Retirement and Disability Research Consortium
22nd Annual Meeting

August 6, 2020

Virtual Event

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Do People Work Longer When They Live Longer?

Eugene Steuerle, Damir Cosic, and Aaron Williams (Urban Institute)[*]

Introduction

Labor force participation among the older population has been growing over the last three decades in parallel with an increasing trend in life expectancy, but for more than a hundred years before that, they were moving in opposite directions. This makes it difficult to understand the relationship between these two variables based on time-series data. This study uses a novel approach in examining the relationship between life expectancy and labor force participation at older ages. Rather than analyzing changes over time, we rely on the spatial variation at a point in time. Because all observations were made under the same national macroeconomic conditions and with the same access to the federal safety net, this approach allows us to remove some of the key factors that confound the temporal analysis.

There are two main mechanisms through which increases in life expectancy can raise labor force participation at older ages. The first one assumes that individuals choose their retirement age by optimizing their lifetime utility, and that their individual expectation of longevity corresponds to the actuarial life expectancy. The lifetime optimization includes saving for retirement, forming expectations of longevity and future income, and weighing the disutility of working at older ages against the need to adequately fund retirement. It is easy to show that an increase in an individual's longevity expectations should induce them to postpone their retirement age. Otherwise, the individual would have to fund a longer retirement with the same amount of retirement savings, assuming that older workers have little room for increasing their retirement savings by changing their saving rate.

The second way that life expectancy affects labor force participation is through health and capacity for work. Life expectancy is closely related to the overall health of the population. A lower prevalence of chronic diseases such as obesity, heart disease, and diabetes reduces mortality and increases life expectancy. Health is also one of the key factors in an individual's decision to work. A medical condition may limit or prevent some types of work, and poor health generally increases disutility of work.

The question we address has significance beyond academic research. The Social Security Board of Trustees (the Trustees henceforth), who project a number of economic variables over a 75-year horizon in their annual report, use forecasted increases in life expectancy to adjust their labor force participation projections. As will be seen (Figure 1), their method produces comparable increase in labor force participation with increases in life expectancy at younger ages but somewhat steeper at older ages. Our cross-section results show that the effect of life expectancy may be more modest.

Data and Methods

We combined demographic and economic data from the Census Bureau and life expectancy data from the National Center for Health Statistics at the census tract level to examine the relationship between life expectancy and labor force participation. We used life expectancy data by age group (55-64 and 65-74), gender, and census tract from the USALEEP data, which contain abridged period life expectancy tables for 11 age groups and 65,662 census tracts (88.7 percent of all census tracts) during the 2010-2015 period. Census tracts from Maine and Wisconsin were excluded, as geocoding of death records in these states did not start until 2011. About 1,000 additional census tracts were excluded because of their small population size.

Most other variables used in this study come from the 2011-2015 five-year *American Community Survey* (ACS) at the census tract level. We calculated the labor force participation rate for each age-gender group and census tract as the ratio of the number of people who are in the labor force to the total number of people. We constructed prime-age employment rates for ages 25-54 from population counts and employment rates for four smaller age groups published in the ACS subject tables. We estimated the median prime-age employment rate and designated census tracts with the employment rate below the median as low employment areas. We constructed the variable for the share of people ages 25 or older in a census tract with no more than a high school diploma as the sum of the proportions with "less than 9th grade," "9th to 12th grade," "no degree," and "high school graduate." The shares of the population living in poverty, those with a disability, and those who identify as non-Latinx White[1] are reported directly in the

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[1] This paper uses the term Latinx to describe people of Latin American descent because it is the most inclusive term with respect to ethnicity and gender.

published ACS profile tables. Median household income by census tract is also directly reported in the ACS tables, which we used for classification of tracts into quartiles of median income.

We mapped census tracts to commuting zones, as defined by the U.S. Department of Agriculture's Economic Research Service, for estimating fixed-effects regression models and robustness checks. Commuting zones are combinations of counties and county equivalents that are intended to capture regional markets rather than solely municipal or state boundaries.

For each age-gender group, we estimated a regression model with the logarithm of the labor force participation rate as the dependent variable, life expectancy as the explanatory variable, and the socioeconomic and demographic variables described above as covariates. The unit of observation is a census tract. For identification, we rely on the variation of these variables within commuting zones and states. Under the assumption that states affect labor force participation by their legislative and regulatory framework, and commuting zones approximate geographic boundaries of local labor markets, we include state and commuting zone indicators to remove cross-state and cross-commuting-zone variation. This framework does not allow us to identify mechanisms through which life expectancy affects labor force participation.

Results

Our estimates of the effect of changes in life expectancy on labor force participation are relatively small, especially when compared to the effects implied by the Trustee's life expectancy adjustment. For men in both age groups, an additional year of life expectancy causes a one-percent increase in the labor force participation rate. When we allowed a nonlinear relationship between the two variables, we found that the effect increases with age from 0.80 percent at age 55 to 1.75 percent at age 64, and from 1.57 percent at age 65 to 2.39 percent at age 74. These estimates are shown in Figure 1 together with the effects implied in the Trustees' life expectancy adjustment of labor force participation, which are substantially higher than our estimates at ages 62 and older. For women ages 55-64, an additional year of life expectancy raises their labor force participation rate by 0.3 percent on average and, like for men, the effect increases with age. The estimated effect for women ages 65-74 has the opposite sign, which indicates that an additional year of life expectancy reduces labor force participation by 0.3 percent. Even though the correlation between the two variables is positive, once the cross-state variation is removed it becomes negative. This unexpected result, for which we currently do not

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have a good explanation, has been fairly consistent for this group. Only when we allowed the effect of life expectancy to vary with the tract median household income, it had a positive sign in census tracts with median income in the top half of median-income distribution, and negative for those in the bottom half of the distribution.

Figure 1. *Effect of a One-Year Increase in Life Expectancy*

Men
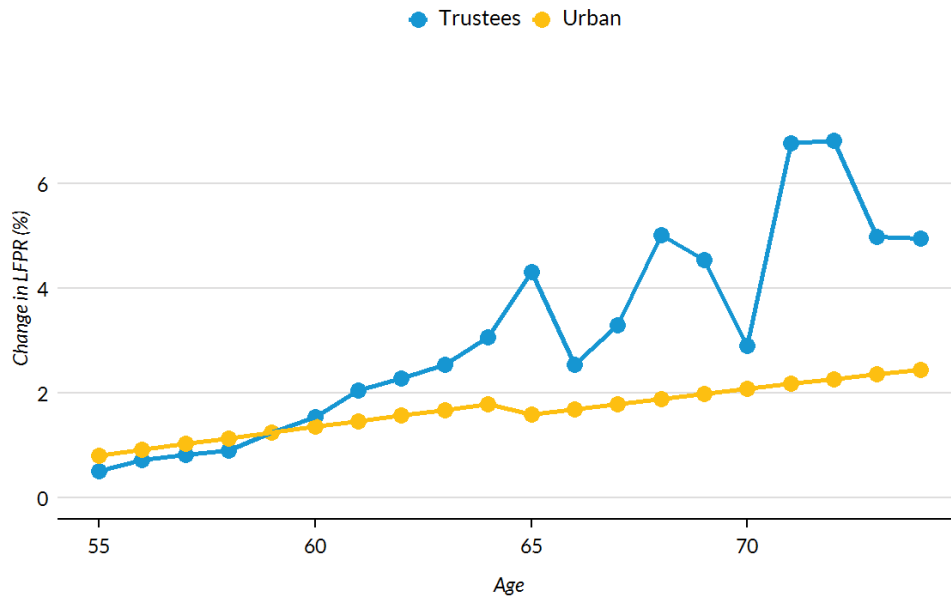
Women
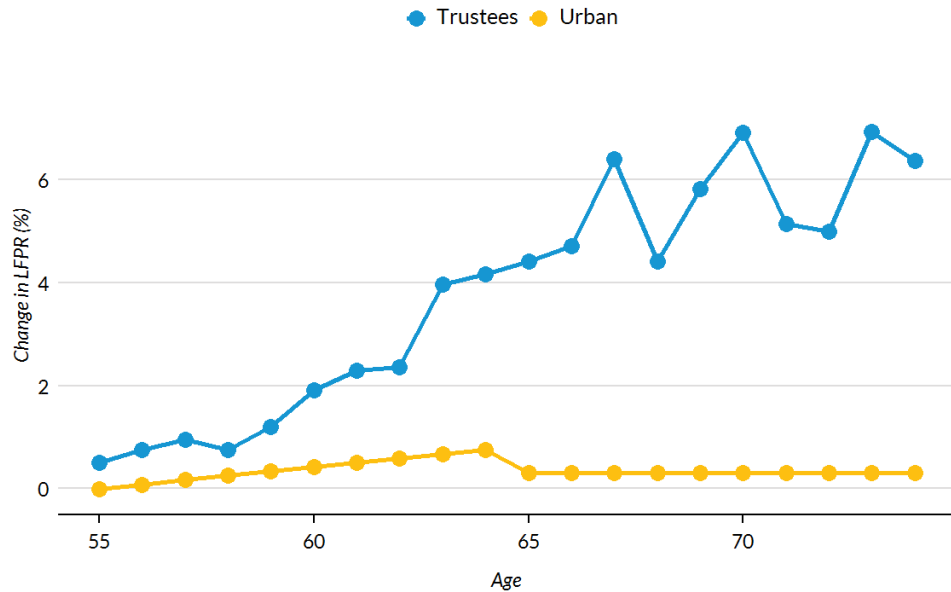
Notes: Trustees' values were calculated based on the life-expectancy add factor, which was provided to us by the Social Security Administration.

Conclusion

Our findings indicate that when comparisons are made across commuting zones at a point in time and with existing policies in place, people do work longer when they live longer, but this conclusion comes with caveats. The relationship between labor supply and life expectancy is complex and multifaceted. This study offers but one perspective and brings out the classic issue of what can be learned from the different perspectives of cross-section versus time series analysis. Life expectancy can affect labor force participation in multiple ways, these two variables move at different paces over time, and they are correlated with many of the same confounding variables.

Our choice of data and methods brings some aspects of this question into sharper focus but inevitably blurs others; it removes some time-varying confounding variables but may introduce others that vary across space. In particular, it is not clear that our approach captures the optimization of lifetime utility, which is one of the main mechanisms through which life expectancy affects labor force participation at older ages, nor will it capture the extent to which succeeding cohorts react as a group (rather than only as individuals) to their new health and longevity status. Because there is no evidence that people are aware of the geographic variation in life expectancy, it is possible that our estimates capture only its correlation with health and its effect on capacity to work, thus underestimating the total effect on labor force participation, and should be considered a lower bound for the total effect. The lack of evidence is due to the lack of research in this area, which points to a direction for future investigations. Another issue that requires further attention is the negative sign of the effect of life expectancy on labor force participation for women ages 65-74. Although this result may be a true reflection of a phenomenon that is waiting for a theoretical explanation, it is more likely that our functional specifications failed to capture the true nature of the relationship between life expectancy and labor force participation for this age-gender group, or that some of the assumptions we made are invalid. Despite these caveats, our results may expand the understanding of this important question and help inform the Trustees' projections of future labor force participation.

The Demographics Behind Aging in Place:
Implications for Supplemental Security Income Eligibility and Receipt

Mary K. Hamman (University of Wisconsin-La Crosse)*

Introduction

Despite population aging, fewer older adults are living in nursing homes (West et al., 2014). This paper investigates two key demographic trends that may have contributed to the decline in nursing home residents: 1) increasing longevity among men; and 2) increasing racial and ethnic diversity. In doing so, I explore implications of changes in residency patterns for the Supplemental Security Income program (SSI).

Prior research indicates that the probability of moving into a nursing home varies by age, health, and disability status, but also by sex, race and ethnicity, marital status, and availability of informal support (Gaugler et al. 2007). Since 1980, men's life expectancy has increased and the U.S. population as a whole has become more diverse. These trends are associated with higher probabilities of living with a partner or in a multigenerational family, which reduce the risk of moving into a nursing home (Freedman 1996; Lofquist 2012; Stepler 2016).

SSI provides financial assistance to blind or disabled people and people ages 65 and older who have very low income and financial resources. In 2018, federal SSI payments to recipients ages 65 and over totaled $11.3 billion, and federally administered state supplements added over $726 million (*Annual Report of the SSI Program 2019, Table IV.C1.*; *Annual Report of the SSI Program 2019, Table IV.C4.*). These payments supported more than 2.2 million financially vulnerable older adults nationally (U.S. Social Security Administration 2019a).

As the share of people ages 65 and older living in nursing homes has fallen, so has the share of SSI recipients living in institutional settings. Only 1.3 percent of SSI aged recipients lived in institutional care settings covered by Medicaid in 2018, compared to nearly 5 percent in 1980 (U.S. Social Security Administration 2019b). The maximum monthly federal SSI payment for a Medicaid recipient living in a nursing home in 2018 was $30 but the maximum when living in the community was $750 (U.S. Social Security Administration 2019a). The reason for this

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difference is that older adults who live in the community must pay for room and board separately from any Medicaid-covered care they receive, while Medicaid pays room and board costs for beneficiaries living in nursing homes. This means changes in living arrangements among low-income older adults impact expenditures for both Medicaid and SSI.

Data

Using U.S Census Bureau and *American Community Survey* data from 1980-2018, I study the decline in nursing home residents overall, and low-income residents in particular (Ruggles et al. 2020). I examine which other living arrangements rise as nursing home residency falls and investigate whether changes in the demographics of the older adult population can explain the decline in nursing home residents. These data include older adults who live in the community and who live in nursing homes; the data also offer sufficient sample size to study financially vulnerable adults separate from higher-income adults and to account for the role of differences in state policy environments, like Medicaid Home and Community Based Care (HCBS) programs. The surveys include information about housing characteristics which are used to estimate the percentages of older adults who live in assisted living communities and in independent households.

Results

Figure 1 shows the proportions of older adults by age who lived in nursing homes (or similar settings) in 1980, 1990, 2008-2010 and 2014-2018, by income. Although the number of people living in nursing homes in both income groups dropped from 1980-2018, the decline is greatest among people with incomes low enough to qualify for federal SSI payments.

Figure 1. *Rates of Nursing Home Residence by Income*
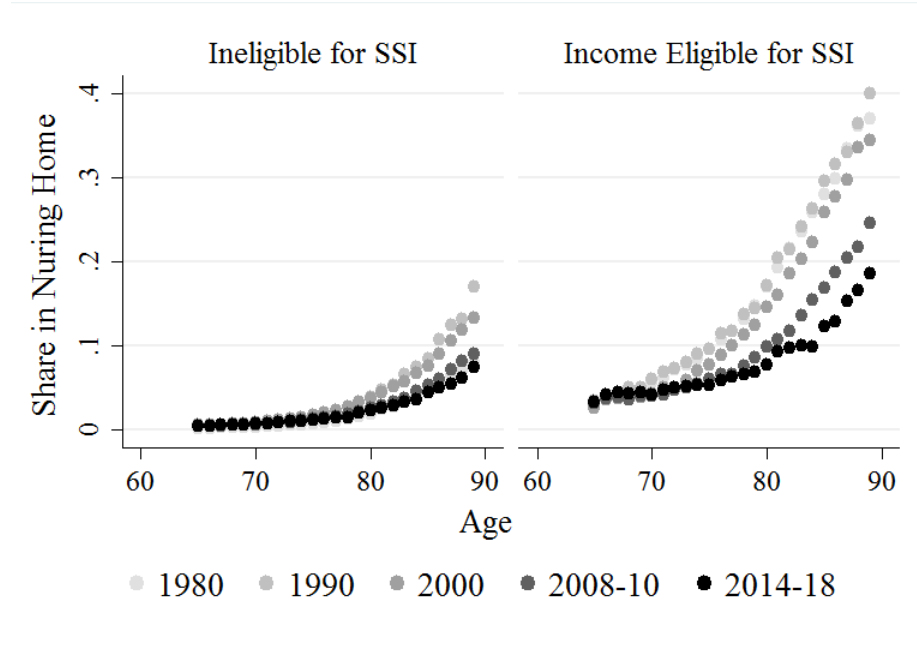
Notes: SSI eligibility is based on self-reported income only. Nursing home shares may include adults in other institutional settings.
Source: Author compilation of Decennial Census and *American Community Survey* PUMS.

Over the same time period, the number of older adults living in the homes of younger family members rose in the low-income but not the higher-income group. Both low- and higher-income groups were more likely to live in assisted living by 2018, though assisted living rates rose more slowly in the low-income group.

Gains in male longevity and diversity were also largest for the lowest income group. From 1980-2018, the share of low-income adults over age 65 who identified as white only and non-Hispanic fell from 79 percent to 52 percent compared to a decline from 93 percent to 81 percent in the higher-income group. In the low-income group, the share of men increased from 29 to 33 percent while the share of men in the higher-income group remained relatively constant.

Figure 2. *Estimated Role of Demographic and Other Factors in Explaining Nursing Home Residency Trends, 1980-2018*
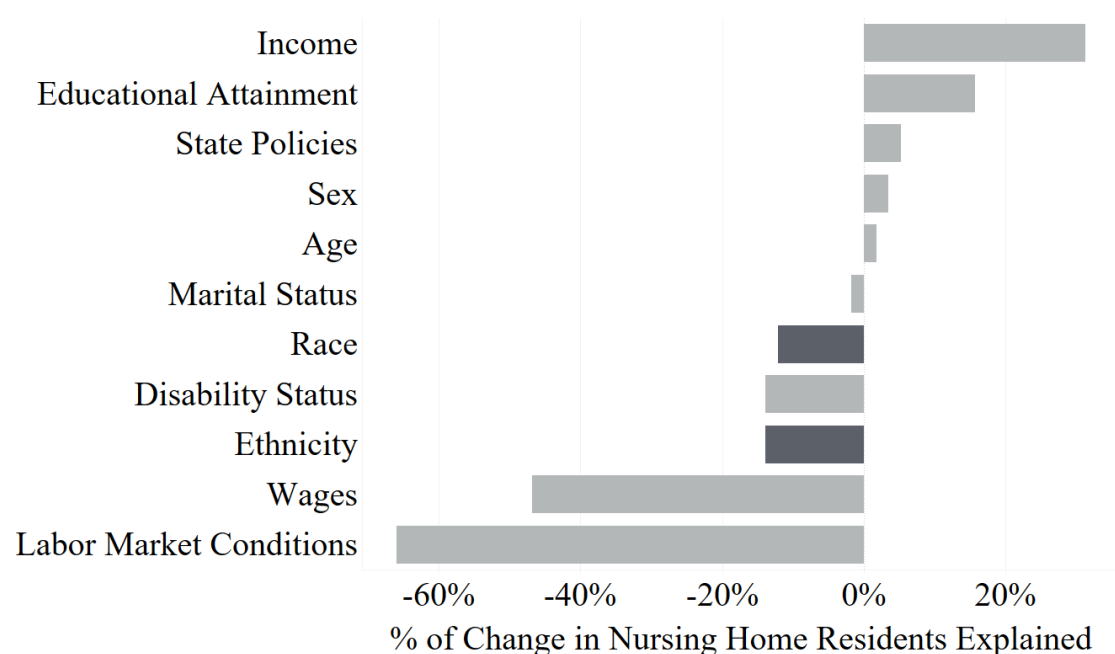
Notes: Wages include state average inflation-adjusted wages for nursing home industry employees and home health aides. Labor market conditions include male and female labor force participation and full-time employment rates.
Source: Author analysis of Decennial Census and *American Community Survey* PUMS.

Figure 2 reports the role of these demographic changes in explaining the falling rates of nursing home residence shown in Figure 1. These estimates answer the question: How large would the share of older adults living in nursing homes have been if people behaved the same way in both 1980 and 2018 but there were simply more men and persons of color in 2018? The estimates indicate that the changes in racial and ethnic diversity in the low-income group explain about 25 percent of the total decline in nursing home residents from 1980-2018. Though the estimates indicate that rising numbers of men should increase nursing home residency, not reduce it, higher proportions of married older adults do reduce nursing home residency, but the role of marital status is small relative to other variables. State labor market conditions and wages appear to be particularly important drivers.

Conclusion

From 1980-2018, the percentage of low-income older adults living in nursing homes fell by nearly 50 percent – a substantially larger decline than among higher-income older adults.

Changes in the racial and ethnic diversity of this population explain about 25 percent of the decline. By 2018, low-income older adults had much higher rates of co-residence with younger relatives but similar rates of assisted living, though the rise in assisted living arrangements appears to have happened a decade later for low- than for higher-income adults.

These findings provide several useful insights for federal and state SSI programs. First, the older adult population is projected to continue to grow, in size and diversity, in the coming decade. The findings in this study suggest these trends may further reduce the use of nursing home care, and could in turn increase the number of older adults who use SSI to cover basic living expenses. This study also found increased rates of co-residence with unrelated persons and increasing incidence of unmarried partner cohabitation. More complex family structures may increase the costs and challenges of equitably administering SSI payments that treat couples and individuals differently and are reduced when the SSI recipient is residing in another person's household.

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Misperceptions of the Social Security Earnings Test and the Actuarial Adjustment: Implications for Labor Force Participation and Earnings

Alexander Gelber (University of California, San Diego and NBER),
Damon Jones (University of Chicago Harris School of Public Policy and NBER),
Ithai Luthrie (U.S. Department of the Treasury), and
Daniel Sacks (Indiana University Kelley School of Business)[*]

The Social Security Earnings Test reduces the program's Old Age and Survivors Insurance ("Social Security") benefits in a given year as a proportion of a claimant's earnings above an exempt amount in that year. For example, for Social Security claimants under age 66 in 2019, current benefits are reduced by one dollar for every two dollars earned above $17,640. This creates a "kink" in the earnings schedule, i.e. a discontinuous change in the marginal incentives to work. Previous literature has found that Social Security claimants "bunch" at this convex kink (Burtless and Moffitt 1985; Friedberg 1998; Friedberg 2000; Song and Manchester 2007; Engelhardt and Kumar 2014; A. M. Gelber, Jones, and Sacks 2020a). Bunching refers to a pattern when a mass of workers earns at or near a specific earnings amount. Previous research has also shown that employment falls due to the Earnings Test (Friedberg and Webb 2009; Gelber et al. 2018; Gelber et al. 2020b).

In this paper, we explore the explanation for the patterns of bunching observed at the Earnings Test exempt amount, and also near kink points. In many contexts, individuals disproportionately bunch under kinks rather than above them, a phenomenon we call "left bunching." We perform the first systematic exploration of this phenomenon, and explore two classes of possible explanations. First, we note that if a kink is imposed in the presence of a downward-sloping density of outcomes, standard theory implies that individuals should left-bunch. The imposition of the kink causes the density to shift downward, which leads to fewer bunchers above than below the kink. In principle, this could explain the left bunching that has been observed in such circumstances. We call this the "standard" candidate explanation for left bunching. Second, individuals could left-bunch because of some "behavioral" deviation from

standard theory, including misperceiving the tax schedule or other explanations. We use the setting of the Earnings Test to tease apart these theories.

In addition to providing a laboratory for studying left bunching, the Earnings Test is important to policymakers in its own right. In the latest year of the available micro-data in 2003, the Earnings Test led to an estimated total of $4.3 billion in current benefit reductions for around 538,000 beneficiaries, thus substantially affecting benefits and their timing. The importance of the Earnings Test is now increasing as the affected age range – those at or below the Normal Retirement Age – expands gradually from 65 for cohorts born before 1938, to age 67 for those born in 1960 and later.

Reductions in current benefits due to the Earnings Test sometimes lead to increases in later benefits through an actuarial adjustment. In particular, there is a little-understood "notch" in the budget set just over the exempt amount: when individuals earn just above this level, their benefits once they reach Normal Retirement Age are adjusted upward by five-ninths of one percent. Thus, the incentives – understood properly – should lead Social Security beneficiaries to locate just above the exempt amount, i.e. they should "right-bunch." Moreover, benefits after reaching the Normal Retirement Age are adjusted upward by five-ninths of one percent for every month of Social Security benefits that experiences any reduction due to the Earnings Test, which significantly dulls the incentives to bunch or reduce earnings (Social Security Administration Section 728.2, 2018; Gruber and Orszag 2003). This has led to a longstanding puzzle in the Earnings Test literature: why do earnings respond strongly to the Earnings Test, despite the actuarial adjustment of benefits (Burtless and Moffitt 1985; Gelber et al. 2018)?

Using administrative tax data from the Internal Revenue Service (IRS) on a one-hundred percent sample of the U.S. residents with a Social Security Number (SSN), born between 1943 and 1951, we show that around 7 times as many individuals left-bunch as right-bunch. We show several pieces of evidence inconsistent with the standard explanation for this left bunching. First, this left bunching does not only occur amid the downward-sloping densities postulated in the standard explanation; it occurs even at ages when the distribution of earnings is close to flat around the exempt amount, as shown in Figure 1. Second, an illustrative simulation of a rational model of bunching indeed yields far less left bunching than we observe. Third, in a panel of data, we can proxy for individuals' desired earnings in the absence of the Earnings Test by examining their earnings in years just prior to reaching retirement age and facing the Earnings

Test. We show that individuals overwhelmingly left-bunch, particularly those whose earnings just prior to reaching retirement age were substantially above the exempt amount. This contrasts with behavior in the standard model, wherein these individuals would tend to right-bunch, especially those initially locating far above the exempt.

Having dispatched the standard explanation for these patterns, we explore other explanations. One possibility is that some individuals exhibit "spotlighting," in which individuals perceive the local marginal tax rate to apply everywhere in the budget set (Liebman and Zeckhauser 2004).[1] This implies they would perceive a notch at the exempt amount, wherein they would lose a discrete amount of income by locating just over the exempt amount. In other words, even though the Earnings Test in fact applies only to marginal earnings above the exempt amount, in this explanation, they would perceive that the Earnings Test also applies to earnings below the exempt amount, creating a notch, i.e. a discrete loss of income at the exempt amount.

To substantiate this explanation, we document that there is a downward discontinuity in the employment probability as a function of lagged earnings, which we show should occur in the presence of a (perceived) notch in the budget set but not in the presence of a kink. This downward discontinuity in the employment probability is also inconsistent with other non-rational explanations that could be posited for left bunching, such as loss aversion to the Earnings Test combined with "diminishing sensitivity" (see Rees-Jones (2018) on loss aversion and bunching in a public finance context). Some individuals locate just above the exempt amount, implying that either some individuals are inert to the perceived notch (Kleven and Waseem 2013), or there is a mixture of types in which some spotlight and others react according to the standard model.

