Changes of Subjective Financial Welfare With Retirement: Does Retirement Preparation Matter?[*]

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Abstract

The financial situation of households can change dramatically after retirement. The availability of financial resources affects the subjective financial welfare of the households, but its impact is heterogeneous. Using a within-subject analysis of a representative sample of individuals in Switzerland, this paper analyses whether participating in voluntary retirement saving programs as a way to prepare for retirement can explain the heterogeneous response in the subjective welfare of households facing the same change of income after retirement. The results of the analysis reveal that the subjective financial welfare of households experiencing the same income drop after retirement decrease less if they have prepared for retirement. This moderating effect of voluntary savings programs is different from other retirement preparation measures such as owning real estate or building net wealth, and it is robust to alternative specification of income and subjective financial welfare. Moreover, the moderating effect of voluntary retirement saving programs does not reflect a mere ability to save. These results show that participation in voluntary retirement savings programs as a way to prepare for retirement can smooth the subjective financial welfare in the presence of negative income shocks after retirement, which widens the perspective of policy makers offering such programs.

Keywords: voluntary retirement saving programs, retirement planning, negative income shocks

JEL Classification: D12, D14, D91, I38, J32

1 Introduction

Retirement is one of the key transitions in life associated with major changes in the financial situation of the households. To support households smoothing their income over the life-cycle, most governments adopt various forms of mandatory and tax-incentivised retirement saving programs. While such programs may help households smooth the income around retirement, it is not clear whether such programs can have further benefits for the subjective financial welfare of the households.

In economic terms, subjective financial welfare can be seen as a measure of preferences (Bruno et al., 1999) and it is also positively correlated with life satisfaction (Ngamaba et al., 2020). Although income as an objective measure of financial welfare is in general positively correlated with the subjective financial welfare, the correlation is in general week (see for a review Diener and Biswas-Diener, 2002) and it is even weaker for older households (Hira & Mugenda, 1998; Hsieh, 2001; Stoller & Stoller, 2003). This suggests that households differ considerable in the assessment of the their financial welfare generated by a given set of financial resources, in particular after they enter retirement.

Tax-incentivised retirement saving programs represent an interesting example of policy measures targeting the financial welfare of the households over the life-cycle since participation in such programs is voluntary and enrolment is often not the default option. These features of the programs motivate previous studies to use them as proxies for retirement preparation (Hershey et al., 2007; Noone et al., 2009; Topa et al., 2012; Morgan & Eckert, 2004). This is done also in recognition of the observation that there is a gap between intention to prepare for retirement and actual decisions to prepare by participating in the programs (Krijnen et al., 2022).

While financial planing in general can have a positive effect on both, the accumulated wealth (Ameriks et al., 2003; van Rooij et al., 2012) and on the subjective financial welfare at different stages over the life-cycle (Dorfman, 1989; Elder & Rudolph, 1999; Joo & Grable, 2004; Clark et al., 2006; Noone et al., 2009; Woodyard & Robb, 2016), it is not known whether retirement preparation as a form of financial planning can moderate the effect of income on the subjective financial welfare after retirement. This moderation effect may emerge if participation in voluntary retirement programs reveals awareness of having a pension income gap. If income surprises after retirement affect financial welfare, as suggested by Barrett and Kecmanovic (2013), then such awareness is expected to have a moderating effect on how income affects financial welfare after retirement. Analysing the moderating effect of voluntary retirement saving programs would shed more light on the question of why households with the same income after retirement assess their financial welfare differently. It would also give insights on the question of whether

participation in voluntary retirement saving programs have further benefits for households in addition to the benefit of generating supplemental financial resources after retirement.

To assess whether retirement preparation moderates the effect of income on the financial welfare when entering retirement, this study analyses a longitudinal panel representative of households living permanently in Switzerland. The sample comprises individuals who participated in at least two consecutive waves and entered retirement between them. In contrast to cross-sectional studies analysing the determinants of financial welfare, the analysis is based on a within-subject comparison before and after retirement. This approach allows controlling for confounding effects emerging from unobservable individual differences. The rich set of additional characteristics assessed over time allows controlling for various time-variable individual characteristics.

The results show that the effect of income on financial welfare is positive, but asymmetric: income affects the subjective financial welfare after retirement only if it is lower than before retirement. Higher income immediately after retirement (e.g., as a result of an accelerated draw-down from lump-sum pension payments) does not significantly increase the subjective financial welfare of the households. In particular, lower income after retirement reduces the subjective financial welfare only for households with no voluntary retirement saving plans. For households participating in voluntary retirement saving programs, an income decrease after retirement does not significantly affect their subjective financial welfare. This moderating effect of participating in voluntary retirement saving programs is different from other retirement preparation measures such as owning real estate or building net wealth and it is robust to alternative specification of income and subjective financial wellbeing. Moreover, the moderating effect of participating in voluntary retirement saving programs does not reflect a mere ability to save.

This study contributes to the previous literature on subjective financial welfare by providing evidence that the weak relationship between income and subjective financial welfare is related to the moderating effect of retirement preparation as reflected in the participation in voluntary retirement saving programs. When income decreases after retirement, subjective financial welfare decreases as well, but this study shows that the subjective financial welfare does not decrease if the households facing the same income decrease have been preparing for retirement. These findings complement other studies on the relationship between income and subjective financial welfare that consider characteristics such as age (Hansen et al., 2008), civil status and gender (for an overview, see Diener and Biswas-Diener, 2002), or attitudes (Gasiorowska, 2014).

Further, the study contributes to the literature of voluntary retirement savings by showing that participating in such programs is associated with benefits for retirees beyond building savings that can be used

for consumption after retirement. Previous studies on the topic deal with the question of how to entice households' participation under the assumption that the main benefit of participation is financial, i.e. that enhancing voluntary savings can smooth income over the life-cycle. This study shows that participation in voluntary retirement saving programs can smooth the subjective financial welfare although the income decreases after retirement.

2 Financial Welfare Over the Life-Cycle

The financial welfare of households over the life-cycle has been subject of research of several studies. Using objective measure of financial welfare such as income and expenditures, economists analysing their development over the life-cycle sought to explain why expenditures fall at retirement (for a review, see Hurst, 2008). In addition to using objective measures of welfare, several economic studies considered subjective measures of financial welfare based on the support in the literature that such measures reflect individual preferences (Kahneman & Krueger, 2006; Frey & Stutzer, 2002).

One literature strand analyses how the subjective financial welfare varies with age and in particular how it changes after retirement. The results are not conclusive. Some studies find that although income declines after retirement, the subjective financial welfare appears to follow an opposite trend with a clear increase among those beyond working age. For example, Hira and Mugenda (1998) find that retired persons are more satisfied with their financial situation than non-retired persons although they have a lower income. Using the perceived income adequacy as a measure of subjective financial welfare, Stoller and Stoller (2003) find that older people are more optimistic regarding their income adequacy, after controlling for their income and health status. Other studies find that retirement has a positive effect on life satisfaction, but a negative effect on the satisfaction with the household income (Bonsang & Klein, 2012).

