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# What Age Do You Feel?

## Subjective Age and Economic Behaviors

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# What Age Do You Feel? - Subjective Age and Economic Behaviors

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**Abstract:** Building on recent findings in psychology, we study the impact of subjective age (feeling younger or older than one's chronological age) on economic behaviors. Using data from the Health and Retirement Study we find that subjective age predicts economic behaviors: Individuals with younger age identities have higher work engagement, and their savings profile, as a function of the subjective age gap, is hump-shaped. The effects are economically significant, for example, increasing the subjective age gap by one standard deviation increases an individual's likelihood to be employed in a subsequent HRS wave by 1.1% (about 21% of the conditional mean). The relationships found are consistent with an interplay of two subjective age channels: *Ability* (self-perceived abilities to perform certain economic behaviors) and *Behavior* (choosing (avoiding) "young" ("old") behaviors). Our results have multiple implications for policy and financial advice that traditionally target individuals based on chronological age. That is, for example, allowing more individual flexibility with respect to retirement decisions as well as adapting financial products and services to match with subjective age identities.

**JEL Classification:** D12; D14; D91; J20

**Keywords:** Subjective age; Economic behaviors, Employment decision; Saving; Portfolio choice

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## 1 Introduction

Chronological age is one objective metric that has long been recognized as a major driver of economic decisions like working, saving, consumption, and portfolio choice (e.g., Rhodes, 1983; Cocco et al., 2005; Betermier et al., 2017; Fagereng et al., 2017). Not surprisingly, many economic policies, as well as financial advice, are formulated as a function of chronological age, for example, mandatory retirement ages or target date mutual funds. Recent research in psychology, however, emphasizes that subjective age (i.e. how old an individual *feels*) plays an important role in predicting health (Westerhof et al., 2014), mortality (Rippon and Steptoe, 2015), organizational performance (Kunze et al., 2015) and consumer behaviors (Moschis and Mathur, 2006).

Using data from the U.S. Health and Retirement Study (HRS) we find that for economic behaviors subjective age has explanatory power beyond chronological age, specifically for working, saving, and portfolio choice decisions. The impact of subjective age on decisions is consistent with an interplay of two channels: The *Ability* channel represents individuals' abilities for performing certain behaviors. The *Behavior* channel reflects individuals' choosing behaviors that relate with subjective age identity. Our findings have implications for understanding heterogeneity in individual decision making as well as economic policies and financial advice, for example, implementing policies reflecting not just chronological ages but also subjective ages, or even inducing shifts in subjective age identities to trigger desired behavioral outcomes.

We contribute to the growing literature about the impact of psychological factors on individual economic decisions (e.g., Puri and Robinson, 2007; Kaplanski et al., 2015). With respect to explaining heterogeneity in (chronological) age-related economic behaviors the literature has studied, for example, subjective life expectancy, cognitive aging as well as self-efficacy. Subjective life expectancy has been found to impact, for example, an individual's consumption, savings or bequests (e.g., Hurd, Smith, and Zissimopoulos, 2004; Bloom et al., 2007; Salm, 2010; Post and Hanewald, 2013; Spaenjers and Spira, 2015). Likewise, cognitive aging, driven by an interplay of changes in crystallized and fluid intelligence, has been found to explain economic decision making quality (Bruine de Bruin et al., 2007; Korniotis and Kumar, 2011; Li et al., 2013; Bruine de Bruin, 2016; Eberhardt et al., 2017). Self-efficacy has been shown to predict financial preparedness and financial distress (Kuhnen and Melzer, 2018).

At the most basic level, chronological age indicates an individual's standing in the life cycle (Montepare, 2009). It offers an objective reference point that might explain or guide an individual's economic choices or behaviors. For instance, either a mandatory or suggested retirement age is the chronological age at which most individuals leave the work force. Entering this new stage of the life cycle might come with adjustments to consumption, savings, and portfolio composition.

Research in psychology, however, has pointed out that chronological age does not fully reflect an individual's developmental standing or position in the aging process (MacDonald et al., 2011). Age is a subjective variable reflecting an individual's personal interpretation of aging (Diehl et al., 2014). Subjective age influences behaviors, physiological functioning and longevity (Kotter-Grühn et al., 2016). For example, Rippon and Steptoe (2015) find that subjective age predicts sizable mortality hazard in individuals even after objective health status is accounted for. Higher subjective age is related to worse cognitive performance and a marker

of subsequent cognitive impairment and dementia (Stephan et al., 2016). Moreover, subjective age is related to characteristic ways of feeling, thinking, and behaving (Stephan et al., 2015a).

The fact that subjective age influences the ability as well as the motivation to act or perform (Kooij et al., 2008), makes it a vital personal characteristic to explore in the domain of economic behaviors. Yet, little is known about this domain. Previous studies have mainly focused on decisions at the workplace: A younger subjective age is found to enhance occupational attitudes, performance ratings (Cleveland and Shore, 1992), workplace attachment (Rioux and Mokoukolo, 2013), goal accomplishment and finally results in overall better organizational achievement (Kunze et al., 2015). Likewise, it moderates the relationship between idiosyncratic deals and organizational commitment where group differences observed are due to social constructions of age (Ng and Feldman, 2010). With respect to savings decisions Huang et al. (2017) develop a theoretical lifecycle model accounting for both chronological and biological age. Within their model they demonstrate that the gap between those ages can create heterogeneity in savings rates. Note, however, that their definition of biological age differs from subjective age in that biological age exclusively incorporates factors related to mortality.

Early studies on subjective age found that older adults on average feel younger than their chronological ages (Barak et al., 2001). Maintaining a young subjective age seems to reflect a denial of aging, and serves as a coping mechanism (Bultena and Powers, 1978). Subsequent analyses that included younger individuals led to the development of a dynamic lifespan framework to describe the formation of subjective age. Accordingly, individuals typically feel first older than their chronological age, and after a certain age they feel younger than their chronological age. Subjective age derives from a process of anchoring, adjusting and adapting to internal developmental models and external age-symbolic markers where personal views like fear of aging (Barrett and Montepare, 2015) and social comparisons with same-age peers (Hughes and Lachman, 2016) are also considered as sources of variation.