To our knowledge, this is the first evidence of spotlighting. Spotlighting contrasts with the "ironing" phenomenon documented in Ito (2014) and Taubinsky and Rees-Jones (2018). Under spotlighting, individuals perceive the local marginal tax rate as applying everywhere (i.e. as being the average tax rate), whereas under ironing individuals react to the average tax rate, instead of reacting to the marginal tax rate as a rational agent would. Ironing can help explain the lack of bunching at many kinks, while leaving unexplained why bunching occurs at other

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[1] Liebman and Luttmer (2015) and Brown et al. (2013) document that many individuals do not understand the Earnings Test or other aspects of Social Security, but these studies do not specifically develop evidence on whether individuals exhibit spotlighting or other specific types of systematic misperceptions.

kinks; meanwhile, spotlighting can help explain the bunching at kinks that have been used to estimate elasticities, which often features left bunching. Moreover, the results help to explain why we observe such a dramatic response to the Earnings Test among claimants. If the policy is misperceived as a discrete loss in net income, i.e. a notch, the earnings and employment response to the Earnings Test may be viewed as commensurate to the *perceived* incentives faced by older workers, even if the *actual* incentives are much more moderate.

Figure 1. *Left Bunching at the Exempt Amount During Ages 62-64*
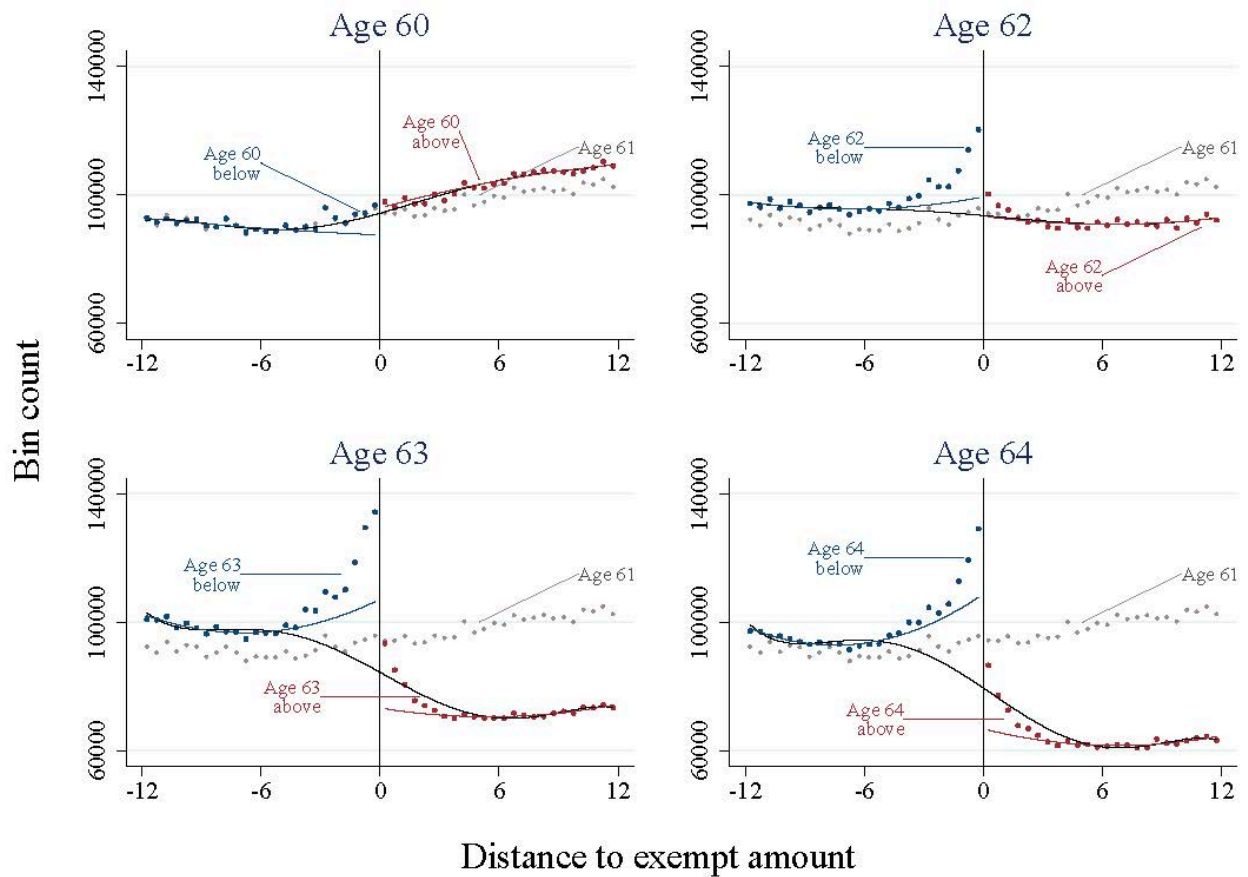
Notes: Figure plots the number of observations in each bin of earnings (relative to the exempt amount), by age. Sample is anyone born 1944-1951 with a Social Security number and in the tax system in 1999-2018, and no age 61 self-employment income. The gray dots show the number of observations at age 61. The smooth black line is a degree 5 fit estimated using all data from the indicated age except in the range (-3000, 3000). The navy line is a degree 2 fit estimated using data from the range (-12000, -3000). The maroon line is a degree 2 fit estimated using data from the range (3000, 12000).

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Panel 2: Housing as a Resource for Retirees and Those with Disabilities

Moderator

Thomas Davidoff (University of British Columbia)

Intended Bequests and Housing Equity in Older Age

Gary V. Engelhardt (Syracuse University) and Michael D. Eriksen (University of Cincinnati)

Housing Assistance as a Benefit for Household Heads with Disabilities and SSI Takeup

Erik Hembre (University of Illinois at Chicago) and **Carly Urban** (Montana State University and Institute for Fiscal Studies (IZA)

Home Ownership and Housing Debt in Retirement: Financial Asset for Consumption Smoothing or Albatross Around the Neck of Retirees?

Jason J. Fichtner (Johns Hopkins University)

Intended Bequests and Housing Equity in Older Age

Gary V. Engelhardt (Syracuse University) and
Michael D. Eriksen (University of Cincinnati)[*]

Along with entitlements to Social Security and employer-provided pensions, housing is one of the largest assets in elderly portfolios, and, as such, there is significant policy interest in the extent to which housing might supplement the retirement income of future retirees. However, a longstanding issue at the intersection of urban economics, public finance, and the economics of aging is the extent to which the elderly spend down their housing wealth as they age, as predicted by the simplest forms of the life-cycle hypothesis (Modigliani and Brumberg 1954; Artle and Varaiya 1978). Early empirical studies, beginning with Merrill (1984) and followed by Venti and Wise (1989, 1990), used data from the *Retirement History Survey* (RHS) in the 1970s and found little evidence that homeowners extracted home equity either by downsizing and remaining an owner, or by liquidating equity altogether in transitioning to renting. These findings presented an empirical puzzle, especially for lower-income homeowners with large amounts of home equity – the so-called "house-rich, income-poor" – who could increase consumption by converting home equity to retirement income, for example, through reverse mortgage products (Venti and Wise 1991; Mayer and Simons 1994; Merrill, Finkel, and Kutty 1994).

Subsequent studies provided some clarity, but questions remained. The RHS contained relatively young elderly (in their late 50s through early 70s), potentially too young to detect significant tenure transitions from owning to renting, if those occurred predominantly among the oldest old. New work with data from a variety of time periods that tracked individuals to older ages, such as the *Panel Study of Income Dynamics* (Sheiner and Weil 1992; Megbolugbe, Sa-Aadu, and Shilling 1997), *Current Population Survey* (Sheiner and Weil 1992), *Survey of Income and Program Participation* (Venti and Wise 2001, 2004), and the *Health and Retirement Study* (Venti and Wise 2001, 2004; Walker 2004), generated a number of empirical regularities. First, there was little evidence that homeowners extracted home equity by increasing mortgage debt, or downsizing in value and remaining an owner. Second, the only measurable reductions in home

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equity came from tenure transitions from owning to renting. These transitions were relatively infrequent among two-person (married) households, but when they did occur, followed an adverse health shock or widowhood. Finally, with the advent of better data, the age profile of homeownership for one-person households was shown to eventually decline, especially after age 80 (Sheiner and Weil 1992; Megbolugbe, Sa-Aadu, and Shilling 1997). However, Venti and Wise (2004) found that even up through age 95, the homeownership rate for one-person households was roughly 40 percent, significantly higher than would be implied by the simplest form of the life-cycle hypothesis. This opened the door to other reasons for holding housing wealth late in life, including the role of aging in place, Medicaid eligibility, taxes, bequests, and insurance motives, among others.

This paper returns to this literature and examines how homeownership evolves in old age and around the time of death. The empirical analysis uses data from the 1992-2014 waves of the HRS, a nationally representative survey of Americans ages 50 and older interviewed roughly every two years until they die. With eleven waves of data that span up to 22 years, homeownership rates can be measured to much older ages than Venti and Wise (2001, 2004) and Walker (2004), who used data from 1992-2000. In the main sample, the homeownership rate for living non-institutionalized individuals peaks at age 72 at 69.8 percent, remains relatively flat until age 80, then decreases at an increasing rate. The homeownership rate at age 90 is 51.8 percent; at age 100 it is 22.9 percent; and at ages 103 and older, it is 12.5 percent. This pattern continues to hold when measuring the age profile of homeownership by 10-year birth cohorts.

In a methodological contribution, the age profile of homeownership is recalculated by combining person-year observations on living, non-institutionalized individuals with two other groups in the HRS. The first are living survey respondents admitted to a nursing home, hospice, or other long-term care facility at the time of the interview. In other surveys, such as the CPS and SIPP, these individuals are considered institutionalized and are not sampled. In the Census and *American Community Survey* (ACS), these individuals are sampled, but are categorized as living in group quarters and are not asked about homeownership. In the study of life-cycle housing behavior, however, these are relevant individuals in the population, and they grow as a fraction of the elderly as age increases and, especially, as death approaches. Importantly, the HRS asks these individuals (or their proxies) about homeownership. The second are observations on decedents drawn from the HRS "exit" interviews. In other longitudinal surveys,

when a respondent dies, that individual attrites from the sample, and the economic and life experiences that occurred between the last interview and the date of death are not recorded. This could result in up to two years of lost information for biennial surveys (like the PSID). In contrast, when a respondent dies in the HRS, the decedent's next of kin is administered an "exit" interview, which covers the financial, health, and other circumstances of the decedent in the period since the last interview (when alive) and at the time of death.

Data on homeownership from these two new sources are critical to the analysis, because a nontrivial share of both tenure transitions and admissions to skilled nursing facilities occur in the final two years of life. For individuals who are 75 and older, homeownership rates are on average 6 percentage points lower when those in nursing homes, hospice, and other long-term care facilities are included. When exit-interview information is used, homeownership rates are an additional two percentage points lower on average. For individuals in their early 90s, the results are starker: measured homeownership rates are 10-14 percentage points lower. Therefore, true homeownership rates are significantly overstated for older Americans using just data on living respondents, which has been the mode in all of the previous literature.

Overall, when extending the samples to individuals alive at very old ages, the age profile of homeownership declines to 7.7 percent, significantly lower than previous studies. However, as the paper's title suggests, there is a distinction between home ownership in old age and the end of life. In particular, the life-cycle hypothesis places restrictions on the time path of wealth as the date of death nears (or expected date of date, if there is mortality risk). In reality, there is a distribution of dates of death, and many individuals die at ages that would not categorize them as the oldest old. To address this, the second part of the paper examines the homeownership trajectory prior to death, which is constructed for a baseline sample of homeowners. It declines as the date of death approaches, using the sample of decedents and information from the exit interviews. Roughly half of elderly homeowners made own-to-rent transitions before death. This pattern of tenure transitions, and the accompanying housing wealth spend-down, is not consistent with simple versions of the life-cycle hypothesis, unless there is significant uncertainty about the death of death. Furthermore, for the other half of baseline homeowners who died as homeowners, their housing wealth was bequeathed, usually to children. A small fraction of the heirs took possession of the property; the remainder had sold the property, often at a substantial discount from the value self-reported by the decedent in the last interview while

living. The associated annual flow of housing bequests for those born 1924-30 in the United States is substantial.

A key conclusion is that bequests play an important role in the housing behavior of the elderly, a theme that emerged in discussions (e.g., Poterba 1990; Sheiner and Weil 1992) of the early work in this literature. Since the date of death is uncertain, a key question is whether housing bequests are intended or unintended. In particular, unintended bequests would be ones that occurred because ex ante the elderly desired to spend down their housing wealth, but ex post died earlier than anticipated. To examine this, the third part of the paper uses HRS questions in prior waves (when alive) on medical diagnoses, functional status, and bequest intentions, and presents estimates from a competing-risks proportional hazard model of tenure transitions from homeownership, where the competing risk is death. Bequest intentions are important for housing disposition. Health shocks and functional decline prior to death also play a role in the likelihood that housing wealth is extracted via an own-to-rent transition.

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Housing Assistance as a Benefit for Household Heads with Disabilities and SSI Takeup

Erik Hembre (University of Illinois at Chicago) and
Carly Urban (Montana State University and Institute for Fiscal Studies (IZA))[*]

Background

Interactions of social safety net programs are important given the large overlap of eligibility requirements and benefit determination policies. For instance, participants in Supplemental Security Income (SSI), which targets individuals with a disability (and the elderly), receive a modest monthly cash transfer, but also are automatically qualified for Medicaid, SNAP, housing assistance, and typically are disqualified from receiving TANF cash benefits.[1] While most SSI households would be eligible to receive SNAP or Medicaid regardless of SSI participation, the interaction of SSI with housing assistance is particularly interesting because it is the only program that is rationed, meaning many eligible applicants are denied due to limited units. Though receiving SSI does not guarantee a household will receive housing assistance, in many areas household heads with disabilities receive prioritized access to this valuable benefit.

How much is this disability preference in housing assistance worth and do households respond to it? A naive look at the data suggests that households with disabilities are more likely to receive housing assistance: 18 percent reporting a disability receive such assistance compared to 6 percent not reporting a disability.[2] Further, 36 percent of Housing Choice Voucher (HCV) non-elderly recipients have household heads with disabilities. This project explores the complementarity or substitutability of two programs aimed at low-income individuals: SSI and HCVs.

HCVs are a large benefit for low-income households yet, because of a limited number of available units, only a quarter of income-eligible households receive housing assistance. After receiving an HCV, recipients tend to keep these benefits for many years. In 2015, the average HCV household exiting the program had received benefits for 6.6 years. Each of 2,132 local

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[1] While SSI disqualifies the individual from receiving TANF, it does not disqualify the household.
[2] Based on 2018 CPS ASEC data of income-eligible, prime-aged head of households.

Public Housing Authorities (PHAs) that administer HCVs set policies for how to distribute available vouchers to eligible households. While some PHAs use a lottery or queue-based system, it is common to create a preference-based system for oversubscribed waitlists. The most common attribute to designate is for a household head with disabilities.[3] Our study investigates how the availability of preference-based housing assistance affects SSI applications and awards.

One difficulty in studying the interaction of SSI and HCVs is the lack of existing data on local PHAs' waitlist history and policies. To address this, we hand-collect data from 1,154 local PHAs across the country in order to obtain a broader picture of HCV waitlist administration and preferences. We document geographic variation in preference-based housing assistance – in contrast to first-come, first-served or lottery systems – in local PHAs. After documenting geographical patterns, we are the first to show variation in the number of months per year in which local PHAs had open waitlists from 2010-2017, a proxy for potential HCV availability. Then we seek to understand the effects of having an open waitlist in an area with a preference for household heads with disabilities on SSI applications.

Are SSI and HCVs Complements or Substitutes?

Since many PHAs prioritize HCV access to households with disabilities, receiving SSI can increase the likelihood of receiving an HCV and decrease waitlist time. HUD does not require a household to receive SSI in order to verify a disability, though receiving SSI for a disability automatically confers a HUD household disability.

The incentives for applying for SSI interacted with potential HCV receipt is ex-ante ambiguous. When PHAs prioritize household heads with disabilities, applying for SSI could help increase the likelihood of receiving an HCV. Then the opening of an HCV waitlist would induce greater SSI applications. However, opening a waitlist could also indicate to households that they may soon receive an HCV. Since the SSI application period is long (on average 3.5 months for the initial decision[4] and for the one third that appeal, the process can take an additional two years[5]) and working during the process would threaten the application, SSI

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[3] Other frequent preferences include the elderly, veterans, and the homeless.
[4] See https://www.ssa.gov/open/data/disability_reconsideration_average_processing_time.html
[5] See Duggan, Mark, Melissa S. Kearney, and Stephanie Rennane. 2016. "The Supplemental Security Income Program." In *Economics of Means-Tested Transfer Programs in the United States* vol. 2, edited by Robert A. [5, cont.] Moffitt, 1-58. Chicago: University of Chicago Press.

participants on the margin may prefer to delay applying for SSI until after receiving an HCV. Housing is typically the largest expenditure for low-income households, making the economic burden of the SSI application process considerably lower after obtaining an HCV. Since much of SSI income is spent on housing, receiving an HCV may lessen the need for SSI. This means that opening an HCV waitlist could reduce SSI applications and awards.

Figure 1. *Counties Where at Least One PHA Has a Disability Preference*
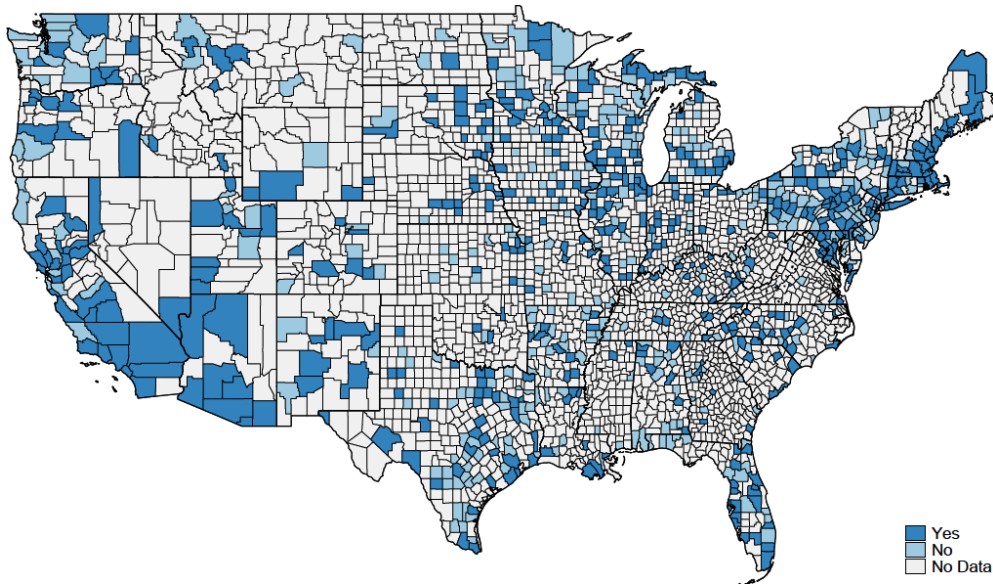
Source: Authors' calculations.

Findings

Our hand-collected data show that nearly half of local PHAs use a waitlist system that includes a preference for household heads with disabilities. Figure 1 shows considerable geographic variation in which areas utilize this preference. There is additional variation in the frequency and duration of local PHA waitlist openings: 23 percent remained continuously open and 9 percent never opened their waitlists between 2010 and 2017. The average months open in a given year was 7.

Our findings suggest that when local PHAs with disability preferences open their waitlists, there is a *reduction* in SSI applications and awards compared to other areas without disability preferences or PHAs that always remained opened or closed in the time period. These results suggest that waitlist openings in PHAs with disability preferences for HCVs do not nudge

applicants to simultaneously apply for HCVs and SSI. Instead, the two appear to be substitutes.
Perhaps these HCVs are indeed serving a population that is distinct from those who are at the
margin on applying for SSI.

Home Ownership and Housing Debt in Retirement:
Financial Asset for Consumption Smoothing or Albatross Around the Neck of Retirees?

Jason J. Fichtner (Johns Hopkins University, School of Advanced International Studies (SAIS))[*]

Introduction

For many retirees, the home is their most valuable asset. A house is both used as an investment and for consumption. If a home is paid for at the time a person retires, they no longer have to service a mortgage or pay monthly rent, thus freeing up retirement income for other purposes. In this case, a large portion of income from Social Security can be devoted to consumption, benefiting the person's standard of living. However, a mortgage that is not paid off creates a greater mandatory expense that may threaten the ability of Social Security benefits to replace income devoted to consumption in retirement.

Additionally, home equity can be used to finance consumption in retirement, be it general, or targeted – such as for emergent health-related expenses or a financial emergency. While recent trends in housing asset appreciation appear to be improving the financial well-being of older Americans, without also understanding the level and use of housing debt, it is difficult to know whether retired homeowners are financially more secure.

Using the *Health and Retirement Study* (HRS) panel data from 1992-2016, this paper addresses three related topics. First, it updates information on how household mortgage-related debt evolved for various HRS cohorts. Second, it explores how homeowners have used home debt near, and in, retirement. Third, it considers whether there are important public policy lessons on the role of using home-related debt for achieving a financially secure retirement.

Data Analysis

HRS data show a higher level of homeownership rates for older U.S. households. Interestingly, the Late Boomer cohort, which entered the HRS in 2016, has notably lower homeownership rates than older cohorts (see Table 1). While those who were ages 50-55 in the HRS Baseline cohort had a 79-percent homeownership rate, increasing to 88 percent for those

ages 62-70, the Late Boomers only reported a 62-percent homeownership rate for those ages 50-55 and a 67-percent rate for those ages 56-61. The Late Boomer cohort was not yet old enough to have any data for ages 62-70.

Table 1. *Frequency of Home Ownership by HRS Cohort*

	Own home (%)		
	Ages 50-55	Ages 56-61	Ages 62-70
HRS baseline (survey year 1992)	79.0%	81.5%	88.0%
War babies (survey year 1998)	82.8	81.0	81.0
Early boomers (survey year 2004)	79.9	80.0	N/A
Mid boomers (survey year 2010)	73.5	77.1	N/A
Late boomers (survey year 2016)	61.7	67.0	N/A

Notes: Includes all individuals: respondents and spouses by wave. Weighted represents new entrants for that cohort into the HRS.
Source: Author's calculations from RAND HRS v1 (2016).

An additional descriptive analysis of HRS data for 1992–2016 allows another view of how homeownership trends and the use of home debt have played out across age groups over time. For this analysis, households were segmented into five-year birth cohorts: those born 1931-1935, 1936-1940, 1941-1945, 1946-1950, 1950-1955, and 1956-1960.

The homeownership rates displayed in Figure 1 offer some interesting insights. First, the rates for all cohorts declined after the 2008 Great Recession. The decline was more pronounced for the younger cohorts, with those born in 1956-1960 exhibiting a 17-percentage point drop immediately following the Great Recession. For those born in 1936-1940, homeownership rates only slightly declined in the two years after the Great Recession. Second, as of the 2016 HRS, homeownership for each cohort remains below its pre-Great Recession level. Third, comparing the birth-year cohorts at a specific average age is also illuminating, as both the 1956-1960 and 1951-1955 cohorts exhibit less home ownership than the other older three cohorts. Fourth, as one might expect for retirement-age households, as they get older, homeownership rates decline, presumably as the elderly move out of their homes into assisted-living housing. This trend can be seen in the 1931-1935, 1936-1940, and 1941-1945 birth cohorts.

Figure 1. *Homeownership Rates by Birth Year Cohort (Percentage)*
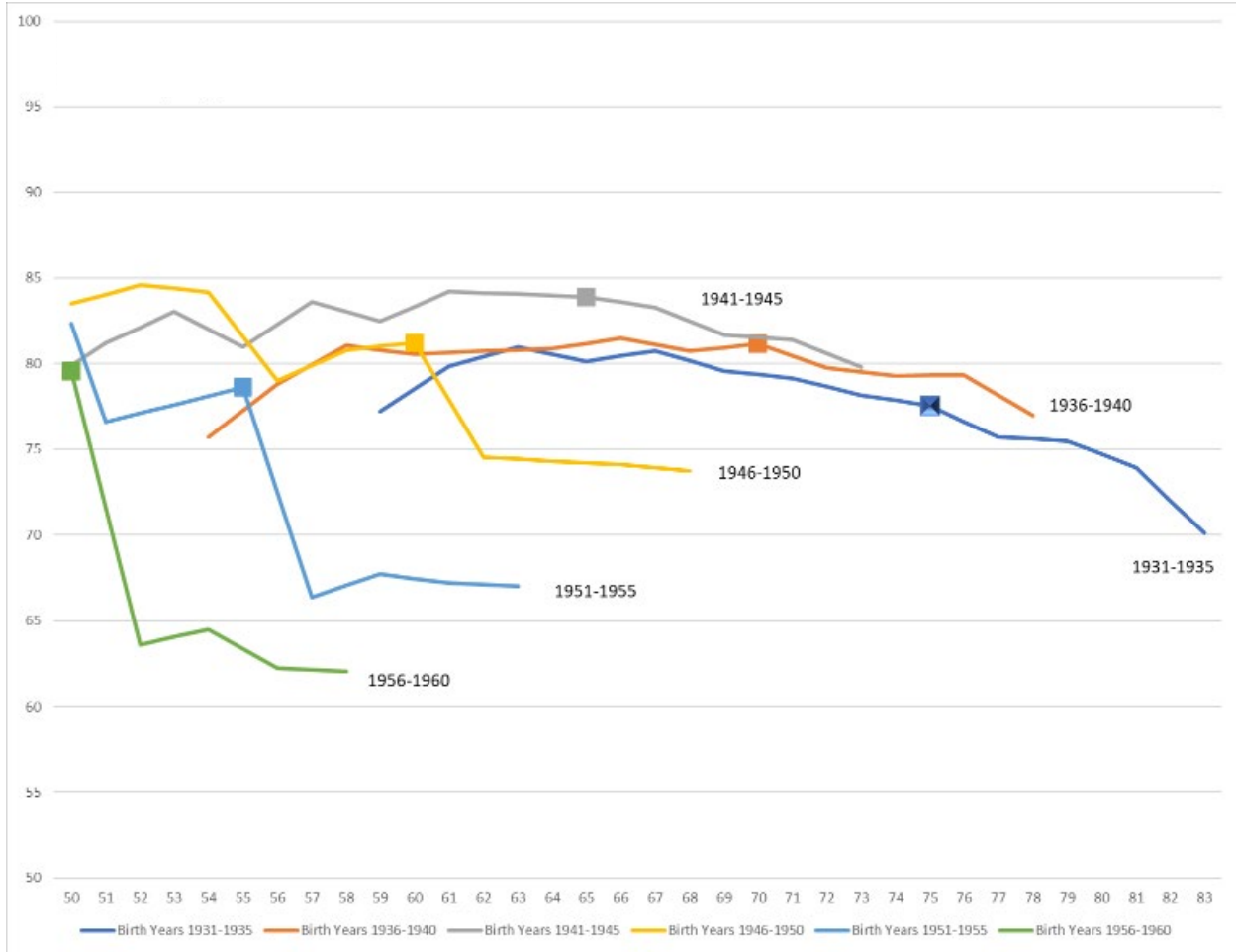
Loan-to-value ratios have generally continued to decline, shown in Figure 2, securing home value that might otherwise be at risk in a future shock to the housing market.

