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1 Individual Retirement Accounts and Saving

David A. Wise

Individual retirement accounts (IRAs) were established in 1974 as part of the Employee Retirement Income Security Act to encourage employees not covered by private pension plans to save for retirement. The Economic Recovery Tax Act of 1981 extended the availability of IRAs to all employees and raised the contribution limit. The legislation emphasized the need to enhance the economic well-being of future retirees and the need to increase national saving. Now any employee with earnings above $2,000 can contribute $2,000 to an IRA account each year. An employed person and a nonworking spouse can contribute a total of $2,250, while a married couple who are both working can contribute $2,000 each. Recent tax proposals have contemplated substantial increases in the limits (the current House bill is an exception). The tax on the principal and interest is deferred until money is withdrawn from the account. There is a penalty for withdrawal before age 59 ½, which is apparently intended to discourage the use of IRAs for nonretirement saving.

Whether IRAs are an important form of saving for retirement depends on how much is contributed. Whether they serve as a substitute for private pension plans depends on who contributes. The short-run tax cost of IRAs also depends on how much is contributed and on the marginal tax rates of contributors, since contributions are not taxed. Possibly the most important question, however, is the relationship between IRA contributions and other forms of saving. What is the net

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effect of IRA accounts on individual saving? That is the primary focus of this paper.

Two central questions arise in considering the effect of newly available IRAs on net saving. The first is the extent to which IRA contributions are made with funds withdrawn from other saving accounts. Presumably such substitution would be made by taking funds from existing liquid asset balances, such as other saving accounts. A second question is whether new saving would have been placed in other accounts were it not for the availability of IRAs. Would the new saving have been made anyway?

This paper is based primarily on my work with Steven Venti, with some comparisons drawn from my analysis of Canadian Registered Retirement Saving Plans (RRSP).

1.1 The Incentive Effects of IRAs

Two characteristics of IRAs provide an incentive to increase saving. First, it costs less in terms of current consumption to save through an IRA. To save $1,000 in a regular saving account requires that $1,000 less be spent for current goods and services. But for a person in the 30% marginal tax bracket, for example, $1,000 can be saved by reducing expenditure for current goods and services by only $700, $1,000 less the $300 in tax that does not have to be paid on the $1,000 IRA contribution.

Second, while tax must be paid on the interest that accrues in a regular saving account, the interest that accrues in an IRA is not taxed. Suppose, for example, that the interest rate is 10%, the marginal tax rate is 30%, and that a dollar saved at age twenty-five is not withdrawn until age sixty-five. Assume also that the marginal tax rate when the dollar is saved is the same as the marginal tax rate when it is withdrawn. Then at age sixty-five the accumulated value of the IRA contribution after taxes would be 3.32 times the value of a contribution to a conventional saving account. It would be worth 1.82 times the value of a conventional saving account if the dollar were saved at age forty-five. The IRA advantage increases with the interest rate, the marginal tax rate, and the number of years that the money is left in the account. If $2,000 were placed in an IRA account each year beginning at age twenty-five, the after-tax value of the account by age sixty-five would be $789,000; placed in a regular saving account, the value would be only $320,000. Again, the IRA advantage increases with the interest rate, the marginal tax rate, and the number of years over which contributions are made.

On the other hand, once money is placed in an IRA account, there is a 10% penalty for withdrawal before age 59½. In this sense, the IRA

is less liquid than a regular savings account. Of course some persons may consider this an advantage; it may help to ensure behavior that would not otherwise be the case by being a means of self-control. However, if the funds are to be withdrawn before age 59½, whether it would be better to save the money in an IRA or a regular account depends on the interest rate, the marginal tax rate, and the length of time that the money will remain in the account. At an interest rate of 10% and a marginal tax rate of 30%, funds would have to be left in an IRA for 5.6 years to break even. At an interest rate of 2% and a marginal tax rate of 30%, the funds would have to be left for 26.1 years. At an interest rate of 10% and a marginal tax rate of 50%, they would have to be left for 4.8 years. The number years to break even is lower with higher interest rates and with higher marginal tax rates. Thus, the incentive to save through IRAs because of their higher return should be greater for persons in higher tax brackets, and the disincentive because they are less liquid should be less as the tax bracket is higher.

