The Power of a Percentage

Quantitative Framing and Pension Awareness

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Disclaimer

- The views expressed are those of the authors and do not necessarily reflect those of De Nederlandsche Bank or the Eurosystem. Any remaining errors are the authors' own responsibility.

Background

- Pension information usually presented in euros per month or per year
- Would an alternative quantitative frame have a different impact on perceived pension adequacy?
- Framing effects are well known
- No previous research on effect of quantitative pension income frame

Methodology

- We present panel members who are employees with a hypothetical pension income which is equal to 50% of their current wage
- We randomly allocate respondents to one of four quantitative framing conditions

Conditions

Imagine you get as pension income:

- A. ….. gross euros per month
- B. ….. gross euros per year
- C. 50% of your current gross income
- D. 0.5 of your current gross income

We then ask the following question

Please indicate to what degree you regard this pension income sufficient or insufficient to be able to make a living. Please do not take your partner's income into account.

a. Very unsatisfactory
b. Unsatisfactory
c. Satisfactory
d. Very satisfactory

Do not know is also allowed

Distribution over framing conditions

Projected pension income	Frequency	Percent	Cumulative
Annual income	223	21.57	21.57
Monthly income	222	21.47	43.04
Replacement rate as percent	293	28.34	71.37
Replacement rate as fraction	296	28.63	100
Total	1,034	100	

Source: constructed by the authors based on the CentER panel data

Perceived adequacy of projected pension income

Perceived adequacy of pension income	Frequency	Percent	Cumulative
Very unsatisfactory	199	19.25	19.25
Unsatisfactory	560	54.16	73.40
Satisfactory	250	24.18	97.58
Very satisfactory	25	2.42	100
Total	1,034	100	

Source: constructed by the authors based on the CentER panel data

Table 4. Perceived adequacy of projected pension income by frame

	Projected pension income				
Perceived adequacy of pension income	Annual income	Monthly income	RP percent	RP fraction	Total
Very unsatisfactory	19.28	22.07	19.45	16.89	19.25
Unsatisfactory	52.02	50.90	62.12	50.34	54.16
Satisfactory	25.11	26.13	16.38	29.73	24.18
Very satisfactory	3.59	0.90	2.05	3.04	2.42
Total	100	100	100	100	100
Pearson chi2(9)* = 22.21 Pr = 0.008					

Source: constructed by the authors based on the CentER panel data

*Pearson's chi-squared for the hypothesis that the rows and columns in a two-way table are independent

Table 5. Percentage regarding the pension income as inadequate, by frame

	%
Annual euros frame	71.30
Monthy euros frame	72,79
50% of current income frame	81.47
0,5 times current income frame	67.33

Source: constructed by the authors based on the CentER panel data

Table 6 "Focused" variables – used in the regressions of Section 5

Projected pension income framed as replacement rate as fraction of gross income vs any other frames

Perceived adequacy of pension income: (very) unsatisfactory vs (very) satisfactory

Perceived adequacy of pension income	Projected pension income		Total
	Replacement rate as fraction	Any other frame	
(Very) Unsatisfactory	81.57	70.18	73.40
(Very) Satisfactory	18.43	29.82	26.54
Total	100	100	
Pearson chi2(1) = 13.96 Pr = 0.000			

Source: constructed by the authors based on CentER panel data

Table 7. Summary statistics of variables in regression equations

Variable	Mean	Std.Dev.	Min.	Max.	N.Obs.
Unsatisfaction	0.734	0. 442	0	1	1,034
Pension as % income	0.283	0.451	0	1	1,034
Gross pers. Income	4,424	3,008	0	40,000	1,034
Total hh wealth	252,560	234,344	30	3,324,771	715
Financial hh wealth	40,627	122,672	0	2,874,771	715
Net fin. hh wealth	34,776	125,297	-227,775	2,874,771	715
Age 18-20 yrs	0.099	0.298	0	1	1,034
Age 30-39 yrs	0.260	0.439	0	1	1,034
Age 40-49 yrs	0.280	0.449	0	1	1,034
Age 50-59 yrs	0.242	0.428	0	1	1,034
Age 60+ yrs	0.117	0.321	0	1	1,034
Education:					
Primary	0.012	0.111	0	1	1,034
Prevocational	0.147	0.354	0	1	1,034
Selective secundary	0.080	0.271	0	1	1,034
Applied science 1	0.333	0.471	0	1	1,034
Applied science 2	0.277	0.448	0	1	1,034
University degree	0.148	0.356	0	1	1,034
Have a partner	0.715	0.451	0	1	1,034
FKP	0.718	0.449	0	1	1,034
Homeowner yes/no	0.770	0.420	0	1	1,034