In fact, while the loan-to-value ratio has generally been higher for later cohorts at similar ages, some initial evidence suggests that, since the 2008 Great Recession, the youngest cohorts are accelerating mortgage pay-down relative to those who came before them. As a result, more recent cohorts may have better financial well-being in retirement than is often portrayed in the mainstream media. Though, again, these data do not reflect the current 2020 economic downturn.

Figure 2. *Average Loan-to-Value Ratio by Birth Year Cohort (Percentage)*

Notes: Data point exhibited as a square indicates the 2008 survey year, corresponding with the 2008 financial crisis. X-axis is average age, y-axis is percent.
Source: Author's calculations from RAND HRS v1 (2016).

Additionally, as shown in Figure 3, the percentage of households that own their primary home and pay off their mortgage steadily increases with age. While the 1931-1935 birth year cohort generally exhibits higher levels of mortgage-free homeownership than other cohorts, the percentage of homeowners that have paid off their mortgage steadily increases with age. For example, for those in the 1931-1935 birth year cohort, who had an average age of 83 in 2016, almost 85 percent of those that owned a home had paid off their mortgage. The trend of paying off the mortgage was uninterrupted by the Great Recession. Although noted in Figure 2 that homeownership rates declined after the Great Recession, for those that maintained homeownership, they continued the trend of paying off their mortgage as they got older. It is unclear whether or not this trend will continue as a result of the 2020 economic recession.

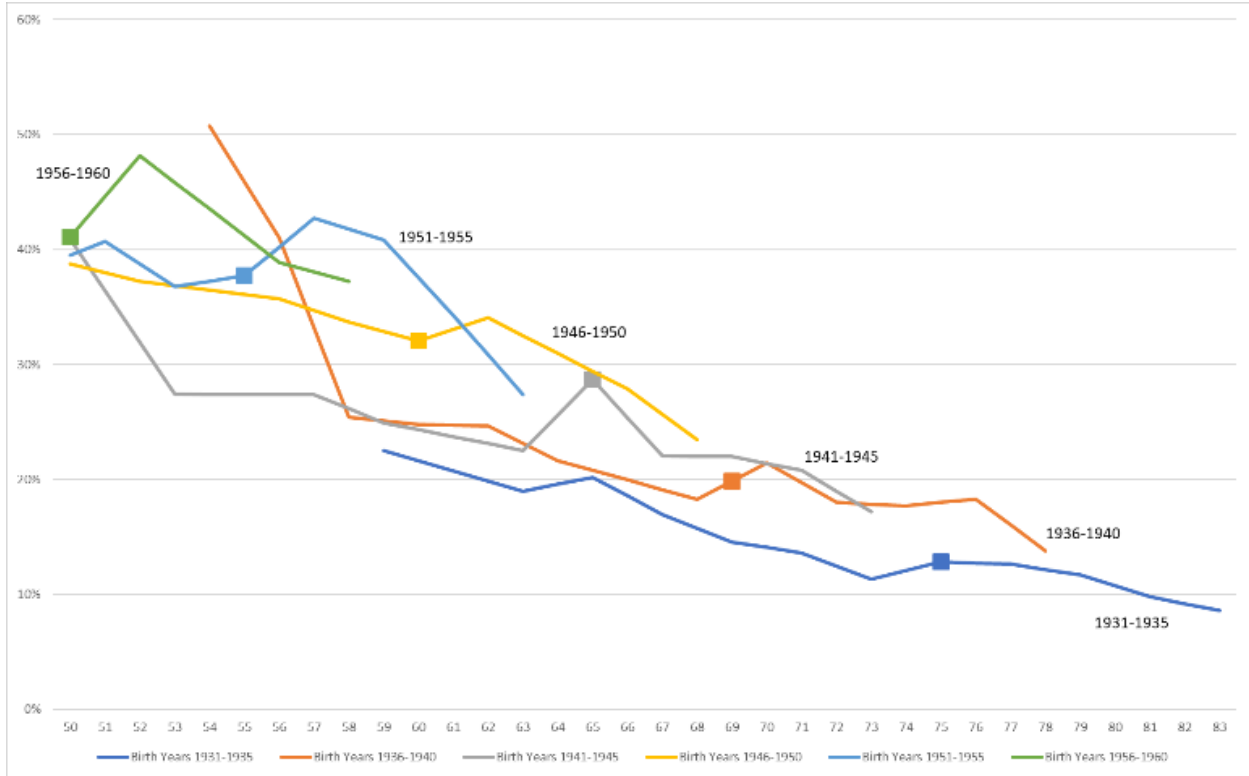Figure 3. *Paid Off Mortgage by Birth Year Cohort (Percentage)*

Notes: Data point exhibited as a square indicates the 2008 survey year, corresponding with the 2008 financial crisis. X-axis is average age, y-axis is percent.
Source: Author's calculations from RAND HRS v1 (2016).

In response to the Great Recession, the HRS added a few questions beginning in 2008 to study whether survey respondents had refinanced their homes in the last two years and, if so, why. These questions were only asked through the 2014 HRS. While the sample size is limited and there are only a few years of data, some interesting observations are still worth noting. Figure 4 shows the percentage of households in the HRS that refinanced, conditional on owning a home, sorted by birth year cohort.

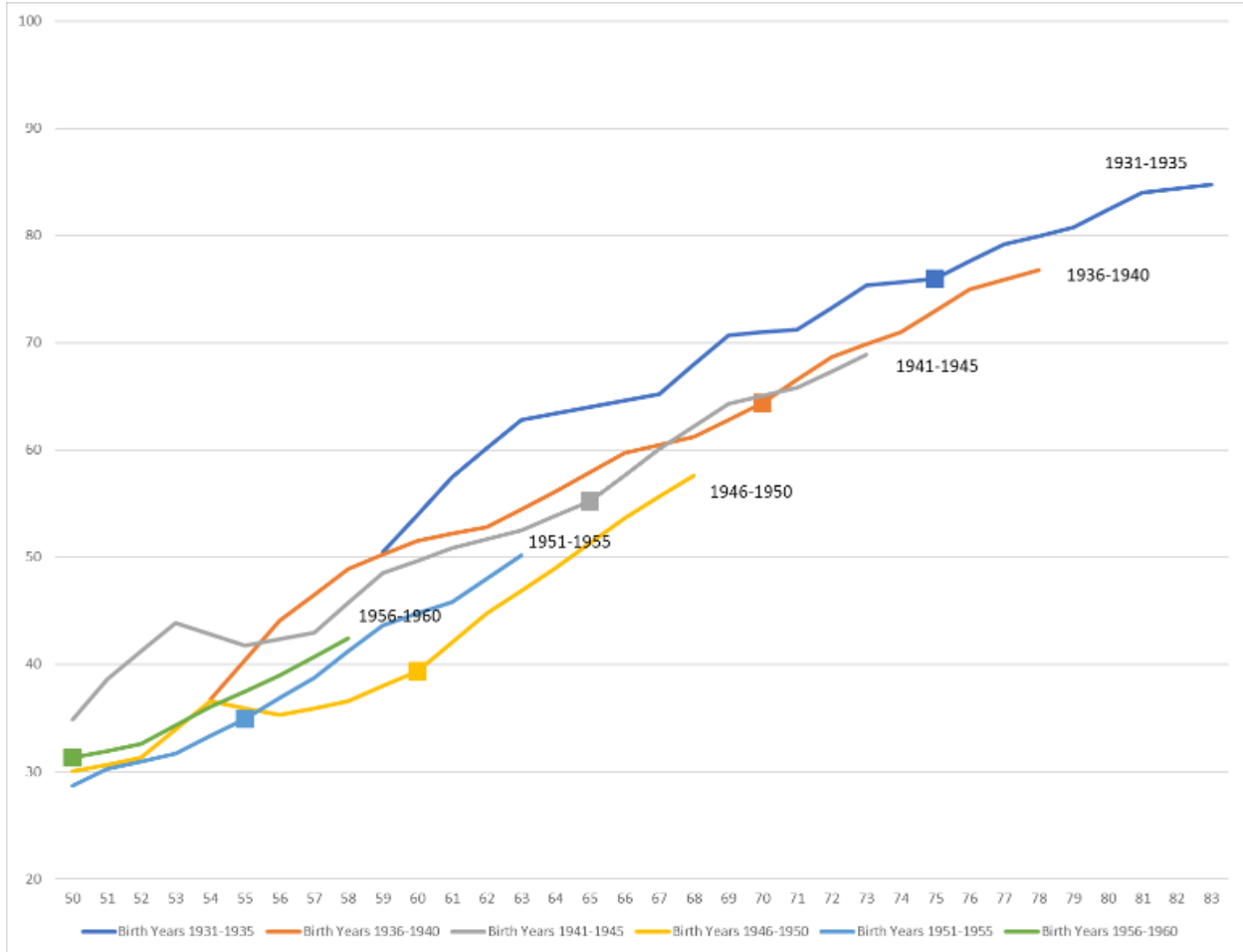Figure 4. *Households that Refinanced by Birth Year Cohort (Percentage)*
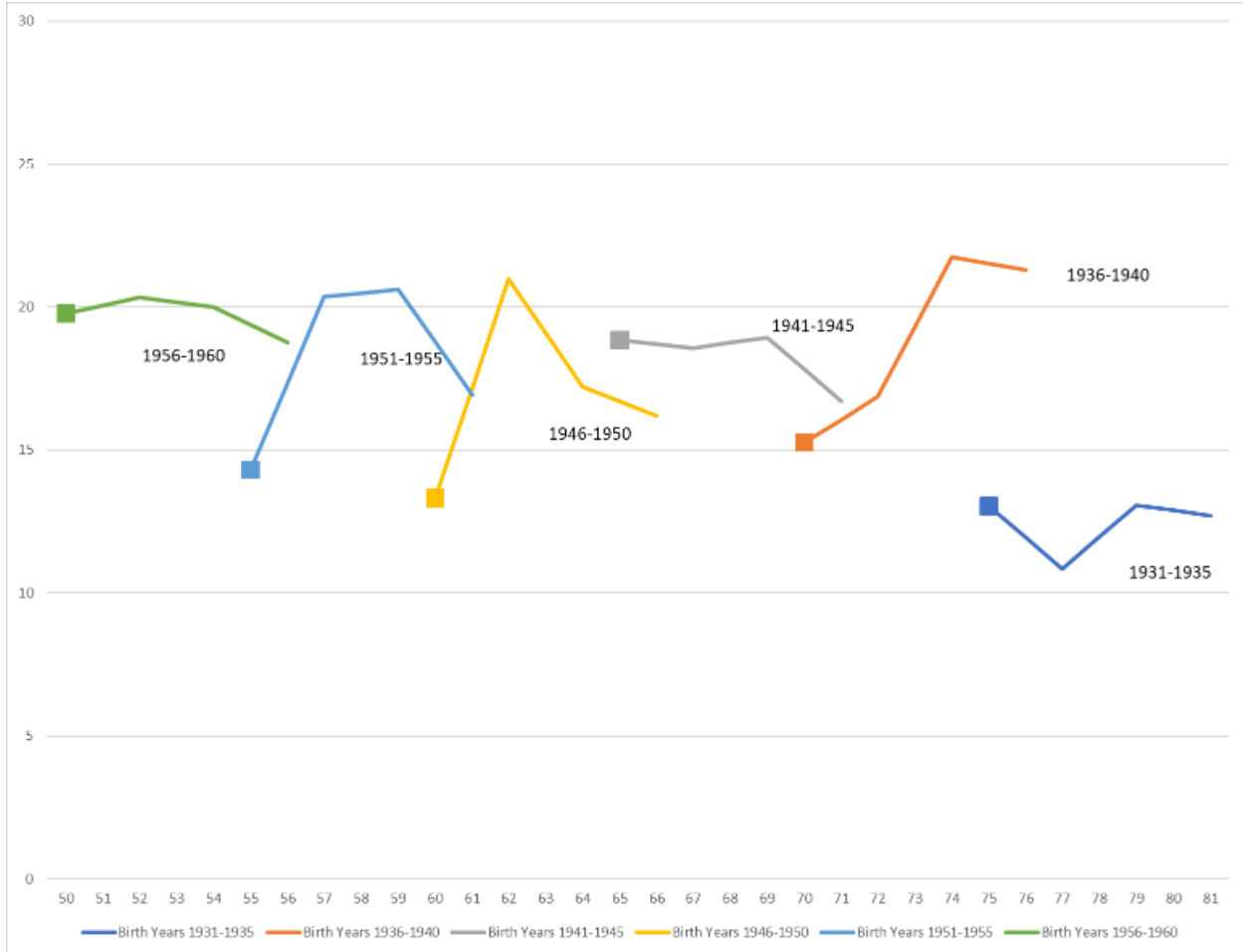
Notes: Data point exhibited as a square indicates the 2008 survey year, corresponding with the 2008 financial crisis. X-axis is average age, y-axis is percent.
Source: Author's calculations from RAND HRS v1 (2016).

The older 1931-1935 birth year cohort, who had average ages of 75-81 during the survey period, exhibits the lowest level of refinancing. Between 11 percent and 13 percent of those in the HRS in the 1931-1935 birth year cohort that owned their home refinanced between 2008 and 2014. The youngest birth year cohort (1956-1960) exhibits a consistent level of homeowners that refinanced during the survey period, near 20 percent. Interestingly, the middle birth year cohorts all showed an increase in the percentage of those with a home that refinanced after the Great Recession. Given the small sample size and limited number of survey years in which questions related to refinancing were asked, generalizations from these observations need to be taken carefully.

When asked why they refinanced, between 2010 and 2014 for the 1931-1935 birth year cohort, between 61 percent and 68 percent of refinances were done "to get a lower interest rate." The comparable figure for 2008 was 29.7 percent. A relatively consistent number of respondents across cohorts responded that they refinanced in order to reduce the amount of mortgage payments. Ignoring the 2008 survey year, and just focusing on 2010, 2012 and 2014, the percentage of respondents who refinanced and replied that they did so in order to reduce the amount of mortgage payments ranged from a low of 5.1 percent for the 1951-1955 birth year cohort in 2010, to a high of 21.9 percent for the 1936-1940 birth year cohort in 2014.

Also, of interest, a very low percentage of those that refinanced did so in order to consolidate debt. With the exception of the 1931-1935 birth year cohort in 2008, in no other year for any cohort did the share of people indicating they refinanced in order to consolidate debt reach 6 percent.

The responses for the 2008 wave of the HRS, at the time of the Great Recession, are particularly noteworthy. In 2008, of those that refinanced in the 1931-1935 birth year cohort, 37.8 percent indicated they did so in order to "to raise cash for other things." This was the greatest response for this cohort in 2008. Similarly, "to raise cash for other things" was also the greatest response for the 1936-1940 birth year cohort (42.0 percent) and the 1951-1955 birth year cohort (40.6 percent). The response was a close second for the 1941-1945 birth cohort (29.0 percent) and the 1946-1950 birth year cohort (30.8 percent). Raising cash for other things could be anything, including health shock, financial shock, travel, etc. However, it is worth noting that the number of households indicating they refinanced to raise cash for other things markedly drops after 2008 in the 2010, 2012 and 2014 HRS, suggesting that for many of those that owned a home, home equity was a significant financial lifeline during the Great Recession.

Panel 3: Health Risks for Work and Finances

Moderator

Susan Wilschke (U.S. Social Security Administration)

The Interaction of Health, Genetics, and Occupational Demands in SSDI Determinations

Amal Harrati (Stanford University) and **Lauren L. Schmitz** (University of Wisconsin-Madison)

Cognitive Ability, Cognitive Aging, and Debt Accumulation

Marco Angrisani, **Jeremy Burke**, and Arie Kapteyn (University of Southern California)

Financial Consequences of Health and Healthcare Spending Among Older Couples

Lauren Hersch Nicholas (Johns Hopkins University) and Joanne Hsu (Federal Reserve Board

The Interaction of Health, Genetics, and Occupational Demands in SSDI Determinations

Amal Harrati (Stanford University) and
Lauren L. Schmitz (University of Wisconsin-Madison)[*]

Background

Evaluations of Social Security Disability Insurance (SSDI) applications consider health and vocational factors such as age, education, and work experience to determine whether individuals can meet workplace demands. Understanding the extent to which health and job demands contribute to SSDI application and receipt is important for policy solutions that seek to reduce the share of workers on DI benefits. However, disentangling their relative contributions is challenging, because selection into occupation by health is often unobserved and data on occupational demands for employment histories are limited.

In this study, we triangulate between these factors by using a rich set of data linkages from the *Health and Retirement Study* (HRS). First, we ask whether differences in SSDI application, receipt, and denial are a function of the occupational demands of applicants' employment histories. Second, we examine whether these differences can be explained by life course factors that affect occupational selection. Finally, we explore the role of health in the selection process by using genetic data as a proxy for underlying health. We find the following: Structural and social inequities that influence access to opportunity, including race and childhood socioeconomic status (SES), are more strongly associated with the probability of SSDI application than workplace demands. The exception is a positive psychosocial work environment that gives individuals greater control over how to best meet the demands of their jobs, which is negatively associated with SSDI application.

Conditional on SSDI application, physical, mental, and sensory job demands display stronger associations with SSDI approvals and denials than structural or social factors. Higher genetic risk for depression, cardiovascular disease, high BMI, dementia, and rheumatoid arthritis are independently associated with SSDI application and approval.

Data, Sample, and Variable Measures

Data are from the HRS, a nationally representative study on Americans over age 50 with rich information on health and employment from 1992-2016. We merge demographic and life course socioeconomic data with restricted and sensitive health data from: 1) Form 831 Disability Records; 2) expert ratings of job demands from the Occupational Information Network (O*NET); and 3) polygenic risk scores (PGSs). Form 831 data contain information on dates of application and reasons for approvals or denials for respondents who applied for disability benefits under Title II (SSDI) and Title XVI (SSI). We focus on SSDI applications. The O*NET includes a rich set of over 200 job demand ratings that we link to HRS respondents using restricted three-digit occupation codes for their longest-held job.

Sample

Our total sample includes 22,752 individuals who are part of the nationally representative HRS sample born between 1924 and 1959. Of these, 1,665 respondents have an SSDI application record in the linked Form 831 file. Individuals with missing occupation data were excluded from the analysis. Our genetic subsample contains 8,638 European ancestry individuals.[1] Of these, 703 are in the Form 831 SSDI subsample.

SSDI Outcomes

We examine three SSDI-related outcomes: 1) whether a respondent applied to SSDI; 2) whether respondents in the Form 831 file were approved; and 3) whether respondents were approved or denied for medical or work capacity reasons. For occupation, three-digit Census occupation codes were used to classify workers into two-digit categories for their self-reported longest held job. These include white-collar (e.g., managerial, professional, administrative, sales), blue-collar (e.g., mechanical/construction, operators/fabricators, farmers), and service occupations.

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[1] PGSs are calculated within ancestry groups because of evolutionary differences across populations (Martin et al. 2017). Estimates for one ancestral group are not necessarily accurate or valid for another. Thus, we restrict our analyses to individuals of European ancestry to avoid spurious conclusions in non-European ancestry populations.

Occupational Demands

Table 1 shows the job demand indicators we derived from the O*NET data using confirmatory factor analysis. Four composite indicators are aimed at mirroring the demands detailed in the SSA vocational grid: physical, mental, sensory, and environmental demands. We also incorporate a measure of the psychosocial environment (degree of control and influence) that is consistently found to discourage disability claims and premature retirement in the occupational health literature (e.g., Karasek and Theorell 1992, Ilmarinen and Rantanen 1999, Bakker et al. 2003).

Table 1. *Job Demand Indicators Derived from the O*NET*

	SSA work capacity requirements	Corresponding O*NET variables
Physical demands	Climbing, balancing, fingering and feeling (manual dexterity), kneeling and crawling, stooping, crouching, need to sit and stand, reaching and handling.	Climbing ladders, scaffolds, or poles, using hands to handle, control, or feel objects, tools, or controls, kneeling, crouching, stooping, or crawling, standing, or moving objects.
Sensory demands	Ability to hear and retain sufficient visual acuity to handle work and avoid ordinary hazards.	Auditory and speech abilities or visual abilities.
Mental demands	Ability to understand, carry out, and remember simple instructions, use judgement, respond appropriately to supervision, coworkers, and usual work situations.	Oral comprehension, organizational and communication skills, developing constructive working relationships, and being able to concentrate over a period of time without being distracted.
Environmental demands	Being near dangerous moving machinery, working with chemicals, or exposure to excessive dust, noise, extreme heat or cold.	Exposure to weather, extreme temperatures, light, noise, contaminants, or cramped spaces.
Psychosocial environment	N/A, based on evidence from occupational health models	Allows worker to use their abilities, gives them a sense of achievement, independence, variety, authority, creativity, and status.

Note: SSA work capacity requirements were obtained from the public version of the Program Operations Manual System (POMS) on the SSA website.

Polygenic Scores (PGSs)

We include five PGSs that overlap with prevalent medical impairments in SSDI applications: depressive symptoms (mental disorders), rheumatoid arthritis (musculoskeletal), high BMI (endocrine and metabolic disorders), myocardial infarction (cardiovascular problems), and general cognition (Okada et al. 2014, Nikpay et al. 2015, Davies et al. 2015, Okbay et al. 2016, Yengo et al. 2018). PGSs are continuous measures of genetic propensity that aggregate the contribution of millions of genetic markers across the genome to create a single scalar of genetic risk for a specific trait or disease. Unlike observed health, which is endogenous to DI claiming, genetic markers are exogenous because they are assigned at birth and are largely unknown to individuals. Thus, we conceptualize PGSs as measuring unobserved propensities that could contribute to health and job selection. One disadvantage of using PGSs is that they can display relatively weak signals and low explanatory power due to a number of technical reasons and to the fact that genetic propensities are by no means prescriptive and are influenced by, or work through, environmental factors.

Life Course Determinants of Occupational Selection

We include self-reported childhood health (in models without PGSs), composite measures of childhood SES that capture social capital (maternal investment and family structure), human capital (parental education), and financial capital (financial resources and instability) (Vable et al. 2017), childhood Census region, and completion of a GED/HS degree.

Empirical Model

Our primary model is a stepwise, linear probability model. We examine the probability of our three SSDI outcomes as a function of longest held job and, sequentially, occupational demands, education, childhood SES, and childhood health or genetic risk. All models control for baseline covariates (see Figure 1 note). In all analyses, we use weights provided by the HRS that adjust for bias from non-consent to SSA data linkage.

Results and Discussion

DI Outcomes, Occupation, and Job Demands

Figure 1 displays the results of our stepwise model for the probability of SSDI claiming (excluded category is "professional"). The first set of bars display the occupational gradient in SSDI application, wherein white-collar workers have a much lower likelihood of SSDI application relative to their counterparts in blue-collar and service occupations. We observe this same gradient for approvals. The inclusion of job demands does very little to change the relationship between occupation and the probability of SSDI application or approvals. The exception is the degree of control and influence a worker has over their day-to-day workload, which is significantly associated with SSDI application and attenuates the occupational gradient for white-collar occupations. However, conditional on application, physical, mental, and sensory demands, but not psychosocial demands, are associated with the probability of SSDI approval. In other words, at the intensive margin, occupational demands specified in the SSA medical vocational grid are more strongly associated with DI outcomes.

Figure 1. *Estimated Probability of SSDI Application across Occupations (Omitted Category: Professional)*
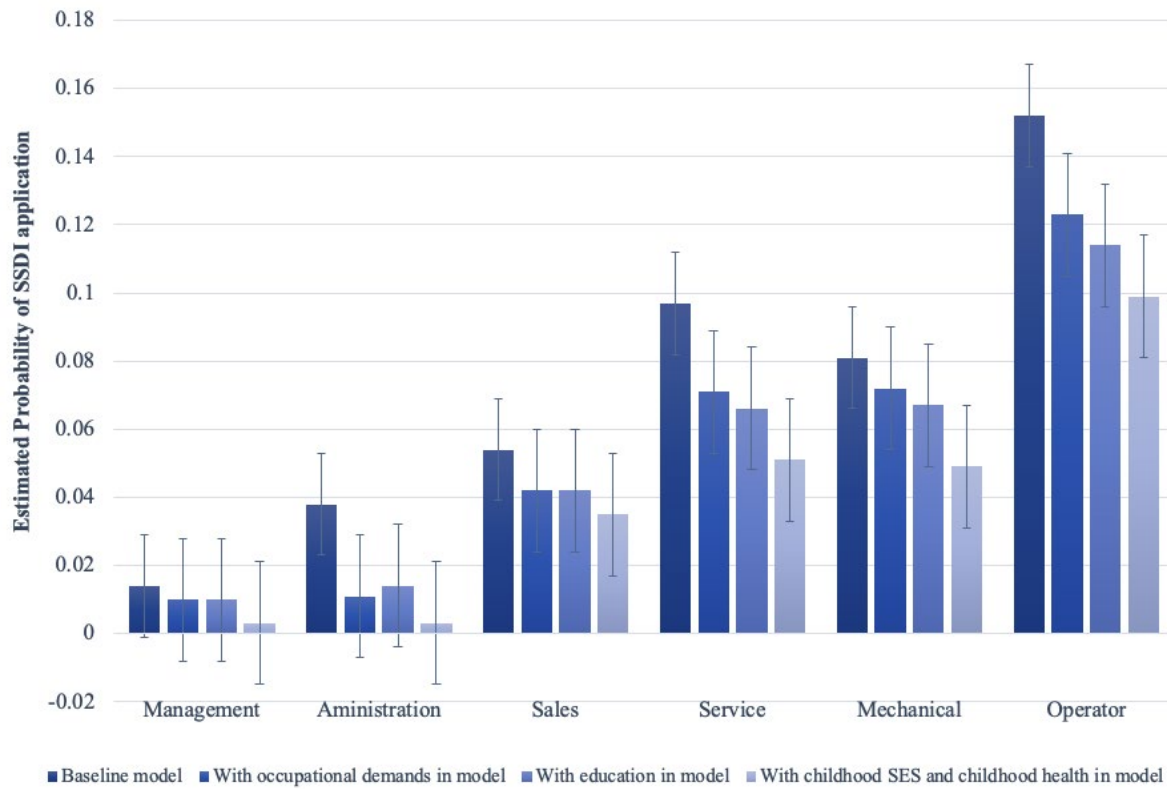
Notes: N=22,752. Bars reflect coefficients from separate linear probability models that regress DI application on fixed effects for occupation, race, sex, survey year, HRS cohort, industry, and residential Census division. We also control for age and age^2 at first claim for applicants or at baseline for non-applicants. Model 2 adds the job demands listed in Table 1. Model 3 adds completion of a GED/HS degree. Model 4 adds childhood SES and health.

