

Table 1 shows summary statistics for this analysis sample. The average age for our analysis sample is 74.5. 84.6% are non-Hispanic white and 12.2% are black. 57.7% are female. 37.3% of the sample have a high school degree and 41.0% have a college degree. 60.7% of the sample are married at the time of interview, and more than half of our observations are from the HRS cohort (born between 1931 and 1941).

The mean subjective probability of moving to a nursing home within five years is 14.9%, while the actual probability of moving to a nursing home within five years is 12.9%. Each of our six wealth measures has a large standard deviation, indicating a wide range in the wealth distribution for our analysis sample regardless of the measure we use. We adjust all nominal dollars to the real 2010 dollars using the CPI.³

Table 1. Summary Statistics

Variable	Mean	Standard Deviation	Min	Max
NH Use Expectation	14.875	22.148	0	100
NH Use in Five Years	.129	.335	0	1
Total Wealth (including Secondary Residence)	546000	1270000	-1540000	5.20e+07
Total Wealth (Excluding IRAs)	449000	1130000	-1620000	5.02e+07
Total Non-housing Wealth	373000	1110000	-1460000	4.84e+07
Net Value of Real Estate (not Primary Residence)	52284.13	384000	-61200	3.69e+07
Net Value of Primary Residence	151000	273000	-1940000	2.86e+07
Net Value of Non-housing Financial Wealth	180000	651000	-1630000	4.12e+07
Age	74.489	6.905	64	109
Age Squared	5596.3	1060.939	4096	11881
Female	0.577	.494	0	1
White	.846	.361	0	1
Black	.122	.327	0	1
Other races	.032	.177	0	1
Hispanic	.07	.256	0	1
High School Degree	.373	.484	0	1
College Degree	.41	.492	0	1
Married	.607	.488	0	1
Cohort: AHEAD	.201	.401	0	1
Cohort: CODA	.142	.349	0	1
Cohort: HRS	.557	.497	0	1
Cohort: WB	.065	.246	0	1
Cohort: EBB	.027	.163	0	1
Cohort: MBB	.003	.056	0	1
# Living Brothers	1.086	1.319	0	14
# Living Sisters	1.297	1.44	0	14
# Core Respondents in HH	1.994	.992	1	15

³ The CPIs are obtained here: <http://www.ssa.gov/oact/STATS/avgcpi.html>.

Variable	Mean	Standard Deviation	Min	Max
# Living Children	3.302	2.185	0	22
Table 1. Summary Statistics (cont)				
Self-Reported "Fair" or "Poor" Health	.278	.448	0	1
#ADLs where R Reports any Difficulty	.326	.857	0	5
#IADLs where R Reports any Difficulty	.224	.669	0	5
CESD: # of R's Depression Indicators in the Past Week	1.369	1.837	0	8
# Chronical Conditions R Ever Had	2.276	1.416	0	8
BMI	27.28	5.352	9.3	82.7
Ever Drinks Any Alcohol	.481	.5	0	1
Ever Smoked	.571	.495	0	1
Smoke Now	.092	.289	0	1
Total Cognition Summary Score	21.937	4.942	0	35
Out-of-Pocket Medical Expenditure	2994.111	8368.089	0	840000
Any Home Health Care Covered by Federal Government Health Insurance Program	.09	.287	0	1
Covered by Medicare	.972	.164	0	1
Covered by Medicaid	.968	.176	0	1
Covered by Medicaid	.076	.265	0	1
# Private Health Insurance Plans Covered by Health Insurance from a Current or Previous Employer	.588	.581	0	21
Covered by Spouse's Health Insurance from a Current or Previous Employer	.215	.411	0	1
Covered by Other Health Insurance Plan	.11	.313	0	1
Covered by Long-Term Care Insurance	.241	.427	0	1
Covered by Life Insurance	.143	.35	0	1
Earnings	.62	.485	0	1
Total Household Income	4921.112	22214.01	0	888000
Currently Receiving Any Pension Income	57655.84	247000	0	6.33e+07
State Spending on Medicaid	.433	.552	0	1.358
State Spending on TANF	12938.63	12987.14	178.1	81740
State Spending on Other Cash Assistance Programs	824.137	1513.511	0	5944
Year	519.205	1189.585	0	4815
N	2007.08	5.639	1998	2016
	79870			

4.2 Estimation Results

A. What Explains Nursing Home Use Expectations Among Older Adults?

In Table 2 (columns 1-3) we present estimates of the impact of various determinants on subjective probability of nursing home use in five years. We present three different specifications: the first being the exogenous demographic and family controls, the second being all the controls including potentially endogenous measures of health status and insurance status, and the third being all the controls but without individual fixed effects. The last specification provides information on the possible effects of time-invariant individual characteristics. All the specifications include state and year fixed effects, and standard errors are clustered at the individual level.