We propose that subjective age impacts an individual's economic behaviors through two channels – the *Behavior* and *Ability* channels. According to the *Behavior* channel individuals first sort (economic) behaviors into categories according to being perceived as young or old behaviors. Then, in the spirit of Akerlof and Kranton (2000)'s model individuals take up behaviors corresponding to their subjective age identity while avoid other behaviors. That is, when aging individuals may develop a sense of helplessness and dependency, or a fear of loss (Heckhausen, 1997; Weiss and Lang, 2012), and become confronted with old-age stereotypes. As a coping mechanism individuals identify themselves with younger age identities (Meisner, 2011; Kotter-Grühn and Hess, 2012), take up behaviors associated with being younger people (e.g., trying new brands, see Stephens, 1991), and eschew behaviors associated with being older (e.g., refusing to participate in programs like Meals on Wheels, see Levy and Schlesinger, 2005; Chopik and Giasson, 2017). Giles et al. (2010) find that middle-aged and older adults identified recreational pursuits, including physical, creative, and travel activities, as youthful age triggers. With respect to economic behaviors, we so far have little research evidence on the age categorization. A survey finds that 55% of older Americans who continued working after retirement said they had done so to stay active and involved (New York Times, 2012). In our context, we expect that being employed is a youthful age trigger as retirement is a common sign of being old and loss in vitality. We expect that saving—versus consumption—is subsumed into an older age category as consuming and spending money is a common sign of being young

(e.g., Atlantic, 2017). Supporting evidence for such age categorization of economic behaviors we present in Section 4.1 where we analyze data from a self-developed survey distributed among older Americans. Based on respondents' choosing or avoiding economic behaviors because of their age categorization we in consequence expect that those who feel younger than their chronological age have higher work engagement and lower savings than those who feel older.

According to the *Ability* channel, as implied by the lifespan framework, individuals stating that they feel younger than their chronological age have a more positive evaluation of their abilities compared to a reference group. This evaluation may reflect objectively higher abilities or subjective beliefs of self-efficacy (Bowling et al., 2005; Boehmer, 2007) that underlie an individual's motivation (initiation, effort and persistence) to act or perform (Bandura, 1977). Age underestimation is also a form of self-enhancement process (Montepare, 2009). The feeling of remaining in a favorable stage of one's life correlates with personality traits like optimism (Myers and Diener, 1995), or even an overestimation of one's abilities (Teuscher, 2009). Consequently, feeling younger has a positive effect on the utility of effort and results in higher behavioral motivations. As a result, expending effort causes less emotional exhaustion or stress (Kooij et al., 2008). Also, it can create a positive illusion with a potential self-fulfilling prophecy by increasing, for example, mental power. In consequence, a younger subjective age positively affects physical and psychological health (Cleveland et al., 2016). In this vein, we expect that individuals who feel younger will be more likely to be employed because of higher self-perceived work-related abilities and work motivation. Also, such individuals will save more and invest more riskily because of higher saving-related (or financial management-related) abilities, like self-efficacy in controlling the amount of consumption (avoiding over-consumption and thus saving more for future needs) and engaging in sophisticated financial management.

In summary, both the *Ability* channel and the *Behavior* channel predict that individuals with a younger age identity will be more likely to be employed (vs. retired). But the channels differ in their impact on saving behavior in that the former channel predicts that a younger age identity increases savings, while the latter channel predicts the opposite. Therefore, we expect that the impact on saving behavior will depend on the relative strength of two channels within an individual. Figure 1 summarizes the predictions of the two channels for economic behaviors.

-- Figure 1 here --

In the HRS data we find empirical support for the expected relationships between subjective age and economic behaviors and an interplay of the two channels. Even after controlling for a variety of demographic characteristics and socioeconomic status, as well as health evaluation, survival expectations, optimism and life satisfaction, subjective age predicts statistically and, more importantly, economically significant economic behaviors. For example, a one standard deviation increase in the percentage gap between chronological age and subjective age (about feeling 11 years younger for respondents aged 60) increases the likelihood to having reentered the workforce in a subsequent wave of our data by 1.1% (about 20.8% of the conditional mean), and decreases the probability of being retired in a subsequent wave by 1.4% (about 7.5% of the conditional mean).

Robustness checks show that the patterns we document exist both in individuals who are single or married, as well as in a UK sample (ELSA<sup>1</sup>). Results are stronger (coefficient magnitude and significance) in subsamples where labor market decisions are more relevant (e.g., age below 70 years). Moreover, our results are robust to different dependent variable definitions, sample selection criteria, sets of control variables, and interactions between the decisions to save and work.

Our findings improve our understanding of an individual's economic decisions over the life-cycle and have potentially strong implications for economic policies and financial advice. We show that responses to a simple single-item survey question on subjective age are statistically and economically significant in explaining variation in individuals' economic decisions. Our results are consistent with observations, that, for example, older Americans represent the fastest-growing segment in the workforce (Benz et al., 2013), as well as generally low savings rates and stock market participation. Our findings challenge economic policies and financial advice that are based only on chronological age, and indicate that subjective age should be taken into account as well.

The remainder of the paper is structured as follows. In Section 2, we describe the data and analyze heterogeneity in subjective age. The association between subjective age and economic decisions we test in Section 3. In Section 4 we present additional survey results and several robustness checks, and conclude in Section 5.

## 2 Data

### 2.1 Data and sample selection

Beginning in 2004, the Health and Retirement Study (HRS) initiated the Participant Lifestyle Questionnaire. A rotating (random) 50% of the core panel participants completed the enhanced face-to-face interview. The subjective age question was introduced in 2008. The question: "Many people feel older or younger than they actually are. What age do you feel?", is the most widely used operationalization of eliciting subjective age (Kotter-Grühn et al., 2016).<sup>2</sup> We use data from four waves of the HRS (2008, 2010, 2012 and 2014). According to the rotating sampling strategy, a respondent takes part in this survey every four years so that each respondent has at most two observations in our sample. We focus on heads of households because wealth variables are measured at the household level. Based on marital status, we define all single respondents and all married (including living in a partnership) male respondents as household heads. This type of definition is consistent with previous conventions (Aguilar and Hurst, 2005).<sup>3</sup>

For our analysis, we select from the full HRS sample respondents according to the following criteria: First, we select respondents who answer the subjective age question (28,557 observations). Then, we exclude respondents who do not answer the questionnaire themselves,

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<sup>1</sup> The results for the UK ELSA sample are available on request.

<sup>2</sup> In the literature on eliciting subjective age also single item, multi-item, ratio, semantic, numerical, decade etc. elicitation methods have been used. This literature finds advantages for statements that are easy to administer (e.g., single item measures) especially when respondents are of older age to avoid confusion. Furthermore, this literature finds that most measures obtained by the different methods are positively correlated (see: Stephens, 1991; Van Auken and Barry, 1995; Barak 2009; Kotter-Grühn et al., 2016).

