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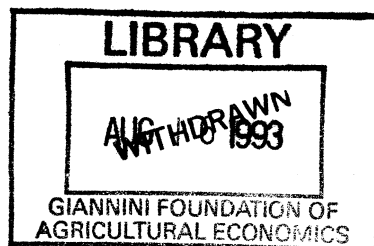
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Tax Progressivity and Household Portfolios: Descriptive Evidence from the Surveys of Consumer Finances

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Tax Progressivity and Household Portfolios:
Descriptive Evidence from the Surveys of Consumer Finances[*]

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If you drive a car, I'll tax the street
If you try to sit, I'll tax your seat
If it gets too cold, I'll tax the heat
If you take a walk, I'll tax your feet

George Harrison, "Taxman"

I. Introduction

The 1980s were the tax decade. The 1981 Economic Recovery Tax Act lowered the top marginal individual income tax rate to 50% from 70%, lowered all marginal income tax rates by an average of 23% over a three year period, and implemented numerous tax preferences for individuals and corporations that were designed to stimulate saving and investment. Less sweeping changes to the income tax code were made in 1982 and 1984. The Tax Reform Act of 1986 (TRA86) again lowered rates substantially. The marginal tax rate on the highest income households fell to 28% from 50%, while the top corporate rate was reduced to 34% from 46%. At the same time that marginal tax rates were reduced, both the individual and corporate tax bases were broadened. On the individual side, for example, TRA86 eliminated the deduction for State and local sales taxes, eliminated the exclusion for realized capital gains, and restricted eligibility for tax-deductible Individual Retirement Account contributions. For corporations the investment tax credit was eliminated, the corporate alternative minimum tax was stiffened, and depreciation schedules were lengthened.

The striking reduction in statutory tax rates in the 1980s does not necessarily imply that the tax system has become less progressive. Prior to the rate reductions in the 1980s, wealthy households had a strong incentive to restructure their economic affairs to mitigate the effects of high tax rates by investing, for example, in tax-preferred assets. Moreover, the base broadening in TRA86 increases tax burdens of higher income households who make disproportionately heavy use of tax shelters and other tax preferences. To understand the relationship between the progressivity of tax burdens and the progression of statutory rates, one needs to know the degree to which wealthy households manipulate their portfolios to reduce or eliminate taxes.

(a) Do taxes affect portfolio choice?

After the Federal income tax was introduced in 1913 the early literature on progressivity and portfolio choice focussed on tax-exempt bonds. Adams (1922), for example, raised the concern that while the U.S. enjoyed unprecedented growth after the first world war, reported taxable incomes decreased because "the richest people hold all government tax-exempt securities," which he felt undermined the progressivity of the tax system.

The first comprehensive empirical study of the effects of taxes on the portfolio choice of individuals was Butters, Thompson, and Bollinger (1953), who used a survey taken in 1949 to examine the effects of tax rate increases in the 1940s.[1] The authors interviewed a nonrandom sample of 746 "active" investors, defined as individuals who were in contact with security brokers and dealers at least once in the three years preceding the interview, and asked whether and how they adjusted their portfolios in response to taxes. The percentage of those investors who claimed their portfolio decisions were affected by Federal taxes varied positively with income, increasing from 22% for the lowest income class to 93% for the highest. For the top 5% of the income distribution, who in 1949 held approximately 55% of all assets, 60% reported that taxes affected their portfolio choices. The most frequently mentioned effects were on the choice of assets owned, the timing of investments, and the distribution of property ownership among family members and the use of trusts.

Feldstein (1976) used the 1962 Survey of Financial Characteristics of Consumers to estimate portfolio share equations that control for net worth, age, sex, and the ratio of human to non-human capital, along with a constructed measure of taxes that is based on labor income and portfolio wealth. He concluded that "the personal income tax has a very powerful effect on individuals' demands for portfolio assets."

Subsequent work (King and Leape, 1984, 1986, and Hubbard, 1985) adopted a two-step approach to

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[1]The top marginal tax rate rose from 79% on taxable incomes over $5,000,000 in 1939, to 91% (with a maximum effective rate of 87%) on taxable income over $400,000 in 1950.

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examining the factors that influence portfolio composition. This approach accounts for the fact that not all households hold every asset or liability, and allows for the possibility that the factors that affect the decision to hold a given asset differ from the factors that affect the decision about the amount to be held. These studies generally find that taxes are significantly correlated with the decision to hold particular assets and liabilities, but they are generally insignificantly correlated with the level of demand for the asset or liability, given it is held. This finding led King and Leape (1984) to conclude "... contrary to much of the recent literature, taxes do not play a decisive role in explaining the differences in portfolio composition across households." Similar results were found by King and Leape (1987), who looked at portfolio composition over the life cycle, Dicks-Mireaux and King (1982), who looked at the effects of pension wealth on portfolio composition, and Ioannides (1990), who looked at dynamic aspects of portfolio choice using data from the 1983 and 1986 Surveys of Consumer Finances.

Evidence from related literatures suggests that most taxpayers do not aggressively exploit provisions of the tax code to reduce or eliminate capital income taxes. Constantinides (1983, 1984) and Stiglitz (1983) describe portfolio strategies that can, in theory, reduce or even eliminate capital gains taxes. The elements of these strategies include: defer gains; realize losses to offset ordinary income or realized gains; borrow to generate interest deductions and purchase assets yielding capital gains; and buy and sell highly correlated securities, realizing the portion that yields a loss. Poterba (1987) and Seyhun and Skinner (1991) examine tax return data and conclude that there is little evidence that investors actually follow these dynamic, tax-optimal trading strategies. Miller and Scholes (1978) discuss ways in which the investment-interest limitation of Internal Revenue Code Section 163(d), along with tax-deferred investments, can be used to eliminate taxes on dividends. Feenberg (1981) and Chaplinsky and Seyhun (1990) examine tax return data and find that most investors do not fully use such tax reduction strategies.

It is not surprising that factors other than taxes affect portfolio and investment decisions. Many tax reduction strategies, particularly of the type described by Constantinides and Stiglitz, involve frequent buying and selling of securities. These transactions are costly, which limits their adoption. It is also

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expensive to gather information about investment opportunities and the often arcane associated tax rules. In addition, concerns about liquidity and risk undoubtedly affect portfolio decisions.

While there is little systematic evidence since Feldstein (1976) that taxes have a strong influence on portfolio composition, previous studies have faced three major problems: few data sources contain detailed information on household balance sheets; prior to the 1980s, statutory marginal tax rates changed infrequently and by relatively small amounts; and investment decisions are affected by a host of non-tax factors that make it difficult to empirically isolate the role of taxes. The 1983 and 1989 Surveys of Consumer Finances, developed by the Board of Governors of the Federal Reserve System in conjunction with other Federal and Congressional agencies, contain unusually detailed household balance sheet data that span the 1986 tax reform, which largely addresses the first two concerns. I adopt a particularly simple descriptive approach to address the third concern. Namely, I see whether household portfolios change in a manner that is consistent with what would be expected following TRA86 if taxes are an important determinant of portfolio composition.[2] Before discussing these changes, I briefly turn to two other issues.

(b) Portfolio composition and the measurement of tax progressivity

Tax progressivity is most commonly measured by comparing the ratio of taxes paid to a broadly defined measure of income for households in different income classes. When statutory marginal tax rates are very high, upper income taxpayers may expend considerable resources to reduce their tax liabilities by investing in tax-preferred assets such as municipal bonds and tax shelters. Wealthy taxpayers may also benefit from high marginal tax rates by deducting the interest expense of borrowing, so long as the after-tax cost of borrowing is less than the after-tax return on investment. If portfolio responses are widespread, measured progressivity may be substantially lower than that implied by the progression of statutory tax rates.

At the same time, measured progressivity may be substantially higher than that implied by average

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[2]While this approach does not "isolate" the effect of taxes on portfolio choice, assessing data quality and providing a broad set of stylized facts about portfolio changes in the 1980s is a prerequisite to a more structured analysis of portfolio choice and the 1986 tax reform.

tax rates because "implicit" taxes are often borne when households adjust their portfolios to minimize taxes (see, for example, Scholes and Wolfson, 1992, chapter 5). Returns on municipal bonds, for example, are exempt from taxation. This tax exemption increases their attractiveness relative to fully taxed instruments, which implies, in equilibrium, that their before-tax returns are lower than those on equally risky fully taxed assets. This lower before-tax return is referred to as an implicit tax.[3]

Considering implicit taxes may alter measures of tax progressivity. Galper, Lucke, and Toder (1988) simulated the effects of the 1986 tax reform using a numerical general equilibrium model that incorporates endogenous portfolio responses to tax changes. In a simulation with no portfolio responses, households with incomes exceeding $100,000 received a tax reduction of $16.6 billion (or roughly 5.2% of income) as a consequence of TRA86. When portfolio responses were incorporated this tax reduction fell to $2.1 billion. High-income households in this simulation pay the Government an additional $14.5 billion after adjusting portfolios because, with lower marginal tax rates, the benefits of holding more heavily taxed assets that have higher pre-tax returns and lower implicit taxes outweighs the burden of increased tax payments. The additional tax payments by high income households in the simulation will increase measured progressivity. At the same time, bearing fewer implicit taxes increases reported income, which lowers average tax burdens. In principal the net effect of these changes for standard measures of progressivity, which do not incorporate implicit taxes, is ambiguous.

With the descriptive approach taken in this paper it is impossible to identify the counterfactual equilibrium against which implicit taxes and portfolio responses are to be measured. However, if it is assumed that lightly-taxed assets and assets and liabilities commonly used in tax shelters are associated with higher implicit taxes, the descriptive data below can be helpful in making a qualitative assessment of the effect portfolio changes surrounding TRA86 had on implicit taxes and tax progressivity.

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[3]Poterba (1989) calculates the magnitude of implicit taxes for municipal bonds of different maturities over time.

(c) Taxes and the allocation of risk

Economists have long been concerned about the effects of taxation on risk-taking. Domar and Musgrave (1944) showed that a proportional income tax with full loss offset could increase household risk-taking. Subsequent work by Stiglitz (1969) and others showed that with more realistic features of the tax system, such as incomplete loss offsets, and combinations of assets with varying riskiness, the theoretical effect of the individual income tax on risk-taking is ambiguous.[4] Using their general equilibrium simulation model, Galper, Lucke, and Toder (1988) suggest that as much as 85% of the substantial welfare gain enjoyed by upper income households from the 1986 tax reform would come from changes in the riskiness of households' portfolios. They argue that the pre-TRA86 tax system encouraged high-income households to invest in riskier assets. The rate reduction in TRA86 allowed households to reduce portfolio risk, which lead to welfare gains that more than offset the effect of any reduction in after-tax incomes received by households.

To the extent that interest deductibility of debt causes households to carry more debt, or that progression in statutory tax rates causes households to restructure portfolios to lower tax burdens, the tax system may inefficiently alter the riskiness of households' portfolios. Given data on household balance sheets, however, it is difficult to assess this possibility because I know neither the specific securities that compose households' portfolios nor the risk associated with households' pensions.

II. Data

The 1983 Survey of Consumer Finances contains interviews from a sample of 3,824 U.S. households selected by multistage area-probability sampling methods, along with a supplemental sample of 438 high-income households. In 1986, 2,822 of these households were reinterviewed through a less detailed telephone survey. In 1989, 2,277 households were selected by standard sampling methods, along with a

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[4]Through the tax system the Government becomes a "partner" in risky investments. By sharing part of the downside risk the tax system may encourage risk-taking. By reducing the return to successful ventures the tax system may discourage risk-taking. Assessments of the effects of taxes on risk-taking are complicated further by the interaction of inflation and the partially indexed tax system.

supplemental sample of 866 high-income households.[5] At this time, the publicly available 1989 data do not

maintain any common household links with the 1983-86 panel.[6] The SCFs are designed specifically to

collect data on household balance sheets, though they also contain detailed information on demographic

characteristics, income, and other variables. Because I want to focus on portfolio changes surrounding

TRA86, the analysis focuses on the 1983 and 1989 surveys.

Juster and Kuester (1991) argue that just as the CPS is used as the "standard of comparison" for

demographic statistics because it is the benchmark household survey in the U.S., the 1983 SCF is the

standard of comparison for financial characteristics. They compare data from the SCF with the National

Longitudinal Survey of Mature Men (NLS-MM) and the Retirement History Survey (RHS) and find that

both the NLS-MM and RHS appear to underrepresent both tails of the wealth and income distributions.

Curtin, Juster, and Morgan (1989) conclude that the 1983 SCF wealth data appear to be somewhat more

accurate than similar data from the Panel Study of Income Dynamics and the Survey of Income and

Program Participation.

Avery, Elliehausen, and Kennickell (1988) provide a detailed comparison of the 1983 SCF and the

Household Sector Flow of Funds Accounts (FoFs) and a good discussion of the many pitfalls that arise

when comparing household surveys with the Flow of Funds. In Table 1 I replicate and extend the Avery,

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[5]See Avery and Elliehausen (1988) for additional details about the 1983 SCF and Kennickell (1992) for additional details about the 1989 SCF. Using the 1983 SCF, Avery, Elliehausen, Canner, and Gustafson (1984a, 1984b) present tabulations of asset and liability distributions and Avery and Elliehausen (1986) describe characteristics of high-income households. Avery, Elliehausen, and Kennickell (1987) discuss the burden of installment debt using the 1983-86 SCF panel. Kennickell and Shack-Marquez (1992) present data on asset and liability holdings from the 1983 and 1989 SCFs.

[6]The 1989 SCF was designed to have a panel component, but as of now, the households followed from the 1983-86 panel have not been identified in the publicly available data. Data have been blurred in the 1989 SCF, particularly for 300 selected households, to minimize the possibility of identifying survey respondents. Steps were taken when blurring data to preserve key population statistics. See Kennickell (1992) for further details.

Elliehausen, and Kennickell (1988) analysis using the 1983 and 1989 SCFs and FoFs.[7] There is a wide

discrepancy between the SCF and FoF savings account totals (row 2 of Table 1). Curtin, Juster, and

Morgan (1989) suggest that the discrepancy may arise because of difficulties in the FoF of distinguishing

household from business holdings of liquid assets. While the reported levels of saving accounts are much

lower in the SCFs than in the FoFs, the percentage changes in the asset balances between 1983 and 1989

are similar.