Life Course Selection Factors

To examine the role of selection in occupational choice and DI outcomes, we included important life course factors that may influence occupational choice: completed education, childhood SES, and self-reported childhood health. All factors are strongly associated with the probability of SSDI application. These associations disappear at the intensive margin when we examine approvals and reasons for approvals/denials. The inclusion of life course selection factors in our model also attenuates the remaining occupational gradient in DI application slightly, but strong relationships between blue-collar and service occupations and the probability of DI application remain (see Figure 1).

We interpret these findings to reflect the idea that structural and social inequities that influence access to opportunity and educational attainment (including race, childhood SES, and

education) are important mechanisms in getting an individual "to the door" of the DI system; however, conditional on DI application, approvals and denials appear to be a function of the determination process itself and not of larger, life course selection mechanisms.

The Role of Health and Genetics

Finally, we consider the role of health selection into DI more carefully with PGSs, which we conceptualize as a measure of unobserved health. Table 2 confirms that PGSs capture statistically significant differences in underlying health between SSDI applicants and non-applicants. DI applicants have higher average genetic risk for depression, high BMI, myocardial infarction (MI), rheumatoid arthritis, and lower cognitive function. We also find that genetic risks correspond to the health conditions cited in DI applications; PGSs for depressive symptoms and MI are significantly associated with body system codes related to mental health cardiovascular function. We do not see any difference in genetic risk for approvals vs. denials or across reasons for approval or denial.

Table 2. *Mean Differences in Polygenic Risk Scores by SSDI Application Status*

| Polygenic risk score (PGS) | Did not apply to SSDI | | Did apply to SSDI | | |
	Mean difference	SE	Mean difference	SE	Difference
Depressive Symptoms PGS	-0.043	0.016	0.089	0.032	-0.132***
BMI PGS	-0.034	0.013	0.166	0.044	-0.201***
MI PGS	-0.024	0.018	0.113	0.044	-0.137***
General Cognition PGS	0.018	0.017	-0.128	0.038	0.157***
Rheumatoid Arthritis PGS	-0.125	0.012	-0.058	0.034	-0.0673*

Notes: SE: standard error. N= 8,638. ***p<0.01; **p<0.05; *p<0.10. BMI: body mass index. MI: myocardial infarction.

When we include PGSs in the stepwise model, we see strong associations between genetic propensity for depression and high BMI on the probability of application, and a remaining association with depression for approvals/denials. The inclusion of the PGSs explains ~1 percent of the model R^2 for DI application, which is similar to the explanatory power of self-reported childhood health. PGSs also attenuate the DI-occupational gradient to the same extent as childhood health. This suggests PGSs can act as exogenous proxies for underlying health, which our findings suggest is an independent contributor to SSDI application and receipt.

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Cognitive Ability, Cognitive Aging, and Debt Accumulation

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Introduction

      While a large literature has examined savings behavior and accumulation among older adults, relatively little research has explored older adults' debt behaviors and outcomes. Recent work by Lusardi, Mitchell, and Oggero (2020) shows that older adults from recent generations tend to hold more debt than their predecessors, particularly mortgage debt, and correspondingly face greater financial insecurity near retirement age. While documenting such trends is an important first step, developing policy interventions to counteract them requires identifying the underlying drivers of the observed surge in debt burdens among recent older adults. One potential candidate is the increasing complexity of financial products targeted to consumers in the past few decades (Célérier and Vallee, 2017), particularly among mortgage products (Amromin et al., 2018). Figure 1 documents that originations of complex mortgages with zero or negative amortization surged in the early 2000s and subsequently reduced sharply after the financial crisis. Consumers from later cohorts may have difficulty appropriately selecting among and using these increasingly complicated instruments (Brown et al., 2017; Hastings and Mitchell, 2018). This may be particularly true for individuals with low cognitive ability and older individuals experiencing cognitive decline. As the financial landscape has become progressively more complex, the rise in debt burdens may be concentrated on those who are less cognitively able, raising concerns about the economic security of individuals who may not be adequately equipped to navigate the system.

Figure 1. *Increasing Complexity in Mortgage Products, 1998-2009*
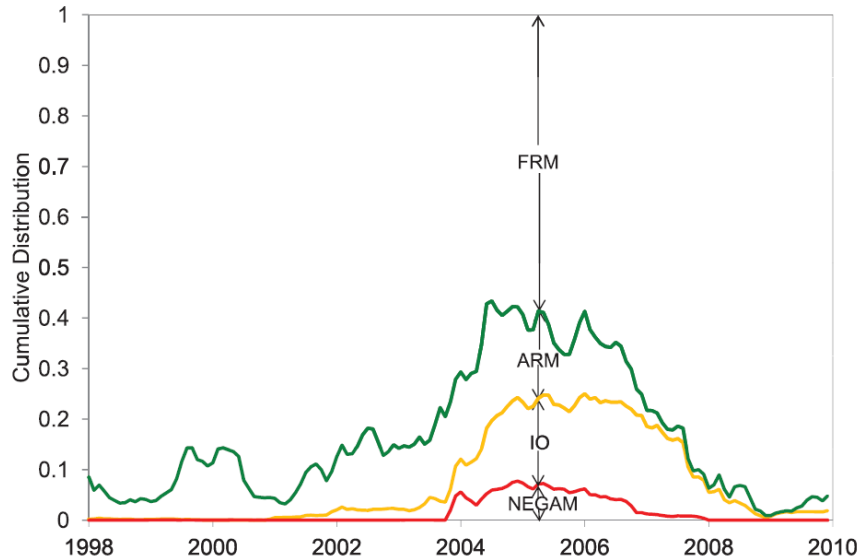
Note: The figure shows the composition of fixed-rate mortgages (FRM), adjustable-rate mortgages (ARM), interest-only mortgages (IO), and negative-amortization mortgages (NEGAM) originated between 1998 and 2009. *Source:* Amromin et al. (2018).

Approach

In this paper, we use data from the *Health and Retirement Study* (HRS) to examine how cognitive ability and cognitive aging are related to debt accumulation among older adults, and how this varies over time as financial products have become progressively more complex. In similar spirit to, and building upon, Lusardi, Mitchell, and Oggero (2020), we create three age groups, 56-61 (pre-retirement age), 62-67 (retirement age), and 68-73 (post-retirement age), each observed at three different points in time, namely 1998, 2006, and 2014, and therefore belonging to different cohorts (e.g., those 56-61 surveyed in 1998 were born 1937-42, those 56-61 surveyed in 2006 were born 1945-50, those 56-61 surveyed in 2014 were born 1953-58). The difference between time periods allows us to compare cohorts relatively unexposed to a surge in financial product complexity (1998), those exposed to increasing complexity, yet observed prior to the financial crisis (2006), and those who faced increasing complexity and observed after the crisis (2014).

We complement this analysis with additional data drawn from the *Understanding America Study* (UAS). The UAS data span 2015-2019 and allow us to verify the robustness of the relationship between cognitive ability and debt burdens in more recent years. Furthermore,

our UAS data contain a wealth of additional characteristics, including financial literacy, enabling us to examine the extent to which the relationship between cognitive ability and debt exposure is driven by financial sophistication.

Results

Similar to prior research, we find that debt burdens among those approaching retirement age have increased substantially in recent decades. We also show that this pattern extends to individuals who are post-retirement age (ages 68-73) as well. The fraction of individuals holding debt in this age group increased from 37 percent in 1998 to 54 percent in 2014, and average debt burdens more than doubled from approximately $22,000 in 1998 to $47,000 in 2014 (measured in 2014 dollars).

Of central interest to this paper, we find that cognitive ability is an important predictor of debt burdens in older age, and that this relationship has changed over time. In particular, those with higher cognitive ability have taken on *higher* debt levels relative to their counterparts in more complex financial environments. Table 1 shows that for each additional point on cognitive ability score,[1] older adults held $1,100 additional dollars in total debt in 2006 and $1,800 additional dollars in total debt in 2014 relative to before the increase in financial product complexity in 1998. This pattern holds across age groups, even for adults aged 68-73.

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[1] The cognitive ability score is obtained as by summing scores on immediate and delayed word recall (0 – 20 points) test, a serial 7s test in which responds are asked to subtract seven from 100 and then continue to subtract seven from the resulting figure five times (0 – 5 points), and a backward counting test from 20 (0 – 2 points).

Table 1. *Cognitive Ability and Total Debt by Age Group over Time*

Variables	(1) Total debt ($10k) 56-73	(2) Total debt ($10k) 56-61	(3) Total debt ($10k) 62-67	(4) Total debt ($10k) 68-73
Cog ability	0.061***	0.098***	0.064***	0.021
	(0.014)	(0.027)	(0.022)	(0.020)
Cog abi * 2006	0.110***	0.207***	0.060	0.076**
	(0.024)	(0.050)	(0.039)	(0.032)
Cog abi * 2014	0.180***	0.110***	0.214***	0.180***
	(0.025)	(0.042)	(0.039)	(0.040)
2006	0.158	-0.941	0.963*	-0.106
	(0.347)	(0.788)	(0.586)	(0.447)
2014	-1.004***	-0.144	-1.484***	-0.783
	(0.350)	(0.646)	(0.562)	(0.560)
Age	-0.218***	-0.196***	-0.137***	-0.173***
	(0.010)	(0.051)	(0.047)	(0.042)
Female	-0.770***	-0.852***	-0.706***	-0.831***
	(0.101)	(0.180)	(0.167)	(0.156)
Married	1.931***	2.863***	1.548***	0.940***
	(0.119)	(0.191)	(0.195)	(0.156)
Num children	0.098***	0.038	0.122***	0.157***
	(0.020)	(0.039)	(0.035)	(0.030)
White	0.402***	0.973***	-0.028	-0.431**
	(0.122)	(0.201)	(0.192)	(0.185)
More than HS	2.881***	3.660***	2.312***	2.186***
	(0.131)	(0.196)	(0.189)	(0.176)
HHI ($10k)	0.040	0.026	0.121***	0.056**
	(0.025)	(0.021)	(0.031)	(0.025)
Poor health	-0.690***	-1.081***	-0.389**	-0.402***
	(0.104)	(0.184)	(0.179)	(0.138)
Constant	13.793***	10.923***	8.552***	12.681***
	(0.674)	(3.022)	(3.067)	(2.973)
Observations	30,211	11,014	10,443	8,754
R-squared	0.125	0.134	0.115	0.090

Notes: Debt levels are winsorized at the 99% level. Robust standard errors in parentheses. For column 1, standard errors are clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1.

Much of the increase in total debt is due to individuals with higher cognitive ability taking on more mortgage debt, and we find evidence that older adults with higher cognitive ability take on more mortgage debt in response to increasing local home prices compared to their counterparts with lower cognitive ability. However, these patterns are not confined solely to

housing debt – we also find that older adults with higher cognitive ability take on more "other debt" (which includes credit card debt) in more complex financial environments.

Using additional and more recent data from the UAS, we find that after controlling for financial literacy, the relationship between debt burdens and cognitive ability essentially vanishes, while financial literacy is strongly predictive of higher debt burdens. This highlights the fact that it is the more financially sophisticated who appear to be taking on more debt in increasingly complex financial environments. However, we find evidence that even higher cognitive ability individuals may have difficulty managing their debt burdens in more complex environments.

After the increase in financial complexity, and particularly after the financial crisis, individuals with higher cognitive ability hold less total wealth, less liquid wealth, and are more likely to have debt levels that exceed half their assets than their higher cognitive ability counterparts prior to the expansion in complexity. In particular, Table 2 shows that in 2014, after controlling for year fixed effects, a one-point increase in cognitive ability is associated with $5,400 less total wealth than prior to the increase in financial complexity. The association is particularly acute for the pre-retirement and the retirement age groups – for individuals age 56-61 and 62-67, a one-point increase in cognitive ability is associated with $8,700 and $7,800 less wealth in 2014 relative to 1998, respectively.

Table 2 also documents that individuals with higher cognitive ability post-crisis are more likely to hold debt burdens that are more than half their assets relative to their counterparts prior to the increase in financial complexity. In particular, a one-point increase in the cognitive ability index is associated with a half a percentage point increase in being highly leveraged, a four percent increase relative to the mean. This association is driven by the youngest and oldest age groups, with similar magnitudes to the observed relationship in the population at large.

Table 2. *Cognitive Ability and Financial Fragility*

Variables	(1) Total wealth ($10k) 56-73	(2) Debt/assets > 0.5 56-73	(3) Liquid wealth ($10k) 56-73
Cog ability	1.435***	-0.001	0.593***
	(0.144)	(0.001)	(0.061)
Cog abi * 2006	0.562**	0.001	-0.141*
	(0.218)	(0.001)	(0.077)
Cog abi * 2014	-0.540**	0.005***	-0.378***
	(0.230)	(0.001)	(0.092)
2006	-1.441	0.021	1.146
	(3.139)	(0.016)	(1.124)
2014	1.790	0.012	1.981*
	(2.944)	(0.018)	(1.188)
Age	1.435***	-0.008***	0.549***
	(0.097)	(0.000)	(0.036)
Female	0.059	-0.010**	0.417
	(0.950)	(0.004)	(0.428)
Married	23.907***	-0.040***	4.852***
	(1.507)	(0.005)	(0.586)
Num children	-1.773***	0.008***	-0.645***
	(0.167)	(0.001)	(0.078)
White	17.943***	-0.047***	5.730***
	(1.068)	(0.006)	(0.420)
More than HS	27.914***	-0.007*	9.048***
	(1.721)	(0.004)	(0.680)
HHI ($10k)	0.924**	-0.001**	0.289*
	(0.432)	(0.000)	(0.158)
Poor health	-13.924***	0.052***	-3.671***
	(1.086)	(0.005)	(0.415)
Constant	-105.852***	0.631***	-41.467***
	(6.750)	(0.027)	(2.618)
Observations	30,211	30,211	30,211
R-squared	0.211	0.048	0.131

Notes: Wealth levels are winsorized at the 99 percent level. Robust standard errors in parentheses. For column 1, standard errors are clustered at the individual level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Perhaps of most concern, much of the reduction in wealth for higher cognitive ability older adults post-crisis came in the form of lower liquid wealth (wealth in checking and savings, certificates of deposit, and bonds and stock outside of retirement accounts).[2] Relative to the period prior to the expansion in financial complexity, in 2014 a one-point increase in cognitive

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[2] Overall patterns remain similar when we exclude stock holdings from liquid wealth.

ability is associated with $3,800 less in liquid wealth. This relationship is particularly acute for adults age 68-73, for whom a one-unit increase in cognitive ability is associated with $6,000 less in liquid wealth. Lower levels of liquid wealth may be particularly problematic for post-retirement age adults for whom it may be difficult to deal with unexpected financial shocks through additional engagement in the workforce.

Conclusion

We examine how cognitive ability is related to older adults' debt burdens, and how this varies over time with the increasingly complex financial landscape. Using data from the HRS and the UAS, we find that cognitive ability is an important predictor of debt burdens in older age, and that this relationship has changed over time during the period of expansion in financial complexity. Our results suggest that older adults with higher cognitive ability have taken on more debt relative to their counterparts in more complex financial environments. This relationship holds across our age groups of interest – adults 56-61 (pre-retirement age), 62-67 (retirement age), and 68-73 (post-retirement age) – and is particularly pronounced post-financial crisis. Much of the increase in total debt is due to older adults with higher cognitive ability taking on disproportionately more mortgage debt. Housing debt does not tell the entire story, however, as older adults with higher cognitive ability also took on more other debt (which includes credit card and medical debt) in the more complex financial environments.

While there has been some concern that increasing financial complexity will be borne on the backs of relatively unsophisticated consumers who will become increasingly indebted due to poor choice of debt instruments, this hypothesis does not seem well supported by the data. In fact, our results suggest that individuals with higher cognitive ability, and particularly higher financial literacy, are more likely to take on higher debt burdens in more complicated financial environments. This is consistent with research documenting that risky and complex financial instruments are more likely to be adopted by relatively financially sophisticated individuals (van Ooijen and van Rooij 2016; Amromin et al. 2018).

We also find evidence that higher cognitive ability individuals may be having difficulty managing their debt burdens in more complicated environments. After the increase in financial complexity, and particularly after the financial crisis, individuals with higher cognitive ability hold less total wealth, less liquid wealth, and are more likely to have debt levels that exceed half

their assets than their higher cognitive ability counterparts prior to the expansion in complexity. All told, we find that individuals with higher cognitive ability disproportionately increased their debt burdens during the increase in financial product complexity, and that subsequently they were more financially fragile than similar individuals in previous cohorts.

While our findings are in line with and build upon prior work, our analysis is unable to establish causality between increasing financial complexity and increasing debt burdens among individuals with high cognitive ability. However, our results do underscore the fact that recent cohorts of older adults are increasingly financially fragile and that this fragility is not confined solely to those who are less sophisticated. Older adults with larger debt burdens are, all else equal, more likely to be adversely impacted by financial shocks. Retirement security for current and future retirees may be more in jeopardy across the financial sophistication spectrum, and older adults may be less financially resilient to financial shocks than past cohorts.

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Financial Consequences of Health and Healthcare Spending Among Older Couples

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Dementia, a chronic, degenerative disease characterized by deteriorating cognition, represents a particularly aggressive threat to older adults' financial well-being. Dementia-linked adverse financial events have the potential to deteriorate retirement savings, increasing financial strain and potentially demand for Medicaid and Supplemental Security Income. The presence of an unimpaired spouse may protect dementia patients if the unimpaired spouse intervenes, or both spouses may be harmed by financial errors committed by the dementia patient. Findings from this study will provide the Social Security Administration with important information about the impacts of dementia on the financial well-being of married couples and provide baseline information about the co-movement of spousal credit outcomes.

Since dementia typically occurs late in life and at a point when patients and their spouses face limited ability to replace retirement savings lost, early detection and strategies to prevent financial mistakes for these households can play an important role in household financial well-being.

The number of older adults living with dementia is rapidly growing. Dementia-linked adverse financial events have the potential to deteriorate retirement savings, increasing financial strain and demand for Medicaid and Supplemental Security Income. The presence of an unimpaired spouse may protect dementia patients if the unimpaired spouse intervenes, or both spouses may be harmed by financial errors committed by the dementia patient. Understanding the numbers of older Americans experiencing adverse financial events due to dementia can inform policies to protect a vulnerable population.

Panel 4: State and Local Labor Markets

Moderator

Kathleen Mullen (RAND Corporation)

Disability Insurance for State and Local Employees: A Lay of the Land

Anek Belbase, **Laura D. Quinby**, and James Giles (Boston College)

Understanding the Local-Level Predictors of Disability Program Applications, Awards, and Beneficiary Work Activity"

Jody Schimmel Hyde and **Dara Lee Luca** (Mathematica), Paul O'Leary (U.S. Social Security Administration), and Jonathan Schwabish (Urban Institute)

The Prevalence of COLA Adjustments in Public Sector Retirement Plans
Maria D. Fitzpatrick (Cornell University and NBER) and **Gopi Shah Goda** (Stanford University and NBER)

Disability Insurance for State and Local Employees: A Lay of the Land

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Introduction

One out of every four young workers today could develop a work-limiting disability over the course of their career. For those unable to continue in the labor force, programs like Social Security Disability Insurance (SSDI) serve as a much-needed economic safety net. Despite broad agreement on this need, policymakers continue to vigorously debate the best way to design a DI program that protects individuals and families from loss of income while incentivizing work among those who are still able.

This study investigates whether researchers could turn to a unique population of workers – state and local government employees – to assess how DI program structure affects claiming and other outcomes. State and local workers create a promising research environment because about one quarter of them – 6.5 million workers – are not covered by Social Security on their current job and instead have access to employer-sponsored DI programs that vary in generosity. The remaining three quarters are covered by both SSDI and employer-sponsored programs. Moreover, detailed information on program structure and outcomes is often publicly available in member handbooks and actuarial valuations.

To assess DI for state and local employees, the first step is to create a comprehensive database of benefit provisions and claiming trends. Most state and local DI programs are administered by retirement systems that also provide pension benefits. Thus, the sample of programs developed for this study includes those associated with the 100 largest retirement systems in the *Public Plans Database* as well as a few smaller systems. This new DI database will be publicly available on the website of the Center for Retirement Research at Boston College in the fall of 2020.

Summarizing the data shows that many state and local programs are relatively lenient in their eligibility requirements and set benefit levels comparable to SSDI for long-tenured workers. Nevertheless, the programs still vary widely in their work-ability criteria, administrative

processes, and replacement rates. And this policy variation seems to affect substantive outcomes of interest. For example, a simple regression analysis linking multiple elements of program structure to the percentage of retirement-system beneficiaries on DI suggests a strong relationship. Much work remains, however, so this project is intended to start a conversation, rather than settle the debate.

Overview of State and Local DI Programs

Government employers have two primary levers that they can pull to influence DI outcomes – policies that regulate who can receive benefits and policies that regulate the generosity of benefits paid. One way to restrict who can receive benefits is to require a certain level of tenure before a worker is eligible. Vesting periods for the programs in our sample range from immediate vesting (16 percent of programs) to eight or more years of tenure (22 percent), with nearly half of programs requiring employees to complete five years of service.

Another way to restrict access is by establishing a high threshold on the severity of the disability. Whereas SSDI is strict in this regard – disqualifying applicants if they are able to perform *any* job in the national economy – 75 percent of state and local programs simply require that the applicant be unable to perform their previous government job (see Table 1). The other programs have requirements similar to SSDI, and 6 percent actually require that employees also receive SSDI benefits in order to qualify.

Table 1. *Eligibility Requirements in State and Local DI Programs, 2020*

Requirement	Percentage of programs
Work-ability requirement	
Previous or comparable job	75%
Any job in the national economy	19
Must qualify for SSDI	6
Medical evaluation requirement	
Own doctor	77
Independent evaluation always required	13
Independent evaluation required on an ad-hoc basis	10
Periodic re-evaluation of medical status	42

Source: Authors' calculations from the *Public Disability Insurance Programs Dataset* (2020 forthcoming).

A key step in determining who qualifies for benefits is a medical exam to certify the severity of the employee's disability. While most of the programs sampled allow employees to go to their own doctor to be certified for DI, around one quarter often rely on an independent medical evaluation conducted by a doctor chosen by program administrators (see Table 1). Of these programs, around half require all DI applicants to receive the independent evaluation; the other programs use independent evaluation on an ad-hoc basis. And nearly half of all the state and local DI programs periodically re-evaluate the medical condition of existing beneficiaries

While the structures described so far regulate who is eligible to receive DI, governments can also affect outcomes through benefit generosity. Government sponsors typically calculate a recipient's benefit using the formula: *benefit = tenure * final average salary * multiplier*. The benefit formulas for the different state and local programs can be used to calculate replacement rates – DI benefits relative to pre-disability earnings – for a hypothetical worker with 20 years of tenure. This calculation suggests that half of the programs provide replacement rates between 32 and 48 percent, although the overall range exceeds 70 percentage points (see Figure 1).

Figure 1. *Distribution of Replacement Rates in State and Local DI Programs for a Hypothetical Worker with 20 Years of Tenure, 2020*
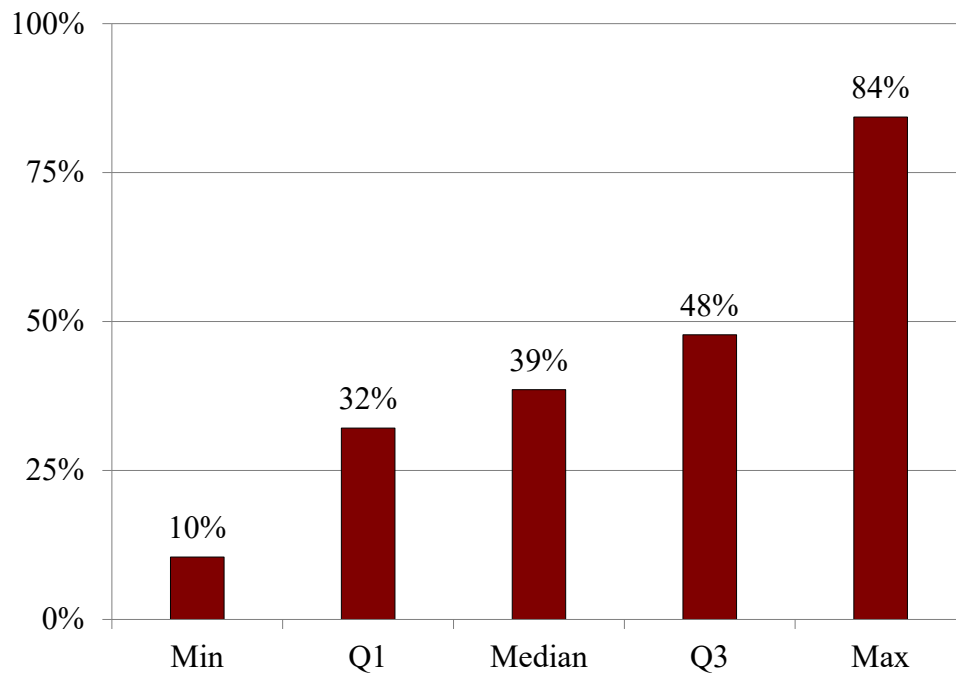
Source: Authors' estimates from the *Public Disability Insurance Programs Dataset* (2020 forthcoming).

