Access to Retirement Savings and its Effects on Labor Supply Decisions

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Motivation

My Question: **How are labor supply decisions affected by access of Retirement Savings Accounts (RSAs)?**

- Highly relevant to policy makers
- Aging populations mean higher dependency ratios
  - Especially Japan, Germany; most likely US in the future
- Ameliorate by increasing labor force participation of elderly
  - Delay access to retirement savings and other benefits
- Consequences for indexing to life expectancy
  - Denmark

Background on Retirement Savings Accounts (RSAs)

- Focus on RSAs in the US
  - First established in 1970s, growing popularity ever since (Poterba, Venti and Wise, 1994)
- RSA types:
  - IRAs for everyone
  - Keogh plans for the self-employed
  - 401(k) plans for private firms
  - Thrift Savings Plans for government employees
- All of these have same basic structure

How do Retirement Savings Accounts (RSAs) Work?

- Deposit pre-tax dollars into account[1]
- Invest funds and earn dividends and capital gains over time
- Withdraw funds when you are older
  - Only then are dollars taxed
  - Tax benefit derived from being in lower bracket
- Age thresholds define access restrictions:
  - 59.5 = Allowed to start making withdrawals
  - 70.5 = Minimum mandatory withdrawals

[1] Slightly different for Roth IRAs, which take post-tax dollars.

How does RSA access affect labor supply?

- Income effect increases demand for leisure, reduces labor supply
  - For financially constrained participants
- Desire to maximize tax savings
  - Aging participants enter lower tax brackets as earnings decrease with age
    - Decreasing productivity, worse wage offers
  - Substitute withdrawals for earnings

