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401(k) PLANS AND TAX-DEFERRED SAVINGS

James M. Poterba
Steven F. Venti
David A. Wise

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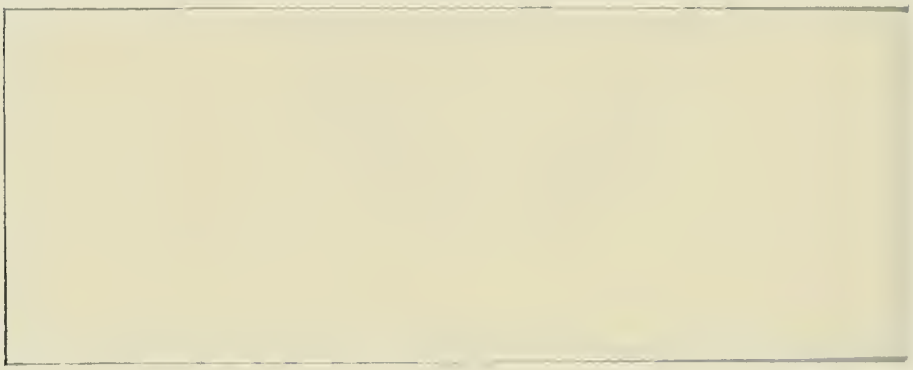
massachusetts
institute of
technology

50 memorial drive
cambridge, mass.02139



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James M. Poterba
MIT and NBER

Steven F. Venti
Dartmouth and NBER

David A. Wise
Harvard and NBER

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ABSTRACT

This paper examines the role of 401(k) plans in retirement saving by U.S. households. It charts the rapid growth of these plans during the 1980s; more than 15 million workers now participate in 401(k)s. Data from the Survey of Income and Program Participation are used to calculate 401(k) eligibility and participation rates by detailed age and income categories. For virtually all groups, 401(k) participation rates conditional on eligibility are much higher than take-up rates for IRAs, suggesting some important differences between these saving vehicles. We consider the interaction between 401(k)s and IRAs, and show that since 1986, only one-fifth of 401(k) contributors have also made IRA contributions. Some 401(k) eligibles who make limit contributions to their IRAs do not make 401(k) contributions. We also explore whether contributions to 401(k) plans represent "new saving." Comparing the net worth of households that are eligible for 401(k)s with that of households that are not eligible, and comparing the net worth of households that have been eligible for 401(k)s for many years with those who have been eligible for short periods, suggests that 401(k) saving has a negligible effect in displacing other private saving.

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Tax-deferred 401(k) saving plans were the fastest-growing employee benefit during the 1980s. Since there are penalties for early withdrawal of assets in 401(k) accounts, the contributions to these plans are likely to remain invested until workers retire. The growth of 401(k) plans therefore has the potential to significantly affect the financial status of future elderly households.

Tax-deferred saving accounts, including 401(k)s, have become an increasingly significant channel for personal saving in the United States. This trend began with the Economic Recovery Tax Act of 1981, which dramatically expanded eligibility for Individual Retirement Accounts and allowed individuals who were also covered by employer pension plans to contribute to these accounts. By 1985, more than 15 percent of all taxpayers made IRA contributions totalling more than $38 billion, or nearly one third of personal saving in the United States. More than 25 percent of all families had Individual Retirement Accounts, even though not all of them made contributions in 1985. The 1986 Tax Reform Act limited the scope for tax-deductible IRA contributions. These changes prompted a sharp decline in the number of IRA contributors, from 15.5 million in 1986 to 7.3 million (6.8 percent of tax returns) in 1987. Total IRA contributions declined from $38 to $14 billion.

Like IRAs, 401(k) plans are deferred compensation plans for wage-earners, but unlike IRAs, they are provided by employers. The plans were formally established by the Revenue Act of 1978, but were rarely used until the Treasury Department issued clarifying rules in 1981. If provided by the employer, the 401(k) plan permits the employee to contribute before-tax dollars to a retirement account. Taxes are deferred on the part of income that is contributed to the plan. The participant also benefits from tax-free

accumulation of the 401(k) investment, just as with IRAs, and may obtain additional benefits if the employer matches part of the employee contribution. Taxes are paid when funds are withdrawn from the account. The Tax Reform Act of 1986 reduced the annual limit on 401(k) contributions from $30,000 to $7,000, and added non-discrimination provisions to prevent plans from providing benefits exclusively to high-income employees. The $7000 contribution limit has been indexed since 1988, and is $8,475 for the 1991 tax year.

The availability of 401(k)s and participation in them expanded rapidly after the 1981 clarifying rules. In 1983, total employment at firms with 401(k) plans totalled 7.1 million; by 1988, the number of workers eligible to participate had increased to 27.5 million. The number of participants increased as well, from 2.7 million in 1983 to 15.7 million in 1988. Almost $40 billion was contributed to 401(k) plans in 1988, with an average employee contribution of about $2,500. Most large firms now have 401(k) plans. A Hewitt Associates survey (1990) of 902 major U.S. employers found plans at 92% of the firms in 1989. The recent adoption of 401(k)s has been fastest, however, at small firms: a Massachusetts Mutual (1988) survey shows that the number of small firms offering these plans increased from 8% in 1984 to 36% in 1988.

This paper provides a systematic analysis of the nature and significance of 401(k) plans. It is divided into five sections. Section one describes the structure of 401(k) plans, their eligibility rules, contribution limits, and typical balances. It presents summary information on 401(k) eligibility and participation decisions, with particular attention to participation patterns for those with and without IRA accounts. The second section considers the characteristics of 401(k) plans in more detail, and includes preliminary evidence on employer matching rates and withdrawal provisions. The third section focuses

on the overlap between IRA and 401(k) eligibility, directly addressing the extent of substitution between 401(k) and IRA saving and the correspondence between actual saving patterns and "rational" patterns. Section four examines the extent to which 401(k) contributions represent new saving. The analysis is based on changes over time in total assets of 401(k) participants, and differences between the net worth of households eligible for and ineligible for 401(k) plans. The results suggest that 401(k) plan contributions represent a net addition to saving, rather than transfers from other stores of wealth or displacement of other forms of saving. Section five is a brief conclusion.

1. 401(k) Plan Eligibility and Participation

The probability that an individual contributes a given amount to a 401(k) plan can be factored into the product of three probabilities: the probability of contributing that amount conditional on participating in a 401(k) plan, the probability of participating given that a plan is available, and the probability of being eligible to participate. We analyze each of these probabilities in turn.

The basic data are from the 1984, 1985, and 1986 panels of the Survey of Income and Program Participation (SIPP). Each panel is comprised of eight interview waves administered over two and one-half years. Data from wave 4 of the 1984 panel cover September through December 1984. Wave 7 of the 1985 panel and wave 4 of the 1986 panel cover the period January to April 1987. The same set of questions about income, assets, and personal retirement saving programs were asked of each panel, with one exception: the 1984 panel did not ask for the balance held in 401(k) accounts.

Five categories of financial assets are distinguished in our analysis: 401(k)s, IRAs, all other financial assets (excluding 401(k)s and IRAs), total financial assets, and debt. Other financial assets includes all liquid assets such as bank saving accounts as well as stocks and bonds, although in some cases, we present results excluding stocks and bonds. Total financial assets equal the sum of IRAs, 401(k)s (when available), and other financial assets.

The unit of observation is the household reference person and the reference person's spouse, if present. For a family to be included in our sample, the household reference person had to be between 25 and 65 years of age, at least one member of the family had to be employed, and no member of the family could report self-employment income. The last restriction is necessary because in most cases neither IRAs nor 401(k)s are feasible options for the self-employed.

The SIPP data are supplemented with data from two additional sources. The May 1983 and 1988 Current Population Surveys (CPS) provides data on 401(k) eligibility and participation and on IRA contributions. The 1989 Survey of Consumer Finances (SCF) provides information on the characteristics of 401(k) plans at the end of the 1980s. In addition, we have used IRA contribution data from the Internal Revenue Service.

1.1 Eligibility and Participation in 401(k) Plans

At the beginning of the 1980s, 401(k) plans were virtually nonexistent. By 1987, however, one in eight families participated in a 401(k) plan and one in five families were eligible for a plan through an employer. Table 1.1 reports the age and income characteristics of persons eligible for and participating in 401(k) plans in 1984 and 1987.

The proportion of families contributing to a 401(k) plan increased by 62 percent between 1984 and 1987, from 7.7 to 12.5 percent. The percent whose employer's offered such plans and were thus eligible to contribute increased from 13.3 to 20.0 percent. Perhaps the most striking feature of these plans is the high participation rate of those whose who are eligible, 58.1 percent in 1984 and 62.6 percent in 1987.[1]

The 401(k) participation rate of eligible families is more that twice as high as the participation rate in the IRA program, for which virtually all wage earners were eligible through the 1986 tax year.[2] For example, 25.4 percent of families had IRA accounts in 1984 and 28.8 percent had these accounts in 1987. In fact, the difference in participation rates is greater than these data suggest; the "rates" are not precisely comparable. A family is counted as "participating" in a 401(k) if it contributed to a plan in the year of the survey. But a family need only have an IRA account to be classified as participating in the IRA program. Thus the IRA rate overestimates the proportion of families currently contributing to an IRA. This difference is especially important after the 1986 restrictions on IRA eligibility.

Several factors may account for the higher 401(k) participation rate, including attractive employer matching, some degree of encouragement for worker participation from employers, or the presence in some plans of "hardship withdrawal" provisions that make

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[1]Throughout this paper we view 401(k) participation as a voluntary employee choice. Some employers make contributions to their employees' 401(k) accounts even if the employees choose not to make contributions. Only 24% of all 401(k) plans, and 5% of the plans at large employers, have this feature (see General Accounting Office (1988a)).

[2]The 1987 data are for the months January through April. IRA contributions made during this period are generally for the 1986 tax year. Thus 1987 IRA data from the SIPP typically reflect the tax rules in effect through 1986.

401(k)s somewhat more liquid than IRAs. In addition, 401(k) contributions are usually made through payroll deductions, which may serve as a form of self-control and ensure that a saving plan is adhered to. Once the payroll deduction form has been signed, saving is further removed from day-to-day competition with consumption; salary reductions never appear as spendable earnings.

The two lower panels of table 1.1 report the income and age characteristics of families eligible for and participating in 401(k)s in 1987. The third column of the middle panel reveals that 401(k) participation is closely related to income. Among families with incomes less than $10,000 about two percent participate in a 401(k). For higher income families the participation rate exceeds 25 percent.

The relationship between income and 401(k) participation that is graphed in figure 1 reflects both the relationship between income and 401(k) eligibility, and the correlation between income and contributions conditional on eligibility. While only about 4 percent of families with annual income less than $10,000 work for employers who offer 401(k) plans, almost 35 percent of those with incomes above $50,000 are eligible for such plans.[3] The 401(k) participation rate conditional on eligibility also rises as income rises, from about 50 percent for families with income less than $10,000 to 84 percent for families with income over $75,000.

The increase in participation as income rises is much less pronounced than the corresponding pattern for IRAs. IRA participation is only about 8 percent for families with

[3]Eligibility shows only a weak relationship to age, however. Given eligibility, more than 50 percent of families in almost every age-income group participate in 401(k) plans.

income less than $10,000, but increases to 67 percent for those with income above $75,000.

