Access to Retirement Savings and its Effects on Labor Supply Decisions

Yan Lau*

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Abstract

In the United States, beginning at age 59.5, participants in tax-deferred retirement savings accounts (IRAs, Keogh, 401(k), and Thrift plans) are granted penalty-free access to their funds. After age 70.5, participants must make minimum withdrawals from their accounts or face harsh penalties. How does reaching these age thresholds affect retirement savings account withdrawal, and more importantly, labor supply decisions such as hours worked? The answer to this question is highly relevant to policy-makers who may wish to delay access to such funds in order to encourage or extend labor force participation in an aging population. Using data from the Survey of Income and Program Participation (SIPP), I detail empirical patterns reflecting the withdrawal and labor supply behavior of retirement savings account participants over time as they age. I present an inter-temporal labor supply model incorporating a two-pronged savings decision that allows for a regular savings option, as well as a higher-returns option making use of retirement savings accounts that are accessible only in later periods. I use this model to motivate further regression analyses, which find that on average, gaining access to RSA funds at the age 59.5 threshold increases withdrawals by $61 per month, while encountering the minimum withdrawal requirements beginning at the age 70.5 increases withdrawals $117 per month. Furthermore, a $1000 increase in monthly withdrawal is associated with a reduction in hours worked by about 1 hour per week.

*Economics Department, Reed College [Email:yanlau@reed.edu]

1 Introduction

In the United States, tax-deferred retirement savings accounts (RSAs) are accounts into which pre-tax dollars[1] can be deposited by participants, up to a specified annual limit. These funds grow within the account[2] and can be withdrawn after the participant reaches age 59.5.[3] Moreover, when the participant reaches age 70.5, minimum withdrawals must be made from the account or a penalty is incurred. It is only when the funds are withdrawn that they are subject to taxation. Participants benefit from such RSA arrangements because taxation of income (both the pre-tax principal deposited and any earnings on that principal) is deferred into the future, when other income sources are smaller and the participant is in a lower tax bracket. Examples of RSAs which follow such rules include Individual Retirement Accounts (IRAs), Keogh plans for the self-employed, 401(k) plans, and Thrift Savings Plans for government employees.

Access to RSA funds is correlated with a reduction in labor supply in two ways. Firstly, for financially constrained participants, access will have an income effect that reduces labor supply as demand for leisure increases. Secondly, the desire to maximize tax savings will mean that a joint decision on earnings and withdrawal amounts must be made such that the two variables go in opposite directions, with the goal being to substitute withdrawals for earnings. If earnings are decreasing with age (due to decreasing productivity or worse wage offers, for example), then withdrawals make more sense now that the participant is in a lower tax bracket.

How much labor supply decisions are affected by being above or below such age thresholds is a highly relevant question to policy-makers. Given the aging workforces in many developed countries such as Japan and Germany, policy-makers may wish to delay access to RSA-type funds and other retirement benefits in order to encourage or extend labor force participation, and increase labor supply. Recent proposals have promoted, and in the case of Denmark led to, the indexing of age thresholds to life expectancy. Shifts in age thresholds defined in policies—including those delimiting retirement eligibility, social security receipt, or RSA access—will have an impact on both hours worked and the decision to participate in the labor market.

This paper focuses on access to RSAs in the United States and how hitting the age thresh-

[1] The rules are slightly different for retirement savings accounts which allow post-tax dollars to be deposited. An example of this is the Roth IRA account.

[2] The principal in the account grows through investments in various asset classes, such as stocks, bonds, mutual funds, annuities, etc., depending on the financial institution where the account is based.

[3] Funds may be withdrawn before age 59.5, but a penalty is incurred.

old affects labor supply decisions. RSAs were first established in the 1970s and have gained popularity since, representing a growing fraction of assets set aside for retirement savings by households (Poterba, Venti and Wise, 1994). Much of the economic literature on IRAs has been devoted to the question of whether they encourage savings.[4] Sabelhaus (2000) models IRA contributions and withdrawals, and finds that "IRA rules such as penalties for early withdrawals and minimum distribution requirements have predictable effects on IRA flows". However, the effect of these RSA rules in particular on labor supply decisions has been lacking.

Previous literature analyzing the "retirement decision" (that is, the decision to reduce labor supply and potentially exit the labor force) has focused on estimating structural dynamic models of labor supply. Gustman and Steinmeier (1986) and Stock and Wise (1990) are two examples of different structural modeling approaches that have been taken. Various factors affecting retirement have been considered, including availability of employer pension plans (Stock and Wise, 1990), changes in social security policy (Krueger and Pischke, 1992), and these factors in combination with health (French, 2005) and various other considerations (Fields and Mitchell, 1984). Stewart (1995) deals with social security age thresholds and predicts that workers would delay retirement if the early retirement age increased. Various papers have also looked into "early retirement windows" offered by particular employers to gauge how access to such enhanced incentives to retire can induce retirement. These include Brown (2002), who uses the Health and Retirement Study to look into their effects across firms; on the other hand, Hogarth (1988), Lumsdaine et al. (1990), and Pencavel (2001) investigate the effect at individual employers.