There is an additional reason why total saving might be less with the availability of IRAs. Because of the greater return on IRA contributions, the amount of saving necessary to achieve a given level of retirement savings is less if the saving is done through IRAs. For example, again at an interest rate of 10% and a marginal tax rate of 30%, to achieve $1 million in retirement saving by age sixty-five would require giving up $4,377 per year in expenditures for current goods and services beginning at age twenty-five if saving were through a regular account, but only $1,775 if the saving were through an IRA. Thus, to attain the same level of consumption after retirement, one need forgo less consumption before retirement if saving is done through IRAs. This is what has led some to argue that there could in principle be less saving with than without IRA accounts.

Finally, the promotion of IRAs may have a substantial effect on their use. They are advertised widely and are available through almost any bank and through many other financial institutions. Their promotion has typically emphasized the avoidance of current taxes through IRA contributions, as well as the importance of prudent planning for future retirement. Of course, the ultimate effect of IRAs on saving is the net result of all these factors.

To put the subsequent discussion of findings on that issue in perspective, it is useful first to consider summary data on IRA contributions and on other forms of saving.

1.2 Descriptive Data

Sixteen percent of families with wage earners had IRAs, according to the recently released 1983 Survey of Consumer Finances (SCF).

Although the likelihood of contributing to an IRA is much greater for high- than for low-income families, almost 70% of contributors have incomes less than $50,000, as shown in table 1.1. Almost no families with incomes under $10,000 have them, and only about 7% of families with incomes between $10,000 and $20,000 do. Slightly more than half of those with incomes above $50,000 contribute to IRAs, based on the SCF. In addition, older persons are considerably more likely than younger ones to contribute. Yet because there are many fewer high-income than middle-income families, the preponderance of contributors is at the middle-income levels.

The results of the formal analysis discussed here rely in part on the relationship between 1982 IRA contributions on the one hand and on changes in "overall savings and reserve funds" on the other. Only 32% of respondents to the SCF survey reported an overall increase in savings and reserve funds in 1982. But those who made IRA contributions were much more likely than noncontributors to report an increase. Table 1.2 shows the proportion with an increase (by income interval)

Table 1.1 **IRA Contribution by Income**

Income Interval ($ Thousands)	% with IRAs	% of Contributors
0– 10	1	2
10– 20	7	15
20– 30	14	17
30– 40	25	20
40– 50	34	15
50–100	51	24
100+	65	8
All	16	100

Table 1.2 **Increase in Savings and Reserve Funds by Income and by IRA Contribution Status**

Income Interval ($ Thousands)	% with an Increase in Savings and Reserve Funds	(% of IRA Contributors with an Increase) ÷ (% of Noncontributors with an Increase)
0– 10	14	...
10– 20	26	1.54
20– 30	35	1.77
30– 40	44	1.68
40– 50	50	1.47
50–100	56	1.40
100+	54	2.19
All	32	2.10

and the proportion of IRA contributors versus noncontributors with an increase.

Suppose that IRA contributions were typically taken from savings and reserve fund balances. If savings and reserve funds include IRAs, there would be no change in overall savings and reserve funds. If the latter were interpreted to exclude IRAs, contributions to IRAs would be associated with a decline in savings and reserve funds. Apparently neither is true. Persons who contribute to IRAs are much more likely to indicate an increase than those who do not. Overall, contributors are more than twice as likely as noncontributors to indicate an increase, although this number in part reflects different distributions of contributors and noncontributors by income and age. The average of the ratios over groups defined by income and age is 1.77 (see Venti and Wise 1987). Thus, these numbers suggest that there are savers and nonsavers and that savers contribute both to IRAs and to other savings instruments; the positive relationship reflects an "individual-specific" saving effect.

