SOURCES OF IRA SAVING

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ABSTRACT

To address the question of whether IRAs contribute to capital

formation, we use the IRS/University of Michigan taxpayer sample for income

tax returns during 1980-84. By matching families across a five-year period,

we can estimate the dynamic interactions of IRA purchases and other types of

saving, correct for individual differences, and test whether IRA purchases

are in part offset by other (net) asset sales. The "reshuffling" hypothesis

implies that taxpayers who enroll in IRAs should, over time, experience a

drop in net taxable interest and dividend income as their taxable assets

(or new loans) are used to purchase IRAs. Conversely, the "new saving" view

of IRAs implies that taxable interest and dividend income should be

unaffected by IRA purchases. We find little or no evidence which favors the

view that IRAs are funded by cashing out existing taxable assets. In fact,

individuals who purchased IRAs in each year between 1982-84 increased their

asset holdings by more than those who did not purchase IRAs. In one sense,

our results strongly confirm the studies by Venti and Wise and Hubbard that

IRA saving represents new saving. But shuffling could still occur, albeit

on a secondary level: families who are accumulating both taxable assets and

IRAs might have accumulated even more taxable assets had IRAs not been

available.

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More than 200 billion dollars have been invested in Individual
Retirement Accounts (IRAs) since their creation in 1974. By 1986, annual
IRA contributions were 38 billion dollars, and the saving incentive
enjoyed tremendously popularity with the public. But the golden age of
IRAs may have drawn to a close. Since the curtailment of IRA eligibility
following the 1986 tax reform, enrollment has fallen by more than 50
percent.[1] Despite the 1986 tax reform, IRAs may rise again; they remain
popular among politicians for purposes as diverse as housing, education,
and medical expenses.

The original intent of the 1974 Employee Retirement Income Security
Act was to encourage workers without pensions to save for their
retirement. The broadening of eligibility to all taxpayers, and the
increased limits on deductions in 1982, signaled a new objective for IRAs;
to stimulate overall saving and capital formation, as well as to
supplement retirement and pension income. How successful have been IRAs
in fulfilling the objective of stimulating aggregate saving? In 1986, IRA
deposits were 29 percent of personal saving.[2] If IRA contributions
represent new saving, they were partially successful at stemming the
decline in personal saving during the 1980s.[3] But IRAs may not represent
new saving. There are strong incentives for taxpayers to shift assets
from taxable investments such as money market accounts into the untaxed
IRAs. At the extreme, taxpayers could borrow money to open an IRA, and
deduct the interest payments and initial contribution. In these cases,

IRAs would not represent new saving; rather, they would allow wealthy taxpayers to shuffle their portfolio into the tax-favored IRAs, reduce their tax liability, and cause a substantial loss in tax revenue to the Treasury. That is, IRAs could have _reduced_ aggregate saving by exacerbating the already large budget deficit with no offsetting increase in private saving.

The potential for tax arbitrage was recognized before eligibility was broadened. Feldstein and Feenberg (1983) showed that few taxpayers had sufficient taxable assets to purchase IRAs for more than one or two years; further IRA purchases would have to be financed either by reducing current consumption or by borrowing. A number of Washington officials had little doubt how IRAs would be financed. At the 1980 House hearings on saving incentives, Donald Lubick from the Treasury testified that "...you have the ... possibility of gaming the system through borrowing and taking interest deductions and putting the borrowed money into the tax-deferred account." (U.S. House, 1980; p.5) During the 1985 Senate hearings on tax reform, Daniel Halperin of Georgetown Law School revealed the source of _his_ IRA:

> I was going to answer [Senator Bradley's] question about where money comes from to go into IRAs. I can tell you where it comes from in my case. It comes from borrowing...
> And since you get the interest deduction on that borrowing, in effect you get the tax benefits without having any retirement saving at all.... (U.S. Senate, 1985; page 91).

Financial advisors were not slow to understand the benefits of tax arbitrage with IRAs. Columns titled "Borrow for your IRA" and "Short on Cash for an IRA? Not to Worry, Says S&L, Just Use Your Credit Card,"

appeared in magazines such as <u>Money</u> and <u>American Banker</u> (Anrig, 1985; Sudo, 1985). This anecdotal evidence supports the view that taxpayers used IRAs not to increase private saving, but to reduce their tax payments.

A survey of 3,487 households conducted in 1984 for the Investment Company Institute sheds more light on this issue. Individuals were asked "had you not put your money in an IRA during the 1983 tax year, how would the money have been used?" As Johnson (1985) reported,

About half of the respondents said they would have saved it anyway. About 10 percent said they would have spent it all, while about 40 percent said they would have spent some and saved some.

He concluded that of the 32 billion dollars contributed to IRAs during 1983, $10 billion represented new saving. Of that $10 billion in IRA contributions, less than $7 billion represents net saving, since the government credits IRA contributions against taxable income. In short, the survey implies that the government lost almost $7 billion in tax revenue (the revenue loss on the $22 billion shifted from taxable assets into IRAs) to generate 7 billion dollars of net saving.[4]

A much different view comes from recent economic studies of saving and IRA purchases. Hubbard (1984) and Venti and Wise (1986; 1987a, 1987b) found strong evidence from economic cross-section survey data that IRAs represent new saving. Supporting evidence comes from Carroll and Summers (1987), who suggest that the generous Canadian personal saving incentives are a plausible explanation for why Canadian saving rates have recently increased above those in the United States. However, given the difficulty

of comparing aggregate saving rates between countries (Carroll and Summers), or of estimating a dynamic model from cross-section data (Venti and Wise), the question of whether IRAs are tax dodges for the wealthy, or a tremendously successful saving incentive, has not been resolved.

To address this question of whether IRAs contribute to capital formation, we use the IRS/University of Michigan taxpayer sample for income tax returns during 1980-84. By matching up families across a five-year period, we can estimate the dynamic interactions of IRA purchases and other types of saving, correct for individual differences, and test whether IRA purchases are in part offset by other (net) asset sales. The "reshuffling" hypothesis implies that taxpayers who enroll in IRAs should, over time, experience a drop in net taxable interest and dividend income as their taxable assets (or new loans) are used to purchase IRAs. Conversely, the "new saving" view of IRAs implies that taxable interest and dividend income should be unaffected by IRA purchases.

