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ABSTRACT

We study the pension benefit expectations of Finnish over 44-year-old workers. 62 per cent are able to give an estimate on future pensions, while the rest cannot give any. The subgroups that give higher estimates are men, the educated, and those who are working compared to those not in the labour force and the unemployed. Those who have higher registered pension rights also give higher estimates. When compared to labour market earnings, we find that expecting a replacement rate of approximately 60 per cent is common, although there is a great variation in the expected replacement rates. 37 per cent of the estimates fall in the range of 75–125 per cent of the registered pension rights, and when the pension rights are calculated to include the future career as well, the share of good estimates increases to a half. Most of the estimates that do not fall close to the registered pension values are overestimations, which suggests that the individuals expect to accrue more pension rights in the future career. The results suggest that although variation is very high, in general Finnish workers have reasonably realistic expectations on their future pensions.

CONTENTS

1 Introduction

Economic models of retirement generally assume that people are fully informed in their decision-making. Individuals calculate their financial incentives for continued work and compare the value of these incentives to the value of lost leisure if they continue at work. On the basis of this comparison, individuals choose the optimal time of retirement.

The Finnish pension system was reformed in 2005 in order to give better incentives for a longer working career. However, an incentive only works in practise if people understand it. Calculation of pension benefits is very complicated, because benefit rules are complex and have changed relatively often. Pension providers provide both general and customized information on the determination of the pension rights, but it is not certain how much of this information filters through to actual individual decision-making.

Especially if the date of expected retirement is in the far future, the individual may consider the costs of acquiring information on pensions too high. However, an overly optimistic expectation on future pensions may prevent saving during the working life and thus force individuals to postpone retirement or even result in a below-optimal standard of living after retirement.

The aim of this paper is to study pension benefit expectations of the Finnish workers approaching retirement. To do this we use a nationally representative data set where we match survey questions on expected benefits to registered information on actual pension rights.

The paper aims to answer three questions. First, we study whether the individuals who give an estimate on their future pension benefits differ from those who do not give any estimate at all. Second, we study how the estimated amounts vary between subgroups. Third, and most importantly, we compare the estimates that the people give themselves to their actual pension rights as registered in the national pension registers.

Comparing the estimates given to the registered pension rights tells us how knowledge on pensions is distributed among the Finnish population: who are the informed and to whom should information especially be aimed. The strength of this study is the data set that allows us to calculate the pension rights very precisely.

2 Earlier studies

There are only few previous studies on pension benefit expectations. Bernheim (1987) used the US Social Security Administration's Retirement History Survey data on benefit expectations and calculated the actual benefit rights from the earnings histories of individuals. He found that widows and single women gave the most accurate estimates on future Social Security benefits, while married men were the least accurate. This study, however, excluded pension information[1].

Bernheim finds that variation in the expectations is great and individuals do not use all available information to form expectations. However, in general the expectations are quite accurate, especially given the information that individuals take into account, and extreme optimism is rare.

Gustman and Steinmeier (1999, 2001, 2005), in contrast, had both Social Security benefits and pension benefits in their data set. They compared self-reported benefit estimates in the Health and Retirement Survey to benefit rights calculated from employer's or Social Security Administration records[2].

Gustman and Steinmeier found – in contrast to Bernheim's findings – that the educated, men, whites, those with high income and wealth were more likely to give better estimates both on their future Social Security benefits as well as their future pension benefits. The only difference was that the oldest cohort was more informed on Social Security benefits than the others, but not so on pension benefits. Gustman and Steinmeier concluded that those who are most dependent on Social Security benefits are the least informed, while those who are most dependent on pension benefits are the best informed. They also found that knowledge on pensions and Social Security is strongly correlated with the information provided by the employer or the union.

Chan and Stevens (2003) found in their study with Health and Retirement Survey that people respond to incentives, but the perceived incentives may differ from the actual ones. Finally, with an Italian data set Bottazzi, Jappelli and Padula (2006) found that people adjust their benefit expectations after a pension reform in the direction of the legislative changes.

1 Social Security in the United States is a social insurance program funded through dedicated payroll taxes. Social Security provides for a minimum retirement benefit for all eligible individuals. Pensions are earnings-related and often offered by the employer as a part of the compensation package.

2 Their data set, however, was not fully representative, because only about 70 per cent of the individuals in the data set could be matched for the administrative pension information. Either the individuals denied matching Social Security Administration records or the employers failed to provide the pension information.

3 The pension system in Finland

In Finland, there are two pension schemes: the earnings-related pension scheme and the national pension scheme. The earnings-related pension scheme is the dominant one and it ensures practically all work and some non-work periods. The national pension scheme is a minimum guarantee pension scheme with income-testing on pensions. Private pension schemes and employer-provided schemes play a minor – even if growing – role.