Table 8. Regression results. Dependent variable: projected pension (very) inadequate

	(1)	(2)	(3)	(4)	(5)
Controls	Marg.Eff. (Std.Err.)	Marg.Eff. (Std.Err.)	Marg.Eff. (Std.Err.)	Marg.Eff. (Std.Err.)	Marg.Ef (Std.Err.
Pension as % inc.	0.100***	0.156***	0.161***	0.154***	0.156**
	(0.029)	(0.034)	(0.033)	(0.034)	(0.033)
Gross hh income	-0.014	-0.033**	-0.033**	-0.033**	-0.034**
	(0.009)	(0.016)	(0.016)	(0.016)	(0.016)
Total hh wealth			-0.023***		
			(0.009)		
Fin. hh wealth				-0.069**	
				(0.029)	
Net tot. hh wealth					-0.021*
					(0.008)
Age 30-39 yrs	0.034	0.065	0.092	0.073	0.070
	(0.055)	(0.072)	(0.070)	(0.072)	(0.071)
Age 40-49 yrs	-0.101*	-0.087	-0.054	-0.075	-0.079
	(0.060)	(0.080)	(0.080)	(0.080)	(0.080)
Age 50-59 yrs	-0.166***	-0.163*	-0.120	-0.134	-0.137
	(0.063)	(0.084)	(0.084)	(0.085)	(0.084)
Age 60+ yrs	-0.181**	-0.171*	-0.111	-0.126	-0.135
	(0.074)	(0.095)	(0.094)	(0.095)	(0.094)
Prevoc education	-0.320	-0.262	-0.312	-0.307	-0.283
	(0.215)	(0.242)	(0.241)	(0.243)	(0.243)
Selective secondary education	-0.247	-0.218	-0.266	-0.256	-0.241
	(0.224)	(0.250)	(0.251)	(0.253)	(0.252)
Vocational education	-0.250	-0.211	-0.259	-0.258	-0.236
	(0.195)	(0.226)	(0.227)	(0.230)	(0.227)
Applied sciences	-0.315	-0.260	-0.291	-0.291	-0.280
	(0.201)	(0.219)	(0.218)	(0.220)	(0.220)
University degree	-0.398*	-0.303	-0.319	-0.327	-0.325
	(0.208)	(0.237)	(0.236)	(0.237)	(0.236)
Have a partner	-0.012	-0.022	-0.011	-0.018	-0.011
	(0.035)	(0.045)	(0.046)	(0.046)	(0.045)
FKP	-0.037	-0.074**	-0.068*	-0.070*	-0.073*
	(0.032)	(0.037)	(0.037)	(0.037)	(0.037)
Be homeowner	-0.040	-0.042	0.012	-0.032	-0.017
	(0.035)	(0.046)	(0.054)	(0.047)	(0.049)
Observations	1,034	713	713	713	713
Pseudo R-squared	0.054	0.069	0.079	0.081	0.078
Joint sign. age (p)	0.000	0.001	0.001	0.001	0.001
Joint sign. edu (p)	0.061	0.563	0.705	0.654	0.564

Discussion

- We find that logically equivalent quantitative pension income frames have a different impact on perceived pension adequacy.
- Framing the pension as a percentage of current income results in a significantly lower perceived adequacy than a frame in annual euros, monthly euros, or in pension income as a fraction of current income
- This findings is robust for adding potentially relevant explanatories

Discussion (2)

- We have only looked at the effect of a projection equivalent to 50% of current income
- As a 50% replacement rate is generally assumed to be too low, the lower perceived adequacy in the percentage condition can be interpreted as more pension awareness

Policy implications

- If this finding generalizes to projected pension incomes of other levels than 50% of current income, the pension industry could at low/no cost make plan members more aware of the inadequacy of their future pension

Further research

- Should analyze whether the finding holds for other percentages
- Should study whether the quantitative framing effect also is found in domains other than pensions

Thank you for your attention!