1.2 401(k) Balances

Table 1.2 shows that in 1987, the mean balance in 401(k) accounts was $1,237 for all households. The mean IRA balance was $2,836. Among those who had 401(k) accounts, the mean 401(k) balance was $9,862 in 1987, almost the same as the mean IRA balance of families who had IRAs, $9,841. Among participants, however, the median 401(k) balance is half the median IRA balance. There are fewer very large IRA account balances than there are 401(k) balances because of the lower legal contribution limit for IRAs. Table 1.2 also reports the distribution of 401(k) and IRA balances by income. The mean 401(k) balance was about 20 percent of the IRA mean for low income groups and about half of the IRA mean for high income groups. Conditional on participating in a 401(k), however, the mean 401(k) balance for high income households actually exceeds that in IRAs.

The stronger relationship of 401(k) than IRA assets to income, given participation, is probably the result of two effects. First, contributions to 401(k) plans, unlike IRA contributions, are typically specified as a percentage of salary. This applies to both employer and employee contributions. Thus high income employees tend to contribute more than their low income counterparts. Second, the contribution limits to the two plans are different. The IRA limit is typically $2,000. The 401(k) limit was $45,475 before 1982, $30,000 before the 1986 Tax Reform Act, and $7,000 thereafter. Thus there is much more latitude for 401(k) contributions to increase with income.

A large fraction of the financial assets of most families was in the form of IRAs or 401(k)s or IRAs. Table 1.3 reports median financial total and other assets, and 401(k) account balances and IRA balances, for families in 1987 classified by 401(k) and IRA participation. Even families that had only 401(k)s had a large fraction of their assets in this form -- $2800 versus $2149 in other financial assets. Families with both 401(k)s and IRAs typically had more in these accounts than in other financial assets, $18000 versus $14350. Families with both 401(k)s and IRAs had much larger balances in both accounts together than families with only IRAs had. The large share of assets held in 401(k) accounts will in all likelihood rise over time, as households continue to contribute to these accounts. It is particularly striking in light of the relatively short time that these plans have been available.

2. Characteristics of 401(k) Plans: Preliminary Evidence

This section presents descriptive evidence on characteristics of 401(k) plans that may affect the degree to which they are viewed as substitutes for other tax-deferred saving vehicles. These plan characteristics should also feature prominently in future work on 401(k) participation decisions.

2.1 Employer Matching Rates

A 1988 General Accounting Office (1988a) survey of 401(k) plans suggested that participation rates are much higher in plans with some employer matching of worker contributions. Table 2.1 presents summary tabulations from the GAO survey. While the employee participation rate in plans without any matching was less than 50%, the rate

exceeded 75% in plans with employer matching. The increase in participation rates as the firm match rate rises is less clear, but the nearly 90% participation rate for plans with more than dollar-for-dollar matching suggests there may be some incremental effects.

The data in table 2.1 also suggest that employees tend to contribute a higher fraction of their salary when employer match rates are more generous. Conditional on participating, employees at firms with no matching provisions contribute 3.5% of their salary. Those with plans matching more than dollar-for-dollar, however, contribute an average of 8.6% of salary.

We also investigated the importance of matching using the 1989 Survey of Consumer Finances (SCF), which includes information on both the employer match rate and the amount of employee contribution. Table 2.2 shows that nearly forty percent of 401(k) participants in the SCF face match rates less than 10%, while one quarter are matched more than dollar-for-dollar by their employers. For these employees, 401(k)s are clearly superior to IRAs even when the IRA contribution is tax-deductible. The GAO (1988a) tabulations show that 51% of the firms sponsoring 401(k) plans matched employee contributions. As in the SCF, the GAO found that the majority of plans with matching provisions involved dollar-for-dollar matching. The similarity between the GAO and SCF results is encouraging, because the underlying sampling rules are different. The GAO results weight each plan equally, while our SCF tabulations average across households and therefore weight plans in proportion to their number of contributors.

Table 2.3 displays the distribution of employee contribution rates, as a share of salary, for those who reported 401(k) participation in the 1988 CPS. Most employees contribute between three and nine percent of their salary to the 401(k) plan. These results

are similar to those from the 1989 Survey of Consumer Finances, although many more SCF participants (10.3%) indicated zero employee contributions to the plan.

2.2 Other Plan Provisions

Employer matching rates are probably the most important dimension along which 401(k) plans differ, but there are many other features of these plans that can affect their attractiveness as saving vehicles. Table 2.4 presents descriptive information on the plans surveyed by the General Accounting Office in 1987. The table describes four plan provisions and yields no strong evidence on the link between these provisions and participation rates.

Participation rates are slightly higher in plans that preclude employees from borrowing against their accumulated balances, making their own investment choices, or making hardship withdrawals of their own contributions. While the differential participation rates are relatively small in all three cases, the pattern is surprising since employees appear more likely to participate in plans that reduce their financial flexibility. These data are an invitation to further work, since the bivariate tabulations do not control for match rates or characteristics of the firm or workers covered by these plans.

3. Are 401(k)s and IRAs Substitutes?

A central issue in evaluating the net saving effects of tax-advantaged saving plans is the extent to which these plans serve as substitutes for other forms of saving. The net saving effect of 401(k) plans depends both on the extent to which individuals treat them as

substitutes for traditional saving vehicles, and on the extent to which 401(k) plans substitute for other tax-advantaged saving plans such as IRAs.

Focusing on household behavior with respect to only one saving incentive program may yield misleading inferences about the consequences of changing the provisions of that program. For example, an increase in the IRA contribution limit is typically viewed as affecting the opportunity set of an individual who is making the maximum possible IRA contribution. However, this may be incorrect if the IRA contributor is also participating in a 401(k) plan but not contributing to the 401(k) limit, since this person's total tax-deferred saving is not constrained. If 401(k) and IRA accounts are treated as perfect substitutes, then changing the IRA limit should not affect the saving of such a household.

In contrast, a high income worker who is not eligible to make a tax-deductible IRA contribution might change her saving if an employer 401(k) plan became available to her. If she contributed the 401(k) maximum, then changes in this limit would directly affect her saving. A "rational" saver should never contribute less than the maximum to a 401(k) and also make a non-deductible IRA contribution, since raising the former and reducing the latter would reduce her current tax liability with no change in net worth.

A few high income households make limit contributions to both a 401(k) plan and an IRA.[4] If these households do no further saving through taxable channels, then changes in the IRA contribution limit or the 401(k) limit will almost surely affect their total saving. If these households save through taxable channels, then all tax-deferred saving might be

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[4]Two-thirds to three-quarters of all IRA contributions are at the contribution limit. Only about three percent of all 401(k) contributions are at the post-1986 legal contribution limit. However, about 40 percent of firm 401(k) plans place additional limits on the contributions of some highly paid employees to comply with "nondiscrimination" tests for pension plans. See GAO [1988a] and Hewitt [1988].

thought of as infra-marginal. If individuals treat all forms of saving as perfect substitutes, then changing either contribution limit would not affect net saving. A central issue in evaluating the net saving effects of IRAs is the degree to which IRA and other forms of saving are treated as substitutes. [5]

To illuminate the pattern of substitution between IRA and 401(k) saving and the correspondence between actual saving patterns and "rational" patterns, this section presents data on the interaction between IRA and 401(k) saving.

3.1 The Overlap Between 401(k) and IRA Saving

Table 3.1 presents evidence on the overlap between IRA and 401(k) saving. The data show the percent of persons who make 401(k) contributions who also participate in IRAs. The Survey of Income and Program Participation (SIPP), the source for these tabulations, indicates whether a family has an IRA account in each year, but does not report whether a contribution was made in that year. Even in the early years of the IRA program the percentage of families contributing in a given year was less than the percentage with an account. In later years, particularly following the Tax Reform Act of 1986, the two percentages diverged as families that were once regular participants stopped contributing. In 1987, for instance, more than twice as many families had accounts as contributed.

To provide information on IRA contributions as well as accounts, we therefore present data from the Current Population Survey (CPS), which reports the percentage of persons making an IRA contribution in the 1982 and 1987 tax years. Because the 1987

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[5]This is the focus of empirical work by Feenberg and Skinner (1989), Gale and Scholz (1990), Venti and Wise (1986, 1990a,1990b, 1992).

CPS data pertain to the 1987 tax year, they reflect the eligibility restrictions imposed by the TRA of 1986. In 1987, 47 percent of 401(k) contributors also had IRA accounts. The CPS data for 1987 reveal that only 17 percent of 401(k) contributors also made an IRA contribution, a substantial decline from 37 percent in 1982.

3.2 401(k)s and the Post-1986 Fall in IRA Contributions

It is tempting to conclude that as 401(k)s became more widely available, they displaced IRAs because employer matching made them more attractive. A large fraction of 401(k) contributors became ineligible for the full tax advantages of the IRA after 1986, however, and this may have induced a decline in IRA contributions even without any 401(k) substitution. This view is supported by the similarity between the decline in IRA participation among households that are eligible, and ineligible, for 401(k)s. The proportion of all tax filers making IRA contributions rose from 12.6 to 15.9 percent between 1982 and 1986, and then fell to 6.8 percent in 1987. The decline in IRA participation for 401(k) participants thus mirrors the population reduction, suggesting that tax reform and not the diffusion of 401(k)s explains the IRA decline.

The sharp decline in IRA contributions after 1986 was common to all income groups. Table 3.2 shows the percent of persons who contributed to an IRA, by 401(k) eligibility status and by income interval, in 1982 and 1987. The data suggest several important conclusions that are made clear with the aid of figure 2. First, controlling for income, the percent of 401(k) eligibles who contributed to an IRA in 1982 was very close to the percent of ineligibles who contributed. The contribution rates are significantly different only for the less than $10,000 and greater than $75,000 income groups, for which the percent of

eligibles contributing to IRAs is higher than the percent of ineligibles.[6] If IRAs and 401(k)s were viewed as close substitutes, then IRA accounts would be less prevalent among those eligible for a 401(k). These data consequently cast doubt on either standard assumptions about saving behavior, or the assumption that IRAs and 401(k)s are perfect substitutes.

Second, the decline in IRA contributions after 1986 is also inconsistent with a high degree of substitution between IRAs and 401(k)s. The Tax Reform Act of 1986 phased out the tax deduction for IRA contributions for higher income taxpayers, married filing units with incomes above $40,000 and single filers with incomes above $30,000, provided they were also covered by an employer-sponsored pension plan. Approximately 73 percent of all tax filers were unaffected by the changes. Given these changes, one would have expected little change in IRA contribution behavior at low income levels, and the greatest response among high-income households that were eligible for a 401(k) plan.[7] In fact, the percent contributing to IRAs fell dramatically for all income groups after 1986, and it was largely independent of 401(k) eligibility. Only for the greater than $75,000 income group was the fall in the contribution rate for 401(k) eligibles significantly greater than the fall in the contribution rate for the 401(k) non-eligibles. Thus the availability of the 401(k) option cannot explain the drop in IRA contributions.

Figures 3a and 3b present IRA contribution rates for 1985 and 1988, by income interval, without accounting for 401(k) eligibility. The data used to construct these figures

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[6]Appendix A presents estimates of standard errors for the levels and differences in participation rates for various income groups.