The earnings-related pension scheme consists of about ten different pension acts. There are separate pension acts for example for private-sector employees, for municipal employees and for government employees. The benefit rules in these different pension acts have become pretty similar over time, but the differences of the past still affect current pension rights. All private-sector pension rights are registered in the same registers (those of the Finnish Centre for Pensions), but the municipal and government pension rights have, until recently, been registered separately.

The earnings-related pension scheme is mandatory, so that a worker cannot decide not to participate. The contribution rates are pretty high (over 20%) and rising. Employers pay a higher share of the contribution. All pension rights are vested, so there should not be any uncertainty about whether the worker will accrue pension rights from a particular employment contract.

There is no absolute ceiling for even very high pension benefits. Yet until 2005 there was a relative ceiling as the pension benefit could not exceed 60 per cent of the highest wage that was used in the benefit calculation. In 2005 this relative ceiling was removed.

The target replacement rate prior to 2005 was 60 per cent of the "permanent wage". This could be achieved with 40 years of employment (1.5% accrued pension right per year). The 60 per cent of the wage is also likely to be the rule-of-thumb in pension calculations if people have any. In practise, the average replacement rate has been around 50 per cent of the final wages (Anttila et al. 2005).

Prior to 2005, pension rights were calculated separately from each employment contract. The pension right from each job was calculated by multiplying the final wage by the accrual percentage and the months in the job. The final wage was – after the most recent reform prior to 2005 – calculated as the average of the last 10 yearly wages. The pension rights from all jobs were indexed and added up at retirement. Also pension rights from non-working periods (e.g. unemployment) were taken into account, rendering the pension calculation pretty complicated.

Prior to 2005, the normal old-age pension eligibility age was 65. Old-age pensions could be taken early from the age of 60. After 2005, the old-age pension can be taken between ages 63 and 68. In practise, the average retirement age is about 60 years due to extensive early retirement programmes for those with bad health or for the aged unemployed. In 2004, the median retirement age was 60.1 years and the mean was 57 years. (Statistical Yearbook of Pensioners in Finland 2004.)

2005 was the year for a major pension reform in Finland. Then the scheme was transferred from a job-specific pension scheme to a scheme where pensions are calculated from yearly earnings. The change in the benefit calculation technique meant that everyone's existing pension rights were calculated and registered at the end of 2004 – the same year when the survey data was collected[3].

3 Without this change in the system it would have been harder to calculate the total pension right because wages for the ongoing job contracts were not registered in the same registers as the rest of the information needed for the pension calculation.

4 Data

Overall description of the data

For the analysis we combine several data sources: the backbone of the data set is the Household Wealth Survey. This survey is collected by Statistics Finland about every five years. We use the latest Household Wealth Survey, which was collected between 1st February and 31st May 2005. The data were mainly collected by household interviews, but in order to economize the collection, some of the data comes from registers. For our purposes, the most important registered information is the information on income (that comes from the tax register).

The Household Wealth Survey is collected at household level. The sampling frame accounts for socioeconomic status and household income as well as oversamples for the capital region. The original sample size was 5,300 households. Each household therefore represents about 700 households. Out of the sampled households 3,455 households responded, so the response rate (65.2%) is pretty good for a study on wealth[4].

The sample was made representative for the whole population by constructing appropriate weights. These weights take into account the sampling frame, household size, region, type of municipality, gender, age and numerous household income variables.

In the interview, the member with the highest income in the household answers the interview questions. This person is identified as a reference person in the data. He/she may, but need not, be the same person as the sampled person. The retirement questions we study in this paper were asked of the reference person and his/her spouse only if they were more than 44 years old[5].

In this essay we use the data set on an individual basis. Because there is a possibility that the sampled person does not answer the questions (he/she is not the reference person, nor the spouse), we lose somewhat in the representativeness of the sample when we convert the data to reflect individuals.[6]

The question on benefit expectations

The question on the expected pension benefits the interviewees were asked to answer was: "Please estimate the amount of old-age pension per month You expect to receive at the time of Your retirement, before taxes." In addition, the interviewers were given the following directions:

"The old-age pension consists of pensions accrued during the individual's whole working life. If the individual is retired and receives a disability pension or an unemployment pension, the name of the pension will be changed to old-age pension once the individual turns 63."

4 Of the non-respondents, 79 per cent refused to participate in the study, 19 per cent were not reached and 2 per cent were in the category of "other reasons". Main reasons for refusals were "matter of principle", "lack of time", or not wanting to participate in a study on wealth.

5 If one of the spouses is over 44 and the other is not, only the older of the spouses was asked the questions.

6 The sample frame includes all Finns 16+. So the sampled individual may also be a child, whose parents answer.

Private pension saving was not included in this question, but the interviewees were asked about their private pension savings in another question of the survey[7].

Linked register data and the calculation of pension rights

This subsection presents the linkage of the register data and the calculation of the current pension rights.

The survey data was linked to the registered data from the Employment Register and the Pension Register of the Finnish Centre for Pensions as well as some added data from the Local Government Pensions Institution. The aim of this linkage was to collect all the information that is required for the calculation of the registered (and therefore the true) pension rights.