Large discrepancies appear in the SCF and FoFs growth rates for some assets and liabilities. The

growth rate in aggregate bonds holdings (the sum of rows 4-7) in the FoFs is 131% between 1983 and

1989. The comparable SCF growth rate is 55%. The discrepancy between the SCF and FoFs is even

more striking for equity. The FoF household sector account indicates that equity holdings increased by 86

percent while personal holdings as reported in the SCF grew only 3%.[8]

Some of the difference between the SCF and FoF totals may be due to differences in the populations

covered by the two data sources. The FoF household sector figures include charitable and other nonprofit

organizations and personal trusts and estates, as well as households, while the SCFs include only

households. Avery, Elliehausen, and Kennickell (1988) make use of unpublished Federal Reserve

worksheets to present both the published FoF aggregates and the household sector aggregates less the

amounts held by nonprofit organizations and personal trusts and estates in 1983. The differences range

from 27% for aggregate bond holdings to 0% for money market mutual funds, insurance reserves, owner

occupied real estate, and mortgages. If nonprofit organizations and personal trusts and estates became

relatively more important from 1983 to 1989, growth rates in the FoFs would be larger than those found

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[7]The 1983 SCF figures are quite close to the totals reported in Avery, Elliehausen, and Kennickell
(1988). The largest discrepancies occur for money market mutual funds (12%), insurance reserves (-20%),
and mutual funds (-14%) — the deviation from Table 1 and the previously reported figures are given in
parentheses. The first two discrepancies appear to be due to differences in the way IRAs and Keoghs are
allocated between categories.

[8]The data reported in Kennickell and Woodburn (1992) and Kennickell and Shack-Marquez (1992) are
also consistent with a large discrepancy between the SCF and FoF for stocks and bonds.

when comparing the 1983 and 1989 SCFs. This might have occurred, for example, if individual investors withdrew from the equity market following the October 1987 stock market crash, while nonprofits and personal trusts and estates did not. Further research is needed to resolve the discrepancies in Table 1. Until such research is completed, the differences should serve as an important caveat to studies making use of the 1989 SCF.

Table 2 provides information on the detailed categories of assets and liabilities found in the SCFs. Checking accounts, homes, and saving accounts are the most prevalent assets, while housing, businesses, other property, and equity are, in aggregate, the largest. It is clear from a comparison of conditional means and medians that the ownership distribution of some assets is highly skewed. Among the most striking examples are equity, trusts, and tax-exempt bonds. In general, there are few dramatic changes in the asset amounts between 1983 and 1989. The largest percentage increase occurred in individual retirement accounts (IRAs) and Keogh accounts, which is consistent with figures presented in Gale and Scholz (1992) showing that contributions to IRA accounts equalled 18% of personal saving between 1982-1986 and tax-deductible contributions equalled 10% of personal saving in 1987.

The summary statistics on liabilities show a large amount of variation. One of the major changes of TRA86 was a restriction on the deductibility of debt not secured by property. The data in Table 2, however, show that debt for automobiles and credit cards, which lost favorable tax treatment, still increased substantially. At the same time, there appeared to be a shift away from nondeductible general lines of credit into deductible home equity lines of credit. These patterns are examined in more detail below.

The typical household in the United States has very little wealth. The median level of financial assets in 1983 was less than $2,500, generally split between a checking account and perhaps saving accounts, CDs, or saving bonds.[9] Median net worth in 1983 was $34,260 where housing is by far the

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[9]Kane (1986) examines wealth data from 1962, 1970, and 1977 and discusses how transactions costs, minimum denomination requirements, and difficulties in arranging credit inhibit low-wealth households from holding stocks, bonds, and investment real estate.

largest non-financial asset.[10] To examine more varied portfolios, the data must have an adequate

representation of high-income households. The SCFs are potentially useful in this respect because they

oversample wealthy households.

Figure 1 shows cumulative distributions for the ownership of selected assets held disproportionately

by lower income households, by income percentile in 1983 and 1989. Households in the bottom 60% of

the income distribution have roughly 21% of net worth (the solid bar), but hold roughly 37% of the

certificates of deposit in 1983 and 1989. To a lesser extent, these households also hold a disproportionate

share of checking accounts, saving accounts, and saving bonds. These assets are liquid and safe, but

receive no special tax preferences.[11]

Figure 2 shows similar distributions for assets held disproportionately by higher income households.

Households in the top 5% of the income distribution hold roughly 40% of net worth. They hold

disproportionate shares of taxable bonds (60%), trust balances (65%), equity (67%), and tax-exempt bonds

(78%), where the average 1983 and 1989 share is given in parentheses. Equity and tax-exempt bonds are

tax-preferred. Trusts, too, are often established as part of estate tax planning for high-income households

(Scholes and Wolfson, 1992, chapter 27).

III. Do Taxes Affect Portfolio Decisions?

If taxes significantly affect household portfolios, two patterns should be apparent in the data. Within

the cross-section, the composition of portfolios should be systematically related to the tax rates facing the

household. For example, high marginal tax rate households should be more likely to hold tax-exempt

bonds. Over time, portfolios should also vary in a manner consistent with the dramatic tax changes in the

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[10]In 1989 the median level of financial assets was $3,900 while net worth was $39,610. Financial assets include checking accounts, money market accounts, saving accounts, IRAs, Keoghs, CDs, saving bonds, other bonds, equity, mutual funds, and trusts. Net worth includes financial assets, property, and businesses, less all liabilities. Pension assets are not included in these or any other tabulations in the paper.

[11]Appendix Tables 1a and 1b give cumulative distributions for assets and liabilities listed in Table 2 by income percentile and exogenous tax rate.

1980s. For example, we should expect to see a shift away from forms of credit whose deductibility was limited by TRA86. In the following sections I highlight the tax treatment and tax changes most relevant to a given asset and liability category and then present data on assets and liabilities by incomes and tax rates within the cross-section and across time.

(a) Overview on assets, liabilities, and marginal tax rates

Two households with identical wealth and labor income may have different tax rates depending on the composition of the households' portfolios. In this sense, tax rates are affected by portfolio composition. To account for this potential source of endogeneity, I constructed an exogenous marginal tax rate measure for 1983 and 1989 by first calculating modified adjusted gross income, defined as the sum of labor and capital income assuming capital income comes from investing the household's entire net worth in fully taxable Aaa corporate bonds. Exemptions and filing status are then determined by the household's age, marital status, and number of children. Modified taxable income is calculated by subtracting exemptions and the standard deduction from modified adjusted gross income.[12] The exogenous marginal tax rate is calculated by applying the appropriate rate schedule to modified taxable income. This calculation is similar to one used in King and Leape (1982, 1984) and provides an indication of the incentive a household faces to invest in tax-preferred securities.

Table 3 shows the patterns of constructed "exogenous" marginal tax rates faced by households holding each category of asset and liability in 1983 and 1989. The first and third columns show the average exogenous marginal tax rates for households holding the listed asset or liability using the SCF sample weights. The second and fourth columns show exogenous marginal tax rates weighted by the

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[12]Assuming all households take the standard deduction is extreme in that it ignores the ability of households to deduct state income and property taxes, sales taxes in 1983, medical expenses above some threshold, and casualty losses. The simulations do not incorporate the effect of the alternative minimum tax, tax on social security benefits, or floors on itemized deductions.

household's share of the total holdings of the listed asset or liability.[13] The table illustrates the substantial differences in tax rates faced by investors in different assets and liabilities. Not surprisingly given the widespread ownership of checking and saving accounts, the average exogenous marginal tax rate on owners of these assets is only slightly higher than the sample-wide average. Marginal tax rates on owners of taxable and tax-exempt bonds, mutual funds, and IRAs and Keoghs are considerably higher.[14] Tax-exempt bonds and IRAs and Keoghs enjoy substantial tax preferences, which is consistent with the idea, at least at this level of detail, that taxes may be an important factor shaping the structure of household portfolios.

With the flattening of tax rates in TRA86, there is considerably less variation in tax rates by asset and liability in 1989. Depending on the weighting system, the variation between the highest and lowest taxed assets in 1983 is 13% to 15% for saving accounts compared to tax-exempt bonds. In 1989 the variation is 6% to 8%. The reduction in tax rate differentials across assets raises the question of whether high-income, high-wealth households responded to the more uniform marginal rates by substituting tax-favored assets for others with higher returns, lower risk, or fewer implicit taxes.

(b1) Assets and TRA86: Tax-exempt bonds

Tax-exempt bond yields are lower than taxable bonds with equivalent risks and maturities because of their tax-free status.[15] Even with lower before-tax yields, however, after-tax returns on tax-exempt bonds can be higher than those on other investments for high marginal rate investors. Within a cross-section, holdings of tax-exempt bonds should be positively related to tax rates and factors correlated with tax rates, such as income.

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[13]This asset- or liability-weighted marginal tax rate is similar to tax rates calculated in Skinner and Feenberg (1990). These tax rates represent marginal rates on a "representative" or average dollar of income in the given asset or liability.

[14]Feenberg and Poterba (1991) report, based on tax return data, that the weighted average marginal tax rate on municipal bonds is 27.6%, which is almost identical to the 27.7% rate reported in Table 3.

[15]The yield spread between taxable and tax-exempt bonds implies that municipal bonds carry an implicit tax, τ, where $\tau = 1 - r_m/r_f$, r_m is the return on municipal bonds and r_f is the return on fully taxed bonds of equivalent risk and maturity.

Over time the expected relationship is more complicated. Several factors, including the relative tax treatment of debt versus equity, affect the demand for municipal bonds. Gordon and MacKie-Mason (1990) suggest that TRA86 provided a modest increase in the attractiveness of debt relative to equity, which should lead to an increase in the demand for debt.[16] In the absence of any corresponding change in yields, demand for municipal bonds would nevertheless fall because of the reduction in tax rates. Poterba (1989), however, shows that personal tax rates appear to affect the yield spread between taxable and tax-exempt bonds. Feenberg and Poterba (1991, Table 1) show that implicit taxes on tax-exempt bonds of 1-year maturity have fallen sharply in the 1980s, to 26.1% in 1990 from 48.5% in 1980. At the same time, the supply of tax-exempt debt has increased (Table 1). As shown in Figure 3, the net effect of these changes has been to increase the importance of tax-exempt bonds in the portfolios of households with income between the 60th and 95th percentiles of the income distribution. The portfolio share devoted to tax-exempt bonds remained roughly constant for other households. Ownership of tax-exempt bonds is heavily concentrated in high marginal tax bracket households. Of the tax-exempt bonds held by individuals, roughly 97% were held by households with tax rates 40% or higher in 1983.[17] In 1989, 97.9% were held by households with tax rates of 28% or higher.

(b2) Assets and TRA86: Life insurance and retirement accounts

A February 1987 article in Money magazine, "Investments That Can Save You Taxes," begins, "Tax reform took the zing out of the high write-off deals that once quickened the heart rates of investors looking for ways to cut or defer taxes." Nevertheless, the article goes on to describe a number of remaining tax-favored investments. Insurance and annuities receive the following backhanded compliment, "Thanks to

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[16]While the reduction in personal and corporate taxes reduced the tax cost of both debt and equity, Gordon and MacKie-Mason suggest the tax cost of debt fell more, because the rate reduction on corporate equity was mitigated by changes in depreciation rules and the elimination of the investment tax credit.

[17]Households with marginal tax rates above 40% also hold 95% of taxable bonds. Households with incomes in the top 5% of the income distribution hold roughly twice as much of their assets in tax-exempt bonds as they do taxable bonds. Portfolio shares for the complete set of assets and liabilities are given in Appendix Table 2.

the new tax law, these old gray mares of the investment world ain't what they used to be." Life insurance offers tax-free accumulation of return (the "inside buildup") and a death-contingent benefit, but unlike IRA accounts between 1982 and 1986, insurance contributions are not tax deductible. Figure 3 shows that whole life insurance is a fairly popular investment for households in all income classes, accounting for 1.5% to 3.9% of assets. The portfolio share devoted to the cash value of whole life fell for households below the 90th percentile of the income distribution between 1983 and 1989 while the share increased for households in the 90th to 95th percentile. It remained roughly constant for the highest income households. By lowering marginal tax rates, TRA86 reduced the attractiveness of tax-preferred investments. The result that portfolio shares devoted to life insurance fell in all but the 90th to 95th income percentile is consistent with tax reform's incentives.

As with other tax deferral instruments such as life insurance, interest on an IRA accumulates tax free. TRA86 eliminated the tax-deductibility of IRA contributions for married couples with incomes over $50,000 and single taxpayers with incomes over $35,000, so long as these households are covered by an employer-provided pension plan. For households with incomes below these thresholds or without a pension, IRAs remain a highly subsidized asset. Keogh plans offer similar benefits to the self-employed, but with potentially higher contributions limits — 20% of self-employment income up to an annual contribution of $30,000, as opposed to the $4,000 ($2,250) limit for married (single) IRA contributors.

Figure 3 shows that the portfolio share devoted to IRAs and Keoghs has increased dramatically for households in all income percentiles between 1983 and 1989. Data from tax returns show that IRA participation dropped off sharply after TRA86.[18] Thus, the growth in IRA and Keogh accounts disproportionately reflects a combination of new contributions to IRAs made between 1983 and 1986, and

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[18]In 1985, 16.2 million taxpayers made deductible IRA contributions worth $38.2 billion. In 1988, 6.4 million taxpayers made deductible contributions worth $11.8 billion.

growth in the value of IRA accounts established before TRA86.[19] There is sharp disagreement in the literature about whether these contributions reflect net increases in wealth.[20] Gale and Scholz (1992) present evidence suggesting that these contributions result largely from a reallocation of asset accumulation that would otherwise have occurred in the absence of IRA provisions. Venti and Wise (1992) and Feenberg and Skinner (1989) present and describe other analyses that suggest these contributions reflect mainly new saving. Joines and Manegold (1991) report intermediate results.

(b3) Assets and TRA86: Real estate and housing

The tax treatment of real estate investments was dramatically tightened by TRA86. The February 1987 Money magazine article stated "Their write-offs pinched, these deals no longer tower above the tax-favored pack. Blessed be the tax-shelters, for they are not meek indeed." The important restrictions included eliminating the investment tax credit; eliminating the exclusion of 60% of long-term capital gains, which increased the top marginal tax rate on long-term capital gains to 28% from 20%; lengthening the depreciation provisions for real estate; and limiting the ability to use losses earned on passive investments to offset income from other investments.

Scholes and Wolfson (1992, p. 448) note that sales of public limited partnership interests, a common vehicle for tax shelters, fell from more than $8 billion in 1986 to roughly $3 billion in 1989.[21] While it would be inappropriate to attribute all of the decline in real estate partnerships to the effects of tax laws because at the same time the economy started showing signs of slipping and in many locations the real

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[19]An inherent difficulty in this study is that 1989 portfolio holdings presumably reflect both a continuing adjustment to the tax rules put in place in the early 1980s and adjustments to TRA86. It is impossible to disentangle these changes with cross-sectional data from 1983 and 1989.

[20]Taxpayers have a great deal of flexibility, including borrowing or transferring existing financial assets, when investing in an IRA. If IRAs are not financed by reductions in consumption, they will not increase national saving. Slemrod (1990) gives a hierarchy of economic responses to tax reform: changes in the timing of transactions, financial and accounting responses, and the real decisions of individuals and firms. The IRA figures may simply reflect a financial response to the 1981 tax changes that made all households eligible for deductible IRAs.

