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Drawing Down Retirement Wealth: Interactions between Social Security Wealth and Private Retirement Savings

Philip Armour and Angela A. Hung

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Abstract

Individual financial planning for retirement in the US is increasingly important, given the trend away from employer-provided defined benefit (DB) plans, the rising Social Security (SS) Full Retirement Age (FRA), and retiring baby boomers. A key financial decision that Americans make is how to draw on their retirement wealth across various sources, including both privately saved retirement funds and SS benefits. For SS retirement benefits, the main decision is at what age to claim, with claiming before the FRA resulting in lower monthly benefits, and claiming later leading to higher benefits. The terms of this tradeoff have changed in recent years: since 2003, the FRA has risen from 65 and will gradually increase to 67 by 2027, representing a drop in the present value of SS benefits. Meanwhile, defined contribution (DC) plans have gained in popularity, presenting retirees with more control over their private retirement wealth. The changing dynamics of both SS wealth and the private retirement decision space underscore the need for examining how individuals make decisions across their entire portfolio of retirement wealth. We use HRS survey data matched to SS administrative data to study how households integrate SS benefits into their general retirement income plans. We find starkly different non-SS retirement asset decumulation patterns across individuals who claim at different ages, with those claiming before the FRA drawing down pension and IRA wealth faster than those who claim at or after the FRA. However, the earliest claimants, those who claim SS retirement benefits exactly at age 62, are a highly heterogeneous group, consisting of both low-income, high expected mortality individuals as well as individuals with high pension holdings. We further find that this earliest claimant group is more likely to have retired and begun decumulating non-SS retirement assets *even before age 62*; however, this group's median and average assets are not substantially lower than later claimants. An analysis of claiming behavior by non-SS retirement wealth holdings shows that individuals with more retirement savings were overwhelmingly likely to claim between the ages of 62 and the FRA. On the other hand, those with the least retirement savings are more likely to either claim SS benefits as early as possible, either in the form of disability benefits or retirement benefits, or they would delay claiming SS retirement benefits until after the FRA. Moreover, birth cohorts facing higher FRAs tend to delay claiming SS retirement benefits on average; however, those most affected by this reduction in SS wealth – those with few other retirement assets – are the least reactive. Finally, households that do delay claiming as the FRA rises also tend to delay retirement and drawing down their non-SS retirement assets, indicating complementarity between SS and non-SS decumulation decisions and strong spillovers from changes in both SS and private retirement policy.

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Abbreviations

DB	Defined Benefit
DC	Defined Contribution
EEA	Early Eligibility Age
FRA	Full Retirement Age
HRS	Health and Retirement Study
IRA	Individual Retirement Account
MBF	Master Beneficiary File
PIA	Primary Insurance Amount
SS	Social Security

1. Introduction

Financial planning for retirement in the United States is more important now than it has been in the past. Not only are Americans living longer than ever, but they are also increasingly more responsible for their own financial well-being in retirement. Defined benefit (DB) plans have given way to self-directed retirement savings, such as defined contribution (DC) plans and Individual Retirement Accounts (IRAs). In 1978, DB plans accounted for around 70 percent of retirement assets; by 2013, they accounted for only 35 percent (Council of Economic Advisers, 2015). Over the same period, DC plans and IRAs rose from around 20 percent of retirement assets to slightly over 50 percent. This rise in importance of DC plans and IRAs is also reflected in the absolute dollar value of these assets. At the end of 2015, Americans held 7.3 trillion dollars in IRAs as retirement assets as compared to 1.1 trillion in 1994 (Investment Company Institute, 2016). Also, Americans held around 6.7 trillion dollars in DC plans in 2015 as compared to 1.4 trillion in 1994 (Investment Company Institute, 2016).

While the composition of retirement assets has undergone a significant transition, Social Security (SS) still remains a mainstay of retirement finance for most Americans. For instance, SS provided more than 50 percent of income for 39.5 percent of individuals between the ages of 65 and 69 in 2012 (Social Security Administration, 2014). Further, the importance of SS as a source of retirement income increases with age: SS provided more than 50 percent of income for about 65 percent of individuals between the ages of 75 and 79 in 2012 (Social Security Administration, 2014).

One of the key financial decisions that Americans have to make is how to draw down their retirement wealth, both privately saved retirement funds and SS benefits. With regard to SS benefits, a critical decision is timing of claims. Individuals may claim benefits starting at age 62 before their full retirement age (FRA), at the FRA, or afterwards (until the age of 70). The timing of the claiming decision could have significant financial ramifications for households, because benefits are larger for those who postpone claiming. Although benefits claimed before the FRA are adjusted to be actuarially fair on average, personal and household characteristics such as health, retirement wealth and structure, and marital status can lead to significant differences in the incentives to claim earlier or later. Thus, the decision on when to claim represents a tradeoff between money now versus larger payments later on; additionally, the terms of this tradeoff have changed in recent years: before 2003, the FRA was 65 and then gradually increased to 66 in 2008, where it remains currently but will start rising again in 2021 until settling at 67 by 2027. This increase in the FRA was part of the Social Security Amendments of 1983, which included this shift as well as a number of other changes to put the SS trust funds on a sustainable fiscal path. The Early Eligibility Age (EEA) has remained fixed at 62, but because the FRA defines the unreduced full benefit claiming age, the benefit available at age 62 has

fallen for recent cohorts as the FRA has increased. Along with this change in the FRA, the past few decades have seen an increase in the average retirement age of Americans (Munnell and Chen, 2015). Munnell and Chen (2015) compare claim timing between cohorts turning 62 in 1985 and turning 62 in 2010. Comparing the younger cohort to the older, they find a steep reduction (8.2 percentage points for men and 16.6 percentage points for women) in claiming at 62 and an increase (10.9 percentage points for women and 12.5 percentage points for men) for claiming at the FRA.

The changing dynamics of SS claiming behavior underscores the need for examining the interaction between SS claiming and other sources of retirement/pension wealth. Our research question is how households integrate SS benefits into their general retirement income plans. We are interested in whether households drawdown SS wealth and non-SS retirement wealth contemporaneously, or do they decumulate the different types of retirement wealth sequentially? For example, Rust and Phelan (1997) find that the retirement spike at age 65 is largely explained by health insurance constrained individuals eligible for Medicare at that age; as the FRA rises and SS wealth falls, households may prefer to continue to retire at the Medicare eligibility age, or at least decrease labor supply without fear of becoming uninsured. Our research question then amounts to: will households both claim SS and begin decumulating non-SS retirement wealth when they retire, or will they start drawing down one source of retirement wealth, letting the other continue to accumulate? Or in general, do households choose to start decumulating across all retirement assets at once, and if so, what are the implications for total retirement wealth of increasing the FRA?

We use self-reported data on private pensions, wealth, and income elicited by the Health and Retirement Study (HRS) panel survey and matched administrative SS earnings and benefits records. In particular, we examine how the populations of SS claimants—early, full retirement, or delayed—differ with respect to other sources of retirement wealth. How important are SS benefits relative to these other sources for these populations? We conduct a descriptive cross-cohort analysis examining the timing of SS retirement benefit claiming by type and amount of other pension wealth. We find large differences in both levels and trends of non-SS retirement savings across these claimant groups, with those claiming before the FRA starting their drawdown of retirement assets earlier than those who claim SS benefits at the FRA. Indeed, those claiming SS retirement benefits at the earliest possible age of 62 are more likely to have begun decumulating their non-SS retirement assets even earlier, at ages 60 and 61. However, this group also tends to have similar non-SS retirement assets than later claimants at this earlier age, despite having started decumulating them.

Comparisons of claiming behavior by non-SS retirement wealth show that individuals with more retirement savings were overwhelmingly likely to claim between the ages of 62 and the FRA, while those with the least retirement savings were more likely to claim SS benefits either younger than 62 or older than the FRA.

We then turn to the question of how recent cuts in SS benefits due to the rising FRA have affected more general retirement decision-making, such as changes in private pension decumulation, among the affected population. Our analysis exploits the exogenous decrease in SS wealth caused by the rising FRA to measure differences in pension decumulation behavior as a function of SS wealth and claiming. An initial analysis comparing those who claim SS retirement benefits at age 65 with those who delay claiming shows that, consistent with our findings in the descriptive analyses, those who delayed claiming past the FRA were disproportionately less wealthy. However, those delaying claiming past 65 when the FRA is greater than 65 tend to be higher earners with high asset levels, better health and longer life expectancy. Further regression analyses confirm this result: the households most reactive to the rising FRA are the wealthiest households, while households with the least non-SS retirement assets do not systematically change their retirement decision-making. Additionally, wealthier households not only delay claiming SS benefits when facing a higher FRA, they delay retiring and delay decumulating their non-SS retirement assets. This could, in part, be due to the fact that wealthier households have more resources to draw on while delaying SS claiming than less wealthy households do. Compared to less wealthy households, wealthier households may be less likely to face binding budget constraints, and may be able to continue in the work force because they tend to have better health.

2. Previous Literature

In this section, we provide a brief review of the literature on SS decision-making, both on its own and in the larger retirement planning context. Even though factors such as wealth, health, health insurance, and spousal retirement decisions play a role in retirement decisions (see Coile, 2015 for an overview of these factors), rules on SS benefits are important determinants of retirement decision-making in the United States. Retirement timing – the labor market decision as to when to stop working – has strong correlations with SS program parameters. For example, examining data from the 1960s through the 1980s, both Burtless and Moffitt (1986) and Blau (1994) find a spike in retirement at age 65, the FRA at that time. Burtless and Moffitt (1986) further show a spike in retirement starting in the 1970s at age 62, after SS introduced the EEA of 62. Mastrobuoni (2009) focused on the gradual increase of the FRA to examine how this change in benefit generosity impacted the age at retirement, finding that that mean retirement age increased by approximately one-half of the increase in the full retirement age. Using the HRS, Gustman and Steinmeier (2009) also arrive at similar conclusions: the increase in the FRA, increase in the delayed retirement credit and the removal of the earnings test in 2000 served to increase labor force participation for those between the ages of 65 and 67.

It is not surprising that SS rules also have a large impact on the decision on when to claim benefits; this strong link between SS incentives and SS decision-making has been recorded across a range of data sets with varied methodologies. For example, using the HRS, Behagel and Blau (2012) analyze the impact of the increase in the FRA on labor participation and claiming of Old-Age and Survivors Insurance (OASI) benefits, finding that the cohorts subjected to the increased FRA delayed claiming of their OASI benefits relative to cohorts facing a lower FRA. Using data from the Social Security Administration, Song and Manchester (2007) examine the impact of the removal of the retirement earnings test at ages 65 to 69 in 2000 as well as the increase in the FRA on SS claiming. They find that that the removal of the earnings test led to an increase in the proportion of men claiming benefits at 65 of four percentage points and an increase in women claiming benefits at 65 of two percentage points. In keeping with Behagel and Blau (2012), they also find that the increase in the FRA led to later claiming. Van der Klaauw and Wolpin (2008) develop a structural model of retirement and savings and estimate this model using a sample of low-income households from the HRS, simulating the impact of the removal of the earnings test, elimination of early retirement, and an increase in the earliest retirement age to 70. In each of these cases, the model predicts a significant increase in labor force participation between the ages of 62 to 69. They also find that changes in SS rules have a large impact on more than retirement and claiming decisions: net asset holdings also respond to these SS benefit changes, underscoring the importance of looking at the interaction between SS and other sources of retirement wealth.

Some studies have also explored the interaction of other old-age support programs (such as Medicare, with a fixed eligibility age of 65) and SS claiming behavior. For instance, Coe, Khan and Rutledge (2013) compare two groups of individuals, those with a SS FRA of 65 (for whom the Medicare eligibility age and the FRA are the same) and those with a higher FRA (in their sample, the FRA rose for later cohorts in two month increments from 65 to 66). They found that individuals who lack access to employer provided health benefits were most likely to continue to claim SS benefits at 65, even as these benefits decline in value, due to the fact that age 65 is when they become eligible for Medicare benefits. So although SS program details affect retirement and claim timing, as well as other retirement preparation, these effects depend on the other incentives facing older workers.

A noted concern arising from these studies on the increase in the FRA is that individuals may not adequately understand the possible returns in the SS system to delayed claiming and continued work, resulting in sub-optimal decision-making. A number of studies have begun to examine the impact of informational interventions on claim timing, including Mastrobuoni (2011) and Liebman and Luttmer (2015). Mastrobuoni (2011) examines the impact of the annual SS statements on knowledge about benefits as well as claiming patterns. These statements were introduced in the 1990s, sent out to all payroll taxpayers throughout the 2000s, and contained detailed information on SS benefits, including estimated benefits at ages 62, 65 and 70. The study finds that while the statements serve to increase individual knowledge of benefits, they had

little impact on claim timing and age at retirement. In contrast to Mastrobuoni (2011)'s study exploiting existing variation in information provision, Liebman and Luttmer (2015) conduct a randomized control trial with a sample of workers between the ages of 60 and 65. The trial provided the treatment group with information on the importance of taking a long-term view on retirement planning, information about the financial implications of claim timing (benefits rise with age and benefits depend on work history) and information on the SS earnings test. The study finds that the intervention increased labor force participation by 4 percentage points, driven by female participants, but had negligible effects on claiming behavior.