The information needed to construct the registered pension benefit came mostly from the registers of the Finnish Centre for Pensions. The Finnish Centre for Pensions collects information on all accrued pension rights and employment dates for the private-sector employees and self-employed, as well as all employment dates both on the public and the private sector.

Pension rights that are accrued in municipal employment are registered by the Local Government Pensions Institution and pension rights in government employment are registered by the State Treasury. For this study the pension rights information from the Local Government Pensions Institution could be obtained, but the State Treasury was not able to provide the needed information.

The municipal pension rights used in this study were collected from the Local Government Pensions Institution. The government pension rights were not available, so this study includes individuals who have accrued their pension rights in the private sector or in the municipal sector[8 9].

7 Ahonen et al (2007) analyzed the interviewees' opinions on private pension savings using the same data.

8 In 2006, 6 per cent of the employed were in government employment. 21 per cent were in municipal employment and 73 per cent worked for the private sector. In the sample used in this study, excluding the individuals who have pension rights accrued from government employment reduces the number of individuals from 2,102 to 1,480.

9 We also did an experiment where we predicted the values of the pension rights accrued in government employment. We had accurate information on contract length and accrual percentage, but pensionable wage had to be estimated. This was done by running a regression on the available pensionable wages (from private sector and municipal employment) on age, year and individual dummies (fixed effects). The coefficients from this regression were then used in defining the pensionable wage for government employment. The results were similar, whether or not the predicted government pension rights were included.

In addition to work, pension rights also accrue from unemployment periods. These rights were calculated by multiplying the accrued pension right from the working periods by the coefficient for the increment for credited periods[10].

If the individual has no rights to an earnings-related pension from employment and unemployment periods, he is entitled to a national pension to guarantee a minimum level of income in old age. The minimum level is defined yearly and it depends on family type[11] and the municipality of residence[12]. The amount of the national pension benefit received depends on the amount of earnings-related pension received, so that each euro in the accrued earnings-related pension reduces the national pension by 50 cents, and after reaching an upper limit, the right to a national pension ceases.

The sample

The questions we are particularly interested in in the survey are the specific pension questions, i.e. the expected amount of pension benefits and the expected retirement age. These questions were asked of the interviewed individuals and their spouses (i.e. the reference persons of the households and their spouses) only if they were more than 44 years old. Because we are interested in expectations of pension benefits, we exclude those who are already retired.

The sample used in this study consists of individuals that are either the reference person of the household or his/her spouse, 45 years old or older and not yet retired. The sample used in this study and its construction is explained in appendix.

10 The calculation of the coefficient for the increment for credited periods depends on whether the unemployment period was before or after the beginning of 1997. The coefficient can be derived as $\frac{a+0.8*b}{(504-c)}$, where a is the number of months of unemployment before 1997, b is the number of months of unemployment after 1997, c is the total number of months of unemployment. 504 is the number of months from age 23 to age 65. Unfortunately, the data set only has information on the total number of months of unemployment, so we cannot divide c into a and b. The formula we have used in the calculation of the coefficient is therefore $\frac{0.9*c}{(504-c)}$ which should be accurate enough for our purposes. To see the difference in the coefficient caused by different multipliers, we constructed the accrued pension rights from the unemployment periods for the whole sample using 0.8, 0.9 and 1 as multipliers. In all three cases, for the pension rights from total unemployment periods, the means were 8, 9, and 10 euros per month, respectively. So the difference is small.

11 It is higher for singles than for people living with a spouse.

12 The level is higher for all municipalities in the Åland and Lapland provinces, in the capital region, and in 20 other municipalities which are mainly either small insular municipalities or provincial towns. Unfortunately, we do not have exact information on municipality, so we can only identify people living in the Åland and Lapland provinces and in the capital region. This may cause some inaccuracy in the calculation of benefits, but the inaccuracy is small.

5 Results

In this section we first present the results on who gives any estimate at all on their pension rights, and then move on to the results on the amounts estimated and to who errs with their pension benefit prediction.

Who gives an estimate on their pension benefits

62 per cent of the relevant individuals give an estimate on the size of their future old-age pension benefit. So the rest, more than one-third of over 44 years old, not yet retired Finns, either do not want to answer or, most likely, cannot give an estimate on their pension rights.

In table 1 we present the shares of individuals who give an estimate on their future pensions by subgroup.

Table 1. *Shares of individuals who give estimates by subgroup.*

Subgroup	Share that gives estimate	Number of individuals in subgroup
Whole sample	62%	1,480
Men	63%	746
Women	62%	734
Age 45–49	57%	503
Age 50–54	65%	444
Age 55–59	68%	414
Age 60–66	57%	119
Education		
Comprehensive school	60%	274
Intermediate education	61%	633
College	66%	267
University	67%	139
Labour market status		
Working (employed or self-employed)	64%	1,243
Unemployed	66%	116
Not in the labour force	55%	58
Part-time pensioner	22%	63

In table 2 we run simple a probit regression[13] on whether the individual gives an estimate or not on a number of observed variables.

