

Women at the Helm? Earnings Power and Retirement Decisions in Married Couples

Siha Lee ^{*} Zhixiu Yu [†]

Preliminary Draft (March 2026).

Latest version: [\[LINK\]](#)

Abstract

We study how married couples coordinate retirement and Social Security claiming, and how those decisions vary with household breadwinner status. Using the Health and Retirement Study linked to Social Security administrative records, we show that observed claiming behavior deviates substantially from the joint claiming strategy that maximizes expected household Social Security wealth, with especially large losses in female-breadwinner households. Wives bear larger losses than husbands even when they are the primary earners. Female-breadwinner households are more likely to have husbands with health limitations and disability benefit receipt, suggesting that spousal health may exacerbate these asymmetries. We develop and estimate a dynamic life-cycle model of couples that explicitly endogenizes both spouses' labor supply and claiming decisions and incorporates the full detailed structure of retirement, spousal, and survivor benefits. The model accounts for heterogeneity in earnings structure, health, wage risk, and education, and matches the key life-cycle moments in the data very well. The estimates point to impatience, coordinated non-employment, and weaker valuation of annuitized Social Security wealth relative to liquid assets help explain early claiming and retirement. Greater patience increases employment and assets, while stronger bequest valuation of Social Security wealth substantially delays claiming. Policy counterfactuals show that auxiliary benefits, especially survivor benefits, significantly affect wives' employment and claiming decisions, with much larger responses in male-breadwinner households. Our results suggest that Social Security still reflects the logic of a traditional one-earner marriage and generates uneven incentives within modern households.

JEL codes: J12, J16, J26

^{*}Division of Economics, Hankuk University of Foreign Studies, Seoul, South Korea. Email: siha.lee.econ@hufs.ac.kr.

[†]Department of Economics, Louisiana State University, Baton Rouge, LA, USA. Email: zhixiuyu@lsu.edu.

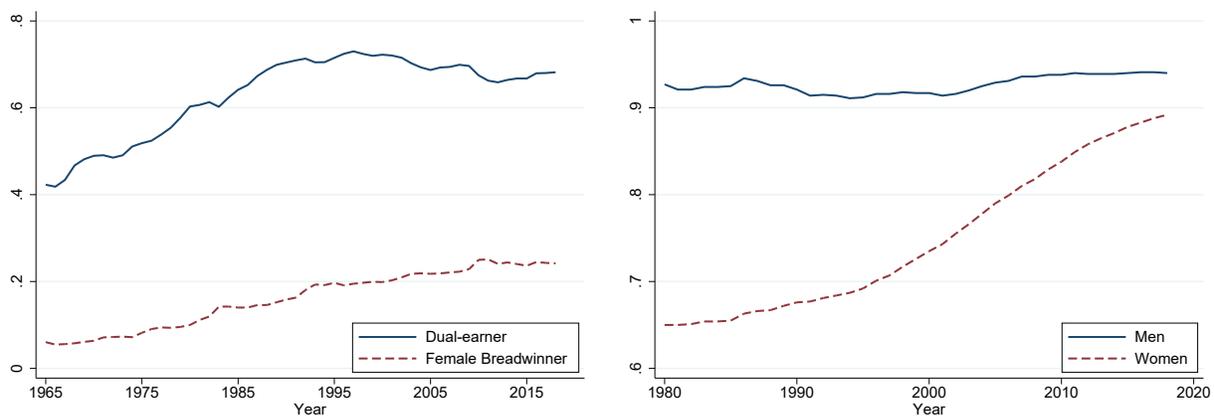
1 Introduction

Over the past several decades, rising female educational attainment, labor force participation, and earnings have significantly changed the economic position of women within households in the United States (Eckstein and Lifshitz, 2011; Attanasio et al., 2008). A majority of married couples are now dual earners, and an increasing share of wives earn more than their husbands (Figure 1a). These shifts have greatly expanded the proportion of women eligible for Social Security benefits on the basis of their own work histories (Figure 1b), changing the way families interact with marriage-based Social Security provisions. The changing family earnings structure raises new questions about how married households coordinate work and retirement decisions, and whether a benefit system originally designed around a traditional one-earner family still fits the structure of modern marriages.

This paper studies how married couples coordinate retirement and Social Security claiming decisions, and how those decisions vary with which spouse is the primary earner. We focus in particular on whether observed claiming behavior aligns with the joint claiming strategy that maximizes expected household Social Security wealth, and on whether the answer differs between male- and female-breadwinner households. Understanding how couples make those choices in this new landscape is essential for evaluating both retirement behavior and the fairness of Social Security design.

For most Americans, Social Security is the primary source of income in retirement. The timing of benefit claiming has permanent consequences: claiming early reduces benefits received after retirement, while delaying claiming raises them. Although the program was originally designed to be actuarially fair, shifts in longevity, interest rates, and policy parameters—such as the increase in delayed retirement credits—have altered those incentives. For married couples, Social Security benefits depend not only on each spouse’s own earnings history, but also on spousal and survivor provisions that link one spouse’s benefits to the other’s claiming behavior, making coordination within households central to maximizing household Social Security wealth. Despite its importance, there remains little systematic evidence on how couples actually navigate these decisions.

Households where the wife is the primary earner may face different dynamics from those where the husband is the breadwinner. Prior research has shown that relative earnings often shape bargaining power within households (Bertocchi et al., 2014; Friedberg and Webb, 2006a; Elder and Rudolph, 2003), and gender differences in preferences and caregiving responsibilities may further influence how households make important decisions depending on the gender of



(a) Share of Dual-Earner and Female Breadwinner Couples

(b) Fully Insured for Social Security Retirement Benefits

Figure 1: Trends in Family Types and Social Security Coverage Among Women

Notes: Figure 1(a) is based on a sample of couples where both spouses were aged 25–61 in the March Current Population Survey (CPS) from 1965–2018. “Female breadwinners” indicate wives whose earnings are greater than their husbands. Figure 1(b) reports the share of men and women aged 62–66 who were entitled to Social Security retirement benefits based on their own earnings history (1980–2018). Data sources: Office of the Chief Actuary and Office of Research, Evaluation, and Statistics, Social Security Administration.

the primary earner.¹

Using the Health and Retirement Study (HRS) linked to Social Security administrative records, we document three novel empirical findings. First, married households leave substantial Social Security wealth on the table relative to the household wealth-maximizing benchmark. Realized household Social Security wealth is 4–6% lower relative to that under the joint optimal claiming strategy, and these losses are larger in female-breadwinner households. Second, these losses are distributed asymmetrically within the household. Wives consistently lose more Social Security wealth than husbands, even when they are the primary earners. In male-breadwinner households, husbands modestly exceed their optimal present value while wives forgo roughly 12 percent. In female-breadwinner households, wives’ losses still exceed those of husbands, with shortfalls ranging from 5 to 7 percent. Wives still retire earlier than optimal, undermining their own benefits and survivor benefits when their husbands become widowers. The asymmetry raises a puzzle: why do wives bear disproportionate losses, even when they are the primary earner? These patterns suggest a lack of household coordination to maximize joint wealth, with decisions apparently tilted toward husbands’ incentives rather

¹Crosen and Gneezy (2009) provides a comprehensive review on gender differences in risk, social, and competitive preferences.

than joint optimization. Third, spousal health is correlated with breadwinner status, as female breadwinners are more likely to be healthy but also more likely to have husbands in poor health and on disability benefit. This combination points to a setting in which female earnings power does not necessarily translate into delayed retirement or greater protection of wives' own future benefits.

Motivated by these patterns, we develop and estimate a rich dynamic life-cycle model of married couples with joint household consumption, savings, and each spouse's labor supply and Social Security claiming decisions. The model incorporates institutional detail, including retirement, spousal, and survivor benefits, as well as heterogeneity in earnings structure, health, wage risk, and education. The estimated model matches the main life-cycle moments in the data well, including employment by health status and Social Security claiming distributions of each spouse, along with joint non-employment and household assets. The parameter estimates point to several mechanisms behind the observed departures from household wealth-maximizing claiming: impatience, positive utility from coordinated non-employment, and a much lower value on annuitized Social Security wealth than on liquid assets. A higher discount factor raises employment and assets and reduces joint non-employment, while valuing Social Security wealth like liquid assets substantially delays claiming. Additional evidence suggests that subjective mortality expectations are unlikely to be a central explanation for the observed patterns, while the relationship between earnings power and bargaining power appears imperfect and may differ systematically by gender.

We then use the estimated model to conduct policy counterfactuals. These exercises show that marriage-based benefits continue to shape household behavior in economically meaningful ways, but with important heterogeneity across households. In particular, survivor benefits matter much more than spousal benefits for wives' employment and claiming decisions, with the strongest responses concentrated in male-breadwinner couples. Removing auxiliary benefits produces much smaller effects on husbands, household consumption, and assets. These findings suggest that the current design of marital benefits still embeds incentives that are closely tied to the traditional male-breadwinner household. This makes the model a useful framework for evaluating reforms aimed at making Social Security more marriage neutral, including changes to auxiliary benefits and earnings-sharing proposals.

Our paper speaks to four strands of literature. First, it relates to the large literature on retirement, and Social Security claiming, especially structural studies of late-life behavior (Gruber and Wise, 1998; Liebman et al., 2009; Scholz et al., 2006; French and Jones, 2011; İmrohorođlu and Kitao, 2012; Yu, 2024; Bairoliya and McKiernan, 2023; Jones and Li,

2023; Pashchenko and Porapakarm, 2024). This literature has shown that health and pension incentive are central to retirement and claiming behavior, but most of it focuses on male household head or models the household in a way that abstracts from within-couple interactions.

Second, our paper contributes to the growing literature on married couples' labor supply (Guner et al., 2012; Attanasio et al., 2018; Eckstein et al., 2019; Bick and Fuchs-Schündeln, 2018; Golosov and Krasikov, 2025; Kleven et al., 2009; Gustman and Steinmeier, 2000, 2004; van der Klaauw and Wolpin, 2008; Blau and Gilleskie, 2006; Lee, 2024). These include studies that focus on understanding the drivers behind the empirical pattern that spouses often retire together, such as leisure complementarities (Casanova, 2010), even when there is a large age gap between the two spouses (Maestas, 2018). Related studies have explored the factors affecting female labor supply, such as family structure and caregiving responsibilities (Goldin and Katz, 2017; Olivetti and Rotz, 2016; Lee and Yu, 2025; Fahle and McGarry, 2022; Gelber et al., 2018). We build on this work by bringing detailed Social Security claiming incentives to the center of the analysis and by allowing husbands and wives to make separate employment and claiming decisions.

Third, the paper contributes to research on marriage-based pension provisions, including spousal and survivor benefits, and their implications for labor supply, savings, and redistribution within marriage. Relevant studies include (Goda et al., 2007; Hong and Ríos-Rull, 2012; Hubener et al., 2016; Li, 2018; Nishiyama, 2019; Groneck and Wallenius, 2021; Borella et al., 2023). This literature highlights that marriage-based benefits can create important distortions on spouses' decisions. Our results speak directly to this issue by showing how these incentives operate differently in male- and female-breadwinner households.

Finally, our paper connects to broader work on efficiency in household decision-making (Choukhmane et al., 2025; Bergstresser and Poterba, 2004; Andersen et al., 2020; Choi et al., 2011; Gathergood et al., 2019; Lusardi and Mitchell, 2023; Scholz et al., 2006) and women's power within the household (Blundell et al., 2007; Bargain et al., 2022; Jayachandran and Voena, 2025; Friedberg and Webb, 2006b). We contribute to these literatures by examining the efficiency of benefit-claiming decisions and how relative earnings shape those decisions within couples.

The paper extends the literature in the following ways. First, we provide novel empirical evidence regarding couples' Social Security claiming decisions by the spouse's relative earnings power. Specifically, we document a striking gender asymmetry within households that wives bear larger Social Security wealth losses than husbands even when they are the primary

earners. Second, we develop a rich structural model of couples that explicitly endogenizes both spouses' labor supply and claiming decisions and incorporates the full details of Social Security retirement, spousal, and survivor benefits. Unlike existing models that often treat one spouse as the sole decision-maker or impose joint claiming behavior, our framework allows for fully explicit intra-household decision-making. By incorporating heterogeneity in earnings structure, health, and education, together with leisure complementarities and distinct bequest motives for liquid assets and annuitized Social Security wealth, the model can speak directly to mechanisms behind early claiming and can evaluate policy counterfactuals that are difficult to study in simpler frameworks. More broadly, the framework allows us to analyze intra-household decision-making and assess the welfare implications of novel Social Security reforms that, to the best of our knowledge, have not been examined in the literature.

The rest of the paper is organized as follows. Section 2 provides descriptive patterns regarding married men and women's retirement behaviors by female breadwinner status. Section 3 compares Social Security wealth-maximizing claiming ages versus actual observed claiming ages. Section 4 describes a fully specified dynamic life-cycle model. Section 5 discusses the estimation method. Section 6 reports the estimation results, and discusses mechanisms. Section 7 explores policy counterfactual based on the estimated model. Section 8 concludes.

2 Empirical Patterns

2.1 Data and Sample Summary

We use the Health and Retirement Study (HRS), a rich panel study of Americans above age 50 and their spouses. Initiated in 1992 and conducted biennially, the HRS collects extensive information on a wide range of topics including demographics, employment, wealth, income, health, and program participation. Our analysis includes data from 1992 to 2018. Importantly, we link the HRS to administrative Social Security data containing detailed information on Social Security claiming behavior as well as their annual Social Security earnings from 1951 to 2020.

We focus on a sample of women who were 1) married and aged 51–61 when they first entered the HRS and 2) with a record of receiving Social Security benefits at any point in time. Additionally, we focus on women whose age differences with their husbands are ten years or less (i.e., the wife-husband age difference ranges from -10 to 10) as women with extremely large age gaps with their husbands may have considerably different incentives in

coordinating retirement with their husbands. In total, our sample consists of 3,722 women.

Based on annual Social Security earnings data, we categorize a female respondent as a “breadwinner” if her average lifetime earnings at age 62 is greater than that of her husband.² If this information is missing, we instead use prospective Social Security wealth measures available in the public HRS data and classify a female as a “breadwinner” if her prospective Social Security wealth at age 62 is greater than that of her husband.

Table 1 provides summary statistics of our sample of women and their husbands. First, non-breadwinner women are on average 1.2 years younger than their husbands whereas breadwinner women are approximately the same age as their husbands. Second, breadwinner women are not only more educated than their non-breadwinner counterparts but also more likely to have higher educational attainment than their husbands (i.e., “married down”). This aligns with breadwinner women having higher average lifetime earnings and lifetime labor supply as measured by the total Social Security quarters of coverage (QCs; quarters of employment credited towards being insured under Social Security). Third, breadwinner women are less likely to be white, and in particular, Black women comprise 12.4% of breadwinners, which is more than double the 5.6% observed among non-breadwinners.

In the model, We restrict the sample to the cohort with Normal Retirement Age of 66 (born in 1943-1959) because it is the cleanest cohort for analysis. Individuals in this group faced the same Social Security rules, including delayed retirement credits and the retirement earnings test. This limits institutional heterogeneity across birth cohorts and makes observed differences easier to interpret. Appendix Section A provides additional details on the sample.

Correlation Between Spousal Health and Breadwinner Status

Table 1 presents three different measures of couple health by female breadwinner status: self-reported health, disability status, and whether the respondent ever had emotional, nervous, or psychiatric problems. Self-reported health is based on the respondent’s self-assessed general health, categorized as ‘poor (1),’ ‘fair (2),’ ‘good (3),’ ‘very good (4),’ and ‘excellent (5).’ Disability status is determined by the question, “Do you have any impairment or health problem that limits the kind or amount of paid work you can do?” Respondents answering “yes” are classified as disabled.

The summary statistics in Table 1 reveal that, on average, female breadwinners tend to be healthier than non-breadwinner women. However, they are also more likely to be married

²We use age 62 as the cutoff for measuring average lifetime earnings as it is the earliest age that individuals can claim Social Security retirement benefits.

Table 1: Sample Summary Statistics of Women by Their Breadwinner Status

	Non-breadwinner	Breadwinner
Panel A: Own Summary Statistics		
Age at HRS entry	54.30	53.96
Wife-husband age difference	-1.23	-0.13
Education (%)		
Less than high school	15.20	7.65
High school graduates	40.56	32.59
Some college	24.00	28.02
College graduates	12.93	21.39
Post-college	7.32	10.35
Education relative to husband (%)		
Married down	23.98	35.48
Married same	43.34	40.82
Married up	32.68	23.70
Race (%)		
White	89.47	80.27
Black	5.57	12.38
Other	4.96	7.35
Average lifetime earnings (age 19–62, in \$)	14,339	33,415
Total Social Security quarters of coverage [†]	87.3	133.7
Self-reported health at HRS entry*	3.51	3.54
Disabled at HRS entry (%)	21.4	15.0
Ever had emotional, nervous, or psychiatric problems (%)	11.4	7.61
Panel B: Husbands' Summary Statistics		
Average lifetime earnings (age 19–62, in \$)	45,671	20,699
Total Social Security quarters of coverage	146.5	98.42
Self-reported health at HRS entry	3.52	3.25
Disabled at HRS entry (%)	16.67	28.5
Ever had emotional, nervous, or psychiatric problems (%)	5.88	9.68
Person observations	3,007	715
(%)	(80.8%)	(19.2%)

Notes: All dollar values are in 2019 dollars.

[†] A quarter of coverage (QC) refers to a quarter of Social Security-covered employment. Generally, 40 QCs are required to be insured for Social Security retirement benefits.

* Self-reported health is categorized as poor (1), fair (2), good (3), very good (4), and excellent (5).

to husbands with poorer health outcomes. To further investigate this sorting pattern, we perform a logit regression of the husband’s health on the wife’s health, the wife’s breadwinner status, and the interaction of the wife’s health and breadwinner status. The model controls for both spouses’ age and age squared, educational attainment, and race. The results are reported in Table 2.

Table 2: Logit Estimates of Husbands’ Health on Wives’ Health and Breadwinner Status (Marginal Effects)

	Health Measure		
	Disabled (1)	“Bad” health [†] (2)	Has nervous, emotional, or psychiatric problems (3)
Wife’s health	0.090*** (0.013)	0.103*** (0.013)	0.090*** (0.016)
Wife is breadwinner	0.105*** (0.021)	0.092*** (0.018)	0.042** (0.021)
Wife’s health × breadwinner	0.019 (0.032)	-0.015 (0.023)	0.027 (0.031)
Person-year observations	27,491	28,582	28,112

Notes: This table reports logit regression results using our sample from the HRS (1992-2018). The dependent variable is the husband’s health for each of the three health measures. ‘Wife’s health’ refers to the wife’s health status for each column’s corresponding health measure (i.e., ‘wife is disabled’ for column (1), ‘wife has bad health’ for column (2), and ‘wife has nervous, emotional, or psychiatric problems’ for column (3)). All specifications control for the age, age-squared, race dummies, and education dummies of both spouses. Standard errors are in parentheses, clustered at the household level. ***, **, * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

[†] We define “bad” health as reporting either ‘poor’ or ‘fair’ self-reported health.