Briefly, we find little or no evidence which favors the view that IRAs are funded by cashing out existing taxable assets. In fact, individuals who purchased IRAs in each year 1982-84 increased their asset holdings by more than those who didn't purchase IRAs. In one sense, our results strongly confirm the studies by Venti and Wise and Hubbard that IRA saving represent new saving. But shuffling could still occur, albeit on a secondary level: families who are accumulating both taxable assets and IRAs might have accumulated even more taxable assets had IRAs not been available.

Economic studies of why taxpayers buy IRAs typically explain

contributions as a function of variables such as income, wealth, and marginal tax rates. Optimizing agents contribute to IRAs (often to the legal limit) owing to the high rate of return on their saving. Our results, however, suggest that this view of enrollees as rational optimizers may be incomplete. First, taxpayers seem to have only a dim awareness of their legal limits for IRA contributions. Of the 14 million taxpayers who contributed to an IRA in 1985, 5.5 million taxpayers eligible to contribute between $2250 and $4000 saved exactly $2000. Had these taxpayers contributed up to their legal limit, they would have saved $10.5 billion more. Why $2000? Perhaps the advertisements for IRAs common during the early 1980s conveyed not only (correct) information about the high rates of return available from IRAs, but also (incorrect) information that $2000 was the family's maximum limit.

Our second piece of evidence that casts doubt on the traditional economic model is that taxpayers who owe the IRS money in excess of taxes withheld -- i.e., taxpayers who must write the IRS a check on April 14th -- are more likely to purchase IRAs, holding constant income, wealth, and other economic factors. This result implies that taxpayers would prefer to write a $2000 check to their IRA account than to write an $800 check to the IRS. In this sense, IRAs encourage capital formation by providing psychological as well as economic incentives to save.

The beneficiaries of Individual Retirement Accounts were largely upper-middle-class and wealthy families. In 1986, the top 9 percent of taxpayers (with adjusted gross income in excess of $50,000) accounted for 41 percent of IRA purchases and one-third of enrollees. While IRAs may have promoted aggregate saving, they had little impact on the majority of

taxpayers.

II. The Tax Benefits of IRAs

The most visible benefit of IRAs is the tax deductibility of the contribution. Although the principal is taxed when it is withdrawn from the IRA, the marginal tax rate is often low when the IRA is cashed out during retirement. Beginning in 1987, this benefit has been curtailed for higher income taxpayers. For those with existing pension arrangements, the limits on deductible contributions are gradually reduced at incomes above $40,000 (for married couples) until they are phased out at $50,000. Employees without qualified pension arrangements may continue to make contributions regardless of income levels.

Another benefit of IRAs which remains available for all enrollees is the ability to defer paying taxes on accumulated interest until the IRA is withdrawn. Over a sufficient period of time, this second aspect can provide a large benefit, especially if the individual pays the deferred interest income tax at a lower marginal rate during retirement. The disadvantage of IRAs is that investors must pay past taxes, as well as a 10 percent penalty, if they withdraw funds from the IRA before age 59 1/2.

Ozanne and Lindeman (1987) have calculated the tax benefits from purchasing an IRA. Assume that the individual is initially subject to a 28 percent tax rate while working, and a 15 percent tax rate while retired. Under the traditional rules for IRAs which allow both contribution deductibility and deferred taxation, $1000 of earnings deposited for 15 years at 8 percent interest would yield a net return of $2,696, which is a 62 percent gain over the $1668 return on a traditional,

taxable account. If the contribution were not deductible, but interest were deferred (i.e., current rules for jointly filing taxpayers with income above $50,000), then the return would be $2049, or an advantage of 23 percent. In short, the deductibility of the contribution accounts for roughly two-thirds of the total tax advantage to IRAs. Given the substantial financial incentives for saving through IRAs, one might have expected extensive enrollment across the population.[5] However, as we discuss in the next section, barely one-third of the population had opened an IRA account by early 1985.

Individual Retirement Account rules allow a surprising degree of flexibility in the type of investment allowed. Taxpayers can convert stocks and bonds into IRAs, and can even place gold coins issued by the US government (or by states) in the IRA. While gold coins seem to be an odd investment to put in an IRA, since they are not taxed heavily, newspaper advertisements during the mid-1980s touted gold IRAs quite heavily. One restriction on IRA investments is that they cannot be used to purchase collectibles such as antiques or paintings.

III. Who Purchases IRAs

As a first step, it is important to explain who buys and who doesn't buy IRAs. The traditional life cycle theory of saving focuses on retirement income as the primary motivation for saving. If this is so, then all families should open an IRA, even if it is quite modest in size. The family enjoys a higher rate of return on saving that presumably was intended for retirement consumption. A more complicated life cycle model recognizes that families with less financial wealth may contribute less to

an IRA because liquid assets may be needed in the near future to purchase houses or to pay for education.

We test this proposition using the IRS/University of Michigan panel data set which follows a sample of taxpayers over time (Slemrod, 1988). The sample includes taxpayers who were under age 65, continuously married or single, and who were in the sample between 1979 and 1984. A total of 3991 taxpayers were included in the sample. We construct a measure of imputed financial taxable wealth based on 1980/81 interest and dividend income (averaged over two years to reduce year-to-year fluctuations). To construct this measure of wealth, we assume that taxpayers received an average 10 percent return on taxable interest-bearing wealth and 5 percent from stock dividends (i.e., the approximate return on bonds, and the dividend yield, during the period 1980/81).

Table 1 presents the percentage of taxpayers who bought IRAs during 1982-84, arranged by the level of imputed financial wealth. Wealth was used in this table rather than adjusted gross income (AGI) for two reasons. First, (as we show below), financial wealth is a much better predictor of IRA purchases than income, perhaps because many high (gross) income taxpayers report very low AGIs. Second, taxpayers with low wealth are less likely to purchase IRAs (holding income constant) because IRAs are illiquid or because of borrowing constraints.

The second column of Table 1 shows that more than 86 percent of taxpayers with financial wealth less than $2000 did not buy an IRA during the years 1982-84. A small fraction, 4 percent, purchased IRAs in all three years. The fraction of taxpayers purchasing IRAs increase steadily with wealth; nearly half of those with financial wealth in excess of

$50,000 purchased an IRA during all three years. But one-third of this very wealthy group do not purchase an IRA in any of the three years, a finding which is clearly inconsistent with the traditional life cycle model in which families might be expected to devote at least a fraction of their wealth to retirement.