While SS is a significant component of retirement finances for the vast majority of individuals in the United States, it is also true that a substantial number of individuals hold a portfolio of retirement assets including defined contribution plans and Individual Retirement Accounts (IRAs). These other forms of retirement wealth allow for a richer set of retirement financial decisions, potentially affecting not just wealth decumulation behavior but also SS decision-making itself. Early analyses, such as Burkhauser, Couch and Phillips (1996), find little difference in income and wealth between early SS claimants and those delaying collecting benefits on average. However, as private retirement wealth has shifted to DC plans and IRAs, the stakes of retirement planning have changed as individuals, not employers, now mostly bear the risk of accumulating and holding their retirement wealth. More recently, Li, Hurd and Loughran (2008) undertake a similar comparison between early and late claimants and find that early claimants generally have less education, poorer health and lower labor market earnings. However, they find negligible differences in pension wealth between the two groups. Glickman and Hermes (2015) also find these age 62 claimants to be more likely to retire from blue-collar occupations and to have shorter self-reported life expectancies, and they find persistently lower household income compared to later claimants.

Most recently, a line of research has aimed to analyze whether individuals could increase their retirement income, given their mix of retirement assets and the options at their disposal. In particular, for most potential SS retirement beneficiaries, there is a substantial financial return to delaying claiming SS benefits and receiving higher benefits later, but most beneficiaries claim benefits immediately upon retiring. To explore whether liquidity constraints – the need to have cash on hand – drive these decisions, Goda et al (2015) use administrative tax data on primary earners from the 1940 birth cohort to analyze SS claiming behavior in concert with distributions from IRAs. Like the studies cited above, they find that a significant proportion of the sample starts claiming at the age of 62. However, their observation of income from IRAs allows them to estimate the average time between claiming SS benefits and the first IRA distribution as 1.6 years. Importantly, according to the authors' calculations, 31 to 34 percent of early claimants have enough IRA assets to compensate for at least 2 years of SS benefits and 24 to 26 percent have enough assets in IRAs to compensate for at least 4 years of SS benefits. This leads to the conclusion that early SS claimants are probably not liquidity constrained but underscores how

little we understand of how individuals are coordinating their retirement decision-making across their full range of retirement assets.

3. Data

To address this question of retirement decision-making across both SS benefits and non-SS retirement sources, we use the HRS. The HRS is a longitudinal, nationally representative survey of Americans older than 50, with approximately 25,000 respondents. Since the first wave in 1992, respondents have been interviewed every two years on their financial, health, and family status. New cohorts of Americans age 51–56 and their spouses are added to the survey every six years, maintaining its status as nationally representative of households with members over the age of 50. In order to compare characteristics of groups at different claiming ages we need to observe individuals who attain age 62 and older. Therefore, for our initial analyses, we use the 1992, 1998, and 2004 HRS cohorts, comparing individuals who claim their SS benefits at different ages (62, between 62 and the FRA, FRA, after the FRA) across these cohorts. In these first analyses, we restrict our sample to respondents who were age 51-56 in their first interview to allow for comparable calculations across the three cohorts. In other words, our analyses focus on the 1992 HRS cohort who were born between 1936 and 1941, the 1998 HRS cohort who were born between 1942 and 1947, and the 2004 HRS cohort who were born between 1948 and 1953. Later, we further restrict our sample to HRS respondents who we observe reach their FRAs.

Additionally, every 6 years starting in 1992, all HRS respondents are asked if they are willing to provide their Social Security Numbers (SSN) to facilitate a match to their earnings and benefit records for research purposes. Twenty five percent of respondents either refuse or provide an incorrect SSN, but prior research shows that the 75 percent who are successfully matched do not differ on observable characteristics, maintaining these matched data's representativeness (Kapteyn et al., 2006).

From the HRS we observe detailed self-reported data on income, wealth, pension wealth and decumulation, as well as demographic characteristics. From the matched SS administrative records, we can observe exact claiming dates and benefit amounts and lifetime SS-covered earnings.

Table 1 presents demographic description of our sample. For these demographic characteristics we use responses from the survey wave conducted eight years after the respondent joined the HRS, and so respondents are between ages 59 and 64.

Table 1: Sample Description

Demographic Characteristic (means)	'36-'41 Cohort (2000 survey)	'42-'47 Cohort (2006 survey)	'48-'53 Cohort (2012 survey)
Age	61.2	61.4	61.6
Female	53.4%	52.4%	52.9%
White	80.9%	80.0%	85.4%
Black	9.7%	9.8%	6.2%
Hispanic	7.4%	7.3%	5.1%
Other	2.0%	2.9%	3.3%
Married	71.9%	72.4%	72.7%
Separated/Divorced	14.8%	17.2%	15.5%
Widowed	9.5%	6.4%	5.9%
Never Married	3.6%	4.0%	5.9%
Less Than High School	20.9%	14.1%	7.2%
High School	38.1%	35.3%	28.6%
Some College	20.9%	24.1%	28.8%
College or More	20.1%	26.4%	35.4%
Self-Reported Health (1=Excellent, 5=Very Poor)	2.67	2.70	2.63
Work-Limiting Health Condition	27.0%	27.9%	26.7%
Worked for Pay	45.4%	46.5%	48.6%
Retired	38.0%	42.7%	43.4%
Disabled	5.5%	3.8%	1.4%
Unemployed/non employed	11.1%	7.0%	6.6%
Earnings (self, HRS)	$25,071	$27,434	$31,769
Earnings (self, HRS, topcoded at SS Tax Max)	$21,110	$24,603	$26,436
Earnings (self, SS)	$19,895	$23,951	$24,042
Earnings (household, HRS)	$42,025	$47,282	$55,828
N	4,123	2,629	2,657

All dollar figures are 2012 dollars, adjusted with the CPI-U-RS. Data are weighted using the individual level analysis weights from the RAND HRS O file[1], designed to adjust the non-institutionalized age-eligible HRS respondents to CPS-derived demographics for the year and cohorts in question, although the sample is further limited to those with matched SS records. All weighted statistics below employ this approach. See Appendix for a further discussion of sample construction. The earnings (self, HRS) measure corresponds to the respondent's earnings as reported to the interviewer in the HRS. The earnings (self, SS) measure corresponds to the respondent's earnings derived from the matched SS summary earnings file and in our data is topcoded at the SS taxable maximum (the earnings level at which earnings are no longer subject to the SS portion of the FICA taxes). We therefore also report earnings (self, HRS, topcoded at SS Tax Max), which are the self-reported earnings in the HRS, but we impose a topcode at the SS taxable maximum for comparability to the earnings (self, SS) measure.

[1] The RAND HRS Data file is an easy to use longitudinal data set based on the HRS data. It was developed at RAND with funding from the National Institute on Aging and the Social Security Administration (see Chien et al., 2015)).

From this table, we can observe several population-level shifts in socioeconomic characteristics in our matched HRS-SS sample. For example, the educational attainment of respondents has increased dramatically from the 1936-1941 birth year cohort to 1948-1953 birth year cohort. There has also been an increase in real earnings over this period; however, there are few other systematic demographic differences across the cohorts in our analysis.

Wealth and Decumulation of Retirement Assets

Table 2 presents asset data for the sample from the survey wave conducted eight years after the respondent joined the panel. The table presents overall assets as well as retirement assets, including IRA accounts, DB pension plans, and DC plans. Although the unit of analysis is the individual in the statistics reported below, some of the wealth variables are measured at the household level in the HRS and are marked accordingly.

The measures of DB and DC wealth below are those provided by Gustman, Steinmeier, and Tabatabai (2014) and are standardized calculations derived from self-reported pension data for current pension entitlements across the HRS panel. DC wealth is calculated as the balance of all currently held DC plans, whether provided by a current or prior employer, and if an individual cashes out, annuitizes, or loses past DC wealth, these calculated balances reflect these changes. DB wealth is the present discounted value of the stream of expected DB payments through current entitlements to DB plans, whether through a current or prior employer, at the expected collection age onward. IRA wealth is reported at the individual level in the HRS[2], and although we begin with individual-level measures of non-SS retirement wealth, given that nearly all other wealth measures are at the household level, and individuals' well-being is more closely related to household resources than individual resources, we construct the majority of our wealth measures at the household level. For our initial analyses, we use the individual as the unit of analysis for ease of comparison across cohorts (e.g., each individual is aged 51-56 in their first interview year; aggregation to the household level would make cross-cohort comparisons more difficult) and for clarity in defining SS claiming age, even though this approach "double-counts" non-retirement sources of wealth. However, as we focus on the specific birth cohorts around the change in the FRA in the "Exogenous Change in Social Security Wealth" section, we move our analysis to the household level, and use either the primary earner or the husband as the unit of analysis, consistent with prior research in the literature (Mastrobuoni 2009).

When comparing across cohorts, the 1948-1953 cohort, not surprisingly, has the least household assets and greatest household debt, since this cohort experienced the Great Recession between the initial survey in 2004 and the 2012 survey wave. Annuity income receipt is low among these 59-64 year-olds, regardless of the cohort. Fewer respondents in the 1948-1953

[2] However, this report is given by a single financial respondent, and HRS documentation suggests that household-level measures of IRA wealth are more reliable than separate individual levels.

cohort report being eligible for a DB pension or current receipt of DB income and more report having a DC retirement account, compared to the 1936-1941 cohort and 1942-1947 cohort, reflecting the overall shift in retirement plans from DB plans to DC plans. Moreover, ownership of and balances in IRAs are higher for more recent cohorts, although total non-SS wealth has dropped by almost 15 percent driven by falling DB plan wealth. Ultimately, overall non-SS retirement wealth is not markedly different among these cohorts, but the composition of this wealth has shifted from DB plans representing approximately half of this wealth to only about a third in the most recent cohorts. In as much as DB plans may favor labor force exit at fixed eligibility years, this shift in ownership may naturally lead to longer delays in SS claiming, given that individuals tend to retire and claim SS benefits together. Additionally, the ability to flexibly draw down retirement wealth via IRA and DC plans may also make delaying SS claiming, and thereby reaping the returns of higher SS monthly benefits, more attractive.

Table 2: Household Wealth

Assets (means)	'36-'41 Cohort (2000 survey)	'42-'47 Cohort (2006 survey)	'48-'53 Cohort (2012 survey)
Total Non-SS Household Wealth	$948,865	$981,501	$860,055
Total Household Debt	$4,232	$6,952	$9,194
Any DB Pension Income	26.9%	23.0%	13.5%
Any Annuity Income	1.7%	2.4%	1.4%
Retirement Assets:			
Household IRA Wealth	$114,002	$115,143	$130,772
Has an IRA Account	41.4%	43.6%	46.3%
Household IRA Wealth if holds an IRA Account	$237,420	$230,274	$271,415
Household DB Wealth	$157,016	$175,997	$104,423
Any DB Entitlement	48.4%	50.2%	38.4%
Household DB Wealth if DB Entitled	$324,639	$350,869	$271,890
Household DC Wealth	$57,554	$58,444	$64,048
Any DC Entitlement	29.4%	28.6%	37.4%
Household DC Wealth if DC Entitled	$195,577	$204,512	$171,027
Total Household Non-SS Retirement Wealth	$328,572	$349,584	$299,243

All dollar figures are 2012 dollars, adjusted with the CPI-U-RS. All statistics are weighted. Total household non-SS retirement wealth includes IRA, DB, and DC wealth. Total non-SS household wealth includes retirement wealth, all other forms of non-SS wealth, and home values.

Table 3 presents cumulative measures of non-SS retirement wealth decumulation across HRS cohorts eight years after each cohort's first interview, capturing distributions taken from IRAs and from employer-provided pension plans, including hardship withdrawals, cash-outs, and annuitizations. These calculations are based on self-reported behavior. We first present these figures for the entire population, then further limit the denominator of the cumulative likelihood of cash-out to those who owned the corresponding asset (i.e., either an IRA or any employer-provided pension plan).

Withdrawals from IRAs are much more common than cash-outs of employer-provided pension plans, although both forms of cash-out have increased in the most recent cohort. As seen in Table 2, annuity purchasing is much rarer, although when individuals annuitize private retirement savings, it appears they do so with their IRA wealth as opposed to employer-provided pension wealth. However, this annuitization behavior is becoming less common among recent cohorts. How these shifts in using retirement wealth impact SS claiming is theoretically unclear: drawing down these assets early may be a result of adverse economic shocks, leading to the need to both decumulate private retirement wealth and claim SS benefits. Alternatively, the flexibility of liquidating private retirement wealth may aid in delaying SS claiming among more recent cohorts. The next section explores the relationships between SS claiming behavior and private retirement wealth.

Table 3: Retirement Asset Decumulation

Retirement Decumulation Measures	'36-'41 Cohort (2000 survey)	'42-'47 Cohort (2006 survey)	'48-'53 Cohort (2012 survey)
Ever took withdrawal from IRA	22.0%	24.9%	27.0%
Ever cashed out IRA	19.3%	20.7%	24.6%
Ever annuitized IRA	7.2%	6.7%	4.6%
Ever cashed-out DB/DC plan	4.0%	5.5%	7.6%
Ever annuitized DB/DC plan wealth after taking lump-sum payout	0.4%	0.5%	0.8%
Ever Left Pension with Employer	10.6%	14.2%	11.6%
Ever Rolled over Pension into IRA	5.6%	8.3%	11.0%
Conditional on holding the corresponding retirement asset:			
Ever took withdrawal from IRA	33.8%	36.1%	36.5%
Ever cashed out IRA	30.0%	29.9%	33.0%
Ever annuitized IRA	10.5%	9.7%	6.3%
Ever cashed-out DB/DC plan	6.9%	8.5%	11.6%
Ever annuitized DB/DC plan wealth after taking lump-sum payout	0.7%	0.8%	1.2%
Ever Left Pension with Employer	18.7%	22.6%	17.5%
Ever Rolled over Pension into IRA	9.9%	13.4%	17.2%

All calculations are weighted.