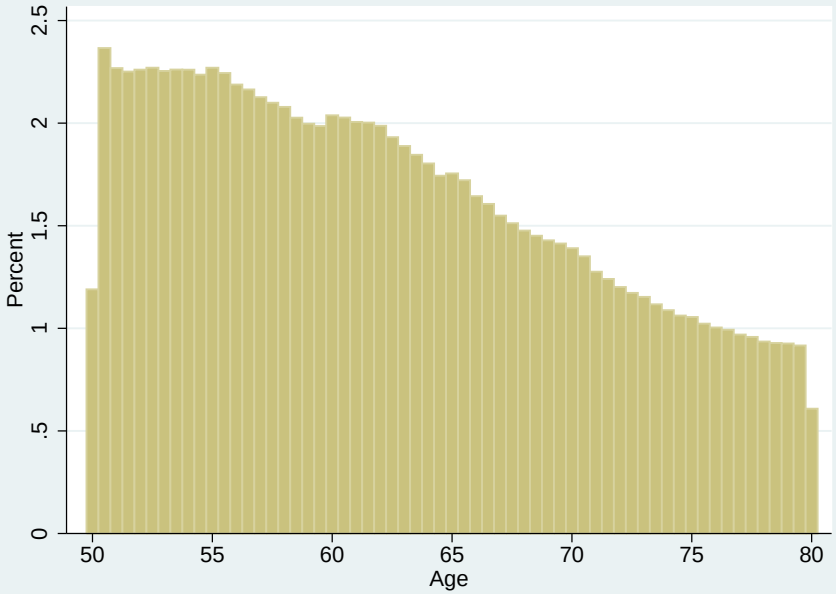
Literature Review

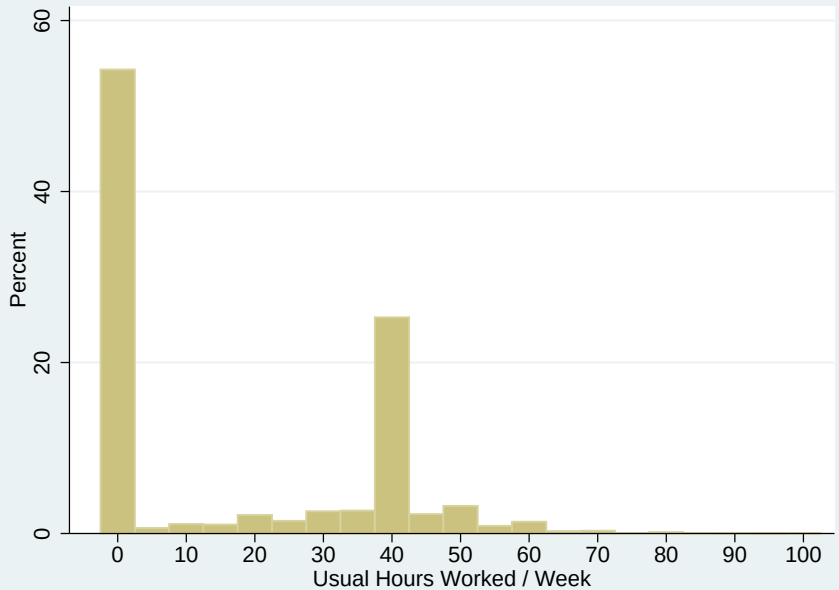
- Much of the literature devoted to whether RSAs encourage savings (Sabelhaus, 2000)
- Extensive literature on retirement decisions
  - Structural models (Gustman and Steinmeier, 1986; Stock and Wise, 1990)
  - Availability of employer pension plans (Stock and Wise, 1990)
  - Social security policy changes (Krueger and Pischke, 1992)
  - In combination with health and other factors (Fields and Mitchell, 1984; French, 2005)
- Other age thresholds
  - Social security access (Stewart, 1995)
  - Early retirement windows (Brown, 2002; Hogarth, 1988; Lumsdaine et al., 1990; Pencavel, 2001)

Data

- Survey of Income and Program Participation (SIPP)
  - 2008 Panel, 15 waves
- Unit of observation is a person-month response to survey
- Sample Restrictions:
  - Between ages 50 and 80
  - Household has never owned a business
- Consumer Price Index (CPI) adjustment to May 2008 dollars
- Labor supply is measured in usual hours worked per week

