Health Inequality by Race and Ethnicity

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Abstract

Understanding health inequality requires properly measuring health. A commonly used measure is "self-reported" health. A more recent one is "frailty," which corresponds to the fraction of one's possible health deficits. We evaluate the extent to which they are good measures of latent health by comparing their ability to predict key economic outcomes by race, ethnicity and gender. We find that both health measures are highly predictive of the probability of becoming a Disability Insurance or Social Security retirement benefits recipient, entering or living in a nursing home, and dying. Because frailty is somewhat more predictive and has a quantitative interpretation, we use it to measure to what extent health is unequally distributed and affects economic outcomes. Frailty reveals huge health inequality. At age 51, Black men have, on average, the frailty of White men who are 13 years older, and Black women have the frailty of White women who are 18 years older. We also find that frailty has large effects on economic outcomes. For example, one additional health deficit increases the probability of dying by 0.8 and 0.6 percentage points for men and women, respectively.

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1 Introduction

In the United States, disparities in health-related outcomes by race, ethnicity, and gender are large. For instance, in 2018, life expectancy at birth was 79 years for White people and 75 years for Black people (National Center for Health Statistics (2019)). While it is clear that these racial and ethnic health disparities exist, three crucial questions remain unanswered. The first is how to best measure health. The second is how unequally distributed is health by race, ethnicity, and gender. The third is to what extent health affects key economic outcomes such as Disability Insurance and Social Security claims, currently living in a nursing home, entering a nursing home in the future, and dying. Our paper aims at answering these questions.

How should we measure health? A common way of measuring health is through self-reported health status (SRHS). This measure comes from a question in which people rate their health as excellent, very good, good, fair, or poor. Although parsimonious and highly predictive of key health outcomes (see, for instance, Idler and Benyamini (1997)), SRHS has important potential shortcomings. They include measurement error which might vary by race and ethnicity (Crossley and Kennedy (2002) and Zajacova and Dowd (2011)) and the fact that Black and Hispanic respondents rate conditions as significantly less severe than their White counterparts (Dowd and Todd (2011)). Both measurement error and differential reporting can reduce the usefulness of self-reported health in describing disparities.

A different way of measuring health has been proposed by the medical literature (Mitnitski, Mogilner, and Rockwood (2001)): the frailty index (or frailty), which tracks health deterioration by considering that, as people age, they accumulate more "health deficits" such as difficulties with activities of daily living, medical diagnoses, and healthcare utilization. Typically, frailty is defined as the fraction of deficits present for an individual at a certain age over the total number of deficits considered. While this measure is based on a number of more specific indicators, it might be differentially reported by race, ethnicity, and gender, if people in different groups have different access to health insurance, or,

more generally, have different propensities to seek medical care, and thus to be diagnosed with diseases or hospitalized. Indeed, numerous papers in the medical literature, including Cook and Manning (2009) and Dieleman, Chen, Crosby, Liu, McCracken, Pollock, Sahu, Tsakalos, Dwyer-Lindgren, Haakenstad, Mokdad, Roth, Scott, and Murray (2021), find that healthcare spending is higher for White people than those of any other race or ethnicity. Moreover, Hill, Artiga, and Haldar (2022) shows that the uninsurance rate (i.e., the fraction of the population that does not have health insurance) is significantly higher for Hispanic and Black people than White people.

We use data from the Health and Retirement Study (HRS), and thus on people age 51 and older, to study the SRHS question and to construct a frailty index that includes 35 health deficits. These deficits include difficulties with activities of daily living (such as eating or bathing), difficulties with instrumental activities of daily living (such as managing money), functional limitations (such as walking up a flight of stairs), diagnosed diseases (such as diabetes and arthritis), addictive diseases (obesity and smoking), and measures of healthcare utilization (such as hospital stays).

To determine what is the best measure of health for the purpose of economic analysis, we evaluate the predictive power of SRHS and frailty for key economic outcomes by race, ethnicity, and gender. We find that health is an important determinant of all of the outcomes that we consider, for all of our demographic groups.[1] That is, the pseudo-R^2 increases for all outcomes and groups when adding any measure of health to a regression that includes a rich set of controls. The improvements in prediction are heterogeneous across outcomes and groups: they range from a 5% increase in pseudo-R^2 when we include SRHS (for becoming a Social Security retirement benefits recipient next wave for White men) to a 1005% increase (for becoming a disability insurance recipient for Hispanic men) when we include both frailty and SRHS. In particular, health adds the most predictive power to the probability of becom-

1. Our groups of "Black" and "White" people do not include Hispanic people, whom we study separately. In addition, we follow the 2020 U.S. Census (available at https://www.census.gov/programs-surveys/decennial-census/technical-documentation/questionnaires.2020_Census.html, which categorizes "White" and "Black" as races, and "Hispanic" as an ethnicity.

ing a Disability Insurance recipient and the least one to the probability of receiving Social Security retirement benefits. We also find that, while both frailty and SRHS jointly help many outcomes, frailty is the single most powerful predictor and outperforms SRHS for most outcomes and demographic groups. Because of that and because frailty has a quantitative interpretation in terms of its underlying health deficits, we focus on frailty for the rest of our analysis.

How large are health disparities? At every age, White and Black people have the lowest and highest frailty, respectively. For instance, at age 51, Black men have, on average, the frailty of White men who are 13 years older. Black women at age 51 have, on average, the frailty of White women who are 18 years older. Hispanic people are less frail than Black people, but much more so than White people: At age 51, Hispanic men and women have, on average, the frailty of White men and women who are 8 and 7 years older, respectively. Moreover, the share of people with zero frailty, and hence no health deficits, is much higher for White people than for Black and Hispanic people. For instance, at age 51, the share of White men with zero frailty is 11.6%, which is almost double that of Black men (6.2%) and over two percentage points higher than that of Hispanic men (9.5%). Similarly, the share of White women with zero frailty at age 51 is 9.6%, while the ones of Black and Hispanic women are 5.1% and 7.8%, respectively.

Given these differences in frailty by race and ethnicity, it is also interesting to determine whether they come from a higher prevalence of the same deficits or from different deficits. The answer is that both play a role. In terms of differences in deficits, the most prevalent deficit for White women aged 55 to 59 is having ever smoked (54.5%), but the most prevalent deficits for Black and Hispanic women are having high blood pressure (67.2%) and difficulty climbing several flights of stairs (51.5%). In terms of prevalence, most deficits are significantly more widespread among Black and Hispanic respondents than White respondents. For instance, the most prevalent deficit for men age 55 to 59, is high blood pressure, which affects 42.4%, 60.8%, and 43.7% of White, Black, and Hispanic men, respectively. Moreover, diabetes

affects 11%, 25.3%, and 26.1% of White, Black, and Hispanic women, respectively. We also find some differences in deficit prevalence by gender, even within the same race and ethnicity. For instance, psychological and psychiatric problems affect 21.3%, 17.5%, and 20.1% of White, Black, and Hispanic women, respectively. The corresponding fractions for me are lower: 11.9%, 13.4%, and 11.2% for White, Black, and Hispanic men, respectively.

We also learn three more important lesson by comparing the prevalence of deficits by race and ethnicity. First, the few health deficits that are not more prevalent for Black people than White people, require a medical diagnosis, which might indicate that there is differential access and/or utilization of medical care for this group of people. Second, this difference in diagnosed deficits holds for more deficits for men rather than for women, which might indicate that men might be be either less likely to have health insurance, and/or more reluctant to go to the doctor than women. Third, the comparison between Black and Hispanic people indicates that, for Hispanic people, the list of deficits that are less or equally prevalent than for White people is not only longer than that for Black people, but also include several conditions that do not require a medical diagnosis, which might indicate the under-reporting of diagnosed conditions might be less prevalent for Hispanic people.

What are the effects of health on key economic outcomes? Not only frailty is very unequally distributed, but it also has large and significant effects on all of the outcomes that we consider. It has the largest marginal effect on the probability of death: one additional health deficit increases the probability of dying by 0.8 and 0.6 percentage points for men and women, respectively. It also increases the probability of receiving disability benefits by 0.6 and 0.4 percentage points for men and women, respectively. Moreover, it increases the probability of retirement for men (by 0.4 percentage points), but not for women. It also increases the probability of nursing home entry and being in a nursing home by 0.2-0.3 percentage points.

Looking at the probability of our outcomes as a function of one's frailty level reveals that the effects of frailty often depend on the level of frailty, and that this slope is different by

race and ethnicity. For instance, for the probability of entering a nursing home or living in a nursing home, the speed of increase as a function of frailty is faster for White and Black people and slower for Hispanic people. More specifically, while a frailty level of 0.14 (which corresponds to having three health deficits) carries an almost zero probability of living in a nursing home for all groups, a frailty level of 0.55 (corresponding to 19 health deficits) leads to a probability of being in a nursing home of 5.3% for White men, 5.6% for Black men, and 2.0% for Hispanic men. The effect of frailty is even more pronounced for women: the probability of being in a nursing home rises to 7.2%, 3.3%, and 1.6% for a frailty level of 0.55 for White, Black, and Hispanic women, respectively.

This part of our analysis also shows that, conditioning for a large number of observables that include frailty, Hispanic men and women are much less likely to be on disability, claim Social Security benefits, entering a nursing home, or being in a nursing home compared to White men and women. In contrast, Black men are more likely to be on disability than White men and Black women are less likely to receive Social Security benefits than White women. Black women are also less likely to enter a nursing home, or to be in a nursing home, and to die, than White women, for the same frailty level.

The rest of the paper is organized as follows. Section 2 presents our contributions and places them in the context of the existing literature. Section 3 discusses our data and how we construct our frailty index. Section 4 displays the results on the predictive power of frailty and SRHS and hence addresses the question of which one is a better measure of health. Section 5 presents our results on health inequality. Section 6 discusses the determinants of our outcomes of interest. Section 7 concludes.

2 Related Literature and Contributions

First, our paper connects to the **economic literature on measuring health that uses frailty.** Papers in this literature include Hosseini, Kopecky, and Zhao (2020), which uses

frailty to quantify the impact of health inequality on lifetime earnings inequality; Nygaard (2021), which studies the design and welfare consequence of policies aimed at reducing life expectancy inequality; Hosseini, Kopecky, and Zhao (2022), which documents numerous facts about the evolution of health over the life cycle of Americans; and Russo (2022), which uses frailty to analyze the relationship between health and the marginal utility of consumption. We contribute to this literature by being the first ones, to the best of our knowledge, to explore racial disparities in frailty.

Second, our paper contributes to the rich **literature on health inequality.** Numerous papers study inequality in mortality. Among others, Chetty, Stepner, Abraham, Lin, Scuderi, Turner, Bergeron, and Cutler (2016) finds that higher incomes are associated with higher longevity, while Currie and Schwandt (2016) finds that the mortality gaps between rich and poor individuals in the USA have grown over the last decades among adults over 50, but have shrunk for children. Several other papers focus on the relationship between socioeconomic status and health inequality. Case, Lubotsky, and Paxson (2002) studies the relationship between children's health and household income and finds that children from lower-income households suffering from chronic health conditions have worse health than children from higher-income households. Conti, Heckman, and Urzua (2010) evaluates the sources of adult health inequality by education and finds that this inequality is explained mainly by child development. Conti, Mason, and Poupakis (2019) analyzes the early-life influences on health and the long-term effects of childhood conditions on health inequality and shows that early-life health shocks have persistent effects on health, and more so for men than for women. Many papers examine the evolution of health inequality in the United States. Halliday (2011) studies health inequality over the life cycle of White Americans and finds that the variance of health at age 60 is significantly higher than at 25 and that differences in variance depend on gender. Wang, Wang, and Halliday (2018) shows that the Great Recession negatively impacted Americans' health and did so disproportionately by race, gender, and education attainment. Halliday, Mazumder, and Wong (2021) studies

inequality in intergenerational health mobility in the USA and finds that the same groups that experience lower intergenerational income mobility (like the Black population) also face lower intergenerational health mobility. Finally, a smaller number of papers focus on the measurement of health inequality. Among these, Ziebarth (2010) shows that the magnitude of health inequality depends crucially on the underlying health measure. In particular, health inequality is substantially higher when using subjective rather than objective measures of health. We contribute to this literature by comparing alternative measures of health inequality and by examining inequality by race, ethnicity, and gender.

3 Data

3.1 Data and Sample Selection

We use data from the Health and Retirement Study (HRS). The HRS core survey began in 1992 and took place every two years. It samples those living in the United States age 51 and older, as well as their spouses. It is well known for its large sample size and low attrition rate. It also oversamples Black and Hispanic respondents to ensure sufficient precision for separate analyses by racial and ethnic group (HRS Staff (2017)). Because key variables such as difficulties with activities of daily living (ADLs) first appeared in the 1996 survey, we use data from 1996 to 2018. We thus have 12 waves.

We select respondents younger than age 100 who identify as non-Hispanic White, non-Hispanic Black, or Hispanic. Appendix A presents more details on our sample selection. Our sample consists of 216,166 individual-year observations. Table 1 shows our sample breakdown by race, ethnicity, and gender in 5-year age bins. It shows that the majority of respondents for each age are White women. This happens because at younger ages, respondents' younger wives tend to be more numerous, and at older ages because men tend to die faster. The last row of the table also shows that Black and Hispanic respondents tend to be younger than their White counterparts by 5 and 7 years, respectively.

	White		Hispanic		Black		
	Men	Women	Men	Women	Men	Women	All
Age 51-54	4,620	7,231	1,292	1,907	1,524	2,698	19,272
	0.24	0.38	0.07	0.10	0.08	0.14	1.00
Age 55-59	10,572	13,098	2,463	3,111	3,096	4,796	37,136
	0.28	0.35	0.07	0.08	0.08	0.13	1.00
Age 60-64	11,068	13,494	2,092	2,738	2,796	4,426	36,614
	0.30	0.37	0.06	0.07	0.08	0.12	1.00
Age 65-69	10,576	12,731	1,510	1,948	2,157	3,298	32,220
	0.33	0.40	0.05	0.06	0.07	0.10	1.00
Age 70-74	10,195	12,566	1,174	1,438	1,656	2,514	29,543
	0.35	0.43	0.04	0.05	0.06	0.09	1.00
Age 75-79	8,908	11,421	928	1,196	1,304	2,115	25,872
	0.34	0.44	0.04	0.05	0.05	0.08	1.00
Age 80-84	6,136	8,851	515	796	818	1,460	18,576
	0.33	0.48	0.03	0.04	0.04	0.08	1.00
Age 85-89	3,360	5,644	222	467	400	848	10,941
	0.31	0.52	0.02	0.04	0.04	0.08	1.00
Age 90-94	1,226	2,626	95	217	139	388	4,691
	0.26	0.56	0.02	0.05	0.03	0.08	1.00
Age 95-100	232	795	22	69	31	152	1,301
	0.18	0.61	0.02	0.05	0.02	0.12	1.00
Total	66,893	88,457	10,313	13,887	13,921	22,695	216,166
	0.31	0.41	0.05	0.06	0.06	0.10	1
Individuals	11,361	13,994	2,119	2,628	2,953	4,291	37,346
Average birth year	1937	1936	1943	1943	1942	1942	1938

Table 1: Sample Composition by 5-year age bins. The first row denotes the number of observations, while the second one displays their share in that age bin. The last two rows display the number of individuals and the average birth year for each demographic group. The last column shows the total by row.

3.2 Health Deficit Variables

The first step in constructing a frailty index is selecting which health deficits to include. By following the guidelines in Searle, Mitnitski, Gahbauer, Gill, and Rockwood (2008), we select 35 binary deficits. We list these deficits in Table 2 (Appendix B reports more details).

For the purposes of Table 2, we group our deficits consistently with the Katz Index of Independence in Activities of Daily Living,[2] which is a tool used by medical professionals to assess one's ability to perform basic activities independently. These groups comprise activities of daily living (ADLs), difficulties with instrumental activities of daily living (IADLs), and other functional limitations. ADLs refer to basic activities required to take care of oneself and include having difficulty bathing and dressing. ADLs are also used by states to

2. See Katz, Downs, Cash, and Grotz (1970) and Katz (1983).

determine eligibility for Medicaid nursing homes and by long-term insurance providers to determine insurance payments. IADLs refer to more complex activities that allow people to live independently. We include as IADLs the deficits that appear in the Lawton-Brody Instrumental Activities of Daily Living scale, which is the most common checklist used by medical professionals to determine one's difficulties with IADLs.[3] IADLs include having difficulty grocery shopping or managing money. We classify as "other functional limitations" all the remaining deficits that refer to functional limitations that do not enter either the Katz Index of Independence in Activities of Daily Living or the Lawton-Brody Instrumental Activities of Daily Living scale. The fourth and fifth grouping of the deficits in Table 2 include diagnoses by medical professionals (as reported by the respondent) and indicators of healthcare utilization, such as having stayed in a hospital or a nursing home in the previous two years. Finally, there are addictive diseases, such as obesity (i.e., having a body-mass index (BMI) larger than 30) and smoking. Regarding the latter deficits, we follow the medical literature and classify obesity and smoking as diseases. The American Medical Association (AMA) recognized obesity as a chronic disease in 2013. Many papers in the medical literature, including, for instance, Bernstein and Toll (2019), also consider smoking to be a chronic disease.

3.3 Constructing Frailty

The frailty index is the ratio between a person's health deficits at a certain age and the total number of deficits considered. To construct our measure of frailty, we use the 35 deficits described in Section 3.2 and weigh them equally. When computing frailty, we allow for at most 3 missing deficits by observation and rescale the index accordingly. Table A-2 in Appendix B shows that doing so allows us to compute frailty for 99% of observations in our sample. In Appendix C, we also experiment with changing the maximum number of missing deficits.

3. See Lawton and Brody (1969) for a description of this checklist.

Deficit	Deficit
ADLs	Difficulty lifting a weight heavier than 10 lbs
Difficulty bathing	Difficulty lifting arms over the shoulders
Difficulty dressing	Difficulty picking up a dime
Difficulty eating	Difficulty pulling/pushing large objects
Difficulty getting in/out of bed	Difficulty sitting for two hours
Difficulty using the toilet	
Difficulty walking across a room	***Diagnoses***
Difficulty walking one block	Diagnosed with high blood pressure
Difficulty walking several blocks	Diagnosed with diabetes
	Diagnosed with cancer
IADLs	Diagnosed with lung disease
Difficulty grocery shopping	Diagnosed with a heart condition
Difficulty making phone calls	Diagnosed with a stroke
Difficulty managing money	Diagnosed with psychological or psychiatric problems
Difficulty preparing a hot meal	Diagnosed with arthritis
Difficulty taking medication	
Difficulty using a map	***Healthcare Utilization***
	Has stayed in the hospital in the previous two years
Other Functional Limitations	Has stayed in a nursing home in the previous two years
Difficulty climbing one flight of stairs	
Difficulty climbing several flights of stairs	***Addictive Diseases***
Difficulty getting up from a chair	Has BMI larger than 30
Difficulty kneeling or crouching	Has ever smoked cigarettes

Table 2: Health deficits. Each deficit takes a value of 0 (if the respondent reports not having it) or 1 (if the respondent reports having it).