Another strand of research studies the impact of different sorts of financial planing activities on the savings over the life-cycle. In the cross-section, Hershey et al. (2007) find that the frequency of information seeking and preparation activities such as '"discussed retirement plans with a knowledgeable friend or acquaintance" is associated with increased savings for retirement. Also Stawski et al. (2007) find that different retirement preparation activities such as seeking financial information and professional advice predict retirement savings. Taking into account that financial planing may be endogenous, Ameriks et al. (2003) suggest that individuals with a higher propensity to plan spend more time developing financial plans, and that such planning leads to increased wealth. Moreover, financial planning activities do not

need to be complicated in order to be beneficial. Binswanger and Carman (2012) find that those who simply rely on a rule of thumb accumulate as much savings as proper planners, while those following an unsystematic approach save substantially less.

Focusing on various activities associated with retirement preparation as a special case of financial planning, studies show that such activities affect positively the subjective welfare. Using financial satisfaction as a subjective indicator of financial well-being, Elder and Rudolph (1999) find that "thinking about retirement" and "attending planning meetings" is associated with a higher financial satisfaction of retirees, after controlling for income, wealth, marital status and health. The positive association holds even for individuals who retired involuntary. Using actual retirement saving decisions, Noone et al. (2009) find that those who had retirement saving plans while working report a greater subjective well-being when they retire. In a meta-study, Topa et al. (2009) find that that consequences of retirement for subjective financial well-being are more directly associated with retirement planning than for other facets of the process.

Other studies on the importance of financial planning show that financial planning is associated with a higher financial satisfaction also during the working life. For example, Joo and Grable (2004) finds that "financial practices" such as cash management, credit management, budgeting, financial planning, and general money management have the strongest association with the individual's financial satisfaction level. Also Xiao et al. (2009) and Aboagye and Jung (2018) find that positive financial behaviours such as maintaining emergency savings are positively associated with financial satisfaction. Using a sample of individuals using credit counselling services, Xiao et al. (2006) find that "having developed a plan" for the financial future, started or increased savings, and having contacted a financial planner are associated with a higher financial satisfaction. Also Woodyard and Robb (2016) find that planing for retirement correlated positively with the financial satisfaction.

Although these studies collectively support a positive relationship between objective and subjective measures of wellbeing and different sorts of financial planning and retirement preparation activities, their cross-sectional nature does not allow for robust conclusions about causality. It remains unclear whether planing and preparation proceed well-being or well-being influences the ability or the willingness to plan and prepare for retirement. Furthermore, it is not clear whether there are unobservable individual characteristics that may further hinder conclusions on causality.

Only few studies on subjective financial welfare address these issues. To identify the drivers of subjective financial welfare after retirement, Barrett and Kecmanovic (2013) and Hetschko et al. (2014) use within-subject change of subjective well-being and Bonsang and Klein (2012) and Kesavayuth et al. (2016)

use fixed effects estimators. These studies, however, do not consider the importance of retirement preparation activities for the subjective well-being after retirement. One exception is Noone et al. (2009) who use lagged values of retirement preparation activities to estimate its impact on retirement satisfaction, but the cross-sectional setting of the study does not allow for controlling for unobservable individual characteristics. More importantly, there are no studies that explore the importance of retirement preparation activities as a moderator of the relationship between objective and subjective measures of financial well-being. In this context, Barrett and Kecmanovic (2013) only hints that lower than expected income may significantly reduce the financial satisfaction after retirement.

3 Data and Methodology

The empirical analysis of this study is based on data from the Swiss Household Survey (SHP) for the period between 1999 and 2019. The survey tracks individuals within the same household and across waves. The sample of individuals is representative of the whole of Switzerland. It includes households of various nationalities provided that their members live on Swiss territory throughout the year.[1] The participants are a proportionally stratified random sample of the various social groups in all regions of Switzerland.

Questions are asked on individual and on household level. The individual questionnaire contains questions on family, health, social origins, education, employment, income, networks, religion, leisure, media, politics, and values. The household questionnaire contains questions about accommodation, living standards, the household's financial situation, the household's organisation, and the family. Questions contain "objective" and "subjective" elements. A detailed description of the panel and its characteristics can be found in the introductory chapter of Tillmann et al. (2018).

3.1 Measuring Financial Welfare

The dependent variable in the analysis is the change in subjective financial welfare just before and just after retirement. The subjective financial welfare is assessed with two questions. The first question asks for an assessment of the *income adequacy*, i.e. *"How do you manage on your household's current income, 0 means "with great difficulty" and 10 "very easily"?"*. The second question asks for an assessment of the *financial satisfaction*: *"Overall how satisfied are you with the financial situation of your household, if 0 means "not at all satisfied" and 10 "completely satisfied"?"*. Other studies assessing the subjective financial well-being of households use the same or very similar questions (Hira & Mugenda, 1998; Joo & Grable,

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[1]Seasonal workers, cross-border workers, and foreign tourists are not part of the permanent resident population and are therefore not taken into account in the sample.

2004; Mitrut & Wolff, 2011; Grable et al., 2013).

The main independent variable in the analysis is the gross income of the household. This variable include all sources of income of all household members between two interviews. A second measure of household's gross income (*equivalence* income) accounts for the size of the household. Further, we use a measure for the *disposable* household income. Disposable household income refers to household income after the deduction of compulsory expenses (social security contributions, direct taxes, health insurance premiums, payments to other households). A detailed description of the construction of these variables is provided by (Kuhn, 2008)). In the estimations, we use logarithmic values of the income measures to take into account that the same change of income (in CHF) may have a different meaning for households depending on the size of their income.

3.2   Measuring Retirement Preparation

Similar to Noone et al. (2009) who use the availability of tax-deferred retirement plans, we assess retirement preparation with the question: *"Do you or any other member of your household have a "3rd pillar" pension fund?"*. We construct a dichotomous variable that takes the value of 1 if the respondents state that they have such private retirement saving plans when they enter retirement and 0 otherwise.

The "3rd pillar pension fund" is a tax-incentivised retirement saving program in Switzerland. Anyone earning an income can pay a set amount into this private pension plan with their bank or insurance company. This amount can be deducted from the taxable income. There is no wealth tax on the savings in these funds before withdrawal. Withdrawals before reaching retirement age are only possible if they are used to buy or build a residential property, to go abroad to live permanently, or to set up an own business. Withdrawals are taxed as income, but at a reduced rate.