To put the level of IRA contributions in perspective and to help to interpret the analysis here, it is useful to know the magnitude of individual wealth holdings. The median wealth of families in the sample is $22,900, excluding pensions and Social Security wealth (as shown in table 1.3).[1] Most of this wealth is nonliquid, the preponderance of it being housing. Consistent with other evidence, a large proportion of individuals have very little wealth other than housing; they save very

Table 1.3 **Assets by Type and by Income ($ Thousands)**

Income Intervals	Total Wealth	Nonliquid Assets	All Financial Assets	Financial Assets Excluding Stocks and Bonds
0– 10	.5	.07	.1	.1
10– 20	10.0	.1	.7	.7
20– 30	28.3	24.5	1.9	1.7
30– 40	50.5	44.2	4.0	3.5
40– 50	80.6	64.9	8.5	5.5
50–100	123.6	92.5	20.0	12.8
100+	279.0	197.5	38.0	30.4
All	22.9	18.7	1.3	1.2

1. The following breakdown of wealth is used throughout this paper: liquid assets: checking accounts, certificates of deposit, savings accounts, money market accounts, savings bonds; other financial assets: stocks, bonds, trusts; IRAs and Keoghs: balances; other assets: value of home, other property, receivables; debt: mortgage and consumer debt. Total wealth is the sum of the first four categories minus debt. Wealth does *not* include the cash value of life insurance, the value of motor vehicles, and pension and social security wealth.

little. The median for all families is $1,200. For families earning $30,000–$40,000 with a head forty-five to fifty-four years old, the median is only $4,600. While most people have some liquid assets, only about 20% have financial assets in the form of stocks or bonds. Therefore, it is clear that most people have not been accumulating financial assets at a rate close to the $2,000 per year that an IRA allows.

While IRA contributors have larger holdings of financial assets than noncontributors, even their holdings are much lower than the assets that would have been accumulated had their annual savings equaled the typical IRA contribution. The average IRA contribution (of SCF families who contributed) was about $2,500. (There were two wage earners in many contributing families.) The median of family liquid asset holdings among IRA contributors by income interval is shown in table 1.4. Recall that almost 70% of contributors have family incomes of less than $50,000.[2] It is clear that these families typically have not been saving close to $2,500 per year in financial assets. Thus 1982 IRA contributions seem large relative to apparent past saving. As would be expected, and as was demonstrated by the relationship between IRA contributions and changes in savings and reserve funds, IRA contributors tend to be savers. Not only do they make IRA contributions, but they are also more likely to report an increase in overall savings and reserve funds; and, because they are savers, they have accumulated more assets.

It is sometimes implied that, because many IRA contributors have previously accumulated other savings and could have funded IRA contributions by withdrawals from these balances, they did in fact do that. But our data provide no evidence of that. Even responses to survey questions that ask where the funds for IRA contributions came from are difficult to interpret. Since most people do not carry $2,000 in cash,

Table 1.4 **Financial Assets of IRA Contributors ($ Thousands)**

Income Interval	Financial Assets Excluding Stocks and Bonds
0– 10	2.46
10– 20	3.10
20– 30	4.00
30– 40	7.10
40– 50	8.75
50–100	16.10
100+	35.00
All	8.51

2. Fifty percent of contributors have less than $8,510 in liquid assets; 25% have less than $3,000.

when asked where the money for an IRA contribution came from, they often respond that it came from another saving account. But the fact that the money was taken from another account does not suggest that there was no new saving. Rather, the issue is what would have happened to the money had it not been used to make the IRA contribution. Would the money have stayed in the alternative saving account, or would it have been used for some other purpose, such as the purchase of new furniture? Our data make it clear that families are not likely to accumulate financial assets, and thus it would appear that $2,000 removed from a saving account to put into an IRA would not typically have remained in the alternative saving account for long; at least financial assets would not have accumulated at the rate of $2,000 per year.

According to IRS data, total IRA contributions in 1982 were about $28.3 billion and there were about 12 million contributors; 1983 contributions totaled $32.1 billion, with 13.6 million contributors; and, in 1984, there were $35.8 billion in contributions and 15.4 million contributors (see U.S. Internal Revenue Service 1985, 1986). The extent to which the same people contributed each year is not reported. However, evidence based on Canadian data suggests that the same people tend to contribute year after year to the Canadian equivalent of the IRA. Thus the rapidly expanding balances in these accounts, together with low prior balances on financial assets, may suggest more saving with IRAs than would have occurred in their absence.