Summary Statistics

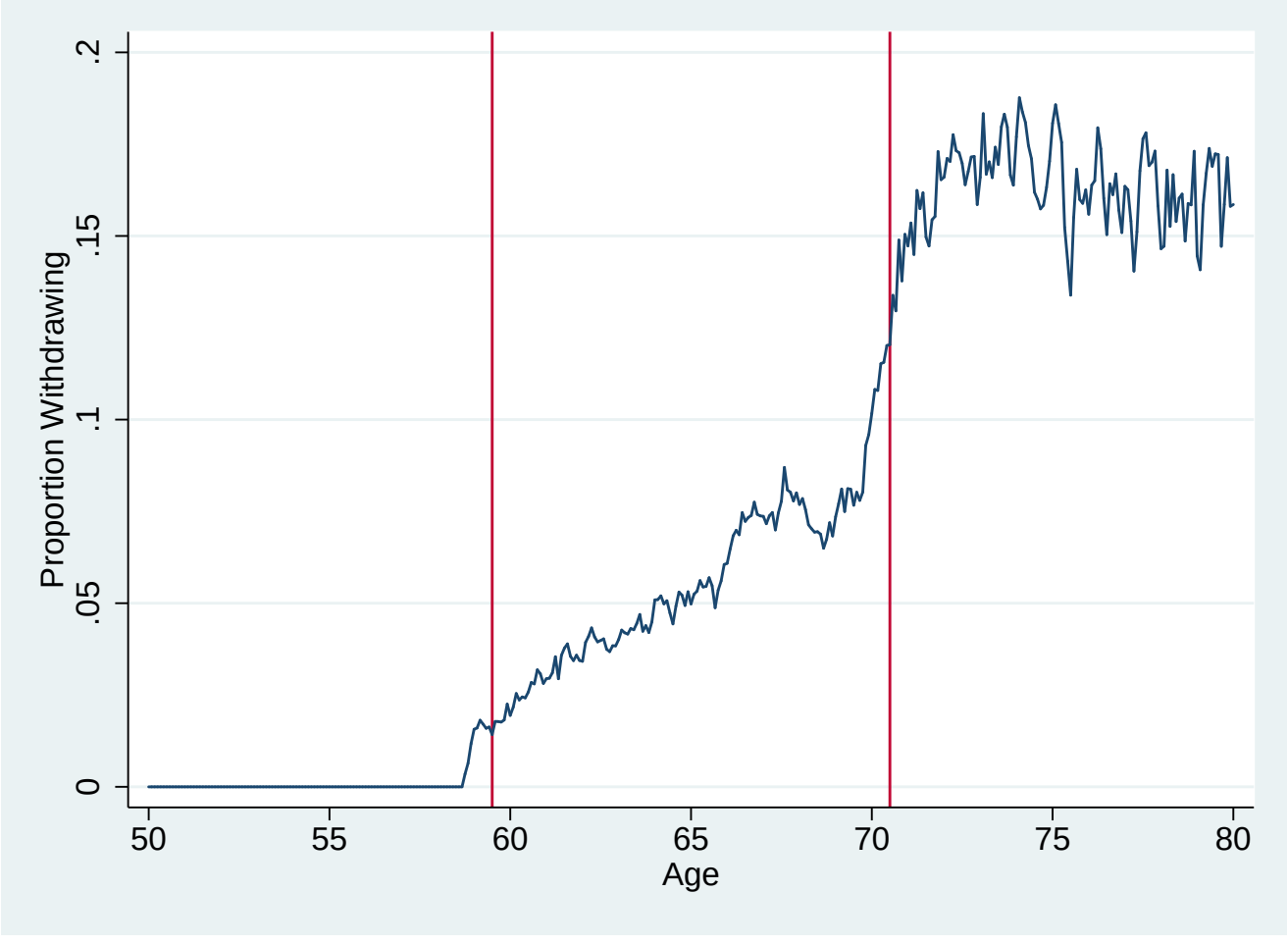




	(1) Entire Sample	(2) RSA Participants	(3) Withdrawers
% Female	0.550	0.529	0.488
	(0.497)	(0.499)	(0.500)
% White	0.811	0.861	0.934
	(0.392)	(0.346)	(0.248)
% Black	0.124	0.085	0.043
	(0.33)	(0.278)	(0.202)
% Asian	0.034	0.031	0.013
	(0.182)	(0.173)	(0.113)
% High School	0.872	0.954	0.959
	(0.334)	(0.210)	(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)
N	1,325,591	803,864	36,981
%	100	60.64	2.79