Some sort of retirement planning is a necessary condition for having such private retirement plan for the following reasons. Participation in the retirement saving program is not offered as a default option. Although individual subscription is as easy as opening a bank account, it is beneficial only if households make actual contributions. But the decision on how much to contribute requires an assessment of the current and the future financial situation of the households, since the contributions cannot be withdrawn before retirement unless one buys an own home, start a business, or leaves the country. The contributions are also protected in the case that beneficiaries need to apply for social security before retirement.[2] For this reason, private pension plans cannot be used as emergency saving accounts. Indeed, Guariglia

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[2]Before approving extended financial payments, the authorities require than an individual exhausts most of the financial assets, but retirement savings are excluded.

and Markose, 2000 find that voluntary contributions to private pension plans are made essentially for retirement purposes, whereas conventional saving is undertaken for precautionary motives.

It should be also taken into account that households reporting having no private pension plans at the time of the retirement may have participated in the past and used their savings to buy a home or start a business. Such households use the tax advantages of the program for purposes other than to prepare for retirement. For this reason they are categorised as not having planed for retirement (below, we explain how we test whether real estate ownership may serve as an alternative form of retirement planning). It is also possible to plan for retirement outside of the tax-incentivised retirement saving program, but this option is less attractive since the tax benefits are lost. For this reason, this option is expected to be used in addition to participating in the tax-incentivised private pension program.

3.3 Other Measures

Additional considerations allow us to draw conclusions on the appropriateness of voluntary retirement savings as a proxy for retirement preparation. For example, it is possible that households prepare for their retirement, but they do not have a private pension plan because they cannot save. To test whether the availability of a private pension plan reflects the availability of financial resources, we use the question *"Is it because you cannot afford to do it or for another reason?"* that has been asked if respondents report having no private pension plan. We test whether the main results change when we exclude participants responding that they do not have a private pension plan because they cannot afford it (44 out of 458 reporting having no private pension plan for that reason).

Ownership of real estate can be considered as another form of retirement preparation. To evaluate, which household owns real estate we use the questions *"Are you, or another person living in your household, a tenant or owner of the accommodation you currently live in?"* and *"Since (month-year), have you received an income from renting real estate property?"*, where (...) is the date of the last wave. A dichotomous variable is constructed that takes the value of 1 if respondents live in the property they own or have rental income and 0 otherwise. Ownership of real estate does not change substantially around the time of retirement.[3]

Households could prepare for retirement also by saving outside of the tax-incentivised retirement saving programs. To estimate the net value of these savings, households not living in their own property have been asked one global question about their net wealth: *"What is the value of assets owned by your*

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[3]In our sample, only 19 (out of 908) individuals report losing their status of real estate owner and 10 report becoming real estate owner at the time of their retirement.

household, such as real estate assets, savings, stocks and bonds, after the deduction of potential debt?".
Households living in their own real estate have been asked: *"In addition to the real estate assets already mentioned, what is the value of other assets owned by your household, such as other real estate assets, savings, stocks and bonds, after the deduction of potential debt?".* Non-response is imputed based on characteristics of the main earner and characteristics of the household (for a detailed discussion, see Kuhn and Crettaz, 2015). The net wealth is assessed only in waves 2012 and 2016. We use the average of these data (if available) as a very rough approximation for the net wealth of the household. To limit the impact of the noise in these data, we use the median level of net wealth (CHF 150,000 as reported in Table 1) to distinguish between households with higher and lower net wealth.

Other time-variant variables with potential impacts on the subjective financial well-being are changes of the household size, civil status, physical and psychological health. In our sample, household size and civil status change only for a few individuals around retirement[4]. We ignore these changes in the analysis. Instead, based on the empirical evidence in previous studies (Plagnol, 2011; Bonsang & Klein, 2012; Fonseca et al., 2014) we focus on changes in the health status as a potential driver of additional expenditures that may affect the reported financial well-being. The health status is assessed with several questions. First, we use the general question: *"We are now going to talk about various aspects of your health. How do you feel right now?"* with the possible answers "very well", "well", "so, so (average)", "not very well" and "not well at all". We also use the question asking for an assessment of the current health status as suggested by Diener et al., 1999: *"How satisfied are you with your state of health, if 0 means "not at all satisfied" and 10 "completely satisfied"?.* Second, we use the question to assess the degree of health impediment: *"Please tell me to what extent, generally, your health is an impediment in your everyday activities, in your housework, your work or leisure activities ? 0 means "not at all" and 10 "a great deal".* Third, we use a question to assess the degree of a negative affect, which is based on the conceptualisation of Watson et al. (1988): *"Do you often have negative feelings such as having the blues, being desperate, suffering from anxiety or depression, if 0 means "never" and 10 "always"?*

3.4 Sample Construction

The sample includes individuals who just left the labor force because of old-age retirement. Older retirees are excluded from the analysis because they may have liquidated their voluntary retirement saving plans before entering the survey. To identify the individuals who just retired, we compare their working status

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[4]Only 3 out of 925 individual report becoming a widower or a widow after retirement. The household size decreased by one person in 16 households.

between two subsequent survey waves. We select individuals who changed their working status from "employed", "self-employed", or "unemployed" in one wave to "retired because of old age" and "not in labor force" in the next one.[5]

We further restrict the sample to include individuals that are unlikely to enter the active labor force again after reporting entering retirement because of old age since the possibility to enter the labour force and being eligible to start a voluntary retirement saving plan can affect the assessed subjective financial welfare. Individuals who are eligible to start withdrawing retirement saving benefits are unlikely to enter retirement and return to the labor force later. This eligibility is defined according to the official retirement age, which is 65 for male and 64 for females.[6] Individuals can start withdrawing retirement savings from mandatory and voluntary retirement saving funds five years before this official retirement age. Therefor we restrict the sample to include females older than 59 and males older than 60. Since savings in voluntary retirement saving plans are beneficial only until 70 for males and until 69 for females, we exclude individuals who are older. With these restrictions, the sample consists of newly retired females between 59 and 69 and newly retired males between 60 and 70.

Finally, we restrict the sample to include only household members older than 59. With this restriction we reduce the probability that a person who has entered retirement assesses the financial well-being of the household based on the assumption that his or her younger spouse can open a private retirement pension account and contribute to the financial welfare of the household.

3.5   Empirical Model

Each individual in the sample is observed just before ($t = 1$) and just after retirement ($t = 2$). The empirical analysis is based on the following model:

$$y_{i1} = \mu_1 + \beta x_{i1} + \delta Z_{i1} + \alpha_{i1} + \epsilon_{i1}$$

$$y_{i2} = \mu_2 + \beta x_{i2} + \delta Z_{i2} + \alpha_{i2} + \epsilon_{i2}$$

(1)

where y_{it} is the subjective financial well-being of individual i, x_{it} is the logarithm of the annual gross households income of individual i, Z_{it} is a vector of other individual characteristics that change over time with a potential impact on the financial well-being. Further, μ_1 and μ_2 are different intercepts that allow for changes of y over time that are unrelated to x and Z. The effect of x on y is β, which is assumed to

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[5]In this sample, the individuals reporting to be "unemployed" before retirement report also that they have spent at least one year in paid work. The availability of working income before retirement is an eligibility condition for drawing benefits from voluntary retirement saving plans.