We find that age, being married, and number of people in the household are negatively and statistically significantly associated with expected future nursing home use, while age squared, having bad health (fair or poor health vs. excellent, very good, or good health), numbers of ADL and IADL, value of mental health indicator, number of health conditions, out-of-pocket medical spending, and long-term care insurance status are positively and statistically significantly associated with future nursing home use expectations. Among those time-invariant characteristics, being female and having high school or college education are positively and statistically significantly associated with future nursing home use expectations.

We estimate the difference and system GMM models developed by Arellano-Bond (1991), Arellano-Bover (1995), and Blundell and Bond (1998). These models include both a lagged dependent variable and individual fixed effects, allowing us to simultaneously account for time invariant, unobserved individual specific factors and serial correlation in nursing home use expectations. The estimation results are shown in Table 2 in columns 4 (partial set of controls) and 5 (complete set of controls). The sample sizes are smaller than those in columns 1-3 because the Arellano-Bond estimator uses lagged nursing home use expectations. Lagged nursing home use expectations are positively and statistically significantly associated with current nursing home use expectations, and the estimation results for other control variables are very similar to those in the first three columns.

Table 2. Determinants of Nursing Home Use Expectations.

	NH Use Expectation Exogenous X	NH Use Expectation Complete X	NH Use Expectation Without Indivi. FE	NH Use Expectation Exogenous X	NH Use Expectation Complete X
Lagged NH Use Expectation				0.084*** (0.009)	0.080*** (0.009)
Age	-1.486*** (0.386)	-1.212*** (0.412)	-0.671** (0.263)	0.092 (0.367)	-0.046 (0.385)
Age Squared	0.009*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.002 (0.002)	0.003 (0.003)
Married	-1.239*** (0.392)	-0.902** (0.408)	0.442** (0.194)	-0.042 (0.267)	0.422 (0.278)
# Living Brothers	-0.011 (0.235)	0.068 (0.244)	-0.111* (0.062)	-0.179* (0.094)	-0.161* (0.095)
# Living Sisters	0.068 (0.218)	0.076 (0.228)	-0.161*** (0.056)	-0.141 (0.087)	-0.089 (0.088)
# Core Respondents in HH	-0.268* (0.138)	-0.285** (0.145)	-0.811*** (0.087)	-0.449*** (0.116)	-0.618*** (0.119)
# Living Children	-0.042 (0.173)	-0.032 (0.175)	-0.385*** (0.036)	-0.378*** (0.056)	-0.363*** (0.057)
State Spending on Other Cash Assistance Programs	0 (0.000)	0 (0.000)	0 (0.000)	-0.001** (0.000)	-0.001 (0.000)
State Spending on TANF	0 (0.000)	0 (0.000)	0 (0.000)	0 (0.000)	0 (0.000)
State Spending on Medicaid	0 (0.000)	0 (0.000)	0 (0.000)	0 (0.000)	0 (0.000)
Self Reported "Fair" or "Poor" Health		1.481*** (0.270)	2.818*** (0.216)		2.104*** (0.281)
# ADLs where R Reports any Difficulty		0.632*** (0.170)	0.672*** (0.137)		0.629*** (0.171)
# IADLs where R Reports any Difficulty		0.750*** (0.223)	1.081*** (0.181)		1.140*** (0.234)
CESD: # of R's Depression Indicators in the Past Week		0.488*** (0.068)	0.635*** (0.053)		0.481*** (0.069)
# Chronical Conditions R Ever Had		0.464*** (0.163)	0.717*** (0.064)		0.828*** (0.093)
BMI		-0.005 (0.047)	-0.035** (0.016)		-0.054** (0.024)
Ever Drinks Any Alcohol		-0.089 (0.278)	-0.089 (0.165)		0.033 (0.234)
Smoke Now		0.066 (0.607)	-0.481* (0.278)		-0.17 (0.433)
Total Cognition Summary Score		-0.023 (0.028)	0.078*** (0.020)		0.01 (0.027)
Out-of-Pocket Medical Expenditure		0.000**	0.000***		0.000***