<sup>3</sup> We also tested alternative definitions of the household head, that is, being the financial respondent or family respondent. Robustness checks show that our results are not driven by different definitions of the household head (available on request).

as subjective age is a subjective item (reducing our sample to 25,956 observations). We restrict the subjective age range from 0 to 150 to reduce the influence of outliers<sup>4</sup> (25,928 observations). Next, we exclude respondents with missing values on wealth variables (24,316 observations) and control variables (19,939 observations), and keep only household heads (12,702 observations). Most of the participants in the HRS survey are members of the elderly in the United States (the age range is 26 to 90 years, the mean (median) age is 68.5 (69)). Because the HRS includes all members of a family that has an eligible old member, there are several participants who are of a relatively young age. We drop those under 45 (0.4% of the total sample) because the limited number of observations makes our subsequent classification of respondents into groups Young, Old, Same too noisy.<sup>5</sup> Thus, we focus on individuals who have transitioned into adulthood and their internal models of subjective age are relatively stable (Galambos et al., 2005; Barrett and Montepare, 2015). Finally, we have 12,662 observations taken from 9,284 survey participants for our analyses.

We complement the HRS data in a robustness check by analyzing data from a self-developed survey eliciting the sorting of economic behaviors into “young” or “old” categories (see Section 4.1).

The main subjective age variable of interest we define is the percentage gap, that is,  $(\text{chronological age} - \text{subjective age}) / \text{chronological age}$ , which is more theoretically neutral and comparable between different ages (Rubin and Berntsen, 2006).<sup>6</sup> As dependent variables we include several indicators of working and saving behaviors. The former contains work and retirement expectations, and subsequent actual work and retirement decisions. We examine saving outcomes with two alternative indicators: total net wealth and financial wealth.<sup>7</sup> Financial wealth includes four categories: safe assets, retirement assets, bonds, and stocks (see Table 1 for a detailed definition). Total net wealth includes financial wealth, net worth of non-financial assets in real estate, vehicles, businesses, residence and other assets. The above definitions follow earlier literature studying wealth using HRS data (Rosen and Wu, 2004; Berkowitz and Qiu, 2006; Coile and Milligan, 2009; De Nardi et al., 2010). Moreover, we define risky (stock) assets’ share in financial wealth (excluding retirement assets)<sup>8</sup> to investigate the allocation of financial assets.

To account for demographic characteristics and socioeconomic status (SES) that might influence both subjective age and economic choices, we include a variety of controls (e.g., gender, race, education and income) (Barrett and Montepare, 2015). We control for health as it is both an antecedent and outcome of subjective age (Petery, 2015), and explains a sizable fraction of the variation in subjective age (Hubley and Russell, 2009). We also control for subjective survival expectations. Subjective age reflects an evaluation at present, whereas subjective survival expectations express beliefs about the future. Although these two beliefs are conceptually distinct, subjective survival expectations may contain additional health

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<sup>4</sup> Our results hold for narrower subjective age ranges, e.g., [20, 110], [30, 110] and [40, 110] (available on request).

<sup>5</sup> Dropping respondents under age 50 or keeping all the observations yield results that are in line with our main specification. The exclusion primarily helps to produce more meaningful graphical representations of the data.

<sup>6</sup> Our results hold if we use the absolute gap between subjective age and chronological age (available on request).

<sup>7</sup> We exclude observations with negative wealth because we later we take the natural logarithm of these values. Observations with zero wealth are still included as we add to all wealth values a 1. Taking the logarithm reduces the skewness in the wealth variables. Our results hold if we use all observations including those with negative wealth variables and with untransformed wealth variables (available on request).

<sup>8</sup> The definition follows Chetty et al. (2017) as there is not enough information on the asset allocation within retirement assets. Our results hold if we do not exclude retirement assets.

information as well as influence retirement decisions (Van Solinge and Henkens, 2009), saving behaviors (Post and Hanewald, 2013) and portfolio choice (Spaenjers and Spira, 2015). Last, we control for optimism and life satisfaction as they can be related to subjective age (Chua et al., 1990; Teuscher, 2009; Rioux and Mokoukolo, 2013). Although the inclusion of variables like health, optimism, and life satisfaction will consume some of the explanatory power of subjective age it can alleviate concerns of omitted variable problems.<sup>9</sup> Variable definitions are given in Table 1, and Table 2 displays summary statistics.

-- Tables 1, 2 here --

## 2.2 Variation in subjective age

In Panel A of Figure 2 we plot subjective age and chronological age for the selected sample. Most respondents report younger subjective ages than their chronological ages. Over 85% report a different subjective age than chronological age, with about 75% feeling younger (see Panel B of Figure 2 and Figure 3). The median and mean gap between the two ages are very close, around 10 years. While a younger subjective age identity is more prevalent, there is still substantial variation in the degree to which subjective age differs from chronological age.

-- Figures 2, 3 here --

Next, we examine variation in subjective age by regressing the percentage gap on different sets of explanatory variables. Results in Table 3 (Column 1) show that some demographic characteristics and SES are correlated with the percentage gap. For example, the tendency to feel younger than one's chronological age increases with age, consistent with the lifespan framework. Individuals in partnerships have a higher subjective age than single individuals. Possibly, this is caused by the aging signs of and feedback from interactions with their partners about their own subjective ages (Barrett and Montepare, 2015). After including subjective health evaluation in the Column 2, we find an increase in  $R^2$ . When we include all the control variables in Column 3 we find that a younger age identity is associated with higher survival expectations, optimism and life satisfaction. As can be seen in Column 4, when we control for objective health status (including lifestyle choices like smoking, drinking alcohol, degree of physical exercise and ADL, IADL, BMI as well as eight doctor-diagnosed health problems), instead of subjective health evaluation, we get consistent results.

-- Table 3 here --

In Column 5, we present the results of an individual fixed-effects model. The estimation results show that there is little time-variation of subjective age within individuals with health shocks being a major source of variation. These results are consistent with the lifespan framework and previous empirical findings (Kleinspehn-Ammerlahn et al., 2008; Montepare, 2009) that suggest an individual's internal models of subjective age formation tend to be quite

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<sup>9</sup> We do not include financial literacy and cognition in our models. Like life satisfaction those variables might as well be related to subjective age and economic behaviors. Those variables are, however, only available for a subset of our respondents. Results using the small subset including those variables are consistent with our main specifications (available on request).

stable. Individuals possess implicit theories that they use to interpret stability and change within themselves (Ross, 1989). After they have reached the developmental stage of “grown up”, they continue to think of themselves being in this stage despite aging, unless external age markers signal a salient change (Kotter-Grühn and Hess, 2012; Kotter-Grühn, 2015). Because subjective age is, to a large extent, a time-invariant individual characteristic, in the following sections we employ identification by ordinary least squares (OLS) estimations.

### 3 Subjective age and economic behaviors

#### 3.1 Subjective age and work engagement

Both the *Ability* channel and the *Behavior* channel predict that a younger age identity increases work engagement. To test this prediction, we estimate the following linear model:

$$\text{Work choice}_i = \alpha + \beta \times \text{Percentage gap}_i + \theta^T \times X_i + \varepsilon_i \quad (1)$$

where Work choice is an indicator of work engagement variables, that is, employment and retirement expectations, and subsequent actual employment and retirement decisions based on subsequent waves’ employment status indicators.  $\beta$  is the coefficient of interest.  $X$  is a vector of control variables, which are the same as in Table 3 (Column 3),<sup>10</sup> except that we also include a squared age term to mitigate a potential concern that the percentage gap merely captures non-linear effects of chronological age. We first analyze expectations, and then whether or not they predict actual decisions in subsequent survey waves. All regression models are estimated using ordinary least squares (OLS) consistent with the results of Section 2.2.