[6]The retirement age for females have been adjusted slightly over time. Between 1962 and 2001, it was 62 and between 2001 and 2005 it was 63. Since 2005, the official retirement age for females is 64.

be the same at both time points. The ϵ_{it}s are random error terms that are specific to each time point and assumed to be independent of anything else on the right-hand side of the equation. Finally, α_i is an unobserved variable that represents the combined effects on y of all variables that are specific to the individual but that do not change over time.

If the αs are treated as constants, there is no need to make strong assumptions about them. In particular, we can allow that αs are correlated with the xs. This implies that the estimates of β can control for all time-invariant predictors both observed and unobserved. In such fixed-effect model, only within-individual variation is used to estimate the parameters, which makes them particularly appropriate for examining the differential consequences of increases and decreases in x.

To estimate the fixed-effect model, we subtract the time 1 equation (before retirement) from the time 2 (after retirement) equation, which produces

$$y_{i2} - y_{i1} = (\mu_2 - \mu_1) + \beta(x_{i2} - x_{i1}) + \delta(z_{i2} - z_{i1}) + (\epsilon_{i2} - \epsilon_{i1}) \tag{2}$$

We estimate the model for two sub-samples depending on whether the households had a private retirement fund when entering retirement or not. In each sub-sample, we are interested in the coefficients β. To estimate whether these coefficients differs across the two sub-samples, we pool the data and use an interaction term.

Further, the model is modified to allow for the effect of x on y to be asymmetric. For this purpose, we define

$$x_i^+ = x_{i2} - x_{i1} \text{ if } (x_{i2} - x_{i1}) > 0, \text{otherwise } 0$$
$$x_i^- = -(x_{i2} - x_{i1}) \text{ if } (x_{i2} - x_{i1}) < 0, \text{otherwise } 0 \tag{3}$$

Neither dependent variable is ever negative, but the first represents an increase, and the second represents a decrease of x. It easily can be shown that $x_i^+ - x_i^- = x_{i2} - x_{i1}$.

The working model then becomes

$$y_{i2} - y_{i1} = (\mu_2 - \mu_1) + \beta^+ x_i^+ + \beta_i^- x_i^- + \delta(z_{i2} - z_{i1}) + (\epsilon_{i2} - \epsilon_{i1}) \tag{4}$$

Thus, β^+ represents the change in y for a unit increase in x, and β^- represents the change in y for a unit decrease in x. The implicit reference category is no change from time 1 to time 2.

Again, we estimate the model in (4) using two sub-samples depending on whether the person who

just retired is in a household with a private pension fund. In each sub-sample, we are interested in the coefficients β^+ and β^-. By pooling the data and using an interaction term, we also test whether the coefficients differ across households with and without a private pension plan when entering retirement.

Since we use data on individual and household level, we cluster the standard errors at household level. This way we take into account that responses of individuals living in the same household may be correlated.

3.6 Descriptive Statistics

The final sample consists of 438 men and 487 women. Most respondents (534 or 59%) are married couples without children, 236 (26%) are one person household with one adult and 57 (6%) respondents live in a household with 3 or 4 adults. Only 5 respondents live in a household with children (below 17 years). Most of the respondents (594 or 64%) are married or divorced (176 or 19%), only 74 respondents (8%) are single, 68 are widower or widow (7%), and 14 are separated (2%).

Descriptive statistics for the variables used in the estimations are presented in Table 1.

Table 1: Descriptive statistics

	mean	SE	p25	p50	p75	non-planners mean	planners mean	MW test z-stat
planners	0.489							
real estate owners	0.641							
income adequacy$_{t=2}$	7.482	0.068	6	8	9	7.240	7.735	-3.536
income adequacy$_{t=1}$	7.744	0.066	7	8	9	7.448	8.055	-4.738
income adequacy, d	-0.271	0.063	-1	0	1	-0.216	-0.328	1.087
financial satisfaction$_{t=2}$	7.766	0.060	7	8	9	7.569	7.971	-2.749
financial satisfaction$_{t=1}$	7.956	0.059	7	8	9	7.763	8.157	-3.52
financial satisfaction, d	-0.190	0.054	-1	0	1	-0.193	-0.186	0.713
gross household income$_{t=2}$	88355	2124	50900	78000	109680	76226	101684	-6.571
gross household income$_{t=1}$	107746	3393	62500	91200	130200	91956	124609	-6.386
log gross income, d	-0.182	0.016	-0.341	-0.109	0.044	-0.160	-0.207	1.495
equivalence household income$_{t=2}$	61011	1377	39220	54000	74100	54025	68688	-6.316
equivalence household income$_{t=1}$	74733	2566	46600	65100	87390	65143	84974	-6.174
log equivalence income, d	-0.179	0.016	-0.345	-0.106	0.052	-0.155	-0.206	1.461
disposable household income$_{t=2}$	66188	1360	40261	57839	81529	58140	74601	-6.712
disposable household income$_{t=1}$	75297	2003	46504	64525	93088	65927	85049	-6.237
log disposable income, d	-0.120	0.015	-0.285	-0.085	0.077	-0.118	-0.122	0.15
health status$_{t=2}$	2.000	0.021	2	2	2	2.041	1.957	1.923
health status$_{t=1}$	2.003	0.021	2	2	2	2.022	1.984	0.764
health status, d	-0.002	0.022	0	0	0	0.022	-0.027	1.422
satisfaction with health status$_{t=2}$	7.844	0.053	7	8	9	7.754	7.939	-1.411
satisfaction with health status$_{t=1}$	7.831	0.056	7	8	9	7.792	7.873	-0.237
satisfaction with health status, d	0.012	0.051	-1	0	1	-0.043	0.070	-1.683
health impediment$_{t=2}$	2.131	0.084	0	1	4	2.235	2.023	1.662
health impediment$_{t=1}$	2.071	0.086	0	1	4	2.115	2.025	0.215
health impediment, d	0.062	0.083	-1	0	1	0.128	-0.007	0.776
depression, blues, anxiety$_{t=2}$	1.882	0.070	0	1	3	2.004	1.755	1.199
depression, blues, anxiety$_{t=1}$	1.851	0.068	0	1	3	1.911	1.789	0.005
depression, blues, anxiety, d	0.031	0.062	-1	0	1	0.093	-0.034	0.355
net wealth$_{t=1,2}$	257900	84650	40000	150000	457275	189648	380740	-0.354
high wealth	0.589					0.551	0.624	-2.192

The mean values of the variables are also reported for two sub-samples of individuals entering retire-

ment with and without a private pension plan (planners and non-planners). The last column reports the z-statistics for the Mann-Whitney tests of the null hypothesis that the distribution of the variables in the two sub-samples is identical. The descriptive statistics show that the two measures of subjective welfare (income adequacy and financial satisfaction) are at relative high levels before retirement. On average, the subjective financial welfare decreases slightly after entering retirement. All objective measures of financial welfare (gross household income, equivalence income, and disposable household income) decreases as well, on average. The gross household income decreases on average by 9% in the sample. Half of the respondents report a decrease of about 10%, in the lowest quartile the decrease is more than 29%, in the highest quartile the reported household income increases by about 4%. Income increases after retirement can be explained with lump-sum payments from mandatory pension plans or some extraordinary payments (e.g., payments from inheritance). The distribution of the control variables does not change substantially after retirement. The reported health status remains stable, on average. The satisfaction with the health status increases slightly after retirement, on average, although both the average degree of health impediment in everyday activities and the reported frequency of feeling depression, blues or anxiety increase after retirement.