Social Security Benefits and Claimants

Table 4 presents data on SS benefits from respondents' first HRS interview. HRS respondents were asked in their first interview if they were receiving SS benefits at the time.[3] For those who reported receiving benefits, they self-reported their annual benefits.

Those who were not yet receiving benefits while 51-56 were asked whether they expected to receive SS retirement benefits. If they answered yes, they were asked at what age they expect to claim these benefits, and what these benefits would be at that claiming age. Using this expected claiming age and expected benefits, we calculated expected SS wealth as the present discounted value of those expected benefits, assuming the respondents' expected claiming age, population mortality risk and a discount rate of 0.03.[4] To benchmark the accuracy of these expectations, we also calculated projected SS wealth with the same methodology, but instead of using respondents' expected benefit, we project what their benefits would be using their entire history of SS-covered earnings from SS administrative data and assumed respondents would continue working at their current earnings level until their expected claiming age.

Because we restrict our sample to respondents who were between 51 and 56 years of age in their first interview, respondents who report that they are already receiving benefits are receiving either SS disability benefits or other types of auxiliary benefits (e.g., spouse or widow caring for a dependent). Although we present these individuals in Table 4 below, we largely exclude them from subsequent analyses: given their beneficiary type, they are comprised of individuals with minimal overall or retirement wealth. They are a population of interest for SS policy-makers; however, they may have little ability to coordinate their non-SS and SS retirement wealth or to delay retirement, given their work-limiting health condition and/or lack of wealth. For the purpose of this paper, we focus on those who claim SS benefits at or after the EEA for SS retirement benefits, since these younger beneficiaries are categorically distinct in terms of retirement wealth and retirement behavior.

This pre-EEA claimant population amounts to between 12 percent and 16 percent of the population in each cohort in the first interview, with current annual SS benefits approximately half of expected SS benefits among those not currently receiving SS benefits. Of those not currently receiving benefits, only 74 percent to 83 percent expect to receive SS retirement benefits in the future even though almost everyone in our sample is eligible to receive SS benefits at their expected retirement age. There are two general explanations for why this number is not 100 percent: perceptions about one's personal circumstances (e.g., high perceived mortality, misperception about how one's past work history translates into future SS benefits)

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[3] Respondents are asked this question in subsequent HRS interviews, but non-response rates increase substantially after the initial interview, rendering dynamic analyses of changing expectations difficult given selective attrition.

[4] This is the standard approach for calculating SS wealth in the economics of retirement literature. See Coile and Gruber (2001) for a full description of this process and sensitivity analyses based on changing the parameters.

and perceptions about the SS system at large (e.g., whether one thinks SS will be solvent when one reaches retirement age). Indeed, when we examine responses to HRS questions on expectations on SS benefits (not shown in table), we find that on average, the 1948-1953 birth year cohort believes there is a 69 percent chance that Congress will make SS benefits less generous in the next ten years. The 1942-1947 and 1936-1941 cohorts believe, on average, that there is a 65 percent and 60 percent chance, respectively, that Congress will make SS benefits less generous in the next ten years.

Among those expecting SS retirement benefits, the average expected claiming age is between age 62 and FRA with later cohorts expecting to claim later, on average. Comparing projected SS wealth in Table 4 to non-SS retirement wealth in Table 2, we see that, on average, SS wealth accounts for 37 percent to 51 percent of a given HRS respondents' household non-SS retirement wealth. Additionally, comparing the implied SS wealth from respondent's expected age and expected benefit with the projected SS benefit at that expected age shows that individuals' expectations result in estimates of SS wealth that are largely consistent with their SS wealth based on the administrative earnings records. In other words, they seem to have fairly accurate expectations of their SS benefits.

Table 4: SS Benefits and Expectations

	'36-'41 Cohort (1992 survey)	'42-'47 Cohort (1998 survey)	'48-'53 Cohort (2004 survey)
Percentage Receiving SS Benefits	12.3%	14.2%	15.7%
Annual Benefit if Receiving SS	$6,299	$6,757	$8,963
Respondents who have not started receiving benefits:			
Expects SS Retirement Benefits	83.4%	78.7%	73.6%
Age Expects to Claim SS Retirement Benefits	63.32	63.96	64.39
Expected Annual SS Retirement Benefits	$13,070	$13,129	$16,101
Expected SS Wealth	$135,718	$131,755	$149,981
Projected SS Wealth based on SS-covered earnings and expected claiming age	$129,795	$127,813	$151,690

All dollar figures are 2012 dollars, adjusted with the CPI-U-RS. All calculations are weighted.

Using SS claiming data, specifically the Master Beneficiary File (MBF), we can observe when an individual claims SS benefits with data as recently as 2012. Using this information, we categorize HRS respondents according to their claim timing (Table 5):

- Not eligible for SS retirement benefits: Disability claimants, pre-62 auxiliary benefit claimants,[5] and individuals never eligible for SS benefits

[5] These benefit types include relatively rare SS benefits, such as survivors benefits for widows/widowers aged 60 or older, dependent children, disabled adult children, and benefits for spouses or widows/widower caring for a dependent.

- Earliest retirement claimants: those who claim retirement or spousal benefits at age 62
- Early retirement claimants: those who claim retirement or spousal benefits after age 62 but before FRA
- FRA retirement claimants: those who claim retirement or spousal benefits at their FRA
- Delayed retirement claimants: those who claim retirement or spousal benefits after their FRA
- Non-claimants: those who have not yet claimed benefits, or who were eligible to claim SS retirement benefits but died before doing so

Although our restriction to individuals aged 51-56 in their first HRS interview allows for clear cross-cohort comparisons, this restriction limits the number of individuals in the later cohorts who we actually observe at the FRA or older.

Table 5 shows the distribution of claim timing. Our results are broadly consistent with findings using only administrative data: the most likely claiming age is 62, followed by age 65 or 66 (falling variously in the Early and FRA categories, depending on the birth cohort). Few claimants delay claiming past the FRA. Therefore, for our analyses, we combine FRA and delayed claimants.

Table 5: SS Claimant Types

SS Claiming	'36-'41 Cohort (2012 MBF)	'42-'47 Cohort (2012 MBF)	'48-'53 Cohort (2012 MBF)
Not Eligible for SS Retirement Benefits	22.8% (940)	21.2% (558)	19.8% (525)
Earliest Retirement Claimants	33.5% (1,380)	27.2% (716)	9.8% (260)
Early Retirement Claimants	17.5% (722)	20.0% (525)	4.3% (114)
FRA Retirement Claimants	14.6% (601)	13.6% (358)	n/a
Delayed Retirement Claimants	5.7% (235)	4.0% (104)	n/a
Not Yet Claimed or Died Before Claiming	5.9% (245)	14.0% (368)	66.2% (1,758)

Unweighted percentages, with counts below in parentheses. "n/a" indicates that no individuals in the corresponding HRS cohort have reached the claiming age specified. Note that the 1947 birth cohort has not yet reached the FRA.

Table 6 presents reported expectations on claiming age by claimant types, where we categorize expectations based on each cohorts' initial interview, as reported in Table 4. Over a third of earliest and early claimants claimed before they had expected they would. Over 62 percent of those who claimed at age 62 had expected to claim at age 62. But the majority of those who claimed after age 62, either before, at, or after the FRA, claimed benefits after they had expected they would.

Table 6: Claimant Types by Expectations on Claiming

Claimant Type	Claimed In an Earlier Category than Expected	Claimed at Expected Claim Age	Claimed In a Later Category than Expected
Earliest Retirement Claimants (at age 62)	35.7% (835)	62.3% (1,460)	2.0% (46)
Early retirement Claimants (at age >62 and <FRA)	34.2% (459)	15.0% (201)	50.7% (680)
FRA and Delayed Claimants	5.7% (73)	33.6% (429)	60.7% (774)

A question that arises is whether those who claimed at a different time than expected changed the timing of benefit claiming because of an exogenous shock. Table 7 looks at those claimants who claimed earlier than they had expected as well as those who claimed when expected. Almost a quarter of claimants who claimed earlier than they had expected suffered from worsening health, and over a quarter separated from a job. Those who claimed SS benefits when expected also experience job separation and worsening health, but the corresponding numbers for job loss are lower for those who claimed when expected, and similar or lower for most measures of health.

Table 7: Shocks by Actual Claimant Category Relative to Expected Claimant Category

	Percentage that Experienced the Given Shock in Wave Leading up to SS Claiming					
Actual Claim Age (N)	Lost Health Insurance	Divorced	Became Disabled	Health Worsened	Developed Poor Health	Left Job
			Claimed in an Earlier Category Than Expected			
At 62 (835)	6.4%	1.2%	11.2%	23.8%	1.7%	28.9%
>62 and <FRA (459)	4.5%	0.7%	7.2%	24.2%	2.2%	19.2%
			Claimed in the Category Expected			
At 62 (1,460)	5.8%	0.7%	9.2%	24.0%	1.4%	25.5%
>62 and <FRA (201)	4.9%	0.7%	7.5%	18.5%	1.8%	16.9%
>=FRA (429)	0.6%	1.2%	5.7%	25.0%	1.5%	18.1%

4. Results

Some of the key retirement-related decisions that Americans have to make is when to retire, when to start claiming SS benefits, and how to spend down non-SS retirement wealth. SS

retirement benefits are designed to make the claim timing decision actuarially fair for the average SS retirement beneficiary. That is, the rate at which benefits increase for every month claiming is delayed are just enough to offset the fewer expected years of receiving benefits. However, these adjustments are actuarially fair on average; in as much as individuals differ systematically in ways that affect their expected benefits (e.g., work behavior, family structure, survival), these adjustments will provide differing incentives to these different groups.

We first present descriptive statistics on the economic and sociodemographic differences across claimant types, both before and after having claimed SS benefits, at both the individual and household levels. We examine how SS claiming differs across non-SS retirement wealth quartiles, finding strong heterogeneity both across and within these quartiles. We then turn to measuring how claiming, retirement, and asset decumulation behavior itself changes with changing SS wealth by exploiting the exogenous fall in SS wealth due to the rising FRA for adjacent birth cohorts. We further separate these causal estimates by retirement wealth quartile.

Wealth Differences Across Claimant Types

To provide an initial comparison of the extent to which SS claimants differ across claim timing, we present the average Primary Insurance Amount (PIA) for each claimant type in Table 8. The PIA is an individual's monthly benefit if the individual claimed benefits at the FRA, and is calculated according to a progressive benefit formula with a falling replacement rate based on the highest 35 years of wage-indexed earnings for a given worker. Actual monthly benefits are reduced if an individual starts receiving SS retirement benefits before the FRA, or a credit is applied if benefits start after the FRA.

Table 8 shows clearly that the PIA is larger for later claimants; actual benefit reductions and credits will only increase this difference. Workers who delay retirement will have additional years of earnings, but given the wage indexation and number of years of work people have at this age, the average increase in PIA is less than 1 percent for an additional year of work. Thus it is individuals with higher lifetime earnings who delay claiming of their SS retirement benefits, or put another way, early claimant types would have lower SS wealth results from lower lifetime earnings regardless of when they claimed.

Table 8: Primary Insurance Amount by Claimant Type at Time of Claiming

SS Claiming	'36-'41 Cohort	'42-'47 Cohort	'48-'53 Cohort
Earliest Retirement Claimants	$1,524	$1,511	$1,370
Early Retirement Claimants	$1,540	$1,514	$1,302
FRA and Later Retirement Claimants	$1,713	$1,767	n/a

Weighted average Primary Insurance Amount (the monthly benefit if an individual claimed at FRA; no early claiming penalties nor delayed claiming credits have been used to translate the PIA into an actual benefit paid) at the time of claiming, in 2012 dollars. "n/a" indicates that no individuals in the corresponding HRS cohort have reached the claiming age specified.

We now turn to examining differences in health, work behavior, and pension holdings by SS retirement claimant type. We present these statistics in three age bands: 60/61, 65/66, and 70/71.[6] We choose two-year age bins due to the two-year interview timing of the HRS; we observe all of claimants at least once in each age band. At 60/61, no claimant type has claimed yet, while at age 70/71, all types have already claimed,[7] with the intermediate age band having some claimants and some still delaying claiming. These snapshots at three different ages allow for a clear picture of economic differences across our claimant groups even before claiming SS benefits, both in terms of overall wealth and labor supply, but also compositional differences in terms of private retirement wealth holdings. Continued observation to the mid-60s and into the early 70s then shows the trajectory of asset decumulation across these types of SS claimants.

