

Financial Literacy, Retirement Preparation and Pension Expectations in the Netherlands

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Motivation

- Current pension contracts are too ambitious
- Changes will most likely result in either lower replacement rates or an increased dependency upon investment risk or both. In either case, there is an increasing need for employees to inform themselves and to invest in retirement preparation.
- AFM: Dutch seem to be (over)confident about their future pension benefits
- A great concern is whether Dutch workers have the financial knowledge and skills to collect and process the relevant pension information and save adequately.

Motivation

- Based on a survey in 2005, we have found that many Dutch households have not thought much about their retirement (see Van Rooij, Lusardi and Alessie, 2011b).
- In this paper, we will investigate whether the developments in the past five years and the discussions on restoring the sustainability of the Dutch pension system and increasing the pension age, have encouraged retirement preparation in the Netherlands.
- In this period, the government and the financial sector have developed several initiatives to increase financial awareness.
- Moreover, we have witnessed the biggest financial crisis since the Great Depression.

Outline

- Dutch pension system
- Description 2010 dataset on financial literacy
- The extent of financial literacy in the Netherlands
- Who knows the least?
- Financial literacy and retirement planning
- Financial literacy and pension expectations

The Dutch pension system

- Flat rate payg first pillar (AOW)
- 2nd pillar: mandatory occupational pension benefits
- Average gross replacement rate \geq 80 percent
- Company retirement plans have provided no choice.
- After the dotcom crisis solvency ratios came down a lot and pension funds massively exchanged final wage salary plans for career average wage pension plans with conditional indexation .
- During the financial crisis pension funds incurred huge investment losses and the low level of interest rates plus upward revisions in longevity expectations have increased pension costs to unprecedented levels.

The Dutch pension system

- Goudswaard committee: current pension system not sustainable. Pension ambitions should be lowered in terms of the promised level of pension benefits or the level of certainty.
- Either way, it is obvious that it becomes more important for households to prepare for retirement and to maintain or acquire the necessary financial skills.

Dataset

- The survey on financial literacy was fielded in 2010 among the members of CentERpanel between June 25 and July 6.
- CentER panel: \pm 2000 households whose members \geq 16 years fill in short questionnaires through the internet at weekly frequency.
- No financial incentives to fill in questionnaires.
- Recruiting procedure designed in a way to safeguard the representativeness for the Dutch population of households.
- However, especially high income respondents are somewhat overrepresented in the sample.
- Therefore, sample weights have been used to construct the descriptive statistics.

Dataset (continued)

- 2010 sample: members of the CentERpanel ≥ 25 years, including both the household head and partner if present.
- 1665 respondents (response rate 65.4 percent)
- Similar survey fielded in 2005 (see Van Rooij et al. (2010))
- There we are able to exploit the panel component for those respondents who have participated in both the 2005 and 2010 survey.
- However, only respondents are considered in charge of household finances.
- September 2010: additional questionnaire on pension expectations (see below)

Financial literacy: questions

- *Interest rates (Numeracy)*

Suppose you had €100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow? (i) More than €102; (ii) Exactly €102; (iii) Less than €102; (iv) Do not know; (v) Refusal.

<i>Interest question</i>	No.obs.	in %
More than 102 euro	1412	84.83
Exactly 102 euro	57	3.44
Less than 102 euro	29	1.74
Refuse	18	1.08
Do not know	148	8.9
Total	1665	100

Financial literacy questions

- *Inflation*

Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account? (i) More than today; (ii) Exactly the same; (iii) Less than today; (iv) Do not know; (v) Refusal.

<i>Inflation question</i>	No.obs.	in %
More	46	2.74
exactly the same	94	5.65
Less	1280	76.86
Refuse	20	1.2
Do not know	225	13.54
Total	1665	100

Financial literacy questions

- *Risk diversification*

Do you think that the following statement is true or false?: Buying a company stock usually provides a safer return than a stock mutual fund. (i) True; (ii) False; (iii) Do not know; (iv) Refusal.

- In 2005 the wording of this question was randomized. The pattern of the answers changed dramatically when order of the wording was inverted.

<i>Diversification question</i>	No.obs.	in %
incorrect 'right'	222	13.32
Correct 'false'	864	51.91
Refuse	26	1.57
Do not know	553	33.2
Total	1665	100

Extent of financial literacy

Table 1b: The extent of financial literacy

	#respondents	in percent
Correct answers to interest and inflation question	1222	73.36
all answers correct	746	44.83
no answers correct	174	10.46
at least one answer 'do not know/refuse'	626	37.60
all 'do not know/refuse'	134	8.07

Who knows the least?