A statistical answer to the question of who buys IRAs can be gained from regression analysis, in which we estimate IRA dollar purchases as a function of various exogenous factors such as AGI, asset income, tax rates, cash owed to the IRS, and demographic factors.[6] Regression results from ordinary least-squares are presented in the Appendix (Table A.1) but summarized below.

Adjusted gross income, while significant, does not have a great deal of explanatory power in explaining IRA purchases holding wealth constant. For example, families with an AGI of $50,000 are predicted to purchase only $352 more in IRAs than families with an AGI of $5,000. Yet an increase in the level of wealth from less than $1000 to $10,000 (holding AGI constant) is predicted to increase IRA holdings by $746. The finding that families with higher assets purchase more IRAs is evidence in favor of a "portfolio" model; individuals contribute to IRAs if there are other more liquid assets available. It is also consistent with Venti and Wise (1987a), who found that IRA enrollees had higher levels of median wealth holding constant income and age.

We have calculated the (net-of-IRA) marginal tax rate for each taxpayer. The out-of-pocket "price" per dollar of IRA contribution is one minus this tax rate. The price variable is significant and negative; it implies that a decline in the marginal tax rate from, say, 40 percent to

28 percent would reduce IRA purchases by $398, holding both wealth and AGI constant.[7] The strong impact of the tax rate on IRA purchases suggests that IRA enrollments would have declined in 1987 even if the eligibility rules had not been tightened.

A variable measuring whether the taxpayer owed money to the IRS (in addition to income already withheld) was also introduced, along with an interactive variable reflecting whether interest and dividend income was in excess of $250. These two variables are designed to test the hypothesis that taxpayers are more likely to contribute to an IRA when they owe money to the IRS (perhaps because of the psychic cost of writing a check to the IRS!). If only economic factors were important, these two two variables should not affect IRA purchases. However, we find that the representative taxpayer will contribute on average $184 (with low asset income) or $518 (with asset income above $250) more to an IRA if he owes money to the IRS at the end of the tax year.[8]

There are a number of alternative explanations for this finding. One is that taxpayers do not generally pay withholding taxes on capital income. Those with high levels of wealth would both owe extra taxes on April 14, and enroll in IRAs. However, the statistical analysis has already controlled for the wealth level; the regression implies that between two taxpayers with *identical* wealth, the one who owes money to the IRS will be more likely to purchase an IRA. Another explanation for our finding is that aggressive tax planners both regularly underwithhold tax payments, and buy IRAs. If this were the case, then a spurious (positive) correlation between underwithholding and IRA purchases would be found, although we find it unlikely that fine-tuned tax planning could account

for such large differences in average IRA purchases.

. One problem with the least squares regression is that it cannot account for the bunching of taxpayers either at zero (for those who purchase no IRAs) or at $2000 (for those that contribute up to their putative legal limit). Because of this bunching, least-squares regression results will generally understate the true impact of the explanatory variables on IRA contributions. The two-limit Tobit estimation method corrects for this problem; the regression results are also presented in Table A.1. In general, the results are consistent with the ordinary least squares regressions, but the coefficient are larger (and the t-statistics smaller). For example, the two-limit Tobit regression implies that desired IRA purchases will rise by $667 (rather than $398) as a result of a decline in tax rates from .40 to .28.

In summary, this section has shown that IRA purchases are highly correlated with asset wealth, and that the marginal tax rate and the cash position of the taxpayer has a strong impact on IRA purchases. These latter two effects support the notion that the cash value of deducting an IRA (the size of the IRA times the marginal tax rate) may loom large in the mind of the taxpayer who owes money to the IRS.[9] It is interesting to note that the regression results contradict the "liquidity constraint" view of saving. Taxpayers flush with tax refunds are <u>less</u> likely to open an IRA than taxpayers who owe money to the IRS.

Finally, we present evidence that suggests some level of ignorance about the true legal limits on IRA contributions. The law states that allowable maximum contributions for single taxpayers are $2000; for couples with one spouse working, $2250 ($2000 in the working spouse's

account, and $250 in the nonworking spouse's account); and for couples with both spouses working, $4000. Yet a very large fraction of these latter two groups contributed exactly $2000. While these families may not have chosen to contribute the full $4000 (or $2250), it seems unlikely that they would have chosen exactly $2000 unless they thought themselves (falsely) constrained to that point. To estimate the magnitude of false constraints, we use the NBER Taxsim model to estimate both the number of taxpayers who were thus constrained, and the increased contributions that would have occurred had those individuals chosen to contribute their legal maximum. The breakdown is presented in Table 2 by imputed wealth level. We estimate that in 1985, 5.5 million taxpayers (of the total 14 million who contributed) were falsely constrained at $2000. Had they contributed the legal maximum, they would have increased IRA saving by $10.5 billion, with the largest increase in contributions by those with AGI between $30,000 and $70,000.

There are alternative explanations for the $2000 limit contribution that do not rely on ignorance. First, it may not be worth the trouble to open up a new account for the spouse if his or her legal limit is only $250. But in total, the foregone $250 contributions account for only $2 billion of the $10.5 billion in potential IRA enrollments. Another potential explanation is "marital distrust"; taxpayers do not open an IRA account in their spouse's name, but only in their own. We feel that the most compelling explanation for the false $2000 limits is that the advertisements and brochures for IRAs common during the early 1980s made both a positive impression on consumers (encouraging them to buy IRAs) and a negative impression (that $2000 was the legal limit).

IV. Do IRAs Represent New Saving?

In this section, we address the primary question of the paper: Do IRAs represent new saving, or are they "old" saving (or new loans) reshuffled into IRAs to minimize taxes? Simple economic theory suggests that while IRAs offer a higher rate of return on savings below the contribution limit, they offer no incentive for saving above that amount. Absent wealth effects, individuals who regularly save above their IRA limit have no incentive to save more, since they face the same after-tax marginal rate. In this view, IRAs can target only a limited group of people -- small savers who had previously planned to save less than $2000 for their retirement.[10]

Venti and Wise (1986; 1987a; 1987b) suggest a richer model of saving, in which IRA saving and non-IRA saving may be imperfect substitutes in the consumer's portfolio. To the extent that IRA saving substitutes for non-IRA saving (leaving total saving unaffected), "reshuffling" occurs. They develop a sophisticated econometric technique which suggests that IRAs are drawn primarily from consumption rather than from other, taxable, forms of saving. They must impose strong assumptions, however, to disentangle the effect of individual characteristics (that is, people who have a high propensity to save may be more likely to buy IRAs) from the structural parameters they want to estimate using data from only a single year (Deaton, 1987).

