year fluctuations, yet because of the infrequent collection of any sort of comprehensive wealth data at the national level we are restricted to the time periods used here. In drawing conclusions from our results we must be aware of these limitations. In 1989, the Federal Reserve Board sponsored another comprehensive wealth study, and its results will provide a valuable addition to the three studies on which we have drawn.

In addition, portfolio effects include passive and active responses. A household may have a greater share of wealth in real estate in the second period than the first because the value of its real estate rose at a more rapid rate than the value of other assets or because it shifted resources toward that asset. Households whose portfolios are oriented toward the assets which experience substantial capital gains and/or produce higher income flows will experience more rapid wealth accumulation *ceteris paribus* than those whose assets are concentrated in slow growth areas. We expect that our simulation model understates the appreciation component in wealth accumulation, because it does not capture the active portfolio effect. In spite of this understatement, capital gains are the most important contributor to growth in real wealth.

Appendix

Table 1. Correspondence between age cohorts and birth cohorts by year^a

Birth cohort	1962 Age class	1973 Age class	1983 Age class
Before 1884	80 and over	} 80 and over	} 80 and over
1884-88	75-79		
1889-93	70-74		
1894-98	65-69		
1899-1903	60-64	75-79	} 75-79
1904-08	55-59	65-69	
1909-13	50-54	60-64	70-74
1914-18	45-49	55-59	65-69
1919-23	40-44	50-54	60-64
1924-28	35-39	45-49	55-59
1929-33	30-34	40-44	50-54
1934-38	25-29	35-39	45-49
1939-43	20-24	30-34	40-44
1944-48		25-29	35-39
1949-53		20-24	30-34
1954-58			25-29
1959-63			20-24

^aNote that the correspondence is not exact, because there is a 10.5-year time gap between the 1962 and 1973 samples and between the 1973 and 1983 samples. Birth cohort years have been standardized to the 1973 age cohorts.

Table 2. Household counts and sample sizes^a

	Sample sizes			Household count (1000s)		
	1962	1973	1983	1962	1973	1983
All	2556	45030	4088	57926	70230	83914
20-24	87	4772	290	2763	5387	6724
25-29	163	4433	438	4547	7631	9723
30-34	199	3649	419	5457	6897	9221
35-39	236	3919	397	5528	5722	8655
40-44	286	4164	379	6480	6122	7726
45-49	304	4203	338	6608	6402	6750
50-54	296	3789	340	5255	6646	6351
55-59	314	3532	331	5384	5935	6344
60-64	242	3180	341	5019	5394	6286
65-69	185	2674	297	3804	4907	5589
70-74	130	1873	229	3297	3943	4568
75-79	66	1580	155	2178	2820	3203
80 and over	48	1232	134	1606	2424	2774

^aSources: 1962 - Survey of Financial Characteristics of Consumers; 1973 - Tax-Census Merge File (Greenwood 1983); 1983 - Survey of Consumer Finances.

Table 3. Average age of mother at birth by birth cohort, 1891–1970^a

Birth cohort of mother	Average age at birth
1891–95	27.0
1896–1900	27.0
1901–05	26.9
1906–10	27.2
1911–15	27.5
1916–20	27.6
1921–25	27.2
1926–30	26.4
1931–35	25.2
1936–40	24.4
1941–45	24.3
1946–50	24.8
1951–55	25.0
1956–60	24.7
1961–65	23.9
1966–70	24.0

^aSources on “Birth rate by age of mother (live births per 1000 women in specified groups.)” 1940–1959: U.S. Bureau of the Census, *Historical Statistics of the United States, Colonial Times to 1970, Bicentennial Edition, Part 2*, (Washington, DC), 1975, Series B11–19. 1960–83: U.S. Bureau of the Census, *Statistical Abstract of the United States, 1988*, Table No. 83. Computations for birth cohorts 1920–45 are based on complete data; those based on other years are computed on the basis of partial data and imputations based on results for birth cohorts 1920–45. It should be noted that the table does *not* show average age of mother at *first* birth.