13 The probit model is based on the cumulative normal distribution function. It measures the probability of an event happening. The interpretation of a probit coefficient, b, is that a one-unit increase in the predictor leads to increasing the probability of the dependent variable having value 1 by b. In other words, a one-unit increase in the independent variable increases the probability of the event we are interested in by percentage points equal to the coefficient. For example, a one year increase in the self-reported time to retirement decreases the probability to give an estimate by 1 percentage point. The individual being a part-time pensioner decreases the probability by 44 percentage points.

Table 2. *Marginal effects of whether an individual gives an estimate on their pension right (marginal effects; standard errors and p values in brackets).*

Variable	
Gender: male	0.02 (0.03; 0.635)
Self-reported time to retirement (years)	-0.01 (0.00; 0.000)
Education	
Comprehensive school	Ref.
Intermediate education	0.06 (0.04; 0.112)
College	0.09 (0.05; 0.063)
University	0.07 (0.06; 0.214)
Labour market status	
Working	Ref.
Unemployed	-0.00 (0.06; 0.951)
Not in the labour force	-0.17 (0.09; 0.059)
Part-time pension	-0.44 (0.08; 0.000)
Number of observations	1,451*

* 29 individuals do not report expected time to retirement and are thus not included in this regression.

There is no gender difference in the likelihood to give a benefit estimate. Those who are near retirement are more likely to estimate than those who expect to retire in the farther future. A one year increase in the self-reported time to retirement decreases the probability to give an estimate by one percentage point. The result is as expected: the closer the individual is to retirement, the greater interest he also is likely to have in the amount of the pension benefit.

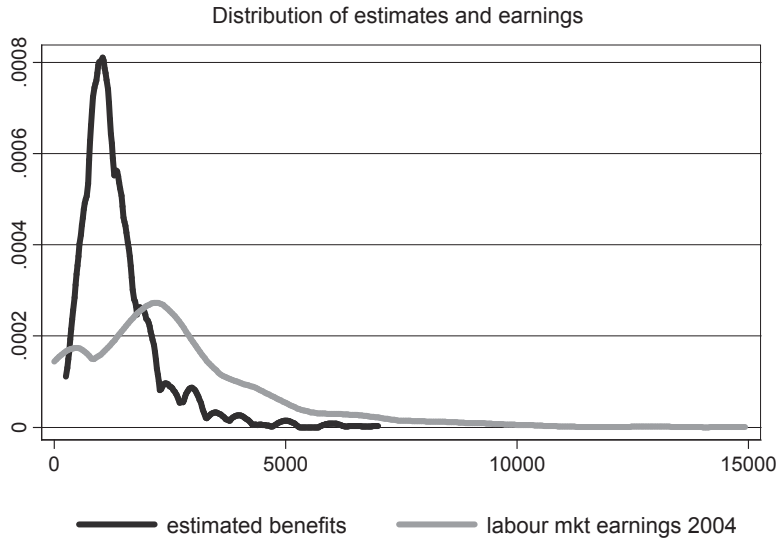
Education does not affect the likelihood to estimate. There is no difference in the likelihood to estimate for the working (employed or self-employed) and the unemployed. The working are, however, more likely to estimate than those not in the labour force and the part-time pensioners. Individuals that are part-time pensioners are 44 percentage points less likely to give an estimate than the working.

The result on part-time pensioners is surprising, as those who are on a part-time pension should be more familiar with the pension system. However, considering that the part-time pensioners already are receiving some form of pension, it is possible that they have not found the question of pension expectations relevant and therefore did not answer.

The estimated amounts

We now turn to the amounts actually estimated. In Figure 1 we first give the distribution of the individual estimates. In order to get a grasp of the variance we have also added the labour market earnings distribution (wages and entrepreneurial income) to the same figure.

Figure 1. *Density of the pension benefit estimates and monthly earnings. (The x axis is cut at 20,000.)*



The figure shows that pension estimates have a lower mean and variance than the earnings, as they should. The mean of the pension estimates is 1,378 euros per month and of the earnings 2,724 euros[14]. As the benefit target is 60 per cent of the earnings, the mean level of the estimates seems reasonable. Table 3 studies the expected amounts of pension benefits and labour market earnings by subgroup.