[21]At the same time the tax treatment of real estate investments was tightened, incentives for conducting business in the form of partnerships or sole proprietorships was increasing (as discussed below).

estate market was saturated, taxes presumably played some role in the falloff of investment.

Housing is by far the largest asset in the typical household's portfolio. In the U.S. housing benefits from a number of tax preferences, including the fact that the implicit rental value of the home is untaxed while mortgage interest payments are deductible, and special capital gains preferences are available to homeowners. The reduction in marginal tax rates in TRA86 lowered the value of both preferences increasing the user-cost of homeownership, which should reduce the demand for housing (Poterba, 1990). Of course, a number of other factors might be expected to affect housing demand including demographic changes, inflation, change in construction costs, and the tax treatment of alternative assets. Thus, without more systematic investigation (see for example, Ioannides, 1989, or Poterba, 1991) it is very difficult to assess the specific role of taxes in housing investment decisions.

Figure 4 suggests that other property and land contracts and notes constitute a larger share of the highest income households' portfolios, despite a significant tightening of the tax treatment of real estate by TRA86. There has also been an increase in the share of housing as a percentage of assets in the upper end of the income distribution. The increase in portfolio shares devoted to property-backed assets is consistent with an increase in the demand for property-backed assets caused by the curtailment of tax preferences for many non-housing assets in TRA86. The tax reform also eliminated the deductibility of the interest expense of debt not backed by real estate. As discussed below, this restriction appears to have had a substantial effect on the composition of liabilities held by households. It may also have had an effect on the composition of assets, as households must now have property-backed assets to use as collateral in order to deduct the interest expense of borrowing.

(b4) Assets and TRA86: Equity

For households investing in equity, the reduction in marginal tax rates associated with TRA86 substantially increased the attractiveness of dividends relative to corporate retentions.[22] Figure 5 shows that

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[22]Retentions were made less attractive by the increase in capital gains tax rates, the tightening of depreciation schedules, and elimination of the investment tax credit. The reduction in corporate tax rates increased the attractiveness of retentions.

the percentage of dividends to earnings is volatile, but has maintained an upward trend following TRA86.[23]

When examining disaggregated data on equity holdings one might expect to see high marginal tax rate households holding equity in firms with low dividend yields and low marginal rate households holding equity in firms with high dividend yields. This conjecture, first raised by Miller and Modigliani (1961), is called the dividend clientele hypothesis. By investing in low-yield securities, high marginal tax rate investors can defer personal income taxes on capital income. When the investor wishes to receive income from the equity, he/she can simply sell shares to generate the desired level of income.

Table 4 shows a tabulation of dividend yields by income percentile and marginal tax rates for households with equity.[24] In both years, households in the highest two ranges of the income distribution have yields below the sample average. In addition, when classified by marginal tax rates, the highest income households (facing marginal tax rates of 50% in 1983 and 28% in 1989) have the lowest portfolio yields.[25] These tabulations are consistent with the dividend clientele hypothesis and more formal econometric results presented in Scholz (1992) that suggest taxes play a significant role in explaining the yield characteristics of household equity portfolios, even after conditioning on factors associated with risk and transactions costs.

(c1) Liabilities

The 1983 and 1989 SCFs show that household debt as a percentage of assets increased substantially in the 1980s. Data on credit market debt as a percentage of financial assets and homes from the Flow of Funds household sector accounts, plotted in Figure 6, also show a large and steady increase in debt over

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[23]In 1992 the average dividend-price ratio (as opposed to the dividend-earnings ratio graphed in Figure 5) was at its lowest level since 1972.

[24]The 1983 average yield of 4.5% in Table 4 is quite close to the 4.4% yield reported in the Economic Report of the President, 1992 (ERP, Table B-91). The average yield in 1989, 4.2%, is considerably higher than the yield of 3.45% in the ERP, which is additional evidence that equity, the denominator of the dividend yield, is understated in the 1989 SCF.

[25]The highest statutory marginal tax rate in 1989 was 33%, but once the average rate of a 33%-bracket taxpayer equalled 28%, their marginal tax rate fell back to 28%.. Hence the marginal tax rate on the highest income households in 1989 was 28%.

the 1980s.[26]

When looking at descriptive data, one of the more sensible places to illuminate the role taxes play in portfolio composition is to look at changes in the composition of debt. The following, for example, appeared in the Wall Street Journal (6/10/91, Section C, page 1, Lynn Asinof), "Want to finance a car, pay college tuition or take an expensive vacation? If you're like a growing number of Americans, you're looking at a home equity loan... the fact that interest remains generally tax deductible makes home-equity loans and credit lines more attractive than ever. As a result, homeowners are using them for everything from making investments to paying medical bills." The article then points out that interest on borrowing up to $100,000 is still tax deductible with a home equity loan. In contrast, interest on credit cards, auto loans, and other types of consumer credit can no longer be deducted. If taxes play a role, one would expect to see more borrowing in those liability categories that remained tax deductible and less borrowing in those categories whose interest deductions were limited by TRA86, relative to what would have occurred in the absence of tax reform.

Figure 7 graphs debt not secured by property as a percentage of assets by income class in 1983 and 1989. Of the two categories of debt balances that fell in the SCF data — other lines of credit and miscellaneous loans — both had their deductibility curtailed by TRA86. At the same time, credit card and automobile loan balances grew sharply.[27] As shown in Figure 8, the categories of debt secured by property — mortgages and home equity lines of credit — increased substantially for households with incomes above the 60th percentile of the income distribution.[28]

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[26]Adding consumer durables to the asset base lowers the y-axis coordinates by roughly 2 percentage points, but does not alter the graph's shape.

[27]The trend in automobile loans is reflected in the households sector Flow of Funds accounts, where installment consumer credit grew to $730.9 billion in 1989 from $330.4 billion in 1982.

[28]A third category of debt secured by property, mortgages on property other than the principal residence, also increased rapidly for households with incomes above the 60th percentile. Because this variable is implausibly large — aggregate debt on other property exceeds debt on households' principal residence in the 1989 SCF — I have excluded it from the analysis, other than including it in the appendix tables.

If tax changes affected these patterns, one would expect to see sharper differences between homeowners, who still have opportunities for tax-deductible borrowing, and households without homes, who no longer have such opportunities. Table 5 shows household leverage (liabilities as a percentage of assets) for homeowners and households without homes by income percentile. Because most households own homes, the top panel of Table 5 is similar to the leverage ratios shown in Figures 7 and 8. There are sharp increases in property-backed debt, particularly for households in the top 20 percent of the income distribution, though leverage increased for households throughout the income distribution. In contrast to the homeowner sample, leverage has fallen for households without homes in the bottom 60% of the income distribution even though households typically accumulate debt over expansionary periods of the business cycle. Because the tabulations condition only on income, and other factors such as age, wealth, and marital status presumably affect the use of debt, strong conclusions require further analysis. These results are consistent with the idea, however, that high-income households with the ability to receive tax-subsidized borrowing increased their leverage at rates faster than those who had their access restricted. In addition, there is a shift in the composition of debt that is consistent with the incentives provided by TRA86.

(c2) Interest rate arbitrage

The phrase "interest rate arbitrage" is used to describe transactions where households borrow, deduct the interest expense, and then invest in (generally) tax preferred assets.[29] As long as the rate of interest paid on borrowing, accounting for the tax subsidy, is less than the rate of interest received from the tax preferred asset, transactions of this type will be attractive. Because the value of the interest expense deduction increases with a household's marginal tax rate, the incentive to engage in interest rate arbitrage increases with the marginal tax rate.

The tax system imposes restrictions on taxpayers' ability to engage in tax arbitrage. Code section 163(d) allows the tax deduction for interest expense only to the extent that taxable investment income,

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[29]To the extent arbitrage refers to a riskless transaction, I am using the term loosely.

which includes interest, dividends, rents, royalties, and capital gains, is equal to or exceeds the interest expense deduction. Prior to TRA86 there was an extra $10,000 cushion to this limitation. In addition, Code section 265 prevents deduction of interest on loans used to purchase or hold assets, like municipal bonds, whose returns are exempt from Federal income tax. This provision, however, has been interpreted so that a taxpayer can both borrow and purchase tax-exempt bonds in the same fiscal year as long as he/she can demonstrate that the loan was used for some purpose other than to purchase or hold tax-exempt bonds.

In both the 1983 and 1989 SCFs, questions are asked about the reasons a household borrowed. In 1983 general questions were asked about the purpose of credit for a large set of consumer loans. In 1989 separate questions were asked about the purpose of consumer loans, home equity lines of credit, and other lines of credit. The 1983 and 1989 responses are tabulated in Table 6 and provide direct evidence on the degree to which households borrow for investment purposes.

The top panel of the table gives a frequency distribution of reasons households gave for borrowing in 1983 and 1989. In both years the "special expenses" category is the most common response. These loans are primarily for educational expenses. The conditional medians indicate that the largest balances on loans outstanding are on loans for investment purposes, but across the sample these account for fewer than 9 percent of all loans.[30]

The second panel of the table shows that high-income households are much more likely than the typical household to borrow for investment purposes. These are the households for whom interest rate arbitrage is most profitable. By lowering marginal tax rates and restricting interest deductibility, TRA86 attempted to reduce the incentive for high income taxpayers to engage in tax-related interest arbitrage. Comparing figures for 1983 and 1989 in Table 6 shows that there was a relatively large drop in the fraction of loans taken by high income taxpayers for investment purposes, which is broadly consistent with

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[30]The saving and investment category is composed of the following specific responses: invest in businesses, invest in financial assets, invest in real assets, purchase insurance or pay taxes, or make other investments.

the proposition that TRA86 reduced incentives to engage in tax arbitrage.[31]

(d) Organizational form

For the first time in many years, the top corporate tax rate exceeds the highest personal income tax rate following TRA86. Businesses now have a greater incentive to organize as partnerships, proprietorships, or sub-chapter S corporations, collectively referred to as "pass-through forms," rather than as schedule C corporations, because income earned in these pass-through forms is taxed only at the personal level (see, for example, Gordon and MacKie-Mason, 1990). The 1983 and 1989 SCFs provide fairly detailed information on the financial status and organizational form of closely held businesses.

Table 7 shows that 8.9% of households had either a partnership or a proprietorship in 1983. As expected, by 1989 the percentage of households with partnerships or proprietorships has increased, though by a small amount, to 9.4%. The fraction of households holding a business in a pass-through form increases steadily with income and the exogenous tax rate. While the fraction of households holding a business in a pass-through form was increasing, there was a 1.3 percentage point decline between 1983 and 1989 in the number of households owning a business that was not in a pass-through form.[32] The increase in closely held businesses organized as partnerships and proprietorships and the reduction in the number of closely-held schedule C corporations is consistent with tax incentives provided by TRA86.

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[31]Restricting interest deductibility makes interest rate arbitrage less attractive. In 1989 only 5.2 percent of consumer loans, with a median amount of $6,000, and 9.0 percent of other lines of credit, with a median amount of $17,000, were taken for investment purposes. In contrast, 25.5 percent of generally deductible home-equity lines of credit were taken for investment purposes, and the median amount outstanding on these loans was $46,000.

[32]The 1983 SCF does not distinguish between Subchapter S and other corporate forms, but only 1.1% of all households owned Subchapter S corporations in 1989. Gordon and MacKie-Mason (1990) present figures showing that S corporation elections appear to have risen slightly between 1983 and 1988 (figure 4.2, p.120).

(e) Implicit Taxes

In Table 8 exogenous and actual marginal tax rates are given by income percentile.[33] The difference between these marginal tax rates gives a crude indication of the degree to which portfolio responses affect the measurement of tax progressivity (measured by average marginal tax rates). As expected given the compression of statutory marginal tax rates in TRA86, portfolio responses reduce marginal tax rates by a considerably smaller amount in 1989 than in 1983, except in the highest income percentile. To the extent that households lessened the effect of progressive rates prior to TRA86 by accepting greater portfolio risks and lower before-tax returns, TRA86 may have reduced implicit taxes. This result would not be surprising because, by lowering marginal tax rates, TRA86 reduced the benefits and, by restricting opportunities for reducing tax rates, TRA86 raised the costs of restructuring portfolios to lessen tax payments. Unfortunately, it is extremely difficult to provide a quantitative measure of the degree to which TRA86 reduced implicit taxes.

IV. Descriptive Evidence on Other Factors that Affect Investment Decisions

Many other factors play some and perhaps more important roles in portfolio decisions than taxes. In this section I briefly describe tabulations from the 1983 and 1989 SCFs related to transactions and information costs, liquidity, and risk and the influence the tax system has on risk taking.

(a) Transaction and information costs

The 1983 and 1989 SCFs provide information about the reason a particular institution was chosen for households' checking accounts. In both years responses associated with transactions costs — convenient location of offices and being able to combine financial services — are the most important reasons for choosing an institution. One would expect transactions costs to be a critical factor in determining the location of checking accounts because the money foregone when choosing an institution with a higher interest rate or lower required minimum balance is presumably small. In fact, roughly four times as many

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[33]Recall that the exogenous tax rate measure is calculated assuming the household's entire net worth is invested in taxable Aaa bonds.

households gave transactions cost reasons as opposed to direct monetary reasons such as "low service charges" or "high interest rates" for choosing an institution. The proportion of households giving "time" reasons versus "money" reasons varied little with income.

King and Leape (1987) argue that information costs play a very significant role in portfolio decisions. To support this claim they present a tabulation from a survey on household balance sheets taken by SRI International. The responses are to the question, "Why doesn't anyone in your household hold any stocks (or stock mutual funds, or bonds, or bond funds)?" For each of these instruments between 34% to 47% percent of the respondents answered "Don't know enough about it." They then go on to present probit estimates for the ownership of "information-intensive" assets and show that the probability of ownership increases with age, even after controlling for a wide array of other attributes.[34] They interpret these results as supporting a model where information barriers play an important role in investment decisions. In a similar analysis using the 1986 SCF, however, Ioannides (1990) finds few significant age effects. He interprets his evidence as not being supportive of the hypothesis that households' portfolio decisions are significantly affected by the slow accumulation of information about investment opportunities.

There are no direct questions on the cost and importance of information in the 1983 and 1989 SCFs. Questions are asked in 1983, however, about sources of advice in making financial decisions. On average 27.1% of households seek professional advice when making financial decisions. This percentage increases from 22.5% for households in the bottom 60 percent of the income distribution to 58.8% for households in the top 5 percent of the distribution. Figure 9 disaggregates these percentages into the source of investment advice by income category. Across the sample, the most common sources of advice are bankers (11.8%), brokers (7.7%), and accountants (6.4%). Four percent of the population report receiving investment advice from a tax adviser, but this percentage rises sharply with income.

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[34]King and Leape (1987) define information-intensive assets as corporate equity, municipal bonds, corporate bonds, saving certificates, Treasury bonds, money market instruments, and single-premium annuities.