##### 3.1.1 Subjective age and work and retirement expectations

We use several survey questions that elicit respondents’ work intentions. Work for pay is the self-reported probability to work in the future conditional on being currently unemployed. Having a young identity is positively and statistically significantly related to the likelihood of expecting to rejoin the workforce. The magnitude is that an one standard deviation (OSD)<sup>11</sup> increase in the percentage gap increases Work for pay by 1.6% using the full set of controls (Table 4, column 1) which constitutes 15.2% of its conditional mean. Work(X) in columns 2 – 4 represents the chance to work full-time after age X regardless of the current employment status. We also find that there is a positive and significant relation of the percentage gap with those measures. Individuals who feel younger are more likely to think of rejoining or remaining active in the workforce.

Finally, we only focus on individuals who currently work. The HRS asks those respondents when they plan to retire. The variable Remain measures the years a respondent plans to stay employed. If respondents answer that they plan to never stop working, values of Remain for them are censored at the maximum value of those who will retire some time (43 years in our data). Results remain highly significant if not using these censored observations. Feeling OSD younger results in a 0.67 years increase of Remain (about 2.7% of the conditional mean) (Table 4, column 5).

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<sup>10</sup> For all models we include self-perceived health status as control variable for health. Alternative models that include instead (or in addition) objective health measures (see Section 2.2) and out of pocket medical expenses yield results consistent with our main specification in terms of coefficient magnitude and significance for the percentage gap.

<sup>11</sup> The standard deviation is recalculated conditional on the sample used in each specific models. Thus, it slightly differs from the value reported in Table 2.

-- Table 4 here --

### 3.1.2 Subjective age and subsequent work and retirement decisions

Next, we analyze whether or not subjective age predicts actual subsequent work or retirement decisions, and how much of the effects can be attributed to indirect effects through expectations. We employ the indication of employment status in a subsequent wave conditional on not being employed currently. For example, we assign the employment status in 2010 for the 2008 observations denoted as Forward employed. Afterward, we run regression models with and without variable Work for pay and calculate direct and indirect effects by performing a mediation analysis (e.g., as in Das et al., 2017). We apply the same procedure for the retirement status conditional on not being retired currently.<sup>12</sup>

Results in Table 5, Column 1 give first insights on the economic importance of subjective age. Feeling OSD younger is related to a 1.1% increases in the probability to rejoin the labor force where the conditional mean is 5.3%, which is about a similar effect size as a OSD increase in self-evaluated health status (1.8%). The indirect effect of the percentage gap on the choice to rejoin the labor force through work expectations constitutes 40% of the total effect size (see Table 6, first line). This expectation is an important mechanism through which subjective age impacts the decision to rejoin the labor force. We find similar results for retirement decisions in that feeling OSD younger decreases the probability of retiring by 1.4%. The indirect effect through expectations about the planned retirement age is only 6%. Feeling younger influences actual retirement decisions rather directly.

The relations between subjective age and employment decisions are stronger (coefficient magnitude and significance) in subsamples of respondents at ages at which it is easier to find employment (e.g., age < 70) and subsamples that report that their occupation requires less physical effort (results available on request).

Overall, our results show that even when we include a broad set of control variables, the relation of subjective age with work engagement is statistically and economically significant. In addition, studying subsequent actual employment and retirement decisions conditional on a respondent's current subjective age alleviates concerns of reverse causality (i.e., that being employed would impact subjective age formation and not the other way round).<sup>13</sup>

-- Tables 5, 6 here --

### 3.1.3 Subjective age and perceived work ability

The *Ability* channel predicts that individuals who feel younger think of themselves as having more abilities to handle work. The Participant Lifestyle Questionnaire asks respondents who report working currently how they perceive their ability to work generally. Based on that variable we find that younger-feeling respondents have higher beliefs about their own work

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<sup>12</sup> For regressions with the binary dependent variables Forward employed and Forward retire, we use OLS instead of Probit model to ease the calculation of direct and indirect effects. A Probit model yields results in line with the OLS specification (available on request).

<sup>13</sup> In untabulated results, we also control for work tenure, occupation, industry and partner's work and retirement status. The results remain the same, i.e., the effects of subjective age on work-related decisions are general across different job types and not impacted from partner side omitted variables.

ability, consistent with the *Ability* channel (see Table 5, Column 5). We test the indirect effect through this channel and it accounts for about 14.6% of the retirement decision<sup>14</sup> (see Table 6, third line), which implies that the *Behavior* channel has a stronger influence. In other words, individuals who feel younger postpone retirement to stay active and involved and not primarily because of their abilities. Note, as our specifications include control variables that are potentially related to ability (e.g., health, see the discussion on pages 6 and 7) the importance of the ability channel might in tendency be underestimated.

### 3.2 Subjective age and saving behavior

#### 3.2.1 Subjective age and wealth accumulation

According to the *Ability* channel, feeling younger empowers an individual to save more because of higher saving-related abilities. For example, having more self-efficacy in financial management (or controlling the amount of consumption) and a longer planning horizon. However, the *Behavior* channel predicts the opposite as saving and financial management are subsumed in an older age category than consumption and recreational activities. Thus, we expect an interplay of the two channels. We employ two alternative saving indicators: total net wealth and financial wealth. Figure 4 shows hump-shaped profiles of two wealth variables grouped by the subjective age gap.

-- Figure 4 here --

To capture this shape in our OLS models we first include a squared term of the subjective age gap in later analyses and robustness checks we in addition use different specifications<sup>15</sup>:

$$\text{Saving level}_i = \alpha + \beta_1 \times \text{Percentage gap}_i + \beta_2 \times \text{Percentage gap}_i^2 + \beta_3 \times \text{Lag Saving level}_i + \theta^T \times X_i + \varepsilon_j \quad (2)$$

$$\text{Saving level}_i = \alpha + \beta_1 \times \text{Percentage gap}_i + \beta_2 \times \text{Percentage gap}_i^2 + \theta^T \times X_i + \varepsilon_j \quad (3)$$

Saving level represents total net wealth or financial wealth, and X is a vector of control variables as specified before.<sup>16</sup> The major difference between Model (2) and Model (3) is that the former includes the first lag of Savings level (i.e., from the preceding survey wave). The specification of Model (2) allows us to capture the relation between the percentage gap and changes in Saving level (Wu, 2003; Berkowitz and Qiu, 2006), which we denote as short-term (two year) accumulation. Hereby, we assume within-individual stability subjective age, which is in line with our earlier results (see Table 3, Column 5) where we found that within-individual variation in the percentage gap is not driven by within-individual variation in wealth.<sup>17</sup> Consequently,

<sup>14</sup> These questions are asked only to participants who are currently working. Thus, there are not sufficient observations in the regression of Forward employed conditional on not working currently.