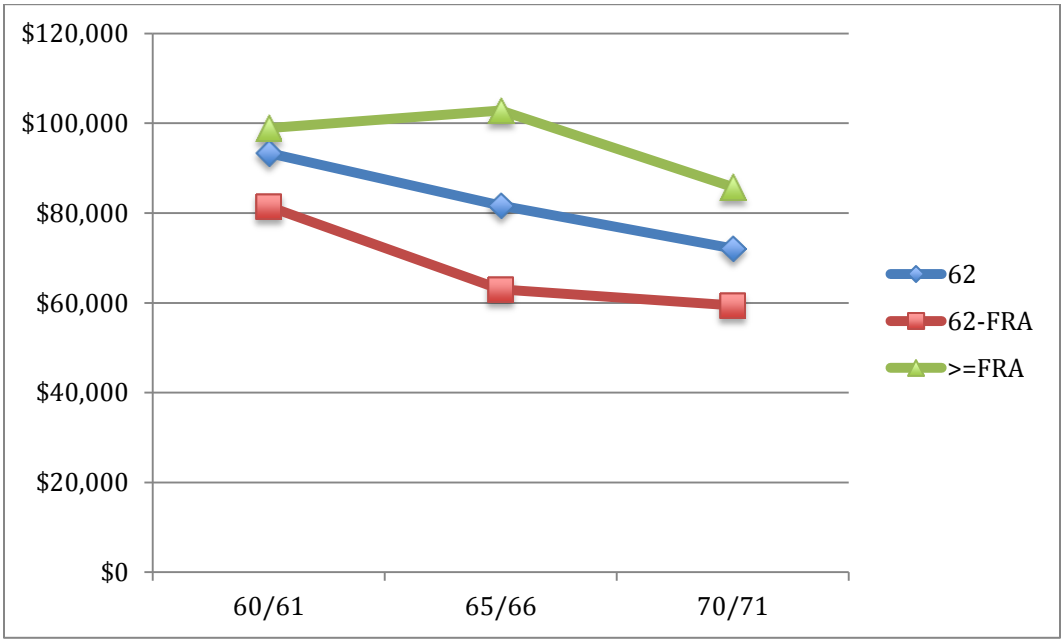
We first present median total individual non-SS retirement wealth (the sum of IRA, DB, and DC wealth) by claim timing: age 62 ("earliest"), between 62 and the FRA ("early"), and at or after the FRA. Figure 1 presents median non-SS retirement wealth by age for the 1936-1941 birth cohort, by claimant type. For pre-FRA claimants, we observe decumulation of retirement wealth between ages 60-61 and ages 70-71, with lower levels of private retirement assets for early claimants (62-FRA claimants) than earliest claimants (age 62 claimants), but similar slopes downward over these ages. Prior research on age 62 claimants (Li et al. 2008) suggests that this group is heterogeneous, comprising a mix of wealthy individuals, already retired individuals, and individuals with few assets or other sources of retirement support. Those claiming between age 62 and the FRA may be disproportionately the latter group. We will begin to explore these differences in further analyses below.

[6] Note we do not observe the full `42-'47 cohort at ages 70/71, so we present only ages 60/61 and 65/66. Likewise, a substantial fraction of the `48-'53 cohort has not reached age 62 by 2012, so our categorization into claimant groups is incomplete and cross-tabulations for this cohort are omitted.

[7] The latest claiming age for SS retirees is age 70; there is neither an incentive nor an option to claim benefits later than this age, as seen in our data.

For FRA and later claimants, we see non-SS retirement wealth initially increasing, then falling over the same age range. We will examine other characteristics of these claimants in Table 9, but we first note that it appears that we do not observe private retirement wealth decumulation among later claimants until age 65/66, perhaps due to continued labor force participation.

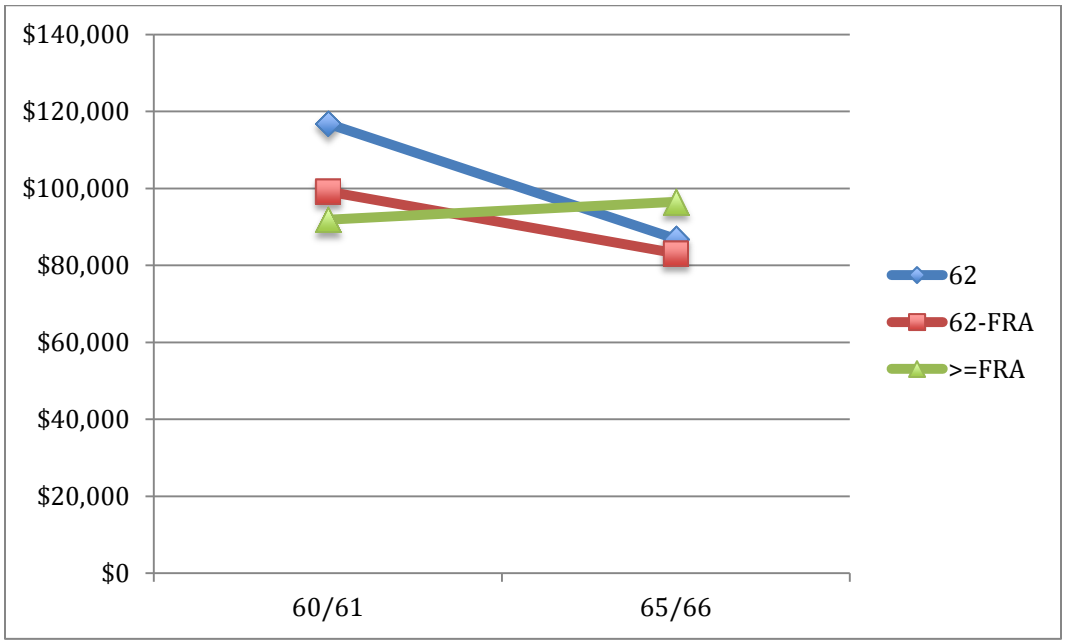
Figure 1: 1936-1941 Cohort Median Individual Non-SS Retirement Wealth by Age and Claimant Group



Turning to the 1942-1947 birth cohort, we can also examine evolution of non-SS retirement assets over time, but we are limited to a shorter time period since most of the 1942-1947 cohort were not yet ages 70-71 by the 2012 survey wave, the most recent survey wave that we use. Figure 2 compares median non-SS retirement wealth for the 1942-1947 cohort by claimant type, when they were ages 60-61 and when they were ages 65-66. It is noteworthy that, unlike the 1936-1941 cohort, earliest claimants from the 1942-1947 cohort have more retirement wealth at ages 60-61 than other types of claimants. We also see that for the 1942-1947 cohort, at or after FRA claimants have less non-SS retirement wealth than the other types of claimants, which could illustrate that those with fewer private retirement resources must work longer and are therefore more likely to claim later.

As with the 1936-1941 cohort, we see that age 62 and 62-FRA claimants draw down non-SS retirement assets between ages 60-61 and 65-66. As with the 1936-1941 cohort, we see that median private retirement wealth for FRA claimants and post-FRA claimants is increasing, suggesting that they are still accumulating retirement assets while they delay retirement.

Figure 2: 1942-1947 Cohort Median Individual Non-SS Retirement Wealth by Age and Claimant Group



We present a more thorough range of labor market, health, pension, and wealth variables in Table 9 for each claimant type at ages 60/61 and 65/66 for the 1936-1941 and 1942-1947 cohorts. Most striking are the comparisons across claimant types at age 60/61, *before anyone has claimed SS benefits*. Already, in both cohorts, less than half of the age 62 claimants are working. In the 1936-1941 cohort, over a third have taken a withdrawal from IRAs, in contrast to 16.8 percent for FRA claimants; these numbers rise to 39.7 percent and 23.7 percent for the 1942-1947 cohort. They are almost twice as likely as FRA claimants to have cashed out an employer-provided pension plan, and almost a quarter are already receiving pension income. Although they are less likely to have had a DB or DC plan, the median total private assets of the age 62 claimants is not substantially lower than that of FRA claimants. The earliest claimants in the 1936-1941 cohort have higher median assets than the 62-FRA claimants. In other words, those who claim SS retirement benefits at the earliest possible age are disproportionately likely to be drawing on their non-SS retirement wealth at early ages. However, they do not appear to be substantially poorer on average or at the median.

Table 9: Economic Characteristics by SS Claim Timing, Age, and Cohort

	1936-1941 Cohort			1942-1947 Cohort		
	Age 60/61					
	62	62-FRA	>=FRA	62	62-FRA	>=FRA
Earnings	21,277	36,364	52,450	21,296	35,433	51,297
Earnings (household)	39,742	60,115	75,931	41,727	61,626	78,871
Self-Reported Probability Lives Past 75	58.3%	58.7%	62.8%	57.4%	58.1%	61.3%
Health (1-5), 1 is Healthiest	2.45	2.47	2.25	2.55	2.46	2.31
Work-Limited	16.4%	10.9%	6.8%	17.7%	11.7%	6.6%
Working	43.7%	76.2%	85.9%	41.2%	67.7%	87.2%
Ever had IRA (HH)	68.9%	70.4%	69.7%	72.6%	68.6%	71.3%
Ever took withdrawal from IRA* (HH)	36.3%	27.6%	16.8%	39.7%	29.4%	23.7%
Ever had DB/DC plan (HH)	57.3%	64.9%	71.4%	64.0%	67.9%	75.3%
Ever cashed-out/annuitized DB/DC plan* (HH)	5.55%	2.09%	2.37%	7.43%	5.91%	2.80%
Median Non-SS Retirement Assets (HH)	245,421	212,269	197,132	268,281	251,188	191,446
Median Private Assets (HH)	529,408	456,120	507,741	576,182	589,261	589,331
Median Net Value of Primary Residence (HH)	107,617	104,920	115,354	117,911	127,631	127,631
Median Total Wealth (HH)	748,132	705,818	760,934	829,050	892,709	823,697
Receiving DB Pension Income (HH)	24.1%	10.4%	9.7%	23.6%	14.6%	7.3%
Receiving Annuity Income (HH)	1.9%	1.0%	0.9%	1.9%	1.4%	0.8%
N	1,393	663	777	753	489	440
	Age 65/66					
	62	62-FRA	>=FRA	62	62-FRA	>=FRA
Percent Deceased	7.9%	1.2%	0.4%	7.8%	1.2%	0.5%
Earnings	3,856	11,656	41,482	3,201	9,425	36,088
Earnings (HH)	14,139	22,121	57,489	13,710	20,910	54,205
Self-Reported Probability Lives Past 75	60.1%	61.3%	65.4%	58.5%	59.9%	61.9%
Health, 1 is Healthiest	2.57	2.59	2.41	2.64	2.61	2.42
Work-Limited	18.6%	18.3%	12.0%	25.9%	24.1%	14.0%
Working	13.0%	23.6%	55.2%	8.5%	13.2%	59.9%
Ever had IRA	74.7%	74.0%	74.5%	76.8%	74.8%	75.9%
Ever took withdrawal from IRA*	57.6%	50.8%	32.8%	62.4%	53.4%	36.5%
Ever had DB/DC plan	60.2%	62.9%	72.5%	64.1%	66.4%	76.1%

Ever cashed-out/annuitized DB/DC plan*	10.2%	7.4%	8.0%	10.5%	12.0%	6.1%
Median Non-SS Retirement Assets (HH)	221,643	154,933	185,510	213,570	221,385	166,629
Median Private Assets (HH)	550,842	487,408	617,511	508,442	581,334	582,682
Median Net Value of Primary Residence (HH)	127,631	121,557	170,180	133,302	130,000	145,000
Median Total Wealth (HH)	592,767	568,611	701,503	710,860	793,208	818,792
Receiving DB Pension Income	43.5%	33.0%	20.9%	40.4%	32.9%	12.7%
Receiving Annuity Income	2.9%	2.2%	1.4%	3.2%	3.5%	1.9%
N	1,283	655	774	694	483	438

Note: decumulation measures (marked by *) are conditional on respondent owning the corresponding asset. All statistics weighted. All dollar figures in 2012 dollars. Individuals who died before claiming SS benefits are excluded from sample, and statistics are calculated at surviving individuals at each age.

At the next age band – 65/66 – Figures 1 and 2 demonstrated that there is already private retirement wealth decumulation occurring for pre-FRA claimants. Table 9 corroborates this finding: for both cohorts, the fraction ever having taken withdrawals from IRAs has increased by over 20 percentage points since age 60/61, and this fraction remains consistently higher than for later claimants. The vast majority of age 62 claimants and 62 to FRA claimants are no longer working. DB/DC plan cash-out has also increased, although later claimants have also increased their private pension cash-out activity. There is also a substantial rise in the fraction of early claimants receiving DB pension income. Despite the observed drop in private retirement wealth, there is no corresponding drop in total private assets for early claimants. However, ’36-‘41 cohort FRA claimants and after FRA claimants saw a substantial increase in their total assets between these ages that the early claimants did not experience; furthermore, it should be noted that the ’36-‘41 cohort reaches age 65/66 in 2002-2007, and these relatively large increases in private assets, especially relative to the ’42-‘47 cohort, are likely at least partially driven by rising housing values, as can be seen in the relative growth in the net value of primary residences from 60/61 to 65/66 across these cohorts.

Overall, for both the ’36-’41 and ’42-‘47 cohorts, earlier SS claimants are already drawing on their non-SS retirement assets and have largely left the labor force by ages 65/66. At the same ages, compared to later claimants, they are much more likely to have taken money out of their IRAs and to be drawing on their employer-provided pensions through receiving DB income or cashing out/annuitizing these pensions. Their private retirement wealth is declining, and they are not experiencing the substantial increases in total assets that later claimants are at the same ages.

Table 10: Economic Characteristics by SS Claim Timing, ’36-’41 Cohort, Age 70/71

	’36-‘41 cohort, Age 70/71		
	SS Claimant Type		
	62	62-FRA	>=FRA
Percent Deceased	20.0%	6.8%	9.8%
Earnings	2,765	6,021	18,923
Earnings (HH)	9,518	11,879	29,095
Self-Reported Probability Lives Past 75	60.5%	62.4%	65.3%
Health, 1 is Healthiest	2.71	2.62	2.57
Work-Limited	27.6%	26.9%	20.9%
Working	7.9%	11.3%	24.6%
Ever had IRA	77.5%	75.9%	79.3%
Ever took withdrawal from IRA*	79.0%	72.4%	65.1%
Ever had DB/DC plan	61.1%	63.4%	75.2%
Ever cashed-out/annuitized DB/DC plan*	11.4%	10.1%	11.3%
Median Non-SS Retirement Assets (HH)	154,545	127,791	180,272
Median Private Assets (HH)	472,445	423,784	626,715
Median Net Value of Primary Residence (HH)	133,302	118,000	170,626
Median Total Wealth (HH)	490,516	432,583	651,206
Receiving DB Pension Income	38.5%	34.7%	30.7%
Receiving Annuity Income	5.1%	2.6%	5.4%
N	1,115	618	701

Note: decumulation measures (marked by *) are conditional on respondent owning the corresponding asset. All statistics weighted. All dollar figures in 2012 dollars. Individuals who died before claiming SS benefits are excluded from sample, and statistics are calculated at surviving individuals at each age.