Table 4. Average age difference between husband and wife, 1973 and 1983^a

Age of husband	1973	1983
Under 25	–0.70	–1.21
25–34	1.60	0.99
35–44	2.78	2.92
45–54	3.14	3.50
55–59	4.36	4.14
60–61	4.51	3.83
62–64	4.28	4.03
65–69	4.83	4.04
70–74	5.16	4.65
75 and over	5.75	5.26

^aSources: U.S. Bureau of the Census, *Current Population Reports*, Series P-20, No. 258, Table 18, p. 90, December, 1973, “Married couples by age of husband, by age of wife: March, 1973”; U.S. Bureau of the Census, *Current Population Reports*, Series P-20, No. 388, Table 17, p. 167, May, 1984, “Married couples by age of husband, by age of wife: March, 1983”.

Table 5. Death rates per 100000 by 5-year age groups and sex, 1962–83^a

	1962		1973		1983	
	Male	Female	Male	Female	Male	Female
20–24 years	180	70	223	72	163	55
25–29 years	170	90	207	81	168	62
30–34 years	200	120	223	110	182	76
35–39 years	290	180	305	169	221	110
40–44 years	450	270	454	261	321	176
45–49 years	740	420	733	404	527	294
50–54 years	1230	630	1103	582	864	477
55–59 years	1830	910	1779	890	1381	733
60–64 years	2790	1450	2696	1287	2102	1128
65–69 years	4250	2260	3934	1902	3166	1667
70–74 years	5830	3540	5872	3156	4845	2604
75–79 years	8440	5840	8814	5339	7257	4076
80–84 years	12770	10020	12240	8343	10898	6941
85 and over	21900	19630	19809	16234	17977	14011

^aSources: U.S. Department of Health and Human Services, Public Health Service, *Vital Statistics of the United States*, Volume II – Mortality, Part A, (National Center for Health Statistics, Hyattsville, MD), 1987, Tables 1–4, 1–8.

Table 6. Households by type, 1962–83^a (in thousands)

	Total	Couples	Singles	
			Male head	Female head
<i>A. 1962</i>				
Total	54652	40339	4192	10121
Under 20	64	19	33	12
20–24	223	144	22	27
25–29	2616	2086	175	355
30–34	4340	3648	258	434
35–39	5424	4618	256	550
40–44	11778	9890	619	1269
45–54	10884	8466	740	1678
55–64	9038	6166	795	2077
65–74	6946	3919	773	2254
75 and over	3339	1383	521	1435
<i>B. 1973</i>				
Total	68251	46297	6561	15393
Under 25	5476	3448	836	1192
25–29	7116	5319	771	1026
30–34	6447	5068	460	919
35–44	11721	9177	858	1686
45–54	12805	9706	1003	2096
55–64	11212	7481	998	2733
65–74	8369	4291	892	3186
75 and over	5104	1808	744	2552

Table 6 (continued)

	Total	Couples	Singles	
			Male head	Female head
<i>C. 1983</i>				
Total	83918	49908	11530	22480
Under 20	404	107	124	172
20–24	5291	2323	1309	1660
25–29	9465	5202	1989	2274
30–34	9639	6235	1474	1931
35–39	8759	5865	1158	1737
40–44	7261	5027	844	1391
45–54	12354	8608	1305	2441
55–64	13074	8602	1286	3185
65–74	10603	5467	1130	4006
75 and over	7067	2471	911	3685

^a*Sources:* U.S. Bureau of Census, *Current Population Reports*, Series P-20, No 122, Table 5, p. 14, March, 1973, "Households by type and age of head, March 1962"; U.S. Bureau of the Census, *Current Population Reports*, Series P-20, No. 258, Table 20, p. 93, December, 1973, "Households by type and age of head, March 1973"; U.S. Bureau of the Census, *Current Population Reports*, Series P-20, No. 388, Table 22, p. 202, May, 1984, "Households by type and age of head, March 1983".

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