<sup>15</sup> Simonsohn (2017) argues that hypotheses of u-shapes are tested almost exclusively via quadratic regressions which may result in model misspecification. We employ two strategies to address such problem. First, we regress within subsamples of the groups Young and Old. Second, we include group dummies into regression models to detect group differences (Section 3.2.2).

<sup>16</sup> For all models we include again self-perceived health status as the control variable for health. Alternative models that include instead (or in addition) objective health measures (see Section 2.2) and out of pocket medical expenses yield results consistent with our main specification in terms of coefficient magnitude and significance for the percentage gap.

<sup>17</sup> The results hold when substituting  $\ln(\text{Wealth})$  with  $\ln(\text{Financial wealth})$ .

when we control for lagged wealth, the estimated coefficients of the percentage gap are closer to exogeneity (if the formation of subjective age was indeed influenced by past wealth experience). Another benefit of the latter specification is that we are better able to distinguish the change in wealth (recent savings) from the total stock of wealth. Model (3) captures the long-term effect of percentage gap on saving behaviors, which allows us to study aggregate wealth differences.

First, we run Model (2) and Model (3) to analyze the relation of the percentage gap with savings. We test the joint significance of both orders of the percentage gap with following null hypothesis:

$$H_0: \text{coefficient of Percentage gap} = \text{coefficient of Percentage gap}^2 = 0.$$

Then we calculate the extreme value according to the coefficients if passing the F test. Columns 1 and 2 in Table 7 give results based on Model (2), which examine the short-term saving change respectively for total wealth and financial wealth. Both pass the joint F test and show a hump-shape profile. About 4.5% and 25.6% of our observations whose values of the percentage gap are smaller than the two extreme values respectively. Results shown in Columns 3 and 4 of Table 7 are based on Model (3), and the non-linear long-term relationship is significant. Again, the two extreme values are around zero with 6.1% and 26.6% of our observations having smaller values of the percentage gap. Given that the group Old (together with group Same) constitutes about 10.1% (24.6%) of our observations (see Table 2), it shows that group Young and group Old behave differently as a function of the subjective age gap. Within the group Young, the younger an individual feels, the lower the savings; while within the group Old, the younger an individual feels, the higher the savings.

-- Table 7 here --

To study the effects within a certain group in more detail, we drop the squared term of the percentage gap in the models and run regressions in subsamples of the groups Young and Old separately. In Columns 1 and 3 of Panels A and B of Table 8, the negative relation of feeling younger with the short-term and long-term wealth accumulation are evident inside the group Young. An OSD increase in the group Young decreases short-term and long-term financial wealth accumulation (total wealth accumulation) by 10.4% and 29.2% (6.6% and 18.7%) respectively. Within the group Old, the effect is positive for financial wealth where an OSD increase in feeling younger leads to 20.8% increase in short-term financial wealth accumulation and 40.3% increase in long-term financial wealth accumulation.

-- Table 8 here --

The results in Tables 7 and 8 both convey that the two channels interact with each other. It is apparent that the *Behavior* channel exerts more influence than the *Ability* channel within the group Young. The groups Young and Old are systematically different in saving behaviors. Following Rubin and Berntsen (2006) the discontinuity distribution at the zero gap (see Figure 3) indicates that feeling younger or older than one's actual age and estimating that gap appear to be different kinds of judgments. Results from our self-designed survey on age categorization of behaviors also show a discontinuity between the groups Young and Old (see Section 4.1).

Again note, as our specifications include control variables that are potentially related to ability the importance of the ability channel might in tendency be underestimated.<sup>18</sup>

### 3.2.2 Disentangling the channels

#### 3.2.2.1 Economic characteristics

If the *Ability* channel is operational, we expect that feeling younger will be related to economic characteristics like higher risk tolerance, longer planning horizon, more financial self-efficacy and better efficacy change. The latter three economic characteristics should be positively related with savings. The direction of the effect of risk tolerance on savings depends on assumptions about a particular utility function. We analyze risk tolerance here because it is related with portfolio choice which we analyze afterwards. Results in Table 9 show that the four characteristics are positively related with feeling younger (although not significantly in some cases). The monotonous relationship found between the four characteristics and the percentage gap suggests the existence of the *Ability* channel, but these characteristics cannot explain the relationships found within the group Young.

-- Table 9 here --

#### 3.2.2.2 Group differences

Next, we substitute the squared term of the percentage gap with two dummies for the group Young and group Old to capture group differences in saving behaviors and the incremental effect of the percentage gap as well. The superiority of such identification (in comparison to using squared terms) lies in that: First, finding that respondents in the group Young, on average, have higher savings than in the groups Same or Old, is consistent with the existence of the *Ability* channel because the group Young, on average, has higher “abilities” (i.e., the aforementioned four economic characteristics to save more). Second, finding that the incremental effect of the percentage gap is negative, is consistent with the existence of another channel. The regression results in Table 10 are consistent with those conjectures. Individuals from the group Young have 34.3% and 29.1% (63.1%) higher long-term total wealth and financial wealth accumulation compared with group Same and Old). The results for short-term wealth values have the same directions, but are insignificant. The four estimated coefficients of the percentage gap are all negative. Feeling much younger, however, decreases wealth accumulation. The economic significance is never negligible. Specially, OSD increase in subjective age gap after controlling for three groups otherwise reduces the short-term total wealth and financial wealth accumulation by 7.1% and 8.8% and reduces the long-term ones by 19.1% and 24.3%. This results highlights the role of the *Behavior* channel in that it can reverse the impact induced by the *Ability* channel.

-- Table 10 here --

#### 3.2.2.3 Evidence on portfolio choice

The *Behavior* channel predicts that individuals with a younger subjective age may allocate

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<sup>18</sup> When we exclude controls variables in the models, the extreme points move to the right, which may imply with a stronger ability channel (results available on request).

more financial assets to a safer position rather than a risky position given that sophisticated financial management might be an old age trigger. Meanwhile, the *Ability* channel predicts the opposite. Namely, individuals with a younger subjective age will allocate more savings to risky assets, given the results in Section 3.2.2.1. Thus, we expect a hump-shape profile of the risky asset allocation. We utilize the risky share to investigate this point. Looking at Column 1 in Table 11, we can see that risky share does, in fact, have a hump-shape profile. In the last two columns, we also separate the groups Young and Old and the effect of percentage gap on the risky share differs between the two groups. An OSD increase in feeling younger within the group Young lowers the risky share by 0.8%, while within the group Old feeling younger increases the risky share by 1.4%, which constitute about 4.0% and 10.0% of the conditional means, respectively. This result is consistent with the existence of the *Behavior* channel.