Table 3. *Benefit estimates and labour market earnings by subgroup.*

Subgroup	Mean of pension estimates	Median of pension estimates	Mean of labour market earnings 2004*	Median of labour market earnings 2004	Number of individuals in subgroup**
Whole sample	1,378 e	1,200 e	2,724 e	2,221 e	924
Men	1,547 e	1,300 e	2,866 e	2,472 e	470
Women	1,203 e	1,000 e	2,577 e	1,975 e	454
Age 45-49	1,371 e	1,200 e	2,705 e	2,378 e	288
Age 50-54	1,398 e	1,200 e	2,909 e	2,421 e	287
Age 55-59	1,364 e	1,200 e	2,481 e	2,018 e	281
Age 60-66	1,374 e	1,075 e	3,028 e	1,009 e	68
Education					
Comprehensive school	1,220 e	1,000 e	2,223 e	2,146 e	164
Intermediate education	1,272 e	1,084 e	2,347 e	2,146 e	388
College	1,488 e	1,300 e	3,334 e	2,732 e	175
University	2,316 e	2,000 e	5,428 e	3,730 e	92
Labour market status					
Working	1,441 e	1,200 e	3,033 e	2,404 e	801
Unemployed	904 e	750 e	247 e	0 e	77
Not in the labour force	903 e	800 e	565 e	127 e	32
Part-time pensioner	1,469 e	1,200 e	3,592 e	2,833 e	14

* The monthly labour market earnings of those who gave an estimate.
** The number of individuals who give an estimate in the subgroup.

14 The mean of the monthly labour market earnings of those who gave an estimate.

Official registers (Statistical Yearbook of Pensioners in Finland 2004) show that the mean old-age pension benefit was 1,098 euros at the end of 2004. So the estimates are generally somewhat higher than the official benefits.

Yet the official registers have old-age pensions also for the very old. As the level of the pensions has increased over time (pension system has been maturing), it is plausible that the level of the beginning old-age pensions is higher. In 2004, the mean for the beginning earnings-related pension was 1,275 euros per month.

Moreover, as women with lower benefits tend to live longer, the stock of all old-age pension benefits gives lower means than the expected distribution for the starting pension benefits for younger age groups.

The median for the benefit estimates is 1,200 euros and for the earnings 2,221 euros, so the distributions are pretty skewed. The variance for the benefit estimates is less than one-tenth of the variance of the earnings. Men's estimates are higher than women's, and the educated and the working give higher estimates than those with lower education or those not working.

In table 4 we run a regression on the natural logarithm of the estimated amount of pension.

Table 4. *Regression on the logarithm of the estimated amount of pension (standard errors and p values in brackets).*

Variable	
Gender: male	0.10 (0.03; 0.000)
Logarithm of current pension rights (monthly)	0.61 (0.04; 0.000)
Education	
Comprehensive school	Ref.
Intermediate education	0.07 (0.03; 0.023)
College	0.13 (0.04; 0.000)
University	0.32 (0.05; 0.000)
Labour market status	
Working (employed or self-employed)	Ref.
Unemployed	-0.36 (0.04; 0.000)
Not in the labour force	-0.26 (0.07; 0.000)
Part-time pension	-0.01 (0.10; 0.918)
Number of observations	924

Also the regression shows that men's estimates are higher than women's. Those with higher registered pension rights have higher estimates: a one per cent increase in pension rights increases the estimate by 0.61 per cent.

The educated have higher estimates than those with lower education, as is to be expected.

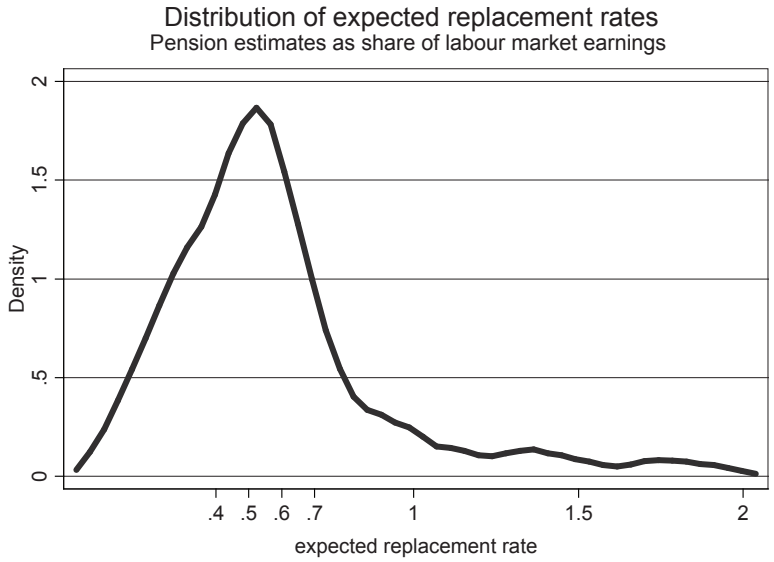
With regard to the labour market status, the unemployed and those not in the labour force give lower estimates than the employed and self-employed. The estimates of the part-time pensioners are not statistically different from the estimates of the working.

Expected replacement rates

As we explained in chapter 3, calculation of the benefits is complicated and it is unlikely that anyone really knows the rules. We therefore expected that people use "rules-of-thumb" when

making their guesstimate. Most informed individuals are likely to know that the target level of the pension benefits is 60 per cent of their earnings. We therefore also looked at the distribution of the expected replacement rates – that is, the benefit estimate divided by labour market earnings. This distribution is shown in figure 2[15].