Carroll and Summers (1987) note that the savings rates in the United States and Canada, after tracking one another closely for a number of years, diverged substantially in the mid 1970s; by 1982, the US private saving rate had dropped to 5.5 percent, while the Canadian rate had risen

to 10.6 percent. They suggested that the broad eligibility, and higher limits, for retirement saving plans in Canada could have accounted in part for the higher Canadian saving rate. While the Canadian retirement savings accounts may have stimulated saving (they have contributed more than 20 percent of personal saving in every year since 1976), by the early 1980s they could account at best for one-quarter of the divergence in personal saving rates.

Our test of whether IRAs are net saving is to compare the taxable interest and dividend income of IRA enrollees with the equivalent income of nonenrollees. In the reshuffling hypothesis, taxable assets are converted into IRAs, so one would expect that taxable asset income in 1984 relative to 1980/81 (before IRAs were commonly used) should be less for IRA enrollees. The new saving hypothesis implies that IRA contributions would come at the expense of consumption rather than existing saving. Because we compare changes in asset income between 1980/81 and 1984 for those buying, and those not buying, IRAs, we correct for secular changes in interest and dividend income during the 4-year period.

The magnitude of changes in dividend and interest income is large when the shuffling hypothesis is true. Consider a taxpayer at a 30 percent tax rate who shifts $2000 at the outset of each year from her money market account (which pays the 3-month Treasury rate) into an IRA. By 1984, the decline in taxable interest income caused by the IRA contributions would have been $614, which is 30 percent of average taxable dividend and interest income during 1984. The decline would be less pronounced if the hypothetical taxpayer contributed to the IRA account at the end of the tax year rather than the beginning.

Table 3 describes taxable interest and dividend income in 1980/81 and 1984, for different levels of financial wealth in 1980/81, and for the number of years during 1982-84 that the taxpayer purchased an IRA. The top number in each category is average interest and dividend income in 1980/81, the bottom is for 1984. There is an overall growth in interest and dividend income for all groups, which is consistent with the secular increase reported in the IRS aggregate statistics. The striking result is that taxable asset income _rises_ by more for those who purchased IRAs. This result is shown graphically in Figure 1. The bar graph describes the _change_ in interest and dividend income for two groups; those who purchased no IRAs, and those who purchased IRAs in all three years. For all levels of initial asset wealth, the increase in asset income is greater for those who purchased IRAs than for those who did not.

Taxable asset accumulation is positively correlated with the number of IRA enrollment years for all but the group with more than $50,000 in wealth. In Table 3, for the lowest level of wealth, those who did not purchase any IRA experienced a growth in interest and dividend income of $101 ($146 - $25); for those buying an IRA in one year, asset income grew by $363; for two years, $632, and for three years, $848. Similar results are realized for all asset classes except for the very wealthiest. Not only do these results reject the reshuffling hypothesis, but they go beyond the new saving argument to imply that IRAs "crowd in" _taxable_ saving.

A proponent of the reshuffling hypothesis might reply to the evidence in Table 3 by observing that taxpayers could be financing their IRA purchases with loans, so that asset income would be unaffected by IRA

purchases. To test this proposition, we compare tax-deductible interest payments, excluding mortgage interest, for IRA enrollees and nonenrollees.[11] These comparisons are presented in Table 4, and are also shown in Figure 2. Note that the calculations are limited to taxpayers who itemize. Like the comparisons of interest and dividend income, Figure 2 shows the change in tax deductible interest payments for two groups; those who purchased no IRAs, and those who purchased IRAs, in each of the three years 1982-84. Looking at those with wealth less than $2000, interest payments increased by $251 for nonenrollees, and by $522 for enrollees. The difference in interest payments, $271, could account for almost two years of IRA purchases.[12] The ordering holds as well for taxpayers with a greater amount of asset income. While the relatively greater increase in borrowing for IRA enrollees may suggest some asset shifting, it is still the case that the increase in net asset income income -- gross dividend and interest income less interest payments -- is substantially larger for IRA enrollees relative to those who do not purchase IRAs.

Feldstein and Feenberg (1983) observed that if the reshuffling argument were correct, many taxpayers would be unable to purchase IRAs for more than a few years before their liquid assets would be depleted. If taxpayers with less asset income (and presumably lower AGI) were unable to sustain IRA purchases for more than a few years, then IRAs should, over time, become concentrated among high-income individuals. We test this proposition with data from the IRS Statistics of Income for 1982 and preliminary reports for 1986 (SOI Bulletin, Winter 1987-88). A breakdown of IRA purchases by AGI for two years, 1982 and 1986, is presented in Figure 3. Along the horizontal axis are the percentile of taxpayers,

ranked by adjusted gross income. On the vertical axis are cumulative

percentiles of IRAs purchases, relative to total IRA contributions. For

example, the chart shows that in 1982, the bottom half of taxpayers

(aligned by AGI) accounted for 8 percent of total IRA purchases. A

comparison of the distribution for 1982 (squares) and 1986 (crosses)

reveals that they are virtually identical. There is no support, then,

that the distribution of IRA purchases by AGI has changed at all between

1982 and 1986. The same fraction of lower income families continue to buy

IRAs, even after 4 years of eligibility. This finding casts doubt on the

proposition that taxpayers shifted taxable assets into IRAs during the

early 1980s.

Evidence on the dynamic pattern of IRA purchases provides further

evidence against the view that IRA enrollees "run out of steam." In fact,

we find the opposite effect; once enrolled, taxpayers are unlikely to drop

out. Table 5 presents the time pattern of IRA purchases, once again

separated by interest and dividend income during 1980/81. The code in the

first column details which years (if any) an IRA was purchased between

1982-84 where a one represents IRA enrollment. For example, the number of

taxpayers with initial wealth levels less than $2000 who purchased no IRA

in 1982, but subsequently purchased IRAs in 1983 and 1984 (corresponding

to code 011) was 57.

The hypothesis that families with low levels of asset income shift

their existing assets into IRAs for the first one or two years gains

little support in this table. There were 161 taxpayers with financial

wealth less than $2000 who purchased an IRA in 1982. Of that group, 71

percent bought IRAs in the following year, and 66 percent bought IRAs in

1984. Similarly, five out of six enrollees who contributed to an IRA in 1983 also did so in 1984. Finally, 80 percent of those who bought an IRA in both 1982 and 1983 purchased an IRA in 1984. If the reshuffling story were correct, most, if not all, of assets of this latter group would have been exhausted by 1984.