	(0.000)	(0.000)	(0.000)
Any Home Health Care	0.074	-0.181	-0.535
	(0.326)	(0.318)	(0.360)
Covered by Federal Government Health Insurance Program	3.073*	-0.061	-0.458
	(1.631)	(1.273)	(1.951)
Covered by Medicare	-3.595**	0.401	0.338
	(1.575)	(1.204)	(1.815)
Covered by Medicaid	0.175	-0.879**	0.251
	(0.536)	(0.364)	(0.521)
# Private Health Insurance Plans	0.23	0.549	0.696
	(0.406)	(0.401)	(0.474)
Covered by Health Insurance from a Current or Previous Employer	-0.198	-0.105	-0.283
	(0.507)	(0.468)	(0.564)
Covered by Spouse's Health Insurance from a Current or Previous Employer	-0.761	-0.439	-0.144
	(0.564)	(0.487)	(0.611)
Covered by Other Health Insurance Plan	-0.312	0.108	-0.035
	(0.483)	(0.463)	(0.552)
Covered by Long-Term Care Insurance	0.961**	3.279***	2.652***
	(0.399)	(0.224)	(0.328)
Covered by Life Insurance	0.073	0.646***	0.307
	(0.285)	(0.166)	(0.237)
Earnings	0	-0.000***	0
	(0.000)	(0.000)	(0.000)
Total Household Income	0	0	-0.000**
	(0.000)	(0.000)	(0.000)
Currently Receiving Any Pension Income	0.172	0.594***	0.637***
	(0.243)	(0.149)	(0.208)
Female		0.918***	1.151***
		(0.177)	(0.261)
Black		0.335	-0.003
		(0.286)	(0.425)
Other race		-0.617	-1.192*
		(0.461)	(0.678)
Hispanic		0.664*	-0.078
		(0.370)	(0.553)
High School		1.387***	0.935***
		(0.238)	(0.352)
College		1.844***	1.466***
		(0.252)	(0.357)
Ever Smoked		-0.605***	-0.702***
		(0.168)	(0.269)
Cohort: AHEAD		0.414	-0.329
		(1.198)	(1.657)

Table 2. Determinants of Nursing Home Use Expectations (cont).

	NH Use Expectation	NH Use Expectation	NH Use Expectation	NH Use Expectation	NH Use Expectation
	Exogenous X	Complete X	Without Indivi. FE	Exogenous X	Complete X
Cohort: AHEAD			-0.325 (1.193)	-1.462 (1.646)	-0.461 (1.640)
Cohort: CODA(Children of the Depression)			-0.14 (1.186)	-1.282 (1.624)	-0.124 (1.622)
Cohort: HRS			-2.127* (1.237)	-3.302* (1.705)	-1.968 (1.705)
Cohort: WB(War Babies)			-2.332* (1.308)	-3.101* (1.834)	-1.483 (1.857)
Cohort: EBB(Early Baby Boomers)			-4.448*** (1.586)	-4.667** (2.308)	-3.606 (2.413)
Cohort: MBB(Mid Baby Boomers)			1.736 (8.106)	0 (0.000)	0 (0.000)
Constant	70.265*** (19.120)	60.331*** (20.027)	16.502 (10.067)	-3.503 (14.263)	-1.308 (14.933)
N	79870	79870	79870	62401	58595

Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

B. Do Nursing Home Use Expectations Predict Actual Nursing Home Use?

In Table 3 (columns 1-3) we present estimates of the impact of subjective probability of nursing home use on the actual nursing home use in five years. We again present three specifications with different sets of controls as for Table 2.

As we can see, regardless of the model specification used, subjective probabilities of nursing home use positively and statistically significantly predict actual nursing home use in five years. The estimated coefficients are between 0.00023 and 0.00025 and are significant at the 0.1% level in specifications with individual fixed effects (the coefficient is larger and also significant in the specification without individual fixed effect). These estimated coefficients mean that a one percentage point increase in subjective probability of nursing home use is associated with 0.023-0.025 percentage point increase in the probability of actual nursing home use in five years, with everything else controlled for. This result indicates that older adults in our sample have rational expectations regarding their future nursing home use and nursing home use expectations are a good indicator of actual nursing home use. Furthermore, the statistically significant estimates for subjective nursing home use expectation, conditional on a rich set of

control variables that are normally used to predict nursing home use in a standard analysis, suggest that there is non-trivial *personal* information in individuals' subjective expectations which go beyond what researchers can observe and control for. It is thus important to collect and make use of subjective nursing home use expectations.

Table 3. Nursing Home Use Expectations and Actual Nursing Home Use in Five Years.

	NH Use Expectation Exogenous X	NH Use Expectation Complete X	NH Use Expectation Without Indivi. FE	NH Use Expectat ion Exogeno us X	NH Use Expectation Complete X	NH Use Expectation Without Indivi. FE
NH Use Expectation	0.00025*** (0.000)	0.00023*** (0.000)	0.001*** (0.000)			
NH Use Expectation (0%, 10%]				-0.001 (0.004)	-0.003 (0.004)	0.004 (0.004)
NH Use Expectation (10%, 20%]				0.006 (0.006)	0.006 (0.006)	0.015** (0.006)
NH Use Expectation (20%, 30%]				0.001 (0.006)	-0.002 (0.007)	-0.002 (0.006)
NH Use Expectation (30%, 40%]				0.01 (0.011)	0.009 (0.012)	0.030** (0.012)
NH Use Expectation (40%, 50%]				0.002 (0.005)	0.001 (0.006)	0.015*** (0.005)
NH Use Expectation (50%, 60%]				0.019 (0.018)	0.016 (0.019)	0.053*** (0.020)
NH Use Expectation (60%, 70%]				0.064*** (0.022)	0.067*** (0.023)	0.069*** (0.027)
NH Use Expectation (70%, 80%]				0.023** (0.012)	0.026** (0.012)	0.045*** (0.013)
NH Use Expectation (80%, 90%]				0.046** (0.022)	0.038* (0.022)	0.105*** (0.027)
NH Use Expectation (90%, 100%]				0.046** (0.020)	0.038* (0.021)	0.102*** (0.021)
N	56165	56165	56165	56165	56165	56165