Table 2 indicates evidence of marital sorting on health: unhealthy wives are more likely to have unhealthy husbands. However, conditional on the wife’s health, female breadwinners are significantly more likely to be matched with unhealthy husbands. In particular, columns (1) and (2) show that the likelihood of a female breadwinner having an unhealthy husband is similar to that of an unhealthy wife having an unhealthy husband. Given that disability or bad health is correlated with earlier labor force exits and earlier Social Security claiming, the correlation between female breadwinner status and spousal health may act as one potential mechanism behind differences in couple’s Social Security claiming behavior by female breadwinner status.

2.2 Social Security Benefit Types

Figure 2 presents the distribution of claiming ages of married women and men in our sample by female breadwinner status.

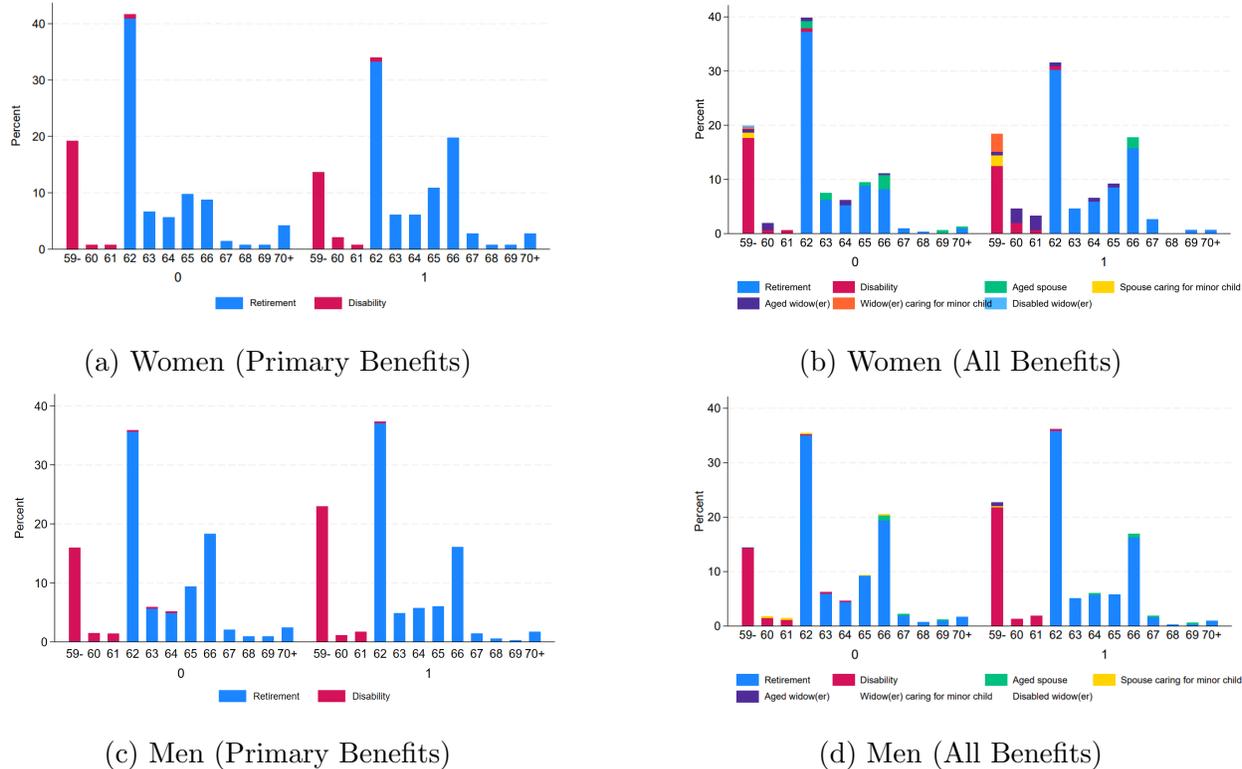


Figure 2: Distribution of Claiming Ages and the Type of Benefit Claimed by Female Breadwinner Status

2.3 Social Security claiming

To examine the relationship between the wife's breadwinner status and the couple's Social Security claiming behavior and late-life labor supply, we regress our outcomes of interest on an indicator for whether the wife is the breadwinner along with other covariates. Our outcomes of interest include 1) the types of Social Security benefits ever claimed, 2) whether the couple claimed Social Security jointly, 3) whether they claimed Social Security at or after age 65, and 4) the couple's total QCs between age 62 to 70. Our regression covariates include dummy variables for the race and education of both spouses and dummy variables for the age gap between the two spouses. We use seven categories for the wife-husband age gap (-5

or greater, -4 or -3, -2, -1, 0, 1 or 2, and 3 or greater) such that the share of each category in our sample is roughly equal.

When examining the types of Social Security benefits ever claimed, we use detailed information in the administrative Social Security files and consider the following types of benefits: primary, auxiliary, retirement, disability, spousal, and dual entitlement. First, primary benefits are those based on the respondent's own earnings record such as retirement and Social Security Disability Insurance (SSDI) benefits. In contrast, auxiliary benefits (e.g., spousal and survivors benefits) are based on the spouse's earnings record.³ Lastly, dual entitlement refers to the simultaneous receipt of primary and auxiliary benefits. This occurs when auxiliary benefits are greater than primary benefits since beneficiaries only receive auxiliary benefits *in excess* of primary benefits.⁴ Therefore, dual entitlement implies that an individual has sufficient earnings history to qualify for primary benefits but their spouses' lifetime earnings are significantly higher than theirs.

Table 3 reports the relationship between the wife's breadwinner status and the couple's type of Social Security benefit they have ever received. Panel A indicates that breadwinner wives are more likely to receive benefits based on their own earnings records (columns (1) and (2)) and substantially less likely to receive benefits based on their husbands' earnings records (columns (4) to (6)) compared to their non-breadwinner counterparts. Interestingly, although Table 1 indicates that breadwinner wives are on average healthier than non-breadwinner wives, column (3) indicates that there is weak evidence that breadwinner wives are less likely to ever receive SSDI benefits. One possibility is that disabled non-breadwinner wives are less likely to meet SSDI's recency-of-work requirement (i.e., individuals need to have worked at least 5 years of the past 10 years before disability onset) and therefore, may not be able to apply for benefits despite having worse health conditions.

³In general, spousal benefits equal 50% of the spouse's primary insurance amount (PIA) and survivors benefits for widows and widowers are 100% of the deceased spouse's PIA.

⁴For instance, a widow may be entitled to \$500 per month as retirement benefits and \$1,000 per month as survivor benefits. Then her total Social Security benefit would be \$1,000 with \$500 in primary benefits and \$500 in auxiliary benefits and would be considered dually entitled.

Table 3: OLS Estimates of Social Security Receipt on Wives' Breadwinner Status

	Ever primary benefits (1)	Ever retirement benefits (2)	Ever retirement benefits (3)	Ever SSDI (4)	Ever SSDI (5)	Ever spousal benefits (6)	Ever dual entitle- ment (7)	Auxiliary benefits only (8)
<i>Panel A: Wife</i>								
Wife is breadwinner	0.070*** (0.017)	0.078*** (0.022)	0.072*** (0.022)	-0.026 (0.023)	0.009 (0.019)	-0.173*** (0.020)	-0.304*** (0.019)	-0.083*** (0.010)
Wife is disabled type			-0.097*** (0.024)		0.442*** (0.025)			
Mean when wife is non- breadwinner	0.863	0.799	0.799	0.168	0.168	0.263	0.422	0.117
Observations	2,559	2,559	2,559	2,559	2,559	2,559	2,559	2,559
<i>Panel B: Husband</i>								
Wife is breadwinner	-0.042* (0.023)	-0.097*** (0.029)	-0.086*** (0.030)	0.117*** (0.029)	0.066*** (0.023)	0.043*** (0.016)	0.092*** (0.018)	0.002 (0.006)
Husband is disabled type			-0.104*** (0.023)		0.522*** (0.026)			
Mean when wife is non- breadwinner	0.971	0.918	0.918	0.162	0.162	0.014	0.008	0.005
Observations	2,547	2,547	2,547	2,547	2,547	2,547	2,547	2,547

Notes: This table reports OLS regression results using our sample from the HRS (1992-2018). All specifications include dummy variables for the race and education of both spouses and the age gap between the two spouses. Standard errors are in parentheses. ***, **, * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Column (1) of Panel B indicates a relatively small difference in the likelihood of ever receiving primary benefits between husbands of breadwinner and non-breadwinner wives. However, this can be explained by the fact that husbands of breadwinner wives are 9.7 percentage points (10.5%) less likely to claim retirement benefits and instead, 11.7 percentage points (72%) more likely to claim SSDI benefits than husbands of non-breadwinner wives (columns (2) and (3)). Moreover, columns (4) and (5) exhibit stark differences in the likelihood of husbands receiving benefits based on their wives' earnings as husbands of breadwinner wives are four times more likely to ever receive spousal benefits and more than ten times more likely to ever receive dual entitlements.

Next, Tables 4 and 5 report differences in joint Social Security claiming and late-life labor supply by breadwinner status. First, Table 4 reports that breadwinner wives are less likely to claim Social Security benefits in the same year as their husbands with the average gap in claiming years being 1.53 years larger than that among couples with non-breadwinner wives. Second, Table 5 columns (1) to (4) indicate that breadwinner wives are more likely to claim Social Security at or after the FRA and on average work 3.8 quarters more between ages 62 to 70. In contrast, husbands of breadwinner wives are less likely to claim at or after FRA and have lower late-life labor supply between ages 62 and 70 (columns (5) and (6)). This pattern aligns with the finding from Table 3, where husbands of breadwinner women are more likely to claim SSDI, as SSDI benefits are only available before full retirement age.

Table 4: OLS Estimates of Joint Social Security Claiming on Wives' Breadwinner Status

	Claim in the same year (1)	Claim in the same year (2)	Gap between claiming years (3)	Gap between claiming years (4)
Wife is breadwinner	-0.038** (0.019)	-0.026 (0.019)	1.669** (0.707)	1.364* (0.697)
Wife is disabled type		0.020 (0.018)		0.980* (0.511)
Husband is disabled type		-0.075*** (0.018)		2.687*** (0.576)
Mean when wife is non-breadwinner	0.172	0.172	5.35	5.35
Observations	3,141	3,141	3,141	3,141

Notes: This table reports OLS regression results using our sample from the HRS (1992-2018). All specifications include dummy variables for the race and education of both spouses and the age gap between the two spouses. Standard errors are in parentheses. ***, **, * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table 5: OLS Estimates of Late-life Employment on Wives' Breadwinner Status

	Wife claims at FRA+ (2)	Wife's QCs (age 62-70) (3)	Wife's QCs (age 62-70) (4)	Husband claims at FRA+ (6)	Husband's QCs (age 62-70) (7)	Husband's QCs (age 62-70) (8)
Wife is breadwinner	0.047*** (0.016)	3.739*** (0.694)	3.277*** (0.669)	-0.034** (0.016)	-2.279*** (0.708)	-1.579** (0.697)
Wife is disabled type			-4.688*** (0.371)			
Husband is disabled type						-5.923*** (0.482)
Mean when wife is non- breadwinner	0.141	5.35	5.35	0.207	8.876	8.876
Observations	3,711	3,077	3,077	3,765	3,113	3,113

Notes: This table reports OLS regression results using our sample from the HRS (1992-2018). All specifications include dummy variables for the race and education of both spouses and the age gap between the two spouses. Standard errors are in parentheses. ***, **, * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Tables 3 to 5 show that breadwinner wives are more likely to delay benefits claiming, and rely less on spousal benefits, reflecting their stronger labor market engagement and higher lifetime earnings. Furthermore, they are less likely to claim benefits jointly with their husbands. In contrast, their husbands show increased reliance on spousal and disability benefits and tend to retire earlier. These findings highlight shifting gender roles in retirement strategies and the intra-household dynamics where traditional breadwinner roles are reversed, as more women attain higher education and marry down.

3 Household Social Security Claiming

This section compares observed claiming behavior with the claiming age that maximizes household Social Security wealth.

3.1 SS Wealth–Maximizing Claiming Strategy

Household Social Security Wealth We measure household Social Security wealth as the expected present value of retirement benefits that a couple can expect to receive over their joint lifetimes. This calculation accounts for three types of benefit provisions in the Social Security system: retirement benefits based on one’s own earnings, spousal benefits tied to the earnings of the spouse, and survivor benefits that protect the surviving spouse upon the death of the other. Each provision has its own schedule of reductions and credits, which is displayed in Table 6 with the Full Retirement Age (FRA) to be age 66 in our baseline.

Table 6: Adjustments to retirement, spousal, and survivor benefits by claiming age.

Claiming Age	Retirement Benefit (% of own PIA)	Spousal Benefit (% of other’s PIA)	Survivor Benefit (% of deceased’s PIA)
62	75	35	~71 (max 28.5% reduction)
63	80	37.5	~76
64	86.7	41.7	~81
65	93.3	45.8	~86
66	100	50	100
67	108	50	100 + delayed credits
68	116	50	100 + larger delayed credits
69	124	50	100 + larger delayed credits
70	132	50	100 + maximum delayed credits

Let $c_m, c_f \in \{62, \dots, 70\}$ denote the claiming ages of the husband and wife. Household wealth is defined as

$$HH(c_m, c_f) = PV^{\text{both}}(c_m, c_f) + PV^{\text{widow}}(c_m, c_f) + PV^{\text{widower}}(c_m, c_f). \quad (1)$$

For each possible combination of claiming ages for the husband and wife, we trace out the flow of benefits that would be received in each state of the household: (i) both spouses alive, (ii) widowhood (wife survives husband), and (iii) widowerhood (husband survives wife). These flows are then weighted by the probability that each state occurs and discounted to the present. The household's Social Security wealth for that claiming-age pair is the sum of these state-contingent present values. Finally, the household's optimal strategy is defined as the claiming-age combination that maximizes expected wealth.

Retirement Benefits Each spouse, $s \in \{m, f\}$, is entitled to a retirement benefit based on their own PIA. Claiming before the FRA results in an actuarial reduction, while delaying after FRA yields an increase through delayed retirement credits. The monthly own benefit at claiming age c_s is

$$B_s^{\text{own}}(c_s) = PIA_s \cdot \alpha(c_s), \quad (2)$$

where $\alpha(c_s) < 1$ for $c_s < FRA$ and $\alpha(c_s) > 1$ for $c_s > FRA$.

Spousal Benefits Upon filing, a spouse may alternatively claim a spousal benefit based on the other spouse's PIA. This spousal benefit is up to half of the other spouse's PIA if claimed at or after FRA, but is reduced if claimed earlier. Spousal benefits are not increased by delaying past FRA. A spousal benefit is only payable once the other spouse has filed for their own retirement benefit. While both spouses are alive, each compares their own benefit to the spousal benefit and receives whichever is larger.

The spousal benefit at age c_s is

$$B_s^{\text{spousal}}(c_s) = PIA_{-s} \cdot \gamma(c_s). \quad (3)$$

While both are alive, each spouse receives

$$B_s^{\text{both}}(c_m, c_f) = \max\{B_s^{\text{own}}(c_s), B_s^{\text{spousal}}(c_s)\}. \quad (4)$$

Survivor Benefits If one spouse dies, the surviving spouse may claim a survivor benefit. This benefit equals the deceased spouse’s benefit including any delayed retirement credits, but with limits if the deceased had filed early. Survivor benefits themselves are reduced if the survivor claims before FRA. Upon widowhood or widowerhood, the survivor always receives whichever is larger: their own retirement benefit or the survivor benefit. For example, if the husband dies at age d_m , the widow’s survivor benefit is

$$B_f^{surv}(d_m, c_f) = \min \{ \delta(c_f) \cdot \text{Base}(d_m, c_m), \text{Cap}(c_m) \}, \quad (5)$$

where $\delta(c_f)$ reflects the survivor’s claiming-age adjustment, $\text{Base}(d_m, c_m)$ is the deceased husband’s benefit at death, and $\text{Cap}(c_m)$ enforces the widow(er) limit. The survivor ultimately chooses the larger of own and survivor benefits:

$$B_f^{widow}(d_m, c_f) = \max \{ B_f^{own}(c_f), B_f^{surv}(d_m, c_f) \}. \quad (6)$$

The widower case is symmetric.

Household Maximization Each benefit stream is weighted by the probability that the corresponding state occurs. While both are alive, benefits are weighted by the joint probability of survival. Widowhood and widowerhood probabilities are determined by the hazard that one spouse dies at a given age multiplied by the probability that the other survives. Let $S_m(a)$ and $S_f(a)$ denote survival probabilities at age a for the husband and wife, respectively. The probability that both are alive at age a is $S_m(a)S_f(a)$. The probability that the husband dies at d_m while the wife survives to age $a \geq d_m$ is $(S_m(d_m - 1) - S_m(d_m))S_f(a)$. Analogously for widowerhood. All expected benefits are discounted to age 62 at a rate r .

$$PV = \sum_{a=62}^{A_{\max}} \frac{\mathbb{E}[\text{Benefit}(a)]}{(1+r)^{a-62}}. \quad (7)$$

We compute $HH(c_m, c_f)$ for all combinations of claiming ages between 62 and 70 for the husband and the wife $(c_m, c_f) \in \{62, \dots, 70\}^2$. The optimal claiming strategy is defined as the pair of claiming ages that yields the highest expected present value of lifetime Social Security wealth, such that

$$(c_m^*, c_f^*) = \arg \max_{(c_m, c_f) \in \{62, \dots, 70\}^2} HH_PV(c_m, c_f). \quad (8)$$

Table 7: Household Social Security Wealth by Breadwinner Type

	Male BW Couple	Female BW Couple
HH Present Value of Social Security Wealth (in \$1,000)		
Optimal	495.540	485.640
Actual	473.320	457.030
Relative to optimal	-4.5%	-5.7%
(Actual - Optimal) claiming age		
Wife	-0.275	-3.274
Husband	-4.461	-0.380

3.2 Optimal versus Actual Social Security Wealth

We first compare actual and optimal Social Security wealth at the household level. Table 7 and Figure 3 (a) show that both male and female breadwinner households fall short of their optimal benchmarks by 4.5 and 5.7 percent, respectively. These gaps reflect systematic early claiming: the primary earner retires 4.5 years too early in male breadwinner households and 3.3 years too early in female breadwinner households.