Figure 2. *Distribution of expected replacement rates. (The x axis is cut at 2.0.)*



The estimated replacement rates vary greatly but the highest peak is near the target rate of 60 per cent. The highest estimated replacement rate is 34,000 per cent (!) whereas the lowest is 3 per cent. So even in the pure estimates there is great deal of variation and many values seem implausibly high or low.

Because of some very high values, the mean of the estimated replacement rates is 177 per cent, but the median is reasonable, 54 per cent. Of the estimated replacement rates, 16 per cent fall between 55 and 65 per cent, and 29 per cent fall between 50 and 70 per cent. We can conclude that although the variation is very high, many people indeed expect to get a replacement rate near 60 per cent.

The high expected replacement rates are mostly due to individuals with low labour market incomes. Expected replacement rates vary considerably with labour market income, as can be seen from table 5. The table also includes the registered current pension rights for comparison.

15 To make sure that extraordinarily low earnings for one year (say, for the sake of long sick leave, for example) would not give implausibly high replacement rates, we also studied the distribution based on the highest of the earnings that the individual had had in the three preceding years. This distribution, however, looked very similar to this.

Table 5. *Labour market income in 2004, expected replacement rates and current pension rights.*

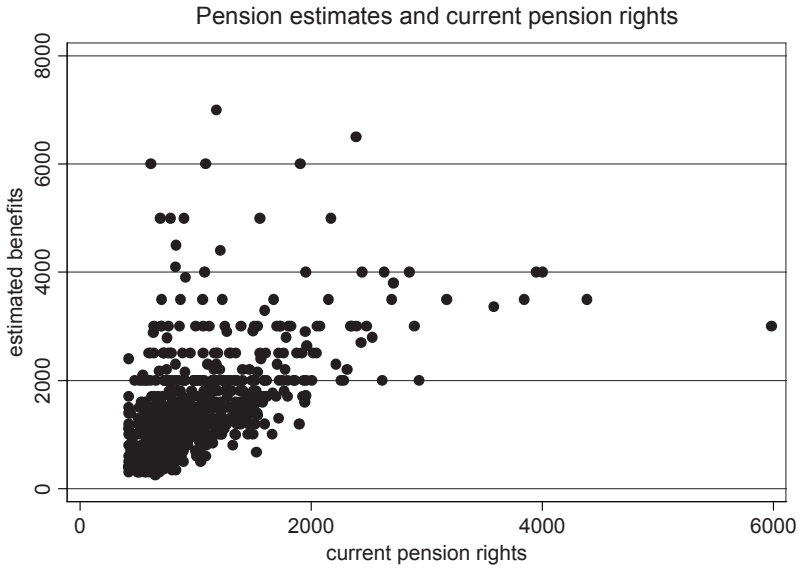
Labour market income in 2004	Median expected replacement rate	Mean expected replacement rate	Median current pension rights	Mean current pension rights
< 1,189 e per month (1st quarter)	168%	742%	703 e	781 e
1,190–2,220 e per month (2nd quarter)	58%	65%	748 e	792 e
2,221–3,351 e per month (3rd quarter)	50%	55%	911 e	975 e
> 3,352 e per month (4th quarter)	34%	38%	1,035 e	1,265 e

A natural explanation for the high expected replacement rates for those with low labour market incomes is the national pension. The individuals are probably aware of their right to a national pension, even though their earnings-related pensions are likely to be small.

Who errs on their estimate of their pension rights

In figure 3 we present the benefit estimates versus current pension rights. It can be seen that there is a positive correlation between these variables: those with high pension rights generally have higher estimates. However, variation is high.

Figure 3. *Pension estimates versus current pension rights.*



Of the estimates given, 37 per cent fall in the range of 75–125 per cent of the current pension rights. 56 per cent of the estimates exceed the value of the current pension right, while 7 per cent are below it.

In table 6 we run a probit regression for whether the individual's pension estimate falls in the range of 75–125 per cent of the current pension right.

Table 6. *Marginal effects on whether the individual gives a good estimate on his pension right (in the range of 75–125% of true value) (marginal effects; standard errors and p values in brackets).*

Variable	
Gender: male	-0.05 (0.05; 0.289)
Time to retirement (years)	-0.03 (0.00; 0.000)
Education	
Comprehensive school	Ref.
Intermediate education	-0.05 (0.06; 0.354)
College	-0.06 (0.07; 0.364)
University	0.06 (0.08; 0.461)
Labour market status	
Working (employed or self-employed)	Ref.
Unemployed	0.09 (0.08; 0.278)
Not in the labour force	0.18 (0.14; 0.202)
Part-time pension	-0.03 (0.18; 0.863)
Number of observations	923*

* One individual gave an estimate on the amount of future pension but not on the expected retirement age, and is thus not included in this regression.