<i>Overall</i>	#obs	Interest		Inflation		Diversification		Overall	
		correct	dk	correct	Dk	correct	dk	3 correct	at least 1 dk
Total	1665	84.83	9.98	76.86	14.74	51.91	34.77	44.83	37.6
<i>Age</i>	#obs	Interest		Inflation		Diversification		Overall	
<=35	169	84.67	8.89	76.17	16.7	52.51	32.29	45.97	34.32
36-50	452	85.13	10.68	74.24	17.32	52.71	35.89	45.83	38.34
51-65	646	86.57	8.22	77.48	12.04	54.43	35.16	46.7	38.07
>65	398	82.1	12.44	80.6	12.79	46.56	34.92	39.57	38.94
<i>Gender</i>	#obs	Interest		Inflation		Diversification		Overall	
Male	882	86.63	9.31	81.91	11.06	62.03	27.5	55.06	29.04
Female	783	83.1	10.63	71.99	18.3	42.14	41.79	34.96	45.85
<i>education level</i>	#obs	Interest		Inflation		Diversification		Overall	
primary (basisonderwijs)	81	70.24	18.29	65.62	19.49	41.68	48.53	28.01	54.36
lower secondary: VMBO	457	79.81	15.18	66	20.73	45.76	40.89	35.1	44.88
upper secondary: MBO	291	85.3	8.9	75.28	16.55	47.43	34.87	41.66	38.07
upper secondary: HAVO/VWO	177	91.48	4.95	88	7.54	59.42	25.86	54.4	26.56
Tertiary: HBO	448	89.45	6.78	85.8	9.52	59.7	29.68	55.38	30.81
Tertiary: University	211	95.66	2.63	94.79	4.81	72.4	23.19	69.76	24.11

Financial literacy and religion

<i>Religion</i>	#obs	Interest		Inflation		Diversification		Overall	
		correct	dk	correct	Dk	correct	dk	3 correct	at least 1 dk
no religion	730	86.03	9.47	78.92	13.34	53.57	34.42	46.97	36.35
Catholic	491	84.79	9.84	74.32	16.58	54.2	32.29	44.82	36.26
Protestant (evangelistic)	336	83.48	9.59	78.94	10.64	50.5	31.73	43.82	35.84
Other religion	108	81.74	14.58	69.18	26.94	37.08	54.92	35.15	54.92

Thinking about retirement

- HRS: Lusardi and Mitchell (2006)
How much have you thought about retirement: A lot, some, little, or hardly at all?
- This question also in the 2005 DHS questionnaire

Table 4: Retirement planning across years

<i>weighted percentages</i>			
<i>Whole sample (2005: 1498 obs; 2010:1138 obs)</i>			
	year		
thought about retirement	2005	2010	Total
	%	%	%
a lot	12.9	17.1	14.7
Some	51.1	52.4	51.6
Little	28.1	21.9	25.4
hardly at all	7.2	7	7.1
don't know/refusal	0.8	1.7	1.1
Total	100	100	100
chi2- statistic (p value)	15.73	0.0034	
<i>Non-retired <65 years (2005: 1028 obs; 2010:769 obs)</i>			
	Year		
thought about retirement	2005	2010	Total
	%	%	%
a lot	9.7	13.2	11.2
Some	51.6	53.1	52.3
Little	28.7	24.7	27
hardly at all	9	6.7	8
don't know/refusal	1	2.2	1.5
Total	100	100	100
chi2- statistic (p value)	9.77	0.0444	

Multivariate analysis of retirement planning (1152 obs)

VARIABLES	OLS all_correct	OLS number_correct	GMM all_correct	GMM number_correct
All literacy questions answered correctly	0.136***		0.649***	
	(0.0304)		(0.171)	
# correct answers fn lit questions		0.108***		0.195***
		(0.0170)		(0.0444)
Religion (base: no religion)				
Catholic	0.0850**	0.0861**	0.0849**	0.0914***
	(0.0341)	(0.0335)	(0.0377)	(0.0333)
Protestant (evangelistic)	0.0159	0.0184	0.0166	0.0228
	(0.0393)	(0.0386)	(0.0432)	(0.0383)
Other religion	-0.0434	-0.0346	-0.0290	-0.0251
	(0.0587)	(0.0596)	(0.0665)	(0.0612)
R-squared	0.098	0.119	-0.153	0.094
pval lft	0.00329	0.00334	0.0311	0.00574
pval education	0.147	0.135	0.284	0.150
pval religion	0.0434	0.0463	0.108	0.0354
pval mar status	0.0459	0.111	0.218	0.342
pval income	0.00687	0.00874	0.0625	0.0167
F statistic first stage regression			9.931	19.15
p-value exogeneity test			0.00304	0.0452
p-value Hansen Hansen OIR test			0.159	0.178

Endogeneity

- The literacy variable might be endogenous because of
 1. Reverse causality
 2. Omitted variable (ability) bias
 3. Measurement error
- We collected information on whether the financial situation of the oldest sibling is “better,” “the same,” or “worse” than the financial situation of the respondent.
- In addition to the financial situation of siblings we also consider parents’ understanding of financial matters as perceived by the respondent.
- We next exploit the longitudinal nature of our dataset and estimate a fixed effects model