Regarding the rest of the independent variables, we observe that about 49% of the respondents report that their household had a voluntary retirement saving plan when entering retirement. About 64% of the respondents are real estate owners. The median net wealth (without the real estate in which the participants live) is CHF 150,000 in the sample. In the lowest quartile, households have less than CHF 40,000, in the highest quartile, households report having more than CHF 480,000 net wealth.
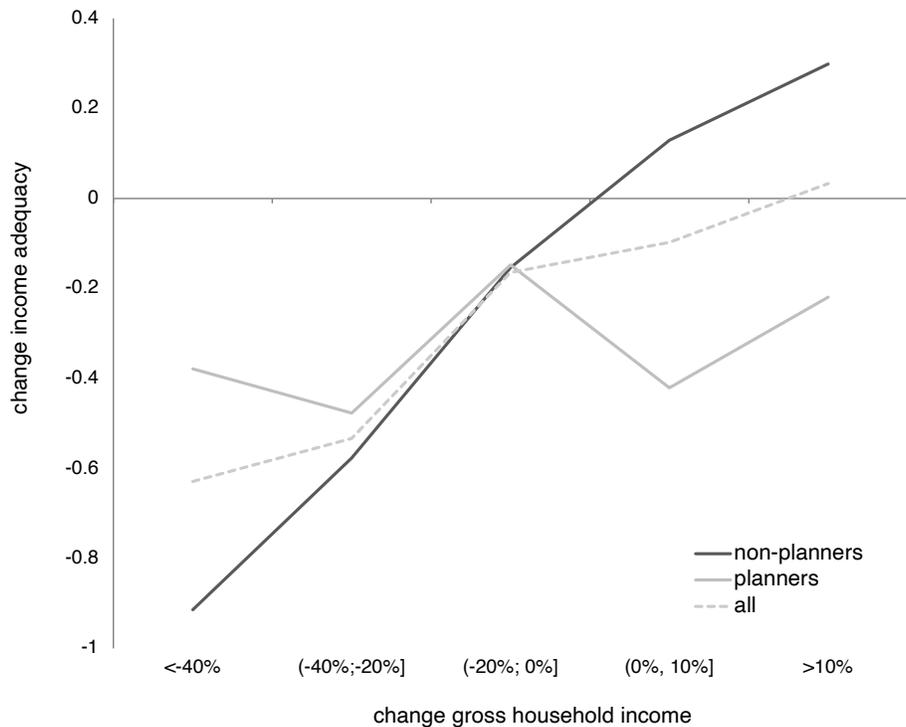
4 Results

4.1 Main Results

Before doing any estimations, we examine descriptively whether the financial adequacy as a measure of financial welfare changes when the income changes after retirement. To simplify the exposition, we split the data depending on the size of the income change when entering retirement, so that we have 5 bins with approximately equal number of observations. Within each bin of observations, we calculate the average change of financial adequacy for the whole sample and for two different sub-samples of households depending on whether they had a voluntary retirement saving plan when they retired or not. We are interested to observe whether there are any differences in how financial adequacy changes with changes of the household income among households with and without a plan. Figure 1 displays the results of this

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descriptive analysis.

Figure 1: Gross income and income adequacy

The dark grey line in Figure 1 shows how the average financial adequacy in the whole sample changes when the gross income of the households without a plan changes after retirement. For the households in the whole sample, there is a clearly observable positive trend in how the perceived income adequacy changes with income after retirement. In contrast, the perceived income adequacy of households with a plan (see light grey line) appears to depend less on the income change after retirement.

To test the significance of these observations while controlling for confounding effects emerging from time-variable individual characteristics, we estimate the model specified in equation (2) for the whole sample and for each of the two sub-samples (planners and non-planners). The model is estimated using OLS.[7] The results are reported in Table 2.

The first column includes the estimated coefficients for the whole sample. We can see that the income adequacy is lower (higher) than before retirement when the income decreases (increases) after retirement. This effect disappears in the sub-sample of planners. In the sub-sample of planners, the income change after retirement does not have a significant effect on the perceived income adequacy. In contrast, in the sub-sample of non-planners, an income adequacy increases (decreases) with the income after retirement.

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[7]The distribution of the variable "financial adequacy" is skewed in both periods, but the distribution of their difference between the two periods is symmetric around 0. This observation supports the use OLS as an estimation method.

Table 2: Effect of income on income adequacy

The table reports the results of OLS estimations based on equation (2). All variables are included as differences (*d*) except the dichotomous variable *planner* that takes the value of 1 if the household has a private retirement plan and 0 otherwise. Robust standard errors clustered at the household level are provided in parentheses. ***, ** respectively * indicate significance of the estimated coefficients at 1%, 5%, respectively 10% level.

sub-sample:		income adequacy, d		
		planners	non-planners	
	(1)	(2)	(3)	(4)
log gross income, d,	0.508***	0.173	0.850***	0.844***
	(0.146)	(0.221)	(0.210)	(0.199)
planner				-0.176
				(0.148)
planner#log gross income, d				-0.663**
				(0.293)
health status, d	-0.009	0.132	-0.106	-0.007
	(0.110)	(0.165)	(0.151)	(0.110)
satisfaction with health status, d	0.054	0.119	0.007	0.049
	(0.058)	(0.081)	(0.085)	(0.059)
health impediment in everyday activities, d	-0.023	-0.055	0.014	-0.025
	(0.032)	(0.044)	(0.045)	(0.032)
depression, blues, anxiety, d	0.012	0.059	-0.019	0.007
	(0.042)	(0.065)	(0.059)	(0.043)
constant	-0.187	-0.584	0.115	-0.157
	(0.363)	(0.446)	(0.558)	(0.360)
observations	789	375	407	782
year fixed effect	yes	yes	yes	yes

The difference in how income adequacy changes with changes in the household income between planners and non-planners is statistically significant as the interaction term in the last column suggests.

To take into account that positive and negative changes of income may have a different effect on the perceived income adequacy, we estimate the model as specified in equation (4) while controlling for time-varying confounding factors. Since the dependant variable is the same, we use the OLS estimation method again. The results are reported in Table 3.