The only statistically significant coefficient is for the time to expected retirement. Time to retirement decreases the likelihood to estimate well: a one year increase in time to expected retirement decreases the probability to give a good estimate by three percentage points. The result is as expected. The individuals who plan to retire in the near future are more likely to be interested in pensions and to consider the gains from acquiring information large.

The direction of the errors

A bad estimate may either be an overestimation or an underestimation of the true value of the current pension rights. As the individuals in the study are not yet retired and some expect not to retire in years, an overestimation may in fact be a rational estimation. It means that the individual expects to accrue more pension rights in the future, before retiring. So while an underestimation is purely a sign of imperfect knowledge, an overestimation may be a sign of the individual expecting a long working career and/or an upward wage development.

We could thus expect that the individuals that overestimate are those who expect earnings to rise rapidly in the future. In table 7 we present the results of a probit regression on whether the individual overestimates the value of the current pension rights (>125% of the true value).

Table 7. *Marginal effects on whether the individual gives an overestimate (more than 125% of true value) on his pension right (marginal effects; p values in brackets).*

Variable	
Gender: male	0.06 (0.05; 0.181)
Time to retirement (years)	0.03 (0.00; 0.000)
Education	
Comprehensive school	Ref.
Intermediate education	0.05 (0.06; 0.405)
College	0.12 (0.07; 0.075)
University	0.03 (0.08; 0.716)
Labour market status	
Working (employed or self-employed)	Ref.
Unemployed	-0.20 (0.07; 0.006)
Not in the labour force	-0.28 (0.14; 0.084)
Part-time pension	0.13 (0.18; 0.494)
Number of observations	923*

* One individual gave an estimate on the amount of future pension but not on the expected retirement age, and is thus not included in this regression.

The statistically significant coefficients are for the time to expected retirement and for the unemployed. Education and gender do not affect the likelihood to overestimate.

The effect of expected time to retirement is positive, i.e. those who expect not to retire soon are more likely to overestimate. A one year increase in time to expected retirement increases the probability to give an overestimation by three percentage points. This is understandable, as those who expect a long career probably expect to accrue more pension rights in the future career. The unemployed are 20 percentage points less likely to overestimate than the working.

Only 7 per cent of the individuals who gave an estimate underestimated the value of their current pension rights. None of the part-time pensioners or of the university educated gave an underestimation. The under-estimators had plans to retire in the nearer future: while the median expected years until retirement among all individuals who gave estimates is 9 years, the median expected years to retirement among the under-estimators is only 7. The under-estimators are also on average older than those who give estimates in the range of 75–125 per cent or overestimates.

The amount of pension if the individual continues working until age 63 or until the self-reported retirement age

In order to get a grasp of how large the actual pension benefits will be at retirement, we calculate the future pensions based on the assumption that the individual will continue to work for the current wage until retirement. We consider two cases: that the individual works until the age of 63, the lower age limit for the full old-age pension, and that the individual works until the self-reported expected age of retirement.

The pension right values calculated in this way are higher than the pension right values used in the previous sections with means of 1,357 euros (for working until age 63) and 1,380 euros

(for working until the self-reported retirement age) compared to 915 euros[16]. The medians are also higher at 1,191 euros (for working until age 63) and 1,182 euros (for working until the self-reported retirement age) compared to 782 euros[17].

When the estimated amount is compared to the calculated amount, the shares of estimates falling in the range of 75–125 per cent of the pension rights are 53 per cent (if the individual is assumed to work until the age 63) and 52 per cent (if the individual is assumed to work until the self-reported retirement age). The shares are higher than in the case where the estimates are compared to the pure current pension rights (37 per cent), which suggests that the interviewees indeed expect to receive larger benefits once retired than what was registered at the time of the interview. Especially the educated are more likely to give precise estimates when pension rights are calculated for a longer working career[18].

16 The mean value of the current pension rights for the whole sample, not just for those who give an estimate.

17 The median value of the current pension rights for the whole sample, not just for those who give an estimate.

18 In the preceding calculations we have assumed that the individuals report their expected pension amounts in the current value. However, some interviewees could have internalized inflation and given the nominal amount of pension in the value of the time of retirement. There were no instructions in the survey on how to deal with inflation, so at this stage we can only do sensitivity calculations. Forma et al. (2006) asked in a survey how large the Finns think current inflation is. The mean of the estimates was 2.3 per cent and the median was 2 per cent. Assuming that the median interviewee assumes inflation to be 2 per cent per year, and that the reported expected pension amounts actually reflect the expected nominal values in the time of retirement, we calculated the current (time of interview) value of the benefit estimates. We then compared these deflated estimates to the pure current pension rights, the pension rights based on the assumption that the individual will work for the current wage until the age of 63, and the pension rights calculated by the assumption that the individual will work for the current wage until the self-reported expected age of retirement. The shares of good estimates (75–125 per cent) were lower than when un-deflated estimates were used: 32 per cent, 25 per cent, and 26 per cent, respectively.

