How Much Saving Does It Take for Vulnerable Populations to Maintain Subjective Economic Well-Being Throughout Retirement in the United States?

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Abstract

Previous research suggests that the average U.S. American retiree has saved adequately for retirement. Beyond the average though, many retirees experience a downgrade in the living standard, which is sometimes unexpected, most times unplanned, but almost always unwanted. This paper sheds further light on the question how saving adequacy can be empirically quantified and what socio-economic aspects matter for saving adequacy. Identification builds on the question how much the retirement income, relative to the working income, has to be to maintain the level of subjective economic well-being from working life. The answer to this question is decomposed across vulnerable groups. For example, examining the Health and Retirement Study, I find that healthy retirees need about 77% of their end-of-career working income, wheres those reporting poor health need 83%. The final paper takes further vulnerable groups into account and formulates alternative old-age saving goals.

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1 Background and motivation

About 63% of U.S. Americans fear more that they run out of money in retirement than death, says the most recent Allianz Generations Ahead study. Indeed, when retirement income fails to cover desired consumption levels, the living standard cannot maintained and well-being is at stake.

The good news is that there is ample evidence that, on average, U.S. Americans have accumulated enough wealth to maintain consumption levels after retirement. That seems to be true at least for the cohort retiring before the financial crisis (e.g., Scholz et al., 2006; Love et al., 2008; Dudel and Schmied, 2018).

Still, none of these studies neglect, that there are certain socio-economic groups, which are financially unprepared for retirement (e.g., Skinner, 2007; Bernheim et al., 2001). In a series of studies Lusardi and Mitchell (2007, 2011 and 2014) demonstrated that financial illiteracy is a key driver of saving adequacy. Financial illiteracy is in turn widespread among ethnic minorities, older women and the least educated.

Health works in a similar way. Banks et al. (2018) showed that the fact that out-of-pocket health expenditures grow in old age is the major reason why household saving becomes too low. Ill-health is typically more prevalent among blacks, poorly educated and income poor populations (Franks et al., 2003). Consequently, these groups are more at risk to approach retirement with inadequate resources.

Hence, when looking for an answer on whether or not U.S. American save enough for retirement, scholars should have a closer look at the vulnerable part of the population. While there seems to be consent about the fact that those groups lack saving, it remains unclear by how much. No benchmarks, which give vulnerable groups an idea of how much more important saving is to them, have been established yet.

To fill this gap, this paper initially defines a retirement goal which is intuitive and highly relevant for the vulnerable population: the perceived difficulty of paying the regular bills (in the following called subjective economic well-being, SEW) should be maintained throughout the retirement step.[1] Second, I show that income is highly relevant for explaining SEW in ages shortly before and after retirement.[2] Third, I calculate the replacement rate, i.e. the retirement income relative to the working income, needed to maintain the SEW of the working life.[3] Finally, this benchmark is calculated separately for retirees reporting poor health, for veterans for weakly educated, for divorced, and for widows. The question is, by how much their replacement rates are below the population average.

2 Related work

Existing research investigated whether or not there is a significant effect of income on financial satisfaction (e.g., Diener et al., 1993; Hansen et al., 2008). Perhaps the most interesting insight from this literature is that relative income matters more for financial satisfaction than absolute income. Relative income can be with respect to other people or with respect to

[1] Of course, there are more ambitious retirement goals such as maintaining the consumption level, but that might be too much to ask for some individuals.

[2] There has been some debate on whether income has an effect on financial satisfaction in older age (see Hansen et al., 2008, for some citations).

[3] Relative income to the own situation, has shown to be important for financial satisfaction (Diener et al., 1993).

oneself at a different time. Whereas income relative to one's neighbors is certainly an important mechanism how retirees perceive their financial situation it is hard to model based on conventional survey data (see Hsieh, 2003; Palomäki, 2017, for some approaches). Relative retirement income to one's working income can be addressed by pension replacement rates (Smith, 2003).