Table 10 provides the same statistics for the ’36-‘41 cohort at ages 70/71, once all respondents in this sample have claimed SS benefits. Here we see that for many of the pension decumulation measures, the FRA and later claimants have mostly “caught up” – the majority have now taken IRA withdrawals, they are more likely to have cashed-out a pension than the early claimants, and their DB pension income receipt is nearly at par with the early claimants. However, almost a quarter of these FRA and later claimants are still working, while only eight percent of the age 62 claimants are working. These FRA and later claimants once again saw a rise in total assets not

experienced by other claimant groups. So although these later claimants have engaged in many of the same pension decumulation activities at similar rates as earlier claimants, their private retirement wealth has remained high and many continue to earn in the workforce.

Differences within Claimant Type

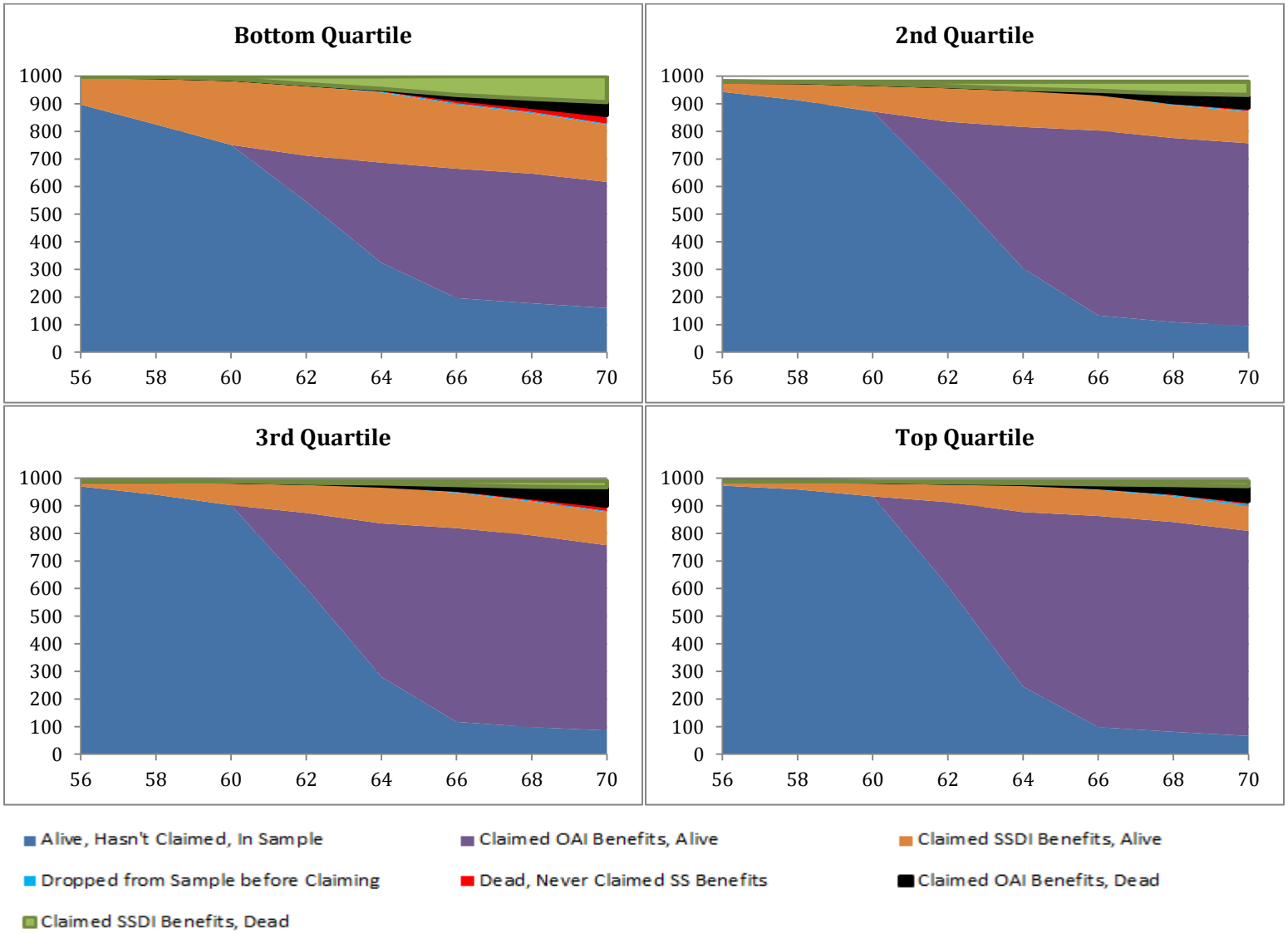
The discussion above examines characteristics of claimant groups over time, most notably how retirement wealth changes by age for these groups. In this section, we take an alternative approach to describing the relationship between retirement wealth and SS claiming: for the ’36-‘41 HRS cohort, we calculate which fourth of the household non-SS retirement wealth distribution an individual falls into in 1992. Given this non-SS retirement wealth quartile, we track individuals’ claiming and mortality status from ages 56 to 70. We further limit the sample to those individuals not receiving SS disability benefits before age 56. See Appendix Table 1 for descriptive statistics as to these groups. In short, the lower the non-SS retirement wealth quartile an individual is in, the lower is his or her earnings, household earnings, life expectancy, health, and wealth, along each metric that we use. Most notably, for the bottom quartile median non-SS retirement savings is zero, and SS wealth makes up the majority of overall wealth.

Figure 3 shows trend graphs that track SS claiming and mortality for each quartile. We separate SS claiming by which program each respondent *first* claimed benefits in: SSDI (disability) or OAI (retirement). There are thus seven possible states an individual can be, based on whether they are alive, dead, or having left the sample, and whether they have claimed OAI or SSDI benefits. For example, the top wealth quartile begins with the vast majority of respondents being alive and not having claimed any SS benefits (the lowermost area, colored dark blue). By age 60, a very small fraction has entered SSDI (the orange area) with even smaller numbers having died. By age 66, nearly everyone is receiving SS benefits, the majority having started by receiving OAI benefits, with just over 100 individuals having started on SSDI. This pattern holds through age 70, with slightly over 100 individuals having ultimately died.

The most striking pattern overall is the large fraction of bottom quartile individuals who enter SSDI immediately. By age 60, approximately a quarter of this wealth group is receiving SS disability benefits, and by age 62, nearly half have claimed either SS disability or retirement benefits, while for the other three quartiles, less than 40% are receiving SS benefits by age 62.

Soon though, the other quartiles start to catch up, and by age 66, the vast majority of all wealth quartiles have claimed some form of SS benefit. However, at this point, a different pattern emerges, where only 78% of the bottom quartile at age 66 has claimed SS benefits, while nearly 90% of the top quartile has. And by age 70, the bottom quartile continues to have the largest fraction of individuals still alive who have not previously claimed SS benefits. This pattern speaks to a story of strong heterogeneity within this bottom quartile: it consists of some individuals with work-limiting health conditions who are seeking to exit the labor force as soon

Figure 3 SS Claiming and Mortality Status, '36-'41 HRS Cohort, by 1992 Household Non-SS Retirement Wealth Quartile, Ages 56-70



as possible and claim SS benefits, as well as individuals who may have limited retirement savings of their own and are looking to delay collecting retirement benefits for as long as possible. Those with the most non-SS retirement savings, on the other hand, appear to choose either the early or full retirement date for collection, despite having an actuarial advantage in delaying collection given their higher wealth and corresponding lower mortality levels.

Exogenous Change in Social Security Wealth

We have now examined how wealth, retirement decumulation behavior, and other characteristics differ across claimant groups, as well as how claiming behavior differs across non-SS retirement wealth groups. However, these analyses are thus far entirely descriptive, leading to questions as to how much of these differences is accounted for by selection into these groups (e.g., are the FRA claimants just individuals with high work capacity and long life expectancy and will work regardless?), and to what extent do the observed differences in behavior vary by the importance of SS benefits relative to an individual's other retirement wealth. To thoroughly answer these questions, we need a source of exogenous variation; fortunately, the variation offered by the rise in the FRA for the '36-'41 and '42-'47 cohorts, and the resulting reduction in SS wealth for otherwise similar birth cohorts, offers this variation. But before we begin this analysis of how an exogenous change in SS wealth affects behavior, we need to change our unit of analysis from the individual to the household level, since the HRS measures most components of wealth at the household level, and because an individual's actual financial resources are directly derived from his or her household's well-being. This decision requires aggregating our current individual claimant categories to the household level. In the analysis presented below, we define the claimant category as the age at which the household's primary earner claims, where primary earner is defined as the individual if unmarried at the start of the HRS panel, or the highest earner of the two spouses/partners at the start of the panel.[8]

To demonstrate how much of a difference this change of analysis makes in our measurements, Figures 4 and 5 measure non-SS retirement wealth for the '36-'41 and '42-'47 cohorts, *at the household level*. If a given household has only a single man or single woman, there is no change, but for married or partnered couples, the primary earner in the baseline year (1992 or 1998) is used to define the claimant age group, and the age in Figures 4 and 5 correspond to that primary earner.

[8] Note that over 75% of these primary earners are the male partner. Results are qualitatively unchanged if we define household claimant group by the male partner's age at claiming. We drop individuals whose partner/spouse status changes over the sample, although divorce or marriage of previously non-cohabitating couples are both rare in our sample, and none of the results presented below are unchanged by including these groups and splitting or adding assets accordingly.

Figure 4: 1936-1941 Cohort Median Household Non-SS Retirement Wealth by Primary Earner's Age and Claimant Group

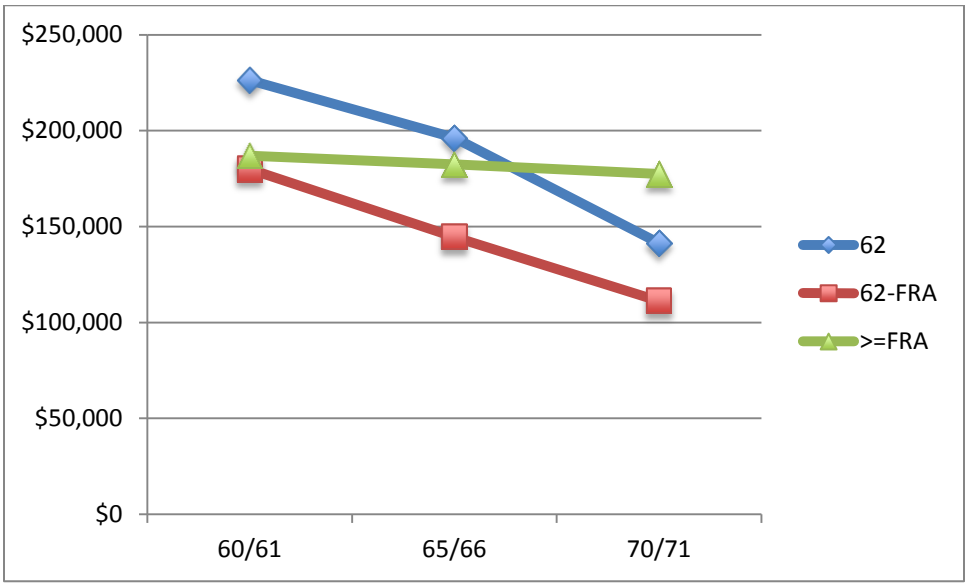
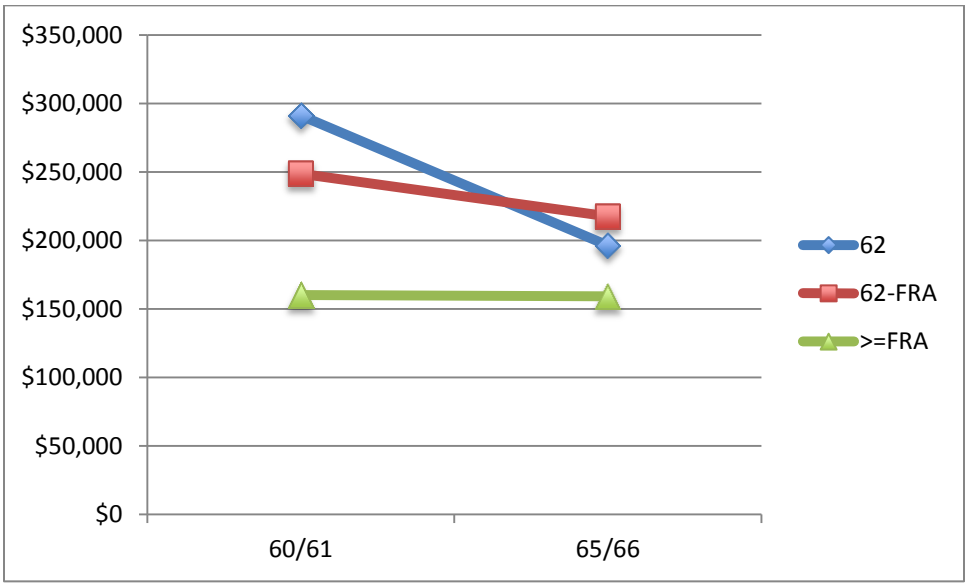


Figure 5: 1942-1947 Cohort Median Household Non-SS Retirement Wealth by Primary Earner's Age and Claimant Group



Although there are some differences between these figures and Figures 1 and 2, namely the levels, the same relative trends emerge: for the '36-'41 cohort, age 62 and 62-FRA claimants are decumulating assets as they age with the 62-FRA households looking to be faring the worst, while the FRA or later claimants look to be maintaining their wealth as they age. A similar pattern obtains for the '42-'47 cohort, albeit with the age 62 claimants decumulating particularly quickly. So despite the shifts in unit of analysis and claimant grouping from individual to household, the narrative described in the above sections remains intact.