We also present results under an alternative definition of marital types, where we use the ratio of the wife’s PIA to the sum of both spouses’ PIAs. If this ratio is less than 0.4, between 0.4 and 0.6, and greater than 0.6, we refer to the household as a “male breadwinner,” “egalitarian,” and “female breadwinner” household, respectively. Table 8 and Figure 3 (c) show that the pattern persists. Egalitarian households experience the largest losses (about 5.5 percent), followed closely by female breadwinner households (5.3 percent).

3.2.1 Spousal Asymmetries and The Gender Puzzle

Tables 9–10 and Figures 3 (b) and (d) highlight a systematic gender asymmetry. Wives consistently lose more than their husbands, regardless of household type. In male breadwinner households, wives forgo 12 percent of potential wealth, while their husbands slightly exceed the optimum. In female breadwinner households, wives lose 7 percent compared to 4 percent for husbands. Under the PIA ratio classification, wives’ shortfalls range from 5 to 12 percent, while husbands’ gaps fluctuate around zero.

The asymmetry raises a puzzle: why do wives bear disproportionate losses, even when they are the primary earner? In male breadwinner households, husbands effectively “overclaim,”

Table 8: Household Social Security Wealth by Alternative Breadwinner Classification

	Male BW Couple	Egalitarian Couple	Female BW Couple
HH Present Value of Social Security Wealth (in \$1,000)			
Optimal	483.480	521.130	403.260
Actual	463.180	492.140	381.950
Relative to optimal	-4.2%	-5.5%	-5.3%
(Actual - Optimal) claiming age			
Wife	-0.971	-0.491	-4.110
Husband	-4.225	-3.157	0.898

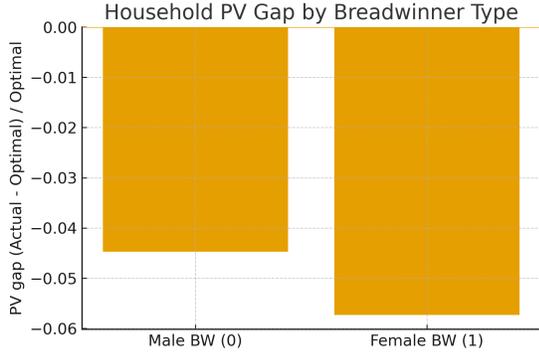
Table 9: Spouse's Social Security Wealth by Breadwinner Type

	Wife's SS Wealth		Husband's SS Wealth	
	Male BW Couple	Female BW Couple	Male BW Couple	Female BW Couple
When Both Spouses are Alive (in \$1,000)				
Optimal	116.808	156.923	207.911	166.661
Actual	112.076	164.047	226.670	170.510
Relative to Optimal	-3.2%	6.5%	9.2%	1.5%
When Widowed (in \$1,000)				
Optimal	116.404	113.079	54.416	48.981
Actual	93.056	85.101	41.521	37.377
Relative to Optimal	-19.7%	-24.7%	-24.6%	-23.7%
Total (in \$1,000)				
Optimal	233.211	270.002	262.327	215.642
Actual	205.132	249.148	268.192	207.886
Relative to Optimal	-12.0%	-7.3%	2.3%	-4.0%

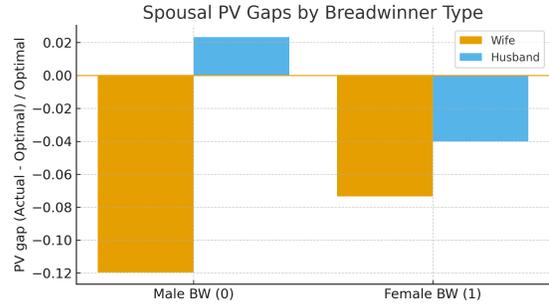
capturing slightly more than the optimal PV at the cost of their wives' benefits. In female breadwinner households, wives still retire earlier than optimal, undermining their own benefits and survivor protection for their husbands. These patterns point to a lack of household coordination to maximize joint wealth, with decisions apparently tilted toward husbands' incentives rather than joint optimization.

Table 10: Spouse's SS Wealth by Alternative Breadwinner Classification

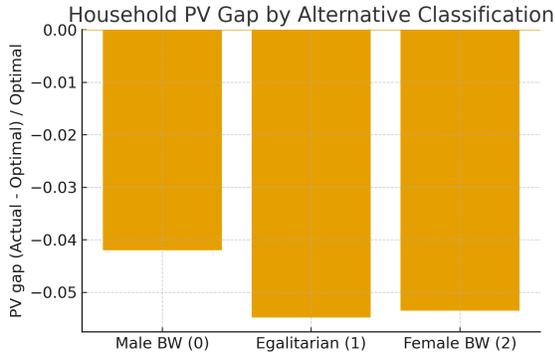
Panel A: Wife's SS Wealth			
	Male BW Couple	Egalitarian Couple	Female BW Couple
When Both Spouses are Alive (in \$1,000)			
Optimal	101.926	157.772	148.202
Actual	98.763	155.388	160.065
Relative to Optimal	-2.4%	-0.4%	9.2%
When Widowed (in \$1,000)			
Optimal	115.847	117.169	103.548
Actual	93.503	89.489	80.736
Relative to Optimal	-18.8%	-23.8%	-21.7%
Total (in \$1,000)			
Optimal	217.772	274.941	251.750
Actual	192.266	244.877	240.802
Relative to Optimal	-11.6%	-10.8%	-4.6%
Panel B: Husband's SS Wealth			
	Male BW Couple	Egalitarian Couple	Female BW Couple
When Both Spouses are Alive (in \$1,000)			
Optimal	211.574	193.033	107.647
Actual	229.024	207.888	105.478
Relative to Optimal	8.4%	7.4%	-1.7%
When Widowed (in \$1,000)			
Optimal	54.132	53.161	43.859
Actual	41.895	39.372	35.671
Relative to Optimal	-23.5%	-26.5%	-18.9%
Total (in \$1,000)			
Optimal	265.706	246.193	151.506
Actual	270.919	247.260	141.149
Relative to Optimal	2.0%	0.4%	-6.8%



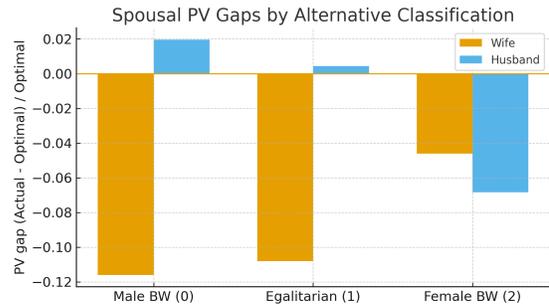
(a) Household PV Gap by Breadwinner Type



(b) Spousal PV Gaps by Breadwinner Type



(c) Household PV Gap by Alternative Breadwinner Classification



(d) Spousal PV Gaps by Alternative Breadwinner Classification

Figure 3: Household and Spousal PV Gap by Female Breadwinner Status.

Notes: Households are categorized using the ratio of primary insurance amounts (PIAs). Egalitarian households are those with ratios between 0.4 and 0.6. These figures plot the percentage shortfall or increase in household/spousal Social Security wealth (actual relative to optimal) for male and female breadwinner households. Negative (positive) values indicate losses (gains) relative to the optimal strategy.

3.3 Discussion

Taken together, Tables 7–10 and Figure 3 (a)-(d) establish two central facts. First, households leave substantial Social Security wealth unrealized by claiming too early. Second, and more puzzling, wives consistently lose more than husbands. In particular, the fact that female breadwinners appear more likely to depart from the Social Security wealth-maximizing claiming benchmark points to deeper heterogeneity in preferences, constraints, and intra-household decision-making.

The gender asymmetry poses a challenge for standard models of household decision-making, where spouses coordinate claiming to maximize joint welfare, yet our evidence shows systematic deviations that disadvantage wives. Distinguishing between these mechanisms is critical for understanding whether the observed inefficiencies reflect preferences, power, or frictions, and for designing policies that better align individual incentives with household welfare.

3.4 Potential Mechanisms

The observed benefit claiming patterns suggest that the relationship between household earnings structure and retirement behavior is shaped by more than mechanical incentives embedded in Social Security rules. This section discusses several mechanisms that may help explain these patterns.

Value of annuity. One possibility is that households underappreciate the value of annuitized benefits, especially survivor protection. This may lead wives, who often benefit most from delayed claiming, to retire and claim too early.

Heterogeneity in patience. Less patient households place greater weight on current utility relative to future benefit flows, making earlier claiming more attractive even when delaying raises expected lifetime Social Security benefits. In this case, observed departures from the wealth-maximizing claiming age may reflect variation in time preferences rather than misunderstanding of the rules.

Leisure complementarities. Breadwinner status is defined relative to one’s spouse and does not necessarily imply high earnings in an absolute sense. Female breadwinners may still face limited resources and substantial non-market demands, such as caregiving responsibilities, which can raise the value of time out of the labor force and encourage earlier retirement despite the gains from delayed claiming.

Subjective mortality expectations. Individuals who expect shorter remaining lifespans have weaker incentives to delay claiming, since the gains from higher monthly benefits are realized over a shorter expected horizon. Differences in subjective survival beliefs may therefore generate substantial variation in claiming behavior even among households with similar observed earnings histories and institutional incentives, beyond what is captured by objective health measures.

Earnings power vs. bargaining power within the household. A further mechanism is that earnings power, based on relative earnings, need not map directly into decision-making authority within the household. This disconnect may be especially important when comparing households in which the breadwinner is male versus female. Greater earnings power may translate more strongly into bargaining power for husband than wives. If so, similar earnings structures may nonetheless differ in whose preferences drive retirement and claiming choices depending on the gender of the breadwinner.

Taken together, these mechanisms suggest that earnings power may affect household behavior through several distinct channels. These channels are not mutually exclusive and may jointly explain the gender differences we observe in retirement and claiming behaviors.

4 Quantitative Model

To better understand couple’s decision-making, we develop a dynamic life-cycle model of labor supply, consumption, savings, and Social Security claiming decisions of couples, in which Social Security rules are modeled in great detail to match that of the current U.S. system. A couple consists of a husband (spouse h) and a wife (spouse w), and the husband is assumed to be two years older than the wife. Life-cycle from ages $t = 50, \dots, 90$ is modeled where t denotes the wife’s age. A period is a year.

Couples are heterogeneous with respect to permanent breadwinner states (i.e., female-breadwinner and male-breadwinner couples) and education level of spouses.⁵ The evolving states include household assets (a_t) and hourly wages (w_t^j), health status (h_t^j), average lifetime earnings (\bar{y}_t^j), and Social Security claiming status ($b_{t-1}^{ss,j}$) of spouse $j \in \{h, w\}$. Given this vector of states, spouses optimally make household consumption, labor supply, and Social

⁵In the HRS, we use information on predicted Social Security wealth by age 62 to define breadwinner status. We categorize a wife as “breadwinner” if her average lifetime earnings exceed her husband’s.

Security retirement claiming decisions to maximize the present discounted value of life-time utility. Couples can exogenously dissolve through death or divorce, and we assume no remarriage.

The life cycle of a married household is divided into three distinct phases. The first is the *employment* phase between ages 50 and 61 where the couple makes consumption, savings, and employment decisions.⁶ The second is the *retirement choice* phase between ages 62 and 69 where spouses additionally make Social Security claiming decisions for retirement benefits. Finally, there is a *retired* phase from age 70 and after where both spouses do not work and only make consumption and savings decisions.

4.1 Sources of Uncertainty

At the beginning of each period t , the couple faces the following exogenous shocks:

1. Mortality shocks: The parameter s_t^j denotes the probability that spouse $j \in \{h, w\}$ is alive at age t conditional on being alive at age $t - 1$. The survival probability depends on the spouse's age, previous health status, and education type as: $s_t^j = S(h_{t-1}^j, e^j, t)$. Because individuals live up to a maximum age T , $s_{T+1}^j = 0$ for any h_T^j .
2. Divorce shocks: Even if both spouses survive, the couple may dissolve through exogenous divorce. The divorce probability $\delta_d(h_{t-1}^h, h_{t-1}^w)$ depends on the health status of both spouses.⁷

Conditional on the household's survival, the following shocks are realized.

3. Health shocks: In each time period, both husband and wife face uncertainty in health, $h_t^j \in \{0, 1\}$, which takes two values: with 0 being in good health and 1 being in bad health. Household health $h_t = (h_t^h, h_t^w)$, evolves each period according to a Markov process. We allow for correlation between the two spouse's health status as the transition probability jointly depends on the age, previous period's health status, and education type of both spouses. A typical element of the health transition matrix at age t is given by

$$\pi_{l,k,t+1} = Pr(h_{t+1} = l | h_t = k, e^h, e^w, t), \quad k, l \in \{(0, 0), (0, 1), (1, 0), (1, 1)\} \quad (9)$$

⁶We do not allow individuals to claim disability benefits in the model for now.

⁷Our HRS data confirms that divorce probability does not depend on education.

4. Wage shocks for each spouses: Each spouse's wage offer depends on their age, health status, and education type. In addition, both spouses receive idiosyncratic wage shocks each period.

4.2 Preferences

Each spouse $j \in \{h, w\}$ has preferences over consumption c_t^j and leisure l_t^j , and the within period utility is specified as

$$u(c_t^j, l_t^j) = \frac{((c_t^j/\zeta)^\nu l_t^{j^{1-\nu}})^{1-\gamma}}{1-\gamma}$$

where γ is the coefficient of relative risk aversion, ν is the weight on consumption, and ζ is the equivalent scale in consumption.

The preferences for a couple is given as

$$U(c_t^h, c_t^w, l_t^h, l_t^w) = \theta u(c_t^h, l_t^h) + (1-\theta)u(c_t^w, l_t^w)$$

where θ captures the Pareto weight on husband's utility. Currently, it is assumed that $\theta = 1/2$.

The total amount of leisure in period t for spouse j is given by

$$l_t^j = \bar{L}^j - n_t^j - (\phi_{0,emp}^j \cdot t + \phi_{1,emp}^j \cdot \mathbb{I}\{h_t^j = 1\}) \cdot \mathbb{I}\{n_t > 0\} - \phi^j(h_t) + \phi_{joint}^j \cdot \mathbb{I}\{n_t^h = n_t^w = 0\} \quad (10)$$

where \bar{L}^j is the total endowment of leisure each period and n_t^j is the annual hours corresponding to three discrete labor supply decision, namely non-employment, part-time, and full-time employment. We allow the fixed cost of working to depend on age ($\phi_{0,emp}^j$) and health status ($\phi_{1,emp}^j$). $\phi^j(h_t)$ is the time lost due to bad health. Following Casanova (2010), we model leisure complementarity when both spouses are not working with the parameter ϕ_{joint}^j .

4.3 Hourly Offered Wages

Each household i receives wage offers and makes labor supply decisions once wages are revealed. The wage offer process evolves according to

$$\log w_{it}^h = \alpha_0^h + \alpha_1^h \cdot t + \alpha_2^h \cdot t^2 + \alpha_3^h \cdot e_i^h + \varphi^h \cdot \mathbf{1}(h_{it}^h = 1) + \zeta_{it}^h + \epsilon_{it}^h \quad (11)$$

$$\log w_{it}^w = \alpha_0^w + \alpha_1^w \cdot t + \alpha_2^w \cdot t^2 + \alpha_3^w \cdot e_i^w + \varphi^w \cdot \mathbf{1}(h_{it}^w = 1) + \zeta_{it}^w + \epsilon_{it}^w \quad (12)$$

$$\zeta_{it}^j = \zeta_{i,t-1}^j + \nu_{it}^j, \quad \begin{pmatrix} \nu_{it}^h \\ \nu_{it}^w \end{pmatrix} \stackrel{iid}{\sim} N \left[0, \begin{pmatrix} \sigma_{\nu,h}^2 & \sigma_{\nu_{h,w}} \\ \sigma_{\nu_{h,w}} & \sigma_{\nu,w}^2 \end{pmatrix} \right], \quad \zeta_{i,50}^j = \nu_{i,50}^j, \quad j \in \{h, w\} \quad (13)$$

$$\begin{pmatrix} \epsilon_{it}^h \\ \epsilon_{it}^w \end{pmatrix} \stackrel{iid}{\sim} N \left[0, \begin{pmatrix} \sigma_{\epsilon,h}^2 & \sigma_{\epsilon_{h,w}} \\ \sigma_{\epsilon_{h,w}} & \sigma_{\epsilon,w}^2 \end{pmatrix} \right] \quad (14)$$

where w_{it}^j denotes the hourly wage of spouse $j \in \{h, w\}$. For both spouses, log hourly wages depend on their own age, education type e_i^j , and health status h_{it}^j . Each spouse receives a permanent wage shock ν_{it}^j and a transitory shock ϵ_{it}^j and these two shocks are assumed to be independent. Following previous studies, the permanent wage shock follows a random walk process. The permanent shock in the first period ($t = 50$) is initialized to $\zeta_{i,50}^j = \nu_{i,50}^j$. The permanent (transitory) wage shocks of the two spouses are assumed to be contemporaneously correlated with covariance $\sigma_{\nu_{h,w}}$ ($\sigma_{\epsilon_{h,w}}$).

4.4 Social Security

Each spouse j endogenously chooses when to claim Social Security retirement benefits. Retirement benefits are a monotonic function of Average Indexed Monthly Earnings (AIME), which is an average index of a worker's highest earnings over 35 years. The AIME increases by working an additional year if earnings in that year are higher than the lowest earnings embedded in it, but are also capped at a threshold, \bar{y}_{ss} .

Since tracking the 35 highest earnings years is computationally infeasible, we approximate the evolution of spouse j 's average lifetime earnings \bar{y}_t^j as

$$\bar{y}_{t+1}^j = \begin{cases} \bar{y}_t^j + \frac{y_t^j}{35} & \text{if } t < 60 \\ \bar{y}_t^j + \frac{\max\{0, y_t^j - \bar{y}_t^j\}}{35} & \text{if } t \geq 60 \end{cases} \quad (15)$$

where $y_t^j = \min\{w_t^j n_t^j, y_{ss}\}$. This implies that for individuals younger than 60, average lifetime

earnings are always updated by additional years of earnings, but after age 60, they are only updated if current earnings are greater than the previous period's average lifetime earnings. We set $y_{ss} = \$132,900$ based on the Social Security maximum taxable earnings in 2019.

We then compute the annual Primary Insurance Amount (PIA) $pia(\bar{y}_t^j)$ using the following piece-wise linear function

$$pia(\bar{y}_t) = 0.90 \times \min\{\bar{y}_t, b_0\} + 0.32 \times \min\{\max\{\bar{y}_t - b_0, 0\}, b_1 - b_0\} + 0.15 \times \max\{\bar{y}_t - b_1, 0\}, \quad (16)$$

where the bend points $b_0 = 32,000$ and $b_1 = 44,000$ are based on 2019 values.⁸

4.4.1 Adjustments

Social Security benefits are further adjusted by a factor of Γ to account for early or delayed claiming such that the final benefit amount for an individual who claimed at age t_b is $pia(\bar{y}_{t_b}) \cdot \Gamma_{t_b}$. Benefits can be claimed without any penalty at the normal retirement age (NRA), t_{NRA} , which is age 66 for the population that this paper studies. While individuals can claim benefits from as early as age 62, every year of early claiming prior to the NRA permanently reduces Social Security benefits. Individuals can also delay their benefit claim beyond NRA. In that case, future benefits are permanently increased by the delayed retirement credit (DRC).