What causes taxpayers to drop out of IRAs? Additional evidence suggests that they drop out because of a substantial jolt to earnings. Consider the sample of taxpayers who purchased an IRA in 1982. Nominal earnings rose by 4 percent for those who continued to purchase an IRA in 1983, but fell by 13 percent for those who did not. A similar story held for IRA enrollees in 1983; earnings rose by 8 percent among those contributing to an IRA in 1984, but fell by 10 percent for those who dropped out.[13] In summary, there is some evidence of habit or persistence; once the IRA account is opened, enrollees contribute unless their financial health is shaken.

The results described above imply that IRA purchases are positively correlated with saving in taxable assets. There are three potential explanations for this result. The first is that some people save and others are spendthrifts. Savers will buy IRAs and other taxable assets while spendthrifts will avoid IRAs and other forms of saving. The problem with this explanation is that the positive correlation between IRA saving and other types of saving holds across all levels of wealth. Holding constant financial wealth (which reflects the taste for saving), those who purchase IRAs also save more. Another problem with the explanation is that there is very little correlation between saving behavior during the years 1979-81 and 1982-84. One cannot characterize individuals as savers

or spendthrifts, because their taste for saving seems to vary over time.

A second explanation allows for a more subtle model of reshuffling to explain IRA purchases. The evidence suggests strongly that whatever the inital level of assets, <u>changes</u> in saving behavior over time are associated with both IRA purchases and saving in taxable instruments. That is, families arrive at a particular point in their life cycle when they choose to accumulate for their retirement or other goal. Part of their saving is allocated to the IRA and part to other sources. For example, assume that a family chooses to save $15,000 over a three year period. In the absence of IRAs, all of the $15,000 would be deposited into money markets and stocks. If IRAs were available, $6000 of the $15,000 would be deposited in IRAs, with $9000 deposited into taxable assets.[14] A cross-section comparison of this family with other families would find that IRA purchasers save more in taxable assets than those without IRAs; i.e., the simple reshuffling hypothesis would be rejected. Yet by construction, the IRA saving does not represent new saving, since it would have been saved in the taxable asset anyway. Such a model can potentially reconcile the survey results in Johnson (1985) with evidence from Venti and Wise.

The difference between the subtle version of reshuffling and the simple version is one of magnitude. The new view of reshuffling implies that only those taxpayers who are actively saving will shift assets (and perhaps those only partially). In the simple reshuffling hypothesis, every investor finds it profitable to shelter assets in IRAs.

The third explanation for why IRA saving appears to "crowd in" taxable saving comes from Katona (1964). He conducted a pioneering study

of how pensions affect private saving to answer much the same question we are addressing: do pensions crowd out private retirement saving? His results are similar to ours; those with pensions saved more in non-pension saving than those without pensions, conditioning on factors such as income.[15] Katona's explanation for the positive correlation between pension saving and nonpension saving is that

... the provision of adequate funds during old age no longer appears an insurmountably difficult problem: being closer to the goal stimulates people to work harder to achieve the goal, and therefore collective retirement plans promote individual saving. (p. 5)

That is, individuals view pension plans as bringing them within reach of a comfortable retirement, so it becomes worthwhile to save the extra amount (in nonpension saving) to attain their goal. Both the subtle reshuffling explanation, and Katona's "goal attainment" explanation (a stronger form of the new saving hypothesis), are consistent with the data, but at this stage, we cannot distinguish between the two. We can decisively rule out the simple reshuffling view of IRAs.

Thus far, we have focused only on the incentive aspects of IRAs. One of the primary criticisms of IRA enrollment has been the extent to which the tax subsidy benefited high-income taxpayers. As Figure 3 shows, those with AGI above $50,000 (9 percent of all taxpayers) accounted for 41 percent of all IRA purchases (and one-third of enrollees). One response to this finding is that many taxpayers are young or retired, and not in the market for any type of retirement saving. A better measure of the progressivity of IRAs comes from a comparison of the progressivity of interest and dividend income relative to the progressivity of IRA purchases for taxpayers under age 65. One might expect that IRA purchases

would be more progressive because wealthy families are prevented from contributing more than $2000 per taxpayer. To test this hypothesis, we show the cumulative distribution of interest and dividend income and IRAs during 1985 for taxpayers under the age of 65 in Figure 4. Once again, the horizontal axis shows the cumulative distribution of taxpayers on the basis of AGI, while the vertical axis shows the cumulative distribution of interest and dividend income, and IRA contributions, during 1985. IRA contributions are less progressive than overall asset income for 85 percent of the taxpayers (income less than $40,000 in 1985). The results shown here suggest that a generalized saving incentive for all interest and dividend income (along the lines of lower marginal rates on nonwage income) might have provided a more equitable saving incentive than IRAs.

V. Conclusion

The period 1982-86 may be remembered as the years of the IRA saving incentive experiment. Whether the IRA experiment represented a massive subsidy provided to wealthy taxpayers -- with no increase in net saving -- or whether it represented a successful and popular tax incentives, is still open to debate. This paper has presented evidence supporting the view that IRA saving represents new saving. If there is tax reshuffling, it occurs only marginally through increased borrowing, or through a more subtle form of reshuffling; individuals who are buying IRAs would have increased their taxable saving by even more had the IRAs not been available.

We have also provided evidence that even those taxpayers who did enroll in IRAs did not take full advantage of its provisions. More than

one-third of all IRA contributors in 1985 contributed exactly $2000 when they were eligible to contribute more. While they could have been acting rationally for reasons unclear to us, we suggest that a lack of public information about the size of IRA limits led to their underutilization.

Finally, we have shown that IRAs were not particularly progressive; for income levels less than $40,000, a generalized saving incentive for interest and dividend income might have been more equitable than the existing IRA system. However, it is not clear that a general saving incentive system would have been as successful as an IRA in encouraging new saving. Our results suggest that taxpayers need the immediate gratification of a tax deduction to nudge them towards adequate retirement saving.