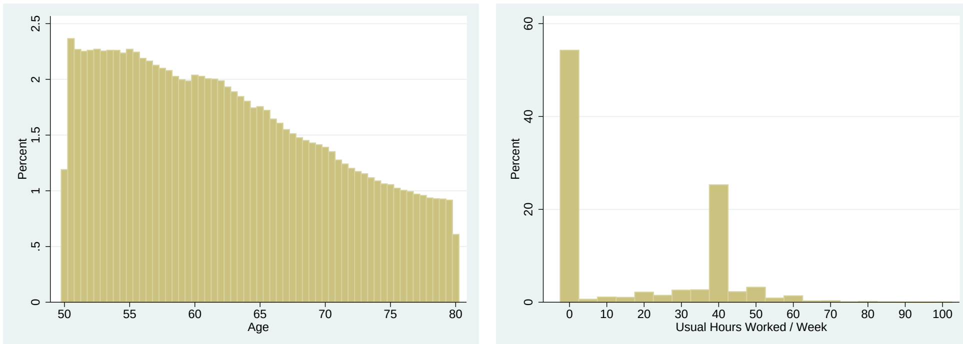
2 Empirical Patterns

The panel data used in the analysis to follow comes from the first 15 waves of the 2008 Survey of Income and Program Participation (SIPP). Each unit of observation is a person-month response to the survey. The sample of analysis is restricted to observations where the person is between ages 50 and 80 whose household has never owned a business.[5] All dollar figures are adjusted for inflation using the Consumer Price Index (CPI) and are in May 2008 dollars, the first month of

[4]See Gravelle (1991) for a survey. There has also been a growing strand of behavioral literature on the importance of default options in nudging workers to save (Beshears, Choi, Laibson and Madrian, 2009).

[5]I exclude business-owning observations because of complications with the reporting of income and hours worked. The analysis thus focuses only on those who work for earned income.

Figure 1: Age and Usual Hours Worked Distribution of Sample



Wave 1 of the 2008 SIPP. Labor supply is measured in usual hours worked per week.

Table 1 shows summary statistics for the sample. Column (1) contains observations for the entire sample; column (2) has only persons who have ever owned any type of RSA; and column (3) has only RSA participants from the previous column who made a withdrawal that month. The first two columns in the table show that RSA participants are whiter, more educated, and more likely to be married compared to the overall sample. Owning an RSA is also associated with higher labor force participation and higher incomes, though conditional on working, the usual hours worked are similar.

Columns (2) and (3) in the table show that the 4.6% of RSA participants who took a withdrawal are more likely to be male, white, have a high school diploma, and live in smaller households. The average monthly withdrawal amount is about $1,900, and making such a withdrawal significantly reduces labor force participation. Even conditional on working, RSA participants who make withdrawals reduce their working hours by almost 25% compared to all RSA participants (from 39 to 30 hours of work per week).

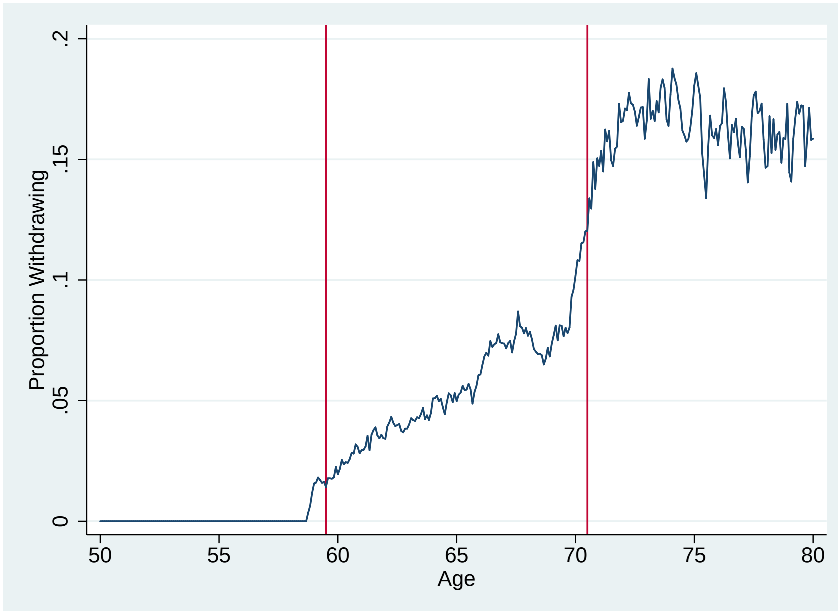
For additional insight into the data, Figure 1 presents histograms depicting the overall age and usual hours worked per week distributions. Sample attrition occurs gradually from age 50 to 80. As for usual hours worked, there is bunching at 0 and 40 hours per week, but also an appreciable number of observations at other points of the hours worked distribution.