[7]An alternative view is that the Tax Reform Act of 1986 lowered marginal tax rates and thus made the IRA tax deduction less attractive. But IRA contributions fell even for low income families that experienced little change in marginal tax rates due to the 1986 legislation (see Hausman and Poterba (1987)).

are from the IRS Statistics of Income series. Actual rates are shown in figure 3a, and the percent decline between 1985 and 1988 is presented in figure 3b. Families that lost the up-front tax deduction virtually quit contributing after the 1986 legislation. Close to 70 percent of families with incomes greater that $50,000 made IRA contributions before 1986. But after the legislation, the proportion fell by almost 90 percent, to less than 10 percent. Families with incomes between $40,000 to $50,000 -- over which the upfront deduction was phased out -- reduced their contribution rate by 70 percent. Even lower-income families unaffected by the legislation reduced their contributions by between 40 and 50 percent.

The across-the-board reduction in the IRA contribution rate was undoubtedly due in part to a misperception of the 1986 legislation, especially among lower income families. Higher income families may also have misunderstood the legislation, thinking that both the up-front deduction and the tax-free accumulation of returns had been eliminated. The systematic decline in IRA contributions also suggests that the promotion of these accounts may have been an important determinant of their widespread use.

Third, the pattern of contribution rates in 1987 suggests only a modest relationship between IRA contributions and 401(k) eligibility. The rates for 401(k) eligibles are significantly lower than the rates for non-eligibles in income categories above $40,000. At lower income levels, however, their is little relationship between IRA participation and the availability of a 401(k) plan. Indeed, the rate for eligibles is significantly higher than the rate for non-eligibles in the two lowest income intervals. This suggests that for households that remained eligible for tax-deductible IRAs after the 1986 tax reform, 401(k) saving did not displace IRA saving.

Taken together, the results suggest that IRA contributions were curtailed as a result of the 1986 tax reform but not displaced by 401(k)s.

3.3 IRA & 401(k) Saving by 401(k) Eligibles

Table 3.3 provides information on the saving behavior of all families eligible for 401(k)s in 1987. The first column, based on SIPP data, pertains to families and indicates whether the family has an IRA account in 1987. The second column, based on CPS data, pertains to individuals and indicates whether the individual contributed to an IRA in 1987. Only about a third of 401(k) eligibles saved in neither a 401(k) nor an IRA. Among those eligible for a 401(k), 40 percent have an IRA account and 10.4 percent have only an IRA; 15.5 percent contribute to an IRA and 5.1 percent contribute only to an IRA. The IRA contribution rate for those eligible to make 401(k) contribution far exceeded the IRA contribution rate for all tax filers in 1987, but this is due to the higher income of 401(k) eligibles. Controlling for income, there is little difference between the two groups except at higher income intervals, as shown in table 3.2.

3.4 IRA Limit Contributors and 401(k) Saving

The overlap between 401(k)s and IRA saving for families making maximum possible IRA contributions in 1984 is shown in table 3.4. It might be presumed that persons at the IRA limit are constrained by the limit and thus would like more tax-deferred saving. Indeed, 66 percent of families at the IRA maximum do save more in a 401(k) plan if they are eligible for such a plan. The significant fraction that does not take advantage of the 401(k) is striking because employer matching typically makes 401(k) plans more attractive

than an IRA. Perhaps some families are only motivated to make an IRA contribution to shelter income at the time of filing a tax return, and do not consider the role of IRAs in an ongoing saving plan. This is consistent with the finding that a third to one-half of all IRA contributions are made between the end of the tax year and the April 15 filing deadline [Summers (1986), Skinner (1992)].

Among families who were eligible to participate in a 401(k), 26.2 percent made an IRA contribution. Of those who made a 401(k) contribution, 31 percent also contributed to an IRA. Although the data do not indicate whether the 401(k) contributors who made IRA contributions were at the 401(k) limit, it is likely that most were not. This pattern is also surprising, since 401(k)s probably yield higher returns, inclusive of employer matching, than IRAs for many households.

The results in this section cast doubt on the assumption that all forms of saving, and particularly saving in 401(k)s and IRAs, are treated as perfect substitutes. They also raise doubts about the extent to which all households are "rational" savers, basing saving decisions on economic return criteria only. The relationship between 401(k) eligibility and IRA saving is weak, and a substantial proportion of families save in IRAs even though they could make additional 401(k) contributions. Understanding why some households save through dominated saving instruments is an important issue for future work.

4. The Saving Effects of 401(k) Plans.

To investigate whether 401(k) contributions represent "new saving," one could compare the total non-401(k) saving of 401(k) contributors to the total non-401(k) saving of non-contributors. Contributors save more in non-401(k) forms than non-contributors,

even after controlling for differences in income, and thus the total saving of 401(k) contributors exceeds the total saving of non contributors. This does not necessarily mean that 401(k)s increased total saving, because the comparison of contributors to noncontributors ignores individual specific saving effects. Some families are "savers" and some families are "nonsavers," and the former are likely to save more in all available forms. Convincing evidence on the net saving effect of 401(k)s therefore requires a more subtle test.

We use two simple approaches to consider the saving effect of 401(k)s, both intended to control for individual-specific saving effects. The first considers two demographically similar random cross-sections of "like families" that have been "exposed" to 401(k) and IRA plans for different periods of time. Since age, income, and other characteristics of the two cross-sections are similar, one would expect saving balances also to be similar. However, the 1984 sample has had only about two years (1982 to 1984) to accumulate 401(k) and IRA balances, but the more recent sample has had about five years. The central question is whether longer "exposure" to these plans results in higher levels of saving.[8] Our second approach relies on the natural experiment that is provided by the largely exogenous determination of 401(k) eligibility. It considers whether eligibility is associated with higher levels of total saving, holding income constant. This approach views 401(k) eligibility as

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[8]An issue that cannot be controlled for with this approach is the possibility that the persons who took up the 401(k) option were those who were about to change their saving behavior and the 401(k) just happened to be available at the opportune time, and it was used as the saving vehicle for the reborn saver who would have increased saving in another form, had it not been for the 401(k) option. The second approach tends to minimize the potential confounding of effect of this coincidence possibility. This issue is discussed in more detail with respect to IRAs in Venti and Wise [1992].

the "treatment" in a "natural experiment" to evaluate the effect of tax incentives for saving.

4.1 Changes in Assets of "Like Families," 1984 Versus 1987

In this sub-section we compare two independent samples of households that contribute to 401(k)s. The samples are randomly chosen, and thus are similar with respect to age, income, and other economic and demographic characteristics. One sample is from 1984 and the other is from 1987. In principle, we are comparing a typical person age, say, 40 in 1984 to another person age 40 in 1987. Both persons are at the same point in the life-cycle and would presumably have accumulated the similar levels of assets, abstracting from possible aggregate effects due to asset appreciation rates between 1984 and 1987.

There is one important difference, however. The 401(k) contributor in 1984 had roughly two years over which contributions could be made; the 401(k) contributor in 1987 had roughly five years. If 401(k) contributions represent asset transfers then the total asset balances of the 1984 and 1987 contributors should be roughly the same -- additional 401(k) contributions made by the 1987 contributor would replace saving that would have been made in other forms. If 401(k) contributions represent new saving, however, then the total financial assets -- including 401(k)s -- of the 1987 contributor should exceed the total assets of the 1984 contributor by the amount contributed to 401(k)s between 1984 and 1987.

The assets of families that had 401(k) plans are shown in the first panel of table 4.1. The financial assets of these families in 1987 data are shown in the second and fourth columns of the panel. The median of total financial assets was about $6,100 excluding and $7,300 including stocks and bonds. We would like to know how much financial wealth families like these had in 1984. Was it about the same as in 1987, suggesting no net saving

effect, or did it increase, suggesting a net addition to saving? We assume that the families that participated in 401(k) plans in 1987 are like those that participated in such plans in 1984, except that the 1987 families were able to make plan contributions for two or three more years. The data for 1984 are not complete, however, because the SIPP did not obtain 401(k) asset balances in that year. Thus both 401(k) and total financial asset balances are missing.

It is nonetheless possible to make rough judgements about the net saving effect of the 401(k) contributions. No change in non-401(k) asset balances would suggest no substitution of 401(k) for other forms of saving, and thus that 401(k) balances represented net new saving, no matter what the magnitude of the 401(kl) saving. The data, however, show a small decline in the median of other -- non-401(k) -- assets between 1984 and 1987, about $850 including stocks and bonds and about $300 excluding stocks and bonds. Median debt increased by about $200 dollars. Thus, we would like to compare this decline with the increase in 401(k) assets.

The increase in the median 401(k) balance was undoubtedly substantial, but we can provide only a rough approximation of the amount of the increase. About 40 percent of the families that had plans in 1987 did not have them in 1984. The typical 401(k) contribution is well above $2,000 (actually about $2,500). Thus, as a rough approximation, assume that the 401(k) balances of employees who had accounts in 1984 increased about $5,000 between 1984 and 1987. Again as a rough approximation, assume that the increase for those who began to contribute after 1984 was about $2,500 on average. The average increase would then be about $4,000 (.4x2500 + .6x5000). If these 401(k) contributions replaced saving that would otherwise have occurred in other forms, the non-401(k) assets of the contributors

should have fallen by about the same amount as the increase in 401(k) assets. But the decline in other assets was much smaller than the probable increase in 401(k) assets. This suggests that the 401(k) contributions represented net new saving in large part.[9] In contrast to the substantial increase in the financial assets of families with 401(k)s, families without 401(k)s had about the same median wealth in both years -- exactly the same excluding stocks and bonds and $1,949 in 1984 versus $2,000 in 1987 if stocks and bonds are included.

A similar comparison can be made between families that had only IRA accounts in 1987 and families that had only IRA accounts in 1984. These data are shown in the second panel of table 4.1. This comparison is more complete and probably more accurate than the comparison for 401(k) participants, however, because total assets are known in both years and because the sample size is much larger than the sample of families with 401(k)s only. Consider families that had IRA accounts in 1987. Again, we assume that the families that had IRA accounts in 1987 are like those that had such accounts in 1984, except that the 1987 families were able to make IRA contributions for two or three more years. Indeed, the 1987 families had $2,859 more in IRA accounts than the 1984 families. If additional IRA contributions replaced saving that would otherwise have occurred in other forms, however, total assets of the 1987 sample should have been about the same as the total for the 1984 sample. But the median total financial assets of the 1987 families were in fact $3,130 larger than the total financial assets of the 1984 families. There was essentially no change in other financial asset balances ($9,400 versus $9,483). In addition, there was no change in median debt. This suggests that the IRA contributions did not replace other

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[9]The approximations used in this paragraph relate more directly to means than to medians. Table 4.1 is reproduced in appendix table B-1, but means rather than medians are reported. The basic conclusions are the same.

saving. The basic pattern is the same whether stocks and bonds are included or excluded from the measure of other financial assets. These results are similar to those in earlier studies of IRA contributors[10] and are directly comparable to the results in Venti and Wise (1992), based on Consumer Expenditure Survey data.