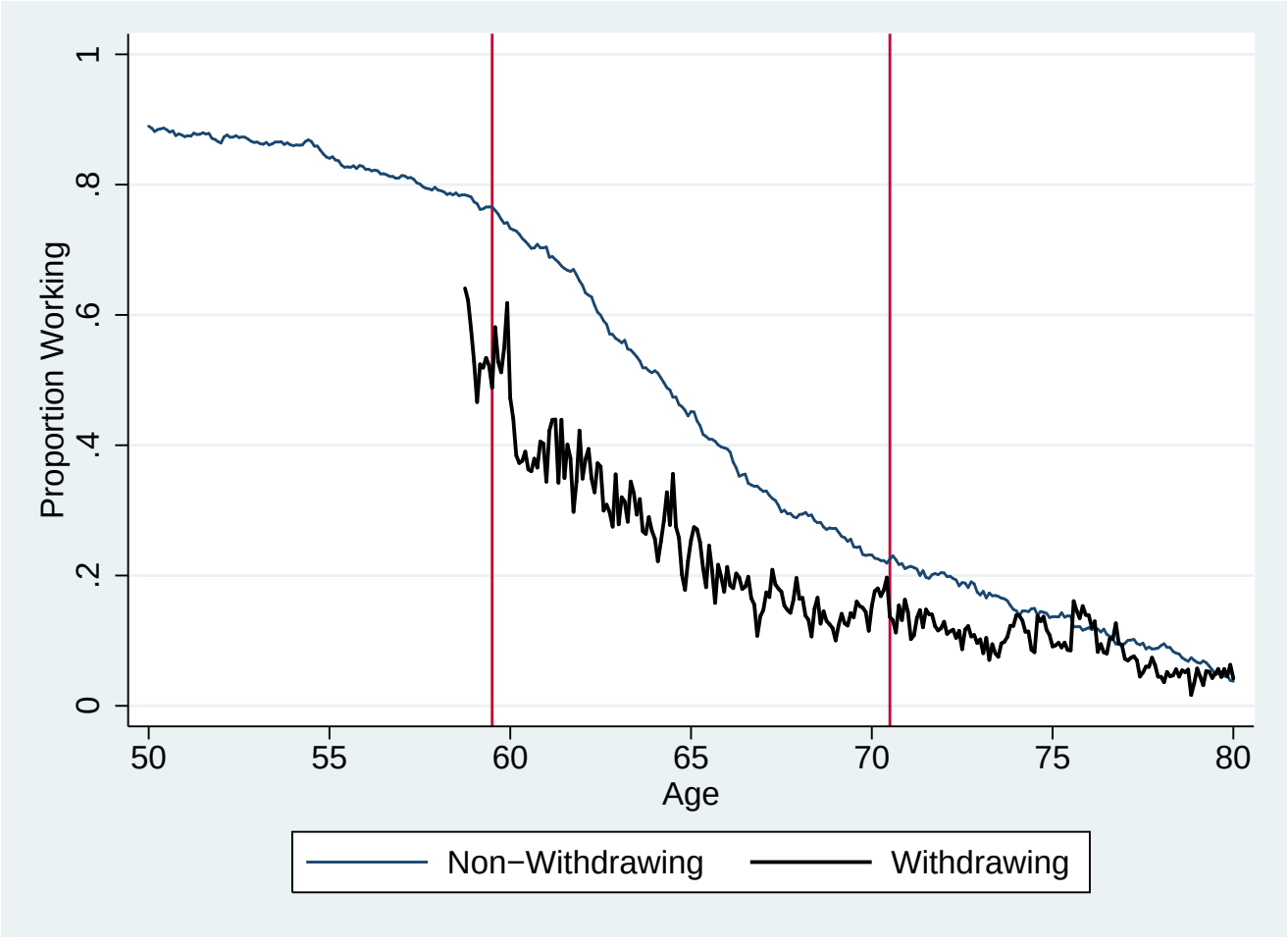
	(1) Entire Sample	(2) RSA Participants	(3) Withdrawers
Owns RSA	0.606	1	1
	(0.489)		
Withdrew from RSA	0.028	0.046	1
	(0.165)	(0.209)	
Withdrawal Amount	53.819	88.749	1929.157
	(653.161)	(836.903)	(3416.832)
% Working	0.460	0.591	0.161
	(0.498)	(0.492)	(0.368)
Usual Hours / Week	17.600	23.186	4.842
	(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

How do withdrawal behaviors change across the age thresholds?