How do withdrawal behaviors change across the age thresholds? The proportion of RSA participants making withdrawals increases discretely as the age thresholds are passed, as

Table 1: Sample Summary Statistics

	(1) Entire Sample	(2) RSA Participants	(3) Withdrawers
% Female	0.550	0.529	0.488
	(0.497)	(0.499)	(0.500)
% White	0.811	0.861	0.934
	(0.392)	(0.346)	(0.248)
% Black	0.124	0.085	0.043
	(0.33)	(0.278)	(0.202)
% Asian	0.034	0.031	0.013
	(0.182)	(0.173)	(0.113)
% High School	0.872	0.954	0.959
	(0.334)	(0.210)	(0.197)
% College	0.332	0.445	0.434
	(0.471)	(0.497)	(0.496)
% Married	0.627	0.695	0.662
	(0.484)	(0.460)	(0.473)
Household Size	2.363	2.340	1.904
	(1.295)	(1.179)	(0.779)
Owns RSA	0.606	1	1
	(0.489)		
Withdrew from RSA	0.028	0.046	1
	(0.165)	(0.209)	
Withdrawal Amount	53.819	88.749	1929.157
	(653.161)	(836.903)	(3416.832)
% Working	0.460	0.591	0.161
	(0.498)	(0.492)	(0.368)
Usual Hours / Week	17.600	23.186	4.842
	(20.697)	(21.153)	(12.585)
Hours if Working	38.298	39.229	30.033
	(11.809)	(11.300)	(15.027)
Earned Income	1680.69	2450.224	395.256
	(3263.988)	(3867.661)	(1838.644)
N	1,325,591	803,864	36,981
%	100	60.64	2.79

Figure 2: Proportion of RSA Participants Withdrawing by Age



shown in Figure 2. The vertical lines at 59.5 and 70.5 years old demarcate the age at which RSA can be accessed penalty-free and the age at which minimum withdrawals are required to avoid a penalty respectively. The proportion withdrawing increases from zero before age 59.5 to about 2% after age 59.5[6]. Subsequently, the proportion withdrawing increases gradually to 5% around age 65 and to almost 8% by age 70, where it jumps to above 15% after age 70.5, when the minimum withdrawal requirements come into force.

Given such jumps in rate of withdrawals at the age thresholds, a corresponding increase in the average withdrawal amount is observed. When averaged over all RSA participants, Figure 3 depicts similar jumps in the (unconditional) average withdrawal amount. However, when averaged over only RSA participants who withdrew some positive amount, the (conditional) average withdrawal amount plotted in Figure 4 actually suggests that conditional on withdrawing, the amount withdrawn stays consistently around $2,000, though the withdrawals are slightly higher towards the earlier years near the age 59.5 threshold, when RSA participants are initially allowed penalty-free access to their RSAs.

[6]There is a slight uptick just prior to reaching age 59.5, which may be due to RSA participants jumping the gun and accepting a penalty to get withdrawals, or it may be due to certain tax code mechanisms which allow for early withdrawals the year immediately before 59.5 without penalty.

Figure 3: Average Withdrawal Amount of All RSA Participants by Age

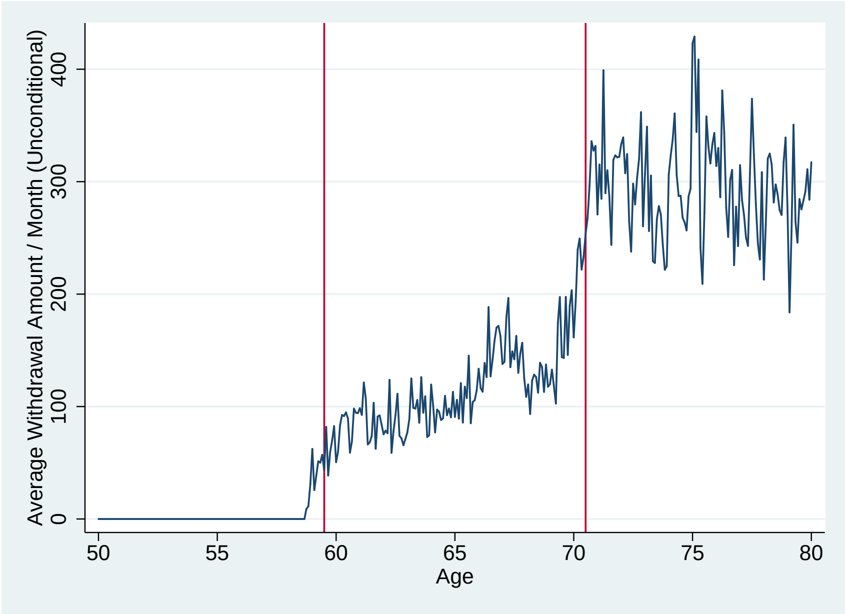
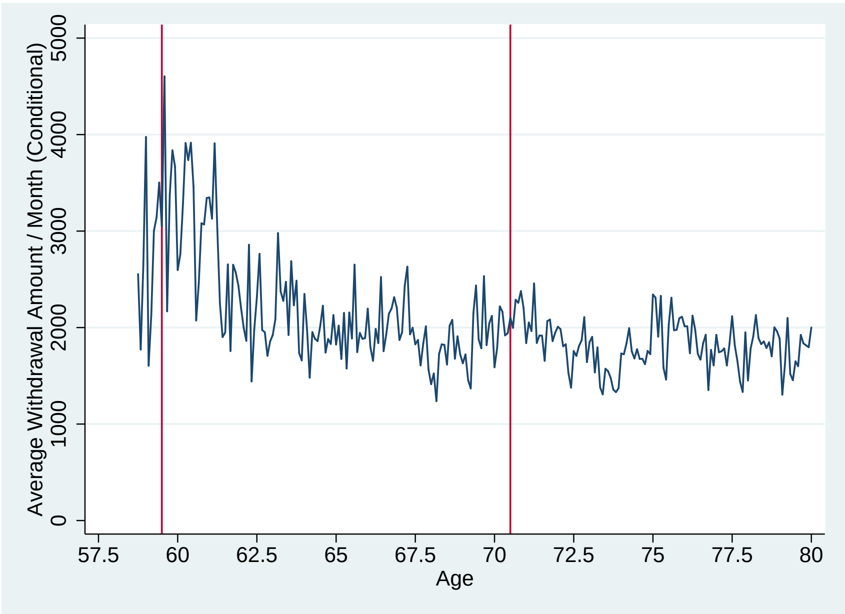