The adjustment factor is specified as

$$\Gamma_{t_b} = \begin{cases} 1 - \gamma_{pen}(t_b) \cdot (t_{NRA} - t_b) & \text{if } 62 \leq t_b < t_{NRA} \\ 1 & \text{if } t_b = t_{NRA} \\ 1 + \gamma_{drc} \cdot (\min\{t_b, 70\} - t_{NRA}) & \text{if } t_b > t_{NRA}. \end{cases} \quad (17)$$

Early claiming reduces benefits by $\gamma_{pen}(t_b)$, which is $\frac{20}{3}\%$ annually for the first three years prior to NRA and 5% annually for every year beyond that. Each additional year of delayed claiming beyond the NRA increases benefits by $\gamma_{drc} = 0.08$.

⁸In reality, indexed nominal earnings are used when computing Social Security benefits so that they reflect the general rise in the standard of living that occurred during the worker's working lifetime. Since all dollar values in the model are in 2019 dollars, the use of average lifetime earnings in equation (16) provides a reasonable approximation without the need to introduce a wage index for each calendar year.

4.4.2 Marriage Related Benefits: Spousal and Survivors benefits

For couples, there are additional family benefits provided by the Social Security system, namely spousal and survivor benefits. First, married individuals can receive up to 50% of their spouse's PIA as spousal benefits from age 62 as long as their spouse has also claimed their own Social Security benefits. If an individual is eligible for both spousal benefits and own benefits based on their earnings record (i.e., primary benefits), they receive whichever is higher. Survivor benefits are available for widows and widowers and it is up to 100% of the deceased spouse's PIA. Similar to spousal benefits, if the surviving spouse is entitled to both primary and survivor benefits, they receive the higher of the two.

Our model incorporates the full details of spousal and survivor benefits, following the rules described in Section 3, with benefit amounts determined by both spouses' PIAs and claiming ages.

4.5 Budget Constraint

In each period, the household faces the budget constraint

$$A_{t+1} = (1+r)A_t + \sum_{j \in \{h,w\}} w_t^j n_t^j + ssb_t + I_t + T_t - c_t - \tau_t - m_t \quad (18)$$

where the household receives asset income rA_t , labor income $w_t^h h_t^h + w_t^w h_t^w$, Social Security benefits ssb_t , all other sources of non-labor income I_t , and government transfers T_t . The household consumes c_t and also incurs payroll and federal taxes τ_t and out-of-pocket medical expenses m_t . Non-labor income I_t is a sum of both spouses' income from pensions, annuities, veteran benefits, and other lump sum income, and we assume it is an exogenous function of age, education type, and health status of both spouses. Taxes are computed according to Appendix B.1. The couple's out-of-pocket medical expenses $m_t = m(t, s_t^h, s_t^w, e^h, e^w)$ are assumed to be exogenous and depend on age, health status, and education type of both spouses.

4.5.1 Transfers

There is a standard consumption floor that guarantees a minimum level of consumption:

$$c_t \geq \bar{c} \quad (19)$$

Government transfers, tr_t , bridge the gap between this minimum level of consumption and individuals' liquid resources such that

$$tr_t = \max\{0, \underline{c} - ((1+r)A_t + \sum_{j \in \{h,w\}} w_t^j n_t^j + ssb_t + I_t - \tau_t - m_t)\}. \quad (20)$$

This is a simple approximation to the federal safety net programs in the U.S. like Supplemental Nutritional Assistance Program (SNAP), Supplemental Security Income (SSI), Temporary Assistance for Needy Families (TANF), and other programs.

4.6 Terminal Utility Upon Household Dissolution

Individual behavior after the dissolution of a married household (due to divorce or the death of one or both spouses) is not explicitly modeled. Instead, the surviving spouse j receives a terminal utility specified as

$$v^j(a_t^j, SSW_t^j) = \frac{\theta_{beq}^j}{1-\gamma} (a_t^j + \kappa_{beq}^j)^{\nu(1-\gamma)} + \frac{\theta_{ss}^j}{1-\gamma} (SSW_t^j + \kappa_{ss}^j)^{\nu(1-\gamma)}, \quad j \in \{h, w\} \quad (21)$$

where a_t^j is the lump sum asset that spouse j receives upon household dissolution and SSW_t^j is the present discounted value of the stream of (future) retirement benefits. The value of a_t^j depends on whether spouse j is a surviving spouse or divorcee. Widow/ers are assumed to receive all of the household's assets ($a_t^j = A_t$) while divorcees split the household's assets equally ($a_t^h = a_t^w = \frac{1}{2}A_t$). SSW_t is computed based on both the surviving and deceased spouse's average lifetime earnings as the surviving spouse may receive survivor benefits.

The terms $\kappa_{beq}^j, \kappa_{ss}^j \geq 0$ are shifters that affect the curvature of v^j and governs the degree to which households are risk-averse over consumption and wealth. This allows households to be less risk-averse over a_t^j or SSW_t^j than consumption. For instance, spouse j may receive additional government transfers when they become single. Furthermore, there is a large previous literature documenting that people lack willingness to annuitize wealth, and we account for this by assuming that the warm-glow utility of lump sum assets (a_t^j) and Social Security wealth (SSW_t^j).

When both spouses die at period t , the remaining household wealth A_t generates a warm-glow bequest utility

$$v(A_t) = \frac{\theta_{beq}}{1-\gamma} (A_t + \kappa_{beq})^{\nu(1-\gamma)}. \quad (22)$$

4.7 Recursive Formulation

Let $\mathbf{X}_t = \{A_t, h_t^h, h_t^w, \bar{y}_t^h, \bar{y}_t^w, b_{t-1}^{ss,h}, b_{t-1}^{ss,w}, e^h, e^w, \zeta_t^h, \zeta_t^w\}$ be the period t state vector. Then couples solve a finite-horizon Markovian decision problem where they choose a sequence of consumption $\{c_t^h, c_t^w\}_{t=1}^T$, hours $\{n_t^h, n_t^w\}_{t=1}^T$ and Social Security benefit application $\{b_t^{ss,h}, b_t^{ss,w}\}_{t=1}^T$ rules to maximize the expected discounted lifetime utility subject to the exogenous processes for survival, and labor earnings, a set of budget and time constraints, government transfer rule, and policies for taxes and Social Security.

$$\begin{aligned}
V_t(\mathbf{X}_t) = & \max_{c_t, n_t^h, n_t^w, b_t^{ss,h}, b_t^{ss,w}} U(c_t^h, c_t^w, l_t^h, l_t^w) \\
& + \beta_0 \left\{ (1 - s_t^h)(1 - s_t^w)(1 - \delta_d(h_t^h, h_t^w)) E_t[V_{t+1}(\mathbf{X}_{t+1} | \mathbf{X}_t)] \right\} \\
& + \left\{ (1 - s_t^h)(1 - s_t^w) \delta_d(h_t^h, h_t^w) (\beta_h \cdot \theta v^h(a_{t+1}^h, SSW_{t+1}^h) + \beta_w \cdot (1 - \theta) v^w(a_{t+1}^w, SSW_{t+1}^w)) \right\} \\
& + \left\{ \beta_h \cdot (1 - s_t^h) \cdot s_t^w \cdot \theta v^h(a_{t+1}^h, SSW_{t+1}^h) \right\} \\
& + \left\{ \beta_w \cdot s_t^h \cdot (1 - s_t^w) \cdot (1 - \theta) v^w(a_{t+1}^w, SSW_{t+1}^w) \right\} \\
& + \left\{ \beta_0 \cdot s_t^h \cdot s_t^w \cdot v(A_{t+1}) \right\}
\end{aligned}$$

5 Model Estimation

The model is estimated using a two-step Method of Simulated Moments (MSM) estimation strategy, as standard in the literature. In the first step, we estimate or calibrate the parameters that can be cleanly identified without explicitly using the model. These parameters are derived directly from data, based on existing literature evidence, or calculated from program rules. Table 11 summarizes our first stage parameters.

In the second step, taking the parameters that were estimated in the first step as given, we use the Generalized Method of Moments (GMM) techniques to estimate the remaining model parameters. The objective is to find a vector of parameters Θ that generates simulated decision profiles that best match (measured by a GMM criterion function) the corresponding profiles from the data.

The estimator $\hat{\Theta}$ is given by the minimized GMM criterion function

$$\hat{\theta}_s = \arg \min_{\theta_s} (\mathbf{m}_d - \mathbf{m}_s(\hat{\theta}_f, \theta_s))' \hat{W} (\mathbf{m}_d - \mathbf{m}_s(\hat{\theta}_f, \theta_s)) \quad (23)$$

where \mathbf{m}_d is the vector of data moments, $\mathbf{m}_s(\hat{\theta}_f, \theta_s)$ is the vector of simulated moments,

Table 11: First Stage Parameters

Parameter	Value	Source
Husband's time endowment, \bar{L}	5,840 (=16 hours \times 365 days)	
Real interest rate, r	0.028	SSA Trustees Reports
Minimum consumption level, \bar{c}	25,365	150% of Federal Poverty Line (2019)
Divorce rates, δ_d	Table A.6	HRS
Mortality rates, s_t^j	Figure A.1	HRS
Health transition probabilities	Figure A.2	HRS
Household medical expenses, m_t	Figure A.3	HRS
Household non-labor income, I_t	Table A.7	HRS

and matrix \hat{W} denotes the weight. We use a diagonal weighting matrix \hat{W} , which is the inverse of the variance-covariance matrix of the data along the diagonal and zero elsewhere.

The moments that our model is estimated to match are:

1. Employment by health status (healthy and unhealthy) and ages (50-69) of each spouses
2. Median assets over ages (50-69) of couples
3. Joint retirement over ages (50-69) of couples
4. Claiming over age (62-69) of each spouse
5. Parameters in wage equation of each spouse

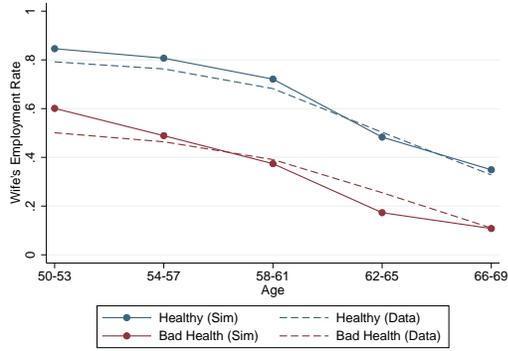
6 Results

The estimated structural parameters are presented in Table 12. Figure 4 displays the life-cycle profiles of decision variables from the HRS alongside profiles generated from the model estimation. Additional model fit of targeted moments is reported in Table A.8.

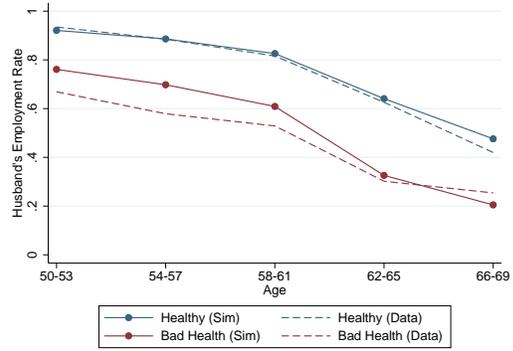
The model provides a strong fit to the targeted data profiles. It reproduces the observed life-cycle patterns of labor force participation by health status for both spouses, joint non-employment within couples, and median household assets over the life cycle. More importantly, it matches wives' Social Security claiming behavior closely, capturing both the concentration of claims at the early eligibility age and the fact that most wives claim before the full retirement age. For husbands, the model somehow overpredicts the share claiming at

Table 12: Estimation Results: Parameters

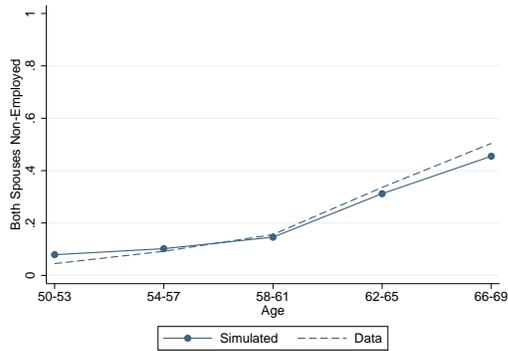
Parameter (Household/Wife w)	Description	Value	Parameter (Husband h)	Value
Preferences				
ν	Consumption weight	0.465		
γ	CRRA coefficient	2.966		
β_0	Discount factor	0.800		
β_w	Discount factor (when spouse died)	0.855	β_h	0.851
Time Constraint				
\bar{L}^w	Wife's time endowment	4470		
$\phi_{0,emp}^w$	Fixed cost of employment (age slope)	12.95	$\phi_{0,emp}^h$	27.94
$\phi_{1,emp}^w$	Fixed cost of employment (bad health)	228.10	$\phi_{1,emp}^h$	624.69
$\phi^w(h_t)$	Unhealthy leisure penalty	667.67	$\phi^h(h_t)$	1214.25
ϕ_{joint}^w	Joint non-work utility bonus	201.47	ϕ_{joint}^h	195.24
Bequest Motives				
θ_{beq}	Asset bequest motive weight	0.265		
κ_{beq}	Asset bequest motive curvature	278,367		
θ_{beq}^w	Asset bequest motive weight	0.381	θ_{beq}^h	0.332
κ_{beq}^w	Asset bequest motive curvature	194,118	κ_{beq}^h	228,389
$\theta_{beq,SS}^w$	SS bequest motive weight	0.001	$\theta_{beq,SS}^h$	0.009
$\kappa_{beq,SS}^w$	SS bequest motive curvature	3305	$\kappa_{beq,SS}^h$	20,668
Wage Process				
α_1^h	Wage: age	0.063	α_1^w	0.206
α_2^h	Wage: age square	-0.091	α_2^w	-0.206
α_3^h	Wage: college	0.517	α_3^w	0.556
φ^h	Wage: bad health	-0.294	φ^w	-0.281
$\sigma_{\nu,h}$	Std. dev. of permanent shock	0.180	$\sigma_{\nu,w}$	0.094
$\sigma_{\epsilon,h}$	Std dev of transitory shock	0.148	$\sigma_{\epsilon,w}$	0.177
$\sigma_{\nu_{h,w}}$	Covariance of permanent shocks	-0.001		
$\sigma_{\epsilon_{h,w}}$	Covariance of transitory shocks	0.010		



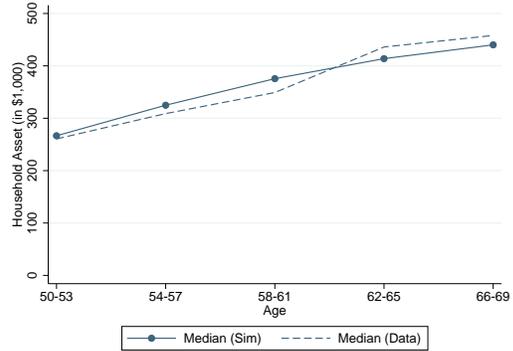
(a) Wife's Employment Rate by Health



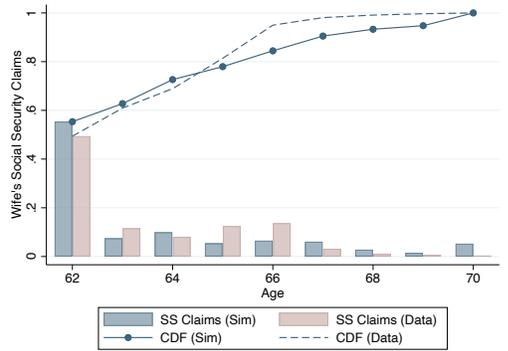
(b) Husband's Employment Rate by Health



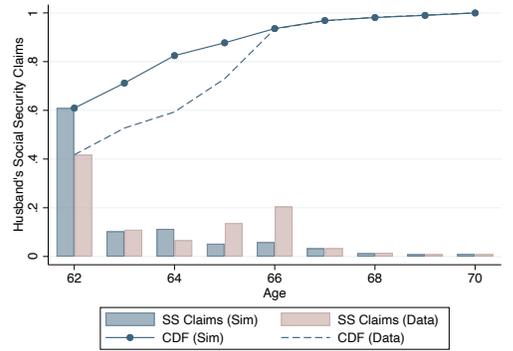
(c) Both Spouses Non-employed



(d) Household Assets



(e) Wife's Social Security Claims



(f) Husband's Social Security Claims

Figure 4: Estimation Results: Data vs. Estimated Profiles

the early eligibility age, but it matches the cumulative claiming share at the full retirement age and thereafter very closely.

Although behavior by breadwinner status is not explicitly targeted in the current estimation, Figure 5 shows that the model also performs well along this untargeted dimension. In particular, it replicates the employment patterns of wives and husbands by breadwinner status in the data remarkably well.

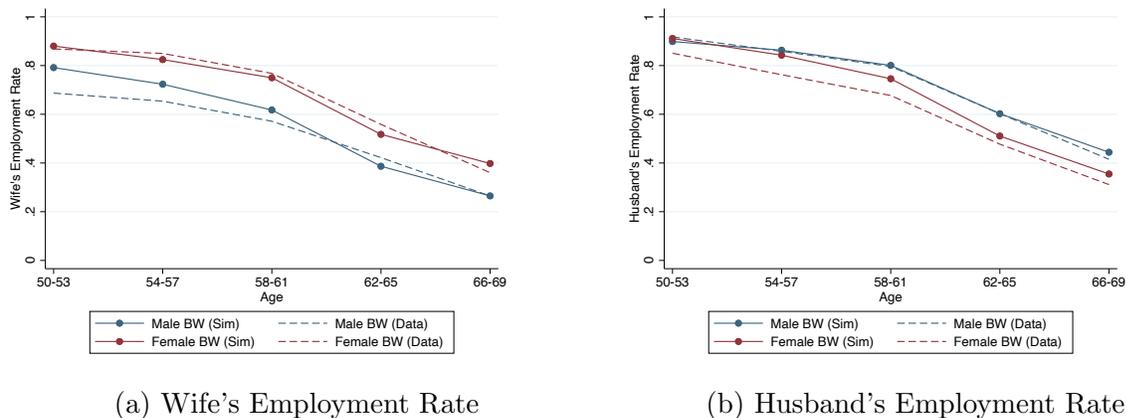


Figure 5: Untargeted Moments: Data vs. Estimated Profiles, Employment by breadwinner Status

6.1 Estimated Parameters and Mechanism

The estimated parameters in Table 12 shed light on the mechanisms that help explain the gap between the household Social Security wealth-maximizing claiming age and observed claiming behavior.