Table 3: Asymmetric effect of income on income adequacy

The table reports the results of OLS estimations based on equation (4). All variables are included as differences (d) except the dichotomous variable *planner* that that takes the value of 1 if the household has a voluntary retirement saving plan and 0 otherwise. The variables *d log gross income>0* and *d log gross income<0* are specified as in equation (3) and have always positive values. Robust standard errors clustered at the household level are provided in parentheses. ***, ** respectively * indicate significance of the estimated coefficients at 1%, 5%, respectively 10% level.

| sub-sample: | income adequacy, d | | | |
| | | planners | non-planners | |
	(1)	(2)	(3)	(4)
planner				-0.282
				(0.171)
d log gross household income> 0	0.820**	0.985**	0.649	0.789
	(0.352)	(0.481)	(0.492)	(0.480)
planner#d log gross income> 0				0.143
				(0.686)
d log gross income< 0	-0.417**	0.041	-0.916***	-0.861***
	(0.175)	(0.240)	(0.269)	(0.249)
planner#d log gross income< 0				0.878***
				(0.337)
health status, d	-0.004	0.141	-0.112	-0.005
	(0.110)	(0.164)	(0.153)	(0.111)
satisfaction with health status, d	0.054	0.116	0.006	0.048
	(0.058)	(0.081)	(0.085)	(0.059)
health impediment in everyday activities, d	-0.024	-0.053	0.016	-0.024
	(0.032)	(0.045)	(0.046)	(0.032)
depression, blues, anxiety, d	0.010	0.051	-0.018	0.004
	(0.042)	(0.066)	(0.059)	(0.043)
constant	-0.250	-0.703	0.166	-0.151
	(0.373)	(0.457)	(0.586)	(0.378)
observations	789	375	407	782
year fixed effect	yes	yes	yes	yes

The first column reports the estimated coefficients for the whole sample. In the whole sample, income adequacy changes with the income. In the sub-sample of planners (see column 2), the income adequacy increases only when the income increases, but it does not decrease when the income decreases. This changes in the sub-sample of non-planners (see column 3). in this sub-sample, an increase in income does not have any significant impact on income adequacy. However, when the income after retirement decreases, the financial adequacy decreases as well. The differences in how financial adequacy decrease with a decrease of income between planners and non-planners is statistically significant as the second interaction term suggests. The estimated coefficients of the second interaction term and the variable capturing a decrease of income suggest that having a voluntary retirement saving plan completely neutralises the negative effect of a lower income on the financial adequacy after retirement.

Income adequacy is one of several ways to measure subjective financial well-being. An alternative way is to use the degree of satisfaction with the financial satisfaction. We repeat the previous analysis using this measure. The results are reported in Table 4.

Table 4: Effect of income on financial satisfaction

The table reports the results of OLS estimations based on equation (2). All variables are included as differences (*d*) except the dichotomous variable *planner* that takes the value of 1 if the household has a voluntary retirement saving plan and 0 otherwise. The variables *d log gross income>0* and *d log gross income<0* are specified as in equation (3) and have always positive values. Robust standard errors clustered at the household level are provided in parentheses. ***, ** respectively * indicate significance of the estimated coefficients at 1%, 5%, respectively 10% level.

| | financial satisfaction, d | | | |
	(1)	(2)	(3)	(4)
planner		-0.115		-0.210
		(0.124)		(0.154)
log income, d	0.293*	0.674***		
	(0.153)	(0.210)		
planner#d log income		-0.759***		
		(0.270)		
d log income> 0			0.520	0.499
			(0.336)	(0.525)
planner#d log income> 0				-0.044
				(0.636)
d log income< 0			-0.227	-0.729***
			(0.206)	(0.257)
planner#d log income< 0				0.957***
				(0.339)
constant	-0.450	-0.455	-0.496	-0.424
	(0.308)	(0.306)	(0.316)	(0.311)
observations	787	780	787	780
year fixed effect	yes	yes	yes	yes
controls	yes	yes	yes	yes

In the first column we can see that income changes are positively related to changes of financial satisfaction (as with income adequacy in Table 2), but the relationship is statistically only marginally significant. Similar to the results reported in Table 2, having a private pension plan eliminates the effect of income change on the financial satisfaction after retirement (see column 2). The estimation results comparing the effect of an income increase and an income decrease on financial satisfaction after retirement are reported in column 3 and 4. An increase or a decrease of income does not significantly affect the financial satisfaction (see column 3). However, having a voluntary retirement saving plan can neutralise the effect of a lower income of the financial satisfaction after retirement as the estimated coefficients of the interaction effect and the negative income change suggest (see column 4).

4.2 Further Results

The main results show that having a voluntary retirement saving plan neutralises the negative effect of a lower income on the subjective financial welfare as measured by the perceived financial adequacy and the financial satisfaction after retirement. We further analyse whether the effect is the same for households with different income before retirement.

For this purpose we build two sub-samples, depending on the median gross income before retirement as reported in Table 1. We estimate the models specified in equation (4) for each of these sub-samples using the change of financial adequacy, respectively the change of financial satisfaction as dependent variables. The results are presented in Table 5.

Table 5: Effects of income on financial welfare for households with higher and lower income

The table reports the results of OLS estimations based on equation (4). Sub-samples are defined based on the gross households income before retirement. *High income* households are households with a gross household income before retirement larger or equal the median (CHF 91,300 as reported in Table 1). *Low income* households are households with a gross household income before retirement smaller than the median. All variables are included as differences (d) except the dichotomous variable *planner* that takes the value of 1 if the household has a private retirement plan and 0 otherwise. The variables *d log gross income> 0* and *d log gross income< 0* are specified as in equation (3) and have always positive values. Robust standard errors clustered at the household level are provided in parentheses. ***, ** respectively * indicate significance of the estimated coefficients at 1%, 5%, respectively 10% level.

sub-sample	income adequacy, d		financial satisfaction, d	
	low income$_{t=1}$	high income$_{t=1}$	low income$_{t=1}$	high income$_{t=1}$
	(1)	(2)	(3)	(4)
log gross income> 0	1.077*	-0.193	0.616	0.185
	(0.575)	(0.584)	(0.666)	(0.581)
planner	-0.483	-0.188	-0.184	-0.275
	(0.298)	(0.225)	(0.273)	(0.191)
planner#log gross income> 0	0.142	0.432	-0.286	0.928
	(0.765)	(1.214)	(0.774)	(1.260)
log gross income< 0	-1.298**	-0.760***	-0.973	-0.635**
	(0.654)	(0.282)	(0.602)	(0.289)
planner#log gross income< 0	2.012***	0.323	1.466*	0.810**
	(0.749)	(0.380)	(0.752)	(0.348)
constant	-0.283	0.609	-0.564	0.176
	(0.451)	(0.577)	(0.354)	(0.679)
observations	387	395	387	393
year fixed effect	yes	yes	yes	yes

Column 1 and 2 report the estimated coefficients of the model when using the change of income adequacy as a dependent variable. The interaction term of having a voluntary retirement saving plan when income is higher after retirement is not significant in both sub-samples. When the income after retirement decreases, having a voluntary retirement saving plan increases income adequacy mainly for households with a lower income before retirement. Column 3 and 4 report the estimated coefficients of the model when using the change of financial satisfaction as a dependent variable. Again, the interaction term of having a voluntary retirement savings plan when income is higher after retirement is not significant in both sub-samples. When the income after retirement decreases, having a voluntary retirement savings plan increases financial satisfaction mainly for households with a higher income before retirement. Overall, having a voluntary retirement savings plan reduces the impact of lower income after retirement on the subjective financial welfare, but the effect differs among households with higher and lower income before

retirement. For households with a lower income before retirement, the effect is mainly observed in the assessment of the income adequacy; for households with a higher income before retirement, the effect is mainly observed in the satisfaction with the financial situation.