Figure 4: Average Withdrawal Amount of Withdrawing RSA Participants by Age



What are the differences in labor supply decisions of those withdrawing versus those making no withdrawals? Of the participants owning an RSA, those who choose to make withdrawals markedly reduce their labor supply as they pass age 59.5, when they are allowed penalty-free access to their RSAs. However, the non-withdrawing RSA participants slowly catch up in terms of labor supply reduction over time, and by age 70.5, when minimum withdrawal rules begin, their labor supply is only slightly above the withdrawing RSA participants.

Figure 5 plots the proportion of RSA participants who are working (report non-zero usual hours worked per week) by withdrawal status. The thinner line is the labor force participation rate for non-withdrawing RSA participants, while the thicker line is the labor force participation rate for withdrawing RSA participants. Labor force participation is about 20 percentage points lower for withdrawing RSA participants at the age 59.5 threshold, though this gap closes over time. Passing the age 70.5 threshold seems to have little effect on labor force participation. A similar pattern emerges in Figure 6, which depicts the average usual hours worked per week in a similar manner. The initial gap in hours worked is 10 to 15 hours per week less for withdrawing RSA participants, though again this gap closes over time, and passing the age 70.5 threshold seems to have little effect on hours worked, as before. As a consequence of the decrease in labor supply, withdrawing RSA participants also report earning less, as shown in Figure 7, which depicts a similar pattern in average monthly earnings between withdrawing and non-withdrawing RSA participants.

3 Labor Supply Model of Retirement Savings

The empirical patterns presented in the previous section can be motivated theoretically with the following labor supply model of retirement savings. This framework accounts for the inter-temporal consumption, leisure, and savings choices of an agent and illustrates the income effect of gaining access to an RSA. However, as a simplification, it will not take into account the tax implications of such accounts, but instead treat RSAs as just another savings option with a higher effective rate of return compared to regular savings options.

The agent choose consumption c_t, leisure l_t, regular savings s_t, and RSA savings a_t to maximize an inter-temporal utility function with discount rate β and time index t, described by

Figure 5: Proportion of RSA Participants Working by Age and Withdrawal Status

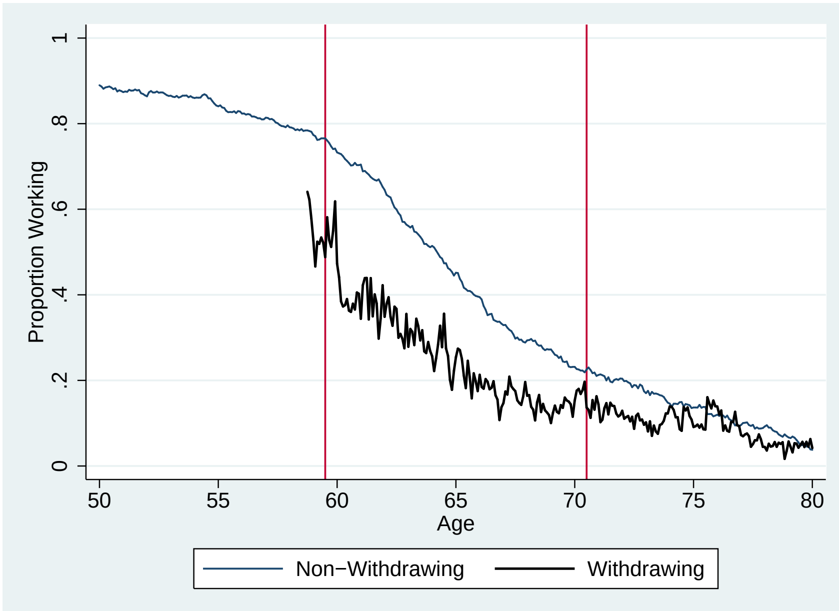


Figure 6: Average Usual Hours Worked per Week of RSA Participants by Age and Withdrawal Status