Although detailed data are not available, anecdotal evidence suggests that many IRA contributions are made just before tax-filing time. Last-minute contributors apparently do not want to commit funds for long-term saving before they have considered their financial situation at the end of the year. They apparently do not have such funds already committed in another account; if they did, it would pay to transfer the funds at the beginning rather than the end of the year. Thus, to the extent that last-minute contributions are made, they suggest that contributors are liquidity constrained and do not consider other funds to be readily available for this purpose.

These descriptive data, although suggestive, do not allow direct estimates of the net savings effect of IRAs. The analysis summarized here is directed to that end.

1.3 The Results of Statistical Estimation

Much of the evidence reported here is based on analysis of the 1983 SCF (see Venti and Wise 1986, 1987). It is compared with results based on the Special Supplement to the May 1983 Current Population Survey (CPS) (see Venti and Wise 1985) and with results of analysis of comparable Canadian Registered Retirement Saving Plan (RRSP) (see Wise

1984, 1985) data. While the CPS and the Canadian data allow analysis of determinants of IRA and RRSP contributions, only the SCF allows joint analysis of IRA contributions with changes in other saving. This is necessary to determine the net effect of IRAs. The formal model analyzes IRA contributions jointly with changes in other savings and reserve funds, taking account of the limit on IRA contributions. In particular, the analysis considers non-IRA saving by persons who do not have IRAs or who have not contributed up to the IRA limit, compared with the non-IRA saving of persons who have reached the IRA limit. First I shall discuss evidence on the determinants of IRA contributions themselves, and then I will consider the effects of IRAs on net saving.

1.3.1 The Determinants of IRA Contributions

Income is the most important determinant of IRA contributions. Holding income constant, contributions also tend to increase with age. Further, there is a strong relationship between education and IRA contributions. Indeed, a year of education is equal to more than two years of age and more than $30,000 of liquid wealth in term of IRA contributions. This is consistent with other evidence of a wide variation in saving behavior among segments of the population. It is of course also consistent with the emphasis on savers versus nonsavers; some individuals tend to save and do so in several forms, while others tend not to save.

In addition, the estimates show that persons without private pension plans are no more likely than persons with them to contribute to an IRA, controlling for other individual attributes such as income. Furthermore, persons with private pension plans save more in non-IRA forms. On the other hand, the evidence shows that, while persons without private pension plans save less in all forms jointly, they devote a larger proportion of what they do save to IRAs. It would appear, however, that the legislative goal of disproportionately increasing the retirement saving of persons without private pension plans is not being realized.

Finally, while the incentive effects of IRAs described at the beginning of the paper suggested that persons in higher tax brackets would be more likely than those in lower tax brackets to contribute to IRAs, we have not been able to demonstrate convincingly an increasing preference for IRAs with increasing marginal tax rates. The estimated effect of income versus the tax rate is very sensitive to the model used for estimation. This finding, in conjunction with a very strong preference for IRAs as opposed to other forms of savings, leads me to believe that the widespread promotion of IRAs may be the most important reason for increased saving.

Because the Canadian and American tax-deferred accounts are very similar in their general outlines, it is informative to compare the relationship between personal attributes and contributions to the plans in the two countries. The Canadian counterpart to the U.S. IRA and Keogh plans is the RRSP. While the RRSP contribution limits are considerably higher than the IRA limits, the estimated relationships between income and other personal attributes on the one hand and the amount that individuals would like to contribute to the plans on the other are very close in the two countries (see Wise 1985 and Venti and Wise 1985). This suggests that saving behavior in the two countries is very similar in this respect.

The Canadian RRSP has been in effect since 1956, but was substantially expanded in the early 1970s. The personal saving rate has been much higher in Canada than in the United States since the Canadian program was expanded. Evidence reported here suggests that personal savings in the United States would be considerably higher if the IRA limit were raised. The Canadian RRSP limits will be raised, very substantially for some persons, beginning in 1986.

1.3.2 IRA versus Other Saving

Estimates based on the relationship between IRA contributions and changes in other saving balances show that individuals typically are much more inclined to save through IRAs than through other forms of saving. For example, the results suggest that, averaged over all persons in the sample, with no IRA limit, possibly three to five cents of the last dollar of income would be allocated to other financial assets saving, while as much as fifteen cents would be allocated to IRA saving. This result is consistent with the very low level of personal saving in the United States in recent years, other than in the form of housing. It suggests that saving should be larger with than without the possibility of IRAs.