-- Table 11 here --

## 4 Robustness checks

### 4.1 Direct evidence on age-categorizations of economic behaviors

The main argument underlying the *Behavior* channel is that according to the literature (e.g., Giles et al., 2010), individuals sort behaviors into age categories and choose (avoid) behaviors that belong to a desired (not desired) subjective age identity. The evidence in Giles et al. (2010) shows that, for example, “recreational pursuits” are categorized as young while “retirement” is categorized as “old.” We lack, however, evidence on some of the behaviors we are analyzing, specifically, saving (vs. consumption) and financial management. As the HRS does not contain such information we collect additional evidence by an online survey.

We start the survey by assessing generally what respondents think is the age for which a certain behavior is most typical. Then, we assess how performing a specific behavior would make a respondent feel personally (e.g., younger or older). We assess ratings for a list of 13 behaviors. In the list, we include behaviors we are interested in for our analyses (saving, consumption, financial management, investing in the stock market, working, being retired). As a cross-validation of our measurements, we also include behaviors that, based on the evidence in Giles et al., (2010) and common sense, are related to a certain age (e.g., making a will or having physical decrements).

Giles et al., (2010) assessed the age categorization of behaviors based on qualitative techniques, that included interviews and coding of text. As we want to generate measurements that we can evaluate statistically, we develop our own scales. For robustness, we use two versions of our survey to assess the general age ratings. After randomly dividing survey participants into two halves, one of the two versions is distributed to each participant. The first version uses a Likert scale and asks: “Below, you see a list of behaviors and events. Please indicate for which group of people the behavior or event is most typical.” Responses are measured on a Likert scale ranging from 1 = “very young people” to 7 = “very old people.” In the second version, we use a numerical age rating by asking “Below, you see a list of behaviors and events. Please indicate an age of a person for which that behavior or event is most typical.” Ratings are measured by using a slider for each behavior where the answer range given is 0 to 110 years (the default position of the slider is 0).

For the personal assessment, we use the same Likert scale measurement for all respondents.

Indicating a specific numerical age proved to be too difficult and confusing based on a pre-test of the survey among test respondents. In particular, we asked “Below, you see a list of behaviors and events. Please indicate how performing that behavior yourself or experiencing the event yourself makes or would make *you personally feel*”, followed by the same list of behaviors given for the general assessment. Behaviors on the list given were not randomized to avoid confusing respondents when moving from the general to the personal assessment. Instead, behaviors on the list were arranged in an order that mixed presumably old and young behaviors. The order and exact wording of behaviors in the survey is given in Table 12, Column 1.

-- Table 12 here --

After respondents completed the assessments, we asked respondents to indicate their subjective age (using the HRS question) and to provide some demographic information. Finally, based on the scales used in Chopik and Giasson (2017), we elicit whether a respondent thinks that there are old age prejudices. In particular, using a Likert agreement scale, we pose two statements: “No spontaneous prejudiced thoughts come to mind when I encounter an unfamiliar old person”, and “Others sometimes have prejudiced thoughts toward old people” (1 = “Strongly agree”, 7 = “Strongly disagree”). We aggregate the prejudice assessments by reverse coding the second question and then averaging the assessments for both questions, so a higher value implies stronger old age prejudices. We elicit prejudices because for the *Behavior* channel to become effective perceived old age prejudices might play an important role in the triggering of avoiding or choosing certain behaviors.

The survey was programmed in Qualtrics and distributed as an online survey by Qualtrics in June 2018 to an audience based on the selection criteria: age  $\geq$  50 years and being a U.S. resident. On average (median), respondents needed 6.7 (5.6) minutes to complete the survey. From the 266 responses originally received from the survey provider, we remove 9 responses that showed flatlining when answering the behavior categorization questions, and 2 responses that indicated a subjective age of 0 or 100 years (where the chronological age of the latter was 50 years). In the end, we have 255 responses for analysis (125 receiving the Likert scale question and 130 the numerical age question). The average age in the sample is 60.8 years, the average percentage subjective age gap is 13.1%, which is roughly in line with the HRS sample (respondents are slightly younger, potentially because the survey was distributed online).

The age categorization proved to be valid as behaviors and events that we expected to be rated as rather old (finding it hard to learn new technology, having physical decrements) or young (going with the latest fashion) indeed were scored to be very old or young (Table 12). In Figure 5, we show the mean age ratings sorted by the personal assessment from old to young.

-- Figure 5 here --

Based on Figure 5, we observe that the age categorization order is strongly correlated across the two different versions for the general assessment as well the personal assessment. So for further analyses, we only use the personal assessment as it was asked to all respondents in the same way.

We investigate the behaviors in that we are particularly interested in to match with our

main analyses and framework. We create composite measures for consumption (average of “Going shopping” and “Doing recreational pursuits”), saving and financial management (average of “Dealing with personal finance and savings” and “Saving for retirement”), and working (average of “Having an engaging and meaningful job” and “Working for pay”).

We find that working makes respondents feel younger than being retired (mean difference =  $-1.755$ ,  $p$ -value =  $0.000$ ). Saving and financial management makes respondents feel older than consuming (mean difference =  $0.230$ ,  $p$ -value =  $0.006$ ). Investing in the stock market makes respondents feel older than consuming (mean difference =  $0.359$ ,  $p$ -value =  $0.000$ ). These results confirm our assumptions regarding the age categorization of behaviors underlying the *Behavior* channel.

Next, we investigate subsamples related to analyses performed in Section 3.2.1. We split the sample into two groups: respondents feeling younger than their chronological age and those feeling older or the same age. For the subsample feeling younger (58.3% of respondents) we find saving and financial management makes respondents feel older than consuming (mean difference =  $0.239$ ,  $p$ -value =  $0.012$ ). For the subsample feeling older the difference is smaller ( $0.201$ ) and not significant ( $p$ -value =  $0.214$ ). These results confirm the results of our subsample analyses in Section 3.2.1 (Table 8) where we found that the *Behavior* channel has a stronger influence in the group feeling young.