Standard errors in parentheses. Other control variables are the same as in Table 2 and their estimates are available upon request. * p<0.1, ** p<0.05, *** p<0.01

In addition to nursing home use expectations, age, number of people in the household, BMI, cognitive ability, out-of-pocket medical spending, whether using home care, having Medicaid, health insurance plan by employer, or other types of health insurance coverage, and whether having life insurance are negatively and statistically significantly associated with future nursing home use. Furthermore, age squared, self-reported bad health, numbers of ADL and IADL, total household income, and number of private health insurance plans are positively and statistically significantly associated with future nursing home use. Among those time-invariant characteristics, being white, black, or Hispanic is negatively and statistically significantly associated with future nursing home use, while having high school or college degree is positively and statistically significantly associated with future nursing home use.

To capture any possible nonlinear impacts of subjective nursing home use expectations on actual nursing home use, we also estimate three specifications where we replace the continuous nursing home use expectations with deciles of nursing home use expectations (0%, 1-10%, 11-20%, etc.). Results (Table 3, columns 4-6) show that having a subjective expectation of future nursing home within the ranges of 61-70%, 71-80%, 81-90%, and 91-100% is positively and statistically significantly associated with actual nursing home use, and the impacts of the rest of the determinants in this specification are very similar to those in columns 1-3.

C. Do Nursing Home Use Expectations Influence Wealth Accumulation?

The results on the effects of subjective probability of nursing home use in five years on wealth accumulation are presented in Table 4. We show the main estimated coefficients on nursing home use expectations for the six different measures of wealth mentioned above. Panel A shows the main estimates for specifications with only exogenous controls, Panel B shows the main estimates for specifications with the full set of controls, and Panel C shows the results for specifications without individual fixed effects. The estimated coefficients for the rest of the control variables are available upon request.

Table 4. Relationship between Nursing Home Use Expectations and Household Wealth.

	Total Wealth (Including	Total Wealth (Excluding IRAs)	Total Non- housing Wealth	Net value of real estate (not	Net value of primary residence	Net value of non- housing
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	Secondary Residence)			primary residence)		financial wealth
Panel A: Exogenous Controls						
NH Use Expectation	-93.101 (132.132)	-35.155 (125.428)	2.626 (123.510)	-73.483 (49.997)	-89.535*** (30.629)	72.436 (91.972)
N	79870	79870	79870	79870	79870	79870
Panel B: Complete Controls						
NH Use Expectation	-62.760 (132.537)	-18.664 (126.583)	23.557 (125.698)	-75.709 (53.339)	-83.151*** (28.248)	69.848 (94.005)
N	79870	79870	79870	79870	79870	79870
Panel C: Complete Controls, No Individual Fixed Effects						
NH Use Expectation	338.794** (172.151)	345.345** (161.942)	452.950*** (157.760)	-125.267*** (47.236)	-114.325*** (32.459)	641.468*** (117.890)
N	79870	79870	79870	79870	79870	79870
Panel D: Exogenous Controls Lagged NH Use						
Expectation	-361.035** (162.197)	-319.083** (155.908)	-226.367 (154.483)	-77.864 (83.011)	-126.779*** (28.542)	-108.839 (94.687)
N	69727	69727	69727	69727	69727	69727
Panel E: Complete Controls Lagged NH Use						
Expectation	-297.265* (170.614)	-250.162 (163.992)	-178.957 (161.317)	-57.695 (80.138)	-103.399*** (33.252)	-70.060 (99.345)
N	62440	62440	62440	62440	62440	62440
Panel F: Complete Controls, No Individual Fixed Effects Lagged NH Use						
Expectation	-137.195 (161.438)	-104.166 (155.285)	12.640 (151.120)	-103.607 (63.553)	-123.421*** (33.584)	177.592* (104.526)
N	62440	62440	62440	62440	62440	62440

Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

As shown in Table 4, subjective probability of nursing home use, though statistically significantly predicts actual nursing home use, is not statistically significantly associated with any change in wealth accumulation, with the exception of net value of primary residence,

regardless of which set of control variables we use. Only in the specification that excludes individual fixed effects (Panel C) do we find statistically significant estimates for subjective probabilities of future nursing home use. This difference highlights the importance of controlling for individual fixed effects.

When we move to results on the association with lagged subjective probability of nursing home use and wealth accumulation (Panels D-F), we see that lagged subjective expectations are negatively and statistically significantly associated with total wealth (including secondary residence) and net value of primary residence, while excluding individual fixed effects again leads to different results.