4 How Should We Measure Health?

We now turn to comparing to what extent frailty and SRHS help predict becoming a disability insurance recipient, receiving Social Security retirement benefits, entering a nursing home, being in a nursing home, and dying. We do so by running logistic regressions for each of these five outcomes.

All of our specifications include some "basic" regressors: age (either as a third-order polynomial or age dummies), a second-order polynomial in years of education, and cohort and marital status dummies. In some specifications, we then include one of our two health measures and its interactions with age, age squared, age cubed, and years of education. Finally, we include both measures of health and their interactions with age and education. To capture the age discontinuities provided by the Social Security system, we also add a dummy equal to 1 if the respondent is one or two years younger than his or her full retirement age. Appendix D provides more detail about our empirical strategy.

To evaluate the predictive performance of each measure of health and determine which is the most predictive one, we compute the McFadden's pseudo-R^2 (or pseudo-R^2) for each regression. It is computed as one minus the ratio of the full-model log-likelihood and the intercept-only log-likelihood. This is,

$$\text{Pseudo-R}^2 = 1 - \frac{LL(\text{Full Model})}{LL(\text{Intercept-Only Model})}.$$

Therefore, it is not a measure of the proportion of the variance of the dependent variable explained by the model (as in the case of the R^2 in an OLS regression). Instead, it measures the relative improvement in model fit when adding regressors to the intercept-only model. The pseudo-R^2 varies between 0 and 1, and higher values denote a better fit of the full model. McFadden (1977) argues that values between 0.2 and 0.4 denote an "excellent fit" of the full model.

4.1 Results

Table 3 reports the pseudo-R^2s. For each outcome, the first row of results (labeled "Basic Controls") reports the pseudo-R^2 obtained from regressing the corresponding outcome variables on basic controls only. The following rows report the results obtained when adding one of our two measures of health. The last row for each group of outcomes includes both of our measures of health. In the top block of the table, we report the levels of the Pseudo-R^2. In the bottom block, we report the percentage change from the "Basic Controls" regressions.

Table 3 reveals several interesting facts. First, health is an important determinant of all outcomes for all demographic groups. That is, the pseudo-R^2 jumps up, for all outcomes and groups, when adding either measure of health. Second, including both SRHS and frailty helps better explain all outcomes for most of our groups. When including only one health indicator, frailty does a better job than SRHS.

Third, the importance of health varies by outcome and group. Indeed, health adds the most predictive power to the basic-controls-only regression for disability insurance recipiency, followed by currently being in a nursing home, nursing home entry next wave, death, and receiving Social Security benefits. In particular, these improvements in explanatory power range from 5% (for SRHS, for becoming a Social Security retirement benefits recipient next wave for White men) to 1005% (for including both SRHS and frailty, for becoming a disability insurance recipient for Hispanic men). Several papers have looked into the effects of health on retirement and found results consistent with ours. They include French (2005), Blundell, French, and Tetlow (2016), and French and Jones (2017).

Fourth, there are differences in pseudo-R^2s by race, even within the same gender. For instance, the pseudo-R^2 for "Nursing Home Entry Next Wave" when including frailty is 0.315, 0.214, and 0.231 for White, Black, and Hispanic women, respectively. As another example, the pseudo-R^2s for "SDI Recipient Next Wave" when including frailty are 0.245, 0.175, and 0.222 for White, Black, and Hispanic men, respectively.

Finally, there are also some differences in pseudo-R^2s by gender, even within the same race, but tend to be smaller than those by race. For instance, the pseudo-R^2s for "Social Security Retirement Benefits Recipient Next Wave" for Black men and women are different for all health measures and higher for men than for women. This seems to imply that health is a more important determinant of the choice of retiring for Black men than Black women.

The answer to our first question is thus that both SRHS and frailty help predict key economic outcomes by race and ethnicity and, in this sense, are good measures of health. Taken together, they predict these outcomes even more. In isolation, frailty has an edge compared to SRHS.

		Women			Men		
		White	Hispanic	Black	White	Hispanic	Black
SDI Recipient Next Wave	Basic Controls	0.048	0.046	0.036	0.045	0.022	0.032
	SRHS	0.212	0.122	0.129	0.186	0.112	0.122
	Frailty	0.244	0.193	0.185	0.245	0.222	0.175
	Frailty and SRHS	0.268	0.202	0.199	0.264	0.241	0.196
SS Benefits Recipient Next Wave	Basic Controls	0.118	0.081	0.083	0.134	0.101	0.120
	SRHS	0.128	0.110	0.102	0.140	0.128	0.126
	Frailty	0.126	0.091	0.097	0.142	0.112	0.139
	Frailty and SRHS	0.132	0.123	0.114	0.147	0.145	0.145
NH Entry Next Wave	Basic Controls	0.241	0.172	0.169	0.220	0.144	0.122
	SRHS	0.285	0.209	0.206	0.266	0.194	0.176
	Frailty	0.315	0.231	0.214	0.303	0.272	0.234
	Frailty and SRHS	0.319	0.250	0.227	0.308	0.291	0.244
Currently in a NH	Basic Controls	0.284	0.226	0.212	0.226	0.129	0.153
	SRHS	0.338	0.259	0.250	0.296	0.222	0.214
	Frailty	0.526	0.413	0.411	0.487	0.529	0.427
	Frailty and SRHS	0.533	0.437	0.417	0.492	0.540	0.449
Death Next Wave	Basic Controls	0.166	0.157	0.120	0.140	0.157	0.109
	SRHS	0.240	0.194	0.169	0.219	0.212	0.151
	Frailty	0.266	0.221	0.189	0.237	0.244	0.176
	Frailty and SRHS	0.276	0.230	0.201	0.251	0.253	0.182
		Percentage change from basic controls					
SDI Recipient Next Wave	SRHS	341%	166%	260%	318%	412%	283%
	Frailty	407%	320%	416%	450%	916%	449%
	Frailty and SRHS	458%	341%	454%	492%	1,005%	514%
		Percentage change from basic controls					
SS Benefits Recipient Next Wave	SRHS	9%	37%	23%	5%	27%	5%
	Frailty	7%	13%	17%	6%	11%	16%
	Frailty and SRHS	12%	53%	38%	10%	43%	21%
		Percentage change from basic controls					
NH Entry Next Wave	SRHS	18%	21%	22%	21%	35%	44%
	Frailty	31%	34%	27%	38%	89%	92%
	Frailty and SRHS	32%	45%	34%	40%	102%	102%
		Percentage change from basic controls					
Currently in a NH	SRHS	19%	15%	18%	31%	72%	40%
	Frailty	85%	83%	94%	116%	311%	179%
	Frailty and SRHS	88%	93%	97%	118%	320%	320%
		Percentage change from basic controls					
Death Next Wave	SRHS	45%	24%	41%	57%	35%	39%
	Frailty	60%	41%	57%	69%	55%	62%
	Frailty and SRHS	66%	47%	67%	79%	61%	61%

Table 3: Pseudo-R^2 table for all outcomes and demographic groups.

5 How Large are Health Disparities?

The goal of this Section is to understand health disparities by race, ethnicity, and gender, and their evolution during adulthood. Given that we find that the single most predictive measure of health is frailty, we study health inequality by using this measure. However, it is important to note that SRHS is also highly predictive of the important economic outcomes that we consider and that the choice of the health variable that one uses should depend on one's research question and available data. For instance, self-reported health is available in many more data sets and, importantly, is often recorded for a longer period of time for the same respondents (for instance, from 1984 in the PSID, which also samples younger people, compared with 2003 for frailty).

5.1 How Unequal is Frailty?

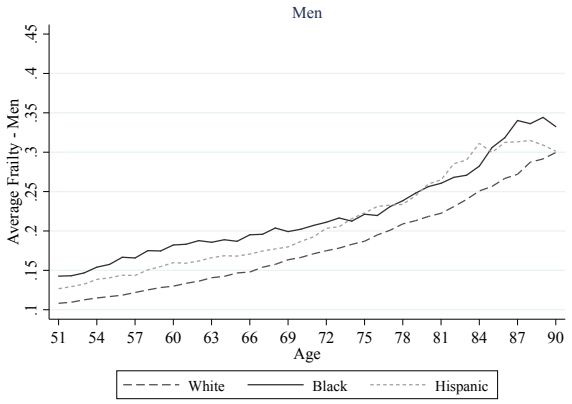
Frailty is a key indicator of the health deficits experienced by a person. To what extent does the burden of frailty differ by race and ethnicity? Panels (a) and (b) display the evolution of mean frailty by race and ethnicity, for men and women, respectively. On average, White men and women have much lower frailty than Black men and women, and, to a smaller extent, than Hispanic men and women. For instance, on average, a Black man at age 51 has the frailty of a Hispanic man who is 6 years older (age 56) and of a White man who is 13 years older (age 64). Similarly, on average, a 51-year-old Black woman has the frailty of a Hispanic woman who is 6 years older (age 57) and of a White woman who is 18 years older (age 69). Although the differences persist over the life cycle, they tend to narrow at older ages to some extent, as sicker people die faster and thus exit our sample. This is especially true for men, who have shorter life expectancies than women.

Panels (c) and (d) display the share of people with zero frailty, and hence no health deficits, by race and ethnicity, for men on the left and for women on the right. Panel (c) reveals that, approximately until age 75, White men have the highest share of people with

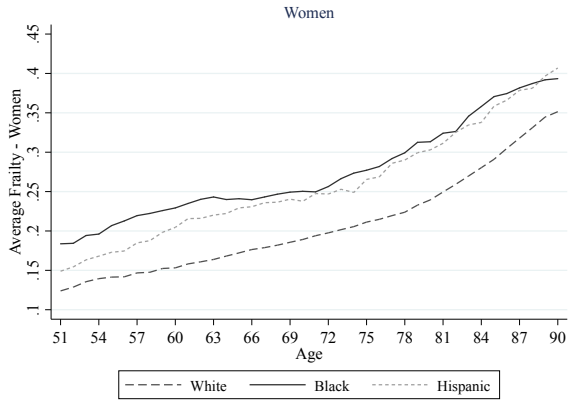
no health deficits. For instance, at age 51, the share of White men with no health deficits is 11.6%, which is almost double that of Black men (6.2%), and 2.1 percentage points higher than that of Hispanic men (9.5%). After age 75, these shares are much more similar by race and ethnicity, partly due to death. The patterns are similar for women. For instance, at age 51, the share of White women with zero frailty is 9.6%, nearly twice as large as that of Black women (5.1%), and 1.8 percentage points higher than that of Hispanic women (7.8%). Hence, the gaps are slightly smaller. However, they persist for a longer time period, that is, until age 80 or so.

Panels (e) and (f) report the standard deviation of men's and women's frailty, respectively. Interestingly, before age 70, the standard deviations of frailty for women are somewhat higher than those for men for each of the groups that we consider. The standard deviations, instead, are quite similar for Black and Hispanic people. As we have seen in the panel above, their averages are different, which indicates that Black people have the highest share of people with positive frailty and also the highest standard deviation of frailty. Finally, the standard deviation of frailty tends to decrease with age. Partly because people die, and partly because frailty, by construction, has an upper bound of one.

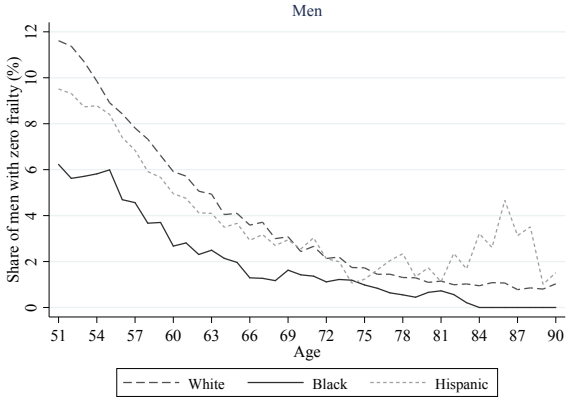
Figure 2 displays the 25th and 75th percentile of frailty by age, race, and gender. Starting from men, Panels (a) and (c) show that, while the differences in frailty among the healthiest people (i.e., those in the 25th percentile of the frailty distribution) are small by race and ethnicity, differences grow larger as frailty increases. In particular, Black men in the 75th percentile of the frailty distribution are more unhealthy than the unhealthy White and Hispanic men. For instance, 51-year-old Black men in the 75th percentile of the frailty distribution have the same frailty level as 63-year-old and 57-year-old White and Hispanic men in the same frailty percentile, respectively. Turning to women, Panels (b) and (d) show that there are larger differences by race and ethnicity at all percentiles, with White women having the fewest health deficits. For example, 51-year-old White women in the 75th



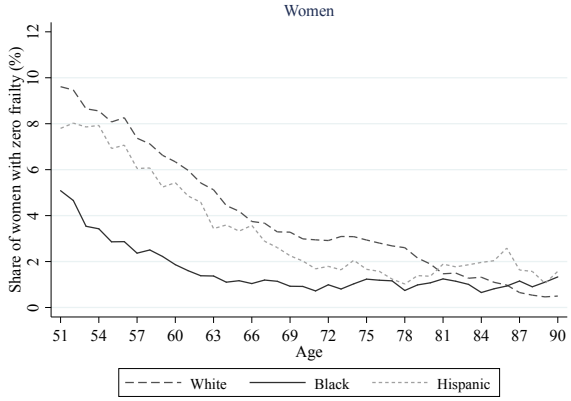
(a) Average frailty. Men



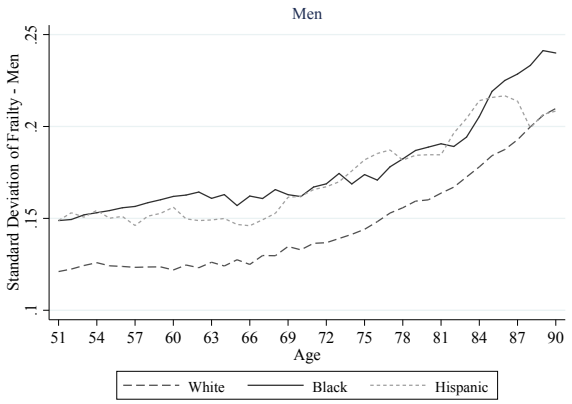
(b) Average frailty. Women



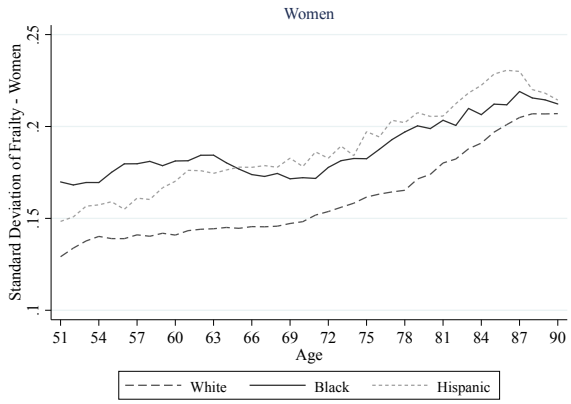
(c) Share with zero frailty. Men



(d) Share with zero frailty. Women



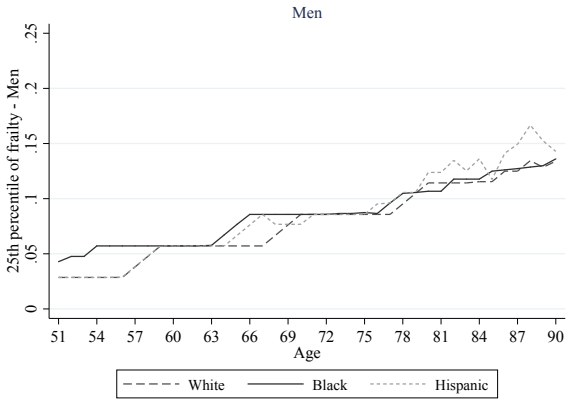
(e) Standard deviation of frailty. Men



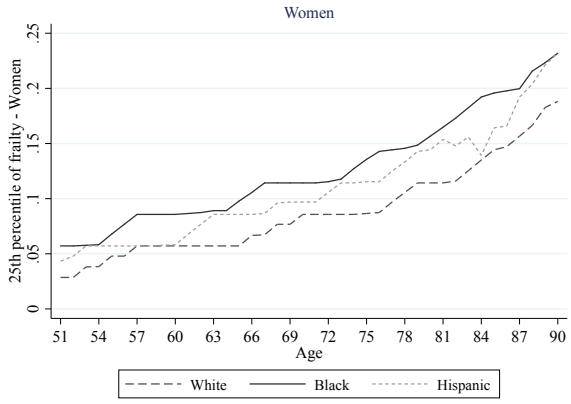
(f) Standard deviation of frailty. Women

Figure 1: Average frailty, share with zero frailty, and standard deviation of frailty by age. Men (left) and women (right)

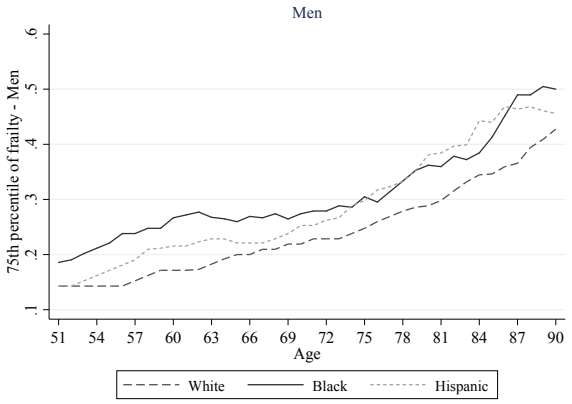
percentile of the frailty distribution have the same frailty as 63-year-old and 57-year-old women in the same percentile, respectively.



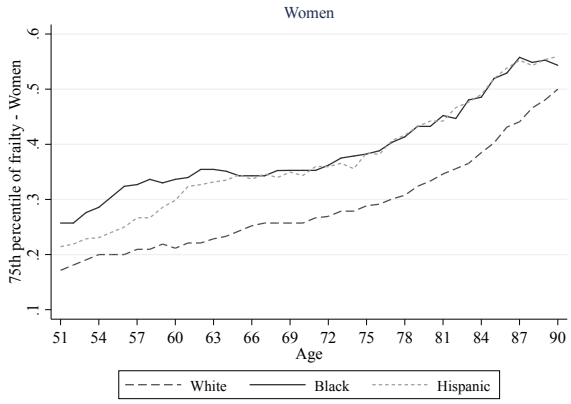
(a) 25th percentile of frailty. Men



(b) 25th percentile of frailty. Women



(c) 75th percentile of frailty. Men



(d) 75th percentile of frailty. Women

Figure 2: 25th (first row) and 75th (second row) frailty percentile by age. Men (left column) and women (right column)

5.2 Deficits Prevalence

While frailty is a useful and concise tool, the prevalence of health deficits in the population is also very informative about health inequality. Tables 4 and 5 summarize the prevalence of deficits for the 55-59 age group, for women and men, respectively.[4]

The first column in these tables lists all of the deficits that we include in our measure of frailty, ordered by their prevalence for the first group of people that we consider in each table (that is, White women in Table 4 and White Men in Table 5). The next columns report the prevalence of each health deficit for each group, and the last two columns provide the difference in deficit prevalence across the first three columns (and hence the groups of people that we consider), and its statistical significance.