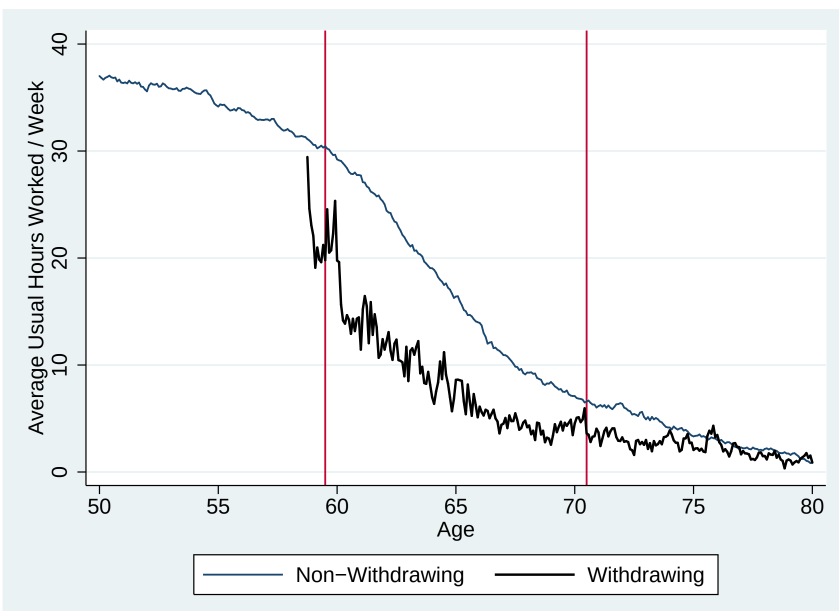
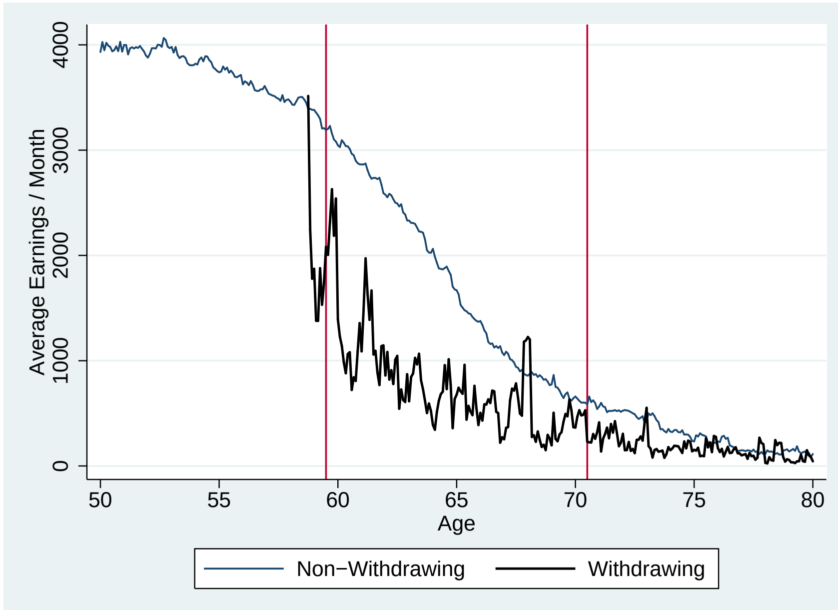


Figure 7: Average Monthly Earnings of RSA Participants by Age and Withdrawal Status



the following optimization problem.

$$\max_{c_t, l_t, s_t, a_t} \sum_{t=0}^{\infty} \beta^t u\left(c_t, l_t\right) \tag{1}$$

subject to the per-period budget constraints

$$r s_{t-1} + R a_{t-1} + \left(T - l_t\right) w_t = c_t + s_t + a_t \ \ \forall t \tag{2}$$

the RSA withdrawal rule that states that the agent cannot withdraw (or dissave) before period $t = \bar{t}$, described by the constraints

$$a_t - R a_{t-1} \geq 0 \ \ \forall t < \bar{t} \tag{3}$$

and the RSA contribution limit $\overline{a}$ constraints[7]

$$a_t - R a_{t-1} \leq \overline{a} \ \ \forall t \tag{4}$$

[7] I assume that this contribution limit remains the same across all periods, even after $t = \bar{t}$.

where T is the total amount of time in a given period, r is the rate of return for regular savings, and $R > r$ is the higher rate of return for RSA savings. The price of the consumption good is normalized to one. For simplicity, I assume that the no withdrawal rule is never broken and that the early-withdrawal penalty is sufficiently harsh to prevent the agent from ever breaking the rule.[8]

Using λ_t, μ_t, and ν_t as multipliers for constraints 2, (3), and 4 respectively, the first order conditions for this problem are as follows. For all periods t,

$$\beta^t \frac{du}{dc_t} = \lambda_t \tag{5}$$

$$\beta^t \frac{du}{dl_t} = \lambda_t w_t \tag{6}$$

$$r\lambda_{t+1} = \lambda_t \tag{7}$$

In particular, for periods $t < \bar{t}$,

$$R(\lambda_{t+1} - \mu_{t+1} + \nu_{t+1}) = \lambda_t - \mu_t + \nu_t \tag{8}$$

and for periods $t \geq \bar{t}$,

$$R(\lambda_{t+1} + \nu_{t+1}) = \lambda_t + \nu_t \tag{9}$$

Given a set of wages w_t for all periods[9] and an initial savings values s_{-1} and a_{-1} (the latter of which can be assumed to be zero), these first order conditions describe the set of choices in consumption c_t, leisure l_t, regular savings s_t, and RSA savings a_t which are optimal solutions to the maximization problem. In particular, from equations (5) and (6), the within-period MRS condition for all periods t

$$\frac{du}{dc_t} = \frac{du}{dl_t} / w_t \tag{10}$$

states the marginal utility of the (last) dollar spent on consumption should be equal to the marginal utility of the (last) dollar spent on leisure (priced at wage rate w_t, the opportunity cost of time). Together, equations (7), (8), and (9) describe the inter-temporal consumption

[8] This assumption is observed to generally hold in the data, as in Figure 2. Moreover, Sabelhaus (2000) suggests that this is true for most IRA participants.