Comparable data for families that had both IRA and 401(k) accounts in 1987 and families that had both accounts in 1984 are shown in the bottom panel of table 4.1. By 1987, families with both accounts had a median balance of $18,000 in the two together, approximately half the median balance in total financial assets. Like the data for the 401(k) only group, the data for this group are incomplete because 401(k) balances were not obtained in the 1984 survey, but the basic inference is the same. IRA and 401(k) contributions were not offset by reduced saving in other financial asset forms. If they had been, the 1987 families would have accumulated fewer assets in other forms because when they started to contribute to IRAs and 401(k)'s they would have saved less in other forms.

The data do not reveal this pattern, however. The 1987 respondents had somewhat larger balances in non-401(k)-IRA financial assets than the 1984 respondents had and their median debt was only slightly larger ($700 versus $500). These data also suggest little substitution between IRA and 401(k) saving. The IRA balance for this group increased by $4,000, $1,000 more than the increase in the IRA balance for those with IRAs only.

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[10] See for example Venti and Wise (1990a,1990b,1992).

4.2 Asset Balances by 401(k) Eligibility

This section relies on the natural experiment that is provided by the essentially exogenous determination of 401(k) eligibility to explore the effect of 401(k) contributions on total saving. Eligibility is determined by employers. If household saving behavior is independent of individual characteristics related to the probability of working at firms with 401(k) plans, an assumption which is unlikely to be completely accurate, then comparison of the net worth of families with and without 401(k) eligibility can be used to infer the saving effect of these plans. If there are no net saving effects of 401(k)s, then families who have the 401(k) option should have similar net worth, but less non-401(k) assets, than those families without 401(k) eligibility.

Median financial asset balances by 401(k) eligibility and by income interval are shown in table 4.2a for 1987 and 1984. We stratify by income because 401(k) eligibility increases with income. If, given income, eligibility is determined exogenously, then the data allow strong inferences about the saving effect of 401(k) plans. Figures 4a through 4d present information from this table in graphical form. Figure 4a shows that families whose employers offered 401(k) plan had substantially greater total financial assets in 1987 than families whose employers did not provide such plans. For example, the median level of financial assets of families with incomes between $50 and $75 thousand who were eligible for a 401(k) was $25,343, whereas the median for families who were not eligible was only $14,650. If when families became eligible for 401(k) plans they reduced saving in other forms, the typical family eligible for 401(k) in 1987 should have less accumulated wealth in other financial assets than the typical family who had not been eligible for a 401(k). Figure 4b shows that this was not the case. There was little difference in the other financial

assets of families who were and were not eligible for a 401(k). Indeed, the eligible families had somewhat higher levels of other financial assets.

The data also show that in 1984 eligible and non-eligible families had virtually the same levels of other financial assets. Figure 4c suggests that 401(k) contributions did not substitute for other financial asset saving.[11] Moreover, other financial assets of eligible families in 1984 were about the same as the other financial assets of eligible families in 1987, as shown in figure 4d, again suggesting that 401(k) assets did not substitute for other financial assets.

Table 4.2b also distinguishes families on the basis of 401(k) eligibility, but the data pertain to families -- eligible and non-eligible for a 401(k) -- that had IRA accounts. The conclusions are the same as those suggested by table 4.2a and the associated figures. Eligible families have greater total financial wealth, but other financial assets of eligibles are virtually the same as those of non-eligibles in both 1987 and 1984. There was virtually no difference between the other financial assets of eligibles in 1984 and eligibles in 1987.

Our analysis relies on the exogenous determination of 401(k) eligibility status, given income. It could be that the eligible group is composed disproportionately of savers, who save more than the typical person in all forms. There is little evidence, however, for this type of heterogeneity in saving behavior. As shown above, eligible and non-eligible families had about the same level of other financial assets in 1987 and 1984. Thus the eligible group had not been saving more than the non-eligible group in other assets, as they would have if they were disproportionately high savers, saving more in all forms. Moreover, those who

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[11]The 1984 data do not show 401(k) asset balances, however, so that total assets of eligible and non-eligible families can not be compared in that year.

were eligible for a 401(k) in 1984 had about the same level of other assets as those who were eligible in 1987. In addition, among IRA savers other assets do not differ by 401(k) eligibility status. Whereas 401(k) eligibility status may be determined exogenously, IRA status is chosen by individuals. Within either eligibility status, families with an IRA have substantially greater total financial assets than those without an IRA. This may reflect in part an individual-specific saving effect. Like other assets, however, IRA assets don't differ much by 401(k) eligibility status, as shown in figure 5.[12] Thus these data suggest that 401(k) status is indeed largely independent of overall saving propensity, given income.

An additional source of information on the extent of substitutability between 401(k), IRA, and other forms of financial saving is the change between 1984 and 1987 in median asset balances not controlling for income interval. The idea is to consider whether the non-401(k)-IRA assets -- "other assets" -- of families with 401(k)s and/or IRAs declined between 1984 and 1987, as they would if the tax-advantaged saving substituted for other saving. The data are summarized in table 4.3. The main point of the data is that there was no change in the other assets of 401(k) eligible families -- whether or not they contributed to an IRA. For example, total financial assets of all families eligible for a 401(k) in 1984 was $5000 (excluding 401(k) assets); families eligible in 1987 had $10,330.[13] But there was almost no change in other financial assets of eligible families, a slight increase from $3,740 to $4,000. In contrast, the total (and other) financial assets of families not eligible for a 401(k) remained essentially unchanged over this period.

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[12]This seems to suggest little substitution between 401(k) and IRA saving, consistent with the data in the previous sections that were graphed in figure 2.

[13]The median 401(k) balance in 1987 was $1,000 and the 1984 balance was probably less than this.

The message is the same for 401(k) eligible families with an IRA and for those without an IRA: although total financial assets increased, other financial assets were essentially the same in 1984 and in 1987. The data reveal no hint of substitution. Among those not eligible for a 401(k), only those with an IRA account experienced an increase in total assets, from $16,250 to $19,646, and for this group there was virtually no change in other assets. In this case, the data reveal no substitution between IRA and other assets. There was essentially no change in the assets of those without an IRA.

Finally, the increase in IRA assets -- for families with these accounts -- did not depend on 401(k) eligibility status. The increase for those not eligible for a 401(k) was from $4,500 to $7,500. For those who were eligible the increase was from $4,500 to $8,000. Both the fact that both eligibility groups had the same level of IRA assets in 1984, and the almost identical increases, suggests little substitution between 401(k) and IRA assets.

Throughout this section, we have focused on <u>median</u> assets levels, rather than means, because the very large financial assets of a few families leads to mean asset levels that are much greater than the assets of the typical family. For example, the median of total financial assets of families not eligible for a 401(k) is $1,870, whereas the mean is $13,480. The median has the disadvantage, however, that medians of individual assets do not sum to the median of total assets, as means do. For example, the medians of the individual assets of all 401(k) eligible families with incomes over $75,000 sum to $45,204, but the median of the total is $58,119. Mean values analogous to the medians in table 4.2a are presented in appendix table B-2. The basic conclusions do not differ from the conclusions drawn from

the median values. In fact, the difference in the means between the two groups is close to the difference in the medians.

5. Conclusions

Our results suggest that 401(k) plans are a significant and increasingly important component of retirement saving in the United States. Unlike IRA contributions, which fell by over 70 percent after the Tax Reform Act of 1986, 401(k) participation and contribution levels have risen throughout the last decade. For many households, assets held through 401(k)s represent more than half of their financial wealth. The high participation rate for those eligible for 401(k)s, coupled with the tendency for most households to reach retirement age with few financial assets other than Social Security and employer-provided pension benefits, suggests that these accounts will play a very important part in the economic security of retirees in coming decades.

Our findings suggest several important conclusions. First, the high 401(k) participation rate of families whose employers offer 401(k) plans suggests that payroll deduction and emulation of other employees may be important determinants of saving decisions. While only about 16 percent of all tax filers made IRA contributions at the height of their popularity, over 60 percent of persons eligible for a 401(k) contribute to the plan. Even in the lowest income groups the participation rate is close to 50 percent.

Second, the data reveal little substitution of 401(k) saving for either IRA saving or saving through traditional saving vehicles. The data actually show substantial IRA saving even when 401(k) saving would appear to offer a higher rate of return. This casts doubt

on the usual assumptions that all forms of saving are treated as perfect substitutes, and that all savers make "rational" saving decisions.

Third, the virtual cessation of IRA contributions by persons who lost the up-front tax deduction in the TRA of 1986 suggests that such "attention getters" have an effect on saving that goes beyond the strict economic value of the deduction. The importance of promoting saving is suggested by the finding that after the TRA of 1986 even persons unaffected by the legislation reduced their contributions by almost 50 percent.

Fourth, the results suggest that 401(k) saving largely represents net new saving. This conclusion rests on comparison of the financial assets of 401(k) eligible and non-eligible families and on the comparison of the assets of a random sample of 401(k) households in one year with the assets of a random sample of such households in a later year.

This paper sets the stage for further, more formal analysis of 401(k) saving. A behavioral model of household contributions to 401(k)s can in principle be used to simulate the effects of changes in the tax rules governing these plans, or changes in employer match rates. In some circumstances, for example at the firm analyzed in Kusko, Poterba, and Wilcox (1992), employer match rates change substantially from one year to the next. Economic conditions and other factors that affect these rates may therefore have an important influence on household saving as 401(k) plans become a more significant saving channel.

Another important question regarding the rapid rise of 401(k) plans concerns the extent to which these plans have replaced previous retirement saving plans. The 1988 GAO survey found that more than half of all firms with 401(k) plans also offer other saving vehicles, such as profit-sharing plans. At 61% of the firms in the GAO survey, the 401(k)

plan was introduced as a new plan. For 29% of the firms, however, the 401(k) replaced a previous profit-sharing plan, and in the remaining cases, it replaced other pre-existing saving arrangements (see GAO (1988b)). In 1987, the 401(k) was the primary plan of only 26% of participants (see Andrews (1992)). Unfortunately the published survey results provide no guidance on the number of workers who experienced plan replacements, and the extent to which 401(k) saving is simply a relabelling of saving that previously was channelled to other types of retirement plans.