Of particular interest to SSA is the adequacy of benefits for state and local government employees not covered by Social Security. On the eligibility front, uncovered workers face similar vesting, work-ability, and medical examination requirements as their covered colleagues – all of which are lenient relative to SSDI. Replacement rates, however, are more difficult to assess because state and local programs and SSDI use fundamentally different formulas to calculate benefits. Whereas replacement rates in SSDI depend on a worker's earnings level, with low-wage workers receiving a significantly higher portion of their pre-disability earnings than high-wage workers, replacement rates in most state and local programs disproportionately reward long tenure with the government.

Estimating replacement rates for hypothetical workers with different lengths of government tenure reveals that state and local programs for uncovered workers provide most full-career employees with higher replacement rates than SSDI. In contrast, short-tenured employees tend to earn higher replacement rates in SSDI. However, since the risk of a work-limiting disability rises with age, many short-tenure workers who end up relying on state or local DI will have previously spent time in Social-Security-covered employment, and so will also be eligible for a partial SSDI benefit. Considered alongside the relatively lenient eligibility requirements in state and local programs, these findings suggest that uncovered workers receive adequate DI benefits from their employers.

Claiming Patterns in State and Local DI Programs

Having established that state and local DI programs vary considerably in their eligibility requirements and benefit generosity, the question becomes whether these design choices affect outcomes, such as claiming patterns. While a complete answer to this question is beyond the scope of this study, we illustrate how the new dataset of DI programs can be linked to other datasets like the *Public Plans Database* in order to begin an investigation.

Specifically, we run a simple linear regression where the dependent variable equals the share of all retirement-system beneficiaries on DI in 2017, and the independent variables include the program structures governing benefit eligibility and generosity described earlier. The regression also flags programs exclusive to public safety workers in order to test the intuition that hazardous-duty employees are more likely to use DI benefits. Figure 2 displays the regression results, which are in the expected direction and statistically significant. As expected,

programs with a strict work-ability requirement have DI shares that are around 2 percentage points lower, on average, while those using independent medical evaluations (either automatic or discretionary) also have DI shares that are 3 and 5 percentage points lower, respectively. In the other direction, a 10 percentage-point increase in the replacement rate is associated with a 0.7-percentage-point increase in the DI share; programs that only cover safety workers have DI shares that are 4 percentage points higher on average. The only coefficient without a clear interpretation is the vesting period, which comes in positive but relatively small.

Figure 2. *Correlation between Program Structure and the Percentage of Beneficiaries Receiving DI, 2017*
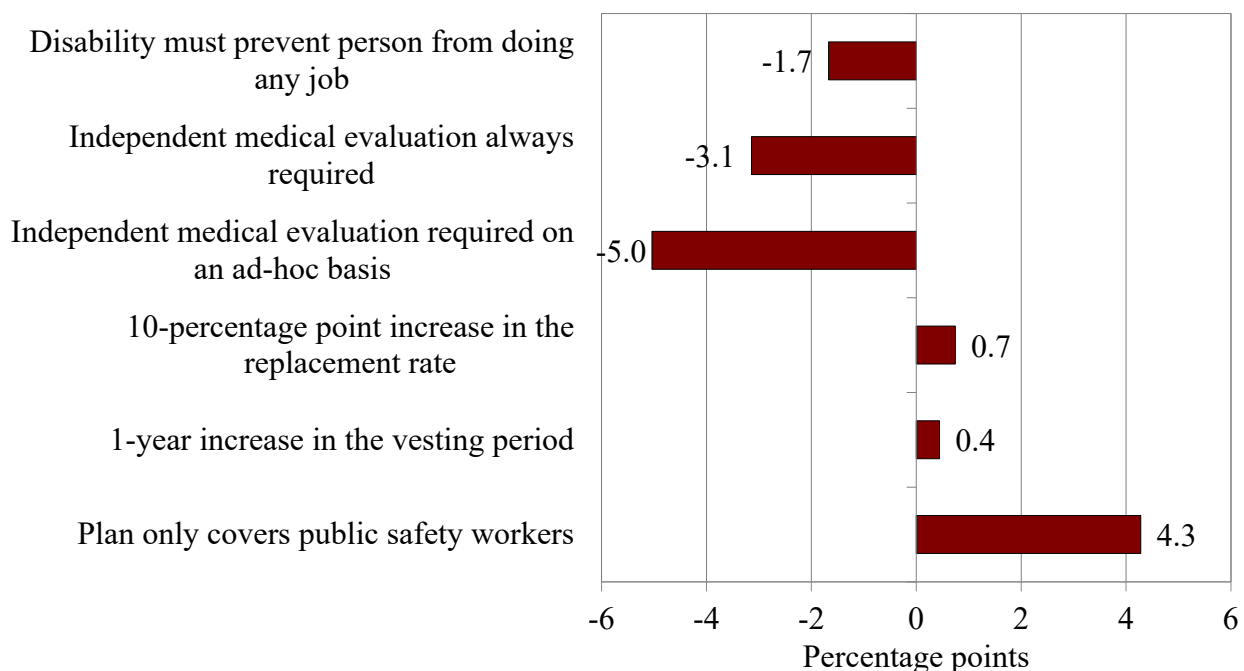
Note: All coefficients are statistically significant at least at the 5-percent level.
Source: Authors' estimates from the *Public Disability Insurance Programs Dataset* (2020 forthcoming).

Although this simple regression undoubtedly paints an incomplete picture, it does suggest that the variation in program design captured by the new DI dataset affects substantive outcomes of interest to policymakers.

Conclusion

A rapid rise in SSDI caseloads from 2000-2010 has trigged interest in policies to keep prospective claimants in the labor force. Yet, the near-universal nature of SSDI makes it hard for

researchers to explore how the program's structure affects claiming. This study investigates whether an examination of DI programs for state and local employees could help fill the gap. It concludes that these programs present a fruitful avenue for research; in particular, future work could link the new DI database created for this study with existing data on retirement benefits to explore the full range of work incentives facing state and local government employees.

Understanding the Local-Level Predictors of Disability Program Receipt, Awards, and Beneficiary Work Activity

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Introduction

A critical determinant of the decisions made by potential and current disability beneficiaries is the environment in which each beneficiary lives, an idea that is consistent with the social model of disability. Changes in federal policy and strong economic conditions contribute to this environment, but many other factors at the state and local levels might more directly affect beneficiaries' decisions. For example, living in a rural or urban setting can affect access to public transit and the nature of available job opportunities. Areas in which a large share of adults with disabilities are employed might signal either relatively positive social attitudes about individuals with disabilities as productive workers or fewer physical barriers to transportation or employers. Areas with high prevalence of poor health behaviors, such as smoking and obesity, might signal generally poor health in the population. These factors could also affect the rate at which individuals enter disability programs or increase the likelihood that beneficiaries return to work.

Although the U.S. Social Security Administration (SSA) cannot directly affect state policies or local economic conditions, there is value in understanding the extent to which these factors might correlate with application rates, benefit receipt, and beneficiary return-to-work rates. If certain area-level characteristics predict higher-than-average application or award rates, it could signal the need for an increase in early intervention or vocational rehabilitation services for workers at risk of leaving the labor force and applying for federal disability benefits. However, characteristics correlated with lower-than-average disability beneficiary work activity might help to inform policies, such as targeted mailings on incentives, and programs that support a return to work, such as SSA's Ticket to Work program. Areas with higher levels of work activity or successful return-to-work by beneficiaries might also alert policymakers to positive local area characteristics that might be emulated in other areas.

The contribution of this study is two-fold. First, it adds to the body of evidence on the relationship between local-level factors and disability program outcomes. Numerous studies have documented the geographic variation in the prevalence of disability and in the receipt of federal disability benefits; they have also documented factors that might be correlated with the claiming of disability benefits (see, for example, Rupp 2012; Nichols et al. 2017; Sevak and Schmidt 2018; and Gettens et al. 2018). Our study adds to this literature by assessing how these factors predict flows into and out of Social Security Disability Insurance (DI) and Supplemental Security Income (SSI) programs, as well as beneficiary work activity.

The second contribution is that we will release a publicly available repository of local-level predictors and statistics related to DI and SSI receipt, awards, and beneficiary work outcomes for 2001-2018. Our goal in constructing this dataset is to facilitate future research and policy analysis. The dataset may be useful to other researchers who are studying the effects of policy changes on program outcomes but also wish to control for time-varying covariates that influence award and beneficiary work activity. Local area data are available at the level of Public Use Microdata Areas (PUMAs), which are geographic units created by the U.S. Census for statistical purposes. We determined that PUMAs represent a suitable level of aggregation for our analyses and for the public-use file, as they are specific enough to provide action-oriented information and large enough (in population terms) for rates to be estimated with reasonable precision and to minimize the share of cells masked by SSA for privacy reasons.

Data

Identifying Beneficiaries and Their Work Activity

We used the Disability Analysis File (DAF), which includes SSA administrative data on DI and SSI beneficiaries, to develop PUMA-level statistics on DI-only beneficiaries, SSI-only beneficiaries, and concurrent beneficiaries annually from 2001-2018. The DAF includes each beneficiary's zip code, so we rolled up the zip code statistics to the PUMAs by using allocation factors from Geocorr, an application developed by the Missouri Census Data Center. In addition to counts of beneficiaries in each program and year, we developed annual statistics on the number of new beneficiaries, the number with positive earnings reported to the Internal Revenue Service, the number whose DI and/or SSI benefits were suspended or terminated because of

sustained employment, and the number with reduced DI and/or SSI cash benefits because of work.

Demographic and Socioeconomic Characteristics

We derived PUMA-level demographic and socioeconomic characteristics that could potentially influence beneficiary outcomes from the *American Community Survey* (ACS), accessed through IPUMS USA at the University of Minnesota (Ruggles et al. 2020). These factors include the distribution of the population across age and sex, population density, the availability of public transit and average commute times, and factors related to the availability and features of jobs in the area. PUMA information was not available for 2001-2004, so all measures we derived from the ACS are available for 2005-2018 only.

Local variation in health and health behaviors may also be important correlates of benefit receipt but not measurable at the PUMA level while using the ACS. We therefore included two such measures, but at the state or county level: smoking prevalence (the percentage of adults who are current smokers) from the Behavioral Risk Factor Surveillance System (BRFSS) from 2001-2018 and county-level estimates of obesity rates for the adult population from the Centers for Disease Control and Prevention (CDC) from 2005-2016.

Methods

We used a simple multivariate model to identify factors associated with disability program awards and beneficiary work outcomes. For purposes of the presentation, we focus on the latter. Our regression specification takes the form:

$$y_{jt} = \alpha + \beta_1 DEMOG_{jt} + \beta_2 SES_{jt} + \beta_3 OTHER_{jt} + \delta_t + \eta_j + \varepsilon_{jt} \qquad (1)$$

where y_{jt} is the share of working-age beneficiaries with positive earnings or with cash disability benefits suspended for work. $DEMOG_{jt}$, SES_{jt}, and $OTHER_{jt}$ are the vectors of demographic, socioeconomic, and other characteristics derived from the ACS, BRFSS, and the CDC. δ_t are time-fixed effects to control for national trends in program participation and beneficiary outcomes. η_j are PUMA fixed effects that capture time-invariant differences across areas. When we include PUMA fixed effects, the coefficients will be based on the relationship between

changes in a variable and changes in the outcome within a PUMA over time. We express both outcomes and explanatory factors in logarithmic terms in order to interpret coefficients as elasticities.

Results

Beneficiary work activity varies considerably across PUMAs. Figure 1 shows the share of DI and SSI working-age beneficiaries who had any earnings during the year. In both figures, it appears that the north-central states in the Midwest (e.g. Minnesota, North Dakota, South Dakota) and some states in the Mountain region (e.g. Colorado, Utah, Wyoming) have higher rates of beneficiary work activity. Beneficiaries in these states may have had low levels of earnings or have had earnings before or after receiving disability benefits; nonetheless, the high rates of positive earnings in certain PUMAs is notable, especially when contrasted with other PUMAs within the same state.

Figure 1. *Percentage of Working-age DI (Left) and SSI (Right) Beneficiaries Who Had Any Positive Earnings, 2017*
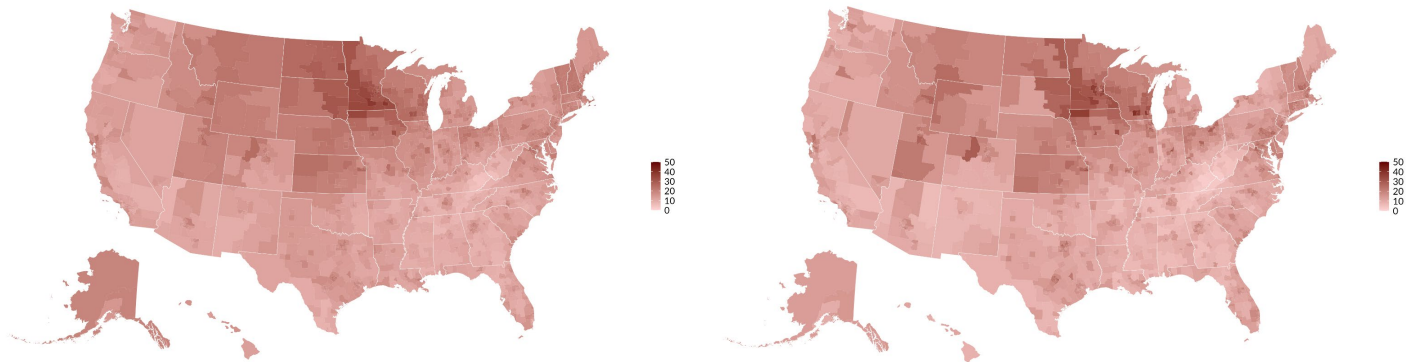
Notes: Beneficiaries include individuals in current payment status or in suspense in the program in at least one month during the year, and who were ages 18-full retirement age on January 1 of the same year. The scale of both maps varies from 0 to 50 percent of beneficiaries with positive earnings (at any point during the calendar year), with lower values in a lighter shade of red.
Source: Authors' calculations using SSA's DAF linked to the Master Earnings File.

Using the regression specification above, we find that beneficiaries are more likely to work if they live in PUMAs that have higher employment among people with disabilities generally and have a larger share of workers who do manual labor. Conversely, the overall unemployment and poverty rates, the prevalence of smoking and obesity, and the receipt of SNAP in the PUMA are negatively correlated with beneficiary work activity. On the one hand,

these results suggest that the availability of work opportunities may increase the likelihood that beneficiaries will return to work. On the other hand, a high prevalence of risky health behaviors, unemployment, and poverty rates may indicate that unfavorable conditions impede the beneficiaries' efforts to find work.

Conclusion

Two conclusions emerge from our findings. First, beneficiary work activity varies from one geographic region to the next. Second, and consistent with the literature on the receipt of disability benefits, the availability of and access to economic opportunity for people with disabilities may be important factors in explaining both their entry into the DI and SSI programs as well as their subsequent work activity.

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The Prevalence of COLA Adjustments in Public Sector Retirement Plans

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Summary

Approximately 13.8 percent of the U.S. workforce is comprised of state and local employees who are eligible for retirement benefits from one of 299 state-administered or 5,977 locally-administered plans. These plans collectively have $4.3 trillion in assets, 14.5 million active members and support 10.3 million retirees with over $280 billion in benefit distributions every year.[1] Each of these plans differ in their benefit design, funding model, and investment policy and are subject to accounting standards set by the Governmental Accounting Standards Board (GASB).

Many of these programs have long faced a funding gap, with plan liabilities much larger than plan assets in aggregate. The aging of the population combined with market downturns, insufficient contributions, and increased benefit levels has resulted in a decline in the average aggregate funding level. In 2001, the actuarial funded ratio for state and local pensions was 101.9 percent, while in 2019, this ratio had declined to 71.9 percent. Recent market losses and increased budget pressures related to the COVID-19 pandemic are likely to reduce the funding levels for state and local pension plans even further.

Due to legal restrictions, many state governments are unable to take steps to limit their liabilities by increasing retirement eligibility ages or reducing the generosity of benefit formulas for current employees. This is because, in many of the states with statewide pension systems, the pension promises to public employees are written into the state constitution. They are therefore considered a component of the compensation package agreed upon at hire and cannot be reduced. Therefore, any increases in retirement eligibility ages or reductions in pension benefits can apply only to new hires after the time the new rules are adopted. This means that such changes to pension systems can only lower liabilities slowly, since the time to retirement of these

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[1] https://publicplansdata.org/quick-facts/national/ (Accessed June 23, 2020).

new employees is far enough into the horizon that it represents only a small part of current liabilities.

As such, to reduce the liabilities of their pension funds, many states have reduced their cost-of-living adjustments (COLAs). Some states have eliminated any COLAs for the foreseeable future and some have restricted future COLA increases. Given that decreases to COLAs compound each year, the effect of these adjustments on a retiree's lifetime benefits can be large. For example, based on a standard simple model, moving from a 3-percent annual COLA to no COLA decreases the present value of lifetime pension benefits by 25 percent (Munnell et al. 2014). Although many of these changes to COLAs have been challenged in state courts, to date most of those challenges have been unsuccessful. This has served to make reducing COLAs an effective way to limit current liabilities because the reductions take effect immediately for both current retirees and employees once they begin collecting benefits.

For employees close to retirement, this reduction in the present value of pension benefits could change labor supply and Social Security claiming for several reasons. Those with positive returns to continued work may delay retirement from their public sector employer in order to increase the size of their pension benefit. Alternatively, they may seek work or increase their labor supply outside of the public pension system, since doing so can provide extra income and may increase the size of their Social Security benefit. Finally, the reduction in the value of employees' public pension benefits may lead them to delay Social Security claiming, either because they are still working or because delayed claiming increases the present discounted value of Social Security benefits. Public sector employees already collecting pension benefits may find it beneficial to increase their lifetime income by finding work outside of the public sector or delaying Social Security claiming.

Understanding how public sector labor supply and Social Security claiming shift with reductions in pension benefits is important in determining whether the underfunding of state and local pension plans has spillover effects on Social Security, including on the solvency of the Social Security system. To date, some studies have leveraged administrative data from a specific state that experienced a change in retirement or health care benefits and examined its effect on public sector employment (Brown 2013, Fitzpatrick 2014, Leiserson 2013, Ni and Podgursky 2016, Salinas 2017, Quinby and Wettstein 2019). A wider literature has examined how differences in pension plan and retiree health insurance generosity relate to retirement timing

using survey data (e.g., Slavov and Shoven 2014; Morrill and Westall 2019) and recent work examines the effects of pension freezes in the private sector (Patki 2020). None of these studies have focused on COLA adjustments, which, because they happen frequently and commonly, may affect benefits differently than the types of infrequent one-time comprehensive shifts to benefit plan generosity that are often the subject of the prior research.

In this paper, we aim to push forward our understanding of how COLA changes affect retirement behavior. We describe an intensive data collection process during which our research team gathered data on COLAs across 43 state and local pension plans between 2005 and 2018 across 25 states, covering 45 percent of state and local employees. Collection plans are still underway, so we report preliminary results on the COLA changes across these plans in the sample we have completed to date. We then merge our COLA data with population-level data on state and local workers from the *American Community Survey* from 2005 to 2018. This allows us to calculate information on the number of Americans subject to COLA changes by their public employer to get a sense of the scope of the issue. We then use our COLA data to simulate the possible effects on labor supply and Social Security claiming using elasticities from other work.

We find that changes in COLAs are common among the plans in our database. Each year during the 2005-2018 period, between one-third and one-half of public sector workers covered by one of these plans experiences a change in the COLA. The direction of the change varies over time, with more positive changes during the earlier years of our data, and more negative changes in more recent years (see Figure 1). On average over this time period, approximately 43 percent of workers in our sample experience a change in any one year, representing more than 52 million workers over the 14-year horizon. More than half of these workers (28 million) experience a negative change, and 23 percent (or 12 million) are in the 55-64-year-old age group.

Our analysis of stylized workers suggests that COLA changes could have substantial changes on retirement wealth and retirement timing. For a public sector worker who starts work at age 22 and continues for 30 years with average mortality for the 1950 birth cohort and a 3-percent discount rate, we estimate that eliminating a 3-percent COLA would reduce her retirement wealth by approximately 35 percent. When we apply elasticities of retirement probabilities with respect to retirement wealth from previous studies, this reduction translates to a delay in retirement of approximately 4.5 months. We explore the sensitivity of this result to

changes in various assumptions, including mortality, discount rates, years of service, the elasticity used, and the COLA adjustment examined.

Figure 1. *Fraction of Public Sector Pension Plans with COLA Rate Changes, 2005-2018*
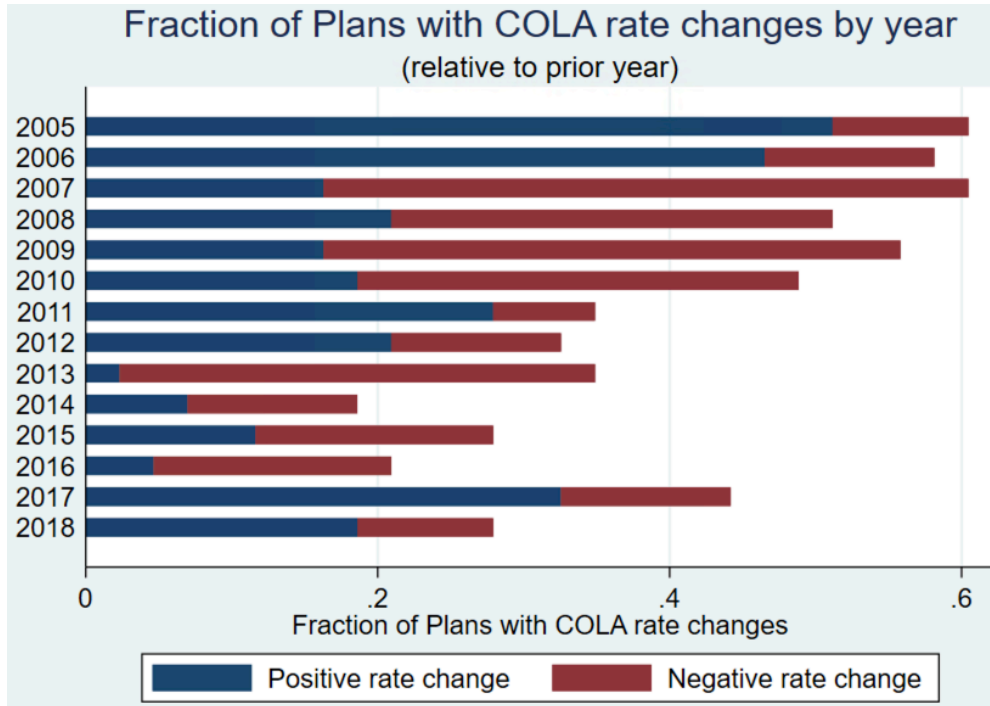
Note: Based on authors' calculations using the sample of 43 pension plans in our COLA database for 2005-2018.

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Panel 5: Labor Markets and Working Conditions

Moderator

Joseph F. Quinn (Boston College)

The Changing Nature of Work

Italo Lopez-Garcia (RAND Corporation), Nicole Maestas (Harvard Medical School and NBER), and Kathleen Mullen (RAND Corporation)

Employer Incentives in Return to Work Programs: Evidence from Workers' Compensation

Naoki Aizawa and Corina Mommaerts (University of Wisconsin-Madison and NBER) and **Stephanie Rennane** (RAND Corporation)

Firm Willingness to Offer Bridge Employment
David Powell and **Jeffrey Wenger** (RAND Corporation) and Jed Kolko (Indeed.com)

The Changing Nature of Work

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Introduction

After decades of growth, since 2010 both applications and awards for Social Security Disability Insurance (DI) have steadily declined. This decline in DI applications has not been accompanied by an improvement in overall health as measured in national surveys. A plausible hypothesis for this phenomenon is that physical job demands have decreased in recent years, leading to a decline in the prevalence of disability. In fact, recent trends showing a decline in physically demanding tasks and an increase in cognitive and interpersonal demanding tasks in the United States and OECD countries have been cited as a potential source of decreased or delayed disability or old-age pension claiming (Johnson, Mermin, and Resseger 2011; Handel 2012).

In this project, we provide new evidence on the changing nature of work over the past 15 years and its influence on individuals' capacity to work by linking historical measures of occupational job demands with harmonized data on individual abilities from a unique survey conducted in the RAND *American Life Panel* (ALP) in 2018. In our previous work, we developed a new method to measure individuals' latent work capacity by comparing individuals' self-reported levels for 52 abilities to the corresponding minimum levels required to perform nearly 800 occupations in the economy obtained from the O*NET Database (Lopez Garcia, Maestas, and Mullen 2019). Using this framework, we expand our data set on contemporary job demands in 2018 to include job demands in 2003. Combining this panel data on job demands with our contemporaneous data on individual abilities, we construct time-varying measures of work capacity that hold abilities fixed in 2018, which enable us to assess how many jobs of the past the individuals of today would have been able to perform given their current abilities.

We start by examining how job demands have evolved over time for different dimensions of abilities (cognitive, psychomotor, physical, and sensory). We then decompose changes in job

demands into within-occupation changes and changes in the distribution of jobs in the economy. Finally, we provide preliminary evidence on how work capacity has evolved over time due to changes in job demands.

Data and Methods

We use data from two sources. The first is the O*NET database, which contains the list of minimum levels of abilities required to perform work across all six-digit Standard Occupation Classification (SOC) occupations in the economy, which numbered 679 in 2003 and 773 in 2018. Between 2003 and 2018, two occupations disappeared, 88 new occupations were added, and 675 occupations were present in both years. O*NET identifies 52 abilities grouped into four domains: cognitive, psychomotor, physical, and sensory abilities. For each occupation and for each ability, analysts rate the *importance* of the ability for the performance of the occupation on a scale from 1 to 5, and the *level* of ability needed to carry out those work activities on a scale from 1 to 7. Each ability-level scale has a unique set of scale anchors that provide an example of an activity that could be done at that ability level. The second dataset is a unique survey modeled on the O*NET abilities survey and fielded to working-age respondents in the ALP (n=2,244 individuals ages 25-70). Whereas the O*NET surveys ask workers to rate what level of a given ability is needed for their job, we adapted these questions to instead ask individuals to rate their *own* level of a given ability for all 52 O*NET abilities, regardless of their current job.