First, the estimated discount factors imply substantial impatience, which helps rationalize why some households claim earlier than the wealth-maximizing benchmark: although delaying claiming raises future monthly benefits, those gains are discounted. Our low estimate of the discount factor is similar to that in Lockwood (2018), which offers a detailed discussion of patience and the bequest motive. Our estimates also distinguish between the states in which both spouses are alive/died and those in which only one spouse survives. The discount factor is higher in widowhood or widowerhood than that of couples, suggesting that single individuals are more patient. Since the values are very similar across surviving wives and husbands, the parameter estimates point mainly to impatience, rather than differential patience across surviving spouses.

Second, the time constraint parameters point to an important role for health-related work costs and coordinated retirement. The fixed cost of employment rises with age and increases sharply in bad health for both spouses, with larger values for husbands than for wives. In addition, the positive joint non-work utility bonus indicates that couples value coordinated non-employment, consistent with leisure complementarities and joint retirement incentives (Casanova, 2010). At the same time, the estimated joint leisure terms are similar across spouses, suggesting little gender difference along this margin.⁹

Third, the bequest parameters provide useful evidence on the valuation of annuitized survivor wealth relative to assets. Annuity valuation has been discussed in Brown and Poterba (2000); Brown et al. (2021), with low annuity demand discussed in Pashchenko and Porapakkarm (2024). Our estimated bequest motive is much stronger for assets than for Social Security wealth: the weights on asset bequests are substantial for both spouses, whereas the corresponding Social Security bequest weights are close to zero. This pattern suggests that households have relatively weak incentives to delay claiming solely to raise future annuity or survivor flows. In addition, there is heterogeneity by gender: the wife’s asset-bequest weight is slightly larger than the husband’s, while the husband places somewhat greater weight on Social Security bequests.

Finally, the wage-process parameters highlight the importance of human capital and health. College is associated with substantially higher wages for both spouses, with a slightly larger premium for wives, while poor health lowers wages for both. These estimates are consistent with female-breadwinner households in this cohort being positively selected on education and earnings capacity.

At the same time, the current model does not include an explicit bargaining-power parameter, so the estimates speak most directly to patience, health-related work costs, joint leisure, bequest motives, and wage heterogeneity as the mechanisms behind the observed retirement and claiming patterns.

6.2 Counterfactual Analysis of Key Parameters

To better understand the mechanisms behind early retirement and claiming of couples, we conduct a set of parameter counterfactuals that vary three forces highlighted by the estimated model: patience, the valuation of annuitized Social Security wealth, and the utility gain from

⁹We also consider the possibility that caregiving responsibilities shape joint non-work utility. Table A.3 reports the share of spousal caregiving and caregiving hours by spousal health status from the data. Given the small share of respondents who provide care to a spouse, it is difficult to identify statistically differences in caregiving responsibilities by gender and by breadwinner status.

coordinated non-employment. Specifically, we consider a 10 percentage-point increase in discount factors, a counterfactual in which the bequest weight on Social Security wealth is set equal to that on liquid assets, and a removal of the joint non-employment utility term for both spouses. Figure 6 report the resulting changes in employment, household outcomes, and claiming behavior. Figure A.4 presents the effects by breadwinner status, and Figure A.5 displays the employment effects by health for both spouses. These exercises are not intended as realistic policy reforms; rather, they are comparative statics that help quantify which mechanisms are most important for household labor supply, saving, and claiming decisions.

Increasing patience generates the broadest behavioral response. When households place greater weight on future utility, both wives and husbands work more over the life cycle, joint non-employment declines, household consumption falls modestly, and asset accumulation rises substantially. The employment response is visible across health types, and it is especially pronounced among those in poor health. Higher patience also shifts wives' claiming away from the early eligibility age, while the effect on husbands' claiming is more limited. This experiment shows that impatience is an important force behind early labor-force exit and low asset accumulation, and contributes to early claiming primarily through the wife's decision.

The second counterfactual strengthens households' valuation of annuitized Social Security wealth by setting the bequest weight on Social Security wealth equal to that on liquid assets. This experiment has a more targeted effect on claiming behavior. Relative to the baseline, it sharply reduces claiming at age 62 for both wives and husbands and shifts claims to later ages. Employment also rises, but less pronounced than in the higher-patience counterfactual, and the effects on consumption and assets are relatively modest. This pattern suggests that one reason households claim too early in the baseline is that they place too little value on Social Security wealth relative to assets on bequests. Once annuitized wealth is valued more like wealth, the incentive to delay claiming becomes much stronger.

The third counterfactual removes the utility gain from joint non-employment. This change also raises employment for both spouses and reduces the share of couples in which both spouses are out of the labor force. Its effects on claiming are much smaller than those produced by the bequest experiment, and its effects on assets are also limited relative to those from greater patience. This indicates that the joint-retirement motive helps explain why couples leave the labor force together, but it plays a smaller role in accounting for very early claiming than either impatience or weak valuation of annuitized Social Security wealth.

The heterogeneity patterns in Figures A.4 and A.5 further clarify these mechanisms. The employment effects of all three changes are generally larger among individuals in poor health,

suggesting that health-related work costs amplify the impact. Across breadwinner types, the qualitative responses are similar in male- and female-breadwinner households.

In sum, these experiments imply that the model’s main mechanisms operate through distinct margins: patience primarily affects labor supply, saving, and delayed retirement; stronger valuation of Social Security wealth primarily affects claiming; and the joint non-employment term mainly governs coordinated retirement within the household.

6.3 Discussion

Two additional mechanisms may help explain the patterns in the data, although they are not directly captured by the structural parameter estimates.

6.3.1 Subjective mortality expectation

One is heterogeneity in subjective mortality expectations. Individuals who expect shorter remaining lifespans have weaker incentives to delay claiming, since the returns to higher monthly benefits are realized over a shorter expected horizon. We assess this channel using the HRS measures of subjective survival expectations, but do not find significant differences across household types or by gender (see Table 13). This suggests that subjective mortality is unlikely to be a central explanation for the differences we document.

Table 13: Subjective Survival Probability to Age 75 (in %)

	Non-Breadwinner	Breadwinner
Male		
Perceived probability [†]	64.20	61.98
Life table probability [‡]	71.27	71.14
Ratio of perceived to life table	0.903	0.872
Female		
Perceived probability	67.13	69.31
Life table probability	79.86	80.12
Ratio of perceived to life table	0.842	0.866

[†] The respondent’s subjective likelihood of living to age 75.

[‡] The respondent’s likelihood of living to age 75 based on Vital Statistics life tables.

6.3.2 Household Welfare Weights

A second mechanism is the distinction between earnings power and bargaining power within the household. Because breadwinner status is defined by relative earnings, it need not correspond directly to decision-making authority. This disconnect may be particularly important when comparing male- and female-breadwinner households: a higher earnings share may translate into greater bargaining power more strongly for husbands than for wives. We investigate this possibility using HRS measures of who has the final say in important household decisions. Specifically, we compare households with similar earnings splits across breadwinner gender and examine whether the breadwinner is equally likely to report having final decision-making. As show in Table 14, the evidence suggests that earnings power does not map one-for-one into bargaining power. Half share of households report equal decision-making regardless of breadwinner status, and male breadwinners are more likely than female breadwinners to report sole decision-making authority, indicating that gender may shape how earnings power is translated into household decision-making.

Table 14: Who has final say when making major family decisions (in %)

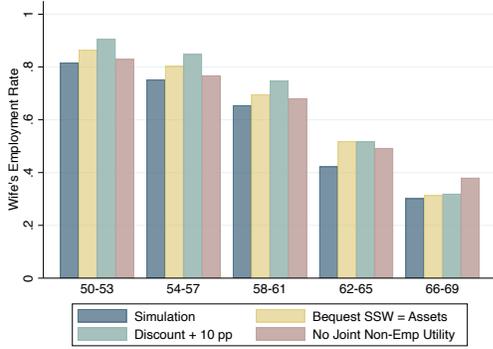
	Male Breadwinner	Female Breadwinner
Female	14.17	25.0
Male	34.03	23.80
Equal	51.80	51.20

6.3.3 Sensitivity to Household Welfare Weights

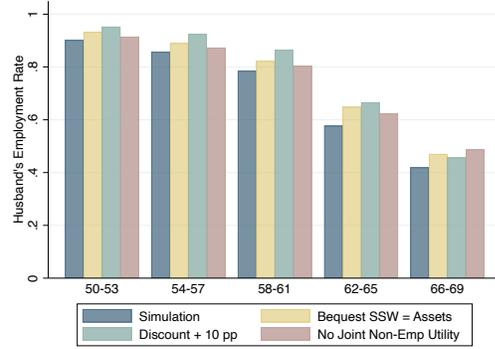
We examine how household behavior changes when the intra-household welfare weights are varied. Starting from the benchmark case in which the wife and husband receive equal weight in the household objective, we consider alternative weights of 25:75 and 75:25.

Ash shown in Figure 7, placing greater weight on the wife’s utility increases employment for both spouses over most of the life cycle, lowers the share of couples in joint non-employment, and raises household asset accumulation, while consumption falls modestly. Shifting weight toward the husband has the opposite effect: both spouses work somewhat less, joint non-employment rises, and assets are lower. The labor responses are stronger when health is poor and are broadly similar across household breadwinner types (Figure A.6).

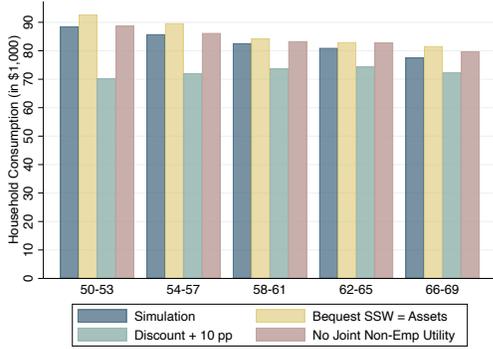
The effects on claiming are more limited for wives. For husbands, increasing the wife’s weight raises claiming at age 62 and reduces later claiming, while increasing the husband’s weight delays husbands’ claiming somewhat.



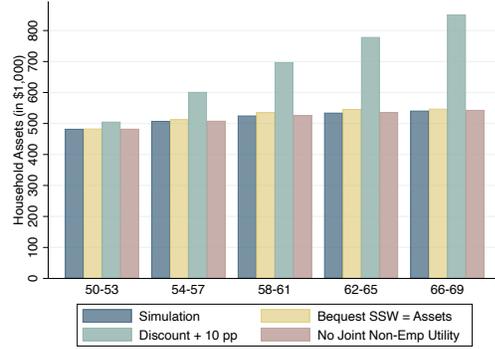
(a) Wife's Employment Rate



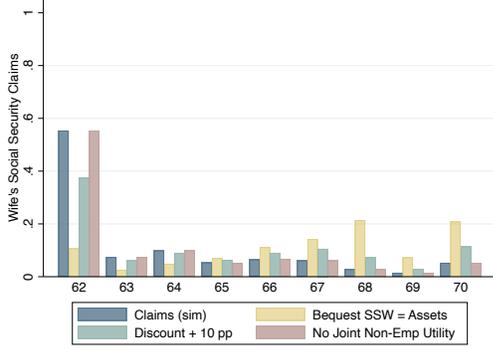
(b) Husband's Employment Rate



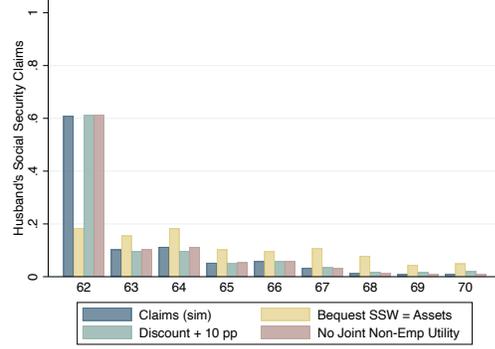
(c) Household Consumption



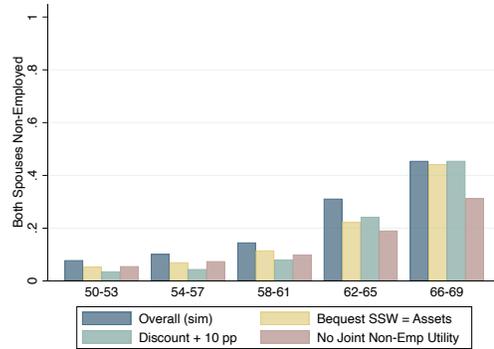
(d) Household Assets



(e) Wife's Social Security Claims

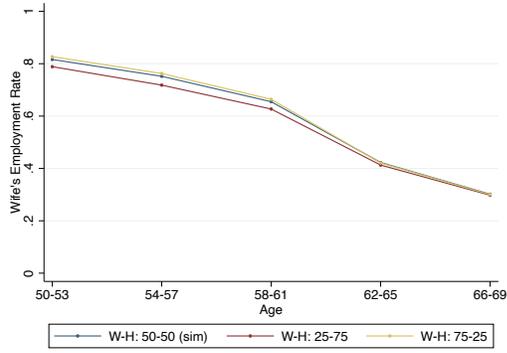


(f) Husband's Social Security Claims

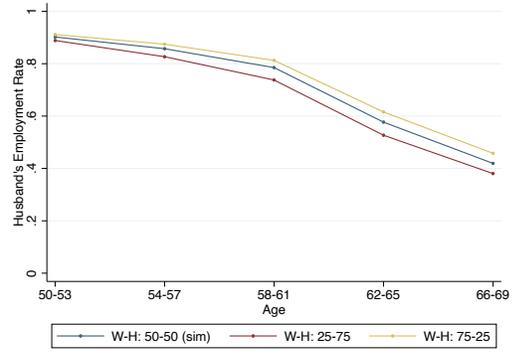


(g) Both Spouses Non-employed

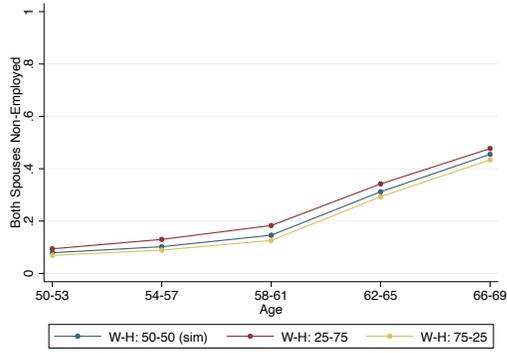
Figure 6: Effects of Changing Parameters



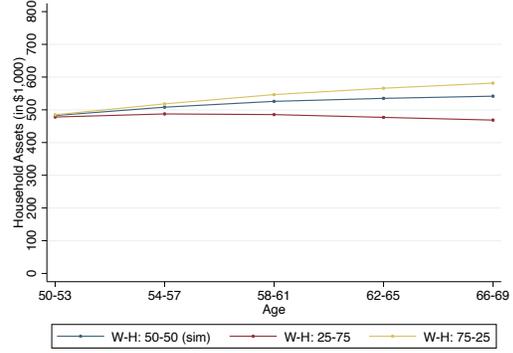
(a) Wife's Employment Rate



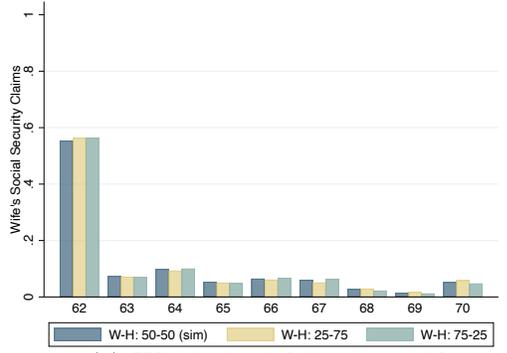
(b) Husband's Employment Rate



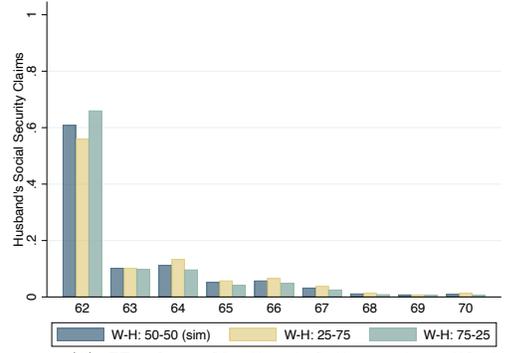
(c) Both Spouses Non-employed



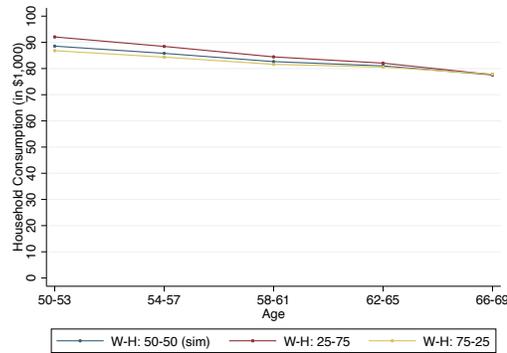
(d) Household Assets



(e) Wife's Social Security Claims



(f) Husband's Social Security Claims



(g) Household Consumption

Figure 7: Effects of Changing Household Weights

7 Policy Counterfactuals

Because the estimated model matches the key life-cycle moments in the data closely, we use it to conduct a set of policy counterfactuals that isolate the role of auxiliary benefits in household decision-making. Specifically, we remove spousal benefits, survivor benefits, and both programs jointly, and then examine the implied changes in labor supply, claiming behavior, consumption, and assets. Table 15 reports the average effects by age group and breadwinner status, while Figure 8 shows the associated life-cycle profiles and claiming distributions.