Bender (2012) examined the determinants of a slightly more general form of retirement satisfaction than this paper. Respondents are asked whether they find their retirement very satisfying, moderately satisfying, or not at all satisfying. This can be considered as an old-age saving goal as well, but is potentially more prone to other things which influence the happiness of a person such as time and leisure. He finds that relative income and health have a large influence on retirement satisfaction.

A variable which is more framed towards the *financial* part of retiring was used by Dudel et al. (2016) for Germany and Stewart (2009) for the U.K.. Dudel et al. (2016) finds that it needs a replacement rate of 86% to maintain the financial satisfaction. Financial satisfaction is conceptually slightly different to SEW as the question is asked in a different way: e.g., How satisfied are you with your income situation from 1 to 10. Of course, Germany has also a different institutional context. Dudel and Schmied (2018) developed pension adequacy standards for the U.S. and Germany, but they focus on expenditure based retirement goals and they do not investigate heterogeneity within the population. SEW, the way this papers looks at it, was examined by Cracolici et al. (2012) using Italien-SILC data.

The life cycle literature and the their optimal saving models can capture some of the heterogeneity (Scholz et al., 2006) as recent models also take into account optimal health (Kuhn et al., 2015) and out-of-pocket medical expenditures (De Nardi et al., 2010). However, calibration models make strong assumptions about individual preferences. In the light of this, Binswanger and Schunk (2012), directly asked respondents what they think how income much they would need in a hypothetical retirement situation. The U.S. American respondents say they that would not want to fall below 45% of their current working income.

Finally, there has been related work on how high the income replacement rate has to be to overcome a monetary poverty threshold (e.g., Love et al., 2008). They find that the median U.S. household has accumulated enough wealth, but 13 % have replacement rates below 50 % and 18% of observations have not saved enough to produce a retirement income which exceeds 150 % of the poverty line.

3 Data

I use the longitudinal Health and Retirement Study which follows individuals aged 50 or older since 1992. It is conducted by the Survey Research Center of the Institute for Social Research of the University of Michigan, and is supported by the National Institute on Aging (NIA) and the Social Security Administration (SSA).

The dependent variable we consider stems from a questionnaire known as the leave-behind-questionnaire, since after the main interview it is left to about 50% of the respondents. The question has been asked since Wave 7, therefore the analysis is mainly based on Wave 7-12, although some retrospective information comes from earlier waves. It is asked in the following way: How difficult is it for (you/your family) to meet monthly payments on (your/your family's) bills? The answers are scaled into five categories ranging from 'not at all difficult' to 'completely difficult'. The benefit of using the HRS is that there is information on this question before and after retirement as well as information on what income is achieved

before and after retirement. About 5,240 individuals retired in the relevant time frame and provided information on that question.

The HRS also covers a wide range of health variables. For this preliminary version I only use self-reported health and collapse it into a dichotomous variable of good health (excellent, very good, and good) and bad health (fair and poor). Having a recent diagnosis of an acute event is an alternative assessment which will be covered in the final paper.

As Hansen et al. (2008) showed how important wealth is for financial satisfaction, my income variable covers, besides before-tax income from working or social security, annuities from accumulated asset wealth and housing wealth, assuming a 2.5 % and a 1,25 % nominal growth rate respectively (Crawford and O'Dea, 2012). It also includes most kinds of pension wealth.

The analysis takes further into account socio-economic variables such as education, age, the self-reported age of retirement, the gender, whether or not a person rent or owns it home, the marital status, and the voluntariness of retirement (Bender, 2012).

4 Method

The analysis starts by estimating SEW as a function of income. As for most observations, SEW is not provided at every wave, I collapse the data into a panel with one observation before and after retirement. I use a simple specification such as

$$W_{i,d} = \alpha + \beta log(Y_{i,d}) + \gamma X_{i,d} + \theta_i + u_{i,t} \tag{1}$$

to estimate the effect of income β. $Y_{i,d}$ represents the average of all observed working incomes in case $d = 0$ and the average of all observed retirement income for $d = 1$. $W_{i,d}$ denotes the perceived ability to make ends meet, scaling from 1 to 5. The maximum score is taken of each stage when there are multiple observations per labor force status. $X_{i,d}$ is a vector of covariates as noted in section 3.