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Figure 1. 401(k) Participation and Eligibility Rates, By Income 1987

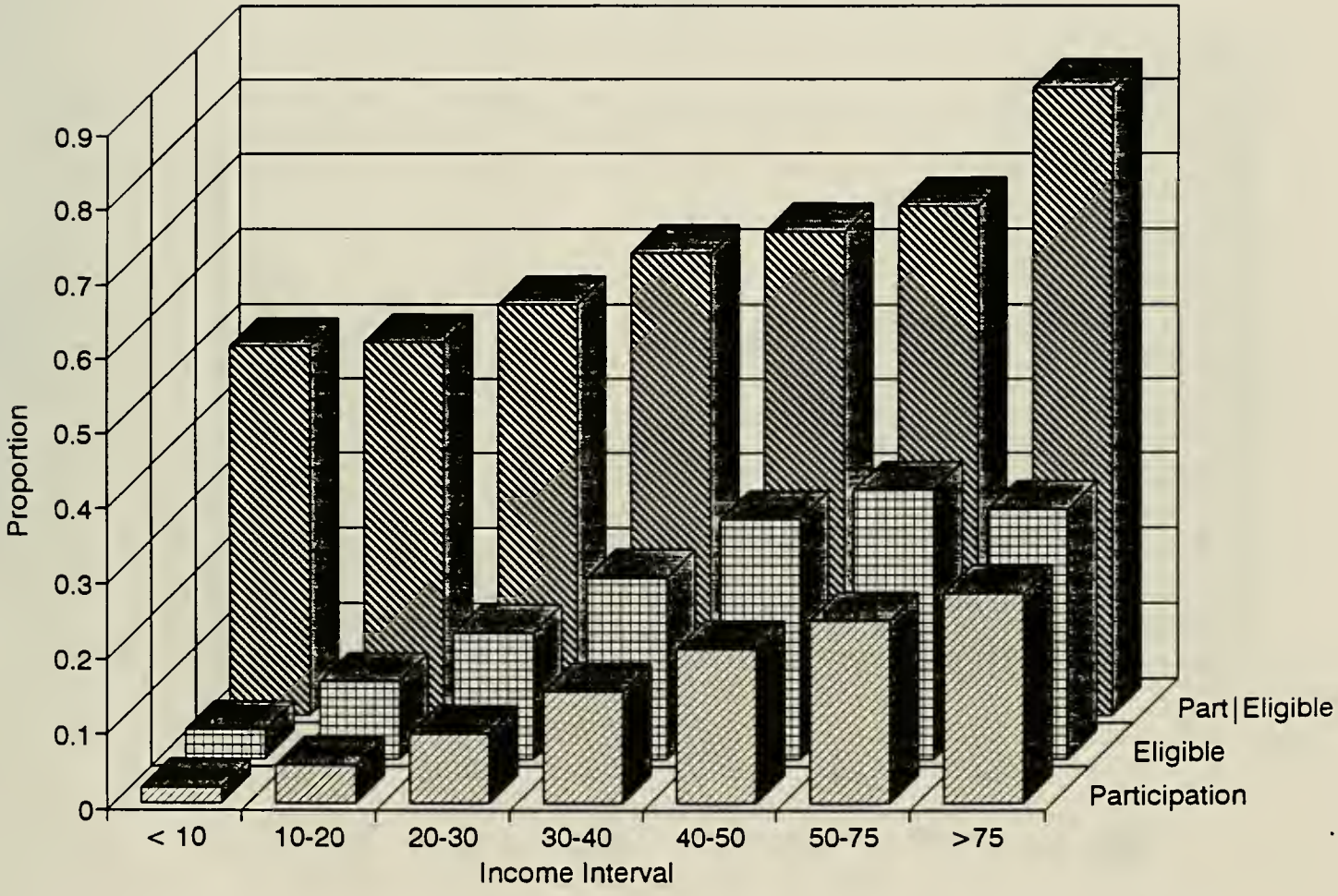


Figure 2. IRA Contribution Percent
By 401(k) Eligibility 1982 and 1987

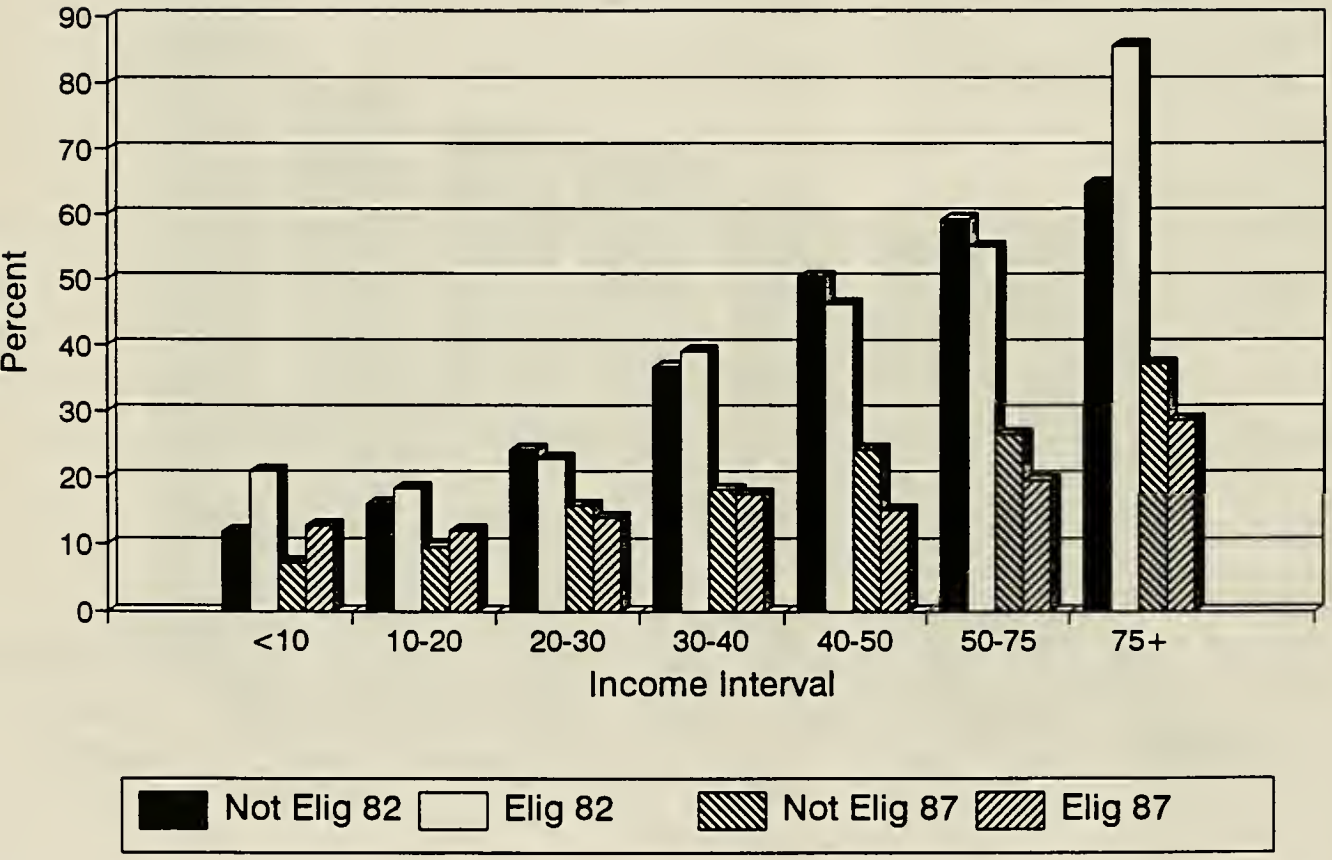