As described in the Introduction, the 1983 Amendments to the Social Security Act prospectively raised the FRA for birth cohorts, starting with the 1938 cohort, who, instead of receiving their full PIA at age 65, received this full PIA at age 65 and 2 months. Subsequent birth cohorts' FRA increased by 2 months per birth year until reaching 66 for the 1943 to 1954 birth cohorts.[9] This rising FRA constitutes a decline in the present discounted value (PDV) of SS benefits, holding lifetime earnings fixed, since individuals can either delay claiming and collect fewer monthly checks or continue to claim at a given age with a lower benefit. This difference is most notable for those collecting benefits at the earliest possible age: 62. For those born before 1938, claiming at age 62 draws a benefit of 80 percent of the PIA, while for those born in 1943 and after, claiming at age 62 draws a benefit of only 75 percent of the PIA. Although the precise drop in SS PDV depends on individuals' choice of claiming age and life expectancy, for those claiming at age 62 the PDV of SS benefits for those born in 1943 and after is approximately six percent less than it was for those born before 1938, since these younger cohorts also have a longer life expectancy for which they would have received higher benefits.

Table 11 below shows how this illustrative six percent reduction in SS wealth compares to overall retirement and total wealth for households, by non-SS retirement wealth quartile as calculated above for Figure 3. Notably, the sample in Table 11 is restricted to those born in 1937 or before who have an FRA of 65, indicating the importance of SS wealth for individuals who are unaffected by the policy shift, eliminating any behavioral changes in wealth accumulation due to the rising FRA:

[9] In the matched HRS-SSA data, our last full year of a match is 2011, so the latest birth cohort we observe reach FRA are those born in 1945.

Table 11: Decrease in Wealth due to FRA change and Importance of SS Wealth Relative to Other Wealth

	Mean wealth at Primary Earner's Age 60			Increase in FRA would induce:		
1992 HH Non-SS Retirement Wealth Quartile (N)	Total Wealth	Total Non-SS Retirement Wealth	Total Household SS Wealth	Drop in SS Wealth	Drop in Overall Wealth	Drop in Retirement Wealth
1 (437)	330,128	26,860	148,295	6.0%	2.7%	5.1%
2 (410)	661,476	254,106	229,297	6.0%	2.1%	2.8%
3 (474)	863,931	280,187	288,923	6.0%	2.0%	3.0%
4 (465)	1,749,982	746,052	295,581	6.0%	1.0%	1.7%
Total (1786)	917,534	333,507	242,559	6.0%	1.6%	2.5%

Note: Drop in SS Wealth based on expected mortality by birth cohort and gender, but does not include wealth-related disparities in mortality. All dollar figures in 2012 dollars using the CPI-U-RS.

For the bottom wealth quartile, this six percent decrease corresponds to a 2.7 percent decrease in overall wealth; however, overall wealth includes housing wealth and other illiquid assets, and the fall in the value of monthly SS checks may be better contextualized with respect to retirement wealth. Indeed, the six percent decrease in SS wealth corresponds to a 5.1 percent drop in retirement wealth for this quartile. However, retirement wealth declines by 1.7 percent and overall wealth declines by one percent for the highest wealth quartile. Across the entire population, the rise of the FRA of one year corresponds to a 2.5 percent decline in retirement wealth. Although this decline is concentrated among those in the bottom wealth quartile, our analysis in the above section of claiming behavior of those with low non-SS retirement holdings indicates that it includes a large fraction of SS disability claimants as well as those who delay SS retirement claiming until well after the FRA. In other words, those most affected by the decline in SS retirement benefits may be the least likely to be on the margin of collecting SS retirement benefits at a given age, and may instead be exiting the labor force very early or very late.

Given the actuarial smoothing of the benefit reduction formula, the empirical fact that the vast majority of those who do not claim at age 62 claim instead exactly at 65 has puzzled economists. Many explanations have been tendered, including program interactions with Medicare, DB requirements, or the earnings test; however, there continues to be an unexplained portion, and past research has indicated that up to 40% of those claiming exactly at their FRA are doing so because of the SS system (Behaghel and Blau 2012). Indeed, in Figure 6A, we produce a cumulative distribution function of those observed collecting SS retirement benefits and comparing earlier cohorts (1936, 1937) with later cohorts who have higher FRAs (1942, 1943). We observe that there is little difference between these distributions before the age of 65 but

these curves diverge afterward, with the previous retirement spike shifting to the younger cohorts' new FRA. Once again, our data matches previous studies utilizing large administrative data sets (Song and Manchester 2007).

However, claim timing in general can be influenced by the overall economic environment. Figure 6B shows the same CDF graphs, but for the intermediate cohorts with gradually rising FRAs: 1938, 1939, 1940, and 1941, and although the value of claiming benefits earlier is falling for each subsequent cohort, a greater fraction are claiming before the age of 65, in the midst of the early 2000 recession, with the 1939 cohort turning 62 in 2001. These CDFs therefore suggest that any analysis of the overall timing of SS claiming will require controls for the economic climate. But these graphs also show that, conditional on not claiming until at least age 65, the corresponding spike in SS retirement claiming is largest at each cohort's new FRA.

Figure 6A: Cumulative Distribution Functions of HRS Respondents who Claim OASI Benefits, by Claiming Age, 1936, 1937, 1942, and 1943 Birth Cohorts

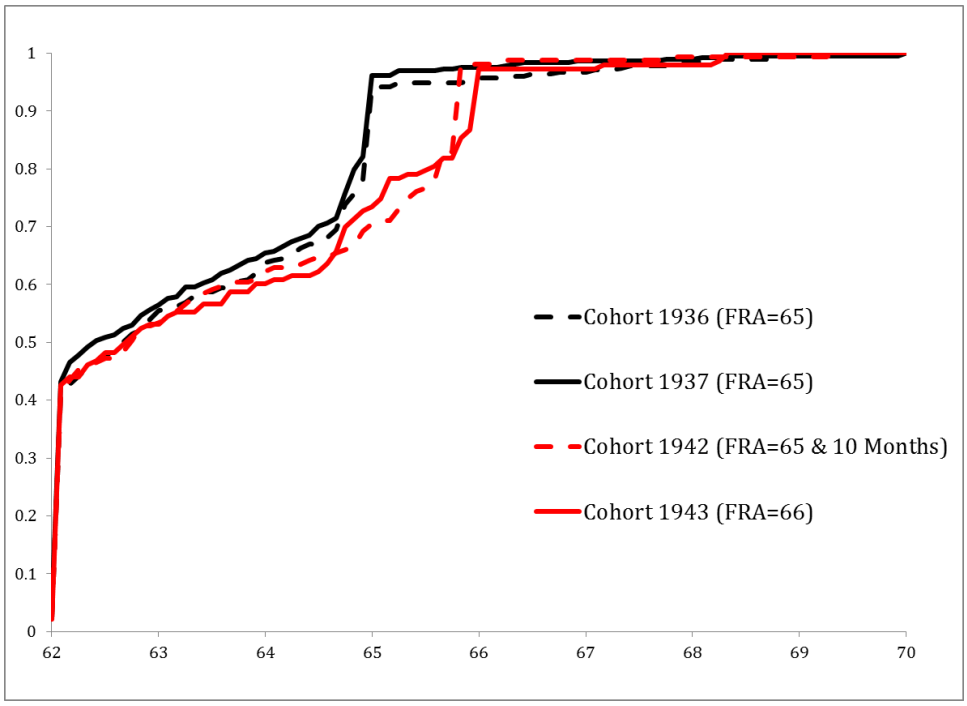
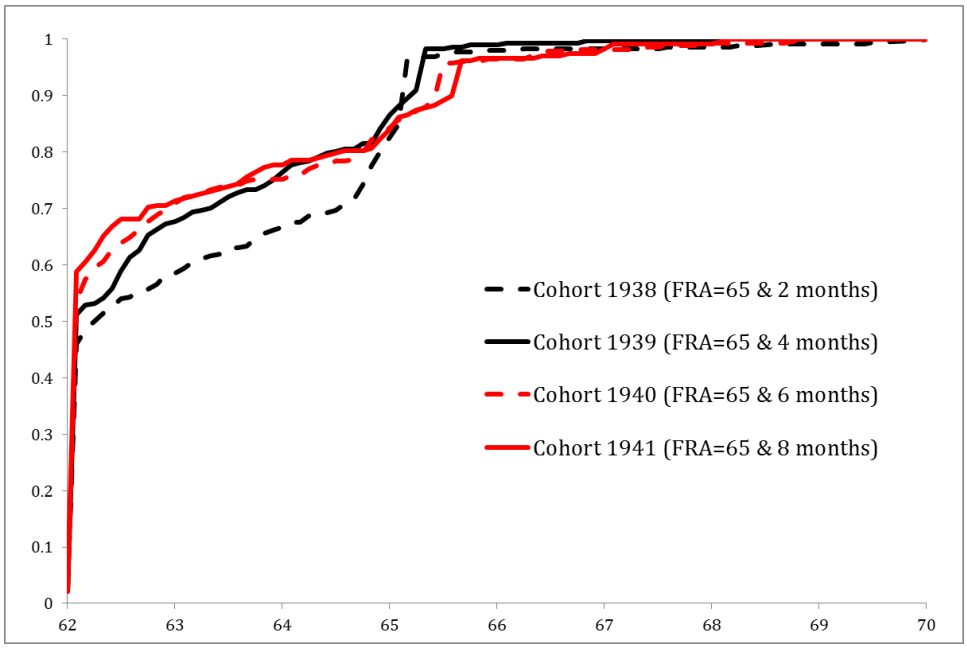


Figure 6B: Cumulative Distribution Functions of HRS Respondents who Claim OASI Benefits, by Claiming Age, 1938, 1939, 1940, and 1941 Birth Cohorts



Comparing Age 65 Claimants with Later Claimants by Birth Cohort

We first conduct an analysis on exactly this population: those who are eligible for SS retirement benefits but have not claimed these benefits before age 65. We then compare those who claim exactly at 65 with those who delay. For earlier birth cohorts, these delaying individuals have already achieved the FRA and are choosing to put off claiming further, while for later cohorts, these individuals represent those who are now shifting their SS claiming age to the new FRA. Table 12 shows the age-65 measures of the first difference analysis across those with FRA 65 (those born before 1938) and those born from 1938-1945, who have a FRA from 2 to 12 months larger than 65.

For individuals with a FRA of age 65, those who claim after the FRA are disproportionately lower earners, have lower life expectancy, and poorer. These results are consistent with our analysis above indicating that a large fraction of those in the lowest non-SS retirement wealth quartile delay claiming in comparison to higher quartiles. However, when turning to those whose FRA is older than 65, those who collect SS benefits after 65 show the exact opposite pattern: they tend to be richer and higher earners. Although richer individuals are the least affected by the rising FRA, given the smaller proportion of retirement wealth that SS benefits make up, they tend to disproportionately change their claiming behavior. Although in this table, we do not specifically isolate the difference in the FRA from other general differences

across these cohorts that may lead to systematic differences in those claiming at 65 vs. those delaying claiming, these estimates are consistent with the findings of Behaghel and Blau (2012), who ascribe the shifting of those who delay SS claiming until the new FRA to reference dependence or other behavioral explanations given the size of the shift relative to the actual change in retirement wealth. In the next section, we will further control for other possible confounding factors and secular trends.[10]

Notably, although not statistically significant, there is also a change in pension decumulation patterns, measured by having ever received income from a pension or otherwise withdrew pension wealth from an employer-provided pension (if ever had a pension) or by having ever taken a withdrawal from an IRA (if ever had an IRA). Those with a FRA of 65 who were delaying SS claiming appeared to be less likely to be decumulating non-SS retirement savings at age 65, while those delaying claiming with a FRA greater than 65 were more likely to have engaged in pension decumulation behavior. Again, these are not statistically significant, but are consistent across our decumulation measures.

[10] Note that although the richer may have stronger labor force attachment for a number of reasons, such as better health and better jobs, for the patterns observed in Table 12 to hold, younger cohorts of richer individuals would have to have systematically stronger labor force attachment at specifically age 65. We will further control for this explanation in our regression analyses by subtracting general cohort *trends* in retirement behavior from the trend across birth cohorts with gradually rising FRAs, where this differencing then accounts for secular trends among our birth cohorts.