4.3   Robustness Tests

The main analysis is based on the gross household income. We use two different income measures to test the robustness of the main results. First, we use the disposable income, i.e. the income of all household members after deductibles. Second, we use an equivalence measure of household income that takes into account the size of the household. The estimation results with each of these alternative income measures are reported in Table A1 in the Appendix. Using both alternative measures of income does not change the main results qualitatively. Having a private retirement account eliminates the positive positive relationship between income and financial well-being (see the interaction term in Column 1 and 3). The effect is statistically significant for households experience a decrease of income after retirement (see Column 2 and 4).

Voluntary retirement savings plans are by design saving vehicles that can be used to prepare for retirement. Real-estate-ownership can be considered as another form of retirement savings. It can be also considered as a proxy for a higher wealth, since real-estate owners in Switzerland tend to have more wealth than tenants (Kuhn & Grabka, 2018). In the following we test whether owning real estate when entering retirement eliminates the effect of retirement planning on how financial welfare change with income at the time of retirement. The results of the analysis are presented in Table A2 in the Appendix. The first (second) column reports the results when using financial adequacy (financial satisfaction) as a dependent variable. While having a voluntary retirement savings plan continues to moderate the effect of income on financial welfare, the moderation effect of owning real estate is statistically not significant.

Having a voluntary retirement savings plan may affect the effect of income changes after retirement on financial welfare because retirement preparation increases the net wealth of households (Ameriks et al., 2003; van Rooij et al., 2012). In the following we test whether having high net wealth (net wealth above the sample median CHF 200,000) eliminates the effect of retirement preparation on how financial welfare change with income at the time of retirement. The results are reported in Table A3 in the Appendix. The first (second) column reports the results when using financial adequacy (financial satisfaction) as a dependent variable. While having a voluntary retirement savings plan continues to moderate the effect of income on financial welfare, the moderation effect of having high net wealth is statistically not significant. The results remain qualitatively the same when using the average value of net wealth instead of the median

as a thresholds or when using the logarithm of net wealth instead of a dichotomous variable for higher respectively lower net wealth.

Having no voluntary pension savings plan can also reflect an inability to save. To test whether the availability of financial resources is driving our results, we repeat the main analysis but exclude households who state that they do not have a voluntary retirement savings plan because they cannot afford it. The results of this analysis are presented in Table A4 in the Appendix. As in the previous analysis, financial welfare (income adequacy and financial satisfaction) depends on the income, but less so for planners as the interaction effect in columns 1 and 3 suggest. Again, being a planner reduces mainly the negative effect of having lowing income after retirement (see interaction terms in column 2 and 4).

5   Discussion

The goal of this study is to evaluate whether participation in tax-incentivised retirement saving programs has implications for the subjective financial welfare of households after retirement. Using person-by-person comparison, which control for unobserved individual differences that may bias the estimations, this study provides supportive evidence that having a private retirement saving plan limits the impact of income change on the subjective financial welfare of the households after retirement. The moderation effect of having a private retirement plan is particularly strong when income decreases after retirement. Households with a below-average income before retirement benefit most from having a private retirement plan.

The most compelling explanation for these findings is that participation in tax-incentivised retirement saving programs prepares for retirement in the sense that it motivates households to estimate their income after retirement. Without an estimate about how the income will change after retirement without a private retirement plan, it is difficult to assess the benefits of such a plan given that participation in voluntary retirement saving programs costs liquidity during the working period. Having an estimate about how income will change after retirement makes income changes less surprising at the time of retirement. This can explain why such income changes do not affect the subjective financial welfare, which is also documented empirically (Barrett & Kecmanovic, 2013).

This explanation is further supported by the finding that other benefits of having a private pension plan such as building higher wealth does not eliminate the moderation effect of having a private pension plan as a way to eliminate income surprises after retirement. Also, other forms of preparing for retirement such as owning real estate may increase the wealth, but this effect does not eliminate the moderation

effect of entering retirement with a private pension plan. These observations strongly imply that participating in voluntary retirement saving programs is beneficial for households in terms of smoothing the subjective financial welfare when the income as a major driver of the subjective financial welfare drops after retirement.

These results are consistent with findings that income surprises after retirement affect the subjective financial welfare (Barrett & Kecmanovic, 2013). Whereas past research have found that financial planning in general has direct effect on objective (Ameriks et al., 2003; van Rooij et al., 2012) and subjective measures of financial well-being (Dorfman, 1989; Elder & Rudolph, 1999; Joo & Grable, 2004; Clark et al., 2006; Noone et al., 2009; Woodyard & Robb, 2016), the present study has shown that retirement preparation moderates the impact of income on subjective welfare after retirement. This observation contributes to the literature searching for explanations for the weak relationship between income and subjective welfare in particular after retirement (Hira & Mugenda, 1998; Hsieh, 2001; Diener & Biswas-Diener, 2002; Stoller & Stoller, 2003).

One limitation of this study is that the income and wealth data used to assess the financial situation of the households are self-declared. Further research could benefit from using tax record information (official register data) about the economic resources of the households, as this source improves data quality and gives a complete response rate.

A second potential limitation is that the data on participating in voluntary retirement saving programs used in this study is at households level. This prevents investigating important differences in the preparation for retirement depending on gender and age. Further research could address the question of whether the effect of retirement preparation on well-being smoothing differs between males and females and between younger and older household members.

Finally, this study investigates only whether participation in voluntary retirement saving programs moderates the effect of income on financial welfare after retirement. It could be interesting to study whether the amount of savings in such vehicles or how regular households contribute to such retirement saving plans have additional effects on how well such plans can smooth the financial welfare after retirement.