Finally, we split the sample based on how our survey participants responded to the statements about old age prejudices (low (below median) versus high (above median)). Again comparing means, we find that in the subsample reporting higher older age prejudices the age gap between behaviors is larger than in the low prejudice subsample. In particular, in the high prejudice sample the mean gap between working and being retired is  $-1.939$  ( $p$ -value =  $0.000$ ), the gap between saving and financial management and consuming is  $0.277$  ( $p$ -value =  $0.082$ ), and the gap between investing in the stock market and consuming is  $0.527$  ( $p$ -value =  $0.005$ ). In the low prejudice sample the mean gap between working and being retired is  $-1.680$  ( $p$ -value =  $0.000$ ), the gap between saving and financial management and consuming is  $0.210$  ( $p$ -value =  $0.031$ ), and the gap between investing in the stock market and consuming is  $0.290$  ( $p$ -value =  $0.004$ ). These results provide additional support for the notion that the *Behavior* channel exerts a stronger influence. As the literature discussed in Section 1 showed, one reason to choose or avoid behaviors is to associate or disassociate from groups with certain behaviors that society might view favorable or unfavorable. Our results from analyzing subsamples by old age prejudices support those findings. Respondents who report the existence of stronger old age prejudices in society also show a stronger tendency to feel a subjective age impact when performing one versus another behavior.

#### 4.2 Results from subsamples: Single and Partnered

Single and partnered household heads may differ in their saving behaviors (Mazzocco, 2004). We re-run the two saving behavior models based on partnership status. According to Table 13, we find in both single and partnered subsamples similar hump-shape profiles of saving behaviors especially for financial wealth. And the extreme points of the two groups are both near a zero gap which indicates the differences between the groups Young and Old. For single households, an OSD increase in feeling younger within the group Young will be related with 11.3% and 36.0% decrease in short-term and long-term financial wealth accumulation. The two

figures for partnered heads are 9.5% and 21.8%.<sup>19</sup>

-- Table 13 here --

#### 4.3 Potential interactions between work intentions and savings decisions

There are two ways in which the two primary variables of interest measuring work engagement and savings behavior might interact with each other. First, it is possible that less saving leads to more work engagement. Potentially, even though we already control for household income and wealth, a younger identity might interact with work decisions because of monetary concerns that arise from either living longer (Rippon and Steptoe, 2015) or more consumption requirements needed to sustain a young life. Such monetary motivations might encourage older individuals to remain in the work force to cope with individual longevity risk. To address this possibility, we utilize two questions that indicate whether respondents continue working because they need money and/or to maintain their health insurance benefits. We find that the percentage gap is significantly related to the money intention, but not with the insurance intention (see Table 14). As the indirect effect of money intention accounts for only about 4.1% (Table 6, bottom line), the results suggest that working longer is not driven by monetary reasons which alleviates the interaction concern.

Second, another possible interaction might run from work behaviors to saving behaviors. That is, feeling younger could reduce savings as there are more years of perceived earnings ability ahead. To check for such interaction, we focus on respondents who are currently not employed and utilize the variable Work for pay to proxy for years of earnings ability ahead perceived. The rationale for this test is given based on our previous findings: Feeling younger is positively related with Work for pay and Work for pay is the main mechanism through which feeling younger influences the decision to rejoin the labor force. Thus, we next run wealth accumulation regressions only on subsamples of respondents who are currently not employed to analyze if the coefficient of the subjective age gap changes when Work for pay is included in the model. The results show that respondents feeling younger save less not because of higher expectations to rejoin the labor force and therefore expecting more income in the future (see Table 15).

Thus, it is unlikely that our results are influenced by interactions between working and saving behaviors.

-- Tables 14, 15 here --

## 5 Summary and Implications

We investigate the relationship between subjective age and a variety of economic behaviors. We show, that responses to just a single-item survey question eliciting subjective age explain heterogeneity in economic behaviors (controlling for a range of indicators of socioeconomic status, health and subjective life expectancy etc.), in both a statistically and economically significant way. We find that the relation of subjective age with economic decisions is consistent

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<sup>19</sup> Another identification strategy regarding partnered subsamples is including both partners' subjective age gap and corresponding controls within a household in regression models. Robustness check show that both partners within a household display a hump-shaped profile regarding their wealth accumulation (available on request).

with two channels, an *Ability* channel and a *Behavior* channel. The former channel emphasizes the aspect of self-perceived abilities, while the latter emphasizes the aspect of choosing behaviors that relate with subjective age identity.

Our results demonstrate that feeling younger is related to more work engagement, specifically, higher expectations of rejoining the work force and planning to retire later and also predicts actual work and retirement decisions (irrespective of expectations). Because of the interaction between the two channels, we find hump-shaped profiles of savings as a function of the subjective age gap. On average, individuals who feel younger than their chronological ages save more than those who feel older than their chronological ages because of the influence exerted by the *Ability* channel. However, the influence of the *Behavior* channel reverses this relationship within the group where individuals feel younger than their chronological age. We also find a similar pattern for portfolio choice, that is, feeling much younger relates to a less risky asset allocation.

The implications of our findings are twofold: First, our results suggest to incorporate subjective age in addition to chronological age in economic policies and financial advice. For financial advice and firm policy in general doing so might be rather straight-forward. Eliciting subjective age is simple and the respective advice on, for example, savings and investment decisions can be adjusted accordingly (e.g., the target date of a target date fund). Likewise, similar as in the consumer goods industry (see Barak, 2009 and the references therein) subjective age can be used as a dimension to segment individuals and adapt respective products, services, and communication accordingly. For public policy the implementation of subjective age might be more challenging. When assessing subjective age, individuals might respond strategically to a subjective age question in order to, for example, receive higher or earlier retirement benefits. In the public domain therefore our results call for giving individuals flexibility to decide themselves on important issues like when to retire and when to start the payout-phase of a retirement plan in order to align their behavior better with their subjective age identity.

Second, earlier works show that individual subjective age identities can be experimentally manipulated resulting in, for example, improvements in memory and physical functioning (Levy, 2003; Stephan et al., 2012). Thus, if a certain behavioral response to a particular subjective age is perceived as beneficial (e.g., working longer, or saving more), interventions targeting subjective age might be used to trigger that behavior.

Our study suggests avenues for future research. Exploring domain-specific measures of subjective age identities (Cleveland et al., 2016) has the potential of refining our understanding of economic behaviors. Studying samples that include younger people who, on average, feel older than their chronological ages (Montepare and Lachmann, 1989) might give us deeper insights into age-specific behavioral choices.