Table 12: Comparison of Age 65 claimants with After Age 65 SS claimants by Birth Cohort

	Birth Cohort								
	1931-1938 (FRA=65)				1938-1945 (65<FRA<=66)				
	Mean				Mean				Significantly different from <=1938 cohorts' difference
Characteristics at age 65	Age 65 SS Claimants	After 65 SS Claimants	Difference		Age 65 SS Claimants	After 65 SS Claimants	Difference		
Working	68.8%	59.4%	-9.4%		76.9%	67.2%	-9.7%		
Earnings if Working	60,466	52,783	-7,682	***	33,514	60,198	26,684	***	***
HH Earnings	54,093	42,759	-11,334	***	42,939	54,461	11,522	***	***
Probability Live Past 75	64.5	63.2	-1.3	***	61.5	63.1	1.6		
(Un)health	2.4	2.5	0.1		2.5	2.5	0.0		
Work-Limited	11.9%	12.6%	0.6%		3.4%	16.0%	12.5%		
Married	68.8%	54.3%	-14.5%	**	71.0%	68.2%	-2.7%		
Male	58.6%	34.3%	-24.3%	***	58.1%	45.5%	-12.6%		
Ever Had an IRA	70.4%	60.6%	-9.8%	*	61.3%	72.6%	11.3%		
Ever Decumulated IRA Wealth	9.0%	7.9%	-1.2%		3.2%	17.3%	14.0%	*	
Ever had Pension	68.2%	59.1%	-9.2%		71.0%	77.3%	6.3%		
Ever Decumulated Pension Wealth	33.6%	25.6%	-8.1%		29.0%	38.4%	9.3%		
Total Non-SS Retirement Wealth	353,147	297,020	-56,127	***	245,050	337,804	92,754	***	***
Total Non-Retirement Wealth	808,959	729,071	-79,888	***	840,716	1,013,194	172,478	***	***
Total Wealth	879,427	755,866	-123,561	***	944,528	1,106,787	162,259	***	***
Receiving Any Pension Income	26.5%	25.2%	-1.3%		12.9%	19.5%	6.6%		
Ever Decumulated Pension or IRA Wealth	48.7%	42.6%	-6.2%		50.0%	51.9%	1.9%		
N	321	254			31	277			

Note: Sample limited to HRS individuals observed at least to age 66 with matched SSA records up to at least that age who waited to claim until at least age 65 and were eligible for SS retirement benefits, comparing those who claimed exactly at age 65 with those who waited to claim.
Significance at: *** 1% level; ** 5% level; * 10% level

Regression Analysis of Rising Full Retirement Age

The above analysis compares those who claim SS retirement benefits at 65 with those who claim afterward, by birth cohorts with different FRAs. The findings are stark: those who delayed claiming SS benefits after 65 when age 65 was the FRA had lower assets and earnings, while those who delayed after 65 when the FRA was higher tend to be wealthier. However strong these effects are, they conflate two effects: the increase in the FRA *and* any events idiosyncratically affecting the later cohorts. For example, the 1939 and 1940 birth cohorts reach age 62 just as the US economy entered the early 2000s recession, and from Figure 6B, we saw a greater fraction of these cohorts claiming SS benefits early. Those who continued to delay claiming may be disproportionately wealthy, not because of changes due to the FRA but because of larger economic shocks. Therefore, to rigorously estimate the effect of the increase in FRA on retirement decision-making, we pursue a regression approach modeled on Mastrobuoni (2009).

The core of this regression strategy is the estimation of separate effects for each two-year age bin in the HRS for each birth cohort, while controlling for time-invariant, systematic differences by age, as well as idiosyncratic factors affecting each individual *i* in each year *t*. For a given binary independent variable *y*, such as having claimed SS benefits, this strategy amounts to estimating a point at each two-year age bin *a* for each birth cohort *c* while controlling for a range of potentially confounding factors *X* and general age differences α. For claiming SS benefits, for example, we are therefore estimating the age-claiming CDF by fitting the equation:[11]

$$y_{it} = \left(\sum_{a=60}^{66} 1(A_i = a)(\alpha_a + \sum_{c \neq 1936} \beta_{a,c} 1(C_i = c)) \right) + \gamma' \mathbf{X}_{it} + \epsilon_{it}$$

The controls included in *X* are marital status, educational level, race, ethnicity, Census Division, the year 2000 Earnings Test change, age 60-62 SSA cost of living adjustments, age 50-55 Census Division unemployment rate, age dummies, and S&P 500 annual return (see Mastrobuoni 2009 for a detailed description of both this methodology and the corresponding controls used to isolate the effect of the FRA from other general trends); also include spousal earnings at age 60 and the sum of maximum IRA contributions to age 60 for each birth cohort. We limit our sample to men fully insured for OASI who have not claimed SSDI by age 60, and limit to ages 60-66 for 1931-1945 birth cohorts. Once we estimate the age-cohort specific β's, we then sum each β across ages within birth cohort, which is equal to the average distance in the CDFs over these ages between the cohort in question and the comparison cohort: those born in 1936 who have a FRA of 65. For SS claiming, when rescaled, such a comparison corresponds to the number of

[11] For the one non-binary variable we consider – non-SS retirement wealth - this technique estimates the age-wealth curve for each cohort separately, and the sum of β's corresponds to the average difference in wealth for these cohorts across these ages.

months earlier that a cohort claims than the 1936 cohort if positive, or the number of months later if negative.

Table 13 shows the results of these regressions for the sample described above; additionally, we ran these regressions on four subsamples: each wealth quartile defined by total household non-SS retirement wealth quartile in the cohort's first HRS interview, calculated in the same manner as for Figure 3. Although we calculate the summed β's discussed above, for the sake of brevity,[12] we report only the cohort trends and the corresponding difference.

These cohort trends are equal to the annual change in the summed β's and measure secular shifts in how more recent birth cohorts are changing their retirement and savings behavior. We report three measures: the cohort trend for those born before 1938 who have a constant FRA of 65; the cohort trend of those born from 1938 to 1945 who have a gradually increasing FRA from age 65 and 2 months to age 66; and the difference between these two cohort trends, which given the assumption that our estimation technique controls for idiosyncratic differences across cohorts, the difference in cohort trends estimates the behavioral shifts in response to the rising FRA by subtracting out secular trends in the outcome variable.

And as is clear from Table 13, there is strong direct effect on the timing of SS claiming. The interpretation of the binary coefficients, including SS claiming, is in terms of months sooner, such that the "Trend Difference" coefficient of -1.56 in the overall tab for SS claiming indicates that each "treated" cohort is claiming SS benefits 1.56 months *later* compared to untreated cohorts. This overall effect is consistent with findings from Behaghel and Blau (2012) and Song and Manchester (2007) using administrative records. Although this finding acts as a validation exercise, the advantage of using the HRS matched to SS records is to examine other outcomes and to examine impacts across the wealth distribution.

In the overall analysis, in addition to delaying SS claiming, the FRA also leads to marginally significant delays in retirement (defined by exiting the labor force or otherwise reporting oneself totally or partially retired) as well as marginally significant delays in decumulating non-SS retirement assets and correspondingly higher non-SS retirement wealth.

[12] We omit reporting the actual β's and the summed β's, given that there are 14 summed β's per regression per quartile, and there are 4 times as many β's as the summed estimates reported.

Table 13: Regression Results Estimating the Effect of the Rising SS FRA on Retirement Decision-Making and Asset Decumulation

Panel 1: Overall

	Cohort Trends in CDFs Compared to 1936 Cohort, Men, 1931-1945 Birth Cohorts											
Cohort Trends	Claimed SS		Retired		Total Non-SS Retirement Wealth		Ever Received Pension Income (if ever had pension)	Ever Received Income from IRA (if ever had IRA)		Ever Received Income from Pension or IRA (if ever had either)	
Pre-1938 Trend	2.20	***	0.70		-23,106		0.37	1.10	**	1.24	*
	(0.66)		(0.54)		(19,049)		(0.87)	(0.56)		(0.74)	
Post-1938 Trend	0.64	***	-0.13		9,249	*	-0.09	0.18		0.20	
	(0.24)		(0.21)		(5,074)		(0.29)	(0.18)		(0.28)	
Trend Difference	-1.56	***	-0.84	*	32,355	*	-0.46	-0.91	*	-1.04	
	(0.54)		(0.45)		(19,190)		(0.76)	(0.48)		(0.63)	
N	7,763		7,763		7,763		5,094	5,578		5,695	
R-Squared	0.53		0.68		0.13		0.63	0.22		0.66	

Panel 2: Bottom Non-SS Retirement Wealth Quartile

	Cohort Trends in CDFs Compared to 1936 Cohort, Men, 1931-1945 Birth Cohorts											
Cohort Trends	Claimed SS		Retired		Total Non-SS Retirement Wealth		Ever Received Pension Income (if ever had pension)	Ever Received Income from IRA (if ever had IRA)		Ever Received Income from Pension or IRA (if ever had either)	
Pre-1938 Trend	1.18		0.23		-76,704		-0.15	0.80		0.79	
	(1.35)		(1.08)		(79,446)		(1.29)	(1.00)		(1.28)	
Post-1938 Trend	0.09		-0.73	*	8,496		-0.49	0.01		-0.19	
	(0.48)		(0.41)		(6,171)		(0.49)	(0.27)		(0.49)	
Trend Difference	-1.09		-0.96		85,201		-0.34	-0.79		-0.98	
	(1.09)		(0.90)		(84,075)		(1.09)	(0.87)		(1.08)	
N	1,073		1,073		1,073		704	771		787	
R-Squared	0.53		0.74		0.07		0.43	0.37		0.73	

Panel 3: Second Non-SS Retirement Wealth Quartile

	Cohort Trends in CDFs Compared to 1936 Cohort, Men, 1931-1945 Birth Cohorts							
Cohort Trends	Claimed SS		Retired	Total Non-SS Retirement Wealth		Ever Received Pension Income (if ever had pension)	Ever Received Income from IRA (if ever had IRA)		Ever Received Income from Pension or IRA (if ever had either)
Pre-1938 Trend	2.08		0.75	-17,721		0.03	1.86	*	1.48
	(1.29)		(1.03)	(11,999)		(1.63)	(0.95)		(1.58)
Post-1938 Trend	0.77		0.46	17,268		-0.12	0.32		0.70
	(0.53)		(0.42)	(16,819)		(0.59)	(0.31)		(0.56)
Trend Difference	-1.31		-0.29	34,989	*	-0.15	-1.55	*	-0.78
	(1.07)		(0.83)	(20,730)		(1.35)	(0.85)		(1.36)
N	2,139		2,139	2,139		1,404	1,537		1,569
R-Squared	0.55		0.43	0.05		0.63	0.21		0.68

Panel 4: Third Non-SS Retirement Wealth Quartile

	Cohort Trends in CDFs Compared to 1936 Cohort, Men, 1931-1945 Birth Cohorts								
Cohort Trends	Claimed SS		Retired	Total Non-SS Retirement Wealth		Ever Received Pension Income (if ever had pension)	Ever Received Income from IRA (if ever had IRA)		Ever Received Income from Pension or IRA (if ever had either)
Pre-1938 Trend	3.41	**	0.59	-8,806	*	4.21	1.08	*	2.78
	(1.44)		(1.35)	(5,235)		(2.31)	(1.53)		(3.97)
Post-1938 Trend	1.09	*	-0.81	-864		-0.41	-0.57		0.15
	(0.59)		(0.52)	(2,532)		(0.99)	(0.37)		(1.20)
Trend Difference	-2.32	**	-1.41	7,942	**	-4.12	-1.65	**	-2.63
	(1.16)		(1.07)	(3,680)		(2.03)	(1.38)		(3.49)
N	2,298		2,298	2,298		1,508	1,651		1,686
R-Squared	0.56		0.70	0.16		0.69	0.25		0.68

Panel 5: Top Non-SS Retirement Wealth Quartile

	Cohort Trends in CDFs Compared to 1936 Cohort, Men, 1931-1945 Birth Cohorts							
Cohort Trends	Claimed SS		Retired	Total Non-SS Retirement Wealth		Ever Received Pension Income (if ever had pension)	Ever Received Income from IRA (if ever had IRA)	Ever Received Income from Pension or IRA (if ever had either)
Pre-1938 Trend	3.48	***	1.06	-6,077		1.80	0.73	0.65
	(1.17)		(0.91)	(19,704)		(1.20)	(1.06)	(1.07)
Post-1938 Trend	1.36	***	0.31	11,290	*	0.39	0.56	0.09
	(0.40)		(0.37)	(6,534)		(0.48)	(0.36)	(0.45)
Trend Difference	-2.12	**	-0.75	17,368		-1.41	-0.17	-0.56
	(1.02)		(0.78)	(17,065)		(1.02)	(0.92)	(0.92)
N	2,253		2,253	2,253		1,557	2,005	2,150
R-Squared	0.59		0.70	0.47		0.68	0.27	0.69

Note: Coefficients represent the cohort trend in average monthly difference between the CDFs of the outcome variable measured ages 60, 62, 64, and 66. The pre-1938 cohort has a constant FRA of 65, while starting with the 1938 birth cohort, the FRA rose by 2 months per birth cohort until leveling off at age 66. Negative numbers suggest the CDF is on average lower, indicating that the corresponding cohort has retired, claimed benefits, or decumulated assets later. All regressions control for: marital status, educational level, race, ethnicity, Census Division, Earnings Test change, age 60-62 SSA cost of living adjustments, age 50-55 Census Division unemployment rate, age dummies, and S&P 500 annual return. Sample limited to men fully insured for OASI who have no claimed SSDI by age 60.

Significance at:

*** 1% Level

** 5% Level

* 10% Level

Consistent with the above analyses, those in the bottom wealth quartile are the least reactive to changes in SS benefits, with no statistically significant trend breaks attributable to the rising FRA (Table 13, Panel 2). However, for the next three quartiles (Table 13, Panels 3-5), there are increases in non-SS retirement wealth and decreases in non-SS retirement decumulation, albeit not consistently statistically significant for each field across each quartile. Regardless, the pattern remains clear: individuals in the top 75% of the wealth distribution appear to be delaying SS claiming, and in lieu of financing this delay through drawing on their other retirement savings, are working slightly longer and deferring decumulating their non-SS retirement savings (Table 13, Panel 5).