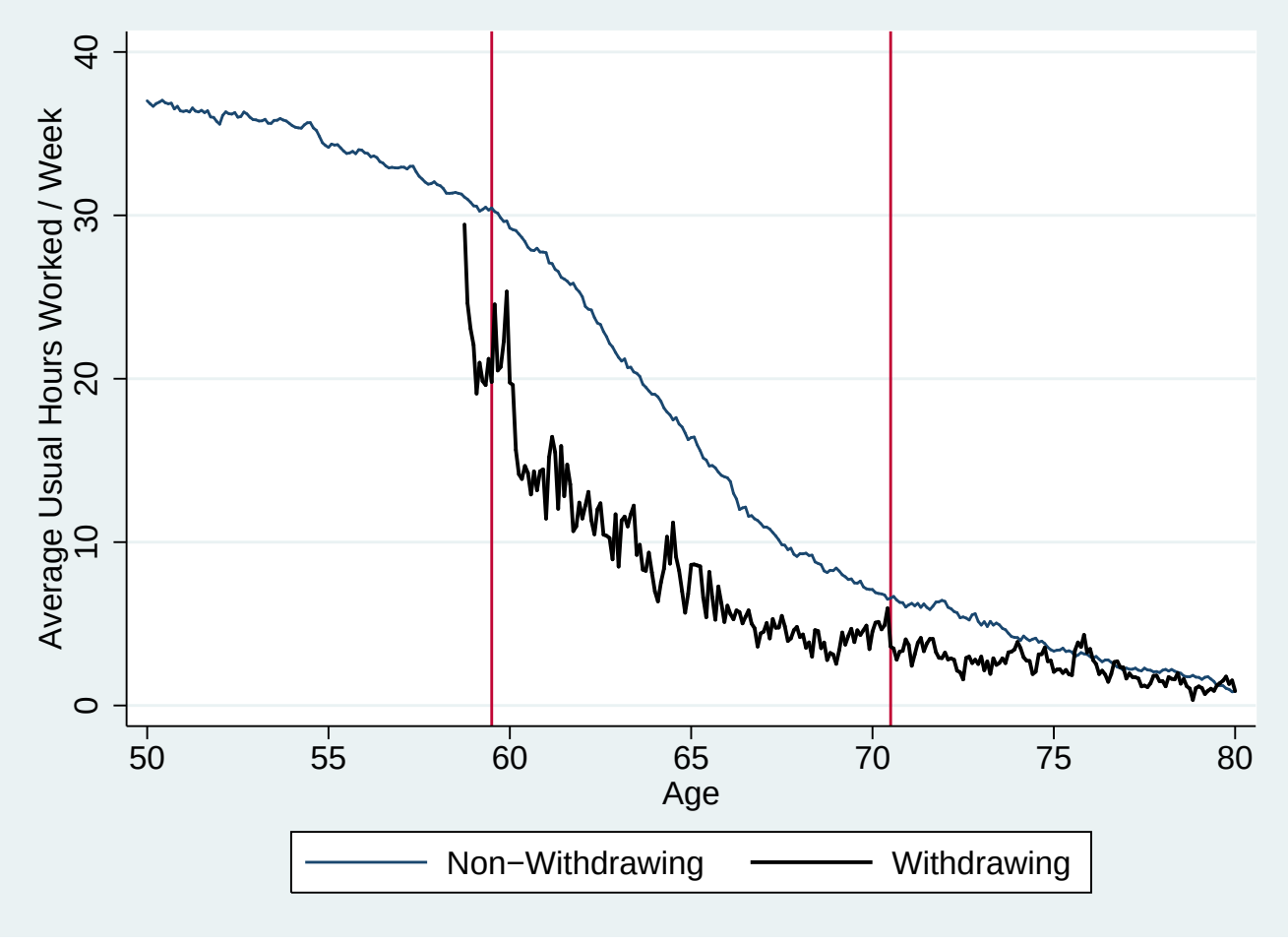
Proportion of RSA Participants Withdrawing by Age

What are the differences in labor supply decisions of those withdrawing versus those making no withdrawals?