To identify differential effects of nursing home use expectations at different points of the wealth distribution, we also estimate quantile regression (QR) models at the 15th, 25th, 50th, 75th, and 85th percentiles. Panels A and C of Table 5 show results for specifications with exogenous controls; Panels B and D show results for specifications with complete controls. Panels A and B deal with contemporaneous nursing home use expectations, while Panels C and D deal with lagged nursing home use expectations.⁴ Here again only the main estimated coefficients are shown. As is clear from the table, nursing home use expectations are not significantly associated with wealth accumulation, regardless of the percentile or the set of control variables we use.

Table 5. Relationship between Nursing Home Use Expectations and Household Wealth Using Quantile Regression.

	Total Wealth (Including Secondary Residence)	Total Wealth (Excluding IRAs)	Total Non- housing Wealth	Net value of real estate (not primary residence)	Net value of primary residence	Net value of non-housing financial wealth
Panel A: Contemporaneous NH Use Expectations, Exogenous Controls						
15%	-113.528 (14099.700)	-70.336 (6800.055)	-25.321 (23373.117)	-54.030 (3647.265)	-75.254 (357.872)	22.717 (14404.092)

Table 5. Relationship between Nursing Home Use Expectations and Household Wealth Using Quantile Regression (cont).

	Total Wealth (Including	Total Wealth	Total Non- housing Wealth	Net value of real estate	Net value of primary residence	Net value of non-housing
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⁴ Results for specifications without individual fixed effects are available upon request.

	Secondary Residence)	(Excluding IRAs)		(not primary residence)		financial wealth
25%	-108.738 (12308.924)	-62.058 (5806.688)	-19.187 (20689.194)	-57.753 (3353.474)	-78.685 (311.221)	33.932 (12674.710)
50%	-95.165 (7670.297)	-38.432 (8777.160)	-2.128 (14225.399)	-67.262 (3179.286)	-89.385 (320.874)	62.594 (9148.673)
75%	-75.974 (5669.803)	-5.756 (18164.016)	27.471 (13067.676)	-96.163 (6554.797)	-101.561 (548.183)	114.286 (10011.775)
85%	-67.469 (7707.786)	8.585 (22620.028)	41.232 (17652.167)	-109.628 (8771.310)	-106.555 (663.448)	138.901 (13354.616)
N	79870	79870	79870	79870	79870	79870

Panel B: Contemporaneous NH Use Expectations, Complete Controls

15%	-59.427 (5451.473)	-33.746 (15282.586)	21.659 (8557.961)	-50.219 (2752.230)	-79.149 (471.921)	17.554 (4821.190)
25%	-60.230 (4734.860)	-30.122 (13282.733)	22.107 (7489.195)	-55.287 (2534.488)	-80.109 (409.533)	29.630 (3740.359)
50%	-62.422 (3053.093)	-20.159 (8121.566)	23.245 (5129.272)	-68.450 (2660.034)	-83.097 (270.860)	59.687 (8101.896)
75%	-65.527 (2809.265)	-6.149 (5114.132)	25.184 (4632.900)	-105.227 (6064.595)	-86.507 (328.829)	112.930 (20461.784)
85%	-66.927 (3716.358)	0.150 (7229.412)	26.116 (6302.696)	-126.604 (8539.164)	-87.902 (407.584)	138.469 (26584.412)
N	79870	79870	79870	79870	79870	79870

Panel C: Lagged NH Use Expectation, Exogenous Controls

15%	-449.882 (2201.216)	-372.642 (4861.724)	-282.946 (8072.346)	-44.907 (4311.923)	-125.257 (407.622)	-53.949 (4421.649)
25%	-428.703 (1893.207)	-360.006 (4232.673)	-269.963 (7094.105)	-51.908 (3887.223)	-125.611 (353.764)	-66.979 (3849.934)
50%	-368.718 (2936.101)	-323.721 (2876.768)	-235.015 (6993.290)	-68.849 (3356.386)	-126.750 (622.613)	-97.413 (3108.292)
75%	-284.036 (6114.911)	-273.767 (3388.068)	-173.684 (13497.581)	-114.146 (5729.095)	-128.046 (1191.128)	-156.031 (4789.486)
85%	-245.865 (7658.356)	-251.852 (4348.257)	-144.247 (17538.189)	-134.654 (7604.232)	-128.549 (1424.663)	-185.916 (6440.043)
N	69727	69727	69727	69727	69727	69727

Table 5. Relationship between Nursing Home Use Expectations and Household Wealth Using Quantile Regression (cont).

