1 The effect of Individual Retirement Accounts (IRA, tax exempted pension savings accounts).

Contributions to IRAs are tax deductible and the accumulated interest rate are also not taxed. Limited to 2,000$ per year.

10 percent penalty if the deposits are withdrawn before age 59.

High income earners have more incentives to save in IRAs for two reasons: (1) higher marginal taxes and (2) savings in IRAs are less liquid than most other forms of savings.

Sweden has a similar system. Tax deductions to a ceiling on about 20,000 SEK contributions per year. Taxed when the pension is paid out. The returns of the pension contribution are taxed by a standard tax.

Argument for IRA: more efficient way than social security to let the households themselves provide their old-age security.
Argument against IRA: just shifts savings between different assets. Favors the rich.

What is the net effect of IRA on savings? Does the increased savings that would not have taken place if savings were taxable exceed the decrease in public savings from the tax deductability? Or does IRA savings just replace other savings.

1. In general, a tax subsidy on savings is likely to deacrease overall saving, since there may be a wealth effect on savings.

2. If there is sufficiently low substitutability between IRA and non-IRA savings overall savings may increase as a result of IRA.

Venti and Wise (1990) "Have IRAs increased US savings?"

$C = Y - S_1 - S_2$
S_1- IRA savings.
S_2- other forms of savings.

$S_1 = abY$
$S_2 = (1-a)bY$

$b-$ share of income which is saved.
$a-$ share allocated to IRA.

Decision function:

$$V = [C]^{(1-b)} \left[S_1^a S_2^{(1-a)}\right]^b = C^{(1-b)} S_1^{ab} S_2^{(1-a)b}.$$

s_1 and s_2 actual levels and S_1 and S_2 desired levels. L the limit of IRAs.

$$\begin{aligned}
s_1 &= abY \quad \text{if} \quad S_1 < L \\
s_1 &= L \quad \text{if} \quad S_1 > L \\
s_2 &= (1-a)bY \quad \text{if } S < L \\
s_2 &= [(1-a)b/(1-ab)]\,(y-L) \quad \text{if } S_1 > L
\end{aligned}$$

The estimated specification for the choice of savings and allocation between IRA and non-IRA savings:

$$V = [Y - (1-t)S_1 - S_2]^{1-b} \left\{ \left[a\,(S_1 - a_1)^k + (1-a)(S_2 - a_2)^k\right]^{1/k} \right\}^b,$$

where a measures the relative preferences for S_1 versus S_2. If $a = 0.5$ the elasticity of substitution is $1/(1-k)$.

Closed form solutions could only be obtained if $k = 0$ or if $k = 1$, i.e., infinite and no substitution elasticities, respectively.

Estimation

To estimate this model they allow a and b to depend on individual attributes. Since they are restricted to be between 0 and 1, a probit specification is applied, i.e.,

$$\begin{aligned} b &= F\left(X\underline{b}\right) \\ a &= F\left(X\underline{a}\right), \end{aligned}$$

where $F(\cdot)$ is a standard normal distribution function. Furthermore, they add stochastic terms to the S_1 and S_2 equations. These disturbances are assumed to have a bivariate normal distribution, i.e., $N\left(c_1, c_2, r\right)$.

Parameter estimates

Estimates for three separate periods: 1983:2 to 1985:1 (the second and third year when IRA was available); 1982:1 to 1983:1 (the first year of availability) and 1980:1 to 1981:4, before IRA was generally available.

General results:

- $r-$ the correlation between unobservables affecting savings in both IRA and non-IRA are in general very low. Indicates that there is a low substitutability between these forms of savings. People who save in IRA do not save less in other forms of assets.
- Marginal savings rate is 0.188 and 87.4 percent is allocated to IRA.
- The latent increase in non-IRA savings is 2.4 cents for a dollar increase income (estimate of $(1-a)b$).
- The latent increase in after tax income devoted to IRA savings, $ab/(1-t)$, is about 21.2 cents. So this results indicate a large increase in national net savings from the introduction of IRA.
- Finally, d_2 and d_2^* are estimated to be very close. 0.037 and 0.048 respectively. This 1.1 cents difference is very small relative to the average latent marginal effect of IRA on 29.1 cents.

Simulation exercises where the outcomes of two different policy reforms are estimated. The first one is to increase the limit of the contribution to 2,500 $ and the limit for the spouse from 250 to 2,500$. It is found that IRA savings would have increased by about 32 percent, without almost any reduction in non-IRA savings.

Gale and Scholz (1994) "IRAs and Household Savings"

Criticizes Venti and Wise. Three main objections:

- Not clear what the underluing utility function looks like for their framwork.
- Individual attributes to not have a direct effect on savings levels, only on the marginal propensity to save.
- Unobserved heterogeneity. Suppose there are two types of individuals. Those who, for unobserved reasons, have preferences to save much and those who will save less. The first group is likely to save much in both assets. This will imply that the degree of substitutability will be understated in the Venti-Wise model.

Theoretical model

Simple three period model. The individual maximizes utility and is able to save in either IRA or non-IRA assets. The feature of a limit contribution in IRA and a penalty of IRA withdrawal in the second period are included. Uses a quadratic utility function, $U(C_j) = -(k - C_j)^2$, and obtains closed form solutions for savings in IRA and non-IRA assets, respectively.