Table 4 shows that the most prevalent deficit for women in each group varies by race: 54.5% of White women report having ever smoked, 51.5% of Hispanic women report difficulties climbing several flights of stairs, and 67.2% of Black women have high blood pressure. In contrast, Table 5 displays that there are more similarities in deficits for men. That is, high blood pressure affects 42.4%, 43.7%, and 60.8% of White, Hispanic, and Black men, respectively.

Among the other key deficits, obesity and diabetes are more prevalent among Hispanic and Black men and women compared to their White counterparts (as also found, for instance, by Peek, Cargill, and Huang (2007) and Petersen, Pan, and Blanck (2019)). In particular, the share of obese (i.e., with a BMI greater than 30) White women is 33.6% and that of obese Hispanic and Black women are 44.3% and 55.4%, respectively. Similarly, while 32.7% of White men are obese, 35.4% and 40.4% of Hispanic and Black men are, respectively. Also, while diabetes affects 11.0% of White women, it affects 26.1% and 25.3% of Hispanic and Black women, respectively. And, while 13.3% of White men have diabetes, 24.7% and 25.3%

4. We do not report the data for our younger group, that age 51 to 54, here because it is the smallest one in our sample and, due to the nature of the sampling frame, it under-represents men. Appendix H reports the prevalence of deficits for men and women age 75 to 79 and 85 to 89 and for all men and women in our sample.

of Hispanic and Black men report having it, respectively. Moreover, while 38.8% of White women report having difficulties climbing several flights of stairs, this share rises to 51.5% and 53.5% for Hispanic and Black women, respectively. Table 5, in turn, indicates that 23.3% of White men report having difficulty climbing several flights of stairs, and this share rises to 33.0% and 35.5% for Hispanic and Black men, respectively.

Importantly, the last two columns in each table reveal that most deficits are significantly more prevalent for Black and Hispanic people compared to their White counterparts (i.e. their differences are small and not significant). The table for women shows that there is only one deficit that is equally likely for Black and White women (being diagnosed with lung disease) and one deficit that is less likely for Black women than White women (Diagnosed with psychological problems). It is worth noticing that both of these deficits require a medical diagnosis, and thus doctor's access. It is also worth noticing that, in total, only 8 of our 35 health deficits are diagnosed. Turning to the comparison of the health deficits of Hispanic and White women reveals a slightly more positive outlook: there are five health deficits that are less prevalent for Hispanic women compared to White women (having ever smoked, having been diagnosed with arthritis, a heart condition, cancer, or lung disease), and six that are equally likely (being diagnosed with a psychological problem or a stroke, difficulty walking one block, picking up a dime, preparing a hot meal, or having had a nursing home stay).

Looking at men makes it clear that there are only four health deficits that are equally prevalent for Black and White men (being diagnosed with arthritis, a heart condition, lung disease, and cancer). These deficits, like those equally prevalent for Black women, also all require a medical diagnosis, and hence going to the doctor. Comparing Hispanic and White men, there are eight deficits that are equally likely for men in these two groups (Ever smoked, being diagnosed with high blood pressure, difficulty kneeling or crouching, having had a hospital stay, difficulty walking one block, having psychological problems, difficulty walking one block, and difficulty picking up a dime or shopping). In addition, there are two

impairments that are less likely for Hispanic men than for White men: being diagnosed with arthritis or with a heart condition. Hence, for Hispanic people, the list of deficits that are less, or equally prevalent, is not only longer, but also includes several conditions that do not require a medical diagnosis.

Finally, these tables reveal large heterogeneity in deficit prevalence by gender within race. For instance, 21.3%, 17.5%, and 20.1% of White, Black, and Hispanic women, respectively, report being diagnosed with psychological or psychiatric problems, while the corresponding shares for men are 11.9%, 13.4%, and 11.2%. This result is consistent with the gender gap in mental health service use documented, among others, by Gouwy, Christiaens, and Bracke (2008) and Pattyn, Verhaeghe, and Bracke (2015).

	White	Hispanic	Black	White - Hisp.	White - Black
Has ever smoked cigarettes	0.545	0.406	0.553	0.140***	-0.007
Diagnosed with arthritis	0.474	0.430	0.521	0.044***	-0.047***
Diff. climbing several flights of stairs	0.388	0.515	0.535	-0.127***	-0.148***
Diff. kneeling or crouching	0.380	0.439	0.471	-0.059***	-0.091***
Diagnosed with HBP	0.352	0.448	0.672	-0.097***	-0.321***
Has BMI $\geq$ 30	0.336	0.443	0.554	-0.107***	-0.218***
Diff. getting up from chair	0.325	0.410	0.434	-0.085***	-0.108***
Diagnosed with psych. problem	0.213	0.201	0.175	0.012	0.038***
Diff. pull/pushing large objects	0.212	0.295	0.332	-0.084***	-0.121***
Diff. walking several blocks	0.198	0.266	0.332	-0.069***	-0.135***
Diff. sitting for two hours	0.184	0.276	0.256	-0.092***	-0.072***
Diff. lifting >10 pounds	0.180	0.290	0.320	-0.110***	-0.140***
Hospital stay	0.133	0.148	0.199	-0.015*	-0.066***
Diff. climbing flight of stairs	0.118	0.202	0.220	-0.084***	-0.103***
Diagnosed with diabetes	0.110	0.261	0.253	-0.151***	-0.143***
Diff. lifting arms over shoulders	0.106	0.192	0.217	-0.086***	-0.111***
Diagnosed with heart condition	0.104	0.087	0.156	0.016**	-0.053***
Diagnosed with cancer	0.100	0.068	0.067	0.032***	0.033***
Diff. using map	0.098	0.224	0.216	-0.126***	-0.118***
Diff. walking one block	0.081	0.091	0.163	-0.009	-0.081***
Diagnosed with lung disease	0.079	0.048	0.079	0.032***	0.000
Diff. grocery shopping	0.055	0.075	0.114	-0.019***	-0.059***
Diff. dressing	0.038	0.103	0.111	-0.065***	-0.073***
Diff. getting in/out of bed	0.037	0.107	0.097	-0.070***	-0.060***
Diff. picking up dime	0.036	0.040	0.055	-0.004	-0.018***
Diff. walking across room	0.034	0.042	0.080	-0.008*	-0.046***
Diagnosed with a stroke	0.030	0.033	0.067	-0.003	-0.037***
Diff. bathing	0.028	0.050	0.082	-0.022***	-0.054***
Diff. preparing hot meal	0.027	0.030	0.067	-0.003	-0.040***
Diff. using toilet	0.025	0.037	0.083	-0.012***	-0.058***
Diff. managing money	0.024	0.043	0.051	-0.019***	-0.027***
Diff. eating	0.012	0.021	0.024	-0.009***	-0.012***
Diff. taking medication	0.011	0.028	0.032	-0.017***	-0.021***
Diff. making phone calls	0.007	0.025	0.020	-0.017***	-0.012***
Nursing home stay	0.004	0.004	0.010	0.000	-0.006***

* p<.1, ** p<.05, *** p<.01

Table 4: Prevalence of deficits for women aged 55 to 59. Columns 1-3 report the share of women by race that reports a certain deficit. Columns 4 and 5 report the p-values for a sample proportion test between White and Hispanic and White and Black women, respectively.

	White	Hispanic	Black	White - Hisp.	White - Black
Has ever smoked cigarettes	0.650	0.657	0.678	-0.007	-0.028**
Diagnosed with HBP	0.424	0.437	0.608	-0.012	-0.184***
Diagnosed with arthritis	0.365	0.267	0.358	0.098***	0.007
Has BMI $\geq$ 30	0.327	0.404	0.354	-0.077***	-0.028**
Diff. kneeling or crouching	0.296	0.311	0.365	-0.016	-0.069***
Diff. getting up from chair	0.253	0.272	0.322	-0.020*	-0.070***
Diff. climbing several flights of stairs	0.233	0.330	0.355	-0.097***	-0.122***
Diagnosed with heart condition	0.152	0.114	0.146	0.038***	0.006
Hospital stay	0.148	0.146	0.207	0.002	-0.060***
Diff. walking several blocks	0.147	0.181	0.246	-0.034***	-0.099***
Diff. sitting for two hours	0.138	0.197	0.222	-0.059***	-0.084***
Diagnosed with diabetes	0.133	0.247	0.253	-0.114***	-0.120***
Diagnosed with psych. problem	0.119	0.112	0.134	0.008	-0.014*
Diff. pull/pushing large objects	0.118	0.187	0.233	-0.069***	-0.114***
Diff. lifting arms over shoulders	0.095	0.141	0.168	-0.045***	-0.072***
Diff. lifting >10 pounds	0.083	0.145	0.190	-0.062***	-0.107***
Diff. climbing flight of stairs	0.067	0.122	0.120	-0.055***	-0.053***
Diff. walking one block	0.066	0.073	0.114	-0.007	-0.047***
Diagnosed with lung disease	0.057	0.029	0.054	0.028***	0.003
Diagnosed with cancer	0.056	0.030	0.051	0.025***	0.005
Diff. dressing	0.050	0.107	0.090	-0.057***	-0.040***
Diff. using map	0.033	0.120	0.106	-0.086***	-0.073***
Diagnosed with a stroke	0.033	0.039	0.079	-0.006	-0.046***
Diff. picking up dime	0.032	0.039	0.045	-0.007	-0.013***
Diff. grocery shopping	0.032	0.052	0.065	-0.020***	-0.034***
Diff. getting in/out of bed	0.028	0.085	0.059	-0.057***	-0.031***
Diff. managing money	0.026	0.059	0.053	-0.033***	-0.027***
Diff. walking across room	0.025	0.033	0.054	-0.008*	-0.029***
Diff. bathing	0.022	0.040	0.047	-0.018***	-0.024***
Diff. using toilet	0.018	0.037	0.038	-0.019***	-0.020***
Diff. preparing hot meal	0.015	0.031	0.042	-0.016***	-0.027***
Diff. taking medication	0.013	0.031	0.028	-0.018***	-0.015***
Diff. making phone calls	0.011	0.041	0.026	-0.030***	-0.015***
Diff. eating	0.008	0.016	0.022	-0.008***	-0.014***
Nursing home stay	0.004	0.009	0.011	-0.005**	-0.007***

* p<.1, ** p<.05, *** p<.01

Table 5: Prevalence of deficits for men aged 55 to 59. Columns 1-3 report the share of men by race that reports a certain deficit. Columns 4 and 5 report the p-values for a sample proportion test between White and Hispanic and White and Black men, respectively.

6 What are the Effects of Health?

What is the effect of health on economic outcomes, and does it vary by race and ethnicity? To answer this question, we use our estimated logistic regressions for each outcome to compute the average marginal effects and predicted probabilities by frailty, race, ethnicity, and gender.

More specifically, to compute the average marginal effects, we first compute the marginal effect for each observation in our sample, leaving all explanatory variables beyond the one of interest at their observed values. Then, we compute the resulting average marginal effect for the whole population that results from the individual-level marginal effects. To compute the predicted probability of any outcome for a given level of frailty (or age), we assign that value to all observations while leaving all other regressors at their observed values, and report the average predicted probability by demographic group.

In our graphs, we report the marginal effect of frailty as a function of the average frailty level associated with having between 1 and 19 health deficits. Table A-4 in Appendix B shows that over 95% of our sample reports at most 19 deficits.

6.1 Receiving Disability Insurance Benefits

Table 6 reports the average marginal effects related to becoming an SDI recipient in the next wave. It shows that higher frailty has a statistically significant effect on the probability of receiving SDI. That is, one additional health deficit increases the probability of receiving disability benefits by 0.6 and 0.4 percentage points for men and women, respectively. Age, instead, does not have a significant effect and thus does not play an important role in driving the recipiency of disability benefits given the other variables that we condition on.

An additional year of education reduces the probability of receiving SDI, and more so for men (0.2 percentage points) than women (0.07 percentage points). Being a Hispanic person rather than a White one also reduces this probability, and more so for men (0.8 percentage points) than women (0.5 percentage points). In contrast, being single increases

the probability of receiving disability benefits: the probability of becoming an SDI recipient next wave for single men and women is 0.6 percentage points higher than that of married men and women, on average.

	Men		Women	
Frailty	0.00563***	(0.000217)	0.00421***	(0.000148)
Black	0.00592**	(0.00285)	0.00470**	(0.00237)
Hispanic	-0.00803***	(0.00287)	-0.00449*	(0.00260)
Age	-0.0000449	(0.000407)	-0.000139	(0.000287)
Years of Education	-0.00162***	(0.000359)	-0.000661**	(0.000314)
Born 1950-1968	0.00218	(0.00217)	0.00137	(0.00165)
Partnered	-0.00161	(0.00343)	0.0112***	(0.00402)
Single	0.00572**	(0.00241)	0.00578***	(0.00169)

Table 6: Receiving SDI next wave. Marginal effects resulting from logistic regressions.

Figure 3 displays the predicted probability of receiving SDI benefits next wave by the frailty level associated with having between 1 and 19 health deficits. As one might expect, more unhealthy men and women are more likely to receive SDI. Looking at men (left panel) more in detail highlights that, for levels of frailty between 0.03 and 0.26, Black men are more likely to receive SDI benefits, but that there are no significant differences at higher levels of frailty. Looking at women (right panel) shows that Black and White women tend to have a higher probability of being on disability compared to Hispanic women, especially for frailty higher than 0.43 (15 deficits).

6.2 Receiving Social Security Benefits

Table 7 shows the marginal effects on the probability of becoming a Social Security benefits recipient next wave. Starting from frailty, having worse health (i.e., higher frailty) increases the probability of retiring for men but not for women. More specifically, one additional health deficit increases the probability of retiring by 0.4 percentage points for men (left column), on average. The point estimate for women, instead, is much smaller and not statistically significant. Years of education reduce the probability of retiring for both men and women,

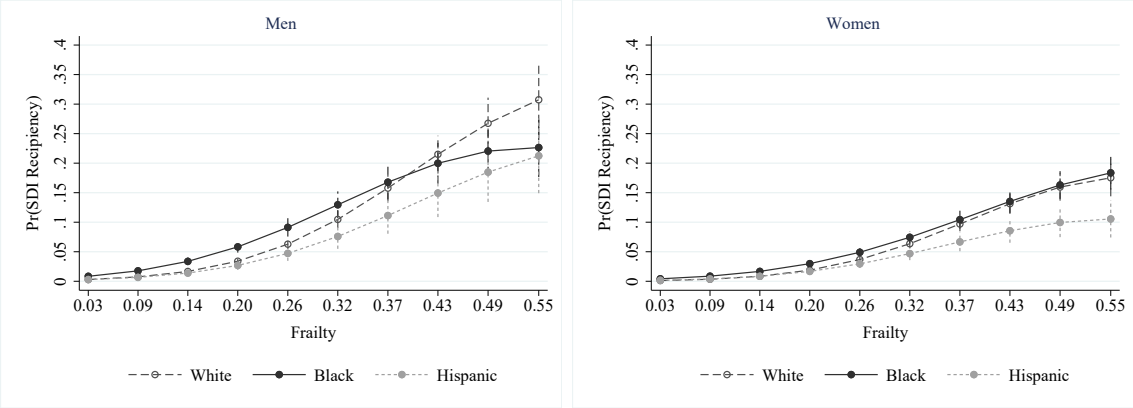


Figure 3: Predicted probabilities of becoming an SDI recipient next wave by frailty. Men (left panel) and women (right panel). The frailty values reported in the horizontal axis correspond to 1 to 19 conditions. The vertical lines mark the 95% confidence interval.

with the effect being larger for women (2.5 percentage points) than for men (1.9 percentage points).

Marital status has a particularly large negative effect on women: the probability of retiring for partnered and single women is 5.9 and 6.0 percentage points lower than that of married women, respectively. For both men and women, being Hispanic and being born between 1950 and 1958, significantly reduce the probability of retiring.

	Men		Women	
Frailty	0.00438***	(0.00144)	-0.00113	(0.00106)
Black	-0.0103	(0.0131)	-0.0406***	(0.0111)
Hispanic	-0.0534***	(0.0157)	-0.0477***	(0.0153)
Years of Education	-0.0192***	(0.00156)	-0.0246***	(0.00146)
FRA Dummy	0.0225	(0.0163)	0.0626***	(0.0167)
Born 1950-1968	-0.125***	(0.0104)	-0.0900***	(0.00961)
Partnered	-0.00767	(0.0207)	-0.0593***	(0.0218)
Single	0.0129	(0.0112)	-0.0595***	(0.00837)

Table 7: Receiving Social Security benefits next wave. Marginal effects resulting from logistic regressions. FRA dummy = full retirement age dummy.

Figure 4 displays the predicted probabilities of retiring next wave by the frailty level associated with having between 1 and 19 health deficits. Consistent with the marginal effect we computed in Table 7, the left panel shows that, for men, higher frailty tends to increase

the probability of retirement. However, this happens over some of the range of frailty, but not all of it, and its pattern depends on race and ethnicity. That is, the probability of retiring increases in frailty up to 0.37 for Hispanic men, 0.26 for White men, and 0.14 for Black men. Looking at the levels highlights that, at lower levels of frailty, the probability of retiring is significantly lower for Hispanic men.

The right panel shows that, for White and Hispanic women, the probability of retiring is quite flat in frailty, especially considering the large confidence intervals. For Black women, the probability of retiring increases up to a frailty of 0.26 and decreases afterward. There are no significant differences in the levels of the probability of retiring by frailty between Black and Hispanic women, while White women have a significantly higher probability of retiring for both low and high levels of frailty.

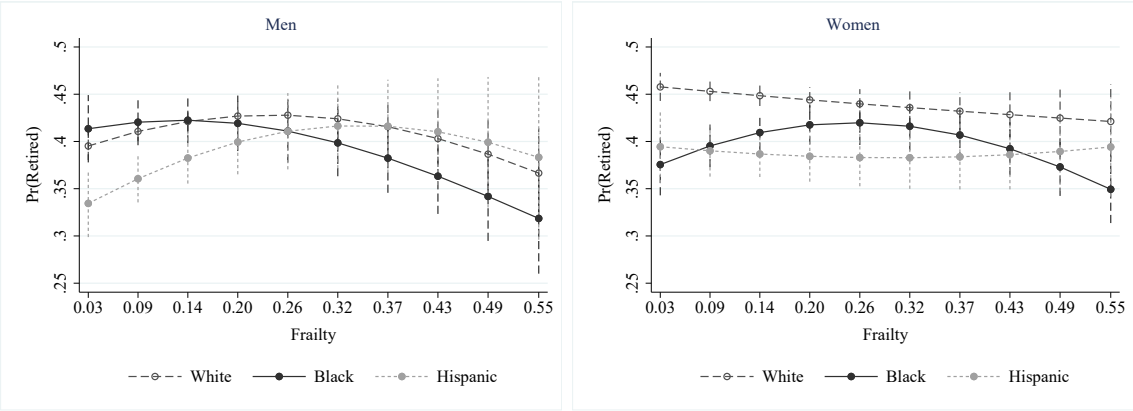


Figure 4: Predicted probabilities of becoming a Social Security benefits recipient next wave by frailty. Men (left panel) and women (right panel). The frailty values reported in the horizontal axis correspond to 1 to 19 conditions. The vertical lines mark the 95% confidence intervals.