Table 15: Effects of Policy Experiment

	No Spousal			No Survivor			No Spousal & Survivor		
	50-61	62-65	66-69	50-61	62-65	66-69	50-61	62-65	66-69
Wife's Employment Rate (p.p.)									
Average	0.18	0.41	0.20	2.66	3.18	1.32	2.92	5.37	0.77
Male Breadwinner	0.25	0.57	0.08	3.49	4.29	1.82	3.85	7.37	0.90
Female Breadwinner	-0.01	-0.03	0.50	0.53	0.29	0.02	0.52	0.14	0.43
Husband's Employment Rate (p.p.)									
Average	0.01	0.37	0.84	0.43	0.84	-0.06	0.43	1.37	0.48
Male Breadwinner	0.00	0.40	1.15	0.39	0.93	-0.07	0.37	1.54	0.72
Female Breadwinner	0.03	0.29	0.03	0.52	0.59	-0.04	0.56	0.93	-0.13
Household Consumption (%)									
Average	-0.09	-0.22	-0.71	0.44	-0.78	-0.49	0.34	-1.32	-0.61
Male Breadwinner	-0.07	-0.37	-0.99	0.57	-0.94	-0.60	0.48	-1.78	-0.96
Female Breadwinner	-0.15	0.15	-0.01	0.14	-0.37	-0.21	0.00	-0.16	0.28
Household Assets (%)									
Average	0.04	0.22	0.48	0.11	0.35	0.54	0.15	0.56	0.98
Male Breadwinner	0.05	0.29	0.62	0.14	0.46	0.72	0.18	0.73	1.32
Female Breadwinner	0.02	0.06	0.12	0.06	0.09	0.12	0.07	0.14	0.16

The counterfactuals show that auxiliary benefits primarily affect wives' behavior, with much larger responses in male-breadwinner households than in female-breadwinner households. Eliminating spousal benefits alone has only modest effects on employment, raising wives' employment by 0.18-0.41 percentage points (p.p.) at ages 50–49 on average. By contrast,

removing survivor benefits generates much larger responses, increasing wives' employment by 2.66 p.p. at ages 50–61, 3.18 p.p. at ages 62–65, and 1.32 p.p. after reaching the full retirement age. When both programs are removed, the effects on employment are even stronger before age 66. These changes are driven almost entirely by male-breadwinner households: for example, at ages 62–65, wives' employment rises by 0.57 percentage points under no spousal benefits, 4.29 percentage points under no survivor benefits, and 7.37 percentage points when both are removed. In female-breadwinner households, the corresponding responses are close to zero. This pattern is consistent with the fact that auxiliary benefits matter most when the wife's retirement income depends importantly on her husband's earnings record.

Figure 8 (panel e) shows that wives' claiming behavior also responds strongly to these policy changes. Removing spousal benefits shifts claiming toward the early eligibility age, increasing the share of wives who claim at age 62. In contrast, removing survivor benefits reduces claiming at age 62 and shifts some claims toward later ages, particularly around the FRA. When both spousal and survivor benefits are eliminated, the survivor-benefit channel dominates: age-62 claiming falls relative to the baseline, while claiming at later ages rises, especially at the FRA. These patterns indicate that spousal and survivor benefits affect wives' claiming through different margins. Presence of spousal benefits in the baseline slightly discourages very early claiming, whereas survivor benefits reduce labor-force attachment and encourage earlier claiming.

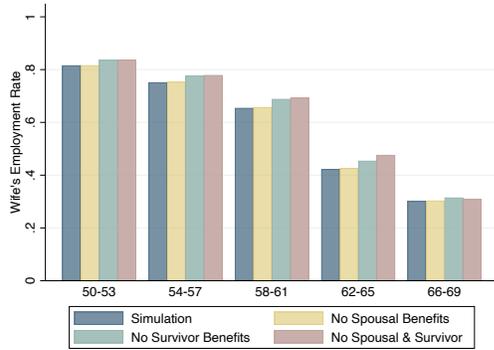
The effects on husbands are much smaller throughout. Across all policy experiments, changes in husbands' employment are generally below 1 percentage point and changes in the claiming distribution are minimal.¹⁰ This asymmetry reflects the structure of auxiliary benefits in the model: these provisions alter the value of wives' claiming and labor supply decisions far more than husbands'.

The effects on household-level consumption and assets are also modest. Consumption changes are small and slightly negative at most older ages, while assets rise modestly, especially later in life and particularly in male-breadwinner households. Thus, households respond to the removal of auxiliary benefits mainly through wives' labor supply and claiming behavior, while smoothing the effects on household consumption.

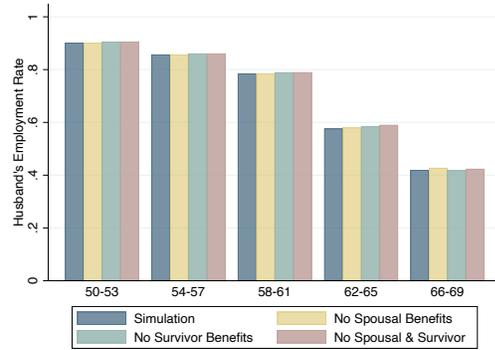
Taken together, these counterfactuals show that auxiliary benefits, and especially survivor benefits, play an important role in shaping household retirement behavior. Their effects are highly heterogeneous across households, with the strongest responses concentrated among

¹⁰Figure A.7 and Figure A.8 display the life-cycle profiles and claiming distributions by breadwinner status and health. The effects of auxiliary benefits on husbands' employment are slightly larger in households in which the wife is the breadwinner and among husbands in poor health.

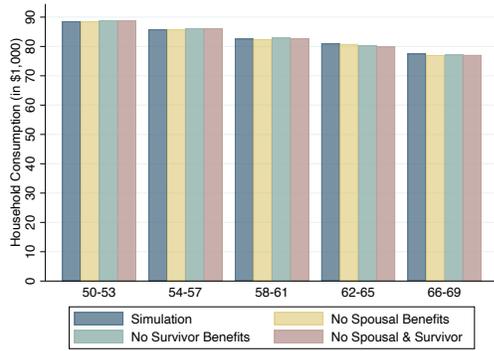
male-breadwinner couples. This finding helps explain why breadwinner status is important for understanding the interaction between Social Security rules and household retirement decisions.



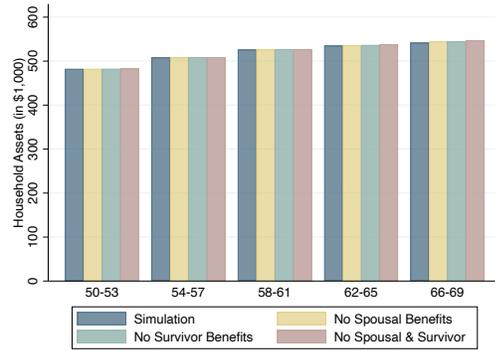
(a) Wife's Employment Rate



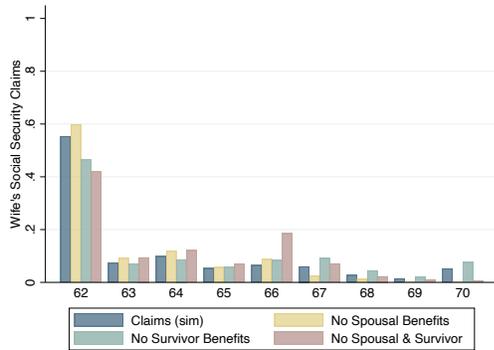
(b) Husband's Employment Rate



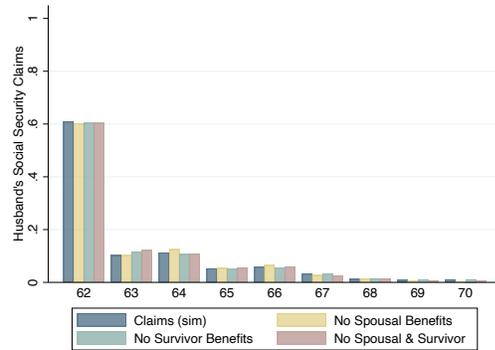
(c) Household Consumption



(d) Household Assets



(e) Wife's Social Security Claims



(f) Husband's Social Security Claims

Figure 8: Policy Counterfactual

7.1 Discussion

Because our model incorporates the key institutional details of Social Security and the joint decision-making structure of married households, it provides a useful framework for policy counterfactuals that previous studies have been less able to examine, which typically abstracts from within-household interactions or from the full set of marriage-based benefit rules. A natural next step is to use the model to evaluate the distributional and welfare consequences of alternative Social Security policy designs. This is especially relevant because, although dual-earner and female-breadwinner households have become increasingly common, the current benefit formula still reflects the logic of a traditional one-earner marriage. Under existing rules, conditional on the same total household earnings, one-earner couples can receive higher Social Security benefits than dual-earner couples because of the design of spousal benefits. Our model is therefore well suited to studying proposed reforms aimed at making the system more marriage neutral while preserving financial sustainability.

8 Conclusion

This paper studies how married couples coordinate retirement and Social Security claiming decisions, and how those choices vary with household earnings structure. Using linked HRS-SSA data, we document substantial gaps between observed claiming behavior and the joint claiming strategy that maximizes household Social Security wealth, with losses that are especially pronounced for female breadwinner couples. A central finding is a persistent gender asymmetry: wives bear larger Social Security wealth losses than husbands, even in households where they are the primary earners. The observed behavior is tilted toward husbands' incentives rather than household-level wealth maximization, generating gendered inefficiencies even in dual-earner and female-breadwinner families. The empirical evidence further shows that female-breadwinner households are positively selected on wives' education and earnings, yet are also more likely to include husbands in worse health and on disability benefits, pointing to an important role for spousal health and household specialization in shaping retirement behavior.

We develop and estimate a rich dynamic life-cycle model of married couples that incorporates the full structure of retirement, spousal, and survivor benefits. The estimated model fits the main life-cycle moments in the data well, including employment profiles, joint non-employment, household assets, and Social Security claiming behavior. The parameter estimates point to several mechanisms behind early claiming: impatience, positive utility

from coordinated non-employment, and a much stronger bequest motive for liquid assets than for annuitized Social Security wealth. Among them, increasing the bequest weight on Social Security wealth substantially delays claiming. Additional evidence suggests that subjective mortality expectations are unlikely to be a central explanation for the observed patterns, while the relationship between earnings power and bargaining power appears imperfect and may differ systematically by gender.

The policy counterfactuals show that marriage-based Social Security provisions materially shape household behavior, especially through survivor benefits. Removing auxiliary benefits primarily affects wives' employment and claiming decisions, with much larger responses in male-breadwinner households than in female-breadwinner households, while the effects on husbands, consumption, and assets are comparatively modest. More broadly, the findings suggest that Social Security rules still reflect the logic of a traditional one-earner marriage and may generate uneven incentives within modern households. Understanding these within-household distortions is essential for evaluating the distributional and welfare consequences of reforms aimed at making the system more marriage neutral.

References

- Andersen, S., J. Y. Campbell, K. M. Nielsen, and T. Ramadorai (2020). Sources of inaction in household finance: Evidence from the danish mortgage market. *American Economic Review* 110(10), 3184–3230.
- Attanasio, O., P. Levell, H. Low, and V. Sánchez-Marcos (2018). Aggregating elasticities: Intensive and extensive margins of women’s labor supply. *Econometrica* 86(6), 2049–2082.
- Attanasio, O., H. Low, and V. Sánchez-Marcos (2008). Explaining changes in female labor supply in a life-cycle model. *American Economic Review* 98(4), 1517–1552.
- Bairoliya, N. and K. McKiernan (2023). Revisiting Retirement and Social Security Claiming Decisions. Working Paper.
- Bargain, O., D. Echevin, A. Etienne, N. Moreau, and A. Pacifico (2022). Tax minimization by french cohabiting couples. *National Tax Journal* 75(2), 265–296.
- Bergstresser, D. and J. Poterba (2004). Asset allocation and asset location: Household evidence from the survey of consumer finances. *Journal of Public Economics* 88(9–10), 1893–1915.
- Bertocchi, G., M. Brunetti, and C. Torricelli (2014, May). Who holds the purse strings within the household? The determinants of intra-family decision making. *Journal of Economic Behavior & Organization* 101, 65–86.
- Bick, A. and N. Fuchs-Schündeln (2018). Taxation and labour supply of married couples across countries: A macroeconomic analysis. *The Review of Economic Studies* 85(3), 1543–1576.
- Blau, D. M. and D. B. Gilleskie (2006). Health Insurance and Retirement of Married Couples. *Journal of Applied Econometrics* 21(7), 935–953.
- Blundell, R., P.-A. Chiappori, T. Magnac, and C. Meghir (2007). Collective labour supply: Heterogeneity and non-participation. *The Review of Economic Studies* 74(2), 417–445.
- Borella, M., M. De Nardi, and F. Yang (2023, January). Are Marriage-Related Taxes and Social Security Benefits Holding Back Female Labour Supply? *The Review of Economic Studies* 90(1), 102–131.

- Brown, J. R., A. Kapteyn, E. F. P. Luttmer, O. S. Mitchell, and A. Samek (2021). Behavioral impediments to valuing annuities: Complexity and choice bracketing. *Review of Economics and Statistics* 103(3), 533–546.
- Brown, J. R. and J. M. Poterba (2000). Joint life annuities and annuity demand by married couples. *Journal of Risk and Insurance* 67(4), 527–553.
- Casanova, M. (2010). Happy Together: A Structural Model of Couples’ Joint Retirement Choices. Working Paper.
- Choi, J. J., D. Laibson, and B. C. Madrian (2011). \$100 bills on the sidewalk: Suboptimal investment in 401(k) plans. *The Review of Economics and Statistics* 93(3), 748–763.
- Choukhmane, T., L. Goodman, and C. O’Dea (2025). Efficiency in household decision-making: Evidence from the retirement savings of us couples. *American Economic Review* 115(5), 1485–1519.
- Croson, R. and U. Gneezy (2009, May). Gender Differences in Preferences. *Journal of Economic Literature* 47(2), 448–474.
- Eckstein, Z., M. Keane, and O. Lifshitz (2019). Career and family decisions: Cohorts born 1935–1975. *Econometrica* 87(1), 217–253.
- Eckstein, Z. and O. Lifshitz (2011). Dynamic female labor supply. *Econometrica* 79(6), 1675–1726.
- Elder, H. W. and P. M. Rudolph (2003). Who makes the financial decisions in the households of older Americans? *Financial Services Review* 12(4), 293–308.
- Fahle, S. and K. McGarry (2022). How caregiving for parents reduces women’s employment: Patterns across sociodemographic groups. In L. F. Berkman and B. C. Truesdale (Eds.), *Overtime: America’s Aging Workforce and the Future of Working Longer*. New York: Oxford University Press. Online edn, accessed 7 Mar. 2026.
- French, E. and J. Jones (2011). The Effects of Health Insurance and Self-Insurance on Retirement Behavior. *Econometrica* 79(3), 693–732.
- Friedberg, L. and A. Webb (2006a). Determinants and Consequences of Bargaining Power in Households. NBER Working Paper w12367.

- Friedberg, L. and A. Webb (2006b). Determinants and consequences of bargaining power in households. NBER Working Paper 12367, National Bureau of Economic Research.
- Gathergood, J., N. Mahoney, N. Stewart, and J. Weber (2019). How do individuals repay their debt? the balance-matching heuristic. *American Economic Review* 109(3), 844–875.
- Gelber, A., A. Isen, and J. Song (2018). The role of social security benefits in the initial increase of older women’s employment: Evidence from the social security notch. In C. Goldin and L. F. Katz (Eds.), *Women Working Longer: Increased Employment at Older Ages*, pp. 239–268. University of Chicago Press.
- Goda, G. S., J. B. Shoven, and S. N. Slavov (2007, September). Social security and the timing of divorce. Working Paper 13382, National Bureau of Economic Research.
- Goldin, C. and L. F. Katz (2017, April). *Women Working Longer: Facts and Some Explanations*, pp. 11–53. University of Chicago Press.
- Golosov, M. and I. Krasikov (2025, August). The optimal taxation of couples. *The Quarterly Journal of Economics* 140(3), 2163–2211.
- Groneck, M. and J. Wallenius (2021). It sucks to be single! marital status and redistribution of social security. *The Economic Journal* 131(633), 327–371.
- Gruber, J. and D. A. Wise (1998). Social security and retirement: An international comparison. *American Economic Review* 88(2), 158–163.
- Guner, N., R. Kaygusuz, and G. Ventura (2012). Taxation and household labour supply. *The Review of Economic Studies* 79(3), 1113–1149.
- Gustman, A. L. and T. L. Steinmeier (2000, July). Retirement in Dual-Career Families: A Structural Model. *Journal of Labor Economics* 18(3), 503–545.
- Gustman, A. L. and T. L. Steinmeier (2004, January). Social security, pensions and retirement behaviour within the family. *Journal of Applied Econometrics* 19(6), 723–737.
- Hong, J. H. and J.-V. Ríos-Rull (2012). Life insurance and household consumption. *American Economic Review* 102(7), 3701–3730.
- Hubener, A., R. Maurer, and O. S. Mitchell (2016). How family status and social security claiming options shape optimal life cycle portfolios. *The Review of Financial Studies* 29(4), 937–978.

- Jayachandran, S. and A. Voena (2025, December). Women’s power in the household. NBER Working Paper 34605, National Bureau of Economic Research.
- Jones, J. B. and Y. Li (2023). Social security reform with heterogeneous mortality. *Review of Economic Dynamics* 48, 320–344.
- Kleven, H. J., C. T. Kreiner, and E. Saez (2009). The optimal income taxation of couples. *Econometrica* 77(2), 537–560.
- Lee, S. (2024). Spousal Labor Supply, Caregiving, and the Value of Disability Insurance. *International Economic Review* forthcoming.
- Lee, S. and Z. Yu (2025). Breadwinning, social security, and retirement patterns among couples. *AEA Papers and Proceedings* 115, 695–699.
- Li, Y. (2018). Economic analysis of social security survivors insurance. *International Economic Review* 59(4), 2043–2073.
- Liebman, J. B., E. F. P. Luttmer, and D. G. Seif (2009). Labor supply responses to marginal social security benefits: Evidence from discontinuities. *Journal of Public Economics* 93(11–12), 1208–1223.
- Lockwood, L. M. (2018, September). Incidental Bequests and the Choice to Self-Insure Late-Life Risks. *American Economic Review* 108(9), 2513–2550.
- Lusardi, A. and O. S. Mitchell (2023). The importance of financial literacy: Opening a new field. *Journal of Economic Perspectives* 37(4), 137–154.
- Maestas, N. (2018). The Return to Work and Women’s Employment Decisions. In C. Goldin and L. F. Katz (Eds.), *Women Working Longer: Increased Employment at Older Ages*. University of Chicago Press.
- Nishiyama, S. (2019). The joint labor supply decision of married couples and the U.S. social security pension system. *Review of Economic Dynamics* 31, 277–304.
- Olivetti, C. and D. E. Rotz (2016, October). Changes in marriage and divorce as drivers of employment and retirement of older women. Working Paper 22738, NBER.
- Pashchenko, S. and P. Porapakarm (2024, February). Accounting for Social Security Claiming Behavior. *International Economic Review* 65(1), 505–545.

- Scholz, J., A. Seshadri, and S. Khitatrakun (2006, August). Are Americans Saving “Optimally” for Retirement? *Journal of Political Economy* 114(4), 607–643.
- van der Klaauw, W. and K. I. Wolpin (2008, July). Social security and the retirement and savings behavior of low-income households. *Journal of Econometrics* 145(1-2), 21–42.
- Yu, Z. (2024). Why are older men working more? the role of social security. *Journal of Public Economics* 231.
- İmrohorođlu, S. and S. Kitao (2012, July). Social Security Reforms: Benefit Claiming, Labor Force Participation, and Long-run Sustainability. *American Economic Journal: Macroeconomics* 4(3), 96–127.