Empirical specification

$$
\begin{aligned}
S_I^* &= \mathbf{X}\boldsymbol{\beta}+u \\
S_I &= \begin{cases} 0 & \text{if } S_I^* \leq 0 \\ \mathbf{X}\boldsymbol{\beta}+u & 0 < S_I^* \leq L \\ L & \text{if } S_I^* \geq L \end{cases} \\
S_O &= \begin{cases} \mathbf{X}\boldsymbol{\gamma}_1+\varepsilon_1 & \text{if } S_I^* \leq 0 \\ \mathbf{X}\boldsymbol{\gamma}_2+\varepsilon_2 & 0 < S_I^* \leq L \\ \mathbf{X}\boldsymbol{\gamma}_2+\eta\left(S_I^*-L\right)+\varepsilon_2 & \text{if } S_I^* \geq L \end{cases}
\end{aligned}
$$

where S_I^* is a latent variable measuring the desired IRA savings and S_I is actual IRA savings. $\eta = \boldsymbol{\delta}\mathbf{X}$ measures the spillover of excess desired IRA

savings into other saving, $\mathbf{X}$ is household characteristics. u, ε_1 and ε_2 are errors. Substitutability is measured by comparing limit contributors to non-limit contributors.

Three error terms, but only two will correspond to any particular household. Bivariate normal assumed.

Independent variables include age and age squared (to allow for a hump-shaped savings profile), current income and wealth. Same independent variables are used for all three equations.

The model is estimated both jointly using Maximum likelihood and separately using OLS.

Key estimate is the one of η. Suggests that it is larger than 1, which implies that there are no effect on national savings from an increase in the limit of IRA contributions. This finding is consistent with the fact that most limit contributors either holds large amounts of non-IRA assets or are older than age 59 and have no penalty for IRA withdrawals.

2 Worker's compensation

Insurance program for work injuries and work related diseases. State level program in the US. Similar design in Sweden. Separate insurance programs for work accidents and work related diseases.

Krueger and Meyer (2002). Affects at least four dimensions of labor supply:

1. Likelihood of an on-the-job injury. Moral hazard effect.
2. Likelihood that a worker claim benefits. Once he/she claim benefit labor supply is affected.
3. Can extent the time a worker is out of work.
4. Changes the value of different jobs. More risky jobs more valuable.

Simple model:

$$E[U] = [1 - p(e)]U(W) + p(e)V(B) - e,$$

where e is worker effort for injury prevention, $p(e)$ probability of injury, $U(W)$ utility when working, $V(B)$ utility when on benefits.

FOC for choice of e: $p'(e)[V(B) - U(W)] - 1 = 0$

$\frac{\partial e}{\partial B} = p'V'/[p''(U - V)] < 0$, assuming $p' < 0, p'' > 0$, and $U - V > 0$.

Shows that the generosity of the benefit affects the worker's effort in injury prevention. On the other hand, the insurance premium for the WC scheme, in particular if it is experience rated, may create incentives for the employer to reduce injuries.

Krueger (1990): Moral hazard effect of the WC program.

Data: CPS 1983 to 1985. Each individual included two consecutive years.

Uses both state differences in benefit levels and within state differences from state changes in legislations over the two years and differences originating from non-linearities in the benefit formula, including state dummy variables.

Ruser (1985). There is a higher degree of experience rating among larger US firms, i.e. they pay a higher premium if they use the WC insurance program. Internalizes the cost of injury. He estimates a reduced form using injury rates by cells of state-industry-time. Data between 1972 and 1979.

He finds that the relation between injury rate and benefit level is attenuated by firm size. He interpret that as an effect of the experience rating scheme.

Johansson and Palme (2001). Effect of the introduction of an insurance program for work related illnesses on compensating wage differentials. Hypothesis: more generous WC programs crowd out compensating wage differentials. The worker can either be compensated ex ante, by compensating wage differentials, or ex post by generous WC programs. If the WC program "crowds out" compensating wage differentials it will work as a subsidy for bad work environment.

Meyer, Viscusi and Durbin (1995) in AER "Workers' Compensation and Injury Duration: Evidence from a Natural Experiment"

The states of Kentucky and Michigan increased the benefit levels in the WC insurance for high income earners by 50 percent, while it remained constant for low income earners. Did this change increase the duration of the period when the injured worker did not work?

They find that it did with an elasticity for the duration on around 0.3-0.4.

3 Tax Incidence

Who pays for generous income security programs? Are payroll taxes passed on to labor earnings, profits or product prices?

Gruber (1994) in AER "The Incidence of Mandated Maternity Benefits"

Background: Before the mid-1970s maternity benefits were not included in health insurance policies. If included, it was often a flat-rate benefit. State and federal laws mandated comprehensive coverage of for childbirth in health insurance policies.

1975-1978 many states passed laws prohibiting to treat pregnancy differently from other comparable illnesses.

1978 Federal pregnancy discrimination act.

How did this changes affect the wages of a demographically well-defined group?

Identification strategy: Differences-in-differences-in-differences (DDD).

Year effects. Controls for national trends.

State effects. State specific shocks.

State by year effects, which are correlated with the passage of these laws.

Assumes that there are no contemporaneous shocks that affects the treatment group in the same state-years as the law.

Experimental group: 20-40 year olds.

Control group: individuals older than 40 and singled men.

$$\begin{aligned} W_{ijt} &= \alpha + \beta_1 X_{ijt} + \beta_2 \tau_t + \beta_3 \delta_t \\ &\quad + \beta_4 TREAT_i + \beta_5 (\delta_j \times \tau_t) \\ &\quad + \beta_6 (\tau_t \times TREAT_i) \\ &\quad + \beta_7 (\delta_j \times TREAT_i) \\ &\quad + \beta_7 (\delta_j \times \tau_t \times TREAT_i) \end{aligned}$$