6.3 Nursing Home Entry

Table 8 reports the marginal effects associated with nursing home entry next wave. Higher frailty significantly increases the probability of entering a nursing home: the probability of entering a nursing home increases by 0.3 percentage points for both men and women when they experience one more deficit. Interestingly here, and unlike for disability recipience, age

does have an independent effect on the probability of nursing home entry even conditional on frailty. Being a year older increases this probability by about 0.2 percentage points for both men and women. Being single also increases it, especially for men, while being a Hispanic man or woman and a Black woman decreases it. In contrast, education turns out to have an insignificant effect.

	Men		Women	
Frailty	0.00315***	(0.000102)	0.00302***	(0.0000871)
Black	-0.00231	(0.00179)	-0.0100***	(0.00135)
Hispanic	-0.0122***	(0.00195)	-0.0139***	(0.00216)
Age	0.00212***	(0.0000959)	0.00238***	(0.0000866)
Years of Education	-0.0000721	(0.000168)	0.0000356	(0.000173)
Born 1930-1949	-0.00280*	(0.00154)	-0.00554***	(0.00149)
Born 1950-1968	-0.00254	(0.00479)	-0.00750*	(0.00416)
Partnered	0.00290	(0.00326)	0.00482	(0.00444)
Single	0.0125***	(0.00133)	0.00692***	(0.00107)

Table 8: Entering a nursing home next wave. Marginal effects resulting from logistic regressions.

Figure 5 displays the predicted probabilities of entering a nursing home next wave by the frailty level associated with having between 1 and 19 health deficits. For men and women of all races and ethnicities, higher frailty leads to a higher probability of entering a nursing home. In particular, the left panel of Figure 5 shows that White men have the highest probability of entering a nursing home at all frailty levels. This difference, however, is only statistically different from that of Hispanic men, who are the least likely to end up in a nursing home for every level of frailty. This is particularly noticeable for the unhealthiest men. Indeed, White men with 19 health deficits have an 11.6% chance of entering a nursing home next wave, while Black and Hispanic men with the same number of deficits have a probability of being in a nursing home of 9.0% and 5.1%, respectively.

In contrast, the right panel shows that the probability of entering a nursing home is significantly higher for White women than for their Black and Hispanic counterparts. In this case, the predicted probabilities significantly differ by race and ethnicity at almost all frailty levels. Similarly to what we observed for men, White women are the most likely to enter

a nursing home, while Hispanic women are the least likely. This is particularly noticeable for the unhealthiest women. Indeed, White women with 19 health deficits have a 10.5% chance of entering a nursing home next wave, while Black and Hispanic women with the same number of deficits have a probability of being in a nursing home of 4.1% and 2.6%, respectively.

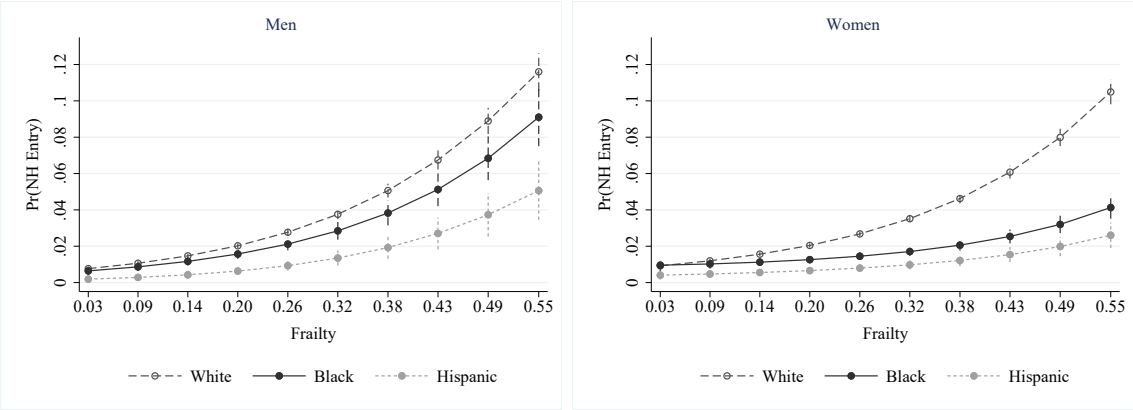


Figure 5: Predicted probabilities of entering a nursing home next wave by frailty. Men (left panel) and women (right panel). The frailty values reported in the horizontal axis correspond to 1 to 19 conditions.

6.4 Currently Being in a Nursing Home

Table 9 reports the marginal effects associated with currently living in a nursing home. Consistently with what we find for nursing home entry, it indicates that being more unhealthy, being older, and being single, all lead to a significantly higher probability of living in a nursing home, for both men and women. A noticeable difference is that, for this outcome, education turns out to be significant, while it is not for nursing home entry. This is likely capturing that people with higher education tend to live longer and that they might have longer nursing home stays as a result, even conditional on their age and frailty.

Figure 6 displays the predicted probabilities of currently living in a nursing home by the level associated with having between 1 and 19 health deficits. While the patterns are similar to those of nursing home entry, they are even starker. Higher frailty leads to a higher

	Men		Women	
Frailty	0.00234***	(0.0000546)	0.00373***	(0.0000570)
Black	0.000277	(0.00106)	-0.00922***	(0.000958)
Hispanic	-0.00619***	(0.000989)	-0.0125***	(0.00175)
Age	0.000620***	(0.0000563)	0.00137***	(0.0000635)
Years of Education	0.000384***	(0.000103)	0.000486***	(0.000123)
Born 1930-1949	0.0000936	(0.000994)	-0.00356***	(0.00114)
Born 1950-1968	-0.00620***	(0.00193)	-0.0136***	(0.00270)
Partnered	-0.000890	(0.00168)	0.000424	(0.00343)
Single	0.0145***	(0.000831)	0.00918***	(0.000867)

Table 9: Currently living in a nursing home. Marginal effects resulting from logistic regressions.

probability of living in a nursing home for men and women of all races and ethnicities. For instance, while a frailty level of 0.14 (corresponding to three health deficits) carries an almost null probability of living in a nursing home for all groups, a frailty level of 0.55 (19 deficits) leads to a probability of 5.3% for White men, 5.6% for Black men, and 2.0% for Hispanic men. The effect of frailty is even more pronounced for women. Indeed, the probability of being in a nursing home rises to 7.2%, 3.3%, and 1.6% at a frailty level of 0.55 for White, Black, and Hispanic women, respectively.

Hence, while the probability of living in a nursing home increases with frailty for all groups, it does so at different speeds based on race and gender. The left panel shows that the probability rises rapidly for White and Black men (which are not statistically different from each other) but increases at a much lower pace for Hispanic men. Similarly, the right panel shows that the probability increases the fastest for White women and the slowest for Hispanic ones. In this case, the predicted probabilities are significantly different at all frailty levels larger than 0.26.

6.5 Death

Table 10 reports the marginal effects associated with dying next wave. Here, too, frailty has a large effect. Increasing one's frailty by one deficit raises the probability of death by 0.8 and

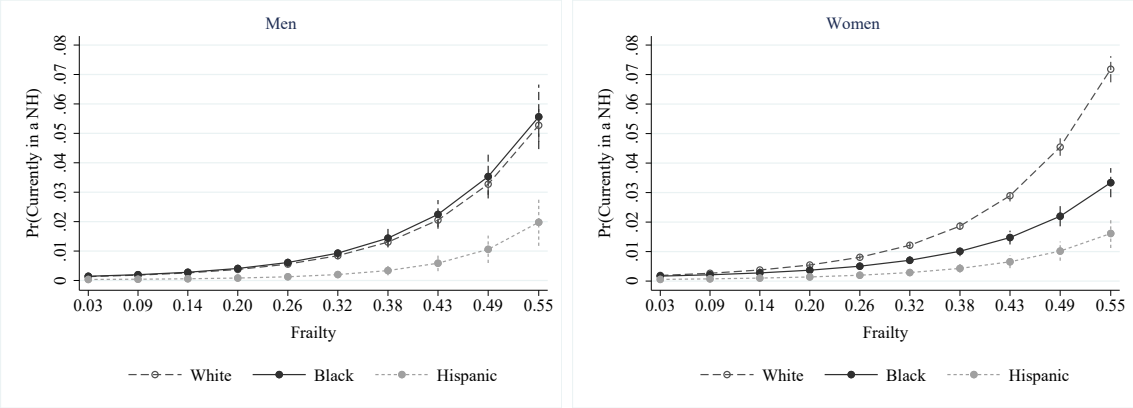


Figure 6: Predicted probabilities of currently living in a nursing home by frailty. Men (left panel) and women (right panel). The frailty values reported in the horizontal axis correspond to 1 to 19 conditions.

0.6 percentage points for men and women, respectively. Interestingly, here age also has an independent effect, even conditioning on frailty. One more year of age raises the probability of death by 0.3 percentage points for men and by 0.2 percentage points for women. Being single, rather than married, also increases the probability of death, and more so for men (by 0.1 percentage points) than for women (0.07 percentage points).

Hence, for both men and women, being older, being single, and being more unhealthy increase the probability of death, while being born between 1930 and 1968 and being Hispanic lowers it.

	Men		Women	
Frailty	0.00796***	(0.000143)	0.00588***	(0.0000962)
Black	0.0000404	(0.00279)	-0.00512***	(0.00186)
Hispanic	-0.0120***	(0.00370)	-0.0109***	(0.00303)
Age	0.00330***	(0.000129)	0.00244***	(0.000102)
Years of Education	-0.000611**	(0.000259)	-0.0000203	(0.000228)
Born 1930-1949	-0.0151***	(0.00251)	-0.0103***	(0.00205)
Born 1950-1968	-0.0287***	(0.00436)	-0.0196***	(0.00363)
Partnered	0.0129***	(0.00492)	0.00122	(0.00490)
Single	0.0138***	(0.00195)	0.00675***	(0.00143)

Table 10: Death next wave. Marginal effects resulting from logistic regressions.

Figure 7 presents the predicted probabilities of dying next wave by the average frailty level associated with having between 1 and 19 health deficits. For all men and women, higher

frailty leads to a higher probability of death. The right panel shows that White men are significantly more likely to die than their Black and Hispanic counterparts for all frailty levels greater than 0.26 (which corresponds to having 9 health deficits). In particular, the most unhealthy White men are more than twice as likely to die as their Hispanic counterparts. Indeed, at a frailty level of 0.55, White men have a 26.7% probability of death, while Black and Hispanic men have a probability of 17.8% and 13.4%, respectively. The right panel displays similar dynamics for women's death probability. Here, for all frailty levels larger than 0.32, White women are the most likely to die, and Hispanic women are the least likely. In particular, the most unhealthy White women are more than twice as likely to die as their Hispanic counterparts. This is signaled by the fact that, at a frailty level of 0.55, the probability of death for White women is 17.5%, while the one for Black and Hispanic women is 10.5% and 7.6%, respectively.

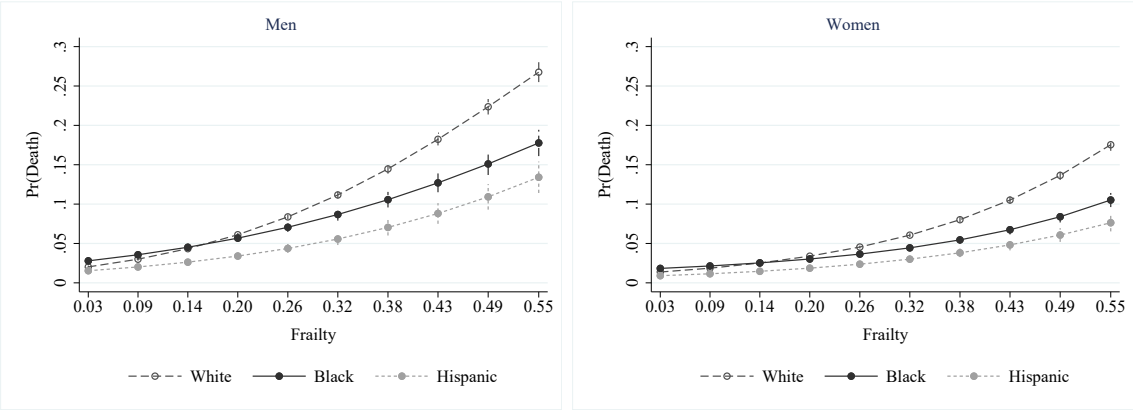


Figure 7: Predicted probabilities of dying next wave by frailty. Men (left panel) and women (right panel). The frailty values reported in the horizontal axis correspond to 1 to 19 conditions.

7 Conclusions

We consider two health measures: self-reported health and frailty. The first comes from an HRS question. The second one, we construct from HRS data by using 35 health deficits, which include many impairments, disease diagnoses, and healthcare utilization.

We find that both measures greatly improve our ability to understand people's receipt of disability benefits, Social Security Benefit claiming, nursing home entry, being in a nursing home, and dying. We also find that frailty is somewhat more predictive, but that self-reported health is still significant and helps predict these important economic outcomes, even when we condition on frailty and a rich set of characteristics. Importantly, all of our findings hold for all of the groups that we consider, that is, White, Hispanic, and Black men and women, thus indicating that both measures of health are good signals about one's latent health.

Given that frailty is the single most predictive measure of health, including by race, gender, and ethnicity, and it has a quantitative interpretation in terms of health deficits, we use it to first better document health inequality by race, health, and ethnicity, and we then study to what extent health, measured as frailty, affects the economic outcomes that we care about.

We find evidence of enormous health inequality. White men and women have much lower frailty (i.e., better health) than Hispanic and Black ones. For instance, 51-year-old Black women have, on average, the same frailty level as 57-year-old Hispanic women and 69-year-old White women, respectively. Hence, they have the health impairments of someone who is 6 and 18 years older. Similarly, 51-year-old Black men have, on average, the same frailty level as 56-year-old and 64-year-old Hispanic and White men, respectively. Therefore, they have the same health level as someone who is 5 and 13 years older.

We also study the prevalence of the health deficits that make up our frailty index for men and women by race and ethnicity and find that the most common deficits vary by race and gender and that most health deficits, including diabetes and obesity, affect Black

and Hispanic people more than White people. We also find that diagnosed diseases are less prevalent for Black people (and to a lesser extent Hispanic people) and especially so for men. This rises the concern that, for these groups, these deficits might be under-diagnosed and that our measure of frailty is might actually under-estimate the large health inequality that we document.

We also show that frailty has a sizeable and significant effect on all of these outcomes, with largest one being on death: one additional health deficit increases the likelihood of death by 0.8 and 0.6 percentage points for men and women, respectively. We also compute the predicted probabilities of our outcomes of interest by frailty and find large and statistically significant differences by race and ethnicity. For instance, White women with 19 health deficits are almost three times more likely to enter a nursing home than Black women with the same number of deficits.

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APPENDICES FOR ONLINE PUBLICATION

A Sample Selection

Table A-1 describes our sample selection. Our initial sample consists of 264,620 observations for all 14 waves in the HRS. Because we do not observe key health variables until wave 3, we drop observations before the third wave. Then, we restrict our attention to respondents aged 51 to 100. This leaves us with a sample of 222,552 observations. Finally, we drop all observations that report a race or ethnicity other than White, Black, or Hispanic. Our final sample consists of 216,166 individual-year observations.

Sample	Selected out	Selected in
Initial Sample		264,620
Waves 3 - 14	32,294	232,326
Age between 51 and 100	9,774	222,552
White, Black, and Hispanic Responders	6,386	216,166

Table A-1: Sample Selection.

B Details on Health Deficits

Table A-2 reports the distribution of non-missing deficits in our sample. This table shows that we observe at least 12 deficits and that about 83% of observations report non-missing values for all 35 deficits we consider.

Table A-3 displays the fraction of missing values for each deficit. This table shows that missing values are generally very low, with the exception of a few deficits, such as "Difficulty using a map" and "Difficulty climbing several flights of stairs." Notably, the diagnosed diseases all report no missing values because the RAND HRS adjusts these variables at the source. In particular, they are set to 1 for all waves following the first positive report of a diagnosis and 0 for all the waves before the diagnosis.

	Frequency	Percentage	Cumulative Percentage
12	9	0.00	0.00
14	1	0.00	0.00
17	3	0.00	0.01
18	9	0.00	0.01
19	7	0.00	0.01
20	8	0.00	0.02
21	16	0.01	0.02
22	14	0.01	0.03
23	19	0.01	0.04
24	27	0.01	0.05
25	34	0.02	0.07
26	50	0.02	0.09
27	91	0.04	0.13
28	140	0.07	0.20
29	247	0.12	0.32
30	478	0.22	0.54
31	1,033	0.48	1.02
32	2,495	1.17	2.19
33	6,593	3.08	5.27
34	25,449	11.91	17.18
35	177020	82.82	100.00

Table A-2: Distribution of non-missing deficits.

Deficit	Missing	Total	Percent Missing	Deficit	Missing	Total	Percent Missing
Difficulty eating	496	216,166	0.23	Difficulty climbing several flights of stairs	12,109	216,166	5.6
Difficulty dressing	508	216,166	0.24	Difficulty picking up a dime	705	216,166	0.33
Difficulty getting in/out of bed	517	216,166	0.24	Difficulty lifting arms over the shoulders	892	216,166	0.41
Difficulty using the toilet	632	216,166	0.29	Difficulty pulling/pushing large objects	8,123	216,166	3.76
Difficulty bathing	494	216,166	0.23	Difficulty sitting for two hours	1,195	216,166	0.55
Difficulty walking across a room	546	216,166	0.25	Diagnosed with high blood pressure	0	216,166	0
Difficulty walking one block	1,570	216,166	0.73	Diagnosed with diabetes	0	216,166	0
Difficulty walking several blocks	2,855	216,166	1.32	Diagnosed with cancer	0	216,166	0
Difficulty making phone calls	350	216,166	0.16	Diagnosed with lung disease	0	216,166	0
Difficulty managing money	1,440	216,166	0.67	Diagnosed with a heart condition	0	216,166	0
Difficulty grocery shopping	403	216,166	0.19	Diagnosed with a stroke	0	216,166	0
Difficulty preparing a hot meal	377	216,166	0.17	Diagnosed with psychological or psychiatric problems	0	216,166	0
Difficulty getting up from a chair	649	216,166	0.3	Diagnosed with arthritis	0	216,166	0
Difficulty kneeling or crouching	2,228	216,166	1.03	Has BMI larger than 30	0	216,166	0
Difficulty lifting a weight heavier than 10 lbs	5,179	216,166	2.4	Has ever smoked cigarettes	1,628	216,166	0.75
Difficulty using a map	19,047	216,166	8.81	Has stayed in the hospital in the previous two years	823	216,166	0.38
Difficulty taking medication	550	216,166	0.25	Has stayed in a nursing home in the previous two years	592	216,166	0.27
Difficulty climbing one flight of stairs	4,403	216,166	2.04				

Table A-3: Fraction of missing values for each health deficit.