Figure 3A. IRA Contribution Rate
By Income Interval 1985 and 1988

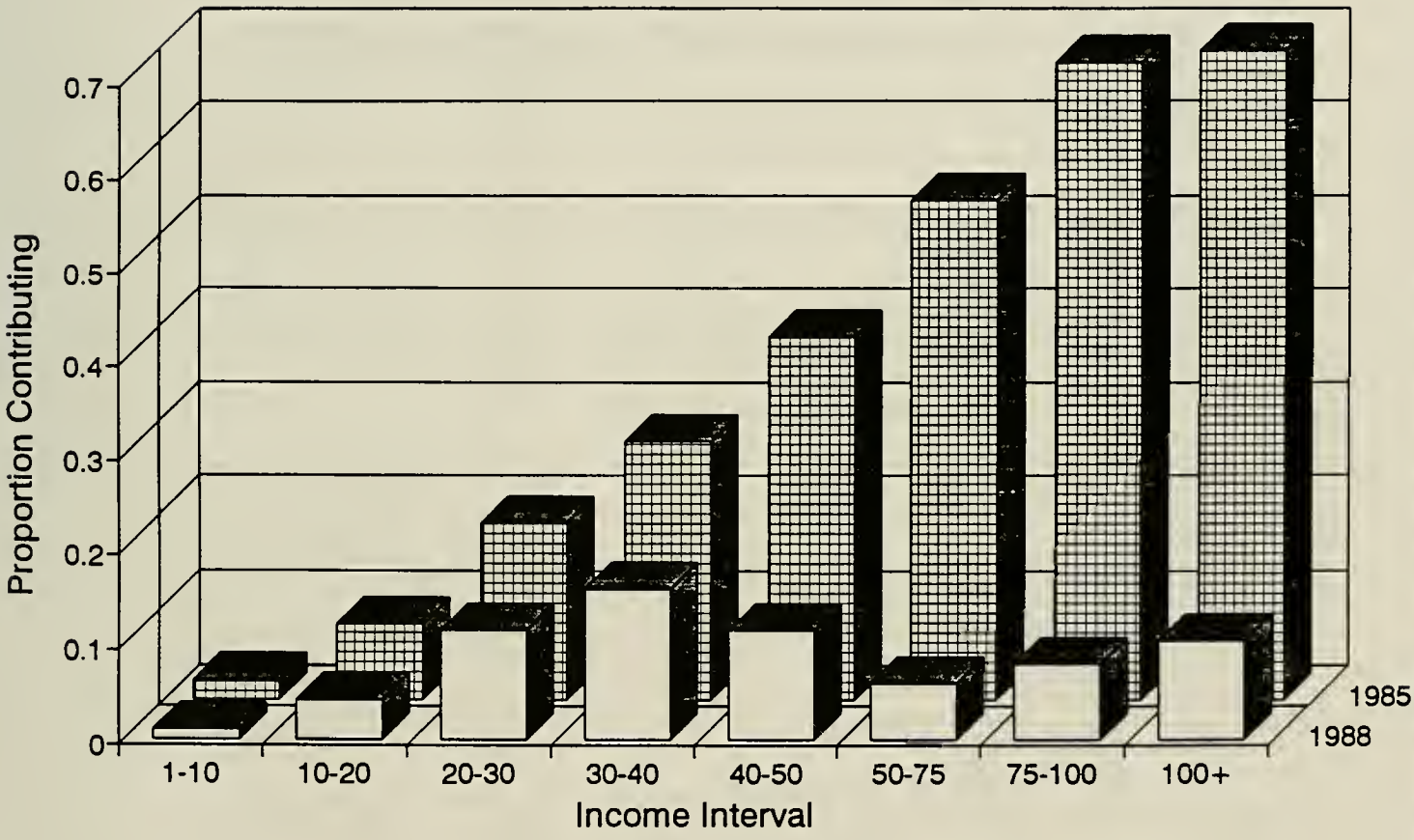


Figure 3B. Decline in IRA Contribution
Rate Between 1985 and 1988, by Income

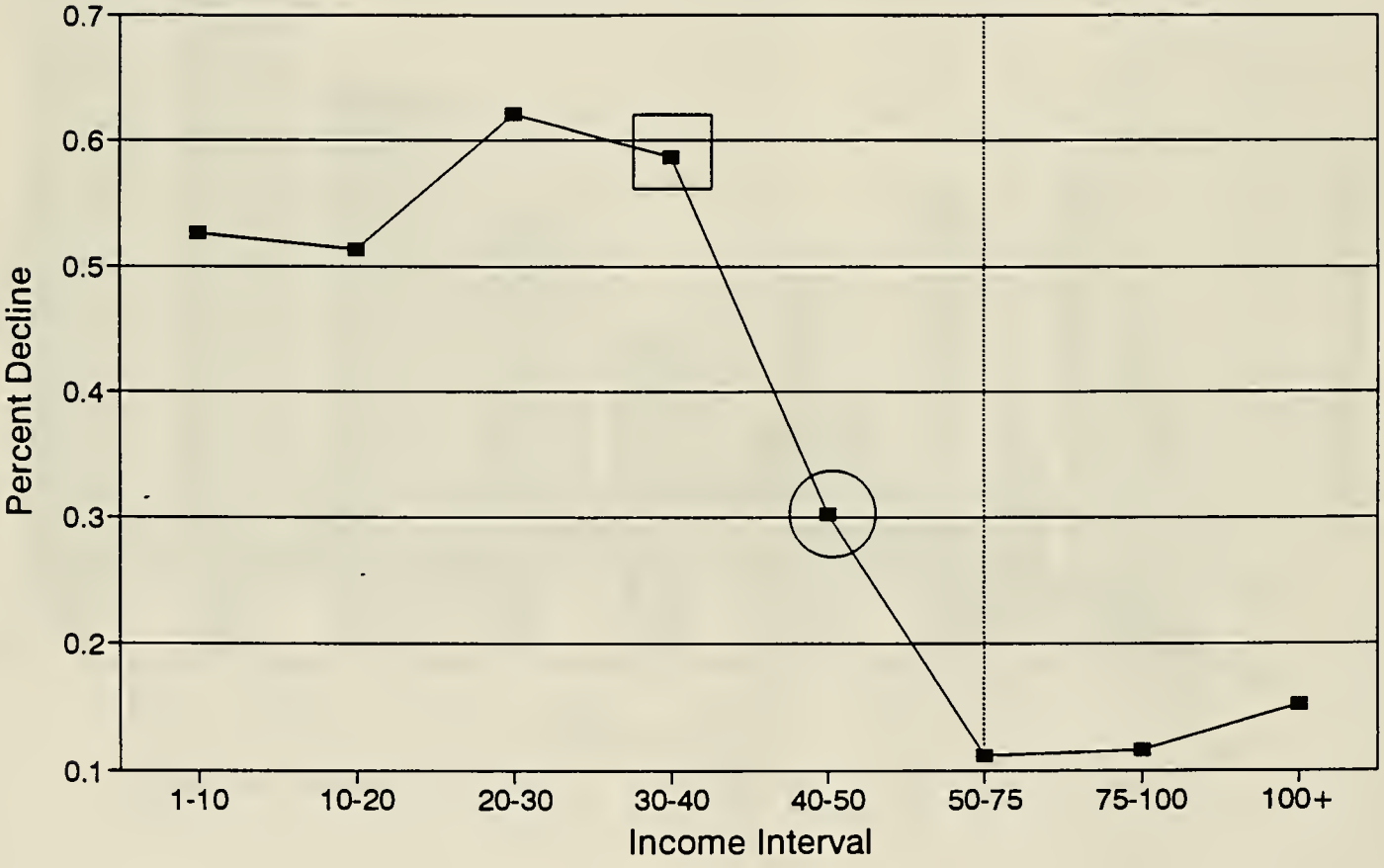
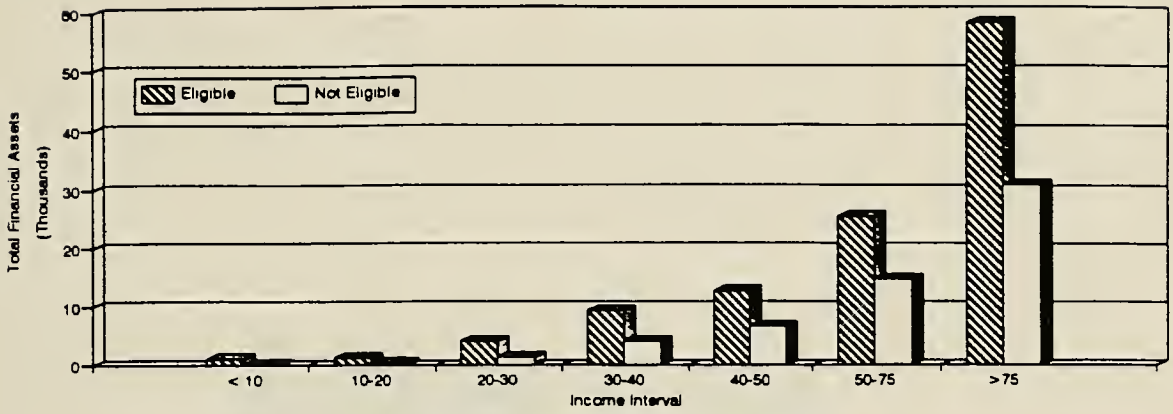
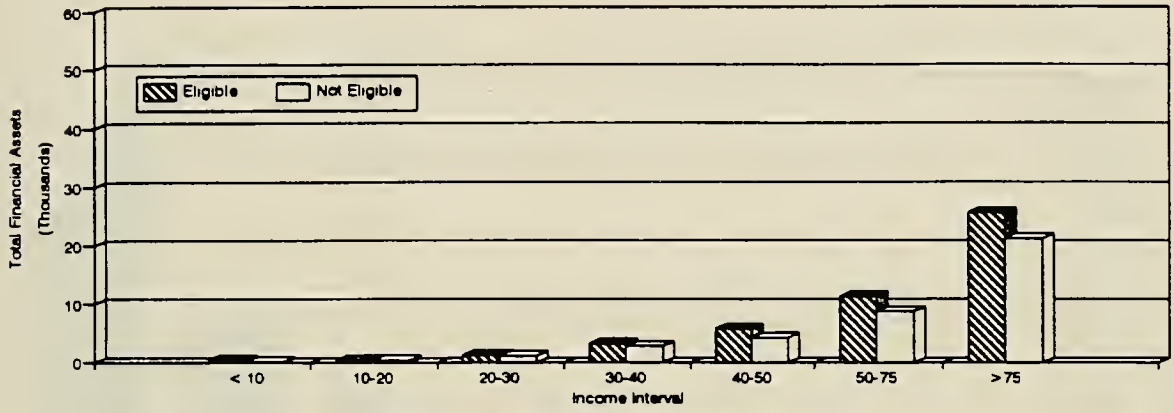