(b) Liquidity

Concerns about liquidity may also affect portfolio decisions. For example, a young household knowing with reasonable certainty that they will be wanting to make a downpayment on a house may be unwilling to contribute to an IRA despite their tax-preferred status due to penalties on withdrawals before age 59. The 1983 SCF contains an attitudinal question, "Which of the following statements on this card comes closest to how you feel about tying up your money in investments for long periods of time?" The possible responses are: Tie up money for a long, intermediate, or short period of time to earn substantial, above average, or average returns. A fourth category is that the household was not willing to tie up money at all. Interpretation of this question is clearly difficult because one household may view tying up money for 6 months to be a very long time, while another may view this as not tying money up at all.

Despite the difficulties involved in making cross-person comparisons of attitudes toward liquidity, there is evidence that this variable has some predictive power analyzing financial decisions (Ioannides, 1990). Figure 10 shows that the attitude toward liquidity responses varies systematically with income, with the highest income households being the most willing to tie money up for a substantial period of time. The fact that attitudes toward liquidity vary systematically with income may complicate attempts to identify the effects of taxes on portfolio choice.

(c) Risk

Risk and investor attitudes toward risk undoubtedly play an important role in investment decisions. Needless to say, the 1983 and 1989 SCFs do not have any direct measures of an investor's coefficients of relative or absolute risk aversion. It is also not possible to determine the inherent riskiness of a household's portfolio because I do not know the specific assets that compose the holdings in a particular asset or liability category. Nevertheless, some information is available in the surveys on attitudes toward risk.

The 1983 and 1989 SCFs contain the following attitudinal question, "Which of the following statements on this card comes closest to the amount of financial risk you are willing to take when you save

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or make investments?" The possible responses are: Take substantial, above average, or average financial risks expecting to earn substantial, above average, or average returns. A fourth category is that the household was not willing to take any financial risks. There is some evidence that this variable has predictive power when analyzing financial decisions (see, for example, Scholz, 1992, and Ioannides, 1992), but interpretation of this question is plagued by a similar difficulty that arises with the liquidity question. As shown in Figure 11 the percentage of households reporting that they are unwilling to take any risks falls sharply with income, while willingness to take above average and average risk generally increases with income. These figures vary only slightly when tabulated by the source of investment advice households receive, though those receiving professional advice from bankers appear to like risk somewhat less than do other households.[35] As with the liquidity question, the close relationship between risk attitudes and income may complicate efforts to identify the portfolio effects of taxation.

A more objective measure of risk is the degree of diversification of the household's portfolio. A number of papers including Uhler and Cragg (1971), King and Leape (1984, 1986, 1987), and Ioannides (1990) show that households' portfolios rarely span the complete set of assets, even accounting for mutual funds. However, this observation may reveal little about diversification, because households may be well-diversified within a particular asset category rendering further diversification into other asset types unnecessary, particularly when transactions and/or information costs are significant. The 1983 and 1989 SCFs provide additional information on the diversification of households' equity portfolios. Specifically, households are asked about the number of companies in which they own equity.

Blume, Crockett, and Friend (1974) present tabulations of portfolio diversification of households in 1971, based on Internal Revenue Service tax return data. In Table 9 these tabulations are compared to similar tabulations from the 1983 and 1989 SCF.[36] In each year households with mutual funds, which

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[35]Those who get their investment advice from their spouse have by far the most conservative attitudes toward risk, followed by those who get their advice from the media.

[36]Incomes in 1983 and 1989 were deflated to 1971 levels using the all items CPI, Economic Report of the President, 1992, Table B-56. The index was 40.5 in 1971, 99.6 in 1983, and 124.0 in 1989.

presumably are well-diversified, are dropped from the sample leaving only households with equity but no mutual funds in Table 9.[37] Just as in 1971, the typical household owning equity in the 1980s was poorly diversified, holding equity in slightly more than 3 companies. Even very high income households held fewer than the 30 to 40 securities that Statman (1987) suggests are needed for a well-diversified portfolio.[38] When equity portfolios are weighted by the share of equity held by the household, however, portfolios appear to be significantly more well-diversified. Specifically, the average dollar of equity is held in a portfolio with 15 other securities in 1983 and 12 securities in 1989.

The tabulations and papers cited in this section indicate that risk appears to matter to investors and that the typical household has not fully diversified their equity portfolio. This statement says nothing, however, about whether the tax system affects the riskiness of households' portfolios. As noted when I discussed implicit taxes, TRA86 presumably reduced the incentives households faced to accept greater portfolio risk in order to lessen tax payments, but measuring the precise effect the tax system has on risk taking is extremely difficult.

V. Conclusions

This paper began by asking whether taxes affect the composition of household portfolios and, if so, how do these changes affect the measurement of tax progressivity. To pursue these issues I examine several aspects of portfolio choice using data from the 1983 and 1989 Surveys of Consumer Finances.

Across households within a period, we would expect portfolio composition to vary with income. High income households in high tax brackets should hold a larger share of their portfolios in tax favored or tax-exempt assets. These assets are indeed held disproportionately by high income households. Households with high marginal tax rates also have a stronger incentive to engage in tax arbitrage. I find

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[37]On average 12.4% of equity holders in 1983 and 11.5% of equity holders in 1989 are excluded from the sample because they have shares in mutual funds. Households with few securities in their equity portfolios may still be well-diversified through pension holdings.

[38]Best and Grauer (1991) suggest that a passive investor should not deviate too far from an index fund. They also show that extremely large portfolio changes may be required for active investors who wish to maintain efficient portfolios with fewer securities than suggested by Statman (1987).

that upper income households report that a considerably higher fraction of loans were taken for investment purposes than is the case for lower income households. High income households also appear to hold a disproportionate share of equity with low dividend yields, as would be expected if taxes mattered in investment decisions.

Over time the 1986 tax reform provides a good opportunity for examining changes in households' portfolios. The intertemporal analysis, however, is complicated by a host of other factors. TRA86 was so wide-ranging that the combined effects of the tax changes rarely lead to unambiguous incentives to hold one asset or another (Hendershott, 1990). In addition, general equilibrium responses will in all likelihood attenuate responses. Higher taxes on equity relative to debt, for example, should increase demand for bonds, which in turn will lower bond yields, muting some of the expected first-order effects on portfolio choice. It is also very difficult to separate tax effects from other factors such as risk aversion that may affect portfolio choice. Further research examining the effects of taxes on risk-taking and work measuring the magnitude of various implicit taxes could clearly be valuable.

Despite these caveats, tax changes appear to matter in some circumstances. TRA86 decreased statutory marginal tax rates significantly for higher income households. This caused the yield spread between taxable and tax-exempt bonds to narrow, which, along with an increase in the supply of tax-exempt bonds, lead to increased holdings of tax-exempt bonds by households with incomes from the 60th to 95th percentile of the income distribution. The portfolio share devoted to life insurance fell for most households. Lower marginal tax rates also increased the incentive for closely held businesses to organize in "pass through" forms, which is also observed in the data.

More dramatic changes have occurred on the liability side of households' balance sheets. There was a striking increase in the amount of debt held by households between 1983 and 1989. Debt backed by property, which retained its deductible status in TRA86, grew rapidly while some forms of non-deductible debt rose while others fell. Households without homes, however, who have considerably fewer opportunities to deduct interest payments on borrowing, generally did not increase their debt over the

period, while the debt of homeowners increased. In addition, considerably fewer high-income households reported taking loans for investment purposes in 1989 than in 1983. Given the significant changes in the tax treatment of debt in TRA86, further examination of the determinants of household borrowing is likely to be a promising avenue for research on the influence of taxes on household portfolios.

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Table 1:[1] Comparison of Selected SCF Asset and Liability Categories with Flow of Funds Estimates

Item	1983 SCF (billions)	1982 FoF (billions)[2]	1989 SCF (billions)	1989 FoF (billions)[2]	Percentage Change SCF	Percentage Change FoF
Assets						
Currency and Checking[3]	271.3	316.9	539.9	496.8	99.0	56.8
Saving Accounts[4]	667.6	1,413.8	1,187.9	2,375.4	79.6	68.0
MMMF[5]	140.2	189.4	390.0	391.9	178.2	106.2
Savings Bonds[6]	27.3	68.3	86.9	117.7	218.3	72.3
Other Federal Bonds[7]	115.0	184.7	145.6	313.8	26.6	69.0
State and Local Bonds[8]	204.6	153.2	305.4	526.6	49.3	243.7
Corp. and Foreign Bonds[9]	47.4	37.6	75.0	64.7	58.2	72.1
Mortgage Assets[10]	117.1	126.1	169.7	212.9	44.9	68.8
Corporate Stock[11]	931.5	1,184.0	962.7	2,205.1	3.4	86.2
Mutual Funds[12]	109.7	66.7	268.2	480.6	144.5	620.5
Insurance Reserves[13]	295.2	232.8	383.1	351.8	29.8	51.1
Owner Occupied R.E.[14]	4,330.4	3,768.3	6,082.6	5,954.2	40.5	58.0
Debt						
Mortgages[15]	978.3	1,059.7	1,615.9	2,350.0	65.7	121.8

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[1]Data are from the 1983 and 1989 Surveys of Consumer Finances and the Balance Sheets For the U.S. Economy 1960-91, March, 1992, Board of Governors of the Federal Reserve System.

[2]The 1983 SCF was conducted early in 1983 so these data are compared with the 1982 Flow of Funds. The 1989 SCF was conducted from August 1989 through March 1990 so these data are compared with the 1989 Flow of Funds. Both the 1982 and 1989 FoF household sector figures include charitable and other non-profit organizations and personal trusts and estates as well as households. Avery, Elliehausen, and Kennickell (1988) present adjusted 1982 Flow of Funds figures that exclude non-household holdings.

[3]All accounts with banks, thrifts, or credit unions with check-writing privileges.

[4]All non-checkable deposits at banks, thrifts and credit unions, including large and small time deposits, certificates of deposit (CDs), and individual retirement accounts (IRAs) and Keoghs at depository institutions.

[5]All money market mutual fund accounts (MMMFs) held outside of banks, thrifts, and credit unions. This includes broker call accounts and IRAs and Keoghs at brokerages.

[6]Face value of U.S. Government Savings Bonds.

[7]All other U.S. Government notes, bills, and bonds at face value.

[8]State and local government bonds, bills, and notes at face value.

[9]All other bonds at face value.

[10]Outstanding principal on mortgage assets, including land contracts and notes. Unlike Avery, Elliehausen, Kennickell (1988) I do not include business notes owed to households in this category.

[11]Market value of publicly traded stock.

[12]Market value of all mutual fund holdings.

[13]Cash value of whole life insurance policies and IRAs held with insurance companies.

[14]Market value of principal and secondary residences.

[15]Principal outstanding on home mortgages.

Table 2:[1] Conditional Mean and Median Asset and Liability Holdings, 1983 and 1989

ASSETS	1983 (in 1989 dollars)				1989			
	% that hold	Conditional mean ($1000s)	Conditional median ($1000s)	Total 1983 (billion, 89$)	% that hold	Conditional mean ($1000s)	Conditional median ($1000s)	Total 1989 (billion)
Homes	63.5	87.3	64.7	4,697.4	59.7	109.0	75.0	6,082.6
Business Assets	14.3	237.6	57.0	2,869.2	11.4	309.8	50.0	3,288.3
Other Property	18.8	132.9	46.6	2,114.3	19.3	160.3	43.0	2,878.4
Equity[2]	19.0	72.0	5.0	1,159.8	15.9	75.2	10.0	1,116.4
CDs	20.0	28.5	12.4	483.8	20.0	30.9	13.0	573.4
Trusts	4.0	113.2	12.4	385.2	3.6	105.7	18.0	350.3
Dollar Cash Value of Whole Life	34.1	12.4	4.3	358.6	35.6	10.6	3.6	350.7
Money Markets[3]	14.9	27.3	11.0	345.0	11.8	31.9	8.6	349.7
Tax-exempt Bonds[4]	3.3	113.0	24.9	313.8	4.4	98.7	22.2	407.4
Saving Accounts[5]	61.7	4.6	1.4	241.6	43.8	7.1	1.9	291.4
IRAs and Keoghs	17.3	14.0	5.0	205.3	24.5	26.4	11.0	602.8
Taxable Bonds	3.0	79.1	12.4	202.2	3.4	79.1	16.0	249.0
Checking Accounts[6]	78.7	2.2	.6	149.3	81.1	4.7	1.0	356.4
Land Contracts or Notes	3.8	45.4	22.8	145.8	2.5	60.6	28.0	141.2
Taxable Mutual Funds	3.0	30.5	7.7	77.6	8.1	22.2	5.00	166.2
Saving Bonds	20.2	2.0	.4	34.0	24.0	3.9	.7	86.9
LIABILITIES								
Mortgages	37.1	34.7	27.0	1,091.0	38.7	44.8	32.0	1,615.9
Miscellaneous Other Debt	29.8	7.7	1.6	193.4	25.7	5.9	2.0	141.5
Car Loans	28.9	4.7	3.8	115.0	34.6	6.9	6.0	223.6
Other Lines of Credit	11.2	5.4	1.2	51.6	3.2	10.1	2.0	30.6
Credit Cards	37.2	1.1	.6	34.0	40.8	1.8	.9	69.7

Debt on RE, Land Contracts, and Notes	.8	36.8	21.3	24.0	.2	26.9	12.0	5.8
Home Equity Lines of Credit	.5	22.1	7.5	9.8	3.2	26.7	18.0	79.2

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[1]The data for this table are taken from the 1983 and 1989 Surveys of Consumer Finances.

[2]The market value of publicly traded stock plus brokerage cash and call accounts.

[3]All money market accounts.

[4]All tax-exempt bonds and tax-exempt mutual funds.

[5]Passbook saving accounts, share accounts, Christmas Club accounts, and other types of saving accounts.

[6]Unlike Table 1, this category does not include money market accounts with check-writing privileges at banks and thrifts. All money markets are classified together, regardless of the type of depository institution.

Table 3:[1] Exogenous Marginal Tax Rates By Asset and Liability

	1983		1989	
ASSETS	MTR[2]	Portfolio Weighted MTR[3]	MTR[2]	Portfolio Weighted MTR[3]
Tax-exempt Bonds	44.5	49.1	27.7	28.8
Taxable Bonds	41.6	47.1	25.3	27.8
Stock and Bond Mutual Funds	41.2	46.6	24.5	27.8
IRAs and Keoghs	40.4	46.2	24.9	27.1
Business Assets	40.1	48.4	23.4	25.8
Money Markets Accounts	37.6	43.4	23.8	27.0
Equity	37.1	48.2	24.7	28.2
Other Property	36.9	46.4	22.5	27.7
Land Contracts or Notes	35.4	41.4	22.9	27.5
Trusts	35.0	48.5	25.2	26.6
U.S. Savings Bonds	33.4	38.4	22.1	22.7
Certificates of Deposit (CDs)	32.8	38.1	19.9	22.7
Dollar Cash Value of Whole Life	31.4	39.8	20.8	25.5
Homes	30.8	38.4	20.3	24.6
Saving Accounts	29.3	36.3	19.6	23.7
Checking Accounts	29.1	38.1	19.5	25.1
LIABILITIES				
Debt on RE, Land Contracts, and Notes	40.5	44.3	28.5	28.0
Mortgages	34.2	38.2	22.4	25.5
Other Lines of Credit	33.4	44.2	23.8	28.5
Credit Cards	31.0	33.8	20.4	22.5
Auto Loans	30.7	34.5	20.7	22.4
Home Equity Lines of Credit	30.5	39.9	24.4	24.1
Miscellaneous Other Loans	26.3	36.9	16.1	22.0
Full Sample	25.7	43.8[4]	17.7	25.8[4]

---

[1]Data are from the 1983 and 1989 Surveys of Consumer Finances.