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Table 1: Percentage Distribution of Taxpayers
By Years of IRA Enrollment and Asset Income, 1982-84

| | | Years of IRA Participation | | | |
Taxable Wealth 1980/81	Sample Size	0	1	2	3
< 2,000	2438	86.6	5.8	3.5	4.0
2,000-10,000	727	49.5	15.8	12.4	22.1
10,000-50,000	595	38.5	10.1	12.2	39.0
> 50,000	231	31.2	6.7	13.4	48.5
Total	3991	68.9	8.3	7.1	15.6

Notes: Percentages may not sum to 100 owing to rounding error. The individual is considered to be enrolled if a positive contribution is made for that year.

Source: Michigan/IRS Panel Data

Table 2: Falsely Constrained IRA Contributors, 1985

	\$15000 or Less	\$15,000-\$30,000	\$30,000-\$75,000	\$75,000 or More	Total
			Adjusted Gross Income		
IRA Contributors (in thousands)	864	3,465	8,206	1,497	14,031
IRA Contributions (millions of dollars)	\$1,248	16,045	19,952	4,546	31,792
Taxpayers Falsely Constrained (thousands)	417	1,799	3,026	0,305	5,547
Additional Feasible Contributions (millions)	\$777	3,005	6,464	281	10,528
Unconstrained Taxpayers (thousands)	394	1,188	1,765	63	3,409

Notes: Taxpayers who are "falsely constrained" contributed exactly \$2000 but were eligible to contribute more than \$2000. Additional feasible contributions are the additional IRA contributions that legally could have been made by the falsely constrained taxpayers. Unconstrained taxpayers are neither falsely constrained nor legally constrained.

Sources: IRS Public Use Sample and NBER Taxsim model.

Table 3:   Interest and Dividend Income
in 1980/81 and 1984, by Years of Participation

Years of IRA Participation

Taxable Wealth 1980/81	0	1	2	3
< 2,000	25	56	53	65
	146	419	685	913
2,000-10,000	370	373	343	433
	836	944	1,546	1,682
10,000-50,000	1,637	1,837	1,597	1,819
	2,432	3,483	2,906	3,620
> 50,000	11,785	7,356	7,764	11,868
	18,364	11,061	12,826	18,826

Note: The top number is average interest and dividend income in 1980/81.
The bottom number is average interest and dividend income in 1984

Source: IRS/Michigan Panel Data

Table 4: Deductible Non-Mortgage Interest Payments;
1980/81 and 1984, by Years of Participation

Years of IRA Participation

Taxable Wealth 1980/81	0	1	2	3
< 2,000	313	670	619	828
	564	1,136	1,180	1,350
2,000-10,000	559	588	571	677
	718	1,027	1,265	1,106
10,000-50,000	378	565	443	475
	725	820	765	887
> 50,000	1,778	671	1,323	1,002
	1,584	548	1,400	2,396

Note: The top number is deductible interest payments, averaged over
1980/1981. The bottom number is deductible interest payments in 1984.
The sample includes only those who itemized.

Table 5:   Do Contributors Run Out of Steam?

Average Taxable Wealth in 1980/81

IRA Pattern	< 2,000	2,000-10,000	10,000-50,000	> 50,000	Total
000	2,085	351	229	88	2,753
001	87	57	30	9	183
010	17	23	14	5	59
011	57	54	38	21	170
100	37	32	16	5	90
101	9	14	10	4	37
110	18	20	25	13	76
111	97	157	232	137	623
Total	2407	708	594	282	3991

Note: Three digit code presents a summary of whether the individual purchased an IRA in 1982/1983/1984. One represents an IRA purchase, 0 represents no IRA purchase.

Source: IRS ~~Public Use Tape~~. /Michigan   Panel   Data

Appendix Table A.1: IRA Contributions, 1984

Variable:	(1) OLS		(2) Two-Limit Tobit	
	Coeff.	t-stat.	Coeff.	t-stat.
Joint Filing	257.8	5.87	947.1	3.47
Net After-tax Price of IRAs	-3314.9	16.49	-5560.2	5.70
Dependents	-95.8	6.41	-676.5	7.51
Log (Virtual Income)	-3306.7	6.32	-6570.8	1.78
Log (Virtual Income) Squared	178.9	6.80	483.3	2.71
Capital Gains? (One if Yes)	21.1	0.43	487.5	2.00
Assets: 1,000-2,500	81.7	1.58	588.3	1.71
Assets: 2,500-5,000	134.2	2.31	720.6	2.02
Assets: 5,000-10,000	276.2	4.67	1557.7	4.38
Assets: 10,000-25,000	745.9	13.48	2750.4	8.12
Assets: 25,000-50,000	928.3	13.22	3120.9	8.05
Assets: 50,000 +	792.6	11.04	2350.1	6.10
Owe Cash to IRS? (One if yes)	183.6	3.18	820.3	2.10
Owe Cash × Whether Asset Inc > $250	334.3	4.44	1600.3	3.50
Constant	18068.3	6.77	23736.3	0.85

$$R^2 = .403$$

[1] The IRS reported that the proportion of taxpayers contributing to IRAs fell from 15.4 percent in 1986 to 7.2 percent in 1987 (preliminary). The loss in terms of dollars is likely to be greater given the tightened contribution limits.

[2] In 1986, personal saving was 130.2 billion dollars while IRA contributions were 38.3 billion dollars (Economic Report of the President, 1987; SOI Bulletin, Winter 1987-88). This figure does not include reinvested interest and dividends from existing IRA accounts. The fraction approaches 70 percent of personal saving when the NIPA personal saving data are adjusted for inflation and pension contributions (Summers and Carroll, 1987a).

[3] Between 1975 and 1985, personal savings declined by 2.9 percent of GNP (Summers and Carroll, 1987). Since IRAs accounted for roughly 1 percent of GNP, they could not have entirely offset the secular fall in savings.

[4] We assume a marginal tax rate of 30 percent to calculate the tax loss from the $22 Billion in shifted assets. This loss is overstated because it ignores the taxes that will be paid in the future when the IRA is redeemed (although it neglects the foregone tax revenue on interest accruing to the retirement account).

[5] Preliminary government estimates of the revenue loss from IRAs were minimal, in some cases less than $1 billion. However, Feldstein and Feenberg (1983) ~~correctly predicted the~~ did predict a surge in IRA enrollment ~~using the TAXSIM model.~~

[6] One shortcoming of our data set is that we do not have the age of the

taxpayer. Venti and Wise have shown that for the population under age 65, age has a positive impact on IRA purchases.

7 Because the marginal tax variable is an almost exact function of taxable AGI, the tax variable may proxy for nonlinear effects of AGI (beyond the quadratic expansion in Table A.1). See Feenberg (1987) for a instrumental variables model which corrects for this potential bias.