Figure 4. Assets by 401(k) Eligibility

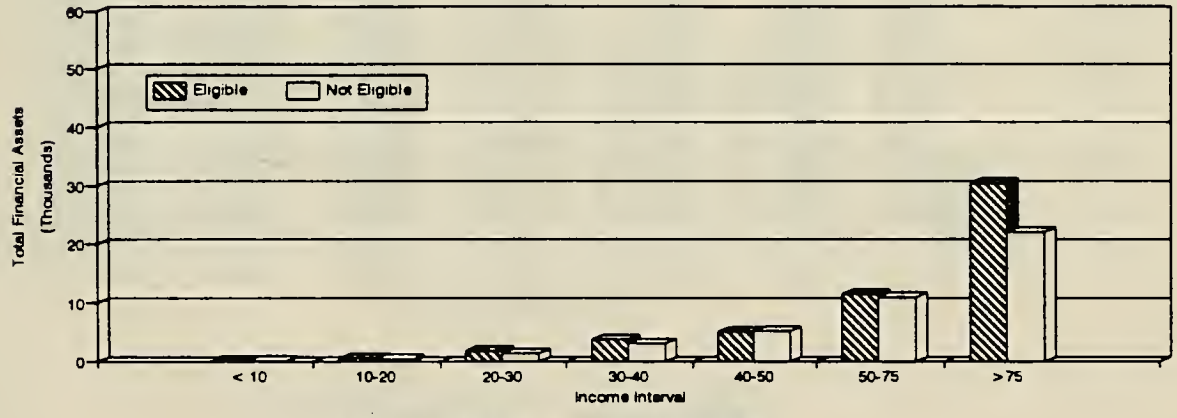
a. Total Fin Assets 1987, All Families



b. Other Fin Assets 1987, All Families



c. Other Fin Assets 1984, All Families



d. Other Assets of 401(k) Eligibles
In 1984 and in 1987, All Families

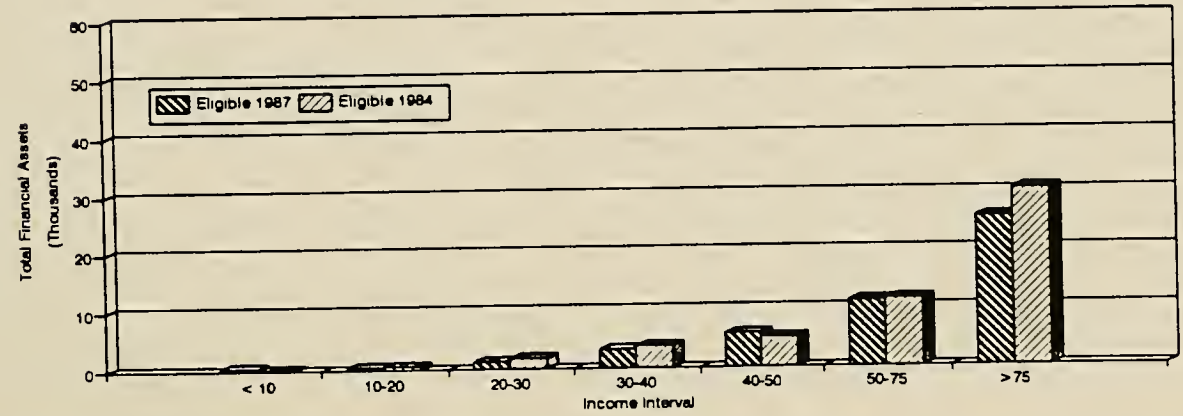


Figure 5. IRA Assets by 401(k) Eligibility, Families with an IRA, 1987

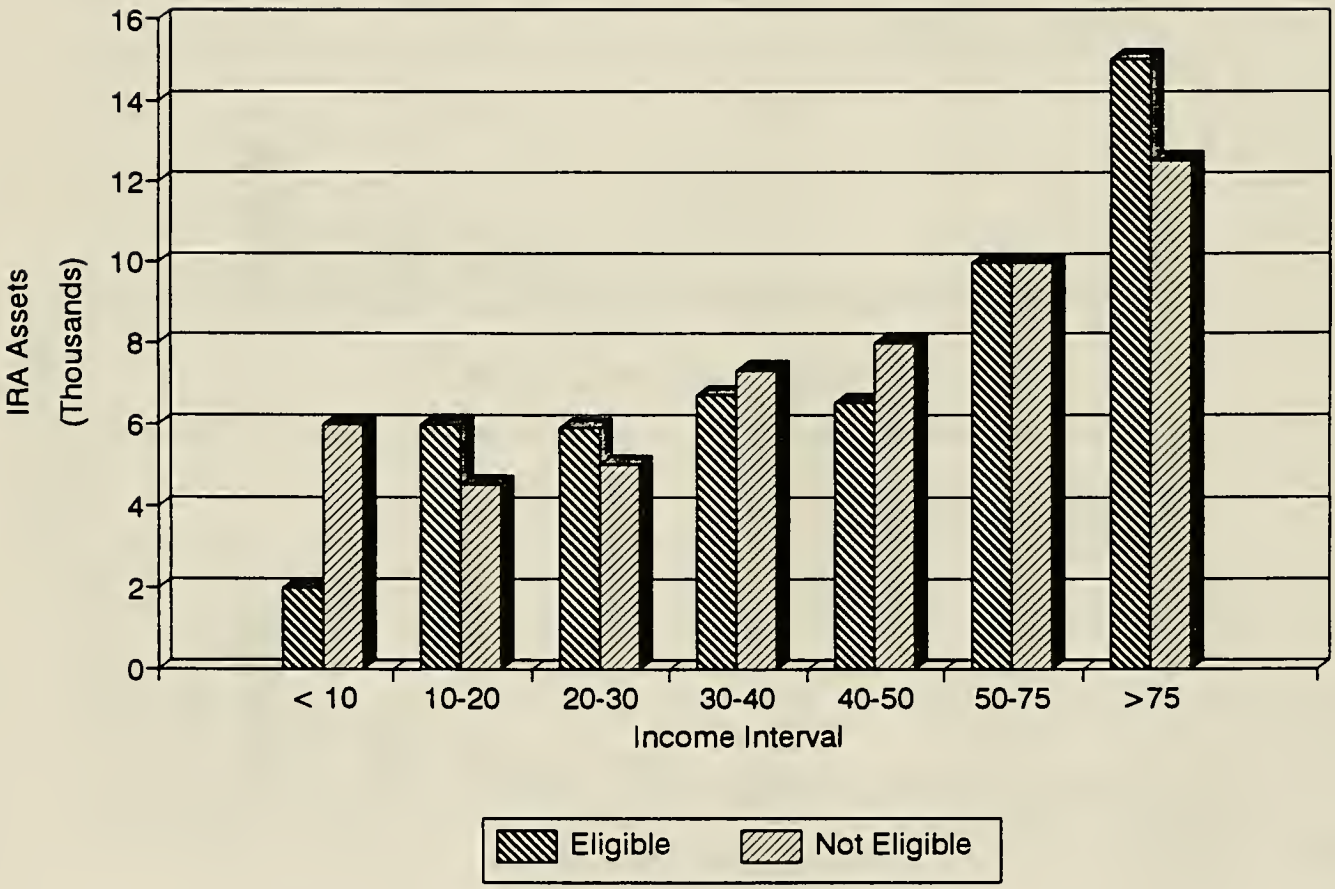


Table 1.1: 401(k) Eligibility and Participation, By Age & Income, 1984 & 1987

	Percent Eligible for a 401(k)	401(k) Participation Given Eligibility	401(k) Participation	IRA Participation
Total Population				
1984	13.3%	58.1%	7.7%	25.4%
1987	20.0%	62.6	12.5	28.8
1987 Income Categories ($000's)				
< 10	3.9	49.3	1.9	8.3
10-20	10.3	49.8	5.1	12.3
20-30	16.7	54.9	9.2	22.7
30-40	24.1	61.8	14.9	31.9
40-50	31.9	64.6	20.6	41.1
50-75	35.8	68.0	24.3	56.1
> 75	33.2	83.9	27.8	66.6
1987 Age Categories				
25-35	18.3	53.3	9.7	16.3
35-45	22.2	63.3	14.1	25.1
45-55	21.3	66.9	14.3	37.4
55-65	17.6	72.0	12.7	48.1

Source: Authors' tabulations from the SIPP, as described in the text.

Table 1.2: Mean and Median Balances in 401(k) & IRA Accounts, 1987

	Participants		All Households	
	Median	Mean	Median	Mean
401(k) Balances by Income Category	Conditional on 401(k) > 0			
All	4000	9862	0	1237
< 10	1000	1628	0	31
10-20	1000	4328	0	222
20-30	2000	4510	0	413
30-40	4000	7856	0	1168
40-50	4000	9021	0	1861
50-75	6300	13584	0	3304
> 75	11560	20350	0	5660
IRA Balances by Income Category	Conditional on IRA > 0			
All	8000	9841	0	2836
< 10	6000	7538	0	628
10-20	4500	6955	0	859
20-30	5024	7247	0	1645
30-40	7000	9016	0	2876
40-50	7550	9112	0	3748
50-75	10000	11690	2200	6555
> 75	13600	15175	7500	10107
IRA + 401(k) Balances by Income Category	Conditional on Both > 0			
All	18000	24208	0	4073
< 10	12500	10530	0	659
10-20	7045	11453	0	1081
20-30	11000	14777	0	2058
30-40	14856	17666	0	4044
40-50	13000	19535	400	5609
50-75	22000	26893	4200	9859
> 75	31518	37295	10000	15767

Source: Authors' tabulations from the Survey of Income and Program Participation.

Table 1.3: Median and Mean Asset Balances by 401(k) and IRA Participation

Asset	Households with IRAs	Households with 401(k)	IRA Only Households	401(k) Only Households	Households with Both	All Households
			Median			
Total Financial Assets	22300	17100	19300	7299	38276	2849
Total Financial Assets Excluding Stocks & Bonds	18600	14300	16000	6061	32499	2250
Non-IRA-401(k) Assets	10025	5600	9483	2149	14350	1750
Non-IRA-401(k) Assets Excluding Stocks & Bonds	6699	3500	6100	1500	8188	1250
IRA	8000	0	7359	0	9000	0
401(k)	0	4000	0	2800	6000	0
IRA & 401(k)	8997	7500	7359	2800	18000	0
Debt	500	1000	500	1200	700	650
			Mean			
Total Financial Assets	40456	36693	35605	16567	59224	16299
Total Financial Assets Excluding Stocks & Bonds	29856	26614	26413	11819	43177	11845
Non-IRA-401(k) Assets	27901	21645	26062	9702	35016	12227
Non-IRA-401(k) Assets Excluding Stocks & Bonds	17300	11566	16869	4954	18969	7772
IRA	9841	5186	9544	0	-	2836
401(k)	2714	9862	0	6865	-	1237
IRA & 401(k)	12555	15048	9544	6865	24208	4073
Debt	3575	3298	3581	3071	3552	3041

Source: Authors' tabulations based on the Survey of Income and Program Participation.

Table 2.1: 401(k) Participation Rates by Employer Match Rate, 1986		
Match Rate	Participation Rate	Average Contribution/Salary
0	49.5%	3.5%
25-50%	75.6	3.8
50-75%	81.0	3.8
75-100%	64.5	4.2
100	98.6	7.0
>100	88.1	8.6

Source: General Accounting Office (1988b).

Table 2.2: Employer Match Rate for 401(k) Plan Contributions, 1989	
Matching Rate	Percentage of 401(k) Plan Participants
0-10%	39.3%
10-20	1.6
20-30	3.2
30-40	6.9
40-50	13.3
50-100	9.8
> 100	25.7

Source: Authors' tabulations from the 1989 Survey of Consumer Finances.

Table 2.3: Share of Employee Salary Contributed to 401(k) Plan, 1988

Salary Percentage	Percentage of 401(k) Participants	
	Current Year	Cumulative
0%	1.0%	1.6%
1	4.2	5.8
2	7.5	13.3
3	9.0	22.3
4	7.7	30.0
5	19.6	49.6
6	16.1	65.7
7	4.6	70.3
8	5.8	76.1
9	1.6	77.7
10	11.8	89.5
> 10	9.4	100.0

Source: Authors' tabulations from the 1988 Current Population Survey.

Table 2.4: 401(k) Participation Rates by Various Plan Characteristics, 1986		
Plan Characteristic	Participation Rate	Average Contribution/Salary
Loan Provision?		
Yes	69.3%	4.6%
No	81.7	4.9
Hardship Withdrawals for Employee Contributions?		
Yes	71.3	4.5
No	75.6	6.8
Hardship Withdrawals for Employer Contributions?		
Yes	86.9	5.3
No	50.1	3.5
Self-Directed Investments?		
Yes	69.9	5.4
No	73.1	4.0

Source: General Accounting Office (1988b).

Table 3.1: Overlap of 401(k)s and IRAs, 1982-1987				
	1982 CPS	1984 SIPP	1987 SIPP	1987 CPS
Percent of 401(k) Contributors Who:				
Have an IRA	--	41.1	47.1	--
Contribute to an IRA	37.0	--	--	17.4

Source: Authors' tabulations using surveys as indicated.

Table 3.2: Percent Contributing to an IRA, by 401(k) Eligibility & Income				
	1982		1987	
Income	Not Eligible for 401(k)	Eligible for 401(k)	Not Eligible for 401(k)	Eligible for 401(k)
< 10	11.9	20.9	7.2	12.8
10 - 20	16.1	18.5	9.6	12.2
20 - 30	24.3	22.9	15.8	14.0
30 - 40	36.8	39.2	18.3	17.5
40 - 50	50.5	46.3	24.2	15.3
50 - 75	59.2	55.2	26.5	19.6
75 +	64.5	85.4	37.2	28.7
ALL	19.9	26.0	12.9	15.3

Source: Authors' tabulations based on 1983 and 1988 Current Population Surveys.

Table 3.3: Retirement Plan Use by Families Eligible for 401(k)s

	1987 SIPP	1987 CPS
Neither a 401(k) nor an IRA	27.1%	35.5%
Only an IRA	10.4	5.1
Only a 401(k)	33.1	49.0
Both a 401(k) and an IRA	29.5	10.4

Source: Authors' tabulations from the CPS and the SIPP.

Note: The 1987 SIPP data pertain to families and to IRA accounts. The 1987 CPS data pertain to individuals and to IRA contributions.

Table 3.4: IRA Limit Status Versus 401(k) Participation

	IRA Participants	IRA Limit Contributors	All Households
Probability of 401(k) Participation	16.2%	17.2%	11.5%
Probability of 401(k) Participation if Eligible	65.8	66.1	56.0
	401(k) Eligibles	401(k) Participants	All Households
Probability of IRA Limit Contribution	20.6%	24.3%	16.3%
Probability of IRA Contribution	26.2	30.8	21.9

Source: Authors' tabulations based on merging waves 4 and 7 of the 1984 SIPP Panel. A household is defined to be an IRA contributor in a year if the change in the IRA balance over the 1 year interval exceeded $500. A household is defined to be a limit contributor if the change in the balance exceeded $2000.

Table 4.1: Median IRA and 401(k) Versus Other Financial Asset Balances, by Type of Asset Held, 1984 and 1987

	Excluding Stocks and Bonds		Including Stocks and Bonds	
	1984	1987	1984	1987
Families With 401(k) Only				
With 401(k)				
Total Assets	--	6061	--	7299
Other Than 401(k)	1800	1500	3000	2149
401(k)	--	2800	--	2800
Debt	1000	1200	1000	1200
Families Without 401(k):				
Total Assets	1500	1500	1949	2000
Families With IRAs Only				
With IRA				
Total Assets	13000	16000	16170	19300
Other Than IRA	6550	6100	9400	9483
IRA	4500	7400	4500	7400
Debt	500	500	500	500
Families Without IRA:				
Total Assets	650	754	800	960
Families With IRAs and 401(k)s				
With IRA and 401(k)				
Total Assets	--	32499	--	38276
Other Than IRA or 401(k)	8499	8188	13000	14350
IRA	5000	9000	5000	9000
401(k)	--	6000	--	6000
IRA and 401(k)	--	18000	--	18000
Debt	500	700	500	700
Families With Neither IRA Nor 401(k): Total Assets	600	550	750	700

Table 4.2a: Median Asset Balances By 401(k) Eligibility, 1984 & 1987, By Income								
	Income							
Group	< 10	10-20	20-30	30-40	40-50	50-75	>75	ALL
				1987				
Not Eligible for a 401(k)								
All financial assets	22	400	1366	4000	6630	14650	30900	1870
Other assets	20	350	1052	2800	4245	8737	21200	1300
IRA	0	0	0	0	0	2000	6000	0
Eligible for a 401(k)								
All financial assets	1090	1190	4000	9205	12650	25343	58119	10330
Other assets	361	305	1250	3250	5800	11200	25500	4000
IRA	0	0	0	0	0	2500	11204	0
401(k)	0	0	150	1000	1000	1500	8500	1000
				1984				
Not Eligible for a 401(k)								
All financial assets	34	458	1768	3950	7150	15870	19000	1850
Other assets	30	400	1400	3000	5138	11000	21950	1400
IRA	0	0	0	0	0	2000	4000	0
Eligible for a 401(k)								
All financial assets*	--	--	--	--	--	--	--	--
Other assets	25	509	1749	3740	5049	11500	30400	3740
IRA	0	0	0	0	0	0	0	0
401(k) *	--	--	--	--	--	--	--	--

*401(k) assets are not available for 1984.