[9] I assume the agent has perfect foresight with regard to the wage path.

and leisure smoothing behavior of the agent; this is dependent on the portion of savings the agent allocates to RSAs versus regular savings, and will lead to different constraints becoming binding, given the wages w_t and relative sizes of the rates of return r and R.

While I refrain from structurally estimating this model, to motivate the regressions in the subsequent section, suppose the per-period utility function is the following constant elasticity of substitution (CES) form.

$$u(c_t, l_t) = (1-\alpha)\, c_t^{\rho} + \alpha l_t^{\rho}$$

Then, the within-period MRS condition in equation (10) becomes

$$\rho(1-\alpha)\, c_t^{\rho-1} = \frac{\rho \alpha l_t^{\rho}}{w_t}$$

which simplifies to

$$l_t = \left(\frac{1-\alpha}{\alpha} w_t\right)^{-\sigma} c_t$$

where $\sigma = \frac{1}{1-\rho}$ is the constant elasticity of substitution. However, substituting in the budget constraint in equation (2) gives

$$l_t = \left(\frac{1-\alpha}{\alpha} w_t\right)^{-\sigma} \left[(rs_{t-1} - s_t) + (Ra_{t-1} - a_t) + (T - l_t)\, w_t\right]$$

which can be manipulated to

$$(T - l_t) = \left(\frac{T}{1 + \left(\frac{1-\alpha}{\alpha}\right)^{-\sigma} w_t^{1-\sigma}}\right) - \left(\frac{\left(\frac{1-\alpha}{\alpha} w_t\right)^{-\sigma}}{1 + \left(\frac{1-\alpha}{\alpha}\right)^{-\sigma} w_t^{1-\sigma}}\right) \left[(rs_{t-1} - s_t) + (Ra_{t-1} - a_t)\right] \quad (11)$$

Equation (11) states that under CES utility, at the optimal solution, there is a linear relationship between hours worked $(T - l_t)$ and withdrawals from RSA savings $(Ra_{t-1} - a_t)$.[10] Since $(Ra_{t-1} - a_t) = 0$ for periods $t < \bar{t}$ before the access-to-RSA age threshold, we know that when the agent reaches $t = \bar{t}$, should they choose to start making withdrawals such that $(Ra_{t-1} - a_t) > 0$, then hours worked $(T - l_t)$ must decrease.

However, it must be noted that the type of agent who starts making such withdrawals

[10] Also note that from the same equation, there is a linear relationship between hours worked $(T - l_t)$ and dissavings $(rs_{t-1} - s_t)$ from regular savings.

precisely at period $\bar{t}$ may be a very special type of agent. RSA withdrawals grow over time. This is because it always makes more sense to dissave from regular savings first, which give a lower rated of return r, rather than RSA savings, which give a higher rate of return R but contribution into which is limited at $\bar{a}$ per period. But as regular savings run out, withdrawals from RSA savings will grow over time. In particular, there are two types of RSA participants to consider, which I will call "non-constrained" and "constrained" types.

The non-constrained type are agents who gradually withdraw more and more will do so starting at some period at or after $\bar{t}$. It is entirely possible non-constrained agents only start withdrawing years later; but there may also be a group who start withdrawing precisely at period $\bar{t}$. For this latter group of non-constrained agents, passing the age threshold will only see a gradual increase in withdrawals, and thus a gradual decrease in labor supply. On the other hand, for the constrained type of agents, their first order conditions bind in such a way that they are at a corner solution. They immediately start withdrawing at period $\bar{t}$, and for these types, there will be a discrete jump in the withdrawal amount, and thus a discrete decrease in labor supply. Had they been allowed to make withdrawals earlier, they would have started a gradual withdrawal before reaching the age threshold, but the age threshold rule prevents them from doing so, which explains the discrete jump in withdrawal amount.

While not presented here, the model can be easily extended to account for minimum required withdrawals after some later age threshold. To do so, an additional inequality constraint can be added that describes the minimum amount that must be withdrawn (dissaved) from the RSA after the later age threshold.

4 Regression Results

In this section, I present two sets of reduce form regression results. First, I show that reaching the age thresholds of 59.5 and 70.5 induce withdrawal amounts to increase. Second, I estimate the relationship between withdrawal amount and hours worked, as motivated by equation (11). The sample of analysis for these regressions is further limited to persons in the sample who have ever owned an RSA (IRA, Keogh, 401(k), or Thrift). All standard errors are clustered at the state level to account for SIPP's survey design.