8 The variable which determines whether the individual owes cash to the IRS is based on a calculation of what taxes would have been owed had the IRA not been purchased; if this amount exceeded taxes withheld, then the dummy variable was positive.

9 That taxpayers are more likely to contribute to an IRA when they owe money to the IRS is not necessarily evidence that the contributions are new saving rather than reshuffled saving. It is not clear, however, that any psychological incentive would be necessary to induce taxapyers to reshuffle, given the low transaction costs involved in shifting taxable assets into IRAs.

10 Also see Kelly and Miles (1987).

11 We exclude housing mortgage payments because we deem it unlikely that an individual would refinance his or her house to purchase IRAs (although see Manchester and Poterba (1988) for evidence on the correlation between second mortgages and IRAs). Including housing interest payments tends to cloud the positive correlation between IRA purchases and interest payments.

12 Assume the taxpayer purchased $4000 worth of IRAs. In a 30 percent tax bracket, the net outlay would have been $2800; at a 12 percent

interest charge, the interest deduction on the full $2800 would have been $336.

[13]The decline in earning could also reflect early retirement.   Either case is evidence against the shifting hypothesis.

[14]   We ignore the reduction in tax liability caused by IRA contributions.

[15]   Katona avoids one problem that we face in our study. As he points out, he does not have to worry about people with strong tastes for saving choosing pensions (as we must worry about "savers" enrolling in IRAs). The reason is that pensions are provided for all employees, and not just those who like to save. He tests for whether employees with a taste for saving choose employers with pensions plans, but finds no evidence in favor of such self-selection.

Figure 1: Change in Taxable Interest &
Dividend Income: 1980/81 & 1984
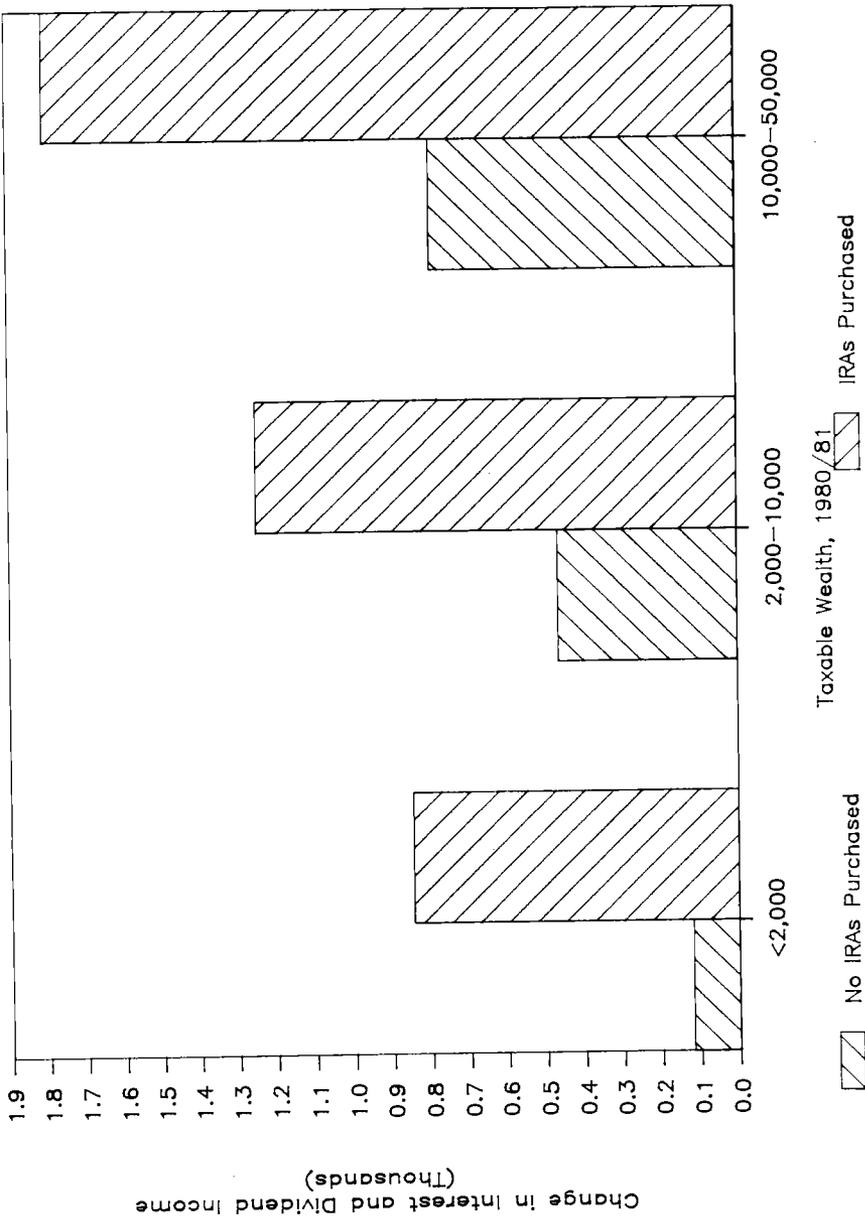
Figure 2: Change in Interest Deductions
Between 1980/81 & 1984
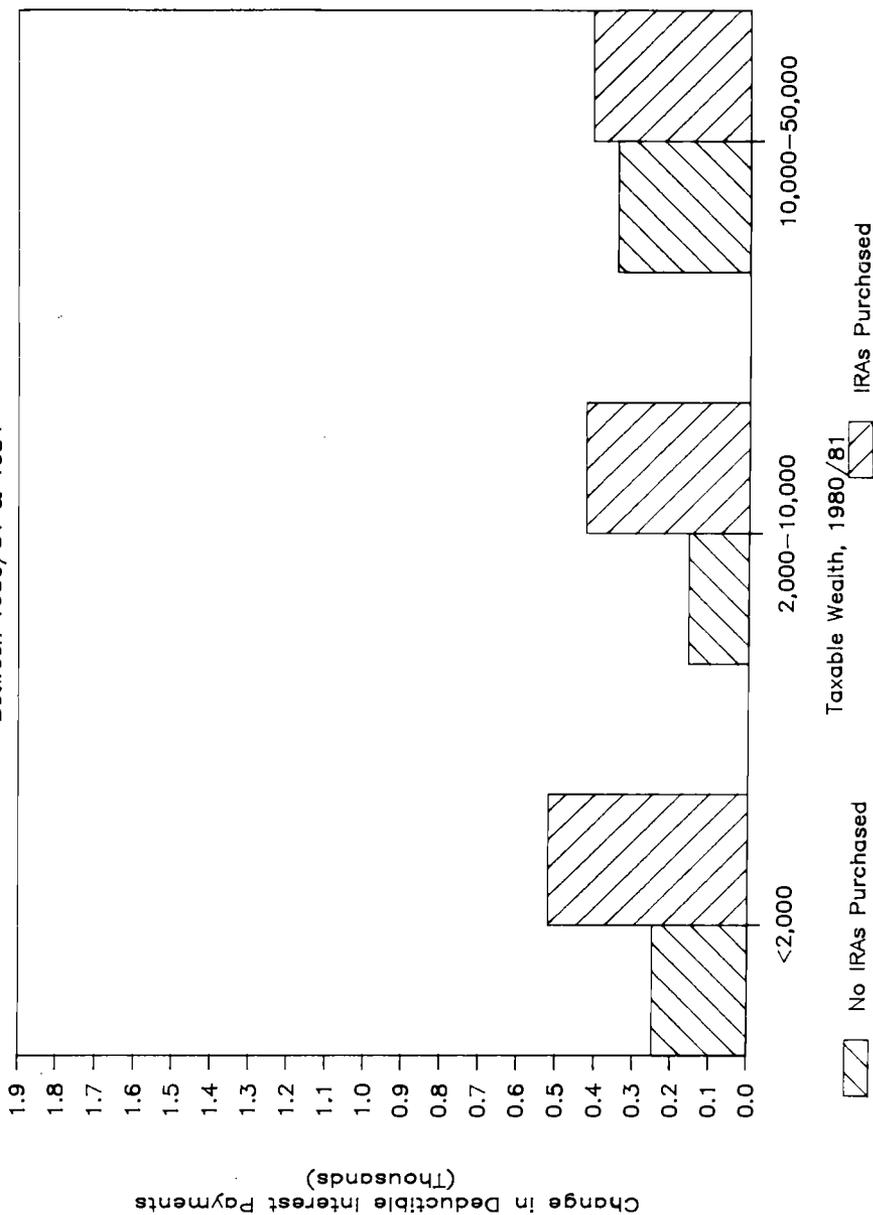
Figure 3: IRA Distribution, 1982 & 1986