Appendix

A Data

Table A.1: Summary Statistics by Female Breadwinner Status, Cohort Facing FRA of 66

	Non-breadwinner	Breadwinner
Panel A: Wives' Summary Statistics		
Employment & Earnings		
Work for pay	0.600	0.785
Median earnings (\$)	7,673	40,580
Health		
Bad health	0.194	0.123
Disabled	0.235	0.119
Psych. problems	0.218	0.134
Cancer	0.093	0.087
Arthritis	0.482	0.399
Diabetes	0.134	0.127
Lung disease	0.064	0.040
Heart disease	0.114	0.105
Stroke	0.028	0.014
High blood pressure	0.386	0.391
Obese	0.349	0.349
Mortality		
Wife dead (%)	0.090	0.060
Wife's Age at spouse's death (yrs)	62.9	61.4
Household Finance Decision-making		
Median household wealth (\$)	314,065	327,696
Wife is financial resp.	0.346	0.513
Husband is financial resp.	0.660	0.500
Final say = Wife (%)	11.9	22.8
Final say = About equal (%)	53.7	54.6
Final say = Husband (%)	34.5	22.6

Table A.2: Summary Statistics by Female Breadwinner Status, Cohort Facing FRA of 66

	Non-breadwinner	Breadwinner
Panel B: Husbands' Summary Statistics		
Employment & Earnings		
Work for pay	0.761	0.666
Median earnings (\$)	44,462	19,416
Health		
Bad health	0.167	0.192
Disabled	0.164	0.243
Psych. problems	0.113	0.125
Cancer	0.069	0.056
Arthritis	0.369	0.401
Diabetes	0.173	0.179
Lung disease	0.043	0.059
Heart disease	0.142	0.154
Stroke	0.031	0.041
High blood pressure	0.444	0.465
Mortality		
Husband dead (%)	0.124	0.159
Husband's age at death (yrs)	64.9	63.1

Table A.3: Spousal Caregiving by Gender, Breadwinner Status, and Spouse Health

Gender	Breadwinner	Spouse Health	Share	Hrs (Uncond.)	Hrs (Cond.)	N
Husband	Not Breadwinner	Healthy	0.009	0.062	7.012	2248
		Unhealthy	0.135	1.781	13.179	370
	Breadwinner	Healthy	0.020	0.291	14.516	4939
		Unhealthy	0.228	5.155	22.561	1405
Wife	Not Breadwinner	Healthy	0.016	0.319	19.821	4656
		Unhealthy	0.168	3.635	21.695	1128
	Breadwinner	Healthy	0.029	0.793	27.780	1857
		Unhealthy	0.198	6.654	33.524	529

Notes: Sample from HRS, aged 55-65. Share is fraction with positive caregiving hours. Hrs (Uncond.) includes zeros. Hrs (Cond.) is among caregivers only.

B Additional Model Details

B.1 Taxes

Household taxes $\tau_t = \tau(A_t, w_t^h n_t^h, w_t^w n_t^w, ssb_t, I_t)$ are computed as the sum of payroll taxes of both spouses and federal income tax ($\tau_t = \tau_{P,t}^h + \tau_{P,t}^w + \tau_{F,t}$). State income taxes are not modeled due to the wide variation in state tax codes.

Payroll tax – Payroll tax consists of Social Security and Medicare tax. Social Security tax is 6.2% of earnings capped at the maximum taxable earnings while the Medicare tax rate is 1.45% and earnings are uncapped. Therefore, each spouse’s payroll tax $\tau_{P,t}^j$ is specified as

$$\tau_{P,t}^j = 0.062 \times \min\{w_t^j n_t^j, y_{ss}\} + 0.0145 \times w_t^j n_t^j, \quad j \in \{h, w\}. \quad (24)$$

Federal income tax – Federal income tax is a progressive tax on labor and non-labor income. First, define taxable household income (TI_t) as the sum of asset income, earnings, unemployment benefits, taxable Social Security benefits (tb_t), and all other non-labor income, subtracted by the standard household deduction (d).

$$TI_t = \max\{rA_t + w_t^h n_t^h + w_t^w n_t^w + tb_t + I_t - d, 0\} \quad (25)$$

We set d as $d = \$24,400$ based on the standard deduction for married households filing jointly in 2019. Taxable Social Security benefits are computed according to Table A.4.

Table A.4: Taxable Social Security Benefits for Married Taxpayers (in \$)

Provisional Income [†]	Taxable Social Security Benefits
(A) Less than \$32,000	None
(B) \$32,000 to \$44,000	Lesser of 50% of benefits or 50% of provisional income above \$32,000 (max \$6,000)
(C) Greater than \$44,000	Lesser of 85% of benefits or 85% of provisional income above \$44,000 plus the amount from line (B)

Source: Table 1 from Congressional Research Service, *Social Security: Taxation of Benefits* (CRS Report RL32552), June 12, 2020.

[†] Provisional income is defined as the sum of asset income, earnings, all other sources of non-labor income excluding Social Security benefits, and 50% of Social Security benefits.

Similar to the PIA computation formula, the federal income tax has seven progressive tax rates that are applied to seven taxable income brackets. Table A.5 reports the amount of federal income tax $\tau_{F,t}$ that the household pays based on taxable household income TI_t . We use the 2019 income tax brackets for married households filing jointly.

Table A.5: Federal Income Tax by Taxable Household Income Brackets (in \$)

Taxable Household Income (TI_t)	Federal Income Tax ($\tau_{F,t}$)
0 - 19,400	$0.10 \times TI_t$
19,401 - 78,950	$1,940 + 0.12 \times (TI_t - 19,400)$
78,951 - 168,400	$9,086 + 0.22 \times (TI_t - 78,950)$
168,401 - 321,450	$28,765 + 0.24 \times (TI_t - 168,400)$
321,451 - 408,200	$65,497 + 0.32 \times (TI_t - 321,450)$
408,201 - 612,350	$93,257 + 0.35 \times (TI_t - 408,200)$
612,351+	$164,709.50 + 0.37 \times (TI_t - 612,350)$

Note: All values are in 2019 dollars.

C First Stage Estimation

This section provides further details on the first stage parameters used in the dynamic programming model.

Mortality rates – Annual mortality rates are estimated from a logit regression model using reported death dates in the HRS data. We estimate logit regressions for men and women separately with covariates including a quadratic in age, a dummy for bad health, and a dummy for education type. Figure A.1 documents the fitted mortality rates by gender, age, and health status.

Divorce rates – Biennial divorce rates $\tilde{\delta}_d(h_t^h, h_t^w)$ are computed as the fraction of married couples in the HRS that divorced in the next survey wave, conditional on both spouses' health status. To approximate annual divorce rates $\delta_d(h_t^h, h_t^w)$ from the biennial rates $\tilde{\delta}_d(h_t^h, h_t^w)$, we assume that annual divorce rates between the survey waves are equal and use the relationship $1 - \tilde{\delta}_d(h_t^h, h_t^w) = (1 - \delta_d(h_t^h, h_t^w))^2$. The resulting parameter values are reported in Table A.6.

Health transition probabilities – Instead of estimating the health transition probabilities of each spouse separately, we define the household health status as $h_t = (h_t^h, h_t^w)$ (taking on four values, (0,0), (0,1), (1,0), and (1,1)) and estimate the biennial transition probabilities of h_t from the HRS data using a multinomial logit regression model. This allows the possibility of one spouse's current health status to be correlated with the other spouse's health status

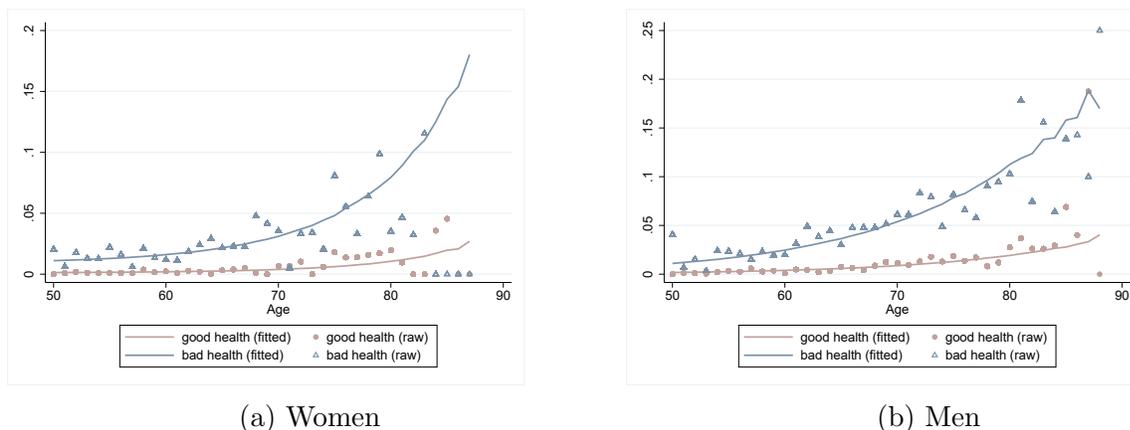


Figure A.1: Mortality Rates

Table A.6: Divorce Rates by Household Health and Breadwinner Status

Household Health (Husband, Wife)	Breadwinner (BW) Status	
	Male BW	Female BW
(Healthy, Healthy)	.0041	.0064
(Healthy, Unhealthy)	.0070	.0099
(Unhealthy, Healthy)	.0053	.0065
(Unhealthy, Unhealthy)	.0121	.0103

in the following period. Covariates include current household health status, quadratic in age and education type for each spouse, interactions of age and age squared with household health status, and interactions of age and age squared with dummies for the education type for each spouse. Conditional on age and education type of both spouses, we obtain a four-by-four matrix of annual transition probabilities Π_a from the matrix of biennial transition probabilities Π_b using the relationship $\Pi_a^2 = \Pi_b$. Figure A.2 reports the fitted biennial health transition probabilities.

Annual household non-labor income – We estimate non-labor income I_t by running a linear regression of log non-labor income on the following controls for both spouses: a quadratic in age, education type, health status, interactions of age and education type, indicators for being above age 55, 62, and full retirement age (FRA),¹¹ interactions of being above 55 with

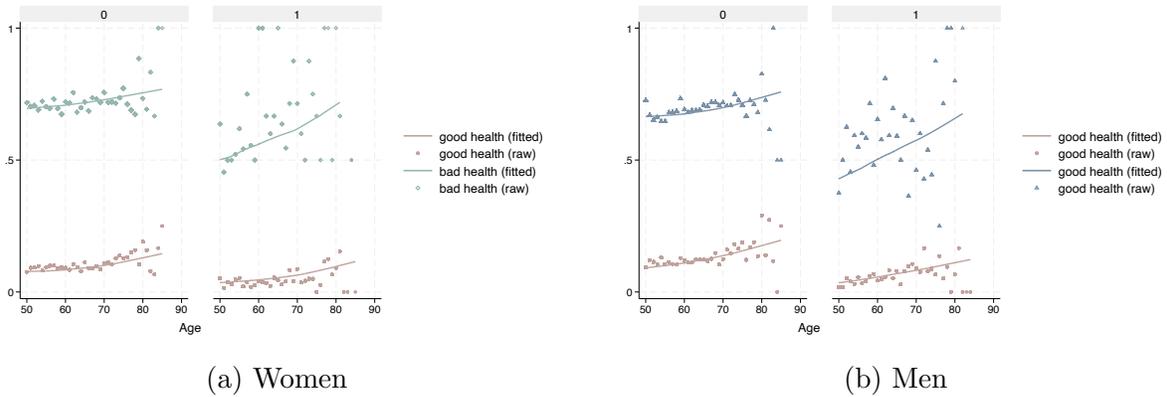


Figure A.2: Health Transition Rates

¹¹We use these age milestones since depending on the pension plan, individuals can liquidate pension wealth as early as age 55 and age 62 is the earliest age for early Social Security retirement benefits. Full

age, and interactions of being above age 62/FRA and health status. We use the sum of household pension income, household annuity income, household veteran benefits, and other household income such as lump sum income as our measure of household non-labor income. Table [A.7](#) reports the estimated coefficients.

Annual household medical expenses – Household medical expenses are defined as the sum of out-of-pocket medical expenses of the husband and the wife. While earlier waves of the HRS collected information on medical expenses in the past 12 months, the reference period for later waves is the past 2 years. Therefore, medical expenses are annualized by dividing them by the appropriate reference period. Figure [A.3](#) reports fitted profiles of out-of-pocket medical expenses by age, education type, and health status of both spouses.

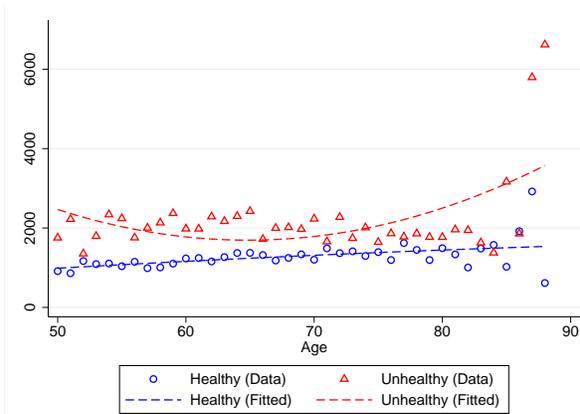
retirement age ranges from 65 to 67, depending on birth year.

Table A.7: Annual Household Non-labor Income (OLS Estimates)

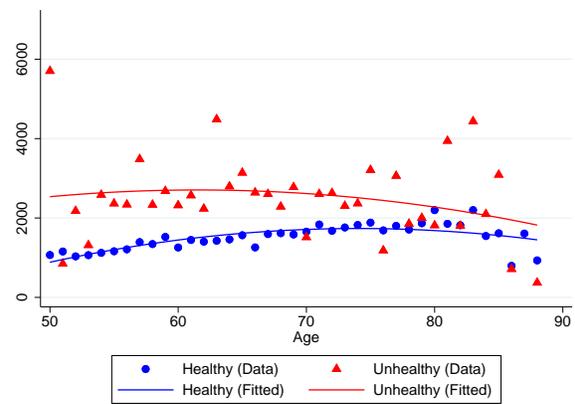
Dependent variable: $\log(\text{household non-labor income})^\dagger$		
Controls	Coefficients	Std. Err.
<i>Husbands' characteristics</i>		
Age	0.375***	0.053
(Age/10) ²	-0.325***	0.049
Bad health	0.485***	0.054
Bachelor's degree or higher	-0.718**	0.315
Age \times Bachelor's degree or higher	0.014***	0.005
Age 55+	-4.925***	1.138
(Age 55+) \times Age	0.092***	0.021
Age 62+	0.145***	0.054
(Age 62+) \times Bad health	-0.190**	0.086
FRA+	0.162*	0.084
(FRA+) \times Bad health	-0.650***	0.080
<i>Wives' characteristics</i>		
Age	0.089	0.061
(Age/10) ²	-0.111**	0.055
Bad health	-0.089*	0.048
Bachelor's degree or higher	-1.337***	0.362
Age \times Bachelor's degree or higher	0.024***	0.006
Age 55+	-2.584**	1.095
(Age 55+) \times Age	0.048**	0.020
Age 62+	0.082	0.058
(Age 62+) \times Bad health	-0.167*	0.089
FRA+	0.081	0.085
(FRA+) \times Bad health	-0.250***	0.082
Observations	42,222	

Notes: Results are based on a sample of married couples in the HRS (1992-2018). ***, **, * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

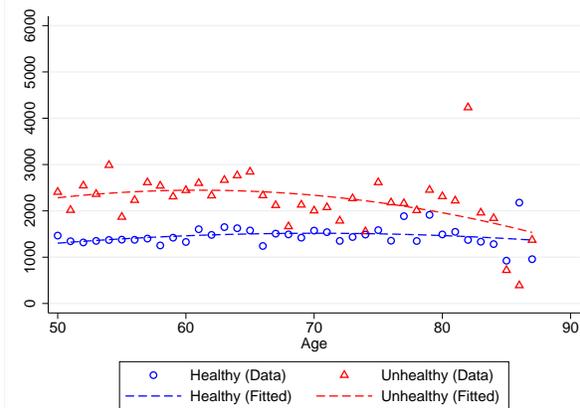
[†] Household non-labor income is defined as the sum of household pension income, household annuity income, household veteran benefits, and other household income such as lump sum income.