Relationship between RSA access and withdrawal amount. To estimate how reaching the age thresholds of 59.5 and 70.5 affect the withdrawal behavior of RSA participants, I use the regression

$$\begin{aligned} withdrawal_{it} = \beta_0 + \beta_1 post59.5_{it} + \beta_2 post70.5_{it} + \beta_3 age_{it} + \beta_4 age_{it}^2 \\ + T_t\gamma_0 + X_{it}\gamma_1 + \mu_i + \mu_{FEs} + \varepsilon_{it} \end{aligned} \quad (12)$$

where:

- $withdrawal_{it}$ is the dollar amount withdrawn by individual i in period t from his/her RSA(s)
- $post59.5_{it}$ and $post70.5_{it}$ are indicators which take the value of one when individual i is older than 59.5 and 70.5 in period t
- age_{it} is individual i's age in period t
- μ_{FEs} are a set of SIPP reference month, SIPP wave, and state fixed effects (FEs) necessary for identification and inference[11]
- ε_{it} are error terms

and where the following variables are only included in certain specifications:

- T_t is a vector of time trends (t, t^2, and month dummies)
- X_{it} is a vector of controls (sex, marital status, race and ethnicity, and education)
- μ_i are individual i fixed effects.

Table 2 presents the coefficient estimates for different specifications of equation (12). Column (1) is a basic OLS regression with only the two post-age threshold dummies, age, and age squared. Column (2) adds time trends (a quadratic time trend and month dummies to control for seasonality) to the specification in column (1). Column (3), the preferred specification, adds a host of controls (sex, marital status, race and ethnicity, and education) to the specification in

[11] SIPP reference month and SIPP wave FEs are included to account for seam bias and any differences within the survey structure. State fixed effects are included because standard errors are clustered at the state level.

column (2). Column (4) adds individual fixed effects to the specification in column (2). Column (5) repeats the specification in column (3) except person-level weights are used.

Gaining access to RSA funds at the age 59.5 threshold increases withdrawals by $61 per month on average. Encountering the minimum withdrawal requirements beginning at the age 70.5 increases withdrawals $117 per month on average. These estimates are robust to the various specifications, though they do decrease slightly (to $52 and $111 respectively) when individual FEs are added to the specification; these lower within-person estimates suggest that there is only a small amount of between-person heterogeneity not being accounted for by the other specifications. Withdrawal amounts gradually increase with age, as seen by the positive age squared term, though these estimates do not suggest a statistically significant age trend. Furthermore, males and whites tend to withdraw higher amounts, whereas Asians tend to withdraw lower amounts.

Relationship between withdrawal amount and labor supply. To estimate how the withdrawal amount affects the chosen number of hours worked per week, I use the regression

$$\begin{aligned} hours_{it} = \beta_0 + \beta_1 withdrawal_{it} + \beta_2 age_{it} + \beta_3 age_{it}^2 \\ + T_t\gamma_0 + X_{it}\gamma_1 + \mu_{FEs} + \varepsilon_{it} \quad (13) \end{aligned}$$

where

- $hours_{it}$ is the usual hours worked per week for individual i in period t (which in SIPP is a month)
- and similar notation is defined as before.

I estimate equation (13) using a Tobit regression model where hours is left-censored such that only $hours_{it} \geq 0$ are observed. That is, the latent equation determining labor force participation is given by the right hand side of equation (13).

Table 3 presents the coefficient estimates for different specifications of equation (13). Column (1) is a Tobit regression with only the withdrawal amount, age, and age squared. Column (2) adds time trends (a quadratic time trend and month dummies to control for seasonality) to the

Table 2: Relationship between RSA Access and Withdrawal Amount

Dep. Var.: Withdrawal Amt.	(1) OLS	(2) OLS	(3) OLS	(4) FEs	(5) Weighted
Post 59.5	62.661***	62.659***	61.298***	51.519***	61.621***
	(5.815)	(5.795)	(5.915)	(8.575)	(7.306)
Post 70.5	116.186***	116.181***	116.573***	111.311***	133.869***
	(15.638)	(15.642)	(15.161)	(20.409)	(19.822)
Age	-1.937	-1.95	-3.547	-40.034***	-1.972
	(6.962)	(6.985)	(6.662)	(13.688)	(8.407)
Age Squared	0.053	0.053	0.066	0.345***	0.053
	(0.06)	(0.06)	(0.058)	(0.119)	(0.073)
Female			-50.654***		-48.473***
			(5.221)		(4.534)
Married			-8.663*		-9.724*
			(4.827)		(5.582)
White			16.786**		18.582**
			(6.751)		(7.359)
Black			-9.534		-8.192
			(9.377)		(10.661)
Asian			-29.474**		-30.329**
			(13.921)		(13.959)
Constant	-113.32	-78.53	-105.64	1220.36***	-191.61
	(200.28)	(198.77)	(196.12)	(404.12)	(246.33)
SIPP & State FEs	Yes	Yes	Yes	Yes	Yes
Time Trends	-	Yes	Yes	Yes	Yes
Controls	-	-	Yes	-	Yes
Individual FEs	-	-	-	Yes	-
N	803,864	803,864	803,864	803,864	803,864
R-Square	0.015	0.016	0.018	0.146	0.019

Significance Levels: *** = 1%; ** = 5%, * = 10%

Notes: The sample of analysis comprise 2008 SIPP RSA participants age between 50 and 80 whose household has never owned a business. Withdrawal amount in May 2008 dollars per month. Standard errors in parentheses are clustered at the state level. All regressions include SIPP reference month and wave FEs and state FEs which are not shown. Suppressed time trends include linear and quadratic trends and month dummies. Suppressed controls include indicator for Hispanic and education level dummies.