We measure an individual's latent occupation-specific work capacity to do a specific occupation by relating that person's own ability levels to the minimum levels required for that job on a scale of 0-1, where 0 represents an individual who is unable to perform *any* of the abilities required for the job and 1 represents an individual who is able to perform *all* of the abilities required. Abilities are weighted by the relative importance of each ability for the job, taken from O*NET. Here we use a "weighted sum" measure of occupation-specific work capacity which allows for partial credit in the event that the individual is only missing a few unimportant abilities. The individual's total work capacity, defined as the fraction of jobs that the person can perform given their education level, is obtained as the weighted sum of occupation-specific work capacity where the weights are the occupation's share of jobs in the national economy by education level. For more details, see Lopez Garcia, Maestas, and Mullen (2019).

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Preliminary Findings

Our first set of results describes changes in the weighted average job demands over time regardless of occupations that disappeared or were created in that time period, where the weight is the occupation's job share for a given education level in the economy. Figure 1 shows that overall average job demands across the 52 abilities measured in O*NET did not increase significantly over time, but this finding masks underlying changes within dimension. Consistent with previous literature, from 2003-2018, cognitive job demands increased from an average level of 2.63 to 2.90 (+9.3 percent), psychomotor demands decreased from 1.75 to 1.59 (-9.1 percent), physical demands decreased from 1.37 to 1.18 (-13.8 percent) and sensory demands increased from 1.72 to 1.88 (+8.5 percent). All changes over time within dimension are statistically significant ($p<0.01$).

Figure 1. *Changes in Job Demands Over Time*
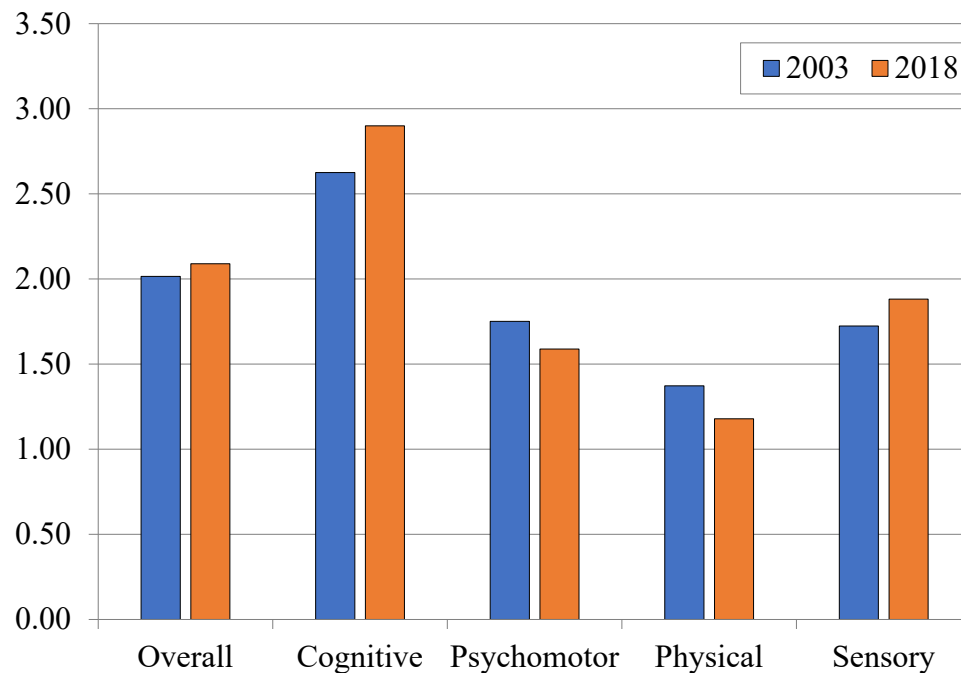
Source: Authors' calculations.

Figure 2 examines how cognitive and physical job demands have changed over time for different education groups. The increase in cognitive job demands shown in Figure 1 is mostly concentrated among low-skill jobs, or those prevalent among individuals with less than a college

degree. In contrast, the decrease in physical job demands is concentrated among high-skill jobs, or those prevalent among individuals with at least a college degree. These results suggest low-education workers have been penalized as their jobs have become more cognitively demanding without any alleviation of the physical burden of performing these jobs. (Psychomotor (sensory) job demands exhibit similar education patterns to physical (cognitive) job demands.)

Figure 2. *Changes Over Time in Cognitive (Left) and Physical (Right) Demands by Education*
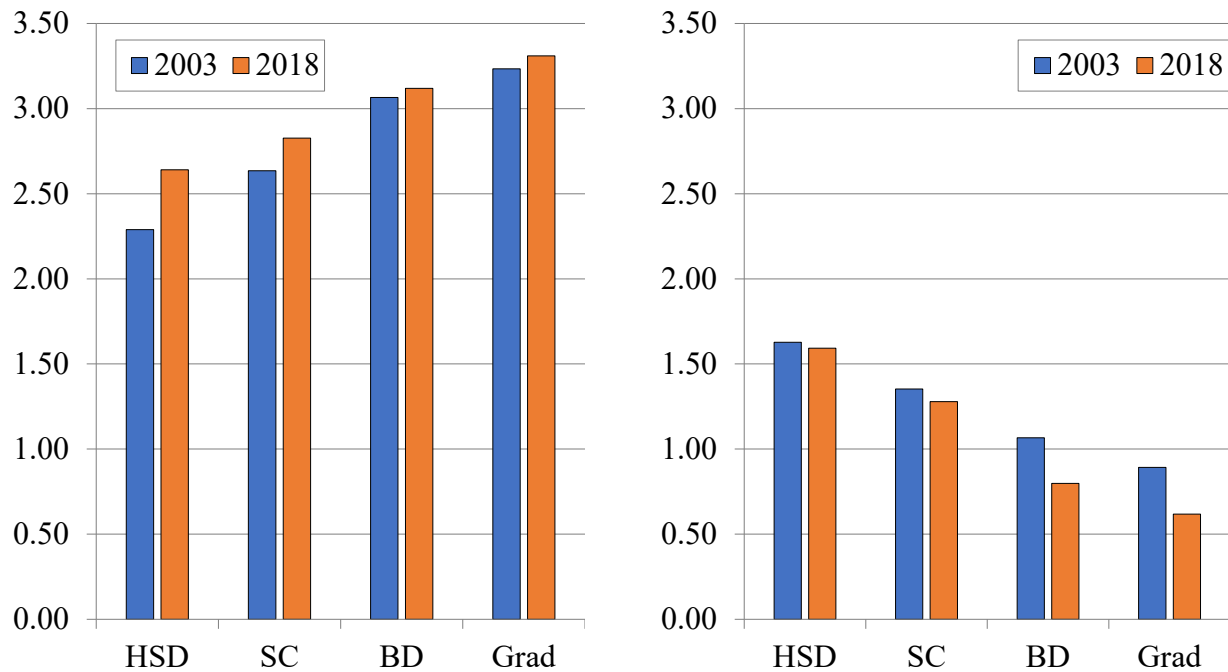
Source: Authors' calculations.

The next set of results reveals how changes in job demands can be decomposed into within-occupation changes and changes in the distribution of jobs. Figure 3 compares average job demands in 2003 and 2018 (weighted by occupation shares in their respective year) with average job demands in 2018 reweighted using the occupation shares from 2003, with the sample of occupations restricted to be observed both in 2003 and 2018 (n=675). We find that average job demands in 2018 reweighted using 2003 job shares are statistically the same as job demands in 2018 across all dimensions, but statistically different from job demands in 2003 (except for overall). Therefore, we conclude that changes in the nature of work in the last 15 years have

been mostly due to changes *within* occupations and not changes in the distribution of occupations in the national economy.

Figure 3. *Changes in Job Demands Over Time*
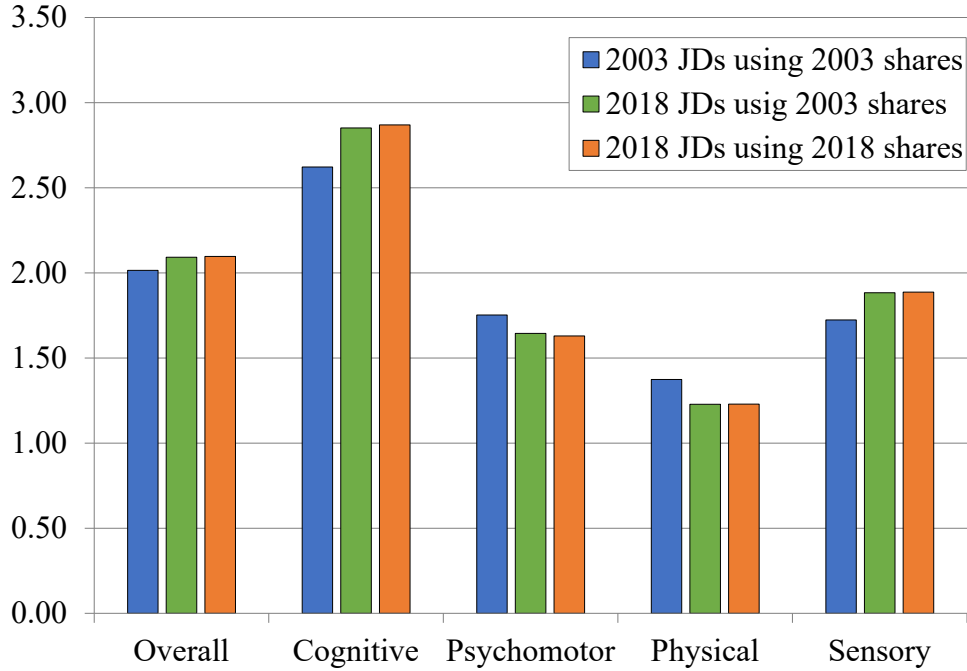
Source: Authors' calculations.

This result is corroborated by a formal decomposition of total changes into within- and between-occupation changes following equation 1 (below). In this equation, the first term on the right-hand side represents the within-occupation change in job demands (*X)* holding fixed occupation shares (*s)* in 2003, and the second term is the between-occupation change holding fixed job demands in 2018.

$$\sum_{j=1}^{J}(s_{j,18}X_{j,18} - s_{j,03}X_{j,03}) = \sum_{j=1}^{J} s_{j,03}(X_{j,18} - X_{j,03}) + \sum_{j=1}^{J} X_{j,18}(s_{j,18} - s_{j,03}) \qquad (1)$$

Table 1 shows that changes within-occupation are the main driver of total changes in job demands, ranging from 88 percent in psychomotor job demands to 100 percent in physical job demands.

Table 1. *Changes in Job Demands Over Time*

	Total change	Within occupation		Between occupation	
Overall	0.081	0.077	94.4%	0.005	5.6%
Cognitive	0.247	0.229	93.0%	0.017	7.0%
Psychomotor	-0.124	-0.109	87.8%	-0.015	12.2%
Physical	-0.144	-0.145	100.8%	0.001	-0.8%
Sensory	0.163	0.159	97.6%	0.004	2.4%
N	675				

Source: Authors' calculations.

Finally, we present preliminary evidence on how changes in job demands translate into changes in work capacity. Figure 4a shows the cumulative distribution of occupation-specific work capacity for current workers in our data where the job evaluated is each respondent's actual job in 2018, but where job demands are taken from 2003 or 2018. The figure suggests that individuals can perform a greater fraction of the abilities required by their own job in 2018 than they would have been able to do *in the same job* in 2003, which is due entirely to the changing mix of job demands (by definition, as abilities are fixed in 2018). For example, the average worker could do 89 percent of their own job in 2003 but 91 percent in 2018. Similarly, the share of workers that could do at least 75 percent of their own job increased from 85 percent in 2003 to 89 percent in 2018. Figure 4b compares estimates of average total work capacity by five-year age group obtained using job demands in 2003 versus job demands in 2018. On average across age groups, the fraction of jobs in the economy that individuals were able to do in 2018 is 2.8 percent higher than the fraction of jobs they would have been able to do in 2003.

Figure 4. *Changes in Work Capacity: To Do Own Job (Left) and To Do All Jobs in the Economy (Right)*
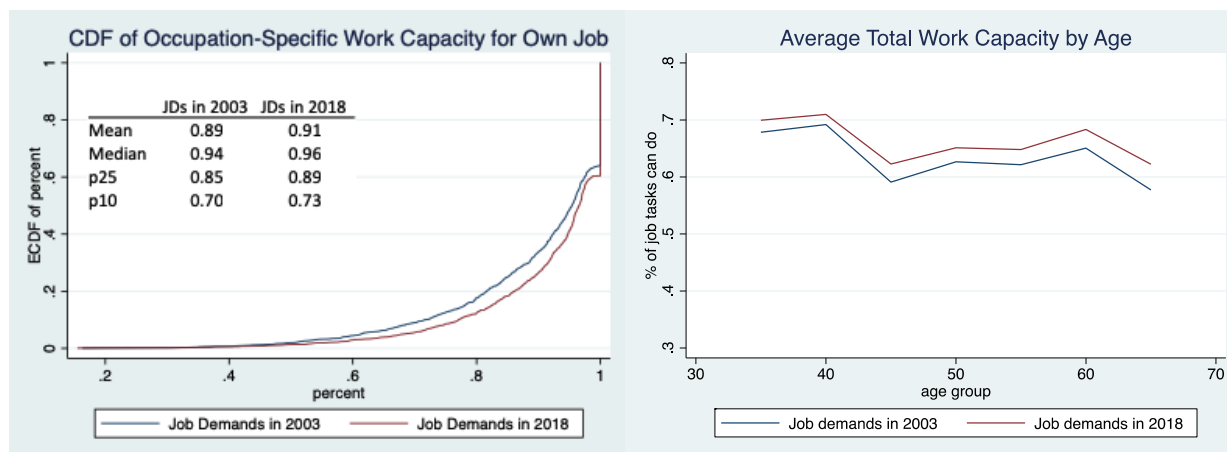
Source: Authors' calculations.

Conclusion

In summary, our results suggest that over the last 15 years cognitive job demands have increased, particularly among low-skill jobs, and physical job demands have decreased, particularly among high-skill jobs. This change in the mix of job demands translates into an increase in individuals' work capacity, or their ability to perform a greater fraction of jobs in the economy in 2018 than they would have been able to perform with the same abilities in 2003.

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Employer Incentives in Return to Work Programs

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Introduction

Approximately one in ten working-age adults in the United States currently has a disability which could impair their ability to work, and employment rates among working-age adults with disabilities are consistently low, ranging between 30 and 40 percent over the past decade (Kraus et al. 2018). While some adults with disabilities may not be able to work at all, others have some capacity to work under the right circumstances (e.g., Bound 1989, Krueger and Meyer 2002, Maestas et al. 2013). Labor force participation could have benefits for the individual, increasing their incomes and overall well-being (Waddell and Burton 2006), as well as benefits for society, leading to higher tax revenues and lower government expenditures.

As a result, there is significant policy interest in encouraging labor force participation among workers with disabilities. While the majority of return-to-work policies have focused on the roles of worker incentives and disability program attributes (e.g., Livermore et al. 2013, Kostol and Mogstad 2014, Koning and van Sonsbeek 2017), employers may also play a key role in enabling workers with disabilities to remain connected to the labor force. Recent evidence from Europe suggests that employer cost-sharing and experience rating reduce the flow into disability benefit programs (e.g., de Groot and Koning 2016, Hawkins and Simola 2018). Some evidence from reforms in shorter-term disability programs in the United States, such as the Washington COHE model in workers' compensation, also offer possible guides of successful approaches to involve the employer in return to work efforts for workers with disabilities (Stapleton and Christian 2016). Our study focuses on one particular employer-based intervention for workers with disabilities: accommodation.

We define accommodation as any action the employer takes to adjust the work environment in a way that better enables individuals with disabilities to work. Accommodation policies that target the employer could be effective for several reasons. First of all, employers

are well positioned to provide accommodation: they understand the skills and tasks required for a worker to do their job, and can observe a worker's needs in order to accomplish those tasks in the event of a disability. Employers also observe these needs quickly, as soon as the worker is unable to perform their job, meaning that employers can play a key role in early intervention by providing physical accommodations, flexible work schedules, or alternative tasks (Autor and Duggan 2010, Bronchetti and McInerney 2015). On the other hand, accommodation can be costly – particularly if employers bear the full cost – and employers may not capture the benefits of accommodating workers with disabilities if workers have other employment options and do not remain with employers for long. This incentive structure may lead accommodation to be under-provided: indeed, approximately half of workers who would benefit from accommodation do not receive it (Maestas et al. 2019). Policies that decrease the costs to employers of accommodating injured workers (e.g., by reimbursing accommodation costs or subsidizing wage payments to injured workers) may increase the amount of accommodation to a more optimal level. Few studies, however, have analyzed how firms decide to accommodate workers, and the effects of accommodation on subsequent labor market outcomes of workers after disability.

In our study, we analyze the Employer at Injury Program (EAIP) in the Oregon workers' compensation (WC) system. The EAIP reduces employers' costs of providing accommodations that enable the early return to work of individuals with workplace injuries. Specifically, the EAIP reimburses employers for wages and expenses for a variety of accommodation costs for employees who have work restrictions and who return to limited or transitional work during an ongoing workers' compensation claim. Approximately 25 percent of workers' compensation claims in Oregon have had some accommodation costs reimbursed via the EAIP since 2010.

Our study uses detailed administrative claims data from Oregon's WC program to develop empirical estimates of the effectiveness of return to work programs on later employment outcomes of injured workers. One advantage of our data is that it allows us to document firm accommodation choices in great detail. First, we provide an empirical analysis of current use of these employer incentive programs and show that the take-up of employer-based return to work programs depends on not only worker characteristics, but also industry and firm characteristics. Then, we exploit a policy change in the generosity of the EAIP wage subsidy to identify the effectiveness of these programs on improving the subsequent labor market outcomes of injured

workers. Finally, we study the welfare implications of alternative WC policies within an equilibrium model of worker labor supply decisions and firm accommodation decisions.

Our analyses rely on several administrative data sources from the Oregon Department of Business and Consumer Services (DBCS) and the Oregon Employment Department (OED). Our main dataset includes closed workers' compensation claims from the early 2000s through the present. These data include information about worker demographics, injury characteristics, worker occupation and industry, and detailed data on dates, duration and value of workers' compensation benefits and EAIP reimbursements. We are also able to observe firm accommodation decisions within EAIP, including whether the injured worker performed alternative tasks. We link these claims to employment records from the OED which provide information about quarterly earnings and hours before and after injury for workers observed in our claims database. Our data use agreement is currently in the final stages of review with the Oregon Department of Justice, so we present data on trends from an earlier version of the claims database through 2012.

EAIP participation ultimately is a joint decision between an employer who chooses to provide accommodation and a worker who chooses to return to transitional work. As a result, we examine trends in the characteristics of both employers and employees who participate in the EAIP. Figure 1 shows that significant variation exists in EAIP use among workers from different types of employers. EAIP use is highest among claims in public administration, health care, retail, construction and manufacturing industries, and highest among workers with occupations in health care support, production, construction, transportation, and food service. Analyses from DCBS show that EAIP use is significantly higher among employers that are self-insured for workers' compensation (Helmer 2018). In future analyses with our complete dataset, we also plan to examine variation in EAIP use by firm size.

Figure 1. *Trends in EAIP Participation by Industry and Occupation, 2000-2012*

(a) Industry	(b) Occupation
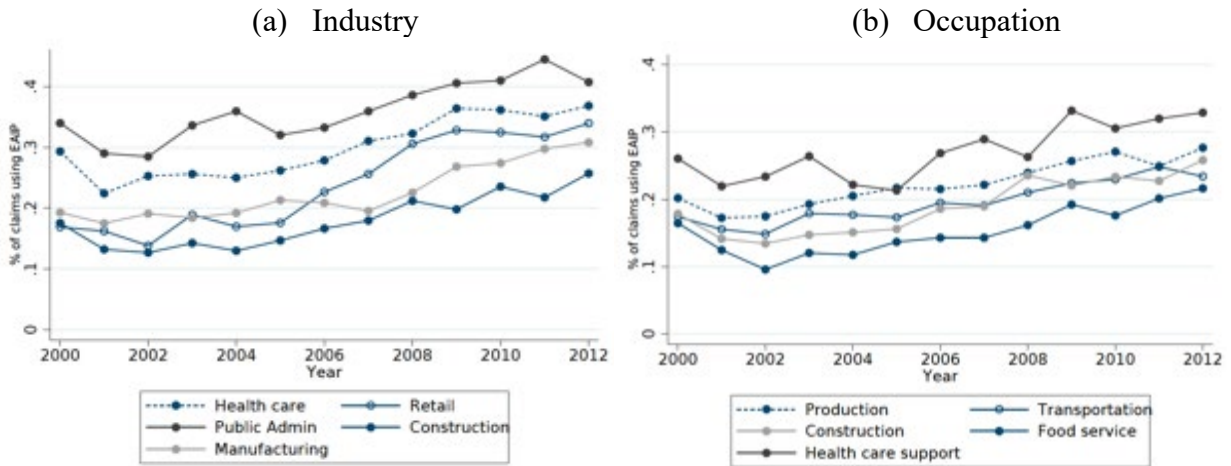
Source: Data from the Oregon Department of Business and Consumer Services.

Next, we explore characteristics of workers whose costs are reimbursed by EAIP. Because workers must have work restrictions and require accommodation in order to be eligible, workers with the least severe injuries typically do not qualify for EAIP. At the same time, workers with extremely severe injuries may not be able to return to work even if accommodations were provided. As a result, workers with moderately severe injuries are likely the best candidates for EAIP participation. Figure 2 shows EAIP participation among claims with different levels of severity, where we use the total medical expenditures of the claim as a proxy for severity on the x-axis. The inverse-U shape of this graph confirms this trend in participation by severity. Workers who participate in EAIP also tend to have higher wages before injury and longer workers' compensation claim durations, perhaps in part due to the fact that their claim must remain open while participating in EAIP.

Figure 2. *EAIP Participation by Severity of Injury*
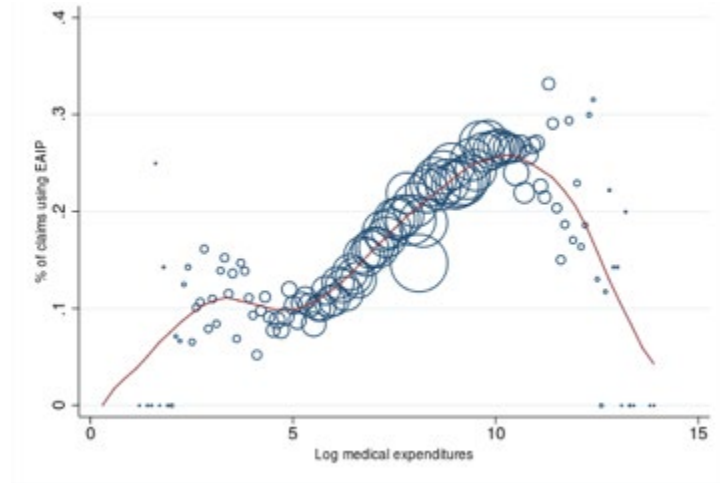
Source: Data from the Oregon Department of Business and Consumer Services.

After exploring these descriptive trends in EAIP participation, we will exploit a policy change in 2013 that reduced the EAIP wage subsidy from 50 percent of wages during the transitional work period to 45 percent of wages.[1] We will use this exogenous variation to estimate the effect of EAIP on later work outcomes in an instrumental variables analysis. We will run the following two-stage regression:

First stage: $\quad EAIP_{ifjt} = \beta_0 \cdot S_t + \gamma_0 X_{it} + \phi_0 Q_{fjt} + t * \alpha_{0j} + \varepsilon_{0ifjt}$

Second stage: $\quad Y_{ifjt} = \beta_{IV} \cdot EAIP_{ifjt}^* + \gamma_{IV} X_{it} + \phi_{IV} Q_{fjt} + t * \alpha_{IV,j} + \varepsilon_{IV,ifjt}$

where $EAIP_{ifjt}$ is an indicator for participation in the EAIP for worker i in firm f and industry j at time t, S_t reflects the value of the subsidy in year t, X_{it} reflects individual worker characteristics, Q_{fjt} contains firm characteristics, and Y_{ifjt} is either participation, earnings, or hours worked in a given quarter after the claim has closed. The main assumption for the exclusion restriction in this approach is that the subsidy value S_t only affects post-claim labor market outcomes via its impact on participation in EAIP. Because other factors, such as the characteristics of workers' compensation claims, may shift over time (Boone and van Ours 2011), we will interact the value of the subsidy with a measure of exposure to the EAIP which

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[1] Because our current version of the dataset ends in 2012, we are unable to execute these analyses until our data use agreement is refreshed.

reflects a firms' likelihood of participating in the program. We will explore several possible candidates for exposure including insurance status (e.g., self-insured vs privately insured), firm size, or a measure of labor market tightness, with our refreshed data.

Finally, we study the welfare implications of WC policies by developing an equilibrium model of workers and firms in which firms pay taxes to the workers' compensation system and choose whether to accommodate injured workers, and injured workers choose whether or not to return to transitional work. The government has two policy levers to maximize social welfare: provision of a short-term cash benefit for workers with disabilities, and provision of wage subsidies to employers who accommodate workers with disabilities. Employers may under-accommodate workers due to two main channels. First, they may not account for the effect of their accommodation decisions on the government's WC costs. Second, employers may not fully capture the benefits of accommodation if injured workers do not remain with their employers for long. Including accommodation subsidies in workers' compensation policy also has the additional benefit of increasing the optimal time loss benefit, as accommodation can lower the moral hazard effect of insurance. Our preliminary findings show that when the government provides wage subsidies, firms respond by increasing the amount of accommodation provided. We will quantitatively examine the importance of these channels by fitting our model to the estimates from our empirical analyses.

Conclusion

This project contributes to our understanding of disability policy by providing one of the first empirical analyses of the impact of policies that offer employer incentives to accommodate workers after injury. Our descriptive analyses uncover that take-up of such policies varies with worker and firm characteristics, including higher take-up by workers with moderate injuries and firms who self-insure their workers' compensation costs. Our causal analysis and modeling exercise will quantify the extent to which employer incentives to accommodate may affect return to work outcomes, and provide insight into the value of employer-side interventions for disability policy.