After controlling for income, age, and other personal attributes, estimates show that persons who are likely to make IRA contributions are also more likely to save in other forms. This is consistent with the summary data presented earlier. The results also show that total wealth is in fact negatively related to IRA saving as well as to saving in other financial asset forms. Distinction of liquid from nonliquid wealth shows that nonliquid assets are negatively related to both IRA and other forms of financial saving. Liquid assets, which are likely to be the most readily transferable to IRA accounts, are positively related to IRA contributions, but they are also positively related to other financial assets saving. Indeed, the relationship to other saving is much greater than the relationship to IRA saving. For example, a $1,000 increase in accumulated liquid assets is associated with a $45 increase in other financial

asset saving but only a $5 increase in IRA saving. These results are all consistent with differences in saving behavior among individuals. Persons who have accumulated financial assets in the past are likely to continue to accumulate them in non-IRA forms and are also likely to accumulate financial assets in the form of IRAs. On the other hand, persons who have accumulated large nonliquid asset balances, primarily in the form of housing, are less likely either to contribute to IRAs or to save through other liquid financial asset forms, controlling for other variables such as income and age. This evidence provides little support for the possibility that IRA contributions were typically funded by withdrawals that would not otherwise have been made from other liquid asset balances.

1.3.3 Simulations of the Effect of IRA Limit Changes

To demonstrate the estimated effect of IRAs on net saving, Steven Venti and I simulated the effect of increases in the IRA limit on IRA saving itself and on other saving. We have also simulated the effects of several recently proposed limit changes. The first, which we call the Treasury Plan, would increase the limit for an employed person from $2,000 to $2,500 and for a nonworking spouse from $250 to $2,500. Thus, the contribution limit for a husband and nonworking wife would increase from $2,250 to $5,000. A Modified Treasury Plan increases the limit for an employed person from $2,000 to $2,500, but it only increases the limit for a nonworking spouse to $500 from $250. Finally, the President's Plan would leave the limit for an employed person at $2,000 but would raise the limit for a nonworking spouse from $250 to $2,000. For comparison, we also simulate savings under the current limit.

The predicted changes may be interpreted as changes in saving if the IRA limit had been higher in 1982. It is important to remember that non-IRA saving undoubtedly excludes changes in nonliquid wealth, such as housing. For example, the possible substitution between IRAs and housing wealth in the long run would not be reflected in these estimates. They are intended, however, to indicate the extent to which IRA contributions in 1982 were simply a substitute for forms of saving other than nonliquid assets. The results are shown in table 1.5. The top portion pertains to individuals who are at the IRA limit, since only this group would be affected by an increase in the limit. The bottom shows simulated contributions for all families.

These estimates suggest that the Treasury Plan would increase average IRA saving by $1,091 for families who are at the current limit. Only 20% of the IRA increase is offset by a reduction in other financial assets. Possibly the best indicator of saving is change in consumption. The average change in "consumption" (as defined implicitly in this

Table 1.5 **Simulated Effects of Changes in IRA Limits**

	Base		Change		Change		Change	
	Current Plan (2,000/250)		Treasury Plan (2,500/2,500)		Mod. Treas. Plan (2,500/500)		President's Plan (2,000/2,000)	
	IRA	Other	IRA	Other	IRA	Other	IRA	Other
Families at the IRA limit:								
Avg. contribution	3,069	3,831	1,091	−210	754	−143	351	−67
% change	—	—	+36	−5	+25	−4	+11	−2
All families:								
Avg. contribution	522	111	143	−28	99	−19	46	−9
% change	—	—	+27	−25	+19	−17	+9	−8