[2]MTR is the average marginal tax rate on the holders of the listed asset or liability.

[3]The portfolio weighted marginal tax rate is the average marginal tax rate on the average dollar held in the listed asset or liability category.

[4]Weighted by shares of net worth.

Table 4:[1] Average Dividend Yields for Equity Holders by Income Percentile and Marginal Tax Rate, 1983 and 1989

INCOME PERCENTILE[2]	1983	1989
0-20	4.6	4.3
20-40	6.6	3.4
40-60	4.8	4.7
60-80	5.2	5.3
80-90	5.0	5.9
90-95	3.8	3.3
95-100	4.3	3.9
EXOGENOUS MARGINAL TAX RATE (percent)		
0-10	14.6	3.9
10-20	7.6	6.8
20-30	4.3	3.9
30-40	6.8	4.6
40-50	4.3	*
All Households	4.5	4.2

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[1]Figures are from the 1983 and 1989 Survey of Consumer Finances and author's calculations.

[2]Income percentiles are calculated based on the sample of equity holders.

Table 5:[3] Liabilities as a Percentage of Assets for Households With and Without Homes, 1983 and 1989

| | Income Percentile | | | | | | | | | |
| | 0-60 | | 60-80 | | 80-90 | | 90-95 | | 95-100 | |
HOMEOWNERS	1983	1989	1983	1989	1983	1989	1983	1989	1983	1989
Mortgages	9.8	10.8	15.1	16.6	13.8	18.6	9.9	13.8	3.6	5.3
Misc Other Loans	1.1	1.0	1.1	0.9	1.1	0.6	0.8	0.2	1.4	0.7
Auto Loans	0.8	1.3	1.3	2.4	1.2	2.1	0.8	1.0	0.2	0.2
Other Credit Lines	0.3	0.0	0.3	0.1	0.3	0.4	0.1	0.1	0.4	0.2
Credit Cards	0.3	0.5	0.4	0.6	0.3	0.6	0.2	0.4	0.1	0.1
Debt on RE and LCs	0.1	0.0	0.0	0.0	0.6	0.0	0.3	0.0	0.1	0.1
Home Equity Credit	0.1	0.4	0.1	0.0	0.0	0.7	0.3	0.5	0.0	0.4
Prop-backed Debt[4]	10.0	11.2	15.2	16.6	14.4	19.3	10.5	14.3	3.7	5.8
NProp-backed Debt	2.5	2.8	3.1	4.0	2.9	3.7	1.9	1.7	2.1	1.2
NON-HOMEOWNERS										
Mortgages	*	*	*	*	*	*	*	*	*	*
Misc Other Loans	9.6	3.8	1.9	4.7	4.7	1.6	2.2	0.3	2.5	0.3
Auto Loans	6.4	4.3	3.5	7.6	4.6	6.8	1.4	0.3	0.1	0.4
Other Credit Lines	1.2	0.1	0.8	0.5	1.7	2.8	0.2	0.4	2.4	0.5
Credit Cards	1.9	1.3	1.0	2.4	1.2	2.3	0.2	0.7	0.1	0.1
Debt on RE and LCs	*	*	*	*	*	*	0.1	*	0.2	0.1
Home Equity Credit	*	0.0	*	*	*	*	*	*	*	*
Prop-backed Debt	*	0.0	*	*	*	*	0.1	*	0.2	0.1
Nprop-backed Debt	19.1	9.5	7.2	15.2	12.2	13.5	4.0	1.7	5.1	1.3

[3]Data are from the 1983 and 1989 Surveys of Consumer Finances. All variables are defined as the given category as a percentage of assets.

[4]This is the sum of mortgage debt, debt on real estate and land contracts, and home equity lines of credit.

Table 6:[5] Reasons for Borrowing and Median Amount Outstanding, 1983 and 1989

	1983		1989	
	Percent	Conditional Median	Percent	Conditional Median
Home Purchase, Repair	3.4	1,267	5.9	4,000
Car or Durable Good	20.9	469	20.9	744
Indoor Hobby	8.3	473	5.3	420
Outdoor Hobby	5.5	1,618	0.3	1,000
Saving and Investment	10.6	3,735	7.0	11,000
Special Expenses	36.5	1,245	45.8	2,000
Miscellaneous Needs	14.8	871	14.7	900

Fraction of Loans Taken for Investment Purposes, by Income, 1983 and 1989

	1983		1989	
Income Percentile	Percent	Conditional Median	Percent	Conditional Median
0-20	3.0	373	1.9	2,000
20-40	3.5	2,100	4.7	2,000
40-60	5.0	1,245	5.0	10,000
60-80	7.0	1,925	9.0	22,000
80-90	20.2	4,980	9.1	8,000
90-95	28.7	2,863	8.6	24,000
95-100	39.9	12,450	25.7	28,000

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[5]Data are from the 1983 and 1989 Surveys of Consumer Finances.

Table 7:[6] Percentage of Population with a Closely-Held Business by Income Percentile, 1983 and 1989

	% Owning a Partnership or Proprietorship		% Owning a Partnership, Proprietorship, or Closely held Corporation	
Income Percentile	1983	1989	1983	1989
0-20	3.1	2.4	3.6	2.6
20-40	4.6	6.7	5.4	7.1
40-60	8.2	9.2	10.5	10.2
60-80	12.1	9.9	15.6	11.7
80-90	11.9	15.4	16.7	17.7
90-95	16.9	17.1	25.9	22.0
95-100	25.0	25.4	41.7	38.9
All Households	8.9	9.4	12.1	11.3
Exogenous Tax Rate (percent)				
0-10	0.2	3.3	0.3	3.3
10-20	2.8	7.5	3.2	8.1
20-30	7.3	12.7	8.8	16.1
30-40	9.7	21.2	12.5	28.0
40-50	22.3	*	32.5	*

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[6]Data are from the 1983 and 1989 Surveys of Consumer Finances.

Table 8:[7] Average Exogenous and Actual Marginal Tax Rates by Income Percentile, 1983 and 1989

Income Percentile	1983		1989	
	Exogenous MTR	Actual MTR	Exogenous MTR	Actual MTR
0-20	6.1	4.0	8.1	7.8
20-40	16.7	13.3	11.1	9.8
40-60	25.2	20.8	16.9	15.7
60-80	34.6	27.0	22.3	18.1
80-90	42.9	34.1	28.2	23.3
90-95	47.4	40.7	30.2	25.8
95-100	49.1	47.6	29.9	27.9
All Households	25.7	20.9	17.7	15.4

---

[7]Data are from the 1983 and 1989 Surveys of Consumer Finances and author's calculations.

Table 9:[8] Average Number of Companies Held by Households with Equity, 1971, 1983, and 1989

AGI Class (1971$, in 1000s)	1971[9]	1983	1989	1983 Value Weighted[10]	1989 Value Weighted[10]
-5	3.2	2.4	2.8	9.4	5.1
5-10	3.8	2.5	2.9	5.5	9.8
10-15	4.0	3.2	2.5	10.5	5.8
15-25	4.3	3.6	3.9	12.3	12.6
25-50	6.7	5.7	4.6	18.5	10.5
50-100	9.2	10.3	5.5	20.0	12.4
100-200	13.2	11.3	6.5	22.9	12.5
200-500	16.8	15.9	4.9	18.6	9.8
500+	18.7	18.2	13.3	14.0	27.9
All Households	4.5	3.2	3.5	15.2	12.4

---

[8]Data are from the 1983 and 1989 Surveys of Consumer Finances and author's calculations.

[9]Data are from Blume, Crockett, and Friend (1974, Table 7, p. 31).

[10]Each household is weighted by the proportion of total equity held by the household.

Appendix Table 1a:[1] Cumulative Distribution of Assets and Liabilities by Income Percentiles, 1983 and 1989										
	Income Percentile									
	0-60		60-80		80-90		90-95		95-100	
ASSETS	1983	1989	1983	1989	1983	1989	1983	1989	1983	1989
Homes	31.3	27.3	22.1	23.1	15.8	16.1	10.7	12.7	20.0	20.7
Businesses	13.2	16.3	9.2	9.3	7.4	6.6	16.5	5.7	53.8	61.9
Other Property	14.6	9.0	13.5	14.1	10.2	11.0	10.5	12.0	51.2	54.0
Equity	4.9	12.8	5.8	13.5	6.0	7.7	8.0	7.6	75.4	58.5
CDs	35.0	39.6	24.5	18.9	11.4	9.5	10.5	9.5	18.5	22.5
Trusts	5.2	12.1	11.3	13.0	5.2	8.0	5.1	10.5	73.2	56.4
$ Cash Value WL	25.5	16.5	22.9	23.1	16.2	15.1	7.7	17.1	27.6	28.3
Money Markets	16.6	19.5	16.0	10.2	10.7	15.0	12.2	6.2	44.5	49.1
Tax-exempt Assets	3.3	4.2	1.9	10.0	2.1	4.2	8.5	10.9	84.1	70.7
Saving	34.7	32.8	24.3	22.0	13.6	9.7	13.6	22.9	13.8	12.6
IRA/Keoghs	13.1	15.7	10.4	18.7	12.3	14.3	12.1	18.9	52.1	32.4
Taxable Bonds	4.7	6.7	4.0	9.5	17.0	6.4	18.7	13.2	55.6	64.2
Checking	32.4	23.8	16.7	23.1	12.1	9.6	11.5	10.2	27.3	33.4
Land Contracts	28.5	13.3	9.2	15.7	25.6	14.0	9.5	26.4	27.2	30.6
Mutual Funds	4.5	10.7	6.1	18.3	11.8	12.4	13.9	15.4	63.7	43.2
Saving Bonds	26.5	33.1	29.4	29.8	15.0	8.7	13.5	10.8	15.6	17.6
LIABILITIES										
Mortgages	22.5	17.3	26.6	26.6	19.3	20.4	13.5	15.2	18.1	20.5
Debt on Other Prop	8.2	2.8	12.5	6.0	11.4	3.3	9.7	7.0	58.2	80.9
Miscellaneous OLs	28.7	36.5	12.9	23.3	10.1	8.1	7.1	3.3	41.2	28.8
Auto Loans	33.9	28.2	28.0	35.1	18.1	20.4	11.3	8.8	8.7	7.5
Other Lines of C	18.5	3.7	13.5	8.9	11.8	29.9	3.9	4.8	52.3	52.7
Credit Cards	34.4	30.3	29.5	29.2	17.5	19.2	9.5	11.7	9.0	9.6

Debt on RE, LC	12.4	3.3	3.7	12.3	38.9	13.5	18.0	6.7	27.0	64.2
Home Equity Lines	27.2	12.2	11.4	25.1	2.2	16.8	38.2	12.2	20.9	33.7
OTHER TOTALS										
Income	27.5	23.3	22.3	22.9	15.5	16.1	10.9	10.5	23.8	27.2
Net Worth	20.5	21.5	14.5	17.0	10.9	11.3	11.6	11.6	42.5	38.5

[1]Data are from the 1983 and 1989 Surveys of Consumer Finances.

Appendix Table 1b:[1] Cumulative Distribution of Assets and Liabilities by "Exogenous" Marginal Tax Rate, 1983 and 1989										
	Marginal Tax Rate									
	0-10%		10-20%		20-30%		30-40%		40-50%	
ASSETS	1983	1989	1983	1989	1983	1989	1983	1989	1983	1989
Homes	2.1	4.4	9.4	24.9	15.8	48.7	18.8	21.9	53.9	*
Businesses	0.0	3.8	0.6	14.7	1.8	65.7	4.4	15.8	93.1	*
Other Property	0.2	1.1	2.1	8.9	4.2	66.2	8.0	23.8	85.6	*
Equity	0.4	1.1	1.2	5.4	2.3	69.2	2.9	24.3	93.2	*
CDs	1.5	6.6	12.0	33.5	15.6	42.0	17.2	17.9	53.6	*
Trusts	0.4	4.5	1.2	6.9	2.4	72.2	1.7	16.4	94.3	*
$ Cash Value WL	1.9	4.6	6.7	17.6	14.4	55.7	18.5	22.2	58.4	*
Money Markets	0.6	1.1	3.6	13.0	9.5	65.5	14.3	20.4	72.0	*
Tax-exempt Assets	0.8	0.0	0.2	2.0	1.0	76.4	0.9	21.5	97.2	*
Saving	2.7	5.5	12.3	28.7	18.4	45.4	17.6	20.4	48.9	*
IRA/Keoghs	0.4	1.8	1.0	14.0	5.5	54.8	7.7	29.4	85.3	*
Taxable Bonds	1.2	0.3	0.7	6.3	1.9	80.4	1.7	13.1	94.6	*
Checking	4.8	4.1	9.6	23.3	14.2	47.8	12.3	24.8	59.1	*
Land Contracts	0.4	1.9	5.2	12.3	18.3	52.9	10.4	32.9	65.6	*
Mutual Funds	0.6	1.4	1.0	12.0	1.4	50.7	12.9	35.9	84.1	*
Saving Bonds	0.9	3.5	10.5	38.0	16.0	46.9	19.0	11.6	53.7	*
LIABILITIES										
Mortgages	1.5	2.2	7.2	23.6	17.8	50.7	24.4	23.5	49.1	*
Debt on Other Prop	0.1	1.5	1.2	5.5	5.4	63.9	9.1	29.1	84.2	*
Miscellaneous OLs	8.8	9.5	8.8	35.0	12.5	32.0	15.5	23.5	54.3	*
Auto Loans	2.1	4.3	11.5	37.8	22.8	47.1	28.6	10.8	35.0	*
Other Lines of C	0.4	0.5	4.3	6.6	8.8	63.9	9.7	29.0	76.8	*
Credit Cards	3.3	7.2	11.5	32.3	22.8	46.3	29.5	14.2	32.9	*

Debt on RE, LC	*	*	2.8	12.3	5.4	56.2	12.8	31.5	78.9	*
Home Equity Lines	2.8	8.0	1.5	24.0	31.1	37.9	4.8	30.1	59.9	*
OTHER TOTALS										
Income	3.9	5.2	9.4	26.0	17.2	50.7	19.7	18.0	49.7	*
Net Worth	1.0	3.4	4.9	17.2	8.2	59.0	10.1	20.3	75.9	*

[1]Data are from the 1983 and 1989 Surveys of Consumer Finances. The "exogenous" marginal tax rate calculation is described in the text.