by AGI

Cumulative Distribution of IRAs

Percentile of Taxpayer (by AGI)

□ 1982   + 1986
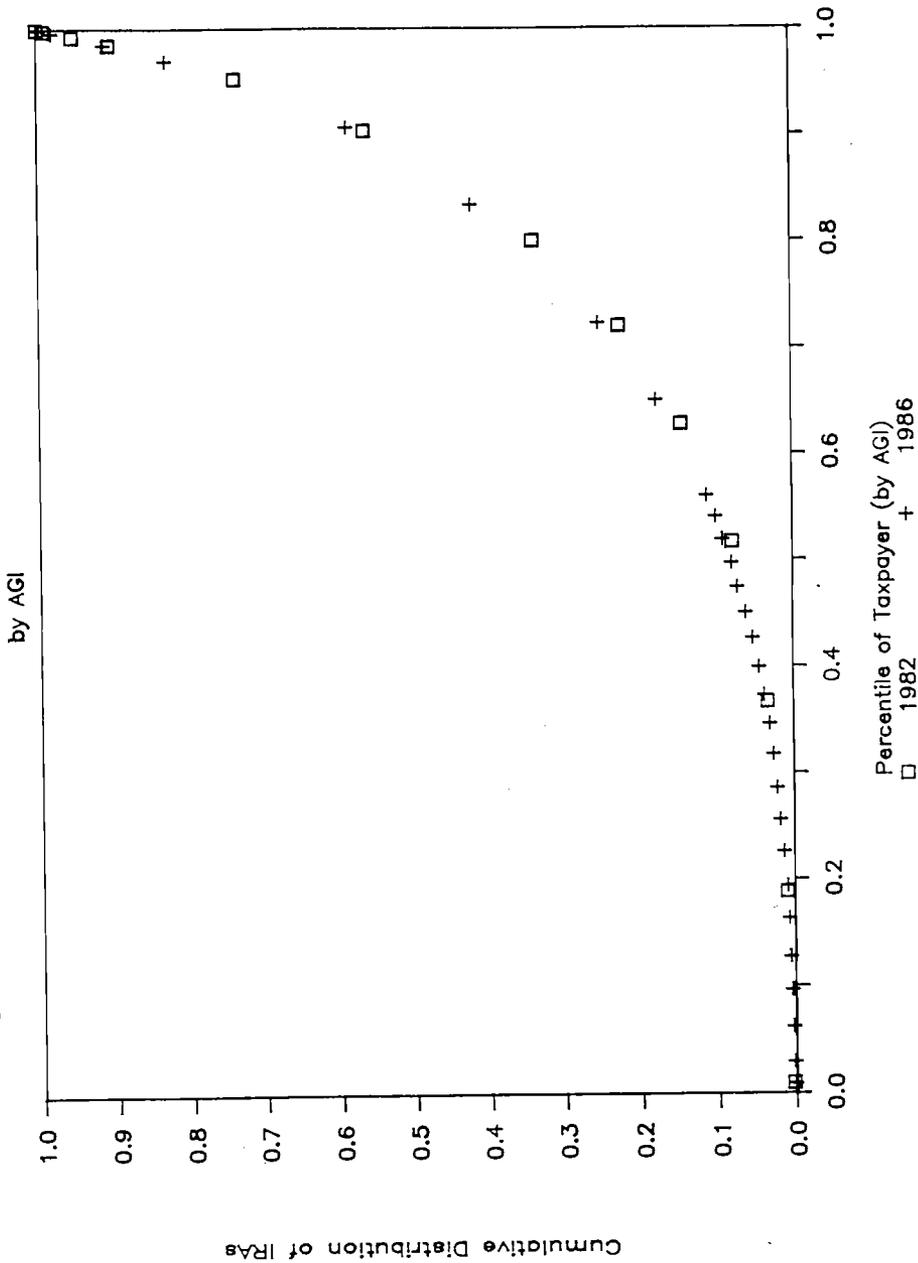
Figure 4: IRA Contributions and
Interest and Dividend Income, 1985