Table 1.6 **Source of IRA Funds, by Plan**

	Treasury Plan (2,500/2,500)		Mod. Treasury Plan (2,500/500)		President's Plan (2,000/2,000)	
	Amount	%	Amount	%	Amount	%
Families at the IRA limit						
Change in IRA saving	1,091	100.0	754	100.0	351	100.0
Change in other saving	−210	19.2	−143	19.0	−67	19.1
Change in consumption	−493	45.2	−344	45.6	−162	46.2
Change in taxes	−388	35.6	−267	35.4	−122	34.8
All families						
Change in IRA saving	143	100.0	99	100.0	46	100.0
Change in other saving	−28	19.6	−19	19.2	−9	19.6
Change in consumption	−65	45.5	−45	45.5	−21	45.7
Change in taxes	−50	35.0	−35	35.4	−16	34.8

analysis) under each plan is shown in table 1.6, together with changes in other saving and taxes. For example, about 45% of the $1,091 IRA increase under the Treasury Plan is funded by reduced consumption, according to these measures, and about 35% by reduced taxes, with approximately 20% coming from reduction in other saving. These estimates are based on one version of the analysis that shows somewhat larger reductions in other savings than are predicted with other specifications of the model.

Under the Treasury Plan, for example, average IRA contributions would be $665 ($522 plus the $143 increase due to the higher limit). This level of contribution could not, of course, be sustained long by funding from median liquid asset balances of $1,200, as reported in the summary tables above. The average contribution of all contributors

would be $3,135; this level could not be sustained for long from the median liquid asset balance of contributors of $8,510.

I believe that the estimated IRA increases are relatively accurate. Estimates based on May 1983 CPS data, which differ in several respects from the SCF data, show virtually the same effects of limit increases on IRA contributions (see Venti and Wise, 1985). For example, the simulated increase under the Treasury Plan for all families is 27% based on the SCF data versus 30% based on the CPS data. While it is not possible with U.S. data to test the accuracy of the predictions directly, it is possible to do so for Canadian RRSPs. This is a useful comparison because, as mentioned above, the estimated behavior of Canadians with respect to RRSPs is very similar to the estimated behavior of Americans with respect to IRAs. In Canada, however, RRSPs have been in existence for some time and the limits have changed substantially. In particular, even when the nominal limits has remained the same, it has changed a great deal in real terms because of inflation. Because data are available over time, it is possible to use estimates in one year to predict for a later year or to use estimates in a later year to extrapolate for an earlier year. In Canada, this exercise yields predictions that are very close to actual RRSP contributions (see Wise 1984, 1985).

1.4 Conclusions

Increasing the IRA limits would lead to substantial increases in tax-deferred saving, according to evidence based on the 1983 Survey of Consumer Finances. For example, the recent Treasury Plan would increase IRA contributions by about 30%. Virtually the same estimate was obtained in a previous analysis based on CPS data, suggesting that this conclusion may be relatively robust. The primary focus of this paper, however, has been the effect of limit increases on other saving. How much of the IRA increase would be offset by reduction in non-tax-deferred saving? The weight of the evidence suggests that only a small proportion of the increase would be offset by reductions in other financial assets, possibly 20% or less. Our estimates suggest that approximately 45%–55% of the IRA increase would be funded by reduction in consumption and about 35% by reduced taxes. While it is difficult to demonstrate, the widespread promotion of IRAs may be the most important reason for increased saving through them.

The model fits the data well and, in particular, accurately distinguishes the savings decisions of persons at the IRA limit versus the decisions of those who are not. The greatest potential uncertainty about the results and the greatest statistical complication for analysis stem from the limited information on non-IRA saving and the associated

difficulty of obtaining direct estimates of the degree of substitution between tax-deferred and non-tax-deferred saving. I have addressed these issues by considering the sensitivity of our conclusions to specification changes, including assumptions about the interpretation of key variables and the extent of substitution underlying observed outcomes for saving. Although the magnitude of the estimated reduction in other saving with increases in the IRA limit is sensitive to specification changes, the reduction as a percentage of the IRA increase is invariably small.

In addition to these primary conclusions, the evidence suggests substantial variation in saving behavior among segments of the population. We also find that IRAs do not serve as a substitute for private pension plans, although persons without private plans devote a larger proportion of their lower total saving to IRAs. Thus, the legislative goal of disproportionately increasing retirement saving among persons without pension plans is apparently not being realized. But the more general goal of increasing individual saving is.

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