Appendix Table 2:[1] Portfolio Shares of Assets and Liabilities by Income Percentile, 1983 and 1989

| | Income Percentile | | | | | | | | | | | |
| | 0-60 | | 60-80 | | 80-90 | | 90-95 | | 95-100 | | All Households | |
ASSETS	1983	1989	1983	1989	1983	1989	1983	1989	1983	1989	1983	1989
Homes	52.8	50.0	49.5	49.5	47.1	50.3	31.5	41.4	16.4	19.1	34.1	36.7
Business Assets	13.6	16.3	12.5	10.9	13.4	11.2	29.5	10.1	27.0	31.0	20.8	19.9
Other Property	11.1	7.8	13.6	14.3	13.7	16.3	13.9	18.5	18.9	23.6	15.3	17.4
Equity	2.0	4.3	3.2	5.3	4.4	4.4	5.8	4.5	15.3	9.9	8.4	6.8
CDs	6.1	6.9	5.7	3.8	3.5	2.8	3.2	2.9	1.6	2.0	3.5	3.5
Trusts	0.7	1.3	2.1	1.6	1.3	1.4	1.2	2.0	4.9	3.0	2.8	2.1
$ Cash Value WL	3.3	1.7	3.9	2.9	3.7	2.7	1.7	3.2	1.7	1.5	2.6	2.1
Money Markets	2.1	2.1	2.6	1.3	2.3	2.7	2.6	1.2	2.7	2.6	2.5	2.1
Tax-exempt Assets	0.4	0.5	0.3	1.4	0.4	0.9	1.7	2.4	4.6	4.4	2.3	2.5
Saving	3.0	2.9	2.8	2.3	2.1	1.5	2.1	3.6	0.6	0.6	1.8	1.8
IRA/Keoghs	1.0	2.9	1.0	4.0	1.6	4.4	1.6	6.1	1.9	3.0	1.5	3.7
Taxable Bonds	0.3	0.5	0.4	0.8	2.2	0.8	2.4	1.8	2.0	2.4	1.5	1.5
Checking	1.7	2.6	1.2	2.9	1.1	1.8	1.1	1.9	0.7	1.8	1.1	2.2
Land Contracts	1.5	0.6	0.6	0.8	2.4	1.0	0.9	2.0	0.7	0.7	1.1	0.9
Mutual Funds	0.1	0.5	0.2	1.1	0.6	1.1	0.7	1.4	0.9	1.1	0.6	1.0
Saving Bonds	0.3	0.9	0.5	0.9	0.3	0.4	0.3	0.5	0.1	0.2	0.2	0.5
LIABILITIES (as a fraction of total assets)												
Mortgages	8.8	8.5	13.8	15.2	13.4	17.0	9.2	13.2	3.5	5.0	7.9	9.8
Debt on Other Prop	1.1	1.7	2.3	4.1	2.7	3.3	2.3	7.3	3.9	23.9	2.8	11.8
Miscellaneous Loans	2.0	1.6	1.2	1.2	1.2	0.6	0.9	0.2	1.4	0.6	1.4	0.9
Auto Loans	1.4	1.9	1.5	2.8	1.3	2.4	0.8	1.1	0.2	0.3	0.8	1.4
Other Lines of C	0.3	0.0	0.3	0.1	0.4	0.5	0.1	0.1	0.5	0.2	0.4	0.2
Credit Cards	0.4	0.6	0.5	0.7	0.4	0.7	0.2	0.4	0.1	0.1	0.2	0.4

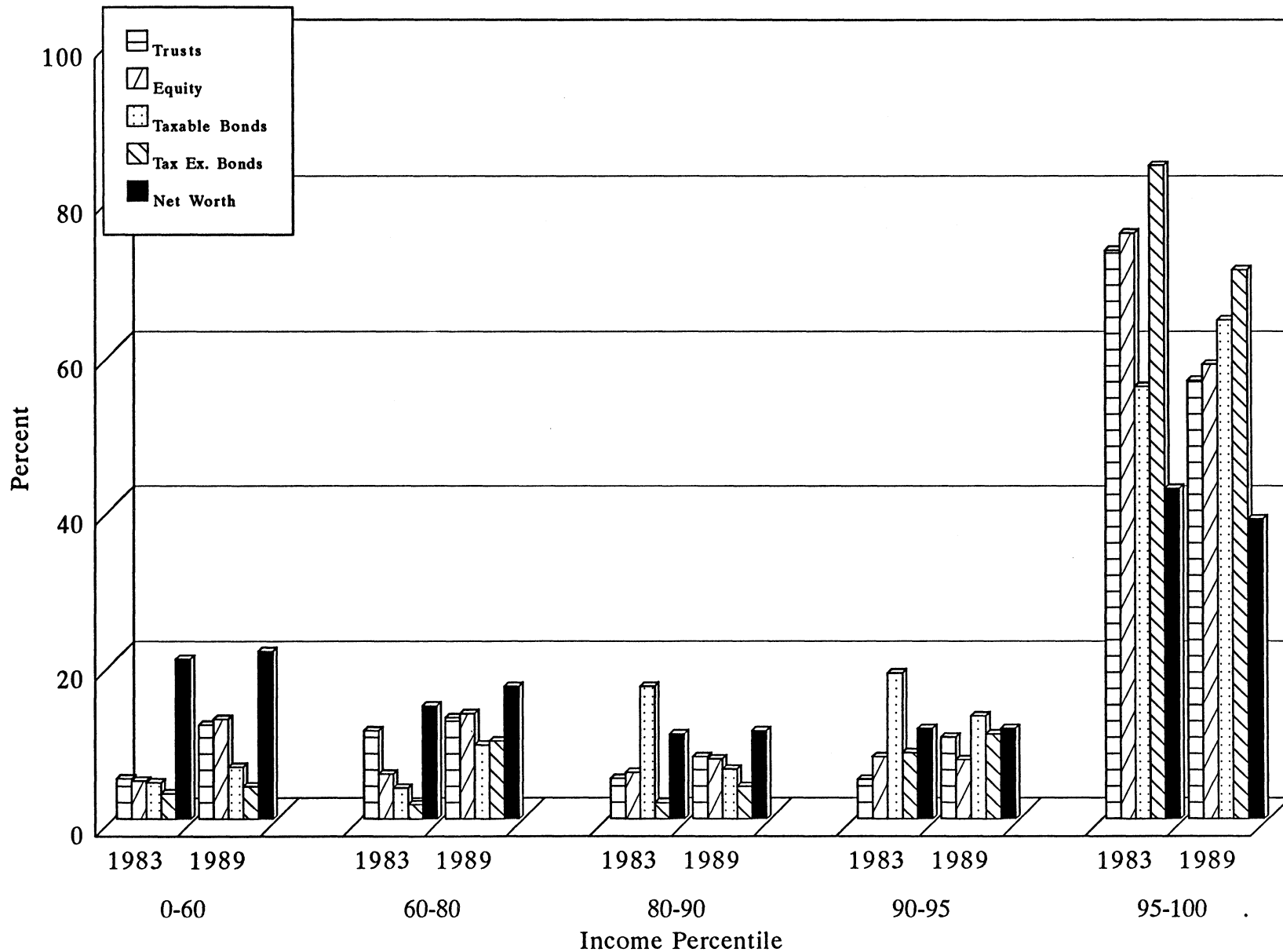|												
Debt on RE, LC	0.1	0.0	0.0	0.0	0.6	0.0	0.3	0.0	0.1	0.1	0.2	0.0
Home Equity Lines	0.1	0.3	0.1	0.7	0.0	0.7	0.2	0.5	0.0	0.4	0.1	0.5

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[1]Data are from the 1983 and 1989 Surveys of Consumer Finances. The figures represent the value of the given asset or liability as a percentage of household assets.

Figure 1: Cummulative Distribution of Assets
Held Disproportionately by Households in the 0 to 60th Income Percentiles
By Income Percentile, 1983 and 1989
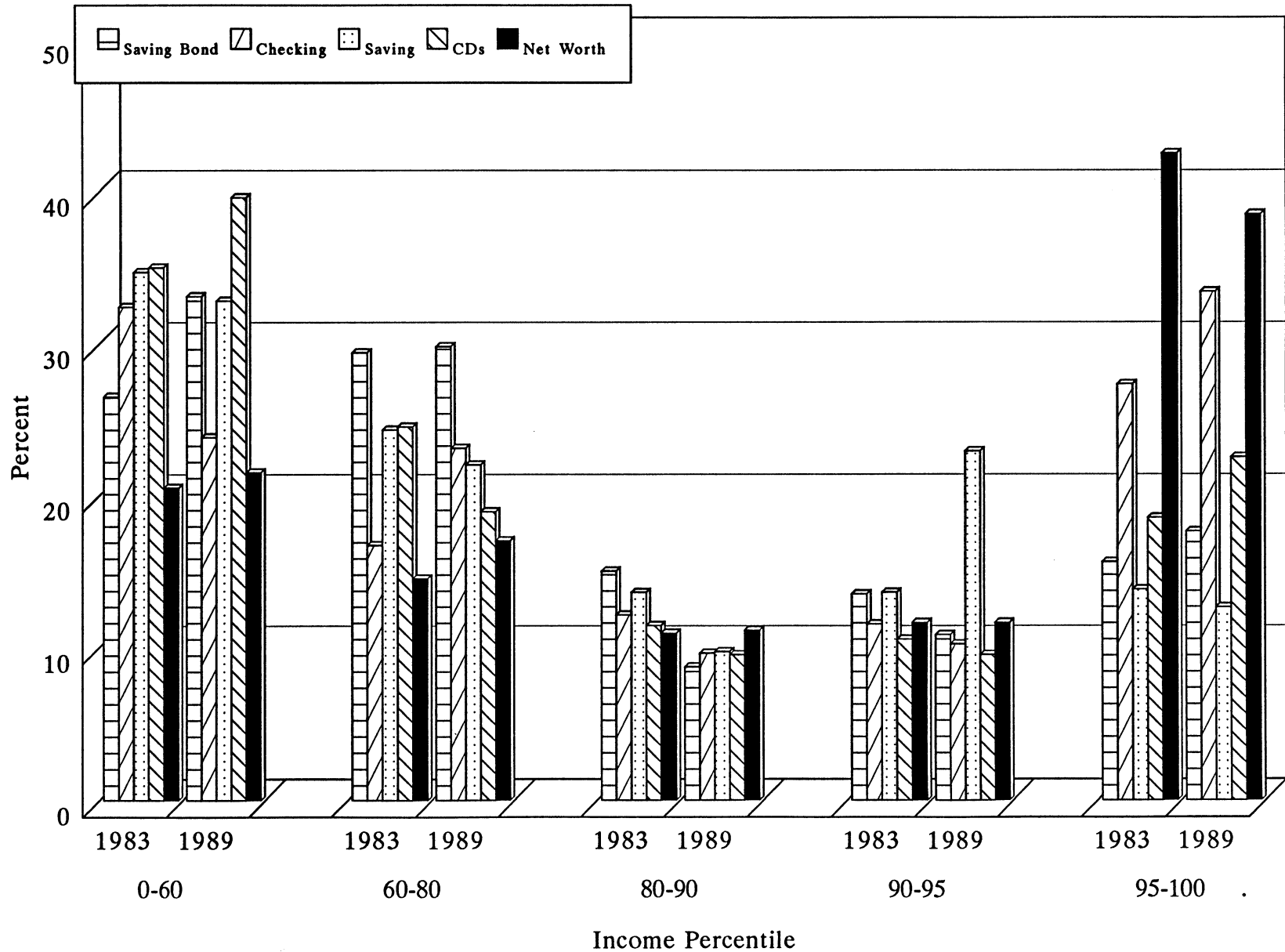
Legend: ⊟ Saving Bond · ⊠ Checking · ⊡ Saving · ⊠ CDs · ■ Net Worth

Y-axis: Percent (0, 10, 20, 30, 40, 50)

X-axis: 1983 1989 (0-60), 1983 1989 (60-80), 1983 1989 (80-90), 1983 1989 (90-95), 1983 1989 (95-100)

Income Percentile

Figure 2: Cummulative Distribution of Assets
Held Disproportionately by Households in the Top 5 Income Percentiles
By Income Percentile, 1983 and 1989

Legend:
- Trusts
- Equity
- Taxable Bonds
- Tax Ex. Bonds
- Net Worth

Y-axis: Percent (0, 20, 40, 60, 80, 100)

X-axis: Income Percentile
- 0-60 (1983, 1989)
- 60-80 (1983, 1989)
- 80-90 (1983, 1989)
- 90-95 (1983, 1989)
- 95-100 (1983, 1989)

Source: 1983 and 1989 Survey of Consumer Finances

Figure 4: Portfolio Shares of Homes, Other Property, and Business Assets
By Income Percentile, 1983 and 1989
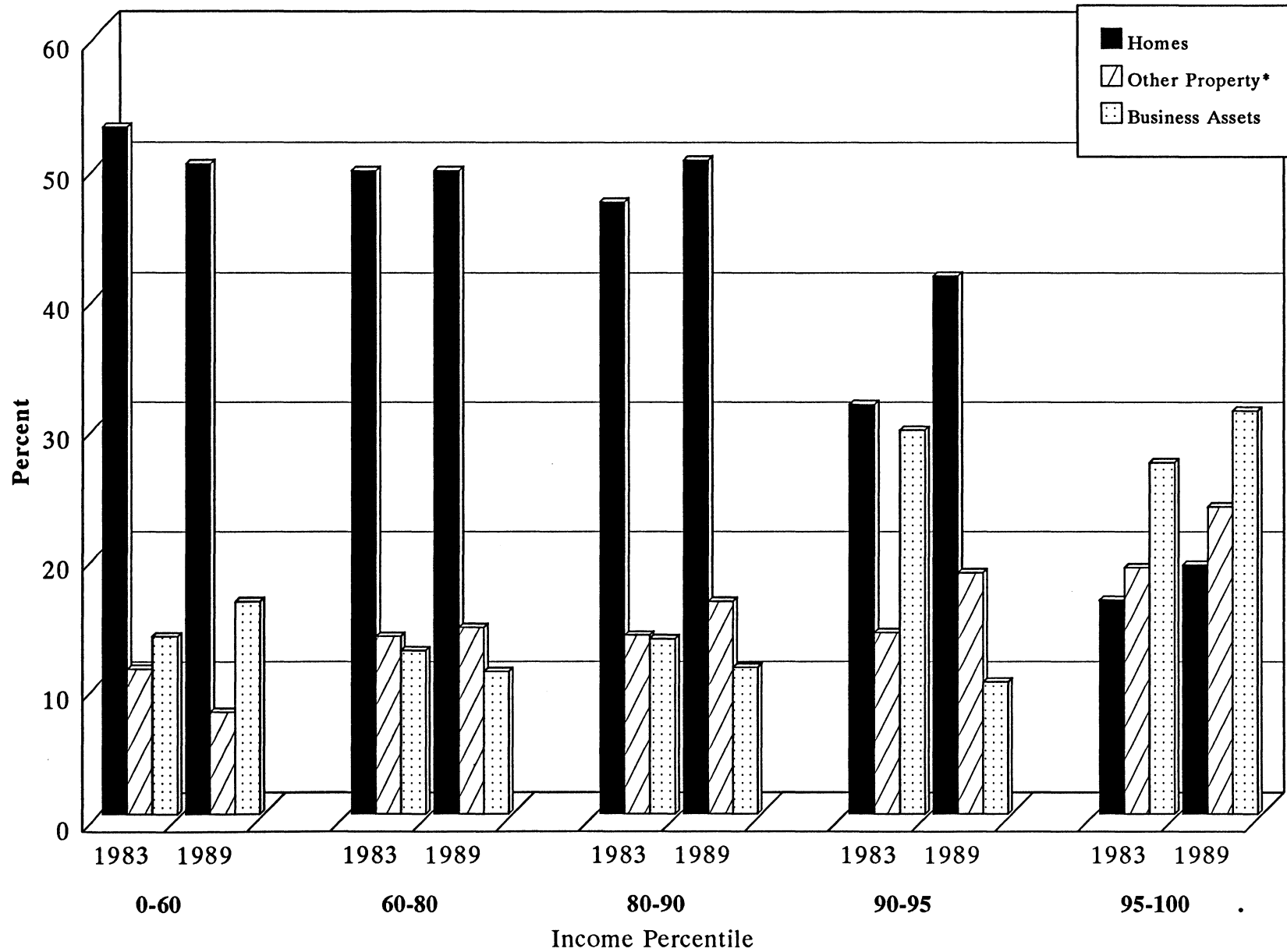
Legend:
- ■ Homes
- ▨ Other Property*
- ▦ Business Assets