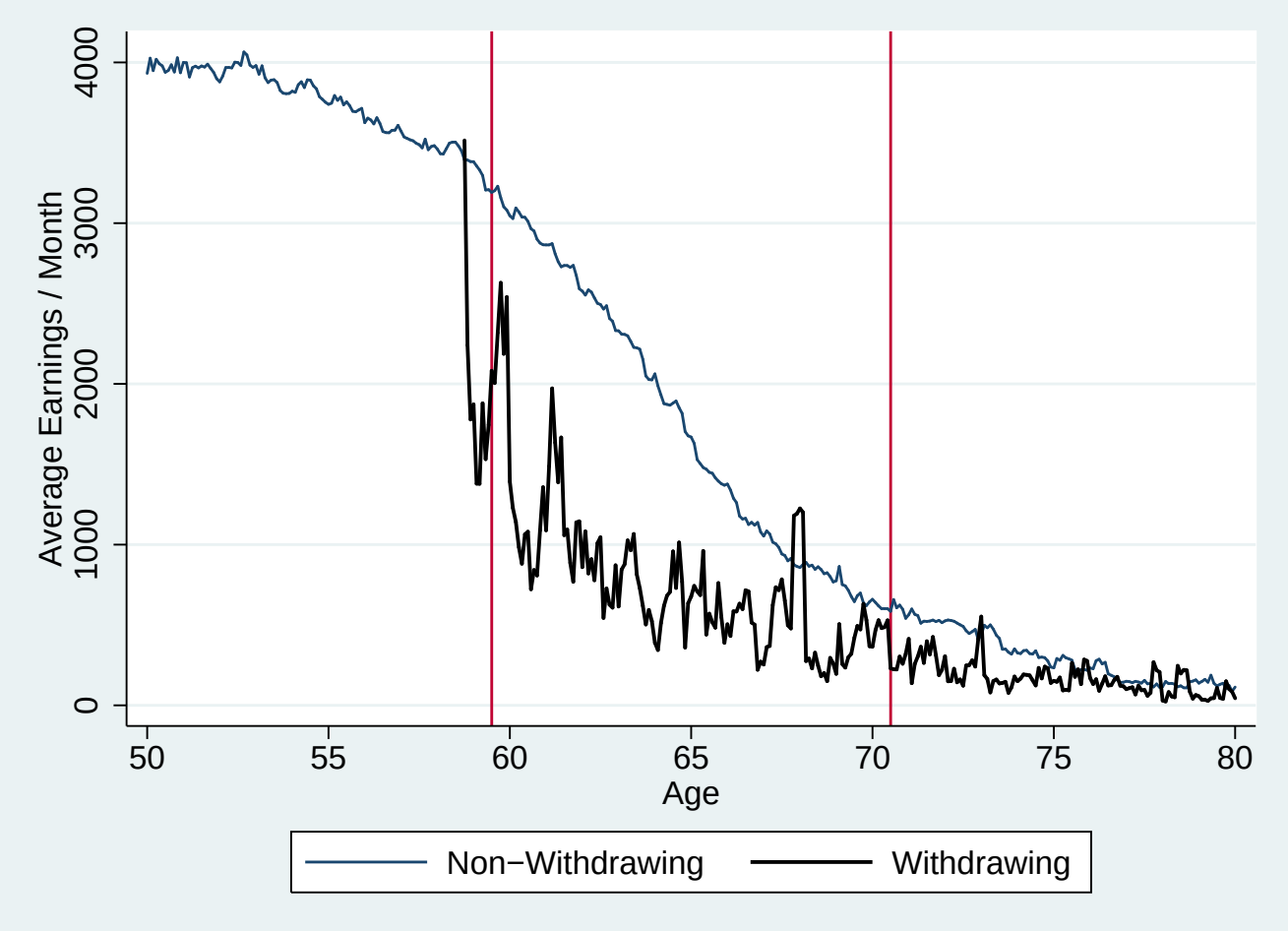
Proportion of RSA Participants Working by Age and Withdrawal

Labor supply decisions



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

Labor supply decisions



Average Monthly Earnings of RSA Participants by Age and Withdrawal Status

Relationship between RSA Access and Withdrawal Amount

$$withdrawal_{it} = \beta_0 + \beta_1 post59.5_{it} + \beta_2 post70.5_{it} + \beta_3 age_{it} + \beta_4 age_{it}^2 + T_t\gamma_0 + X_{it}\gamma_1 + \mu_i + \mu_{FEs} + \varepsilon_{it} \quad (1)$$

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
- 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.

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)
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

Relationship between Withdrawal Amount and Labor Supply

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

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.

Tobit regression because $hours_{it}$ has corner solutions at zero

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)
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	-	-	-	-	-

Summary

- Delaying access to RSA funds or changing the timing of mandatory minimum withdrawals can have appreciable effects
  - On RSA withdrawal patterns
  - On labor supply decisions
- Any policy decision to shift RSA age thresholds should be approached and considered in a thoughtful manner
- Results apply to shifts in age thresholds of other policies such as social security and pension access

Moving Forward

- Joint household labor supply decisions
- Structural modeling
- Include more SIPP years

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