Total Wealth (Including	Total Wealth (Excluding IRAs)	Total Non- housing Wealth	Net value of real estate (not primary residence)	Net value of primary residence	Net value of non-housing financial wealth
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	Secondary Residence)					
Panel D: Lagged NH Use Expectation, Complete Controls						
15%	-414.759 (13291.540)	-332.528 (4709.343)	-265.277 (62436.203)	-32.107 (4492.078)	-107.909 (2619.993)	1.894 (13108.682)
25%	-386.408 (8959.538)	-312.418 (4071.804)	-244.447 (54476.205)	-37.237 (4254.945)	-106.830 (2270.963)	-16.227 (11372.792)
50%	-307.171 (63867.813)	-257.579 (3198.415)	-191.483 (34436.456)	-51.060 (6153.252)	-103.488 (1194.347)	-55.432 (7703.810)
75%	-195.603 (1.43e+05)	-180.555 (4832.046)	-101.273 (9085.479)	-87.680 (16398.595)	-99.671 (212.893)	-128.969 (3000.572)
85%	-145.001 (1.79e+05)	-145.973 (6132.991)	-56.489 (20950.031)	-108.794 (22804.832)	-98.179 (583.057)	-165.280 (4804.890)
N	62440	62440	62440	62440	62440	62440

Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

D. Heterogeneity

Finally, the literature has found substantial differences in nursing home use by gender, race, education, marital status, and other measures of socio-economic status (e.g., Headen, 1992; Liu, McBride, and Coughlin, 1994). In addition, it is possible that there are substantial differences across different cohorts in the HRS (e.g., war babies, early baby boomers, etc.). We therefore will also conduct aforementioned analyses separately for subgroups by gender, race, education, marital status, and cohorts to account for heterogeneity in the formation of the subjective expectations for nursing home use and the effects of these nursing home use expectations on actual nursing home use and on individuals' wealth accumulation. Main coefficients are reported in Table 6. It is clear from the table that there is indeed some heterogeneity. For the determinants of nursing home use expectations, we do not see much difference in the association between lagged and current nursing home use between male and female and between the HRS cohort and all the other cohorts. However, lagged nursing home use expectations are not associated with current nursing home use expectations for those with more than high school education, not married at the time of interview, and those white respondents.

When we turn our attention to whether nursing home use expectations can predict future nursing home use (Table 7), we see that the answer is no for those without a high school degree, not married at the time of interview, and those non-white respondents.

As for whether (lagged) nursing home use expectation can predict future nursing home use, Table 8 shows that expectations of white male respondents from the HRS cohort who have at least a high school degree and are married at the time of interview are more likely to be predictive of their future nursing home use than those for their counterparts, but when we move to quantile regression (result table available upon request), we see again that none of the subsamples show any statistically significant association between nursing home use and expectations, the same as what we find for the entire sample.

5. Conclusion

Using a long and rich panel data in a dynamic framework, we examine the determinants of nursing home use expectations, how individuals update their expectations in response to health shocks and other conditions, the relationship between these expectations and actual nursing home use, and the link between nursing home use expectations and wealth accumulation.

We find that older adults update their nursing home use expectations rationally, and these expectations can predict their actual nursing home use in the future beyond all the observable characteristics. These expectations, however, cannot predict older adults' decisions regarding wealth accumulation. We also find large heterogeneity across different subgroups.

Table 6. Relationship between Lagged and Current Nursing Home Use Expectations by Subsamples.

Y: NH Use Expectation	Male	Female	< High School	>= High School	Not Married	Married	White	Non-White	HRS Cohort	Non-HRS Cohorts
Lagged NH Use Expectation	0.086*** (0.014)	0.081*** (0.011)	0.091*** (0.011)	0.000 (0.000)	0.000 (0.000)	0.074*** (0.012)	0.092*** (0.009)	0.000 (0.000)	0.071*** (0.011)	0.098*** (0.014)
N	26185	36216	38749	23652	25146	37255	53465	8936	36856	25545

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 7. Nursing Home Use Expectations and Actual Nursing Home Use in Five Years by Subsamples.