Percent (y-axis: 0, 10, 20, 30, 40, 50, 60)

Income Percentile (x-axis groups: 0-60, 60-80, 80-90, 90-95, 95-100; each with 1983 and 1989)

Figure 5: Percentage of Dividend Payouts to Earnings, 1970-1991
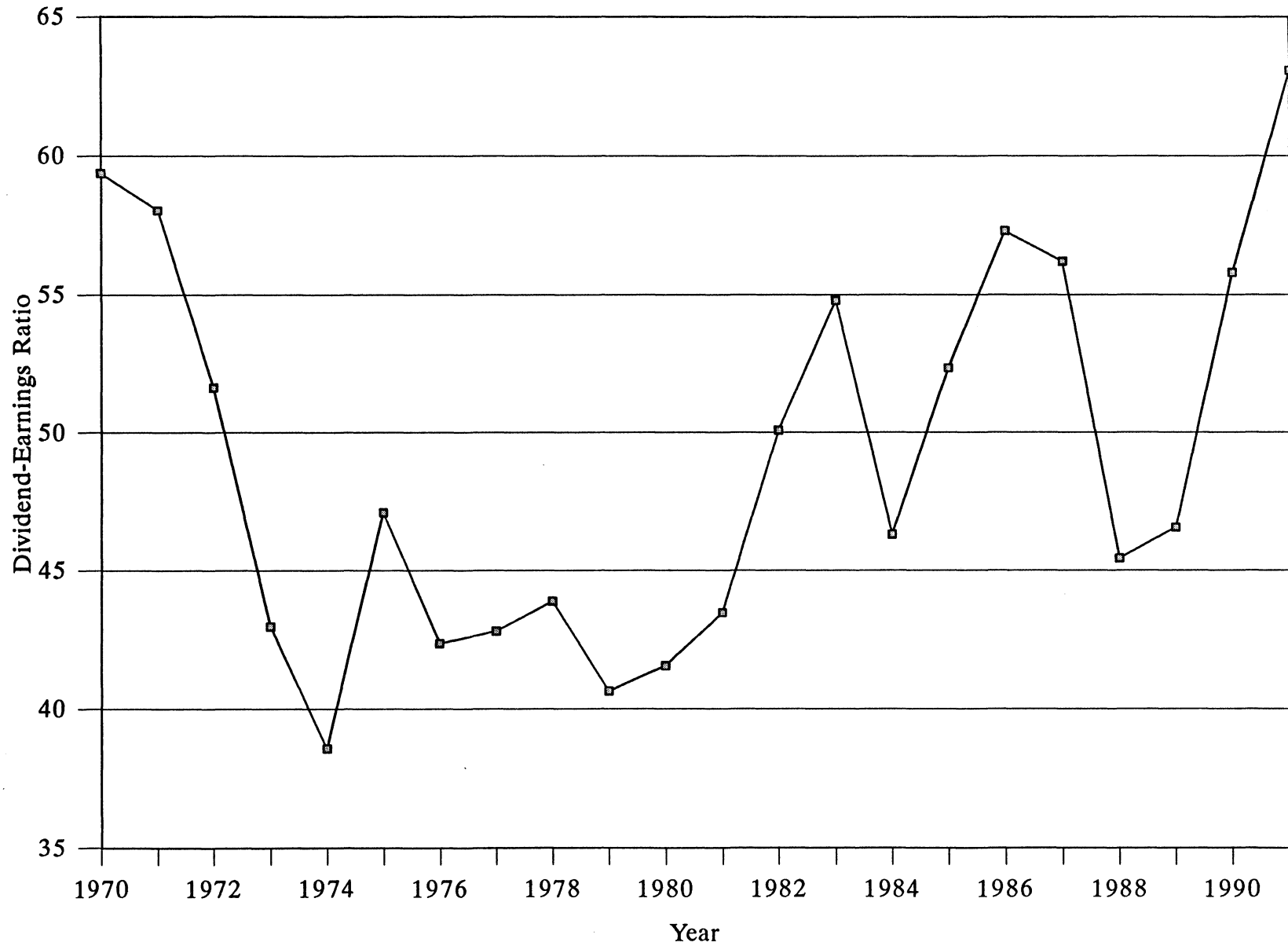
Figure 6: Credit Market Debt as a Percentage of
Financial Assets and Homes, 1970-1991
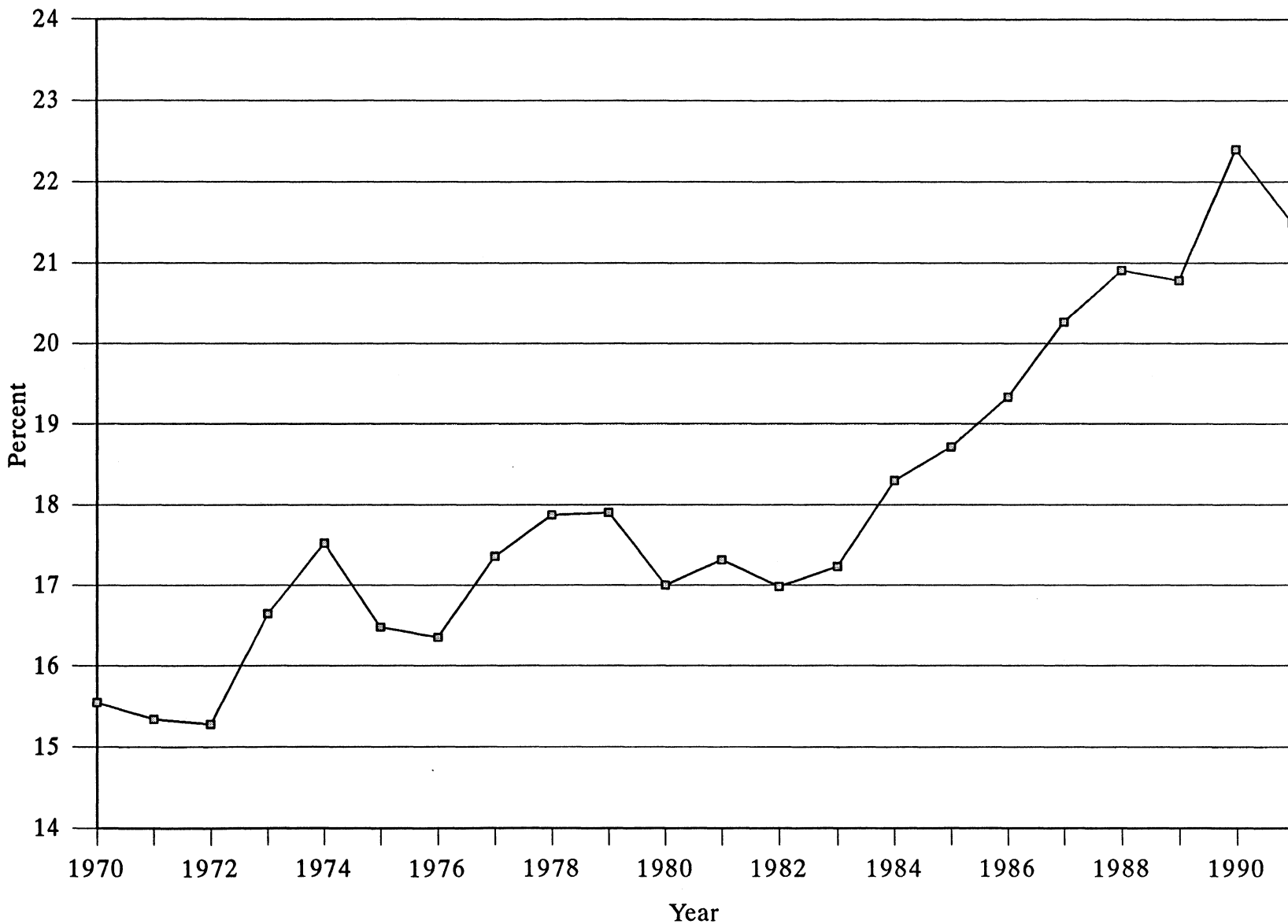
Figure 7: Portfolio Shares of Non-Deductible Loans as a Percentage of Assets
By Income Percentile, 1983 and 1989
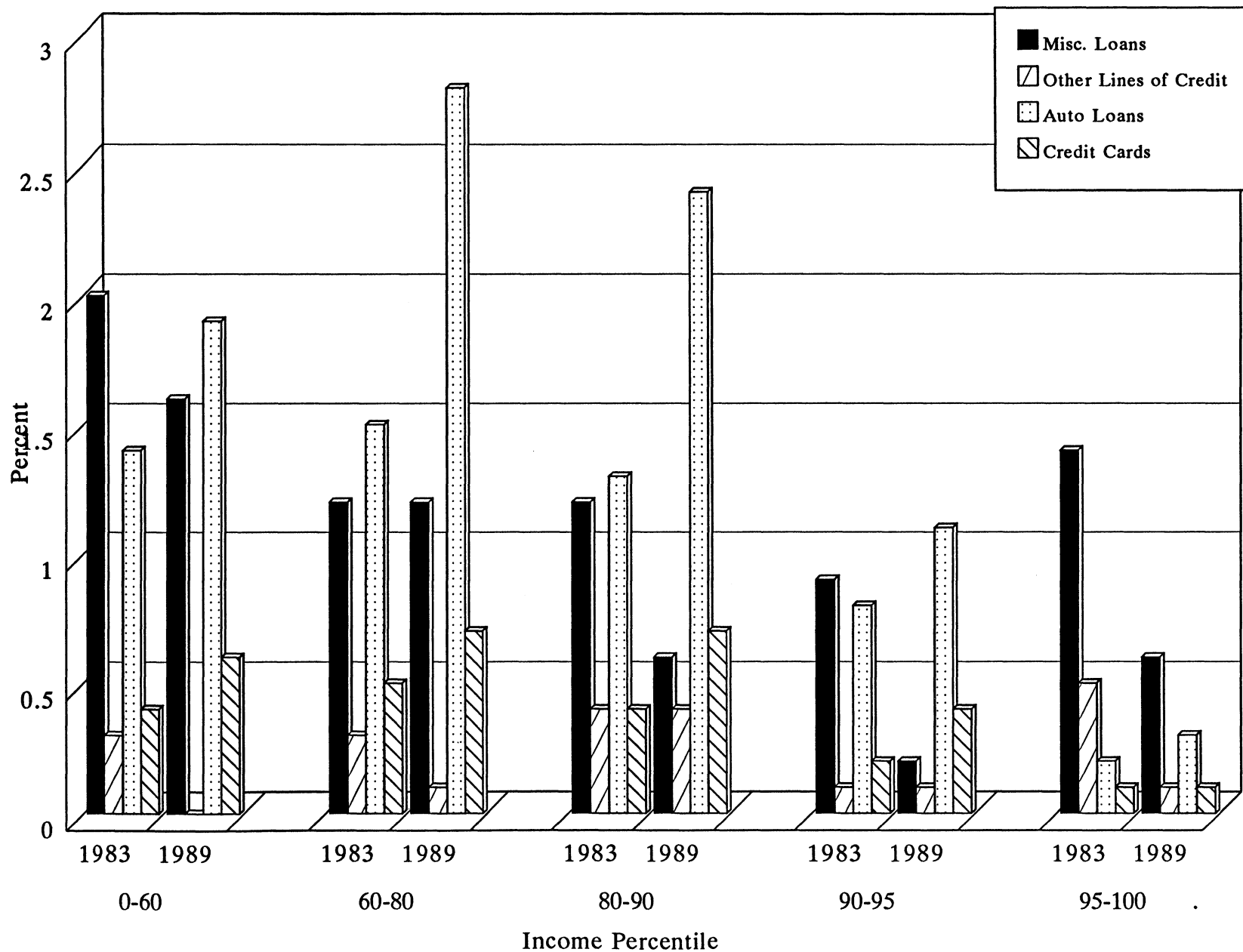
Source: 1983 and 1989 Survey of Consumer Finances