specification in column (1). Column (3), the preferred specification, adds a host of controls (sex, marital status, race and ethnicity, and education) to the specification in column (2). Column (4) repeats the Tobit specification in column (3) except person-level weights are used. Using the same set of controls as column (4), column (5) shows the coefficient estimates for a basic OLS regression instead of a Tobit regression. (While biased due to censoring, I present these estimates for completeness.) A specification for individual fixed effects (μ_i) is not included due to computational issues. In this table, withdrawal amounts are now expressed in thousands for clarity. The marginal effects on hours worked, as well as the marginal effects on hours work conditional on working, are presented towards the bottom of Table 3. These marginal effects are evaluated at the withdrawal amount of \$2000 dollars; this is near the mean monthly withdrawal amount conditional on RSA participants who actually make withdrawals, which is \$1929

A \$1000 increase in the monthly withdrawal amount from an RSA is associated with a 1.01 hour per week reduction in labor supply on average. Conditional on working positive hours, a \$1000 increase in the monthly withdrawal amount from an RSA is associated with a 0.78 hour per week reduction in labor supply on average. These estimates are robust to the various specifications.[12] Hours worked reduces significantly with age, as seen by the negative and significant coefficient estimates on the age squared term. Females and married individuals tend to work less on average.

5 Conclusion

The results from these two sets of regression analyses reinforce the empirical patterns presented earlier. They suggest that delaying access to RSA funds or changing the timing of mandatory minimum withdrawals can have appreciable effects on both RSA withdrawal patterns and labor supply decisions. Any policy decision to shift such RSA age thresholds should be approached and considered in a thoughtful manner. These results are in context with shifts in age thresholds pertaining to other policies such as social security and pension access.

There are several avenues that warrant further investigation. Labor supply decisions are often made jointly within a household, and it would be interesting to see how one spouse

[12] The OLS estimate constitutes a much smaller negative effect; however, because of censoring, this is likely to be a biased estimate.

Table 3: Relationship between Withdrawal Amount and Labor Supply

Dep. Var.: Hours Worked	(1) Tobit	(2) Tobit	(3) Tobit	(4) Weighted	(5) OLS
Withdrawal Amt.	-1.394***	-1.406***	-1.580***	-1.543***	-0.642***
(Thousands)	(0.151)	(0.154)	(0.162)	(0.181)	(0.044)
Age	5.628***	5.543***	5.462***	5.710***	-1.729***
	(0.433)	(0.444)	(0.458)	(0.470)	(0.251)
Age Squared	-0.067***	-0.066***	-0.065***	-0.067***	0.002
	(0.004)	(0.004)	(0.004)	(0.004)	(0.002)
Female			-5.455***	-5.322***	-3.795***
			(0.454)	(0.454)	(0.277)
Married			-3.601***	-3.491***	-2.11***
			(0.462)	(0.507)	(0.289)
White			0.336	0.515	0.691
			(1.376)	(1.43)	(0.882)
Black			1.219	0.607	1.121
			(1.705)	(1.607)	(1.104)
Asian			2.624	2.364	1.951
			(2.045)	(2.141)	(1.304)
Constant	-74.97***	-72.61***	-68.29***	-78.57***	126.29***
	(13.20)	(13.53)	(16.02)	(16.81)	(8.55)
Marginal Effects (Evaluated at withdrawal amount of $2000)					
$\frac{\partial E[hours]}{\partial withdrawal}$	-0.896***	-0.903***	-1.011***	-1.002***	
	(0.092)	(0.092)	(0.1096)	(0.111)	
$\frac{\partial E[hours \mid hours>0]}{\partial withdrawal}$	-0.693***	-0.697***	-0.783***	-0.777***	
	(0.070)	(0.070)	(0.073)	(0.085)	
SIPP & State FEs	Yes	Yes	Yes	Yes	Yes
Time Trends	-	Yes	Yes	Yes	Yes
Controls	-	-	Yes	Yes	Yes
Individual FEs	-	-	-	-	-
N	803,804	803,804	803,804	803,804	803,804
R-Square	0.069	0.068	0.070	0.070	0.343

Significance Levels: *** = 1%; ** = 5%, * = 10%

Notes: The sample of analysis comprise 2008 SIPP RSA participants age between 50 and 80 whose household has never owned a business. Hours worked are usual hours per week for that month. Withdrawal amount in *thousands* of May 2008 dollars per month. Standard errors in parentheses are clustered at the state level. All regressions include SIPP reference month and wave FEs and state FEs which are not shown. Suppressed time trends include linear and quadratic trends and month dummies. Suppressed controls include indicator for Hispanic and education level dummies. Marginal effects are evaluated at the mean withdrawal amounts.

reaching an age threshold affects the labor supply decisions of the other spouse. The SIPP is a vast trove of data with special topical modules for certain waves of survey respondents. Using these additional data may offer more insight into other factors which affect labor supply jointly with reaching RSA age thresholds. Furthermore, similar analyses can be conducted with SIPP panels prior to 2008, as long as the variables in the data are measured consistently. Given the results found in these reduce-form regressions, a structural estimation approach would greatly add knowledge to the question of how RSA age thresholds affect withdrawal behavior and labor supply decisions.

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