6 Conclusions

This paper studies the estimates the Finnish people approaching retirement give on their future pension benefits. The earlier studies on benefit expectations (Bernheim 1987; Gustman and Steinmeier 1999, 2001 and 2005) have found that worker knowledge on future pension benefits is less than complete. Information provided by the employer and the union is crucial, but the individuals do not take all available information into account when forming expectations. However, when pension systems are designed, it is assumed that the individuals understand the system and calculate the optimal date of retirement based on the incentives given by the system.

The paper aims to answer three questions: first, which subgroups are more likely to express information and interest in pensions by giving an estimate on the amount of future benefits. Second, how high are the amounts estimated and how they are distributed among subgroups. Third, when compared to current pension rights, we study which subgroups give precise estimates.

The backbone of the data set used in this paper is the Finnish Household Wealth Survey, collected by Statistics Finland. The Survey includes interview questions on the expected amount of future pension benefits and the expected retirement age. We also have linked register data on the current pension rights from the Finnish Centre for Pensions and the Local Government Pensions Institution. Data on current pension rights from government employment was not available, so the study includes only individuals employed by the private sector or by the municipal sector[19].

The results can be summarized as follows. Those who are near retirement are more likely to estimate than those whose expected retirement is in the farther future. The result is as expected. The closer the individual is to retirement, the greater interest he also has in the amount of the pension benefit. The working (employed or self-employed) are more likely to estimate than those not in the labour force and part-time pensioners.

The mean of the pension estimates is 1,378 euros per month, and the median is 1,200 euros. Not surprisingly, men's estimates are higher than women's. Those with larger pension rights have higher estimates, as is to be expected. The educated have higher estimates than those with lower education, and the working give higher estimates than the unemployed or those not in the labour force, as is also to be expected.

The estimated replacement rates vary greatly and especially those with low labour market incomes report extremely high expected replacement rates. This suggests that those with low labour market incomes expect to receive a national pension, even though their earnings-related pensions are likely to be small. However, many individuals expect a replacement rate near 60 per cent, which suggests that using that figure as a rule of thumb is quite common.

19 However, we did an experiment with predicted values for pension rights accrued in government employment. This way, the sample increased from 1,480 to 2,102 individuals and the standard errors of the coefficients were smaller. Nevertheless, the estimated coefficients are similar, whether or not the government pension rights are taken into account.

When the estimated amounts are compared to the current registered pension rights, we find that those who are near the estimated retirement age are more likely to give precise estimates, in the range of 75–125 per cent of the current pension rights. In all, 37 per cent of the estimates fall into this range.

When the direction of the error for the bad estimates is studied more closely, we find that estimates that exceed the value of the current pension rights are much more common (56 per cent) than estimates that are below the value of the current pension rights (7 per cent). Especially those who expect a long working career before retirement are more likely to overestimate. This is understandable, as they probably expect to accrue more pension rights in the future career. The unemployed and those not in the labour force are less likely to overestimate than the currently working.

In order to get a grasp of how high the actual benefits will be once the individual retires, we have calculated the pension values based on the assumption that the individual will continue working for the current wage until the age of 63, the lower limit of the full old-age pension, or until the self-reported expected retirement age.

When the estimated amounts are compared to these figures instead of the true current pension right, the shares of individuals who give good estimates increase to 53 per cent and 52 per cent, respectively. The result suggests that the individuals do take the earnings from the future career into account when giving their estimate. We can conclude that although variation in the pension benefit estimates is high, in general Finnish workers have reasonably realistic expectations on their future benefits.

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Appendix

The construction of the sample used in this study and the number of individuals dropped at each step is given in table A1.

Table A1. *Construction of the sample.*

Total number of individuals in the survey	8,649
Other than the reference person or his/her spouse	-2,866
Age less than 45	-2,429
Retirement age less than current age	-1,225
Socioeconomic status retired and no labour market earnings for the year 2004	-13
Socioeconomic status retired and code for retirement for full-time retirement	-14
Pension rights accrued from government employment	-622
Number of individuals in the individual sample	1,480

The pension questions were only asked from the reference person (the person with the highest income) of the household and his/her spouse, and only if they were more than 44 years old. If the individual reports a retirement age that is lower than or equal to his current age, we consider him as retired and he is thus dropped from the sample.

However, there are individuals who do give a self-reported expected retirement age that is more than their current age, but have nevertheless "retired" as their socioeconomic status (as defined by Statistics Finland). We have included these individuals if the following conditions hold as well. The individual must have labour market earnings (wages or entrepreneurial income) for the preceding year, and he must not have a code for retirement for full-time retirement (as defined by The Finnish Centre for Pensions). If the individual fulfils these conditions, he stays in the sample, even though his socioeconomic status is defined as "retired" by Statistics Finland. In the sample, there is only one such person.

The Finnish Centre for Pensions is the statutory central body of the Finnish earnings-related pension scheme. Its research activities mainly cover the fields of social security and pension schemes. The studies aim to paint a comprehensive picture of the sociopolitical, sociological and financial aspects involved.

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