First stage regressions

	(1)	(2)
VARIABLES	all_correct	number_correct
Financial situation oldest sibling (base group: no sibling, don't know)		
Worse	0.0792*	0.323***
	(0.0475)	(0.0965)
The same or better	0.0347	0.283***
	(0.0417)	(0.0902)
Parents' understanding of financial matters (base: low)		
Intermediate or high	0.00557	0.0517
	(0.0396)	(0.0691)
DK	-0.248***	-0.764***
	(0.0588)	(0.132)
Observations	1,152	1,152
R-squared	0.157	0.227
pval lft	0.465	0.320
pval oplcat	2.50e-06	1.29e-05
pval mar status	0.0335	0.105
pval income	0.000261	0.00209
pval religion	0.959	0.799
pval urb grade	0.423	0.186
F statistic first stage regression	9.931	19.15

Fixed effects and dynamic regressions

VARIABLES	fe all_correct	fe number_correct	OLS all_correct lagged	OLS number_correct lagged
All literacy questions answered correctly	0.0223			
	(0.0422)			
All literacy questions answered correctly ₂₀₀₅			0.0800*	
			(0.0448)	
# correct answers fn lit questions		0.0573**		
		(0.0278)		
# correct answers fn lit questions ₂₀₀₅				0.0683**
				(0.0281)
Year=2005	-0.0525	-0.0491		
	(0.0406)	(0.0387)		
Diversification_question_version1_2005	0.0726	0.0595		
	(0.0537)	(0.0522)		
Observations	1,782	1,782	471	471
R-squared	0.067	0.076	0.107	0.113
pval lft	0.810	0.895	0.0333	0.0338
pval education	0.329	0.315	0.943	0.983
pval mar status	0.00170	0.00252	0.00275	0.00335
pval income	0.521	0.545	0.0232	0.0330
Number of nohold_nomem	1,337	1,337		
p-value interaction effects rand. div question	0.169	0.137		

Financial literacy and retirement expectations

- For this analysis we use data from an additional module on pension expectations collected by CentERdata in Fall of 2010.
- For this exercise, we merge information on pension expectations with our financial literacy data for employees younger than 65.
- *Retirement age:* At which age do you expect to retire? (answer options: '... years' or 'do not know')
- *Replacement rate*

Suppose now that you retire at age RET_AGE. Think about your total pension income from public and private pension entitlements. What is the minimum and maximum gross pension income you expect to receive as a percentage of your gross income just before retirement?

- Extra question from which we can infer the expected replacement rate.

Findings on pension expectations

- Considerable subgroup (10.5%) answer report don't know to the expected retirement age question.
- Especially the financial illiterate have a higher likelihood to provide a don't know answer.
- Similar 'don't know' pattern for the replacement rate questions
- For those workers who do hold expectations, these expectations seem to be much more realistic for high literate workers, i.e. they expect economically and statistically significant lower replacement rates and they acknowledge higher levels of uncertainty.

Literacy en expected retirement age

VARIABLES	exp pension age unknown	exp retirement age unknown	exp retirement age	exp retirement age
# correct answers fn lit questions	-0.0734***	-0.0672***	0.0843	0.139
	(0.0161)	(0.0155)	(0.130)	(0.137)
Year of birth (Base group: yob>1975)				
1959<=yob<=1975		-0.0302		-0.934**
		(0.0321)		(0.422)
1955<=yob<=1958		-0.0176		-1.011**
		(0.0389)		(0.433)
yob<1955		-0.0621**		-1.557***
		(0.0299)		(0.383)
Observations	657	654	611	608
R-squared	0.068	0.164	0.001	0.082
pval gebj		0.115		0.000227
pval education		0.378		0.453
pval religion		0.0273		0.468
pval mar status		0.955		0.323
pval income		0.0347		3.65e-09

Literacy and the expected replacement rate

VARIABLES	exp replacement rate unknown	exp replacement rate	min. replacement rate	range replacement rate
# correct answers fn lit questions	-0.115***	-1.604**	-2.452***	1.504***
	(0.0207)	(0.723)	(0.690)	(0.453)
Expected retirement age	0.00596	0.135	0.312	-0.0404
	(0.00605)	(0.272)	(0.281)	(0.194)
Year of birth (Base group: yob>1975)				
1959<=yob<=1975	-0.0131	-4.271**	-2.477	-4.458***
	(0.0446)	(1.865)	(1.882)	(1.232)
1955<=yob5<=1958	0.0536	-1.695	1.128	-4.950***
	(0.0573)	(2.133)	(2.212)	(1.446)
yob<1955	-0.0431	-1.327	2.672	-8.407***
	(0.0490)	(1.955)	(1.980)	(1.308)
Constant	0.191	81.43***	65.22***	14.34
	(0.424)	(19.42)	(19.76)	(12.64)
Observations	646	494	524	523
R-squared	0.175	0.090	0.130	0.193
pval gebj	0.314	0.0733	0.00649	2.02e-10
pval education	0.940	0.0820	0.0215	0.141
pval religion	0.109	0.338	0.207	0.478
pval mar status	0.869	0.540	0.399	0.320
pval income	0.0181	0.962	0.000112	0.476