Number of Deficits	Average Frailty	Freq.	Percent.	Cumul. Percent.
0	0.00	8,267	3.91	3.91
1	0.03	20,849	9.86	13.76
2	0.06	24,911	11.78	25.54
3	0.09	22,999	10.87	36.41
4	0.11	19,882	9.4	45.81
5	0.14	17,165	8.11	53.92
6	0.17	13,984	6.61	60.53
7	0.20	11,797	5.58	66.11
8	0.23	9,923	4.69	70.8
9	0.26	8,779	4.15	74.95
10	0.29	7,459	3.53	78.47
11	0.32	6,393	3.02	81.49
12	0.35	5,723	2.71	84.2
13	0.38	5,026	2.38	86.58
14	0.40	4,431	2.09	88.67
15	0.43	3,789	1.79	90.46
16	0.46	3,242	1.53	91.99
17	0.49	2,768	1.31	93.3
18	0.52	2,323	1.1	94.4
19	0.55	1,982	0.94	95.34
20	0.58	1,761	0.83	96.17
21	0.61	1,498	0.71	96.88
22	0.64	1,258	0.59	97.47
23	0.67	1,118	0.53	98
24	0.69	975	0.46	98.46
25	0.72	843	0.4	98.86
26	0.75	748	0.35	99.21
27	0.78	572	0.27	99.48
28	0.81	471	0.22	99.71
29	0.84	295	0.14	99.85
30	0.86	190	0.09	99.94
31	0.89	91	0.04	99.98
32	0.92	36	0.02	100
33	0.94	7	0	100
34	0.97	2	0	100

Table A-4: Distribution of health deficits in our sample

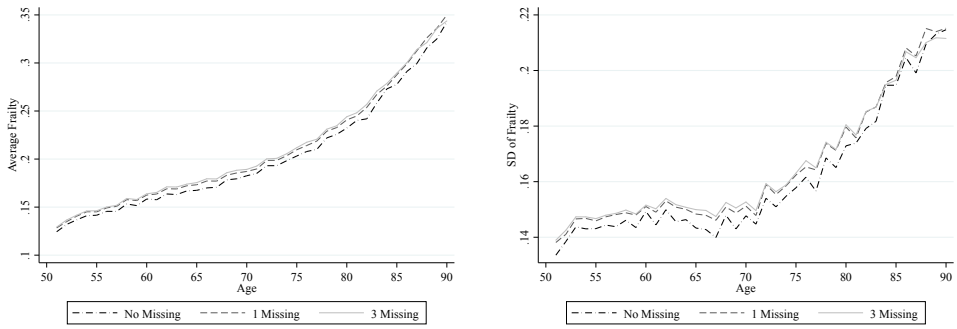
C Alternative Frailty Definitions

In Section 3.3, we construct our frailty index by allowing at most 3 missing deficits by observations and rescaling the index accordingly. Here, we compare the dynamics of our baseline frailty with those of two alternative indices: one constructed allowing for no missing deficits, and one with at most one missing deficit.

Table A-5 shows that there are very small differences between our baseline frailty index and the two alternatives. We corroborate this finding in Figure A-1, which shows average frailty and the standard deviation of frailty by age, respectively. Because the differences in the dynamics of frailty are negligible, we use the index with at most 3 missing deficits as our baseline since it allows us to use the largest number of observations.

	Mean	SD	Min	Max	N
Frailty with no missing deficits	0.18	0.16	0.00	0.97	177020
Frailty with at most 1 missing deficit	0.19	0.17	0.00	0.97	202469
Frailty with at most 3 missing deficits	0.20	0.17	0.00	0.97	211557

Table A-5: Summary statistics for alternative frailty definitions. The first row refers to the frailty index constructed with no missing deficits, the second to the one constructed allowing for at most 1 missing deficit, and the third one to our baseline index, which allows for at most 3 missing deficits.



(a) Mean (b) Standard deviation

Figure A-1: Average and standard deviation of frailty by age. We compare our baseline frailty index (which allows for at most 3 missing deficits by observation) to an index allowing for at most 1 missing deficit and one allowing for no missing deficits.

D Details on the Empirical Strategy

We start our empirical analysis by dividing our sample into six demographic groups: White, Black, and Hispanic men and women, and for each outcome, we select the appropriate age range to examine. That is, we include respondents of all ages (that is, between 51 and 100) for the outcomes of entering a nursing home, being in a nursing home, and dying. Instead, we restrict our attention to a narrower age range for receiving Social Security retirement benefits and disability insurance. In particular, we focus on respondents between the ages of 60 and 75 for receiving Social Security retirement benefits to account for the fact that one cannot claim Social Security benefits before age 62 and that few people retire after age 75. Moreover, because disability insurance converts into retirement benefits, once the recipients reach their full retirement age, we focus on respondents between age 51 and full retirement age for the disability insurance recipiency outcome. Appendix E reports more details on the rules regarding disability insurance and the full retirement age.

Table A-6 describes our outcome variables and the values they take.

Variable	Description	Values
SDI Recipient Next Wave	In wave t, this variable tells us if the respondent will receive SDI in wave t+1	0 if does not receive SDI in t+1, and did not in t 1 if receives SDI in t+1, but did not in t missing if received SDI in t
Receiving Social Security Benefits Next Wave	In wave t, this variable tells us if the respondent will claim SS benefits in t+1 (ages 60 and older)	0 if no income from SS in t+1 and none in t 1 if positive income from SS in t+1 and none in t missing if claiming SS benefits in t
Nursing Home Entry Next Wave	In wave t, this variable tells us if the respondent will enter a nursing home in wave t+1	0 if does not live in a NH in t+1 and did not in t 1 if lives in a NH in t+1 but did not in t 1 if dies in a NH in t+1 but did not live in it in t missing if lived in a NH in t
Being in a Nursing Home in Current Wave	In wave t, this variable tells us if the respondent lives in a NH in wave t	0 if does not live in a NH in t 1 if lives in a NH in t
Death Next Wave	In wave t, this variable tells us if the respondent will die in wave t+1	0 if alive in t+1 1 if dead in t+1 missing if dead in t

Table A-6: Outcome variables.

Table A-7 summarizes the age ranges and regressors for each outcome.

Variable	Age Range	Regressors Other than Health and Basic
SDI Recipient Next Wave	51-FRA	3-order poly in age
Receiving SS Benefits Next Wave	60-75	Age dummies + FRA dummy
Nursing Home Entry Next Wave	51-100	3-order poly in age
Being in a Nursing Home in Current Wave	51-100	3-order poly in age
Death Next Wave	51-100	3-order poly in age

Table A-7: Age range and regressors other than health and basic regressors. Basic regressors include age, years of education, and cohort and marital status dummies. We also interact health with age, age squared, age cubed, and years of education. Age is rescaled as actual age minus 50. To ensure convergence of our logistic regressions, we drop the interactions of SRHS, age squared, and age cubed for SDI recipiency for Hispanic women and Nursing Home Entry for Hispanic men.

E Disability Insurance and Full Retirement Age

The Social Security Administration runs the Disability Insurance program for workers, their spouses, and dependents to provide insurance against health shocks that limit (partially or entirely) people's ability to work. There are several rules surrounding Disability Insurance eligibility. First, workers must prove a sufficient work history. Second, their condition must meet the Social Security Administration's definition of a disability and last at least a year or result in death. Finally, applicants must be younger than their full retirement age.

The full retirement age depends on a person's year of birth. Table A-8 describes the evolution of the full retirement age as a function of the year of birth.[5]. In our empirical analysis described in Section 4, we use a dummy for the Full Retirement Age when running logit regressions of the outcome "Receiving Social Security retirement benefits next wave". We construct this dummy using the ages in Table A-8 and setting it equal to 1 if the respondent is between 12 and 24 months younger than their corresponding full retirement age.

Year of birth	Full retirement age
1937 or earlier	65
1938	65 and 2 months
1939	65 and 4 months
1940	65 and 6 months
1941	65 and 8 months
1942	65 and 10 months
1943-1954	66
1955	66 and 2 months
1956	66 and 4 months
1957	66 and 6 months
1958	66 and 8 months
1959	66 and 10 months
1960 and later	67

Table A-8: Full Retirement Age.

5. This table comes from https://www.ssa.gov/pressoffice/IncRetAge.html

F Regression Results

	Men		Women	
SDI Recipiency				
Age	-0.668	(0.472)	-0.187	(0.507)
Age × Age	0.141**	(0.0703)	0.0674	(0.0780)
Age × Age × Age	-0.00696**	(0.00316)	-0.00426	(0.00360)
Years of Education	-0.0233	(0.112)	-0.0792	(0.139)
Years of Education × Years of Education	-0.00602	(0.00415)	0.00110	(0.00488)
Born 1950-1968	0.151	(0.119)	-0.111	(0.111)
Partnered	0.0412	(0.216)	0.755***	(0.197)
Single	0.206	(0.130)	0.343***	(0.106)
Black × Age	0.220	(0.705)	0.471	(0.751)
Hispanic × Age	0.889	(0.922)	-0.605	(1.180)
Black × Age × Age	-0.0821	(0.108)	-0.0935	(0.116)
Hispanic × Age × Age	-0.213	(0.146)	0.0941	(0.178)
Black × Age × Age × Age	0.00493	(0.00493)	0.00479	(0.00539)
Hispanic × Age × Age × Age	0.0109	(0.00680)	-0.00390	(0.00810)
Black × Years of Education	0.312	(0.194)	-0.101	(0.173)
Hispanic × Years of Education	0.0370	(0.163)	0.242	(0.185)
Black × Years of Education × Years of Education	-0.0110	(0.00769)	-0.00281	(0.00651)
Hispanic × Years of Education × Years of Education	0.00513	(0.00704)	-0.00723	(0.00723)
Black	-0.477	(1.914)	2.348	(1.938)
Hispanic	-0.905	(2.048)	-0.607	(2.705)
Born 1950-1968 × Black	-0.0594	(0.208)	0.526***	(0.175)
Born 1950-1968 × Hispanic	-0.276	(0.297)	0.00624	(0.240)
Partnered × Black	-0.134	(0.350)	-0.853**	(0.345)
Partnered × Hispanic	-0.782	(0.538)	-0.181	(0.420)
Single × Black	-0.00991	(0.205)	-0.185	(0.175)
Single × Hispanic	0.215	(0.293)	-0.0619	(0.235)
Frailty	12.11***	(3.425)	19.48***	(3.467)
Frailty × Frailty	-14.45***	(1.808)	-17.41***	(1.755)
Black × Frailty	0.562	(5.257)	-8.477*	(4.732)
Hispanic × Frailty	4.947	(5.806)	-7.024	(7.314)
Black × Frailty × Frailty	0.779	(2.876)	5.575**	(2.446)
Hispanic × Frailty × Frailty	1.738	(3.498)	1.652	(3.671)
Age × Frailty	2.258	(1.401)	-0.0906	(1.363)
Age × Age × Frailty	-0.435**	(0.211)	-0.0108	(0.209)
Age × Age × Age × Frailty	0.0208**	(0.00959)	0.00132	(0.00963)
Frailty × Years of Education	0.344***	(0.133)	0.0840	(0.142)
Black × Frailty × Age	-1.782	(2.131)	-0.602	(1.922)
Hispanic × Frailty × Age	-3.827	(2.567)	2.428	(3.149)
Black × Frailty × Age × Age	0.407	(0.328)	0.105	(0.298)
Hispanic × Frailty × Age × Age	0.764*	(0.404)	-0.343	(0.467)
Black × Frailty × Age × Age × Age	-0.0215	(0.0151)	-0.00466	(0.0138)
Hispanic × Frailty × Age × Age × Age	-0.0379**	(0.0189)	0.0144	(0.0209)
Black × Frailty × Years of Education	-0.269	(0.221)	0.299	(0.185)
Hispanic × Frailty × Years of Education	-0.321	(0.198)	-0.00369	(0.219)
Constant	-4.980***	(1.253)	-6.849***	(1.458)
Observations	26393		37007	
Pseudo R^2	0.231		0.229	

Table A-9: Logistic regression results for becoming an SDI recipient next wave.

	Men		Women	
Retired				
Age=61	1.727***	(0.129)	1.309***	(0.104)
Age=62	1.822***	(0.132)	1.322***	(0.111)
Age=63	1.445***	(0.158)	0.761***	(0.137)
Age=64	2.571***	(0.168)	2.092***	(0.164)
Age=65	2.847***	(0.179)	2.377***	(0.167)
Age=66	2.387***	(0.220)	1.798***	(0.228)
Age=67	1.825***	(0.307)	0.376	(0.295)
Age=68	2.438***	(0.337)	0.950***	(0.367)
Age=69	2.195***	(0.342)	0.676**	(0.326)
Age=70	2.391***	(0.489)	0.559	(0.385)
Age=71	1.533***	(0.492)	-0.0958	(0.428)
Age=72	0.543	(0.509)	-1.725***	(0.653)
Age=73	0.0434	(0.565)	-1.225**	(0.611)
Age=74	-0.555	(0.673)	0.0654	(0.472)
Age=75	0.462	(0.510)	0.208	(0.483)
Years of Education	0.128*	(0.0691)	0.138*	(0.0760)
Years of Education × Years of Education	-0.00933***	(0.00247)	-0.0126***	(0.00270)
Born 1950-1968	-0.778***	(0.0706)	-0.510***	(0.0617)
Partnered	-0.0838	(0.132)	-0.129	(0.137)
Single	0.0514	(0.0679)	-0.274***	(0.0515)
Age=61 × Black	0.354	(0.307)	-0.153	(0.236)
Age=61 × Hispanic	-0.384	(0.322)	-0.338	(0.274)
Age=62 × Black	0.0527	(0.313)	0.0455	(0.244)
Age=62 × Hispanic	-0.699**	(0.329)	0.0223	(0.293)
Age=63 × Black	-0.0139	(0.377)	0.676**	(0.300)
Age=63 × Hispanic	-0.482	(0.392)	0.158	(0.364)
Age=64 × Black	-0.385	(0.425)	-0.343	(0.367)
Age=64 × Hispanic	-0.438	(0.438)	-0.736	(0.485)
Age=65 × Black	0.311	(0.430)	-0.154	(0.341)
Age=65 × Hispanic	-0.0654	(0.438)	0.0262	(0.412)
Age=66 × Black	-0.647	(0.531)	-0.0928	(0.450)
Age=66 × Hispanic	-0.593	(0.535)	-0.0967	(0.502)
Age=67 × Black	0.248	(0.656)	1.849***	(0.613)
Age=67 × Hispanic	-1.314	(0.999)	-0.486	(0.894)
Age=68 × Black	-0.210	(0.726)	0.812	(0.753)
Age=68 × Hispanic	-1.170	(0.738)	-0.323	(0.743)
Age=69 × Black	-1.633*	(0.943)	0.0701	(0.708)
Age=69 × Hispanic	-0.902	(1.035)	0.974	(0.888)
Age=70 × Black	-0.486	(0.986)	-0.630	(0.764)
Age=70 × Hispanic	-0.632	(1.006)	1.385	(0.874)
Age=71 × Black	-0.0385	(1.349)	0.697	(1.024)
Age=71 × Hispanic	0.631	(1.266)	3.666***	(1.360)
Age=72 × Black	1.059	(1.515)	1.679*	(0.979)
Age=72 × Hispanic	0.472	(1.383)	2.791***	(1.050)
Age=73 × Black	1.550	(1.550)	1.281	(1.075)
Age=73 × Hispanic	-0.706	(1.545)	3.424***	(1.248)
Age=74 × Black	1.462	(1.331)	-0.00651	(1.091)
Age=74 × Hispanic	1.743*	(1.046)	1.831**	(0.875)
Age=75 × Black	-0.154	(2.004)	0.961	(0.946)
Age=75 × Hispanic	-0.293	(1.834)	0.948	(0.929)
Black × Years of Education	-0.101	(0.104)	0.183	(0.112)
Hispanic × Years of Education	-0.0423	(0.0867)	0.0587	(0.0909)
Black × Years of Education × Years of Education	0.00433	(0.00412)	-0.00231	(0.00411)
Hispanic × Years of Education × Years of Education	0.00217	(0.00363)	0.000474	(0.00367)
Black	0.339	(0.746)	-2.504***	(0.821)
Hispanic	0.0621	(0.612)	-1.043	(0.639)
Born 1950-1968 × Black	0.550***	(0.142)	0.358***	(0.111)
Born 1950-1968 × Hispanic	0.371**	(0.147)	-0.0348	(0.131)
Partnered × Black	0.224	(0.240)	-0.424*	(0.256)
Partnered × Hispanic	0.0741	(0.294)	-0.552*	(0.323)
Single × Black	-0.0241	(0.135)	0.0847	(0.0980)
Single × Hispanic	0.128	(0.172)	-0.248**	(0.122)
FRA Dummy	-0.182	(0.140)	0.0853	(0.143)
FRA Dummy × Black	0.485	(0.350)	-0.364	(0.324)
FRA Dummy × Hispanic	-0.351	(0.381)	0.239	(0.417)
Frailty	1.219	(1.312)	-4.009***	(1.199)
Frailty × Frailty	-3.633***	(1.122)	0.0374	(0.911)
Black × Frailty	1.242	(2.461)	8.343***	(1.983)
Hispanic × Frailty	1.283	(2.337)	3.815**	(1.817)
Black × Frailty × Frailty	0.0144	(2.307)	-4.378***	(1.514)
Hispanic × Frailty × Frailty	-0.522	(2.535)	0.629	(1.771)
Age=61 × Frailty	-2.336***	(0.749)	-0.993*	(0.537)
Age=62 × Frailty	-2.481***	(0.753)	-1.116**	(0.557)
Age=63 × Frailty	-1.359	(0.867)	0.957	(0.633)
Age=64 × Frailty	-1.277	(0.895)	-0.376	(0.748)
Age=65 × Frailty	2.358**	(1.152)	2.002**	(0.843)
Age=66 × Frailty	1.109	(1.329)	2.431**	(1.072)
Age=67 × Frailty	-0.697	(2.086)	3.512**	(1.572)
Age=68 × Frailty	-4.654**	(2.206)	-2.304	(1.802)
Age=69 × Frailty	-3.687*	(2.092)	2.416	(1.790)
Age=70 × Frailty	-11.35***	(3.876)	-0.691	(2.031)
Age=71 × Frailty	-4.373	(2.891)	1.264	(1.855)
Age=72 × Frailty	1.251	(1.869)	8.549***	(2.295)
Age=73 × Frailty	3.197	(2.157)	4.662*	(2.386)
Age=74 × Frailty	4.100*	(2.143)	1.916	(2.080)
Age=75 × Frailty	0.692	(1.967)	1.001	(2.273)
Frailty × Years of Education	0.132*	(0.0760)	0.271***	(0.0744)
Age=61 × Black × Frailty	-2.513*	(1.510)	-0.152	(0.964)
Age=61 × Hispanic × Frailty	-0.162	(1.698)	1.124	(1.104)
Age=62 × Black × Frailty	-0.448	(1.463)	-0.429	(0.976)
Age=62 × Hispanic × Frailty	2.071	(1.661)	-0.0807	(1.165)
Age=63 × Black × Frailty	-0.721	(1.625)	-3.272***	(1.163)
Age=63 × Hispanic × Frailty	0.505	(1.879)	-3.274**	(1.375)
Age=64 × Black × Frailty	-1.056	(1.832)	-0.545	(1.393)
Age=64 × Hispanic × Frailty	-1.039	(2.225)	-1.777	(1.701)
Age=65 × Black × Frailty	-4.204**	(2.008)	-1.474	(1.325)
Age=65 × Hispanic × Frailty	-2.592	(2.297)	-4.637***	(1.544)
Age=66 × Black × Frailty	2.159	(2.648)	-0.988	(1.719)
Age=66 × Hispanic × Frailty	-2.636	(2.528)	-3.305*	(1.781)
Age=67 × Black × Frailty	0.429	(3.062)	-11.23***	(3.141)
Age=67 × Hispanic × Frailty	7.344	(5.887)	-1.295	(2.678)
Age=68 × Black × Frailty	2.858	(3.437)	-2.178	(3.497)
Age=68 × Hispanic × Frailty	3.107	(3.578)	3.735	(2.638)
Age=69 × Black × Frailty	4.512	(3.881)	-1.584	(2.753)
Age=69 × Hispanic × Frailty	5.711	(5.628)	-3.908	(3.155)
Age=70 × Black × Frailty	12.26**	(6.163)	2.089	(3.000)
Age=70 × Hispanic × Frailty	7.501	(6.660)	-2.883	(3.180)
Age=71 × Black × Frailty	-1.142	(7.390)	-1.734	(3.648)
Age=71 × Hispanic × Frailty	-0.571	(5.978)	-7.380*	(4.387)
Age=72 × Black × Frailty	0.00569	(6.498)	-3.962	(3.360)
Age=72 × Hispanic × Frailty	0.217	(6.871)	-12.40***	(3.445)
Age=73 × Black × Frailty	-2.683	(7.736)	-0.165	(3.470)
Age=73 × Hispanic × Frailty	0.827	(4.415)	-9.510**	(4.581)
Age=74 × Black × Frailty	-0.178	(4.851)	-2.209	(3.920)
Age=74 × Hispanic × Frailty	-2.273	(3.310)	-4.863*	(2.873)
Age=75 × Black × Frailty	18.77	(17.57)	-1.232	(3.490)
Age=75 × Hispanic × Frailty	-0.565	(6.350)	-2.579	(3.606)
Black × Frailty × Years of Education	-0.0940	(0.140)	-0.396***	(0.117)
Hispanic × Frailty × Years of Education	-0.0307	(0.122)	-0.199*	(0.102)
FRA Dummy × Black × Frailty	2.098*	(1.274)	2.509**	(1.031)
FRA Dummy × Hispanic × Frailty	3.681**	(1.761)	1.781	(1.328)
Constant	-1.911***	(0.498)	-0.582	(0.545)
Pseudo R^2	0.138		0.118	