Y: NH Use	Male	Female	< High School	>= High School	Not Married	Married	White	Non-White	HRS Cohorts	Non-HRS Cohorts
Panel A: Continuous NH Use Expectations										
NH Use Expectation	0.00025*	0.00021**	0.00012	0.00038***	0.00018	0.00026**	0.00024***	0.00014	0.00022**	0.00023*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Panel B: Categorical NH Use Expectations										
NH Use Expectation (0%, 10%]	-0.004	-0.002	0.001	-0.010	0.001	-0.003	-0.002	-0.007	-0.007	0.004
	(0.006)	(0.006)	(0.005)	(0.007)	(0.008)	(0.005)	(0.004)	(0.011)	(0.004)	(0.008)
NH Use Expectation (10%, 20%]	0.009	0.004	-0.002	0.020**	-0.015	0.016**	0.004	0.017	0.010	-0.001
	(0.009)	(0.008)	(0.008)	(0.010)	(0.012)	(0.007)	(0.006)	(0.017)	(0.007)	(0.011)
NH Use Expectation (20%, 30%]	0.005	-0.007	0.002	-0.008	-0.010	0.007	-0.007	0.039**	0.004	-0.008
	(0.010)	(0.009)	(0.008)	(0.010)	(0.012)	(0.008)	(0.007)	(0.020)	(0.007)	(0.011)
NH Use Expectation (30%, 40%]	-0.022	0.037**	0.015	-0.004	0.007	0.013	0.017	-0.046	-0.003	0.025
	(0.016)	(0.016)	(0.014)	(0.019)	(0.021)	(0.014)	(0.013)	(0.029)	(0.014)	(0.019)
NH Use Expectation (40%, 50%]	0.005	-0.003	-0.007	0.011	0.001	0.002	-0.001	0.011	0.001	0.002
	(0.009)	(0.007)	(0.007)	(0.009)	(0.010)	(0.007)	(0.006)	(0.014)	(0.007)	(0.008)
NH Use Expectation (50%, 60%]	-0.008	0.031	-0.007	0.056*	0.036	0.001	0.020	-0.017	0.031	0.006
	(0.030)	(0.024)	(0.024)	(0.030)	(0.034)	(0.022)	(0.020)	(0.050)	(0.024)	(0.028)
NH Use Expectation (60%, 70%]	0.078**	0.061**	0.075**	0.051	0.067*	0.072**	0.067***	0.067	0.067**	0.062*
	(0.037)	(0.029)	(0.029)	(0.037)	(0.035)	(0.030)	(0.026)	(0.049)	(0.032)	(0.033)
NH Use Expectation (70%, 80%]	0.040**	0.020	0.017	0.036*	0.014	0.032**	0.027**	0.025	0.026	0.025
	(0.020)	(0.015)	(0.016)	(0.019)	(0.018)	(0.016)	(0.013)	(0.030)	(0.016)	(0.018)
NH Use Expectation (80%, 90%]	0.014	0.043*	0.046	0.023	0.005	0.066**	0.052**	-0.019	0.007	0.063*
	(0.045)	(0.025)	(0.030)	(0.032)	(0.031)	(0.033)	(0.025)	(0.041)	(0.028)	(0.034)
NH Use Expectation (90%, 100%]	0.034	0.041*	0.024	0.061	0.042	0.032	0.053**	-0.013	0.029	0.043
	(0.038)	(0.025)	(0.025)	(0.037)	(0.028)	(0.032)	(0.025)	(0.040)	(0.034)	(0.027)
N	23910	32255	35006	21159	21842	34323	48288	7877	30080	26085

Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

Table 8. Relationship between Nursing Home Use Expectations and Household Wealth by Subsamples (cont).

	Total Wealth (Including Secondary Residence)	Total Wealth (Excluding IRAs)	Total Non- housing Wealth	Net value of real estate (not primary residence)	Net value of primary residence	Net value of non- housing financial wealth
Married						
NH Use Expectation	70.919 (209.957)	104.634 (203.916)	173.783 (202.938)	-77.355 (83.742)	-85.645** (42.905)	209.777 (150.938)
N	48463	48463	48463	48463	48463	48463
Lagged NH Use Expectation	-530.827** (236.407)	-466.144** (224.560)	-426.268* (224.544)	-153.298 (119.063)	-69.302 (45.953)	-222.106* (126.371)
N	36697	36697	36697	36697	36697	36697
White						
NH Use Expectation	-58.871 (161.004)	-4.798 (153.944)	39.569 (152.854)	-93.164 (65.217)	-91.289*** (33.664)	88.531 (114.409)
N	67591	67591	67591	67591	67591	67591
Lagged NH Use Expectation	-394.115* (205.663)	-321.320 (197.957)	-241.642 (195.167)	-64.238 (97.235)	-121.044*** (38.166)	-91.360 (120.758)
N	53331	53331	53331	53331	53331	53331
Non-White						
NH Use Expectation	8.556 (88.619)	-27.377 (80.632)	23.917 (68.176)	31.358 (38.286)	-28.591 (40.675)	-5.378 (38.999)
N	12279	12279	12279	12279	12279	12279
Lagged NH Use Expectation	235.716** (117.414)	139.189 (106.921)	141.802 (86.732)	-12.357 (44.325)	32.376 (60.157)	26.782 (32.579)
N	9109	9109	9109	9109	9109	9109
HRS Cohort						
NH Use Expectation	-48.008 (157.582)	-14.804 (146.709)	-2.257 (147.350)	-9.522 (62.463)	-64.933** (28.946)	-52.497 (96.540)
N	44514	44514	44514	44514	44514	44514
Lagged NH Use Expectation	-151.442 (240.539)	-126.547 (229.471)	-130.728 (227.859)	-152.983** (70.666)	-44.227 (38.063)	12.861 (121.120)
N	36141	36141	36141	36141	36141	36141
Non-HRS Cohorts						
NH Use Expectation	-50.366	-3.941	69.970	-142.792	-92.466*	211.519