Despite the above mentioned limitations, the results in this study suggest several practical implications and potential interventions. First, the results highlight the importance of voluntary retirement saving programs as a measure that can stimulate retirement preparation, which can smooth the subjective welfare in the face of negative income shocks after retirement. This smoothing effect on the subjective welfare is important indicator for the benefits of such tax-incentivised programs that go beyond the financial ressources

that such programs can generate. Second, the results suggests that interventions designed to stimulate participation in tax-incentivised retirement saving programs should target households with below-average income before retirement, since such households benefits most from the retirement preparation effect induced by participating in such programs.

6 Conclusion

The present research contributes to a growing body of research on the drivers of subjective financial well-being as a measure of individual financial welfare. Focusing on income as the main driver of subjective financial well-being, this study shows that income shocks after retirement do not affect individual financial welfare if retirement preparation supports developing a stronger awareness of the size of such shocks. This reveals a new mechanism of how retirement preparation can improve the financial wellbeing of households that widens the perspective of policy makers offering programs for voluntary retirement savings.

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Appendix

Table A1: Effects of disposable and equivalence income on financial welfare

The table reports the results of OLS estimations based on equation (4). All variables are included as differences (d) except the dichotomous variable *planner* that takes the value of 1 if the household has a private retirement plan and 0 otherwise. The variables *d log gross income*> 0 and *d log gross income*< 0 are specified as in equation (3) and have always positive values. Robust standard errors clustered at the household level are provided in parentheses. ***, ** respectively * indicate significance of the estimated coefficients at 1%, 5%, respectively 10% level.

	income adequacy, d		financial satisfaction, d	
	(1)	(2)	(3)	(4)
planner	-0.260	-0.267	-0.127	-0.217
	(0.159)	(0.169)	(0.141)	(0.151)
d log disposable income> 0	0.411		0.104	
	(0.408)		(0.441)	
planner#d log disposable income> 0	0.504		0.123	
	(0.546)		(0.549)	
d log disposable income< 0	-0.620***		-0.581**	
	(0.230)		(0.277)	
planner#d log disposable income< 0	0.624*		0.743**	
	(0.347)		(0.355)	
d log equivalence income> 0		0.924*		0.677
		(0.498)		(0.553)
planner#d log equivalence income> 0		0.041		-0.142
		(0.691)		(0.666)
d log equivalence income< 0		-0.864***		-0.752***
		(0.257)		(0.281)
planner#d log equivalence income< 0		0.854**		1.021***
		(0.339)		(0.349)
constant	-0.200	-0.154	-0.399	-0.436
	(0.328)	(0.377)	(0.273)	(0.310)
observations	889	782	889	780
controls	yes	yes	yes	yes
year fixed effect	yes	yes	yes	yes

Table A2: Effect of income on financial welfare conditional on real estate ownership

The table reports the results of OLS estimations based on equation (4). All variables are included as differences (*d*) except the dichotomous variable *real estate owner* that takes the value of 1 if the household has a private retirement plan and 0 otherwise. The variables *d log gross income*> 0 and *d log gross income*< 0 are specified as in equation (3) and have always positive values. Robust standard errors clustered at the household level are provided in parentheses. ***, ** respectively * indicate significance of the estimated coefficients at 1%, 5%, respectively 10% level.

	income adequacy, d		financial satisfaction, d	
	(1)	(2)	(3)	(4)
real estate owner	0.136	0.013	-0.144	-0.176
	(0.149)	(0.169)	(0.131)	(0.169)
log gross income	0.446*		0.490*	
	(0.248)		(0.295)	
real estate owner#d log gross income	0.097		-0.317	
	(0.309)		(0.329)	
d log gross income> 0		0.087		0.721
		(0.753)		(0.592)
real estate owner#d log gross income> 0		0.972		-0.210
		(0.825)		(0.708)
d log gross income< 0		-0.510*		-0.449
		(0.279)		(0.369)
real estate owner#d log gross income< 0		0.164		0.405
		(0.349)		(0.404)
constant	-0.255	-0.272	-0.378	-0.430
	(0.380)	(0.389)	(0.307)	(0.317)
observations	789	789	787	787
controls	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes

Table A3: Effects of income on financial welfare conditional on net wealth

The table reports the results of OLS estimations. The estimated coefficients are based on equation (4). All variables are included as differences (d) except the dichotomous variable *high net wealth* that distinguishes between households with a net wealth above and below the median (CHF 150,000) as reported in Table 1. The variables *d log gross income>0* and *d log gross income<0* are specified as in equation (3) and have always positive values. Robust standard errors clustered at the household level are provided in parentheses. ***, ** respectively * indicate significance of the estimated coefficients at 1%, 5%, respectively 10% level.

	income adequacy, d		financial satisfaction, d	
	(1)	(2)	(3)	(4)
high net wealth	0.126	0.037	-0.053	0.010
	(0.153)	(0.185)	(0.132)	(0.171)
log gross income, d	0.481		0.310	
	(0.302)		(0.265)	
high net wealth#log gross income, d	0.015		-0.060	
	(0.340)		(0.331)	
d log gross income> 0		0.442		0.903
		(0.675)		(0.587)
high net wealth#d log gross income> 0		0.623		-0.520
		(0.767)		(0.701)
d log gross income< 0		-0.497		-0.122
		(0.408)		(0.333)
high net wealth#d log gross income< 0		0.165		-0.088
		(0.442)		(0.432)
constant	-0.470	-0.483	-0.462	-0.566
	(0.363)	(0.384)	(0.342)	(0.360)
observations	761	761	759	759
year fixed effects	yes	yes	yes	yes
controls	yes	yes	yes	yes

Table A4: Effects of income on financial welfare excluding non-planners unable to save

The table reports the results of OLS estimations. The estimated coefficients are based on equation (4). All variables are included as differences (d) except the dichotomous variable *planner* that distinguishes between households with and without a private pension plan. The sample exclude non-planners who report having no private pension fund because they cannot afford it. The variables *d log gross income>0* and *d log gross income<0* are specified as in equation (3) and have always positive values. Robust standard errors clustered at the household level are provided in parentheses. ***, ** respectively * indicate significance of the estimated coefficients at 1%, 5%, respectively 10% level.

	income adequacy, d		financial satisfaction, d	
	(1)	(2)	(3)	(4)
planner	-0.188	-0.273	-0.112	-0.184
	(0.146)	(0.169)	(0.121)	(0.148)
log income, d	0.874***		0.733***	
	(0.200)		(0.210)	
planner#d log income	-0.679**		-0.814***	
	(0.293)		(0.268)	
d log income> 0		0.984**		0.718
		(0.439)		(0.537)
planner#d log income> 0		-0.004		-0.261
		(0.651)		(0.653)
d log income< 0		-0.840***		-0.737***
		(0.250)		(0.255)
planner#d log income< 0		0.851**		0.959***
		(0.337)		(0.336)
constant	-0.282	-0.311	-0.282	-0.284
	(0.350)	(0.362)	(0.333)	(0.343)
observations	745	745	742	742
year fixed effects	yes	yes	yes	yes
controls	yes	yes	yes	yes