Equ. (1) is initially naively estimated by ordinary least square assuming cardinality for the dependent variable. I also test for ordinality applying an ordered logit model. Additional I apply a fixed effect model on (1), where θ_i represents individual time constant effects.

The applied framework for the subsequent step is based on the estimation of equivalence scales (Engel, 1857; Deaton, 1986) and its adaption to retirees (Dudel and Schmied, 2018). Applying this to subjective data was introduced by Dudel et al. (2016); Charlier (2002) and Stewart (2009). Let W be a function of income Y, retirement status d, and some other covariates $\mathbf{z}$, i.e., $W(Y, d, \mathbf{z})$. This can be estimated empirically, allowing to use its inverse, $W^{-1}(w, d, \mathbf{z})$. Given a welfare level w', the adequate replacement rate can then be calculated as $W^{-1}(w', 1, \mathbf{z})/W^{-1}(w', 0, \mathbf{z})$.

This idea is implemented as follows

$$W_d = a + \log Y b_Y + d b_d + \mathbf{z}' \mathbf{b}_z + \epsilon, \tag{2}$$

where a, b_Y, b_d, and $\mathbf{b}_z$ are regression coefficients, and ϵ is a well behaved error term. Given parameter estimates, which can easily be calculated using least squares, consider equation (2) for a retiree and a non-retiree which are similar with respect to $\mathbf{z}$; assume that these have the same level of SEW; and equate both variants of the equation and solve for Y_1/Y_0. This yields

$$\mathrm{E}\left(\frac{Y_1}{Y_0}\right) = \exp\left(-\frac{\hat{b}_d}{\hat{b}_Y}\right). \tag{3}$$

5 Preliminary findings

I find that both relative and absolute income have a large and significant effect on SEW. This is robust to different types of models including fixed effect and ordered logit models. This shows that (relative) income is a relevant determinant of making ends meet which is a necessary observation for the actual analysis.

Applying the equivalence scale framework, on subjective data, the replacement rate which keeps the perception how ends are meet constant throughout the retirement is 78% for the average population, holding constant many socio-economic variables. This finding is slightly lower than Dudel et al. (2016) finds for Germany, though again the dependent variable is slightly differently defined.

Despite this interesting similarity in results, the main purpose of this paper is to consider the saving adequacy of vulnerable groups. To that end, I find that within the group of self-reported ill-health the replacement rate is 6 percentage points higher than the population average. In other words, this group needs 6% more of oneself's working income, which is possibly already smaller due to the health issue.

6 Implications and outlook

This paper investigates the relative retirement income, with respect to the working income, which is needed to maintain subjective economic well-being. I find that this benchmark is higher for self-reported ill persons.

The replacement rate can be considered as a lower benchmark for saving adequacy for three reasons. First, other studies have shown, that it takes more saving to maintain the consumption level than financial satisfaction Dudel and Schmied (2018). Second, subjective economic well-being as an indicator of how financial strains are perceived is a more conservative question than asking for income satisfaction. Third, as the identification strategy builds on a relative income concept, implications on the absolute level of well being cannot be made. When subjective economic well-being is miserable before and after the retirement and retirement income manages to achieve this, the situation of this person is still miserable.

Still, in comparison to other research on this field, the empirical benchmarks delivered here are easily understandable and can be implemented to individual saving plans. From a policy perspective this analysis demonstrated that vulnerable groups have to be financially supported and/or financially educated to achieve their retirement goals. Financial stress is a burden on every retirees shoulder.

This is only the preliminary version of the full paper I intend to submit. For the final paper, alternative retirement goals such as retirement satisfaction and financial satisfaction are investigated. Also, the saving adequacy of further vulnerable groups such as such as veterans, widows, income poor or low educated households and ethnic minorities are tested.

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