	(218.160)	(211.670)	(209.396)	(87.021)	(50.618)	(167.996)
N	35356	35356	35356	35356	35356	35356
Lagged NH Use						
Expectation	-444.955*	-376.307	-215.356	64.412	-169.479***	-161.069
	(236.533)	(230.771)	(221.457)	(154.354)	(57.308)	(160.212)
N	26299	26299	26299	26299	26299	26299

Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

References

- Ayyagari, Padmaja. "Health Insurance and Early Retirement Plans: Evidence from the Affordable Care Act." *American Journal of Health Economics*, Forthcoming (2018).
- Benitez-Silva, Hugo, and Debra S. Dwyer. "The Rationality of Retirement Expectations and the Role of New Information." *Review of Economics and Statistics* 87, no. 3 (2005): 587-592.
- Brown, Jeffrey R., and Amy Finkelstein. "The Interaction of Public and Private Insurance: Medicaid and the Long-Term Care Insurance Market." *American Economic Review* 98, no. 3 (2008): 1083-1102.
- Brown, Jeffrey R., and Amy Finkelstein. "Why is the Market for Long-Term Care Insurance So Small?." *Journal of Public Economics* 91, no. 10 (2007): 1967-1991.
- Brown, Jeffrey R., Courtney C. Coile, and Scott J. Weisbenner. "The Effect of Inheritance Receipt on Retirement." *The Review of Economics and Statistics* 92, no. 2 (2010): 425-434.
- Coe, Norma B., Meghan M. Skira, and Courtney Harold Van Houtven. "Long-Term Care Insurance: Does Experience Matter?." *Journal of Health Economics* 40 (2015): 122-131.
- Dominitz, Jeff. "Estimation of Income Expectations Models Using Expectations and Realization Data." *Journal of Econometrics* 102, no. 2 (2001): 165-195.
- Gallagher, Emily A., Radhakrishnan Gopalan, Michal Grinstein-Weiss, and Jorge Sabat. "Medicaid and Household Savings Behavior: New Evidence from Tax Refunds." *Journal of Financial Economics* (2019).
- Genworth. 2020. "Cost of Care Survey." Accessed 9/29/2020.
<https://www.genworth.com/aging-and-you/finances/cost-of-care.html>
- Gruber, Jonathan, and Aaron Yelowitz. "Public Health Insurance and Private Savings." *Journal of Political Economy* 107, no. 6 (1999): 1249-1274.
- Haider, Steven J., and Melvin Stephens Jr. "Is There a Retirement-Consumption Puzzle? Evidence Using Subjective Retirement Expectations." *The Review of Economics and Statistics* 89, no. 2 (2007): 247-264.
- Henning-Smith, Carrie E., and Tetyana P. Shippee. "Expectations about Future Use of Long-Term Services and Supports Vary by Current Living Arrangement." *Health Affairs* 34,

- no. 1 (2015): 39-47.
- Henning-Smith, Carrie, Gilbert Gonzales, and Tetyana P. Shippee. "Differences by Sexual Orientation in Expectations about Future Long-Term Care Needs among Adults 40 to 65 Years Old." *American Journal of Public Health* 105, no. 11 (2015): 2359-2365.
- Holden, Karen, Timothy McBride, and Maria Perozek. "Expectations of Nursing Home Use in the Health and Retirement Study: the Role of Gender, Health, and Family Characteristics." *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 52, no. 5 (1997): S240-S251.
- Hurd, Michael D., and Kathleen McGarry. "Evaluation of the Subjective Probabilities of Survival in the Health and Retirement Study." *Journal of Human Resources* (1995): S268-S292.
- Kleinjans, Kristin J., and Jinkook Lee. "The Link between Individual Expectations and Savings: Do Nursing Home Expectations Matter?." *University of Aarhus Department of Economics Working Paper 2006-5* (2006).
- Lindrooth, Richard C., Thomas J. Hoerger, and Edward C. Norton. "Expectations among the Elderly about Nursing Home Entry." *Health Services Research* 35, no. 5 Pt 2 (2000): 1181.
- Manski, Charles F. "Measuring Expectations." *Econometrica* 72, no. 5 (2004): 1329-1376.
- Maynard, Alex, and Jiaping Qiu. "Public Insurance and Private Savings: Who is Affected and by How Much?." *Journal of Applied Econometrics* 24, no. 2 (2009): 282-308.
- Smith, V. Kerry, Donald H. Taylor, and Frank A. Sloan. "Longevity Expectations and Death: Can People Predict Their Own Demise?." *American Economic Review* 91, no. 4 (2001): 1126-1134.
- Stephens Jr, Melvin. "Job Loss Expectations, Realizations, and Household Consumption Behavior." *Review of Economics and Statistics* 86, no. 1 (2004): 253-269.
- Wang, Yang. "Dynamic Implications of Subjective Expectations: Evidence from Adult Smokers." *American Economic Journal: Applied Economics* 6, no. 1 (2014): 1-37.