Table 4.2b: Median Asset Balances By 401(k) Eligibility and IRA Status, 1984 & 1987, By Income
Families with IRAs

Group	Income							
	< 10	10-20	20-30	30-40	40-50	50-75	>75	ALL
				1987				
Not Eligible for a 401(k)								
All financial assets	13249	10800	12487	18748	19000	28050	48550	19646
Other assets	5000	4000	5900	9630	10000	16200	30990	9700
IRA	6000	4500	5000	7320	8000	10000	12500	7500
Eligible for a 401(k)								
All financial assets	5820	9400	15228	21000	24700	36400	68500	30600
Other assets	2100	2300	4500	8400	9000	15500	29292	12000
IRA	2000	6000	5900	6700	6500	10000	15000	8000
401(k)	0	300	1000	2000	2316	4000	10000	2900
				1984				
Not Eligible for a 401(k)								
All financial assets	7200	9749	10500	16230	17401	25600	43529	16250
Other assets	2525	5000	5700	9300	10600	17400	33529	9450
IRA	3000	3800	4000	4500	4700	6000	7500	4500
Eligible for a 401(k)								
All financial assets*	--	--	--	--	--	--	--	--
Other assets	3100	2249	6500	10605	6950	17500	38200	11500
IRA	4000	3000	3400	4000	4224	6530	8250	4500
401(k)*	--	--	--	--	--	--	--	--

*401(k) assets are not available for 1984.

Table 4.3: Median Asset Balances By 401(k) Eligibility and IRA Status, 1984 & 87, for All Income Groups.

Group	1984	1987
All Families		
Not Eligible for a 401(k)		
All financial assets	1850	1870
Other assets	1400	1300
IRA	0	0
Eligible for a 401(k)		
All financial assets*	5000	10330
Other assets	3740	4000
IRA	0	0
401(k)	--	1000
Families with an IRA		
Not Eligible for a 401(k)		
All financial assets	16250	19646
Other assets	9450	9700
IRA	4500	7500
Eligible for a 401(k)		
All Financial assets*	19200	30600
Other assets	11500	12000
IRA	4500	8000
401(k)	--	2900
Families Without an IRA		
Not Eligible for a 401(k)		
All financial assets	700	623
Other assets	700	623
IRA	0	0
Eligible for a 401(k)		
All financial assets*	2072	3900
Other assets	1774	1923
IRA	0	0
401(k)	--	225

*Does not include 401(k) assets in 1984.

APPENDIX A: IRA Contribution Rates by 401(k) Eligibility

We estimate two ANOVA specifications, one to provide estimates of the change in the IRA participation rates between 1982 and 1987, and the other to provide estimates of the difference in the rates for 401(k) eligibles versus non-eligibles in 1982 and 1987. The first specification, for the change in participation rates, is of the form

(A.1) $C = y_i + y(87)_i + e_i + e(87)_i + \epsilon$.

This equation is estimated using data for individual persons, with C = 1 if the person contributes to an IRA and zero otherwise. We denote different income intervals with subscript i, and for each group, y is the base rate for non-eligibles in 1982, y(87) is the 1987 effect, e is the eligibility effect, and e(87) is the eligibility effect in 1987. For each income group, the IRA contribution rates by year and 401(k) eligibility status -- shown in table 3.2 -- are then given by:

	1982	1987
Non-Eligible	y	y + y(87)
Eligible	y + e	y + e + y(87) + e(87)

The results are shown in appendix table A-1. The e(87) estimate of -0.2950 for the highest income interval indicates that the fall in the IRA contribution rates for the eligibles was 0.2950 larger than the fall for the non-eligible group, and the t-statistic of -2.8 indicates that this difference is statistically significant at standard levels of significance.

The second specification, for the difference in contribution rates between 401(k) eligibles and non-eligibles, is of the form

(A.2) $C = y(82)_i + y(87)_i + e(82)_i + e(87)_i + \epsilon$

where y(82) is the rate for non-eligibles in 1982, y(87) is the rate for non-eligibles in 1987, e(82) is the addition to the rate for eligibles in 1982, and e(87) is the addition for eligibles in 1987. In this case the IRA contribution rates by year and 401(k) eligibility status are given by:

	1982	1987
Non-Eligible	y(82)	y(82) + e(82)
Eligible	y(87)	y(87) + e(87)

The estimates are shown in appendix table A-2.

Appendix Table A-1: IRA Contribution Rates by 401(k) Eligibility Status			
Variable	Parameter Estimate	Standard Error	t Statistic
y_1	0.1186	0.0048	24.5
y_2	0.1607	0.0049	33.0
y_3	0.2427	0.0064	38.2
y_4	0.3679	0.0102	36.2
y_5	0.5046	0.0177	28.5
y_6	0.5924	0.0211	28.0
y_7	0.6446	0.0292	22.0
e_1	0.0904	0.0232	3.9
e_2	0.0238	0.0165	1.4
e_3	-0.0133	0.0173	-0.8
e_4	0.0239	0.0268	0.9
e_5	-0.0420	0.0436	-1.0
e_6	-0.0402	0.0554	-0.7
e_7	0.2092	0.0958	2.2
$y(87)_1$	-0.0464	0.0079	-5.9
$y(87)_2$	-0.0644	0.0073	-8.9
$y(87)_3$	-0.0849	0.0091	-9.3
$y(87)_4$	-0.1848	0.0136	-13.6
$y(87)_5$	-0.2625	0.0228	-11.5
$y(87)_6$	-0.3269	0.0269	-12.1
$y(87)_7$	-0.2721	0.0412	-6.6
$e(87)_1$	-0.0345	0.0298	-1.2
$e(87)_2$	0.0021	0.0199	0.1
$e(87)_3$	-0.0044	0.0205	-0.2
$e(87)_4$	-0.0321	0.0299	-1.1
$e(87)_5$	-0.0472	0.0479	-1.0
$e(87)_6$	-0.0297	0.0602	-0.5
$e(87)_7$	-0.2950	0.1036	-2.8

Source: Authors' estimates using the 1983 and 1986 Current Population Surveys.

Appendix Table A-2: IRA Contribution Rates by 401(k) Eligibility Status
(Estimates of Equation A.2)

Variable	Parameter Estimate	Standard Error	T Statistic
y_1	0.1186	0.0048	24.5
y_2	0.1607	0.0049	33.0
y_3	0.2427	0.0064	38.2
y_4	0.3679	0.0102	36.2
y_5	0.5046	0.0177	28.5
y_6	0.5924	0.0211	28.0
y_7	0.6446	0.0292	22.0
e_1	0.0904	0.0232	3.9
e_2	0.0238	0.0165	1.4
e_3	-0.0133	0.0173	-0.8
e_4	0.0239	0.0268	0.9
e_5	-0.0420	0.0436	-1.0
e_6	-0.0402	0.0554	-0.7
e_7	0.2092	0.0958	2.2
$y(87)_1$	0.0722	0.0062	11.6
$y(87)_2$	0.0963	0.0054	17.9
$y(87)_3$	0.1578	0.0066	24.0
$y(87)_4$	0.1831	0.0091	20.2
$y(87)_5$	0.2421	0.0144	16.8
$y(87)_6$	0.2655	0.0167	15.9
$y(87)_7$	0.3725	0.0291	12.8
$e(87)_1$	0.0558	0.0187	3.0
$e(87)_2$	0.0259	0.0112	2.3
$e(87)_3$	-0.0177	0.0109	-1.6
$e(87)_4$	-0.0082	0.0133	-0.6
$e(87)_5$	-0.0892	0.0198	-4.5
$e(87)_6$	-0.0700	0.0237	-2.9
$e(87)_7$	-0.0858	0.0394	-2.2

Source: Authors' estimates using the 1983 and 1988 Current Population Surveys.

Appendix Table B-1: Mean IRA and 401(k) Versus Other Financial Asset Balances, by Type of Asset Held, 1984 and 1987

	Excluding Stocks and Bonds		Including Stocks and Bonds	
	1984	1987	1984	1987
Families With 401(k) Only				
With 401(k)				
Total Assets	--	11819	--	16567
Other Than 401(k)	5851	4354	8259	9702
401(k)	--	6865	--	6865
Debt	3014	3071	3014	3071
Families Without 401(k):				
Total Assets	8942	9729	12239	13375
Families With IRAs Only				
With IRA				
Total Assets	23725	26427	32954	35617
Other Than IRA	17695	16886	26925	26076
IRA	6030	9542	6030	9542
Debt	3938	3580	3938	3580
Families Without IRA:				
Total Assets	4343	4553	5815	6519
Families With IRAs and 401(k)s				
With IRA and 401(k)				
Total Assets	--	43177	--	59224
Other Than IRA or 401(k)	19063	18969	33606	35016
IRA	6305	10992	6305	10992
401(k)	--	13216	--	13216
IRA and 401(k)	--	24208	--	24208
Debt	3551	3552	3551	3552
Families With Neither IRA Nor 401(k): Total Assets	4245	3808	5656	5488

Appendix Table B-2: Mean Asset Balances By 401(k) Eligibility, 1984 & 1987, By Income								
	Income							
Group	< 10	10-20	20-30	30-40	40-50	50-75	>75	ALL
				1987				
Not Eligible for a 401(k)								
All financial assets	3334	5022	8492	13923	19590	31961	61077	13480
Other assets	2714	4149	6843	11087	15800	25410	51947	10960
IRA	620	874	1649	2836	3790	6551	9130	2520
Eligible for a 401(k)								
All financial assets	5369	5696	12652	18435	22021	44472	85116	27550
Other assets	3748	2811	8548	10578	12532	28672	55972	17285
IRA	819	730	1626	3003	3660	6562	12077	4092
401(k)	802	2155	2477	4854	5830	9239	17066	6172
				1984				
Not Eligible for a 401(k)								
All financial assets	2799	5109	7545	13443	20174	31304	72398	12310
Other assets	2517	4477	6469	11602	17598	27268	67175	10844
IRA	282	632	1076	1841	2576	4036	5222	1466
Eligible for a 401(k)								
All financial assets*	--	--	--	--	--	--	--	--
Other assets	2813	4984	5588	10356	14302	24755	73081	14989
IRA	459	598	791	1469	2215	4482	5864	2037
401(k) *	--	--	--	--	--	--	--	--

*401(k) assets are not available for 1984.