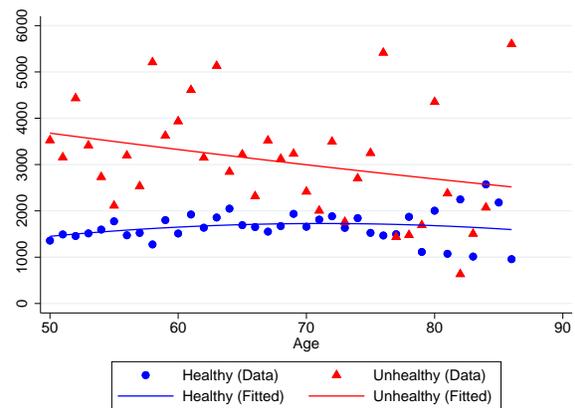
(a) Male: Non-College



(b) Male: College



(c) Female: Non-College



(d) Female: College

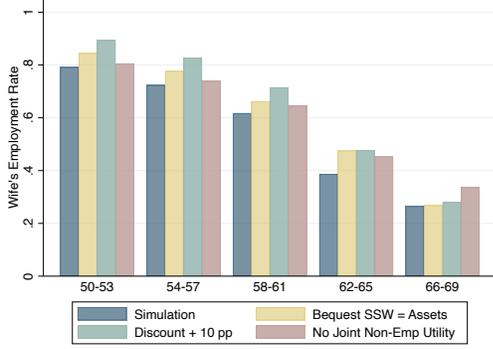
Figure A.3: Fitted Annual Out-of-Pocket Medical Expenses

D Additional Targeted Moments

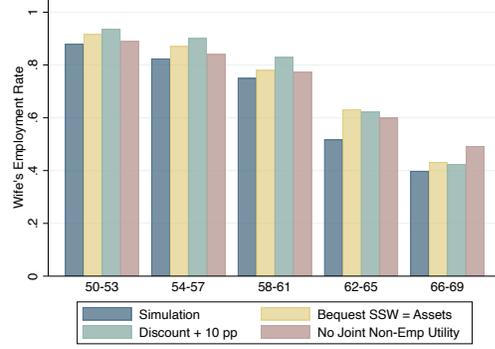
Table A.8: Model Fit of Targeted Moments – Wage

	Model	Data	Model	Data
Panel A: OLS Regressions of Log Hourly Wages				
	Wives		Husbands	
Age	0.150	0.112	0.173	0.086
(Age/10) ²	-0.138	-0.099	-0.138	-0.082
Bad Health	-0.175	-0.195	-0.190	-0.229
College	0.551	0.533	0.510	0.541
Panel B: Other Wage Moments				
	Wives ($j = w$)		Husbands ($j = h$)	
$E(\Delta\omega_{i,t}^j \cdot \Delta\omega_{i,t+2}^j)$	-0.029	-0.040	-0.022	-0.053
$E(\Delta\omega_{i,t}^j \cdot (\Delta\omega_{i,t-2}^j + \Delta\omega_{i,t}^j + \Delta\omega_{i,t+2}^j))$	0.009	0.015	0.030	0.035
	Couples			
$E(\Delta\omega_{i,t}^h \cdot \Delta\omega_{i,t+2}^w)$	-0.008	-0.00005		
$E(\Delta\omega_{i,t}^h \cdot (\Delta\omega_{i,t-2}^w + \Delta\omega_{i,t}^w + \Delta\omega_{i,t+2}^w))$	0.0002	0.003		

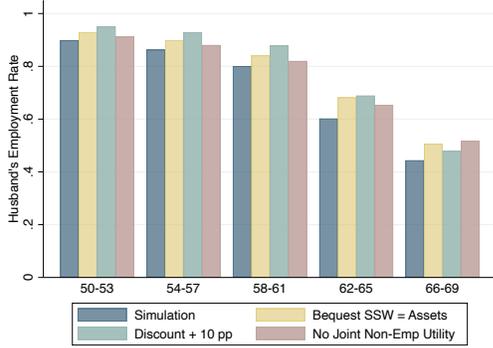
E Additional Figures on Parameter Counterfactual



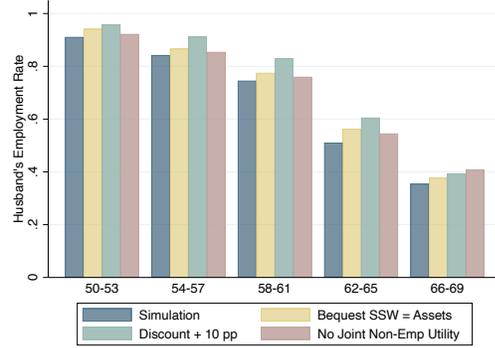
(a) Wife's Employment Rate (Male BW)



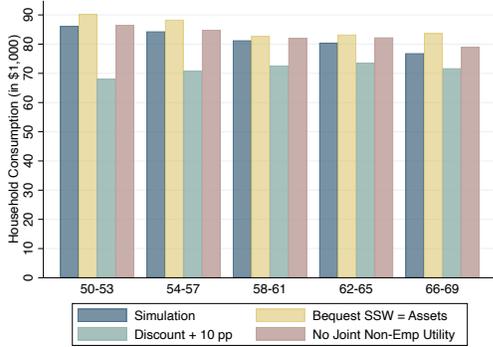
(b) Wife's Employment Rate (Female BW)



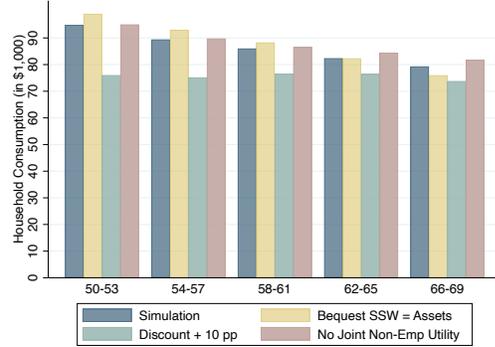
(c) Husband's Employment Rate (Male BW)



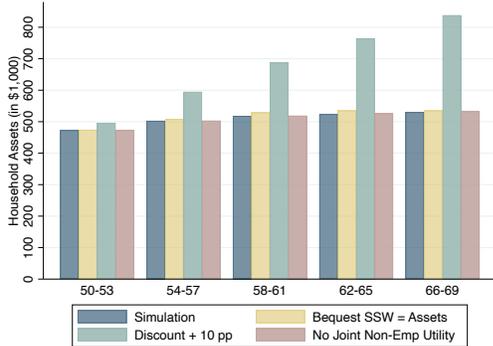
(d) Husband's Employment Rate (Female BW)



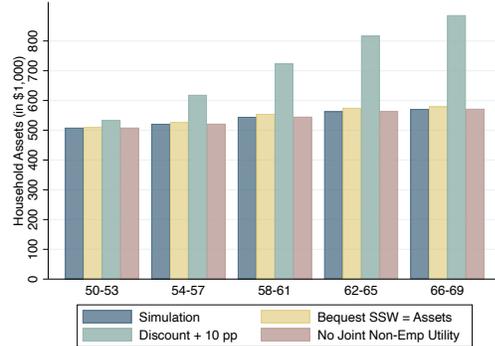
(e) Household Consumption (Male BW)



(f) Household Consumption (Female BW)

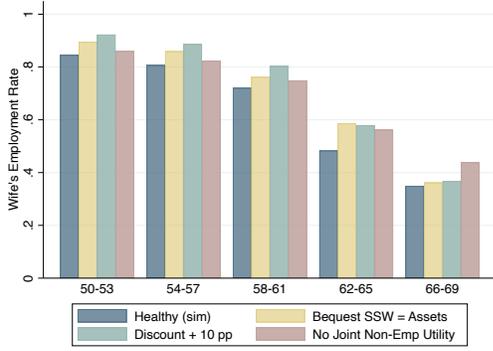


(g) Household Assets (Male BW)

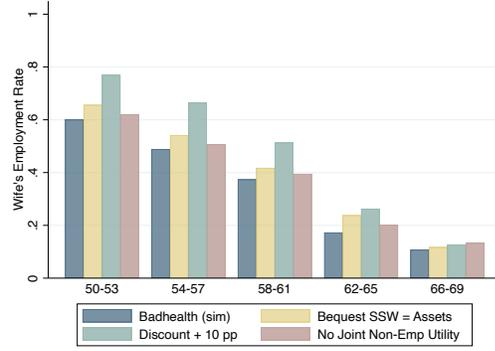


(h) Household Assets (Female BW)

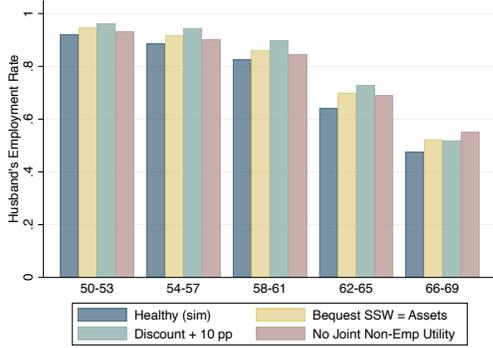
Figure A.4: Effects of Changing Parameters by breadwinner Status



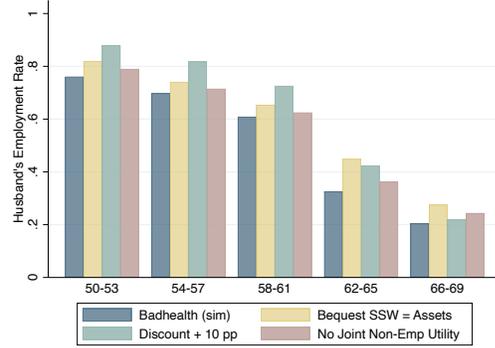
(a) Wife's Employment Rate (Healthy)



(b) Wife's Employment Rate (Bad Health)



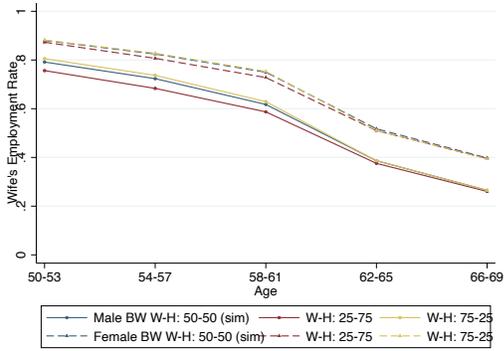
(c) Husband's Employment Rate (Healthy)



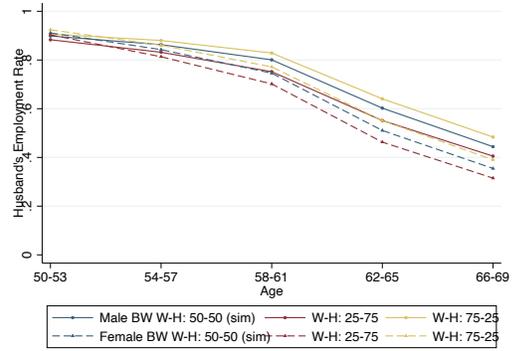
(d) Husband's Employment Rate (Bad Health)

Figure A.5: Effects of Changing Parameters, Employment by Health

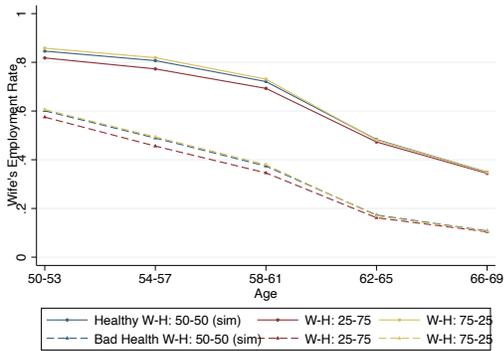
F Additional Figures on Policy Counterfactual



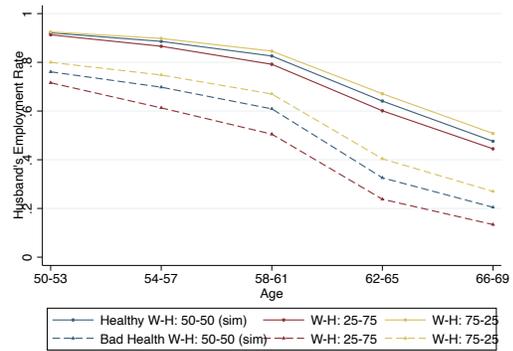
(a) Wife's Employment Rate (BW)



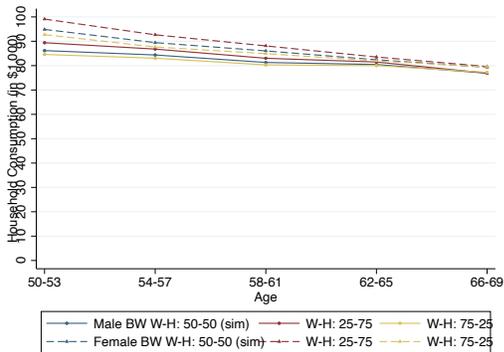
(b) Husband's Employment Rate (BW)



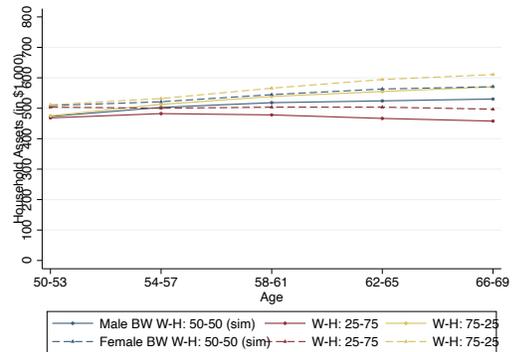
(c) Wife's Employment Rate (Health)



(d) Husband's Employment Rate (Health)

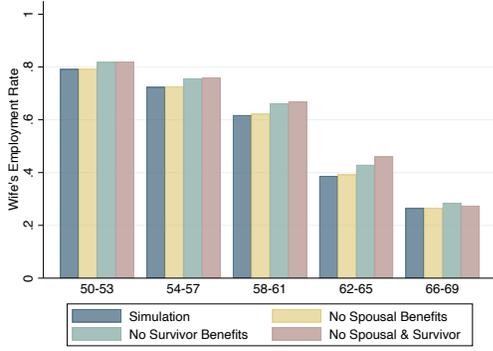


(e) Household Consumption

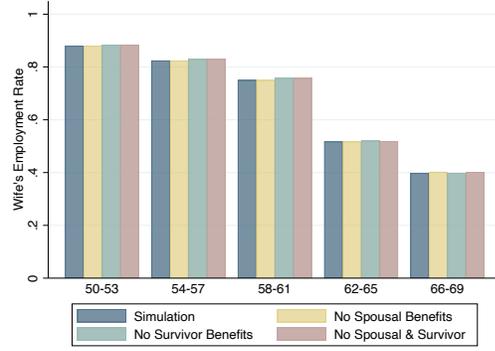


(f) Household Assets

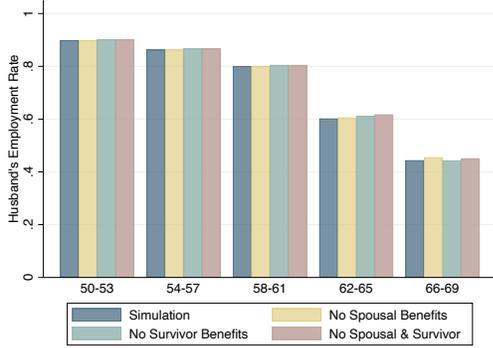
Figure A.6: Effects of Changing Household Weights, by Breadwinner Status and Health



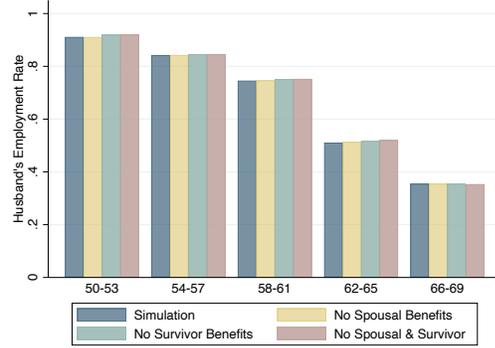
(a) Wife's Employment Rate (Male BW)



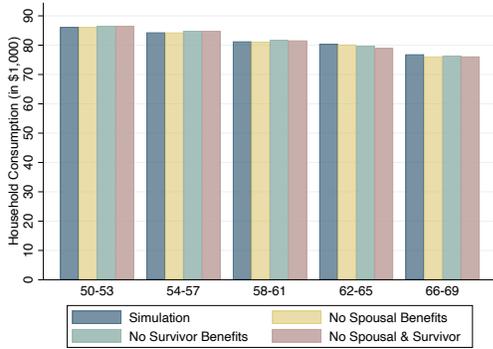
(b) Wife's Employment Rate (Female BW)



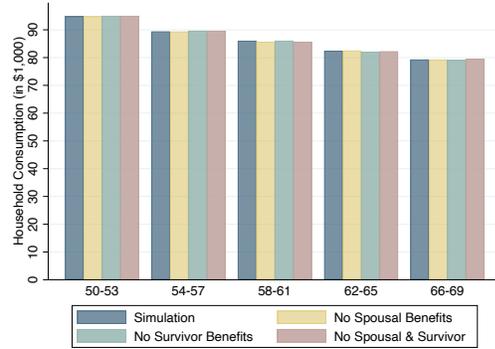
(c) Husband's Employment Rate (Male BW)



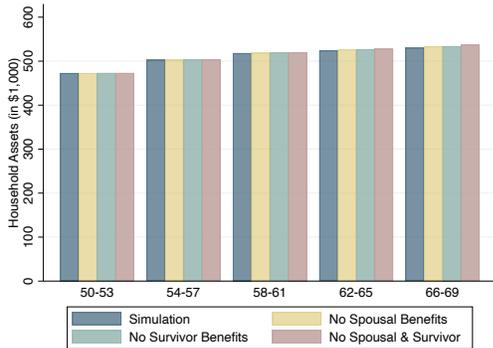
(d) Husband's Employment Rate (Female BW)



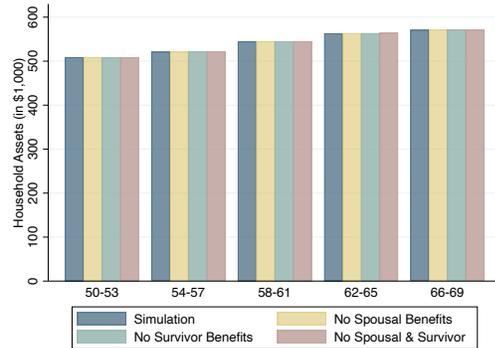
(e) Household Consumption (Male BW)



(f) Household Consumption (Female BW)

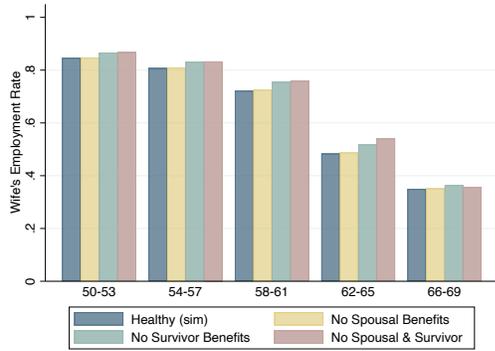


(g) Household Assets (Male BW)

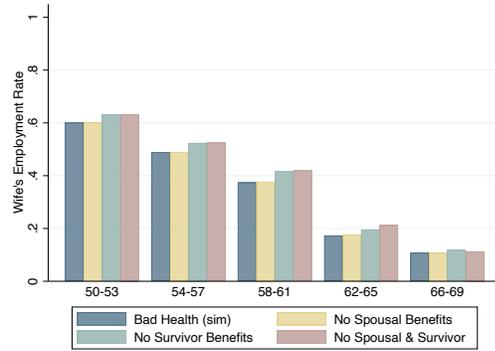


(h) Household Assets (Female BW)

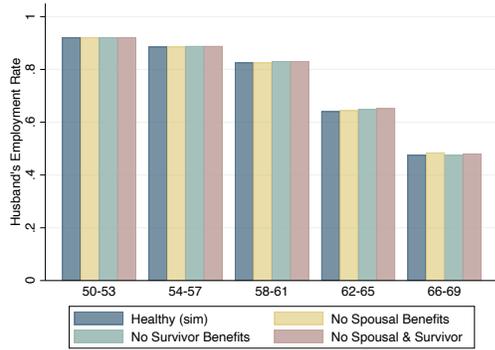
Figure A.7: Policy Counterfactual: By Breadwinner Status



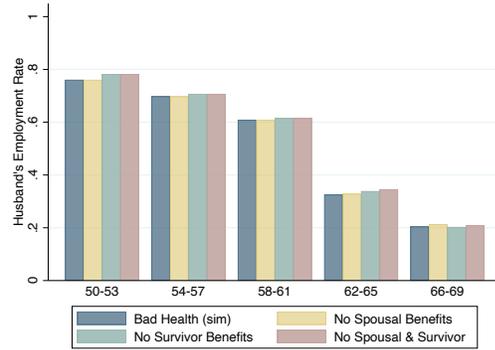
(a) Wife's Employment Rate (Healthy)



(b) Wife's Employment Rate (Bad Health)



(c) Husband's Employment Rate (Healthy)



(d) Husband's Employment Rate (Bad Health)

Figure A.8: Policy Counterfactual: Employment by Health