Table A-10: Logistic regression results for becoming a Social Security retirement benefits recipient next wave.

	Men		Women	
NH Entry				
Age	0.176*	(0.0979)	-0.0600	(0.0843)
Age × Age	-0.00240	(0.00390)	0.00851**	(0.00339)
Age × Age × Age	0.0000426	(0.0000484)	-0.0000939**	(0.0000421)
Years of Education	-0.0654	(0.0526)	0.0465	(0.0534)
Years of Education × Years of Education	0.000689	(0.00201)	-0.00336*	(0.00197)
Born 1930-1949	-0.154*	(0.0850)	-0.153**	(0.0737)
Born 1950-1968	0.0368	(0.284)	-0.175	(0.250)
Partnered	0.119	(0.205)	0.115	(0.252)
Single	0.585***	(0.0645)	0.336***	(0.0584)
Black × Age	-0.511***	(0.162)	0.0972	(0.157)
Hispanic × Age	-0.222	(0.321)	0.522	(0.324)
Black × Age × Age	0.0195***	(0.00755)	-0.00672	(0.00672)
Hispanic × Age × Age	0.00549	(0.0151)	-0.0232*	(0.0138)
Black × Age × Age × Age	-0.000242**	(0.000106)	0.0000852	(0.0000867)
Hispanic × Age × Age × Age	-0.0000505	(0.000211)	0.000271	(0.000181)
Black × Years of Education	0.109	(0.101)	-0.102	(0.0897)
Hispanic × Years of Education	0.103	(0.116)	0.0197	(0.113)
Black × Years of Education × Years of Education	-0.00451	(0.00462)	0.000222	(0.00389)
Hispanic × Years of Education × Years of Education	-0.00655	(0.00588)	-0.00134	(0.00547)
Black	3.779***	(1.281)	2.629**	(1.308)
Hispanic	1.371	(2.183)	-2.407	(2.538)
Born 1930-1949 × Black	0.177	(0.238)	-0.296	(0.199)
Born 1930-1949 × Hispanic	-0.150	(0.345)	-0.813**	(0.319)
Born 1950-1968 × Black	-0.725	(0.468)	-0.857**	(0.432)
Born 1950-1968 × Hispanic	-1.640**	(0.753)	-1.290*	(0.697)
Partnered × Black	0.118	(0.381)	0.479	(0.453)
Partnered × Hispanic	0.508	(0.597)	0.874	(0.623)
Single × Black	-0.153	(0.159)	-0.172	(0.167)
Single × Hispanic	0.419	(0.258)	0.464*	(0.274)
Frailty	6.197***	(2.004)	4.691***	(1.696)
Frailty × Frailty	-1.118	(0.779)	-0.441	(0.635)
Black × Frailty	-4.989	(3.194)	-3.726	(2.848)
Hispanic × Frailty	0.924	(5.003)	5.453	(5.031)
Black × Frailty × Frailty	0.851	(1.710)	3.141**	(1.369)
Hispanic × Frailty × Frailty	-1.660	(2.808)	1.775	(2.216)
Age × Frailty	-0.0751	(0.236)	0.346*	(0.195)
Age × Age × Frailty	0.00363	(0.00983)	-0.0170**	(0.00790)
Age × Age × Age × Frailty	-0.0000882	(0.000126)	0.000176*	(0.0000984)
Frailty × Years of Education	0.154***	(0.0484)	0.113**	(0.0492)
Black × Frailty × Age	0.919**	(0.399)	-0.374	(0.329)
Hispanic × Frailty × Age	0.0884	(0.696)	-1.392**	(0.608)
Black × Frailty × Age × Age	-0.0436**	(0.0188)	0.0165	(0.0140)
Hispanic × Frailty × Age × Age	0.000289	(0.0337)	0.0576**	(0.0269)
Black × Frailty × Age × Age × Age	0.000607**	(0.000267)	-0.000191	(0.000181)
Hispanic × Frailty × Age × Age × Age	-0.0000602	(0.000483)	-0.000686*	(0.000359)
Black × Frailty × Years of Education	-0.118	(0.107)	0.0977	(0.0928)
Hispanic × Frailty × Years of Education	-0.00190	(0.137)	0.0616	(0.131)
Constant	-8.137***	(0.862)	-7.946***	(0.775)
Observations	71770		98198	
Pseudo R^2	0.290		0.301	

Table A-11: Logistic regression results for entering a nursing home next wave.

	Men		Women	
Currently in a NH				
Age	-0.241*	(0.130)	-0.244*	(0.127)
Age × Age	0.0116**	(0.00528)	0.0134***	(0.00489)
Age × Age × Age	-0.000103	(0.0000649)	-0.000126**	(0.0000578)
Years of Education	0.0285	(0.0715)	0.145**	(0.0609)
Years of Education × Years of Education	0.000185	(0.00245)	-0.00566***	(0.00206)
Born 1930-1949	0.0328	(0.114)	-0.145*	(0.0832)
Born 1950-1968	-0.766*	(0.393)	-0.851***	(0.321)
Partnered	-0.572	(0.434)	-0.195	(0.387)
Single	1.387***	(0.0860)	0.730***	(0.0762)
Black × Age	0.190	(0.229)	0.0939	(0.226)
Hispanic × Age	0.0963	(0.416)	0.887	(0.735)
Black × Age × Age	-0.0129	(0.00990)	-0.00679	(0.00937)
Hispanic × Age × Age	-0.0108	(0.0198)	-0.0306	(0.0286)
Black × Age × Age × Age	0.000196	(0.000127)	0.0000829	(0.000117)
Hispanic × Age × Age × Age	0.000177	(0.000276)	0.000275	(0.000350)
Black × Years of Education	-0.207*	(0.120)	-0.260***	(0.0964)
Hispanic × Years of Education	-0.176	(0.158)	-0.0112	(0.144)
Black × Years of Education × Years of Education	0.00836*	(0.00504)	0.00322	(0.00393)
Hispanic × Years of Education × Years of Education	-0.00276	(0.00718)	-0.000448	(0.00607)
Black	1.342	(1.817)	4.279**	(1.829)
Hispanic	1.954	(2.676)	-5.046	(6.185)
Born 1930-1949 × Black	0.170	(0.271)	-0.0983	(0.195)
Born 1930-1949 × Hispanic	-0.552	(0.417)	-0.695**	(0.296)
Born 1950-1968 × Black	0.0697	(0.557)	-1.001*	(0.516)
Born 1950-1968 × Hispanic	-0.224	(0.765)	-1.400	(1.048)
Partnered × Black	1.235**	(0.608)	1.025*	(0.529)
Partnered × Hispanic	1.467**	(0.737)	-0.298	(1.119)
Single × Black	-0.0902	(0.193)	-0.359*	(0.186)
Single × Hispanic	0.295	(0.319)	-0.390	(0.278)
Frailty	1.490	(2.239)	5.737***	(2.071)
Frailty × Frailty	2.340***	(0.885)	2.096***	(0.682)
Black × Frailty	2.786	(3.691)	-3.589	(3.338)
Hispanic × Frailty	0.252	(5.124)	5.433	(9.925)
Black × Frailty × Frailty	-1.428	(1.853)	0.375	(1.493)
Hispanic × Frailty × Frailty	1.593	(3.435)	1.451	(2.534)
Age × Frailty	0.743***	(0.252)	0.399*	(0.225)
Age × Age × Frailty	-0.0259**	(0.0101)	-0.0155*	(0.00863)
Age × Age × Age × Frailty	0.000223*	(0.000124)	0.000122	(0.000102)
Frailty × Years of Education	0.0375	(0.0586)	0.0613	(0.0545)
Black × Frailty × Age	-0.483	(0.426)	-0.251	(0.383)
Hispanic × Frailty × Age	-0.520	(0.681)	-1.232	(1.113)
Black × Frailty × Age × Age	0.0236	(0.0185)	0.0125	(0.0157)
Hispanic × Frailty × Age × Age	0.0314	(0.0326)	0.0436	(0.0430)
Black × Frailty × Age × Age × Age	-0.000323	(0.000242)	-0.000146	(0.000195)
Hispanic × Frailty × Age × Age × Age	-0.000511	(0.000460)	-0.000423	(0.000522)
Black × Frailty × Years of Education	0.0326	(0.112)	0.154	(0.100)
Hispanic × Frailty × Years of Education	0.231	(0.178)	0.0484	(0.146)
Constant	-8.077***	(1.146)	-9.553***	(1.160)
Observations	88536		119793	
Pseudo R^2	0.483		0.516	

Table A-12: Logistic regression results for currently living in a nursing home.

	Men		Women	
Death				
Age	0.0949**	(0.0391)	0.0404	(0.0409)
Age × Age	-0.00237	(0.00176)	0.000367	(0.00180)
Age × Age × Age	0.0000431*	(0.0000238)	0.00000921	(0.0000239)
Years of Education	0.0121	(0.0331)	0.00144	(0.0373)
Years of Education × Years of Education	-0.00319**	(0.00126)	-0.00213	(0.00138)
Born 1930-1949	-0.274***	(0.0488)	-0.182***	(0.0519)
Born 1950-1968	-0.528***	(0.115)	-0.457***	(0.125)
Partnered	0.264***	(0.100)	0.00441	(0.152)
Single	0.218***	(0.0401)	0.150***	(0.0399)
Black × Age	-0.0972	(0.0782)	-0.0441	(0.0746)
Hispanic × Age	-0.109	(0.121)	0.0320	(0.127)
Black × Age × Age	0.00464	(0.00379)	0.000573	(0.00350)
Hispanic × Age × Age	0.00567	(0.00571)	-0.000454	(0.00605)
Black × Age × Age × Age	-0.0000760	(0.0000549)	-0.000000287	(0.0000485)
Hispanic × Age × Age × Age	-0.0000707	(0.0000801)	-0.0000212	(0.0000853)
Black × Years of Education	0.0295	(0.0575)	-0.0419	(0.0620)
Hispanic × Years of Education	0.0988	(0.0609)	0.0657	(0.0689)
Black × Years of Education × Years of Education	-0.000143	(0.00255)	0.00244	(0.00247)
Hispanic × Years of Education × Years of Education	-0.00401	(0.00296)	-0.00110	(0.00315)
Black	0.964	(0.624)	1.425**	(0.665)
Hispanic	-0.287	(0.863)	-0.388	(0.936)
Born 1930-1949 × Black	0.00449	(0.129)	-0.0652	(0.129)
Born 1930-1949 × Hispanic	0.0856	(0.173)	-0.443**	(0.187)
Born 1950-1968 × Black	0.0127	(0.223)	0.128	(0.221)
Born 1950-1968 × Hispanic	-0.595*	(0.326)	-0.678**	(0.329)
Partnered × Black	-0.191	(0.206)	0.113	(0.275)
Partnered × Hispanic	0.0557	(0.287)	0.0868	(0.392)
Single × Black	0.0916	(0.0893)	-0.0261	(0.0964)
Single × Hispanic	0.214	(0.132)	0.210	(0.136)
Frailty	5.578***	(0.871)	4.173***	(0.858)
Frailty × Frailty	-3.246***	(0.416)	-0.559	(0.380)
Black × Frailty	-3.166*	(1.676)	-3.419**	(1.477)
Hispanic × Frailty	-1.714	(2.204)	0.861	(2.174)
Black × Frailty × Frailty	2.290**	(0.903)	2.125***	(0.808)
Hispanic × Frailty × Frailty	2.023*	(1.229)	0.585	(1.246)
Age × Frailty	0.00323	(0.106)	0.134	(0.0958)
Age × Age × Frailty	-0.0000238	(0.00475)	-0.00579	(0.00404)
Age × Age × Age × Frailty	-0.0000107	(0.0000640)	0.0000475	(0.0000517)
Frailty × Years of Education	0.180***	(0.0287)	0.120***	(0.0313)
Black × Frailty × Age	0.340	(0.214)	0.0463	(0.167)
Hispanic × Frailty × Age	0.300	(0.302)	-0.221	(0.270)
Black × Frailty × Age × Age	-0.0159	(0.0102)	-0.000425	(0.00749)
Hispanic × Frailty × Age × Age	-0.0157	(0.0142)	0.00513	(0.0123)
Black × Frailty × Age × Age × Age	0.000235	(0.000146)	0.00000409	(0.000100)
Hispanic × Frailty × Age × Age × Age	0.000206	(0.000200)	0.00000971	(0.000169)
Black × Frailty × Years of Education	-0.171***	(0.0587)	-0.0406	(0.0577)
Hispanic × Frailty × Years of Education	-0.102	(0.0645)	-0.0568	(0.0722)
Constant	-5.069***	(0.355)	-5.523***	(0.400)
Observations	82142		110803	
Pseudo R^2	0.227		0.250	

Table A-13: Logistic regression results for dying next wave.

G Summary Statistics on Frailty

Age	White Men	White Women	Hispanic Men	Hispanic Women	Black Men	Black Women
51	0.10817	0.12390	0.12667	0.14891	0.14264	0.18369
52	0.10950	0.12873	0.12938	0.15441	0.14312	0.18432
53	0.11257	0.13558	0.13247	0.16333	0.14669	0.19423
54	0.11491	0.13945	0.13855	0.16804	0.15403	0.19606
55	0.11671	0.14142	0.14054	0.17295	0.15755	0.20678
56	0.11850	0.14179	0.14383	0.17456	0.16663	0.21273
57	0.12191	0.14674	0.14355	0.18488	0.16571	0.21945
58	0.12516	0.14754	0.15065	0.18766	0.17501	0.22225
59	0.12815	0.15240	0.15478	0.19832	0.17461	0.22589
60	0.12991	0.15316	0.15976	0.20455	0.18218	0.22925
61	0.13353	0.15816	0.15904	0.21569	0.18312	0.23491
62	0.13627	0.16085	0.16192	0.21602	0.18774	0.24019
63	0.14063	0.16382	0.16602	0.22012	0.18563	0.24315
64	0.14236	0.16812	0.16856	0.22217	0.18887	0.23990
65	0.14667	0.17217	0.16808	0.22929	0.18687	0.24097
66	0.14786	0.17641	0.17064	0.23076	0.19512	0.23965
67	0.15395	0.17886	0.17456	0.23588	0.19579	0.24316
68	0.15758	0.18192	0.17721	0.23650	0.20375	0.24668
69	0.16344	0.18563	0.17975	0.24036	0.19922	0.24929
70	0.16632	0.18919	0.18668	0.23772	0.20219	0.25034
71	0.17103	0.19396	0.19260	0.24751	0.20706	0.24961
72	0.17489	0.19760	0.20338	0.24692	0.21107	0.25636
73	0.17820	0.20165	0.20531	0.25296	0.21647	0.26644
74	0.18301	0.20555	0.21560	0.24889	0.21246	0.27344
75	0.18697	0.21126	0.22296	0.26545	0.22125	0.27711
76	0.19495	0.21476	0.23105	0.26873	0.21962	0.28181
77	0.20090	0.21949	0.23283	0.28593	0.23089	0.29195
78	0.20896	0.22380	0.23382	0.29006	0.23843	0.29923
79	0.21306	0.23283	0.24466	0.29935	0.24796	0.31252
80	0.21838	0.23947	0.25963	0.30297	0.25630	0.31328
81	0.22245	0.24949	0.26486	0.31130	0.26054	0.32411
82	0.23088	0.25928	0.28534	0.32527	0.26805	0.32628
83	0.24001	0.26976	0.29010	0.33460	0.27076	0.34567
84	0.25076	0.28032	0.31127	0.33777	0.28228	0.35801
85	0.25659	0.29100	0.29978	0.35847	0.30592	0.37061
86	0.26668	0.30477	0.31248	0.36604	0.31836	0.37444
87	0.27195	0.31791	0.31326	0.37859	0.34024	0.38165
88	0.28731	0.33100	0.31488	0.38113	0.33621	0.38716
89	0.29145	0.34457	0.30904	0.39660	0.34420	0.39189
90	0.30607	0.36285	0.32543	0.39860	0.34467	0.41133
91	0.30549	0.37677	0.34459	0.40074	0.38128	0.42338
92	0.31048	0.39340	0.37593	0.40468	0.41046	0.43416
93	0.32175	0.41733	0.31833	0.45160	0.41326	0.43444
94	0.33240	0.44179	0.31884	0.47002	0.35141	0.45220
95	0.35634	0.46094	0.30263	0.49102	0.37302	0.47478
96	0.36001	0.46572	0.36153	0.47968	0.36016	0.47600
97	0.37031	0.47277	0.32115	0.45884	0.38918	0.46686
98	0.34535	0.49348	0.30502	0.49386	0.33875	0.48010
99	0.35320	0.50719	0.23235	0.47284	0.34260	0.48359
100	0.34657	0.52113		0.50821	0.34655	0.49836

Table A-14: Average frailty by age, race, ethnicity, and gender. Smoothed using a 3-year moving average.