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Firm Willingness to Offer Bridge Employment

David Powell and Jeffrey Wenger (RAND Corporation) and
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Abstract

While some research exists on the prevalence of bridge employment and partial retirement behavior from the worker perspective, we have no evidence about firms' ability and willingness to accommodate worker demands for job amenities as they transition into retirement. Is bridge employment costly to firms? This project will provide the first estimates of firms' perceived costs of provision of desirable working conditions for older workers. We will survey firms about their willingness to accommodate new and current employees who express a desire to reduce hours or have more flexible schedules as they transition into retirement. More prevalent bridge employment opportunities could drastically alter retirement rates and Social Security claiming behavior, but we have little evidence about whether firms have the ability to accommodate these types of transitions. This research will produce novel findings on the potential role of firms in lengthening working lives.

Introduction

There is significant interest in extending the working lives of older individuals. While some evidence exists about the types of jobs that older workers seek and that are associated with remaining in the labor force (e.g., Ameriks et al. 2017; Maestas et al. 2018), whether such jobs are, or could be, readily available in the labor market is less certain. Surveys of older workers regularly report their high demand for workplace flexibility – specifically, hours flexibility – as well as other working conditions. Recent work has found that job preferences vary significantly throughout the lifecycle (Maestas et al. 2018). On almost all dimensions, older workers valued better working conditions more than any other age group.

Worker responsiveness to working conditions is only half of the labor market equation. There is little work studying the employer side of the equation to understand firm-level incentives and capabilities. We study within- and between-firm switches by older workers

transitioning into retirement. We will survey firms about their ability and willingness to accommodate workers who are transitioning into retirement and demanding working conditions, such as flexible work schedules and reduced responsibilities, often associated with bridge employment.

Bridge employment is a foundational issue to the Social Security Administration, as it can extend working lives and potentially delay Social Security benefit receipt. A meaningful increase in the fraction of older workers that remain in the labor force because of increased availability of bridge jobs would alter the retirement landscape substantially with direct effects on the timing and magnitude of Social Security benefits. Interestingly, while several studies have examined the prevalence of, and demand for, alternative work arrangements (e.g., Quinn and Kozy 1996; Ruhm 1990; Maestas 2010; Bennett et al. 2016), little work has been done on the employer side of this equation.

Methods

This project focuses on firms' ability and willingness to provide certain working conditions and accommodate transitions into retirement. We are fielding a survey through Indeed.com, the world's largest online job site. In the U.S., Indeed has nearly 60 million unique visitors per month, with more than 1.5 million companies using Indeed to hire. Indeed provides half of total job applicants from all offline and online sources, and six times as many hires as any other jobs site. Indeed's job postings, employers, and job seekers represent the wide range of industries in the U.S. economy, in all parts of the country, and in both large and small firms.

We will field a survey targeted to hiring managers, human resource (HR) professionals, and other members with knowledge about decision-making regarding working conditions at their firm using the Indeed sampling frame. The primary focus of this survey will be a set of stated preference experiments asking hiring managers to choose which job to offer to potential candidates. In each experiment, the respondent is asked to select between two job offers on behalf of their firm. The job offers vary based on the wage paid to the employee and based on a working condition. Wages are randomized. The job attributes that are randomly assigned include hours per week, hours per day, working remotely, schedule flexibility, working weekends and nights, work shifts, paid time off, and family leave benefits.

We will also ask respondents to make similar choices for current employees. An example of one of these experiments is provided directly below.

Listed below are two work arrangements for this position (Accountant) for a current worker at your firm. The worker would like to start shifting into retirement in the next year or two. He will accept either offer.

Regardless of the offer you choose, the job responsibilities remain the same. The jobs are identical in all other ways (health insurance, retirement benefits, etc.).

Please choose the job offer that is best for your firm. Recall that the worker currently works for your firm, wishes to retire in the next year or two, and he will accept either offer.

Which job arrangement would your firm prefer?

○ Arrangement A: The position requires 40 hours per week, and pays $42,667 / year.

○ Arrangement B: The position requires 20 hours per week, and pays $25,784 / year.

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Given answers to these questions, we are able to non-parametrically estimate the cumulative distribution function (CDF) of firms' willingness to provide the amenity. Consider cases in which Job A provides an amenity wage w_A while Job B pays wage w_B and does not provide the amenity. The fraction of firms selecting Job B identifies:

$$P(Firm\ Cost > \ w_B - w_A).$$

Varying the wage difference (and which job provides the amenity) identifies probabilities for a wide range of wage differences, permitting graphical representation of the full distribution of firm costs. Given estimates of the CDF, we will be able to estimate the mean costs as well.

We will also ask supervisors, hiring managers, and HR professionals to answer the following:

You are almost done with the survey. We have just a couple short questions left.

How difficult would it be for a full time worker in this job position with 2 years of work experience to permanently…

	Impossible	Extremely difficult	Difficult	Neither difficult nor easy	Easy	Very easy	Automatic upon request
…reduce her work hours to 20 hours per week?	○	○	○	○	○	○	○
…reduce her days at the office per week to 2-3 days?	○	○	○	○	○	○	○
…reduce her job responsibilities?	○	○	○	○	○	○	○

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RAND American Life Panel

We will use these responses to determine how difficult it is to transition to bridge employment at the employees' current firm. Our data collection will allow us to control for 3-digit industry as well as characteristics of the respondents (hiring manager, supervisor, HR professional). We will also be able to control for the respondents' firm size, level of education, years of experience, age of firm, and other attributes that may influence hiring.

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Panel 6: Retirement Finances

Moderator

Gary V. Engelhardt (Syracuse University)

"The Evolution of Late-Life Income and Assets: Measurement in IRS Tax Data and Three Household Surveys"

James Choi (Yale University and NBER), Lucas Goodman (U.S. Department of the Treasury), Justin Katz (Harvard University), David Laibson (Harvard University and NBER), and Shanthi Ramnath (Federal Reserve Bank of Chicago)

"How Much Taxes Will Retirees Owe on Their Retirement Income?"

Anqi Chen and Alicia H. Munnell (Boston College)

"Broad Framing in Retirement Income Decision Making"

Hal E. Hershfield (UCLA), **Suzanne B. Shu** (Cornell University and NBER) and Stephen A. Spiller and David Zimmerman (UCLA)

The Evolution of Late-Life Income and Assets:
Measurement in IRS Tax Data and Three Household Surveys

James Choi (Yale University and NBER),
Lucas Goodman (U.S. Department of the Treasury),
Justin Katz (Harvard University),
David Laibson (Harvard University and NBER), and
Shanthi Ramnath (Federal Reserve Bank of Chicago)[*]

Recent research has found that some U.S. household surveys underreport income from sources such as pensions and IRAs, calling into question assessments of retirement income adequacy based on survey data (Bee and Mitchell 2017; Chen, Munnell, and Sanzenbacher, 2018). In this paper, we examine how well three widely used U.S. household surveys – the *Health and Retirement Study* (HRS), the *Survey of Income and Program Participation* (SIPP), and the *Current Population Survey* (CPS) – capture levels of and trends in late-life financial well-being. To do so, we compare income estimates from these surveys to those from a 5-percent random sample of administrative IRS tax records covering the 1933-1952 birth cohorts. IRS data contain administrative records for most income sources in retirement, including distributions from pensions and IRAs. IRS data hence offer a unique benchmark to assess bias in survey estimates.

To ensure comparability across sources, we harmonize income definitions, household definitions, and the populations covered by each dataset. We adjust for household size by dividing household income by the square root of the number of members (either one or two, as we do not consider dependents). Our income measures exclude non-taxable government transfers such as SSI and SNAP benefits, which are important for the left-tail of the income distribution.

We first compare survey estimates of levels and trends in the distribution of pre-tax income as households age to equivalent tax data estimates. We focus on two groups: 1) households in the 1943-1949 birth cohorts observed from ages 58-68, during the initial transition to retirement; and 2) households in the 1933-1939 birth cohorts observed from ages 68-78, during later retirement. For each birth cohort in each source, we measure, at each age, the 10th,

25th, 50th, 75th, and 90th income percentiles and the fraction of households receiving income greater than $500 – all in 2010 dollars. To compare income levels across datasets, we calculate the percentage difference between each survey estimate and the tax data estimate. To estimate trends as households age, we compute the proportional change at each point in the income distribution from age 58 to age 68 for each of the 1943-1949 birth cohorts, and from age 68 to age 78 for each of the 1933-1939 birth cohorts.

Table 1 reports across-cohort averages of percentile estimates and probabilities of receipt at ages 58, 68, and 78, proportional changes across ages, and percentage differences between survey data and tax data. Panel I averages across the 1943-1949 birth cohorts, and Panel II averages across the 1933-1939 birth cohorts. The results indicate that all survey sources underestimate median income for older households. For the 1943-1949 birth cohorts, average median income at age 68 is $37,972 in the tax data, exceeding estimates in the HRS, the SIPP, and the CPS by an average of 7.4 percent, 14.1 percent, and 14.7 percent, respectively. For the 1933-1939 birth cohorts, average median income at age 78 is $29,336 in the tax data, greater than estimates in the HRS, the SIPP, and the CPS by an average of 10.7 percent, 13.0 percent, and 21.6 percent, respectively. Additionally, the survey sources overestimate the proportional decline at and above the median from age 58 to age 68 during the initial transition to retirement. Median income in the tax data declines by an average of 11.7 percent from age 58 to age 68, compared to average declines of 24.4 percent in the HRS, 16.8 percent in the SIPP, and 29.0 percent in the CPS. The results suggest that relying on survey estimates to measure income levels or changes in income as households age may paint an overly pessimistic picture of financial well-being.

Next, we compare how each source measures the evolution of the household income distribution across birth cohorts. In Table 2 (Panel I), we examine average proportional changes at fixed ages from the 1944 birth cohort to the 1950 birth cohort, averaging across ages 58 to 67. Median pre-tax income fell by an average of 0.2 percent in the tax data, compared to declines of 7.8 percent in the HRS, 0.7 percent in the SIPP, and 0.9 percent in the CPS. At other percentiles, the SIPP and CPS do a good job capturing trends, while the HRS overestimates growth at the 10th and 25th percentiles and overestimates declines at the 75th and 90th percentiles. Table 2 (Panel II) reports average changes from the 1933 birth cohort to the 1943 birth cohort, averaging across ages 68 to 74. The tax data show that income has grown across the distribution – by an

average of 14.6 percent, 16.3 percent, and 19.9 percent at the 25th percentile, median, and 75th percentile, respectively. However, the survey data tend to exaggerate this trend at and above the median. The average growth at the median is 21.7 percent in the HRS, 23.5 percent in the SIPP, and 23.6 percent in the CPS; at the 75th percentile, average growth is 23.3 percent in the HRS, 28.9 percent in the SIPP, and 27.1 percent in the CPS. Overall, relying exclusively on survey data will produce an overly *optimistic* assessment of across-cohort trends in retirement income.

Lastly, we examine the extent to which the trend towards higher income at older ages is explained by increased income outside of the Social Security system. Table 3 measures changes in non-Social Security income from the 1933 to 1943 birth cohorts, averaging across estimates at

ages 68-74 as before. In the tax data, for middle- and lower-income households, stripping out Social Security income results in considerably *less* income growth across cohorts. Non-Social Security income grew by only 9.4 percent on average at the median, and *fell* by 16.5 percent on average at the 25th percentile. The survey sources qualitatively capture this drop-off at the 25th percentile, although the HRS and the SIPP on average overestimate the proportional decline.

Table 1. *Levels and Changes in the Pre-Tax Income Distribution Across Various Ages*

Panel I. *Average Levels and Average Changes from 58-68 for Younger Birth Cohorts (1943-1949)*

	Tax data			HRS			SIPP			CPS		
	58	68	Avg. % change	58	68	Avg. % change	58	68	Avg. % change	58	68	Avg. % change
10th percentile	6,948	8,446	23.2%	8,988	10,592	16.7%	8,267	9,796	21.5%	8,872	10,087	15.4%
(% diff vs. tax)				37.9%	25.0%		21.3%	15.6%		31.1%	20.1%	
25th percentile	21,625	19,726	-8.8%	24,872	19,008	-24.1%	19,900	18,862	-5.1%	23,882	17,344	-27.1%
(% diff vs. tax)				16.3%	-4.7%		-7.7%	-5.0%		10.6%	-12.0%	
50th percentile	43,032	37,972	-11.7%	47,198	35,145	-24.4%	39,071	32,607	-16.8%	45,610	32,378	-29.0%
(% diff vs. tax)				9.9%	-7.4%		-9.1%	-14.1%		6.1%	-14.7%	
75th percentile	71,456	62,892	-12.0%	82,746	64,595	-20.5%	64,403	53,247	-17.4%	76,426	57,283	-25.0%
(% diff vs. tax)				15.9%	3.0%		-9.8%	-15.2%		7.0%	-8.9%	
90th percentile	112,544	99,635	-11.5%	132,162	110,751	-16.4%	96,875	85,548	-11.8%	117,815	92,560	-21.3%
(% diff vs. tax)				17.5%	11.3%		-13.9%	-14.1%		4.8%	-7.2%	
frac w/ income	0.94	0.96	2.0%	0.96	0.99	2.6%	0.96	0.97	2.2%	0.95	0.97	1.7%
(% diff vs. tax)				1.8%	2.5%		1.2%	1.2%		0.9%	0.5%	

Panel II. *Average Levels and Average Changes from 68-78 for Older Birth Cohorts (1933-1939)*

	Tax data			HRS			SIPP			CPS		
	68	78	Avg. % change	68	78	Avg. % change	68	78	Avg. % change	68	78	Avg. % change
10th percentile	7,632	6,251	-17.8%	10,502	10,092	-3.0%	9,555	8,351	-10.3%	9,257	8,522	-7.8%
(% diff vs. tax)				38.7%	62.0%		25.7%	33.3%		21.9%	37.2%	
25th percentile	18,139	15,468	-14.6%	18,385	15,517	-14.3%	16,959	15,185	-10.0%	15,696	14,618	-6.7%
(% diff vs. tax)				-6.3%	-1.8%		-6.3%	-1.8%		-13.4%	-5.4%	
50th percentile	33,667	29,336	-12.8%	32,415	25,951	-18.1%	28,351	25,397	-10.2%	27,461	23,013	-16.1%
(% diff vs. tax)				-3.8%	-10.7%		-15.7%	-13.0%		-18.4%	-21.6%	
75th percentile	53,767	48,534	-9.6%	55,972	42,173	-23.7%	47,183	41,257	-11.6%	48,020	40,181	-16.5%
(% diff vs. tax)				4.2%	-11.7%		-12.3%	-14.5%		-10.5%	-17.2%	
90th percentile	85,220	78,862	-7.3%	95,833	71,741	-22.5%	71,300	67,435	-5.6%	84,706	65,406	-22.9%
(% diff vs. tax)				12.2%	-7.5%		-16.3%	-13.8%		-0.4%	-17.2%	
frac w/ income	0.96	0.94	-1.9%	0.99	0.99	0.2%	0.98	0.97	-1.5%	0.97	0.96	-1.0%
(% diff vs. tax)				3.0%	5.2%		1.9%	2.4%		1.0%	1.9%	

Sources: Authors' calculations using Internal Revenue Service tax data, the *Health and Retirement Study*, the *Survey of Income and Program Participation*, and the *Current Population Survey*.

Table 2. *Trends in the Pre-Tax Income Distribution Across Birth Cohorts*

Panel I. *Average Changes from 1944-1950 Birth Cohorts at Younger Fixed Ages (58-67)*

	Tax data			HRS			SIPP			CPS		
	1944	1950	Avg. % change	1944	1950	Avg. % change	1944	1950	Avg. % change	1944	1950	Avg. % change
10th percentile	6,589	7,481	15.5%	8,353	10,076	22.7%	7,294	8,408	15.9%	7,559	8,544	13.4%
25th percentile	19,302	20,481	6.2%	19,954	21,400	10.8%	17,791	19,216	8.1%	18,500	19,276	4.1%
50th percentile	39,946	39,837	-0.2%	46,002	40,916	-7.8%	35,715	35,422	-0.7%	38,185	37,825	-0.9%
75th percentile	68,051	65,955	-3.1%	76,495	68,936	-5.1%	60,241	59,933	1.2%	67,084	65,312	-2.7%
90th percentile	108,492	104,554	-3.6%	131,028	113,511	-10.8%	97,437	87,757	-8.5%	107,386	103,450	-3.5%
frac w/ income	0.94	0.95	0.7%	0.97	0.98	0.6%	0.95	0.97	1.6%	0.94	0.96	1.2%

Panel II. *Average Changes from 1933-1943 Birth Cohorts at Older Fixed Ages (68-74)*

	Tax data			HRS			SIPP			CPS		
	1933	1943	Avg. % change	1933	1943	Avg. % change	1933	1943	Avg. % change	1933	1943	Avg. % change
10th percentile	7,227	8,486	17.5%	9,678	10,725	13.6%	9,190	10,135	12.2%	9,114	9,825	7.9%
25th percentile	16,862	19,325	14.6%	16,985	18,055	5.0%	15,435	18,416	20.8%	14,614	16,928	15.9%
50th percentile	31,227	36,303	16.3%	28,608	34,649	21.7%	25,073	31,069	23.5%	23,981	29,570	23.6%
75th percentile	49,938	59,867	19.9%	48,445	51,651	23.3%	39,536	51,651	28.9%	40,695	51,532	27.1%
90th percentile	79,757	96,291	20.9%	80,183	82,515	37.7%	56,384	82,515	44.2%	72,894	82,945	14.4%
frac w/ income	0.96	0.97	0.6%	0.99	0.98	0.3%	0.98	0.98	0.2%	0.97	0.97	0.3%

Sources: Authors' calculations using Internal Revenue Service tax data, the *Health and Retirement Study*, the *Survey of Income and Program Participation*, and the *Current Population Survey*.

Table 3. *Trends in the Non-Social Security Income Distribution from 1933-1943 Birth Cohorts: Averages Across Ages 68-74*

	Tax data			HRS			SIPP			CPS		
	1933	1943	Avg. % change	1933	1943	Avg. % change	1933	1943	Avg. % change	1933	1943	Avg. % change
10th percentile	2,916	2,399	-16.5%	3,569	2,571	-26.9%	2,525	1,388	-45.5%	452	400	-11.1%
25th percentile	15,916	17,395	9.4%	14,361	16,802	15.7%	11,452	13,209	12.0%	9,322	12,484	37.4%
50th percentile	34,449	40,077	16.5%	32,407	42,632	29.0%	25,398	32,864	27.8%	26,630	35,214	33.4%
75th percentile	65,315	76,585	17.6%	63,369	95,479	54.1%	43,404	62,394	41.2%	57,840	67,263	17.3%
90th percentile	0.81	0.79	-1.9%	0.83	0.81	-2.2%	0.81	0.77	-5.1%	0.73	0.73	0.2%

Sources: Authors' calculations using Internal Revenue Service tax data, the *Health and Retirement Study*, the *Survey of Income and Program Participation*, and the *Current Population Survey*.

Figure 1. *Fraction with No Income or IRA by Age and Cohort*
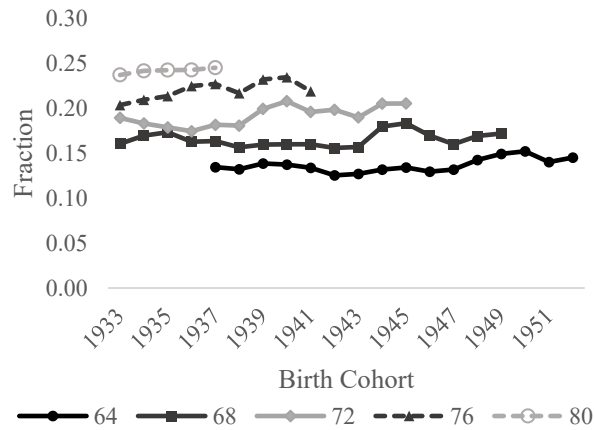
Figure 2. *Fraction with No Income or IRA Born 1933 at Age 72, By State*
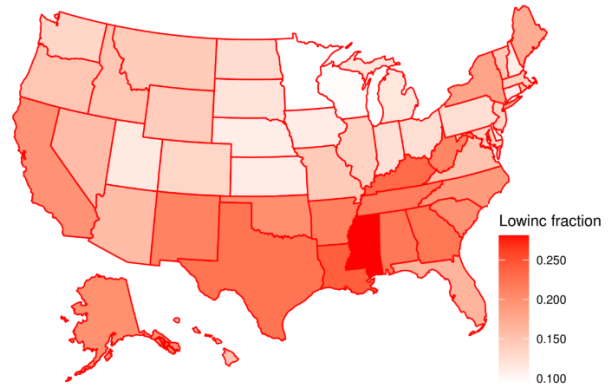
Source: Authors' calculations using Internal Revenue Service tax data.

To further investigate changes in the left tail over time, we track the fraction of households with less than $500 (in 2010 dollars) in non-Social Security income and no IRA balances at fixed ages. These households likely lack substantial savings, and so presumably rely completely on Social Security to finance their consumption. Figure 1 shows that in the tax data, the fraction of households completely reliant on Social Security is flat to increasing over time. For example, for age-72 households, this fraction rose from 18.9 percent in the 1933 birth cohort to 20.5 percent in the 1945 birth cohort. The survey data qualitatively capture these trends, although the CPS substantially overestimates levels of Social Security reliance. The tax data additionally grant visibility into substantial geographic variability in Social Security reliance across states. Figure 2 shows that Social Security reliance at age 72 in the 1933 birth cohort tends to be highest in the Deep South and lowest in the Northeast and Upper Midwest, ranging from 11.1 percent at the 10th percentile state (Kansas) to 22.1 percent at the 90th percentile state (Georgia).

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How Much Taxes Will Retirees Owe on Their Retirement Income?

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To evaluate their retirement resources, households approaching retirement will examine their Social Security statements, defined benefit pensions (DBs), defined contribution balances (DC), and other financial assets. However, many households may forget that not all of these resources belong to them; they will need to pay some portion to federal and state government in taxes. This project aims to shed light on the tax burden retirees face by estimating lifetime taxes for a group of recently retired households.   However, due to delays in authorizing TAXSIM for use on restricted data, the results presented in this version of the paper are based on self-reported data and do not include state tax liabilities.

Data and Methodology

The analysis is based on the *Health and Retirement Study* (*HRS*) and focuses on recently retired households – specifically, households where at least one earner has claimed Social Security benefits from 2010-2018. This construct – excluding disability conversions – produces a sample of 3,419 individuals and 1,907 households. Table 1 shows the marital status and financial resources of the sample households at the time of retirement.

Table 1. *Marital Status and Average Retirement Resources in Year of Retirement in 2018 Dollars, by AIME Quintile*

AIME quintile	Percentage married	Social Security	DB pensions	DC balances	Financial wealth
Lowest	35%	$10,610	$2,730	$3,180	$125
Second	62	19,950	5,240	4,690	2,250
Middle	79	27,010	5,810	8,670	7,000
Fourth	80	32,290	9,130	27,760	23,000
Highest	81	33,130	21,550	180,790	87,500
Top 5%	83	36,610	29,360	466,380	167,500
Top 1%	92	38,040	32,440	739,420	445,000

Source: Authors' calculations from University of Michigan, *Health and Retirement Study* (2010-2018).

The first step is to identify the income streams that the households will have available in retirement. Social Security benefits depend on earnings history and claiming age. At this point, we used self-reported earnings and claiming ages. For households with defined benefit plans, annual pension income is also based on self-reported estimates.

For households with assets in defined contribution retirement plans, the tax burden depends on whether the contributions were made pre-tax (traditional) or post-tax (Roth) and on the pattern of withdrawal. We use data from the *Survey of Consumer Finances*, IRS, and Vanguard to estimate the proportion of assets in Roth accounts. In terms of drawdown, our base case assumes that households withdraw nothing from their 401(k)s and IRAs until age 70½ (or 72) and follow the Required Minimum Distribution (RMD) rules. We also consider two alternatives. Under one option, households before the applicable RMD age withdraw at a rate implied by the RMD rules and then follow the RMD rules once they become binding.[1] Under the other option, households use their 401k)/IRA balances at the Social Security claiming age to purchase an immediate annuity, with joint and survivor benefits for married couples.

For financial assets outside of these retirement arrangements, our baseline assumption is that households use only the interest and dividends to support their consumption in retirement. Under an alternative option, households use half of their financial assets (paying taxes on accrued capital gains) to buy a joint-and-survivor annuity at the time they claim their Social Security benefits.

Once these income streams are identified, the next step is to calculate the annual tax burden for each household using the NBER's TAXSIM 27. Tax calculations are performed each year for each household between age 62 and its quintile-related life expectancy. The final step is to calculate taxes as a percentage of pre-tax income, discounted back to the Social Security claiming age.

Results

Table 2 shows the results for the base case, which involves taking only RMDs and living off the interest and dividends on financial assets. Households in the aggregate will have to pay roughly 6 percent of their income in federal income taxes. The rate varies sharply by AIME

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[1] Implied RMDs for ages before 70½ (72 after 2020) are calculated by taking the inverse of the average life expectancy provided by the Internal Revenue Service (2019).

quintile. Those in the bottom three quintiles pay close to zero, but the rate rises to 1.5 percent for the fourth quintile and to more than 10.5 percent for the top quintile, 15.4 percent for the top 5 percent, and 20.9 percent for the top 1 percent. The rates also vary by household type.

Table 2. *Retirement Taxes as a Percentage of Retirement Income, Households Follow RMD and Consume Only Interest and Dividends from Financial Assets, by AMIE Quintile and Marital Status*

AIME quintile	All	Single	Married
Lowest	0.0%	0.0%	0.0%
Second	0.0	0.1	0.0
Middle	0.3	1.1	0.1
Fourth	1.5	5.0	0.8
Highest	10.5	13.6	9.8
Top 5%	15.4	18.8	15.0
Top 1%	20.9	20.7	21.0
All	5.7%	6.5%	5.4%

Source: Authors' calculations.

Table 3 shows the results for the final scenario, which assumes full annuitization of 401(k) balances as well as 50-percent annuitization of other financial wealth. Comparing the final scenario with the base case shows that, in a system with progressive rates, the retirement taxes are higher when more of retirement assets are withdrawn for consumption. The rate difference would be even greater except that the capital gains on financial assets, used to purchase an annuity, are taxed at much lower rates than ordinary income, and then only a small portion of the annuity purchased with after-tax income is subjected to taxation.[2]

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[2] Under the Tax Cuts and Jobs Act of 2017, short-term capital gains are taxed as ordinary income at rates up to 37 percent, while long-term gains (assets held for more than one year) are taxed at lower rates, up to 20 percent. Taxpayers with modified adjusted gross income above certain amounts are subject to an additional 3.8-percent net investment income tax on long- and short-term capital gains.