Using the overall trend effect for non-SS retirement savings, a back-of-the-envelope calculation suggests that for every $1 lost in SS wealth due to the rising FRA, households are increasing their non-SS retirement savings by $3. However, part of this additional accumulation is mechanically induced by individuals delaying retirement and continuing to accumulate retirement savings and DB entitlements consistent with their working savings rate. Using the rates of non-SS retirement wealth accumulation among working households from age 61 to 65, we calculate that the mechanical effect of delaying retirement by the average of 1.56 months can explain between 13 percent and 47 percent of the additional accumulation, depending on the age range used and definition of work. There remains a private replacement rate of more than 100%, which could be indicative of greater valuation of the inflation-protected status of SS benefit, its perceived security relative to DB or DC benefits, or mechanically higher accumulation due to rule of thumb retirement behavior. Our findings are therefore consistent with the previous literature and our findings above in a number of ways: individuals with later FRAs are collecting benefits later, although not everyone is moving in lockstep, and those at the bottom of non-SS retirement quartile are the least likely to respond. However, we also find some evidence of delayed retirement, as well as delayed non-SS asset decumulation, suggesting that households draw down SS retirement wealth and non-SS retirement wealth contemporaneously rather than sequentially.

5. Discussion

In this report, we explore how households integrate SS benefits into their general retirement income plans. We use self-reported data on private pension, wealth, and income elicited by the HRS panel survey and matched administrative SS earnings and benefits records. Our major findings have included stark differences in private retirement wealth decumulation among SS claimants, with earlier claimants experiencing falling levels of this wealth and greater likelihood

of DB pension income receipt than later claimants. These earlier claimants were also much more likely to cash-out their IRAs and pension plans. These differences are observable at ages *before SS claiming and across cohorts*.

When we compare SS claimants after all respondents have claimed, we find similar fractions engaging in pension decumulation behavior; however, these later claimants are disproportionately more likely to stay in the workforce and continue to accumulate wealth.

Further comparisons defining groups by retirement asset holdings and examining SS claiming decisions show that those with the least retirement savings are more likely to either claim SS benefits as early as possible, or else they delay claiming for as long as possible, whereas individuals with more retirement savings overwhelmingly claim from age 62 to the FRA. One limitation of this analysis is a focus on the individual level, although due to both survey design and household coordination of retirement decision-making, we continue our analyses by aggregating SS claiming and retirement decision-making to the household level, finding broadly similar patterns. However, all of these analyses are limited by being purely descriptive and cannot disentangle selection effects from incentive effects in both the non-SS and SS retirement systems.

To address this issue, we continue our analysis by exploiting the rise in the FRA among our analytic sample. This later FRA decreases the value of SS benefits since claiming at the same age results in a lower benefit, and allows us to observe how individuals shift their claiming behavior and non-SS retirement decision-making relative to otherwise similar respondents. Additionally, we measure the extent to which all claimant groups, and in particular the 62-FRA claimants, are able to replace these lost SS benefits through greater savings, longer work, or less pension decumulation.

One of our consistent findings is that although the change in the present discounted value of SS benefits is at most six percent of SS wealth, and even lower for overall retirement wealth, those with little other retirement wealth are the *least* reactive to this exogenous fall in SS wealth. Instead, those with higher retirement wealth are those most likely to change SS claiming and other retirement behavior, despite this change in SS wealth affecting them the least, potentially due to greater knowledge of the "norms" of the program, a change in reference dependence, or an irrationally large sensitivity to changes in SS wealth relative to other sources.

Last, we find evidence that the wealthier quartiles in cohorts facing later FRAs are not only delaying their SS claiming age, but also delaying their non-SS retirement asset decumulation, as though potential retirees plan to draw down these two classes of retirement assets at the same time, while controlling for other secular cohort trends and idiosyncratic differences. Such a relationship can inform future policy in both the SS or private retirement systems, since changes in generosity in one of these areas will have reinforcing spillovers onto the other system.

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Appendix

Sample construction criteria

The analytic file used in this analysis begins with the RAND HRS, Version O. The majority of the analysis is limited to three birth cohort ranges: 1936-1941, 1942-1947, and 1948-1953, first interviewed, respectively, in 1992, 1998, and 2004. Additionally, most of our tables further limit the sample to respondents born in this cohort who are still in-sample eight years after their first interview. This file is then matched to SS earnings and benefit records (see Kapteyn et al., 2006 for a detailed discussion of this match, as well as the documentation for Cross-Wave: Prospective Social Security Wealth Measures of Pre-Retirees (v.5.0), available on the HRS website, for the match rate over time). We drop observations where SS records are not available. This drop represents the largest sample restriction, dropping 32.5 percent of the sample to this point. These sample selection criteria form the underlying analytic sample in our analyses, with the exception of analyses from Tables 9 onward, in which we limit our sample to those birth cohorts we observe reach their FRAs in our sample. Additionally, in our regression analysis, in order to estimate cohort trends for birth cohorts with a FRA of 65, we include those born in 1931-1935.

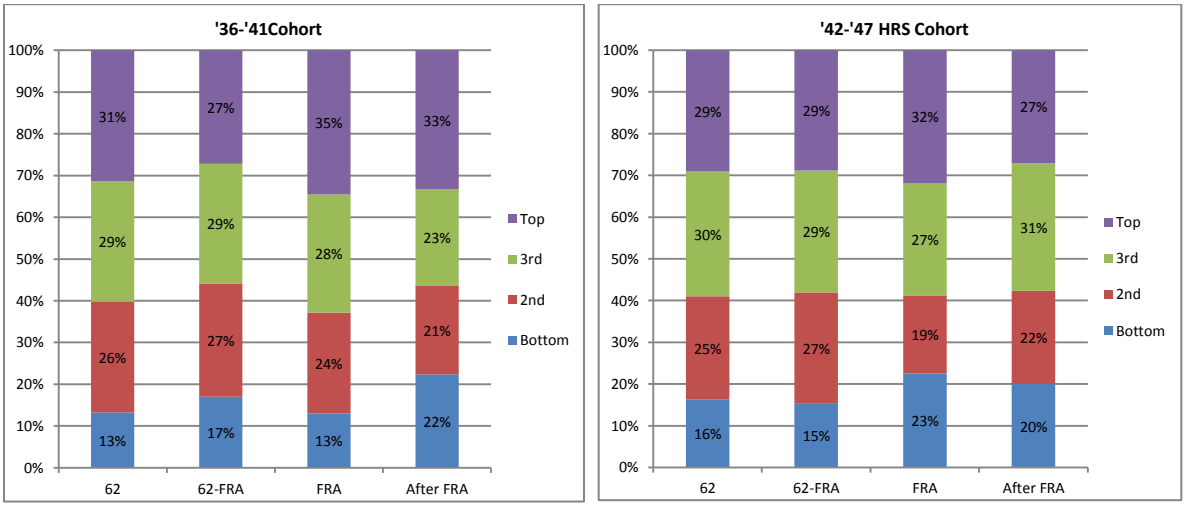
Additionally, we match pension decumulation information from RAND FAT files, namely pension cash-out, annuitization, and rollover decisions, as well as IRA holdings and withdrawals. Our measures of pension income receipt are from the RAND HRS, Version P. We further match our data to pension wealth files constructed by Gustman, Steinmeier, and Tabatabai (2014), which use HRS respondents' answers to pension questions throughout the Employment and Asset and Income sections to construct consistent metrics of pension wealth from current and previous jobs (see Updated Pension Wealth Data Files in the HRS Panel: 1992 to 2010, Part III, available on the HRS website, for a detailed discussion of these files' construction). Where these pension wealth measures of unavailable, Gustman et al. impute them, and we include these imputations in our analysis, such that the use of these matched files does not further reduce our sample.

Appendix Table 1: Characteristics by 1992 HH Non-SS Retirement Wealth Quartile

		1992 HH Non-SS Retirement Wealth Quartile			
	Values in 1992	1	2	3	4
Mean	Earnings	13,784	21,002	25,954	37,916
	HH Earnings	31,908	55,362	74,973	104,636
	Prob Live to 75	51.7	56.6	59.5	63.8
	(Un)health	2.7	2.4	2.2	2.0
	Work-Limited	23.4%	13.9%	10.5%	9.6%
	Married	61.0%	76.7%	86.2%	90.6%
	Male	40.3%	46.8%	46.6%	51.8%
	Working	66.1%	83.1%	78.5%	73.2%
	Ever Had an IRA	2.6%	40.1%	58.8%	70.0%
	Ever Had a Pension	10.2%	66.0%	73.8%	78.3%
Median	HH Non-Retirement Wealth	31,500	71,500	124,500	208,439
	HH Non-SS Retirement Wealth	0	34,622	158,872	507,196
	HH SS Wealth	86,600	159,000	191,900	203,600
	HH Wealth	134,300	253,400	398,545	695,929
N		999	980	990	989

In addition to the metrics showing within-wealth-quartile claiming patterns, we also examine within-claimant-group comparisons across wealth quartiles. We construct two measures of wealth in 1992 and 1998 for the 1936-1941 cohorts and 1942-1947 cohorts, respectively: wealth quartile for total private assets and SS wealth quartile for projected SS wealth. We fix these quartile rankings within an individual over all future waves to prevent confounding effects of the direct impact of SS claiming on wealth levels. Figures A1 and A2 show the fraction of claimant type in each of these wealth quartiles.

Figure A1: Baseline Household Wealth Distribution of Claimant Types, by HRS Cohort



From Figure A1, for the 1936-1941 cohort, it is clear that the eventual FRA claimant population was already disproportionately comprised of wealthier individuals in the baseline interview. Interestingly, the age 62 claimants have the second greatest fraction of respondents in the top and 3rd wealth quartiles, at about 60 percent. The 62-FRA population has the least wealth, while the after-FRA claimants are a heterogeneous mix, with the second greatest fraction in the top wealth quartile and the greatest fraction in the bottom wealth quartile.

However, although the 1942-1947 cohort's FRA claimants also have disproportionately high wealth in their baseline year, they also have disproportionately low wealth, compared to the other 1942-1947 cohort claimant types. Indeed, the split between the bottom half and the top half of the wealth distribution appears roughly constant across all claimant types in this later cohort.

Figure A2: Baseline Projected SS Wealth Distribution of Claimant Types, by HRS Cohort

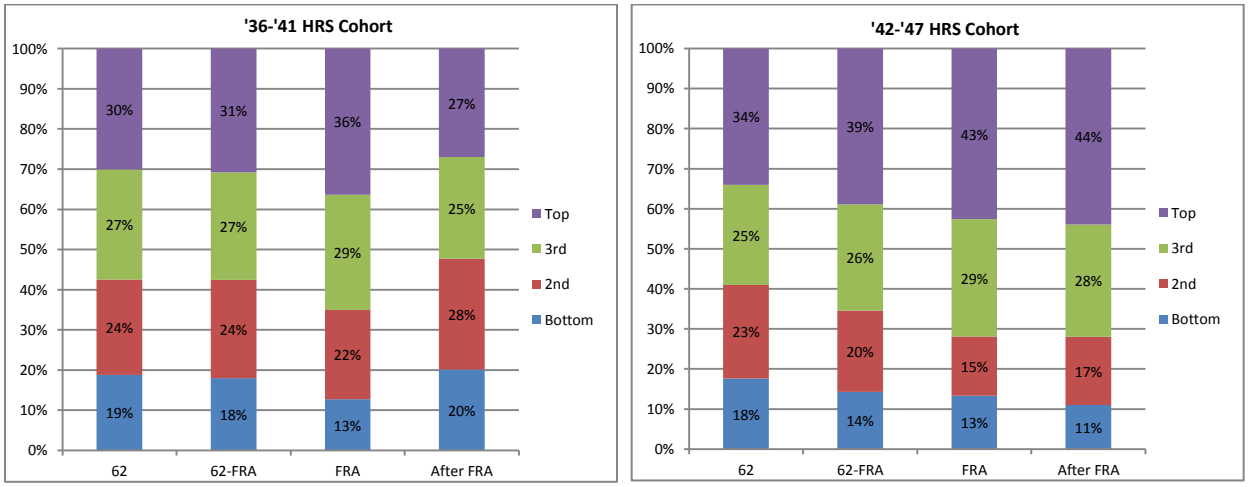


Figure A2 presents the parallel figure for the projected SS wealth quartile in the baseline interview. For the 1936-1941 birth cohort, the FRA and age-62 claimants have not only the highest private wealth, but also high projected SS wealth. Interestingly, the 62-FRA claimants also have high SS wealth. It is for this population that SS benefits are likely the most important, since they have fewer private resources to draw upon, leading to greater reliance on SS benefits. These 62-FRA claimants therefore have similar work histories as other claimants, but less saved private wealth, so their longer delay before claiming benefits may be due to this lack of wealth accumulation, in contrast to the age 62 claimants, many of whom are already receiving DB income and who have higher assets per Table 7, and the FRA claimants who have both greater assets and stronger labor force attachment. [13]

Finally, later claimants appear to be at lower quartiles of the SS wealth distribution than the private wealth distribution, indicating that they will likely have low reliance on SS benefits. This pattern is markedly different for the 1942-1947 cohort: later claimants have higher baseline SS wealth.

[13] Our ability to observe these 62-FRA claimants as a separate group, and their corresponding wealth and pension characteristics, is due to the advantages of using matched HRS-SSA data to precisely determine age at SS claiming. Prior HRS-based research has had to mix these "early" claimants with either the earliest age-62 claimants or the FRA claimants due to measurement error.