Age	White Men	White Women	Hispanic Men	Hispanic Women	Black Men	Black Women
51	0.12106	0.12912	0.14883	0.14835	0.14880	0.16982
52	0.12241	0.13381	0.15305	0.15082	0.14938	0.16817
53	0.12435	0.13770	0.15065	0.15662	0.15193	0.16951
54	0.12589	0.14019	0.15435	0.15735	0.15307	0.16949
55	0.12418	0.13900	0.15008	0.15906	0.15424	0.17507
56	0.12384	0.13898	0.15106	0.15495	0.15577	0.17966
57	0.12335	0.14104	0.14610	0.16102	0.15649	0.17971
58	0.12355	0.14026	0.15119	0.16028	0.15851	0.18102
59	0.12361	0.14191	0.15273	0.16667	0.16013	0.17866
60	0.12192	0.14090	0.15606	0.17018	0.16195	0.18122
61	0.12462	0.14332	0.14974	0.17614	0.16268	0.18135
62	0.12314	0.14407	0.14879	0.17593	0.16432	0.18434
63	0.12613	0.14435	0.14914	0.17450	0.16089	0.18438
64	0.12410	0.14505	0.14992	0.17633	0.16294	0.18026
65	0.12748	0.14458	0.14668	0.17787	0.15698	0.17681
66	0.12493	0.14551	0.14600	0.17777	0.16214	0.17383
67	0.12978	0.14542	0.14924	0.17872	0.16079	0.17281
68	0.12968	0.14575	0.15273	0.17780	0.16567	0.17444
69	0.13470	0.14721	0.16148	0.18277	0.16289	0.17153
70	0.13290	0.14821	0.16200	0.17822	0.16188	0.17214
71	0.13643	0.15180	0.16566	0.18616	0.16704	0.17174
72	0.13677	0.15371	0.16720	0.18272	0.16878	0.17772
73	0.13904	0.15602	0.16990	0.18936	0.17444	0.18139
74	0.14131	0.15825	0.17581	0.18414	0.16872	0.18258
75	0.14405	0.16159	0.18183	0.19718	0.17383	0.18245
76	0.14822	0.16321	0.18530	0.19432	0.17082	0.18756
77	0.15290	0.16438	0.18720	0.20337	0.17806	0.19288
78	0.15579	0.16528	0.18174	0.20207	0.18236	0.19700
79	0.15937	0.17145	0.18433	0.20751	0.18695	0.20034
80	0.16008	0.17394	0.18462	0.20547	0.18876	0.19885
81	0.16371	0.18013	0.18459	0.20565	0.19059	0.20337
82	0.16698	0.18229	0.19640	0.21241	0.18911	0.20057
83	0.17251	0.18787	0.20440	0.21822	0.19422	0.20981
84	0.17802	0.19095	0.21404	0.22242	0.20539	0.20644
85	0.18415	0.19692	0.21580	0.22851	0.21911	0.21215
86	0.18746	0.20102	0.21670	0.23058	0.22503	0.21180
87	0.19278	0.20488	0.21377	0.22995	0.22854	0.21902
88	0.19979	0.20691	0.19927	0.22007	0.23322	0.21552
89	0.20604	0.20683	0.20653	0.21814	0.24128	0.21448
90	0.20997	0.21180	0.21234	0.21241	0.23349	0.21823
91	0.21229	0.20967	0.23075	0.22369	0.24804	0.22416
92	0.21084	0.21191	0.24454	0.22249	0.25953	0.21911
93	0.21186	0.21072	0.22676	0.21701	0.24717	0.21543
94	0.21522	0.21061	0.21156	0.21022	0.19078	0.20682
95	0.23083	0.20860	0.22029	0.19995	0.15342	0.20508
96	0.23377	0.20949	0.25358	0.21384	0.11867	0.20816
97	0.24752	0.20735	0.20493	0.24915	0.13685	0.22587
98	0.22173	0.20609	0.15628	0.23040	0.12101	0.22819
99	0.20913	0.20402	0.04575	0.30895	0.19819	0.24639
100	0.17905	0.20753		0.29981	0.23355	0.24362

Table A-15: Standard deviation of frailty by age, race, ethnicity, and gender. Smoothed using a 3-year moving average.

Age	White Men	White Women	Hispanic Men	Hispanic Women	Black Men	Black Women
51	11.61	9.61	9.51	7.80	6.23	5.08
52	11.37	9.47	9.31	8.03	5.62	4.66
53	10.70	8.65	8.73	7.86	5.71	3.53
54	9.85	8.56	8.78	7.93	5.82	3.43
55	8.91	8.08	8.41	6.92	5.99	2.86
56	8.43	8.26	7.40	7.07	4.69	2.87
57	7.81	7.37	6.84	6.05	4.56	2.37
58	7.32	7.12	5.92	6.07	3.67	2.50
59	6.62	6.62	5.66	5.24	3.70	2.22
60	5.91	6.34	4.95	5.43	2.67	1.86
61	5.72	5.97	4.75	4.85	2.81	1.60
62	5.06	5.42	4.12	4.58	2.31	1.38
63	4.93	5.12	4.10	3.43	2.49	1.37
64	4.05	4.44	3.49	3.59	2.14	1.10
65	4.10	4.19	3.66	3.32	1.96	1.17
66	3.59	3.74	2.92	3.57	1.29	1.04
67	3.71	3.67	3.17	2.88	1.27	1.19
68	3.00	3.29	2.70	2.61	1.17	1.14
69	3.08	3.28	2.95	2.25	1.62	0.92
70	2.44	2.99	2.55	2.02	1.42	0.92
71	2.66	2.95	3.03	1.68	1.36	0.72
72	2.14	2.91	2.13	1.79	1.12	0.99
73	2.20	3.09	1.99	1.64	1.22	0.80
74	1.74	3.08	1.06	2.06	1.19	1.03
75	1.73	2.94	1.23	1.66	0.98	1.24
76	1.45	2.80	1.64	1.57	0.84	1.19
77	1.45	2.68	2.05	1.24	0.64	1.16
78	1.31	2.60	2.34	1.02	0.55	0.74
79	1.29	2.16	1.34	1.39	0.45	0.98
80	1.09	1.89	1.73	1.36	0.66	1.07
81	1.15	1.47	1.12	1.89	0.73	1.24
82	0.99	1.50	2.36	1.77	0.56	1.14
83	1.02	1.27	1.68	1.86	0.21	1.01
84	0.95	1.32	3.22	1.96	0.00	0.65
85	1.08	1.10	2.61	2.04	0.00	0.81
86	1.07	0.98	4.67	2.58	0.00	0.94
87	0.78	0.65	3.13	1.63	0.00	1.15
88	0.85	0.54	3.51	1.57	0.00	0.90
89	0.80	0.46	1.01	1.05	0.00	1.10
90	0.90	0.55	1.01	1.73	0.00	1.27
91	0.76	0.53	0.00	1.20	0.00	1.40
92	0.91	0.57	0.00	0.68	0.00	0.79
93	0.94	0.36	0.00	0.00	0.00	0.41
94	1.10	0.29	0.00	0.00	0.00	0.00
95	1.22	0.30	0.00	0.00	0.00	0.00
96	1.85	0.30	0.00	0.00	0.00	0.00
97	1.41	0.18	0.00	0.00	0.00	0.00
98	0.88	0.00	0.00	0.00	0.00	0.00
99	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00

Table A-16: Share of people with zero frailty by age, race, ethnicity, and gender. Smoothed using a 3-year moving average.

Age	White Men			White Women			Hispanic Men			Hispanic Women			Black Men			Black Women		
	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75	25	50	75
51	0.029	0.058	0.143	0.029	0.086	0.171	0.029	0.071	0.143	0.043	0.101	0.214	0.043	0.086	0.186	0.057	0.129	0.257
52	0.029	0.058	0.143	0.029	0.086	0.181	0.029	0.076	0.143	0.048	0.106	0.219	0.048	0.086	0.190	0.057	0.125	0.257
53	0.029	0.067	0.143	0.038	0.086	0.190	0.029	0.086	0.152	0.057	0.114	0.229	0.048	0.086	0.202	0.058	0.134	0.276
54	0.029	0.076	0.143	0.038	0.086	0.200	0.029	0.086	0.162	0.057	0.114	0.231	0.057	0.095	0.211	0.058	0.134	0.286
55	0.029	0.086	0.143	0.048	0.086	0.200	0.029	0.086	0.171	0.057	0.115	0.240	0.057	0.095	0.221	0.068	0.143	0.305
56	0.029	0.086	0.143	0.048	0.086	0.200	0.029	0.086	0.181	0.057	0.125	0.250	0.057	0.105	0.238	0.077	0.152	0.324
57	0.038	0.086	0.152	0.057	0.095	0.210	0.038	0.086	0.190	0.057	0.134	0.267	0.057	0.105	0.238	0.086	0.162	0.327
58	0.048	0.086	0.162	0.057	0.105	0.210	0.048	0.095	0.210	0.057	0.143	0.267	0.057	0.114	0.248	0.086	0.171	0.336
59	0.057	0.086	0.171	0.057	0.114	0.219	0.057	0.105	0.211	0.058	0.152	0.286	0.057	0.114	0.248	0.086	0.171	0.330
60	0.057	0.086	0.171	0.057	0.114	0.211	0.057	0.114	0.216	0.058	0.162	0.298	0.057	0.115	0.267	0.086	0.171	0.336
61	0.057	0.087	0.171	0.057	0.114	0.221	0.057	0.114	0.216	0.068	0.171	0.324	0.057	0.117	0.272	0.087	0.181	0.340
62	0.057	0.096	0.173	0.057	0.114	0.221	0.057	0.114	0.223	0.077	0.165	0.327	0.057	0.118	0.277	0.087	0.190	0.354
63	0.057	0.106	0.183	0.057	0.114	0.229	0.057	0.114	0.229	0.086	0.166	0.332	0.058	0.126	0.268	0.089	0.200	0.354
64	0.057	0.114	0.192	0.057	0.124	0.233	0.057	0.114	0.229	0.086	0.166	0.335	0.067	0.134	0.265	0.089	0.192	0.351
65	0.057	0.114	0.200	0.057	0.133	0.243	0.067	0.115	0.221	0.086	0.175	0.345	0.077	0.143	0.260	0.098	0.192	0.343
66	0.057	0.114	0.200	0.067	0.143	0.252	0.076	0.117	0.221	0.086	0.183	0.337	0.086	0.143	0.269	0.106	0.192	0.343
67	0.057	0.114	0.210	0.067	0.143	0.257	0.086	0.126	0.221	0.087	0.192	0.346	0.086	0.143	0.267	0.114	0.200	0.343
68	0.067	0.115	0.210	0.077	0.143	0.257	0.077	0.134	0.229	0.096	0.200	0.340	0.086	0.144	0.274	0.114	0.202	0.352
69	0.076	0.125	0.219	0.077	0.143	0.257	0.077	0.133	0.238	0.097	0.194	0.350	0.086	0.144	0.265	0.114	0.202	0.353
70	0.086	0.134	0.219	0.086	0.144	0.257	0.077	0.143	0.253	0.097	0.194	0.343	0.086	0.153	0.274	0.114	0.202	0.353
71	0.086	0.143	0.229	0.086	0.154	0.267	0.086	0.143	0.253	0.097	0.194	0.360	0.086	0.162	0.279	0.114	0.202	0.353
72	0.086	0.143	0.229	0.086	0.163	0.269	0.086	0.162	0.262	0.106	0.200	0.359	0.086	0.171	0.279	0.115	0.211	0.362
73	0.086	0.143	0.229	0.086	0.171	0.279	0.086	0.152	0.267	0.114	0.200	0.366	0.087	0.165	0.289	0.118	0.231	0.375
74	0.086	0.143	0.238	0.086	0.171	0.279	0.086	0.162	0.289	0.114	0.201	0.356	0.087	0.158	0.286	0.127	0.243	0.379
75	0.086	0.143	0.248	0.087	0.171	0.289	0.086	0.162	0.298	0.115	0.211	0.384	0.087	0.158	0.305	0.136	0.245	0.382
76	0.086	0.152	0.260	0.087	0.171	0.291	0.095	0.171	0.317	0.115	0.220	0.382	0.087	0.165	0.295	0.143	0.239	0.388
77	0.086	0.162	0.269	0.097	0.175	0.301	0.096	0.171	0.323	0.125	0.231	0.407	0.096	0.181	0.314	0.144	0.253	0.404
78	0.095	0.171	0.279	0.106	0.184	0.308	0.106	0.171	0.333	0.133	0.233	0.416	0.105	0.190	0.333	0.146	0.261	0.413
79	0.105	0.171	0.286	0.114	0.194	0.324	0.106	0.181	0.352	0.143	0.243	0.432	0.106	0.200	0.353	0.149	0.286	0.432
80	0.114	0.171	0.289	0.114	0.202	0.333	0.124	0.200	0.381	0.144	0.258	0.442	0.107	0.210	0.362	0.157	0.279	0.432
81	0.114	0.173	0.298	0.114	0.208	0.346	0.124	0.214	0.384	0.154	0.278	0.442	0.107	0.211	0.359	0.165	0.294	0.452
82	0.114	0.183	0.315	0.116	0.218	0.356	0.135	0.242	0.397	0.148	0.298	0.467	0.118	0.221	0.378	0.173	0.294	0.447
83	0.114	0.192	0.332	0.126	0.225	0.365	0.125	0.242	0.399	0.156	0.312	0.476	0.118	0.221	0.372	0.183	0.323	0.480
84	0.115	0.200	0.345	0.135	0.238	0.385	0.136	0.267	0.443	0.139	0.312	0.490	0.118	0.236	0.384	0.192	0.340	0.485
85	0.115	0.200	0.346	0.144	0.248	0.402	0.117	0.243	0.440	0.164	0.330	0.519	0.125	0.264	0.413	0.196	0.350	0.519
86	0.125	0.210	0.359	0.147	0.262	0.431	0.141	0.267	0.469	0.166	0.334	0.538	0.126	0.273	0.451	0.198	0.347	0.529
87	0.125	0.219	0.366	0.157	0.272	0.441	0.149	0.267	0.464	0.192	0.343	0.552	0.127	0.295	0.490	0.200	0.353	0.558
88	0.134	0.238	0.394	0.166	0.289	0.466	0.167	0.284	0.468	0.204	0.347	0.543	0.129	0.276	0.490	0.216	0.362	0.548
89	0.129	0.238	0.409	0.183	0.312	0.480	0.152	0.252	0.461	0.221	0.359	0.554	0.130	0.282	0.505	0.223	0.373	0.553
90	0.138	0.250	0.437	0.194	0.331	0.520	0.133	0.300	0.504	0.225	0.382	0.544	0.149	0.287	0.522	0.243	0.396	0.578
91	0.138	0.250	0.441	0.211	0.352	0.529	0.143	0.326	0.528	0.220	0.378	0.563	0.157	0.339	0.599	0.250	0.419	0.612
92	0.146	0.264	0.451	0.228	0.366	0.559	0.133	0.404	0.590	0.232	0.382	0.571	0.172	0.371	0.662	0.282	0.441	0.608
93	0.164	0.280	0.461	0.250	0.404	0.588	0.114	0.314	0.505	0.289	0.403	0.648	0.173	0.385	0.620	0.289	0.449	0.613
94	0.157	0.286	0.481	0.279	0.429	0.624	0.136	0.294	0.495	0.330	0.441	0.646	0.175	0.329	0.497	0.317	0.478	0.626
95	0.164	0.314	0.524	0.299	0.458	0.637	0.126	0.228	0.495	0.359	0.463	0.612	0.259	0.371	0.463	0.331	0.502	0.649
96	0.162	0.314	0.536	0.306	0.468	0.647	0.180	0.251	0.609	0.340	0.499	0.574	0.301	0.362	0.444	0.337	0.510	0.629
97	0.169	0.318	0.604	0.325	0.475	0.661	0.168	0.234	0.536	0.266	0.467	0.604	0.309	0.395	0.489	0.308	0.490	0.635
98	0.181	0.286	0.536	0.356	0.515	0.685	0.209	0.230	0.475	0.310	0.523	0.669	0.252	0.342	0.430	0.301	0.515	0.651
99	0.221	0.308	0.529	0.389	0.543	0.694	0.200	0.232	0.265	0.234	0.477	0.712	0.200	0.285	0.510	0.252	0.549	0.680
100	0.260	0.320	0.441	0.399	0.580	0.703				0.290	0.520	0.727	0.200	0.229	0.543	0.250	0.588	0.681

Table A-17: 25th, 50th, and 75th percentiles of frailty by age, race, ethnicity, and gender. Smoothed using a 3-year moving average.