Figure 8: Portfolio Shares of Deductible Loans as a Percentage of Assets
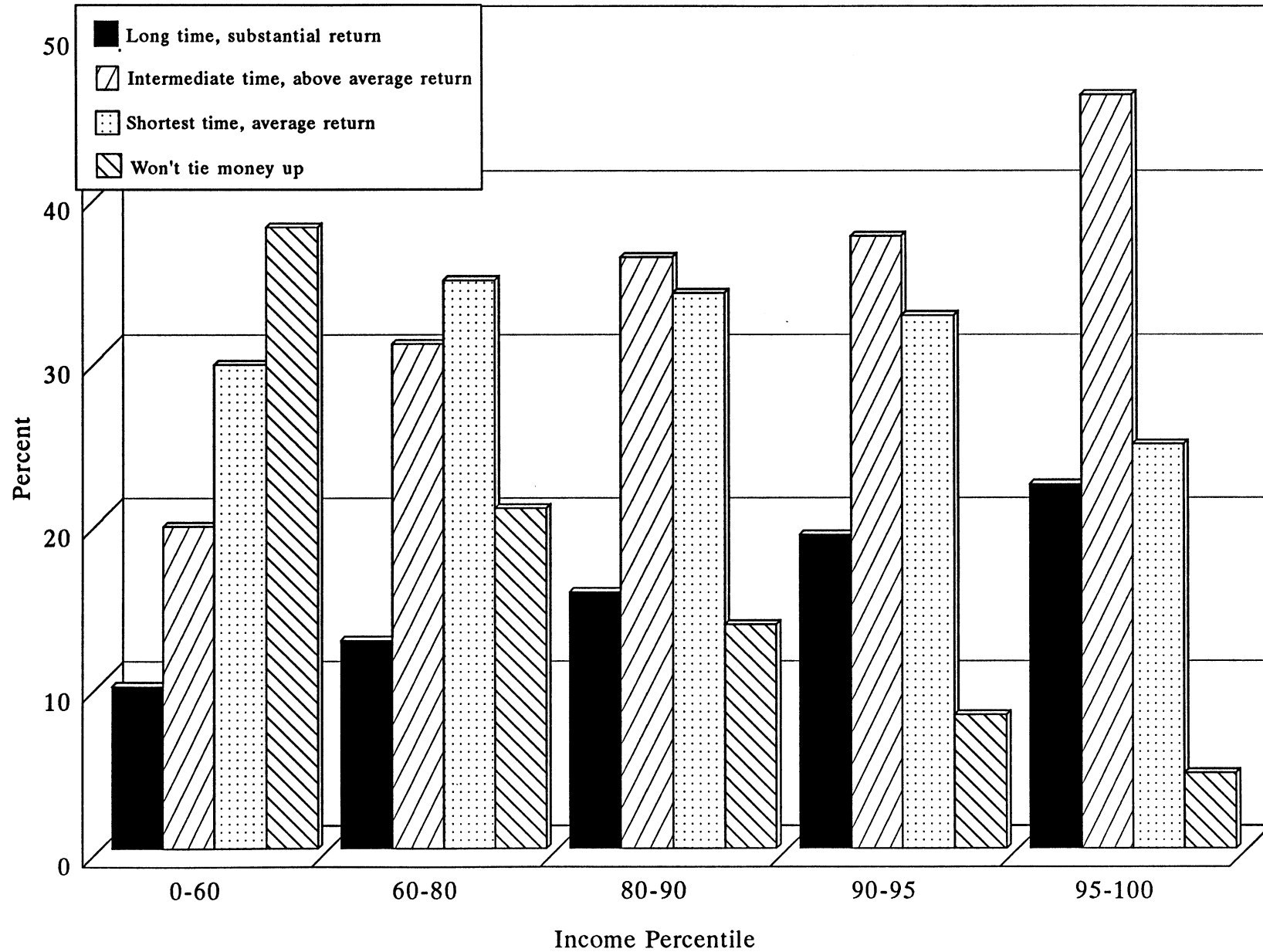## By Income Percentile, 1983 and 1989
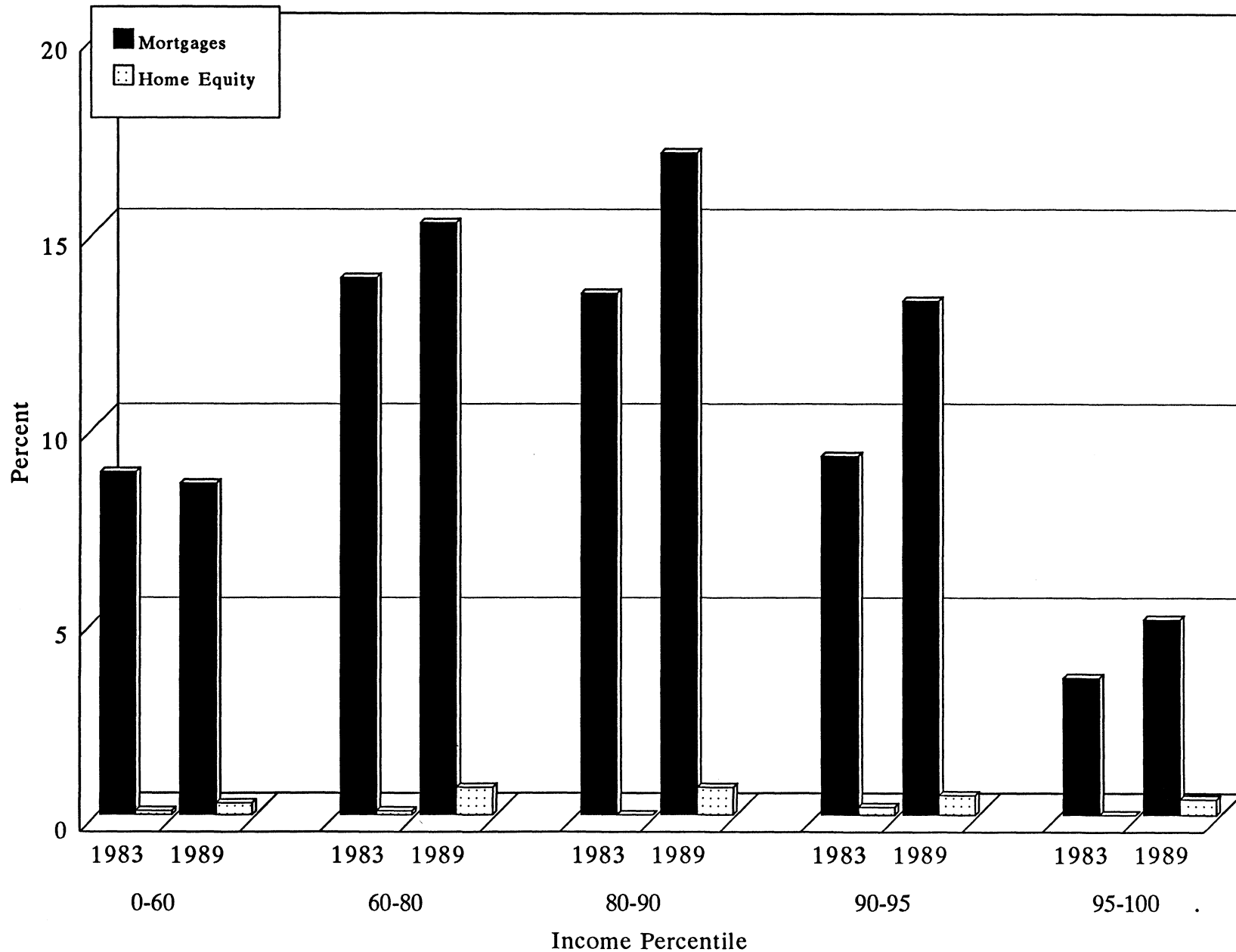
Source: 1983 and 1989 Survey of Consumer Finances

Figure 9: Percent of Households Receiving Professional Investment Advice
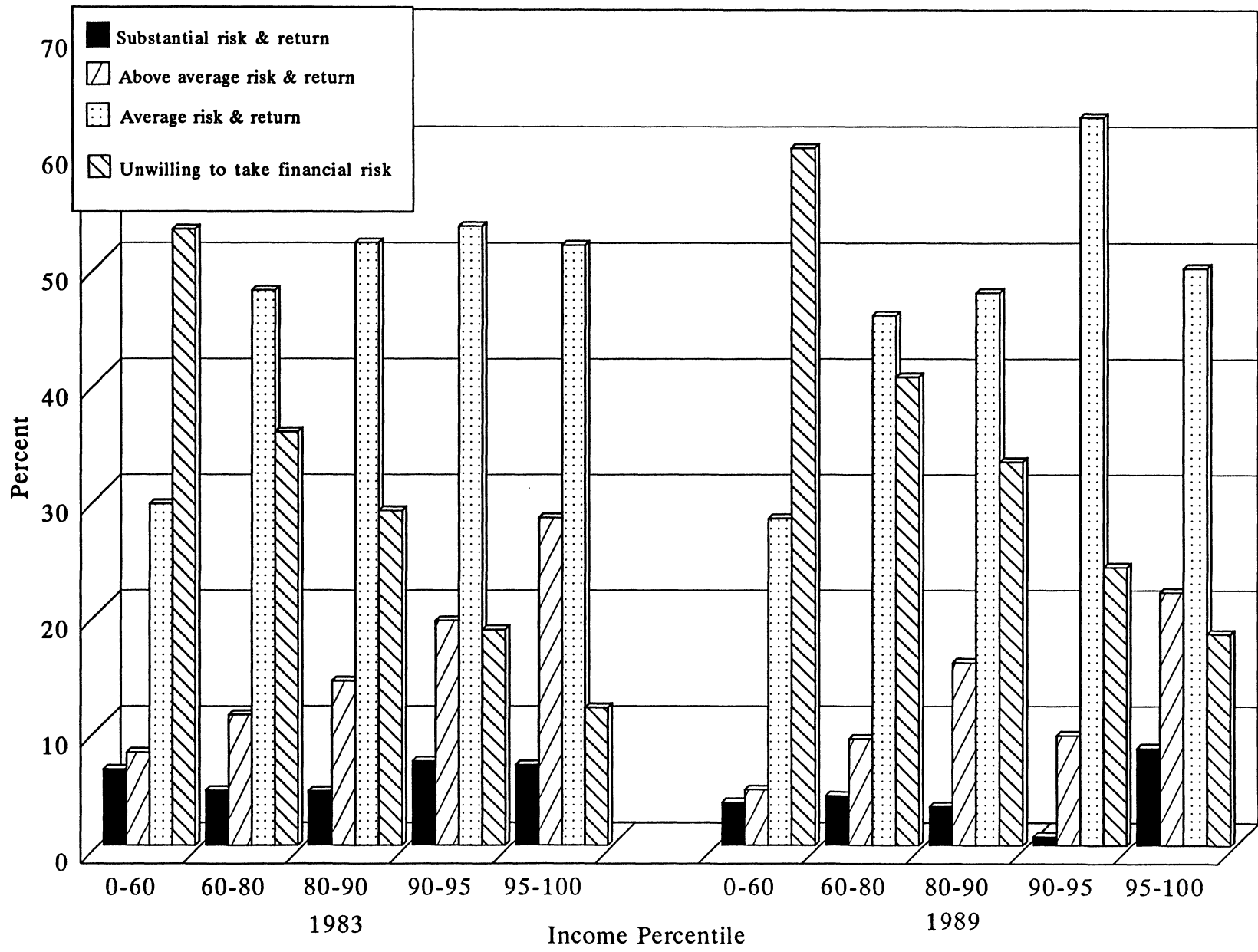### By Income Percentile, 1983
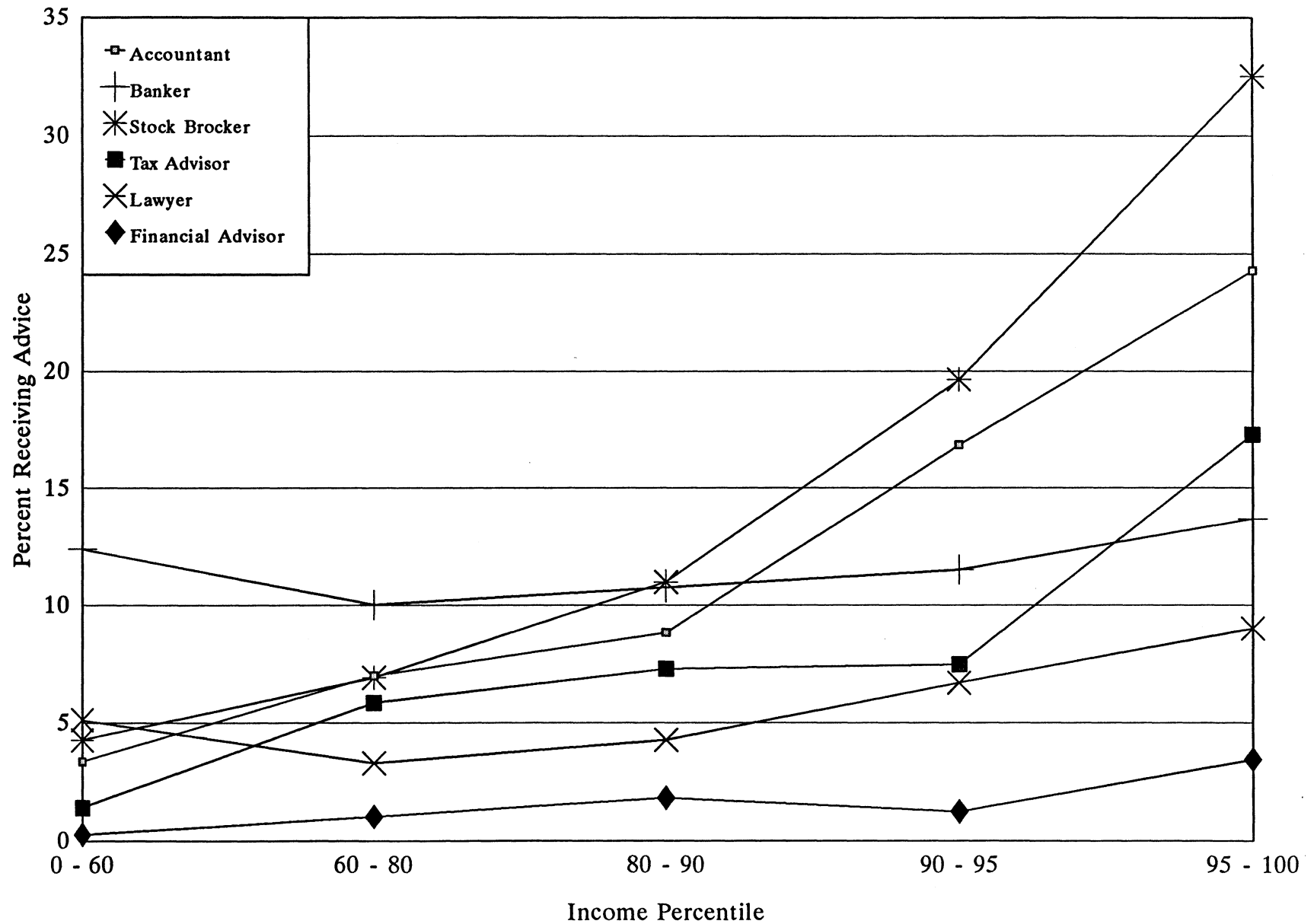
Source: 1983 Survey of Consumer Finances

Figure 10: Attitude Toward Liquidity, by Income Percentile, 1983

Legend:
- ■ Long time, substantial return
- ▨ Intermediate time, above average return
- ⬚ Shortest time, average return
- ◩ Won't tie money up

Y-axis: Percent (0, 10, 20, 30, 40, 50)

X-axis: Income Percentile (0-60, 60-80, 80-90, 90-95, 95-100)

Figure 11: Attitude Toward Risk, by Income Percentile, 1983 and 1989

Source: 1983 and 1989 Survey of Consumer Finances

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