Table 3. *Retirement Taxes as a Percentage of Retirement Income, Households Annuitize All DC Assets and 50 Percent of Financial Assets, by AMIE Quintile and Marital Status*

Quintile	All	Single	Married
Lowest	0.0%	0.0%	0.0%
Second	0.1	0.2	0.0
Middle	0.4	1.3	0.2
Fourth	1.9	6.1	0.8
Highest	11.5	15.7	10.6
Top 5%	16.2	19.9	15.5
Top 1%	19.5	23.6	19.1
All	6.5%	8.0%	6.0%

Source: Authors' calculations.

Regardless of the drawdown strategy, households in the bottom three AIME quintiles most likely pay zero taxes in retirement, and even those in the fourth quintile will pay only about 2 percent. In terms of financial security in retirement, this finding is good news – most households are not dramatically underestimating the resources available in retirement by not considering taxes.

Taxes, however, are meaningful for the top quintile, so it is important to consider the economic circumstances of these households. They are mostly married couples with average combined Social Security benefits of $33,130, 401(k)/IRA balances of $180,790, and financial wealth of $87,500. These households as a group are not what many would consider wealthy. The fact that they constitute the highest quintile highlights the fact that most households do not have a lot of money in retirement. Yet, they will pay about 12 percent of their retirement income in taxes. Given that, without considering taxes, about 40 percent of households in the top third of the income distribution are at risk of not being able to maintain their standard of living, taxes will make the goal even more difficult to attain.[3]

Those in the top 5 percent and 1 percent of the AIME distribution hold more wealth both inside and outside of retirement plans. But even here, the reported average 401(k)/IRA holdings of $466,380 and $739,410, respectively, must look quite similar to what many academics hold in their TIAA accounts. For these groups, taxes amount to 16 percent and 20 percent of retirement

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[3] Munnell, Hou, and Sanzenbacher (2018).

income, respectively. Thus, taxes are an important consideration for those who hold meaningful balances and should be considered in their financial planning.

The final observation is that the drawdown strategy does not appear to have much impact on tax liability. That outcome may reflect simplifying assumptions underlying the analysis. But it also raises questions about how much attention people need to devote to taxes as they consider different drawdown strategies.

Note, again, these results are preliminary and partial. They are based on self-reported Social Security benefits and do not include the impact of state taxes. Including state taxes will likely raise the burden by 25 percent. Thus, for many households reliant on 401(k)/IRA assets for security in retirement, taxes are an important consideration.

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Broad Framing in Retirement Income Decision Making

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Retirees often make retirement income decisions in narrow brackets, myopically considering OASI claiming age, pension or 401(k) payouts, annuity purchases, long-term care insurance, and use of home equity as independent and unrelated decisions. Thoughtfully combining these different income sources into a comprehensive decumulation strategy requires mentally combining the risks and benefits associated with different programs and assets, which may be quite challenging for retirees. For example, when thinking about decisions for OASI claiming, wealth decumulation, and guaranteed lifetime income products (e.g., annuities), the tradeoffs between longevity risk, stock market risks, and higher future income can make each decision a highly complex task. Thinking of each domain as a separate decision, rather than looking at how they operate in aggregate, may make it even more difficult to evaluate global tradeoffs and also make it difficult to appreciate how potential outcomes can be complementary in generating a smoother path of retirement income.

Research on narrow versus broad framing in financial decisions regularly finds that this type of narrow decision framing can cause individuals to accept lower risk and lower value outcomes, whereas a more broadly bracketed set of options can lead to more optimal aggregated choices (Read, Loewenstein, and Rabin 1999). Broadly bracketing outcomes has also been shown to increase risk tolerance, especially for individuals seeing investment outcomes aggregated over larger periods of time (Benartzi and Thaler 1995; Langer and Weber 2001). In this project, we test how aggregating outcomes across different sources of retirement income, a topic which has previously been unexplored, affects retirement decisions. We expect that, similar to broad bracketing of other financial outcomes, an aggregate view of sources of retirement income (OASI benefits, savings wealth, and annuities) may lead to different decisions (resulting in different outcomes) relative to when each decision is made independently. Our study employs a custom-built retirement decision aid to experimentally test whether people

select systematically different risk allocations (stocks vs bonds), make different annuity decisions, and adjust their Social Security claiming intentions when they are shown the aggregated outcome of those decisions or each piece individually. We predict that by combining these risks into a single integrated retirement income metric (broad bracketing), individuals can more clearly evaluate the risks and understand the impacts that each decision has on their overall circumstances. For example, calculating the exact implications of withdrawing retirement savings more heavily in early retirement in order to delay OASI claiming is a decision that involves complex risk tradeoffs that may be hard to reason about. A decision aid that shows the aggregated impact of these decisions may make it easier for the individual to reason through the costs and benefits of using one income source to make different decisions regarding other income sources.

Study Method

People were asked to make a financial plan for decumulation using an online tool. In order to simplify the decision, we gave people a specific age, income, and savings scenario rather than letting them input information about themselves and then creating a plan using those inputs. Participants were asked to make a plan using three different financial products: Social Security, retirement savings, and annuities. They received immediate feedback in the form of graphs showing estimated income (and, for some conditions, wealth) over time, along with a probability that they would run out of retirement savings by age 85.

We recruited 605 participants from Amazon Mechanical Turk (AMT), using their panel feature to screen for people ages 40 to 63. After exclusions and attrition, we have 399 participants (median age = 48, 44.9 percent female). Participants completed a comprehension check and then walked through an in-depth explanation of the task they were about to complete. The directions started with a general overview of how to navigate and understand the decumulation tool and then stepped through each decision they would be asked to make. In the decumulation tool people saw three different financial products they could make decisions about: Social Security old age (OASI) benefits, savings, and guaranteed income (a single, deferred life annuity). Instructions specific to each element of the tool, and highlighting how the outcome feedback would change according to their decisions, was provided through a series of screenshots and detailed instructions.

Our main dependent variables are based on the retirement income decisions made within each financial product. For the Social Security product, people were able to select what age they would claim from ages 62 to 70. For retirement savings, participants were asked to select a general withdrawal progression from retirement savings: increasing, flat or decreasing withdrawals; were asked whether or not they would like to take extra withdrawals from retirement savings prior to claiming Social Security; and were asked to select one of three different investment allocation paths that varied the ratio of stocks to bonds. In the annuity product space, people were asked to select the percentage of their retirement savings to annuitize and the starting age for the annuity payments. Within each product decision space, individuals saw a graph of estimated income from ages 60 to 100. Within the retirement savings product decision screen, or for anyone in the aggregated outcome condition, a graph of estimated wealth over time from ages 60 to 100 was also provided. Additionally, people were provided with a calculated probability that they will still have positive (non-zero) retirement savings at age 85. Once they were satisfied with their choices, all participants responded to questions to measure individual levels of intertemporal discount rate, loss aversion, and confidence in their decisions and retirement planning, as well as basic demographics.

Study Results

We expected that individuals in the aggregate condition, who are able to have a more complete picture of their possible outcomes while making choices, would be more likely to take tradeoffs between the products into account. To test for differences in average retirement income per condition, we consider several different measures: average monthly income across ages 62 to 100, standard deviation of income from 62 to 100, and average year-by-year differences in income for those years. A regression with average retirement income as the dependent variable finds that the effect of condition is marginally significant when controls are included; average income is slightly lower for participants in the aggregate condition. Of more interest is what happens to the variability of income in the two conditions. There is a significant decrease in the average variability of income sequences selected by participants in the aggregate condition, both without and with controls ($b = -967.48$, $t(362) = -3.72$, $p < 0.001$). When using a measure of the absolute difference in expected income from each year to the previous year, averaged for each person, we find that participants in the aggregate condition had lower average

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lagged differences, again without and with controls for demographic and psychographic variables (b = -118.61, t(362) = -4.07, p < 0.001).

Looking at the outcomes for each of the three financial product domains, starting with the OASI benefits claiming decision, we find that on average people in the aggregate graph condition claimed nine months to one year earlier than those in the separate condition, without or with controls (b = -1.06, t (365) = -3.69, p <0.001). For the selection of retirement savings withdrawal strategies, we do not find evidence to suggest a difference between the selections in the aggregate and separate graph conditions. In both conditions, the majority of participants selected an increasing withdrawal strategy, with 51 percent of participants choosing it in the separate condition and 49% choosing it in the aggregate condition. We also do not see significant differences in the choice of whether or not to take extra withdrawals from savings in the years before claiming Social Security, or in the level of risk participants were willing to take with their retirement savings. Finally, for the guaranteed income decisions, we find that people in the aggregate condition on average had significantly lower annuitization rates of their retirement savings, both without and with controls (b = -9.84, t(365) = -3.53, p < 0.001).

Conclusion

As consumers approach retirement, they are faced with many difficult decisions regarding decumulation. Typically, these decisions are done in a siloed fashion. Although consumers may intuitively understand that all of these decisions are part of one overall decumulation strategy, it can be cognitively taxing to balance the effect of each independent decision on one's overall financial picture in retirement. In this preliminary examination of how broad bracketing affects retirement decisions, we found that making decisions in aggregate had several effects; the most robust and notable is that the participants who used the aggregate version of the tool had significantly smoother consumption patterns than participants who used the separate version of the tool. We hypothesize that the aggregate presentation permits consumers not just to maximize smoothness, but rather to choose the most-preferred consumption stream independent of the variability of its components. The finding that participants were more confident in their decisions in the aggregate condition rather than the separate condition lends credence to the notion that they were better able to choose the aggregate consumption pattern that more closely matched their preferences.

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Jody Schimmel Hyde is a senior researcher at Mathematica Policy Research whose work focuses on the employment and health insurance of vulnerable populations, particularly people with disabilities and older adults. She has a particular focus on the interplay between work and program rules for Social Security disability beneficiaries, and recently published a study in the *Social Security Bulletin* about the work activity of older denied SSDI applicants. She recently authored studies that explore the effects of the Affordable Care Act on workers with disabilities in the *Disability and Health Journal* and the *Journal of Disability Policy Studies*. Schimmel Hyde is well-versed in SSA administrative data, and currently directs Mathematica's efforts to develop SSA's annual Disability Analysis File. In the past, she worked on studies under the federal evaluation of the Ticket-to-Work program and the Medicaid Buy-In program, and numerous projects funded by the Disability Research Consortium and the Retirement Research Consortium. She received her Ph.D. in economics from the University of Michigan.

Lauren L. Schmitz is an assistant professor at the University of Wisconsin-Madison's (UW-Madison) La Follette School of Public Affairs and a faculty affiliate with the Center for Demography of Health and Aging at UW-Madison. Her research utilizes social, genomic, and epigenomic data from population-based longitudinal studies to examine how social and biological risk factors across the life course shape disparities in health and socioeconomic attainment at older ages. She is the recipient of a K99/R00 Pathway to Independence Award from the National Institute on Aging (NIA) for research that is examining the social and genetic determinants of epigenetic processes related to aging and neurodegenerative disease. Her research has been supported by the NIA, the U.S. Social Security Administration, the National Science Foundation, the Russell Sage Foundation, and the March of Dimes. She holds an M.S. in human genetics from the University of Michigan and a Ph.D. in economics from the New School for Social Research.

Jonathan Schwabish is a senior fellow at the Urban Institute, where he is a researcher in the Income and Benefits Policy Center, and a member of the Institute's Communication team, where he specializes in data visualization and presentation design. His research agenda includes earnings and income inequality, disability insurance, retirement security, data measurement, and nutrition policy. Schwabish is also considered a leader in the data visualization field and is a leading voice for clarity and accessibility in research. He has written on various aspects of how to best visualize data including technical aspects of creation, design best practices, and how to communicate social science research in more accessible ways. Schwabish helps nonprofits, research institutions, and governments at all levels improve how they communicate their work and findings to their partners, constituents, and citizens. His book about presentation design and techniques, *Better Presentations: A Guide for Scholars, Researchers, and Wonks* helps people improve the way they prepare, design, and deliver data-rich content and his more recent book, *Elevate the Debate: A Multilayered Approach to Communicating Your Research,* provides direction on developing a strategic plan to communicating research across multiple platforms and channels.

Gopi Shah Goda is a senior fellow and the deputy director at the Stanford Institute for Economic Policy Research (SIEPR) at Stanford University. She is also a faculty research fellow at the National Bureau of Economic Research and a fellow of the Society of Actuaries. Shah Goda conducts research on issues primarily related to the economics of aging in the United States that informs economic policymaking. Her recent research studies include an examination of perceptual and behavioral biases and their relationship to retirement saving decisions and the effects of long-term care insurance on family members' work and location decisions. Her work has appeared in a variety of leading economics journals, and has been supported by the U.S. Social Security Administration, the National Institute on Aging, the Alfred P. Sloan Foundation and the TIAA Institute. Prior to joining SIEPR, she was a Robert Wood Johnson Scholar in Health Policy Research at Harvard University. Shah Goda earned her B.S. in mathematics and actuarial science from the University of Nebraska-Lincoln and her Ph.D. in economics from Stanford University.

Suzanne B. Shu is the John Dyson Professor of Marketing at Cornell University's Dyson School of Applied Economics and Management. The types of decisions analyzed in her research include consumer self-control problems and consumption timing issues, with important implications for both negative behaviors (such as procrastination) and positive behaviors (such as saving). Her work on financial decisions has focused specifically on decumulation during retirement and perceived fairness for financial products. Shu has taught graduate-level marketing and decision-making courses at the University of Chicago, Southern Methodist University, INSEAD, and UCLA. She is also currently an NBER faculty research fellow, holds a joint faculty appointment at the UCLA Medical School, and has been a visiting scholar at the Consumer Financial Protection Bureau. Shu holds a Master's degree in electrical engineering from Cornell University, and a Ph.D. from the University of Chicago.

Stephen A. Spiller is an associate professor of marketing and behavioral decision-making at the UCLA Anderson School of Management. His research examines the psychology of fundamental economic concepts, including how and when people consider their opportunity costs, how they plan for the future, how they reason about product differentiation, and how they think about

stocks versus flows. Through his research and teaching, he works to translate and disseminate best practices in data analysis and reporting for behavioral researchers in marketing and adjacent fields. He received the Association for Consumer Research's early career award and was named a young scholar by the Marketing Science Institute. Spiller received his B.A. in psychology and economics from the University of Virginia, and his Ph.D. in marketing from Duke University.

Eugene Steuerle is an institute fellow and Richard B. Fisher chair at the Urban Institute and co-founder of the Tax Policy Center, the Urban Institute's Center on Nonprofits and Philanthropy and its Program on Retirement Policy, and ACT for Alexandria, a community foundation, where he also served as chair. Among past positions, he was deputy assistant secretary of the U.S. Department of the Treasury for Tax Analysis, president of the National Tax Association, and economic coordinator and original organizer of the Treasury study that led to the Tax Reform Act of 1986. The author, co-author or co-editor of 18 books and over 1,500 articles and columns, Steuerle received the first Bruce Davie–Albert Davis Public Service Award from the National Tax Association in 2005 and the TIAA-CREF Paul Samuelson award for his book *Dead Men Ruling*. Steuerle received his Ph.D. from the University of Wisconsin-Madison.

Carly Urban is an associate professor of economics at Montana State University. She is also a research fellow at the Institute for Labor Studies (IZA). Her research focuses on policy analysis of interventions that affect individual's personal finances. Urban has been published in top economics journals, including the *Economic Journal*, the *Journal of Human Resources*, and the *Journal of Public Economics*. Her work has also been covered by mass media outlets, such as *The Wall Street Journal*, *The New York Times*, *TIME*, and *NPR*. Urban is an affiliate of the Center for Financial Security at the University of Wisconsin-Madison, and she has been a visiting scholar at the Federal Reserve Board and the U.S. Consumer Financial Protection Bureau. Urban holds a B.A. in economics and international affairs from the George Washington University and a Ph.D. in economics from the University of Wisconsin-Madison.

Jeffrey Wenger is a senior policy researcher at the RAND Corporation. His current research examines the effects of working conditions on remaining in the labor force, and the transitions of military personnel into the civilian labor force. He is also leading a project on long-term unemployment among late-career workers. From 2003-2015, Wenger was an assistant and then associate professor at the University of Georgia where he taught econometrics, statistics, economics, and policy evaluation. From 2013- 2015 he was also an NIH/NIA Research Fellow in the Study of Aging at RAND in Santa Monica. Wenger's primary expertise is in unemployment insurance (UI); he has published studies in the areas of UI financing, automatic triggers for extending UI benefits, and the role of information on UI application rates. Wenger is also interested in issues of retirement and the role of business cycles on retirement savings. He has published research on the asynchronicity of stock and labor markets and its effects on retirement savings and research on preference heterogeneity and its role on savings rates and borrowing options in defined contribution plans. Wenger received his Ph.D. in policy analysis from the University of North Carolina, Chapel Hill.

Aaron Williams is a data scientist at the Urban Institute's Income and Benefits Policy Center and Program on Retirement Policy. He works on retirement policy, tax policy, microsimulation models, data imputation methods, data privacy, and data visualization. He has worked on

Urban's Dynamic Simulation of Income (DYNASIM) microsimulation model, the U.S. Social Security Administration's Modeling Income in the Near Term (MINT) microsimulation model, and the Urban-Brookings Tax Policy Center's synthesis of IRS tax records. Williams leads the Urban Institute's R Users Group, where he develops open-source tools for research and assists researchers across the Urban Institute with projects that use R for statistical analysis, data visualization, mapping, and automation.

Susan Wilschke is currently the acting associate commissioner for research, demonstration, and employment support at the U.S. Social Security Administration's (SSA) Office of Retirement and Disability Policy. She oversees a portfolio of research, analysis, and evaluations designed to improve administration of the disability programs and improve employment outcomes. This includes demonstration projects testing changes to program policies and services and collecting updated occupational data to inform disability decisions. She is also responsible for administering employment support programs and policies for beneficiaries with disabilities who want to work. She served as deputy associate commissioner for research, demonstration, and employment support since 2012. She was previously director of the Office of Program Evaluation within the Office of Program Development and Research, where she was responsible for research and policy analysis focused on improving SSA's disability and income support programs and for developing and implementing policies on Social Security's work incentives. Wilschke started with SSA in 1998 as a presidential management intern. She spent nearly 10 years working in SSA's Office of Policy, working on SSI and disability policy issues. Wilschke received an M.A. in social service administration from the University of Chicago.

David Zimmerman is a third year Ph.D. student in behavioral decision making at the UCLA Anderson School of Management. His research focuses on the graphical communication of risk and uncertainty and financial decision making. Within financial decision-making, his focus has been financial product disclosures, a decision aid for decumulation, and developing a financial literacy scale. With his research, he tries to make complex decisions more tractable for experts and laypeople. Zimmerman received a B.S. in decision science and statistics from Carnegie Mellon University.

CENTER *for* RETIREMENT RESEARCH
at BOSTON COLLEGE

Mission

The Center produces first-class research and forges a strong link between the academic community and decision-makers in the public and private sectors around an issue of critical importance to the nation's future. Since its inception in 1998, the Center has established a reputation as an authoritative source on all major aspects of the retirement income debate.

Research

The Center's research covers any issue affecting individuals' income in retirement. Our main areas of research are Social Security, state and local pensions, financing retirement, tapping home equity, and working longer. The Center's work goes beyond economics. We seek to understand the human behavior behind individuals' decisions so that we can craft solutions that work in practice, not just in theory.

Grant Programs

The Center sponsors the Sandell Grant and Dissertation Fellowship Programs in retirement and disability research. These programs, funded by the U.S. Social Security Administration, provide opportunities for junior or non-tenured scholars and Ph.D. candidates from all academic disciplines to pursue cutting-edge projects on retirement or disability policy issues.

Squared Away Blog

The Center's popular personal finance blog translates complex academic research and financial information into an accessible form. The blog aims to help everyone – policymakers, financial providers, and the public – better understand the factors that shape households' financial decisions from college through mid-career and into retirement.

Find the Center online:

https://crr.bc.edu

@RetirementRsrch

About us

The MRDRC serves as a national resource fostering high-quality research, communication, and education related to Social Security, pension, disability, and retirement-related policies. The MRDRC is one of four centers funded by the Social Security Administration as part of a consortium, the purpose of which is to benefit the public through three sets of activities:

- ♦ conduct research and develop research data;

- ♦ disseminate information on retirement, disability, and SSA-related social policy;

- ♦ train scholars and practitioners.

MRDRC meets these goals through its many activities, including research projects, policy briefs and working papers, involvement of young scholars in research activities, and an annual Retirement and Disability Research Consortium conference. Workshops and round-table discussions are organized throughout the year on specific topics of interest to both researchers and policymakers.

Keep in touch

- ♦ Website: mrdrc.isr.umich.edu

- ♦ Twitter: @MRDRCumich

- ♦ LinkedIn: linkedin.com/in/mrdrcumich

- ♦ Blog: https://mrdrc.isr.umich.edu/blog/

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The NBER Retirement and Disability Research Center (RDRC) conducts research to inform evidence-based retirement and disability policy related to Social Security's core mission of providing financial security to older people and people with disabilities. A key aim of the Center is to develop a community of researchers dedicated to these issues by supporting research projects, offering fellowships, and disseminating findings to academic and general audiences.

Our **research** focuses on five key areas of emphasis:
1. Enrollment Trends and Determinants
2. Measuring Sources of Income and Adequacy
3. Labor Force Participation
4. Program Operations
5. Related Programs and Program Interactions

The RDRC's **fellowship program** supports trainees at the pre- and post-doctoral level, encouraging research on the health, labor supply, behavioral, and other economic or policy implications of retirement and disability.

The RDRC produces **The NBER Bulletin on Retirement and Disability**, a free quarterly newsletter, available by email. To subscribe, visit https://www.nber.org/prefs/brd.pl.

In addition, research findings are available as RDRC and/or NBER Working Papers.

NBER Retirement and Disability Center
http://projects.nber.org/drupal/RDRC
Contact: rdrcadmin@nber.org
NBER twitter: @nberpubs

The Center for Financial Security Retirement and Disability Research Center (CFS RDRC) at the University of Wisconsin-Madison is an applied research program which develops evidence that can assist policymakers, the public, and the media in understanding issues in Social Security, retirement, and disability policy, especially related to economically vulnerable populations. Our Center incorporates a diversity of viewpoints and disciplines, is committed to the training and development of emerging scholars and generates research findings that are used in policy and practice. The CFS RDRC is designed around four central themes:

- Interactions Between Public Assistance and Social Insurance Over the Life Course
- The Role of Health, Health Insurance, and Financial Decisions for Household Financial Security
- How Economically Vulnerable Households Use Work, Pensions, and Social Insurance Over the Life Course to Maintain Well-being
- The Role of Housing, Savings, and Debt for Retirement Security Among Low-Net-Wealth Households

As an RDRC, CFS conducts training of graduate and professional school students, especially students from underrepresented backgrounds and from a range of disciplines, on issues relevant to SSA policy and practice. Our two fellowship programs, the Retirement and Disability Social Policy in Residence Postdoctoral Fellowship Program and the Graduate Research Mentored Fellowship Program, strive to provide mentorship and research opportunities for emerging researchers in the area of retirement and disability research. The Junior Scholar Intensive Training (JSIT) is a unique training model in collaboration with Howard University, which brings together junior faculty and newly graduated PhD students for a weeklong training on the UW-Madison campus. The CFS RDRC vision is to develop a cohort of scholars who will become tomorrow's principal investigators.

Links and Resources:

CFS RDRC Website: https://cfsrdrc.wisc.edu/

New publications, briefs, data visualization tools, webinars, and more are posted often: https://cfsrdrc.wisc.edu/publications

CFS Website: https://cfs.wisc.edu/

Follow us on Twitter: @UWMadisonCFS

Sign up to receive our CFS RDRC Quarterly Newsletter and other Publications & Updates: https://cfsrdrc.wisc.edu/contact-us

RETIREMENT & DISABILITY RESEARCH (RDR) FUNDING OPPORTUNITIES

For graduate students*

- **Analyzing Relationships Between Disability, Rehabilitation and Work (ARDRW)**
  Administered by Policy Research, Inc.
  $10,000 graduate student stipend for research on rehabilitation and return to work for SSA disability beneficiaries
  Annual application period: November–February

For doctoral candidates

- **Dissertation Fellowship Program in RDR**
  Administered by The Center for Retirement Research at Boston College
  $28,000 fellowship (up to 3) for doctoral students writing dissertations on retirement or disability topics
  Annual application period: October–January

- **Pre-Doctoral Fellowship Program in RDR**
  Administered by National Bureau of Economic Research
  $24,324 stipend (up to 2) for full-time PhD candidates to conduct retirement- and/or disability-relevant research; fellowship also provides limited funds for tuition, health insurance, research expenses, and travel
  Annual application period: November–December

- **Retirement and Disability Graduate Research Mentored Fellowship Program**
  Administered by University of Wisconsin-Madison (UWM) Center for Financial Security Retirement & Disability Research Center
  Approximately $45,000–$55,000 pre-doctoral stipend (depending on appointment percentage); positions are in residence at UWM
  Annual application period: February–March

For junior scholars (recent PhD recipients)

- **Post-Doctoral Fellowship Program in RDR**
  Administered by National Bureau of Economic Research
  $80,000 stipend (up to 2) for new PhDs and early career researchers to conduct retirement or disability research; fellowship also covers health insurance and provides limited funds for research expenses and travel
  Annual application period: November–December

- **Retirement and Disability Social Policy in Residence Postdoctoral Fellowship Program**
  Administered by University of Wisconsin-Madison Center for Financial Security Retirement & Disability Research Center
  Approximately $68,000 post-doctoral fellow stipend (depending on qualifications) for retirement and disability research relating to economically vulnerable households
  Annual application period: February–March

- **Small Grant Program on Poverty, Retirement, and Disability Research**
  Administered by University of Wisconsin-Madison Center for Financial Security Retirement & Disability Research Center, collaborating with the Institute for Research on Poverty
  Up to $36,000 grants to support poverty research (e.g., economically vulnerable populations) related to retirement and disability policies and programs
  Annual application period: December–January

- **Steven H. Sandell Grant Program**
  Administered by The Center for Retirement Research at Boston College
  $45,000 grants (up to 3) to pursue cutting-edge projects on retirement or disability issues
  Annual application period: October–January

* Masters, doctoral, and post-doctoral.

All eligible persons are welcome to apply.
We strongly encourage applications from women, minorities, people with disabilities, and veterans.

https://www.ssa.gov/policy/about/research-funding.html