H Prevalence of Deficits at Various Ages

	White	Hispanic	Black	White - Hisp.	White - Black
Diagnosed with arthritis	0.685	0.679	0.733	0.006	-0.048***
Diagnosed with HBP	0.572	0.660	0.796	-0.088***	-0.224***
Diff. climbing several flights of stairs	0.544	0.644	0.637	-0.100***	-0.093***
Diff. kneeling or crouching	0.526	0.582	0.546	-0.055***	-0.020
Has ever smoked cigarettes	0.510	0.372	0.510	0.138***	-0.000
Diff. getting up from chair	0.407	0.452	0.530	-0.045**	-0.123***
Diff. walking several blocks	0.319	0.401	0.445	-0.082***	-0.126***
Diff. pull/pushing large objects	0.300	0.412	0.404	-0.112***	-0.105***
Has BMI $\geq$ 30	0.275	0.371	0.455	-0.095***	-0.180***
Diff. lifting >10 pounds	0.275	0.415	0.432	-0.140***	-0.157***
Diagnosed with heart condition	0.238	0.175	0.265	0.063***	-0.026**
Hospital stay	0.233	0.199	0.261	0.034**	-0.028**
Diff. climbing flight of stairs	0.184	0.320	0.266	-0.136***	-0.082***
Diff. sitting for two hours	0.178	0.282	0.228	-0.103***	-0.049***
Diagnosed with psych. problem	0.172	0.236	0.131	-0.065***	0.040***
Diagnosed with diabetes	0.172	0.394	0.365	-0.222***	-0.193***
Diagnosed with cancer	0.171	0.115	0.108	0.056***	0.063***
Diff. using map	0.150	0.322	0.326	-0.172***	-0.176***
Diff. walking one block	0.140	0.181	0.208	-0.041***	-0.067***
Diff. lifting arms over shoulders	0.138	0.236	0.246	-0.098***	-0.109***
Diagnosed with lung disease	0.117	0.061	0.087	0.056***	0.031***
Diagnosed with a stroke	0.084	0.074	0.119	0.010	-0.035***
Diff. grocery shopping	0.077	0.130	0.139	-0.053***	-0.061***
Diff. picking up dime	0.064	0.085	0.085	-0.021**	-0.020***
Diff. dressing	0.064	0.181	0.140	-0.117***	-0.076***
Diff. bathing	0.051	0.100	0.115	-0.049***	-0.063***
Diff. using toilet	0.051	0.084	0.085	-0.034***	-0.034***
Diff. walking across room	0.049	0.089	0.098	-0.040***	-0.049***
Diff. preparing hot meal	0.048	0.087	0.092	-0.039***	-0.043***
Diff. managing money	0.037	0.074	0.074	-0.037***	-0.037***
Diff. getting in/out of bed	0.036	0.141	0.082	-0.105***	-0.046***
Nursing home stay	0.029	0.020	0.036	0.008	-0.007*
Diff. eating	0.021	0.056	0.036	-0.035***	-0.015***
Diff. making phone calls	0.020	0.069	0.055	-0.049***	-0.035***
Diff. taking medication	0.020	0.056	0.043	-0.037***	-0.024***

* p<.1, ** p<.05, *** p<.01

Table A-18: Prevalence of deficits for women aged 70 to 74. Columns 1-3 report the share by race of women aged between 55 and 59 that reports a certain deficit. Columns 4 and 5 report the p-values for a sample proportion test between White and Hispanic and White and Black women, respectively.

	White	Hispanic	Black	White - Hisp.	White - Black
Diff. climbing several flights of stairs	0.748	0.788	0.792	-0.040	-0.044*
Diagnosed with arthritis	0.739	0.719	0.818	0.019	-0.080***
Diff. kneeling or crouching	0.668	0.740	0.722	-0.071**	-0.054**
Diagnosed with HBP	0.661	0.769	0.791	-0.108***	-0.130***
Diff. walking several blocks	0.612	0.683	0.739	-0.071**	-0.127***
Diff. lifting >10 pounds	0.564	0.667	0.681	-0.104***	-0.117***
Diff. pull/pushing large objects	0.561	0.627	0.600	-0.066*	-0.039*
Diff. getting up from chair	0.555	0.591	0.664	-0.036	-0.109***
Diff. climbing flight of stairs	0.412	0.583	0.516	-0.170***	-0.103***
Diagnosed with heart condition	0.398	0.274	0.379	0.124***	0.019
Hospital stay	0.395	0.391	0.401	0.004	-0.005
Diff. walking one block	0.367	0.463	0.508	-0.096***	-0.142***
Has ever smoked cigarettes	0.366	0.323	0.332	0.043	0.034
Diff. using map	0.330	0.540	0.559	-0.209***	-0.228***
Diff. grocery shopping	0.311	0.410	0.424	-0.099***	-0.114***
Diff. lifting arms over shoulders	0.253	0.355	0.375	-0.102***	-0.122***
Diff. managing money	0.250	0.357	0.368	-0.107***	-0.117***
Diff. bathing	0.248	0.343	0.336	-0.096***	-0.089***
Diff. preparing hot meal	0.247	0.339	0.335	-0.092***	-0.088***
Diff. walking across room	0.212	0.298	0.296	-0.086***	-0.084***
Diagnosed with cancer	0.206	0.090	0.127	0.116***	0.079***
Diff. dressing	0.204	0.321	0.315	-0.117***	-0.112***
Diagnosed with a stroke	0.199	0.131	0.206	0.068***	-0.008
Nursing home stay	0.187	0.123	0.171	0.065***	0.016
Diagnosed with psych. problem	0.182	0.300	0.172	-0.118***	0.010
Diff. making phone calls	0.167	0.256	0.236	-0.089***	-0.068***
Diagnosed with diabetes	0.153	0.332	0.261	-0.179***	-0.107***
Diff. using toilet	0.149	0.197	0.204	-0.049**	-0.055***
Diff. sitting for two hours	0.149	0.260	0.183	-0.111***	-0.034*
Diff. picking up dime	0.143	0.141	0.203	0.002	-0.061***
Diff. getting in/out of bed	0.132	0.282	0.200	-0.149***	-0.067***
Diff. taking medication	0.131	0.206	0.181	-0.076***	-0.050***
Has BMI $\geq$ 30	0.120	0.221	0.246	-0.101***	-0.127***
Diff. eating	0.116	0.186	0.162	-0.071***	-0.047***
Diagnosed with lung disease	0.110	0.086	0.055	0.024	0.054***

* p<.1, ** p<.05, *** p<.01

Table A-19: Prevalence of deficits for women aged 85 to 89. Columns 1-3 report the share by race of women aged between 85 and 89 that reports a certain deficit. Columns 4 and 5 report the p-values for a sample proportion test between White and Hispanic and White and Black women, respectively.

	White	Hispanic	Black	White - Hisp.	White - Black
Diagnosed with arthritis	0.620	0.549	0.638	0.072***	-0.018***
Diff. climbing several flights of stairs	0.520	0.584	0.604	-0.064***	-0.084***
Diagnosed with HBP	0.510	0.553	0.729	-0.043***	-0.219***
Diff. kneeling or crouching	0.500	0.521	0.526	-0.021***	-0.026***
Has ever smoked cigarettes	0.494	0.390	0.509	0.105***	-0.015***
Diff. getting up from chair	0.404	0.454	0.499	-0.049***	-0.094***
Diff. walking several blocks	0.326	0.357	0.415	-0.032***	-0.090***
Diff. pull/pushing large objects	0.309	0.377	0.394	-0.068***	-0.085***
Diff. lifting >10 pounds	0.287	0.372	0.403	-0.085***	-0.116***
Has BMI $\geq$ 30	0.269	0.405	0.485	-0.135***	-0.215***
Hospital stay	0.227	0.194	0.242	0.033***	-0.015***
Diagnosed with heart condition	0.217	0.142	0.214	0.075***	0.003
Diff. climbing flight of stairs	0.203	0.285	0.273	-0.082***	-0.069***
Diagnosed with psych. problem	0.188	0.224	0.159	-0.036***	0.029***
Diff. sitting for two hours	0.177	0.284	0.239	-0.107***	-0.062***
Diff. walking one block	0.161	0.160	0.220	0.000	-0.059***
Diff. using map	0.155	0.290	0.284	-0.134***	-0.128***
Diagnosed with cancer	0.152	0.088	0.090	0.064***	0.062***
Diff. lifting arms over shoulders	0.149	0.231	0.246	-0.081***	-0.097***
Diagnosed with diabetes	0.145	0.318	0.294	-0.173***	-0.150***
Diff. grocery shopping	0.113	0.134	0.159	-0.021***	-0.046***
Diagnosed with lung disease	0.101	0.059	0.082	0.042***	0.019***
Diagnosed with a stroke	0.084	0.058	0.101	0.027***	-0.016***
Diff. dressing	0.082	0.155	0.142	-0.073***	-0.060***
Diff. bathing	0.081	0.096	0.124	-0.015***	-0.043***
Diff. preparing hot meal	0.079	0.083	0.108	-0.005	-0.030***
Diff. walking across room	0.076	0.085	0.117	-0.009***	-0.041***
Diff. managing money	0.071	0.095	0.098	-0.024***	-0.027***
Diff. picking up dime	0.070	0.069	0.082	0.001	-0.012***
Diff. using toilet	0.061	0.072	0.101	-0.012***	-0.040***
Diff. getting in/out of bed	0.057	0.141	0.105	-0.084***	-0.048***
Nursing home stay	0.049	0.021	0.036	0.029***	0.013***
Diff. making phone calls	0.044	0.064	0.057	-0.021***	-0.013***
Diff. eating	0.037	0.052	0.047	-0.014***	-0.010***
Diff. taking medication	0.037	0.061	0.053	-0.024***	-0.016***

* p<.1, ** p<.05, *** p<.01

Table A-20: Prevalence of deficits for all women in our sample. Columns 1-3 report the share by race of women aged between 70 and 74 that reports a certain deficit. Columns 4 and 5 report the p-values for a sample proportion test between White and Hispanic and White and Black women, respectively.

	White	Hispanic	Black	White - Hisp.	White - Black
Has ever smoked cigarettes	0.714	0.731	0.742	-0.017	-0.028*
Diagnosed with HBP	0.573	0.604	0.734	-0.031*	-0.161***
Diagnosed with arthritis	0.565	0.456	0.558	0.109***	0.007
Diff. kneeling or crouching	0.413	0.449	0.395	-0.036*	0.018
Diff. climbing several flights of stairs	0.381	0.444	0.426	-0.063***	-0.045***
Diagnosed with heart condition	0.355	0.216	0.277	0.139***	0.078***
Diff. getting up from chair	0.338	0.390	0.370	-0.052***	-0.032*
Has BMI $\geq$ 30	0.274	0.297	0.296	-0.023	-0.022
Hospital stay	0.271	0.228	0.264	0.043**	0.007
Diff. walking several blocks	0.250	0.296	0.309	-0.046***	-0.058***
Diagnosed with diabetes	0.226	0.341	0.310	-0.114***	-0.084***
Diagnosed with cancer	0.190	0.106	0.219	0.085***	-0.029**
Diff. pull/pushing large objects	0.144	0.226	0.243	-0.082***	-0.099***
Diff. sitting for two hours	0.125	0.220	0.154	-0.096***	-0.029**
Diagnosed with lung disease	0.120	0.056	0.087	0.064***	0.033***
Diff. lifting arms over shoulders	0.118	0.161	0.164	-0.043***	-0.047***
Diff. climbing flight of stairs	0.115	0.194	0.163	-0.079***	-0.048***
Diff. walking one block	0.114	0.122	0.165	-0.008	-0.051***
Diff. lifting >10 pounds	0.111	0.170	0.238	-0.059***	-0.127***
Diagnosed with a stroke	0.102	0.106	0.140	-0.004	-0.039***
Diagnosed with psych. problem	0.100	0.113	0.094	-0.013	0.006
Diff. dressing	0.068	0.144	0.125	-0.076***	-0.057***
Diff. using map	0.055	0.172	0.154	-0.117***	-0.098***
Diff. grocery shopping	0.047	0.088	0.099	-0.041***	-0.052***
Diff. picking up dime	0.046	0.066	0.074	-0.020**	-0.028***
Diff. bathing	0.042	0.073	0.082	-0.030***	-0.039***
Diff. walking across room	0.041	0.066	0.087	-0.025***	-0.045***
Diff. managing money	0.037	0.083	0.090	-0.046***	-0.053***
Diff. preparing hot meal	0.035	0.076	0.084	-0.041***	-0.050***
Diff. making phone calls	0.034	0.079	0.058	-0.046***	-0.025***
Diff. using toilet	0.029	0.054	0.056	-0.025***	-0.028***
Diff. getting in/out of bed	0.027	0.095	0.055	-0.067***	-0.027***
Nursing home stay	0.020	0.027	0.027	-0.007	-0.006
Diff. eating	0.020	0.044	0.051	-0.025***	-0.032***
Diff. taking medication	0.020	0.046	0.036	-0.027***	-0.017***

* p<.1, ** p<.05, *** p<.01

Table A-21: Prevalence of deficits for men aged 70 to 74. Columns 1-3 report the share by race of men aged between 55 and 59 that reports a certain deficit. Columns 4 and 5 report the p-values for a sample proportion test between White and Hispanic and White and Black men, respectively.

	White	Hispanic	Black	White - Hisp.	White - Black
Has ever smoked cigarettes	0.697	0.708	0.709	-0.011	-0.012
Diagnosed with arthritis	0.636	0.554	0.698	0.082*	-0.061*
Diff. climbing several flights of stairs	0.620	0.790	0.666	-0.170***	-0.045
Diagnosed with HBP	0.573	0.653	0.708	-0.080*	-0.134***
Diff. kneeling or crouching	0.565	0.619	0.552	-0.054	0.013
Diagnosed with heart condition	0.524	0.333	0.333	0.191***	0.192***
Diff. walking several blocks	0.513	0.588	0.580	-0.075*	-0.067*
Diff. getting up from chair	0.503	0.579	0.497	-0.076*	0.006
Hospital stay	0.400	0.309	0.365	0.091**	0.035
Diff. pull/pushing large objects	0.320	0.415	0.443	-0.094**	-0.123***
Diff. lifting >10 pounds	0.300	0.367	0.459	-0.067*	-0.159***
Diff. walking one block	0.298	0.357	0.361	-0.059	-0.063*
Diff. climbing flight of stairs	0.298	0.453	0.392	-0.155***	-0.094***
Diagnosed with cancer	0.278	0.189	0.295	0.089**	-0.017
Diagnosed with a stroke	0.208	0.135	0.207	0.073**	0.001
Diagnosed with diabetes	0.201	0.338	0.258	-0.137***	-0.057**
Diff. dressing	0.198	0.297	0.272	-0.099***	-0.074***
Diff. grocery shopping	0.195	0.284	0.328	-0.088**	-0.133***
Diff. lifting arms over shoulders	0.193	0.268	0.302	-0.075**	-0.109***
Diff. managing money	0.177	0.260	0.303	-0.083**	-0.126***
Diff. making phone calls	0.172	0.243	0.242	-0.071**	-0.069***
Diff. bathing	0.171	0.231	0.293	-0.059*	-0.121***
Diff. walking across room	0.169	0.181	0.203	-0.012	-0.034
Diff. using map	0.164	0.410	0.394	-0.246***	-0.230***
Diff. preparing hot meal	0.164	0.225	0.288	-0.062*	-0.125***
Diff. sitting for two hours	0.128	0.216	0.154	-0.088***	-0.025
Diagnosed with lung disease	0.126	0.090	0.120	0.036	0.006
Nursing home stay	0.124	0.068	0.173	0.056*	-0.049**
Diff. picking up dime	0.121	0.172	0.178	-0.051*	-0.057**
Has BMI $\geq$ 30	0.106	0.144	0.098	-0.038	0.008
Diff. getting in/out of bed	0.103	0.192	0.151	-0.089***	-0.048**
Diagnosed with psych. problem	0.102	0.176	0.152	-0.074***	-0.051**
Diff. taking medication	0.094	0.135	0.174	-0.041*	-0.079***
Diff. using toilet	0.094	0.163	0.135	-0.069***	-0.041*
Diff. eating	0.087	0.153	0.147	-0.066***	-0.060***

* p<.1, ** p<.05, *** p<.01

Table A-22: Prevalence of deficits for men aged 85 to 89. Columns 1-3 report the share by race of men aged between 70 and 74 that reports a certain deficit. Columns 4 and 5 report the p-values for a sample proportion test between White and Hispanic and White and Black men, respectively.

	White	Hispanic	Black	White - Hisp.	White - Black
Has ever smoked cigarettes	0.689	0.695	0.699	-0.006	-0.010*
Diagnosed with HBP	0.517	0.516	0.670	0.001	-0.153***
Diagnosed with arthritis	0.507	0.367	0.473	0.140***	0.035***
Diff. kneeling or crouching	0.394	0.380	0.387	0.014**	0.007
Diff. climbing several flights of stairs	0.357	0.394	0.407	-0.037***	-0.050***
Diff. getting up from chair	0.329	0.340	0.350	-0.011*	-0.021***
Diagnosed with heart condition	0.303	0.171	0.208	0.132***	0.095***
Has BMI $\geq$ 30	0.268	0.348	0.313	-0.080***	-0.046***
Diff. walking several blocks	0.247	0.251	0.294	-0.004	-0.046***
Hospital stay	0.240	0.190	0.249	0.050***	-0.008*
Diagnosed with diabetes	0.191	0.286	0.283	-0.095***	-0.092***
Diff. pull/pushing large objects	0.158	0.214	0.252	-0.055***	-0.094***
Diagnosed with cancer	0.153	0.073	0.131	0.079***	0.022***
Diff. sitting for two hours	0.131	0.209	0.185	-0.078***	-0.053***
Diff. lifting >10 pounds	0.126	0.165	0.223	-0.039***	-0.097***
Diff. climbing flight of stairs	0.121	0.164	0.156	-0.043***	-0.035***
Diff. walking one block	0.121	0.110	0.148	0.011***	-0.027***
Diff. lifting arms over shoulders	0.120	0.160	0.175	-0.040***	-0.054***
Diagnosed with psych. problem	0.109	0.121	0.120	-0.012***	-0.012***
Diagnosed with lung disease	0.097	0.047	0.076	0.050***	0.021***
Diagnosed with a stroke	0.092	0.068	0.114	0.024***	-0.022***
Diff. dressing	0.081	0.131	0.119	-0.050***	-0.039***
Diff. grocery shopping	0.061	0.081	0.098	-0.020***	-0.036***
Diff. using map	0.060	0.154	0.140	-0.095***	-0.080***
Diff. bathing	0.053	0.066	0.081	-0.013***	-0.028***
Diff. picking up dime	0.052	0.058	0.065	-0.007**	-0.014***
Diff. managing money	0.052	0.079	0.085	-0.027***	-0.033***
Diff. walking across room	0.051	0.055	0.078	-0.004	-0.027***
Diff. making phone calls	0.045	0.071	0.057	-0.025***	-0.012***
Diff. preparing hot meal	0.045	0.062	0.078	-0.017***	-0.033***
Diff. getting in/out of bed	0.040	0.093	0.063	-0.053***	-0.023***
Diff. using toilet	0.034	0.048	0.055	-0.014***	-0.021***
Nursing home stay	0.028	0.019	0.033	0.010***	-0.004**
Diff. taking medication	0.028	0.046	0.040	-0.018***	-0.012***
Diff. eating	0.025	0.036	0.041	-0.011***	-0.016***

* p<.1, ** p<.05, *** p<.01

Table A-23: Prevalence of deficits for all men in our sample. Columns 1-3 report the share by race of men aged between 85 and 89 that reports a certain deficit. Columns 4 and 5 report the p-values for a sample proportion test between White and Hispanic and White and Black men, respectively.