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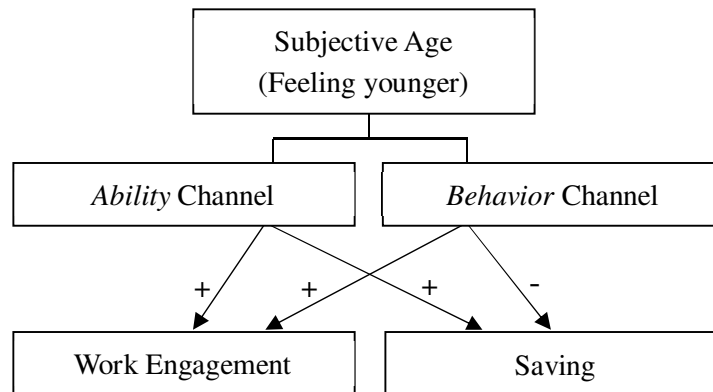
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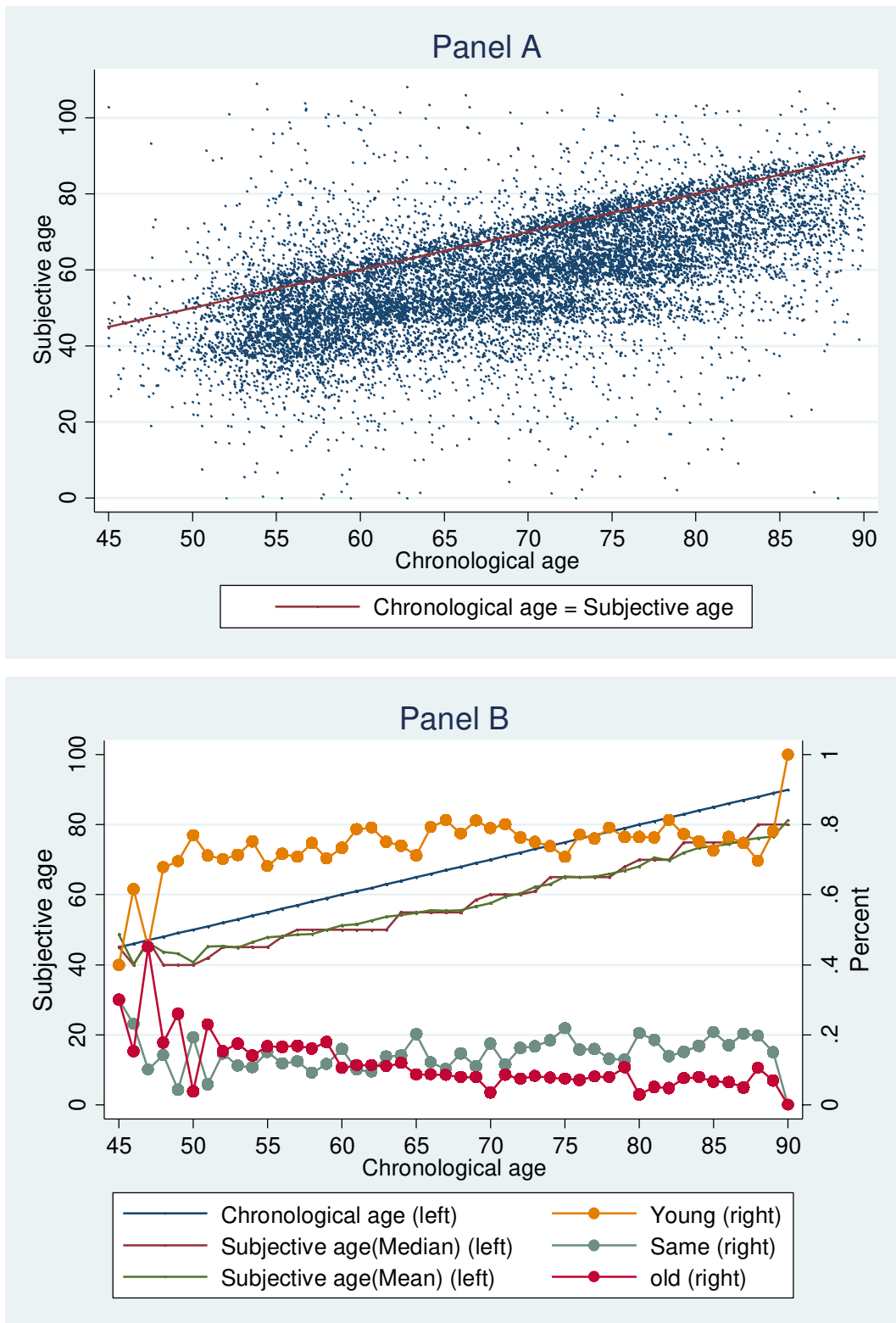
## Figures and Tables

**Figure 1** Subjective age and economic behaviors



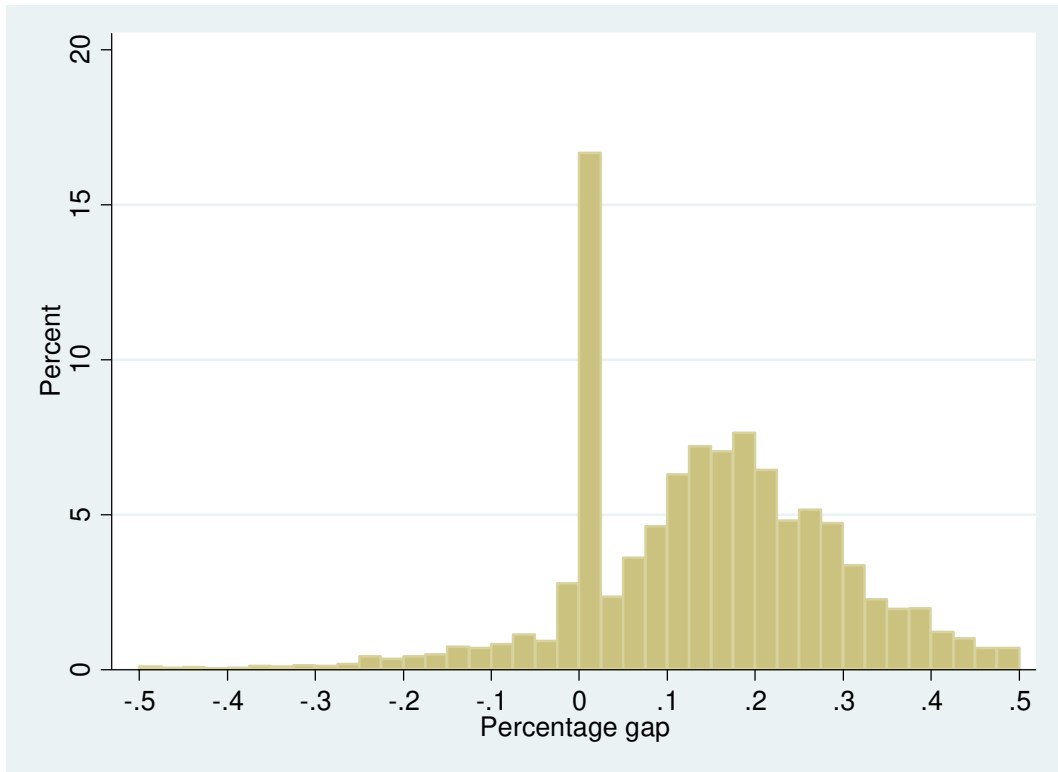
This figure illustrates how subjective age affects economic behaviors through two channels.

**Figure 2** Subjective age in the HRS



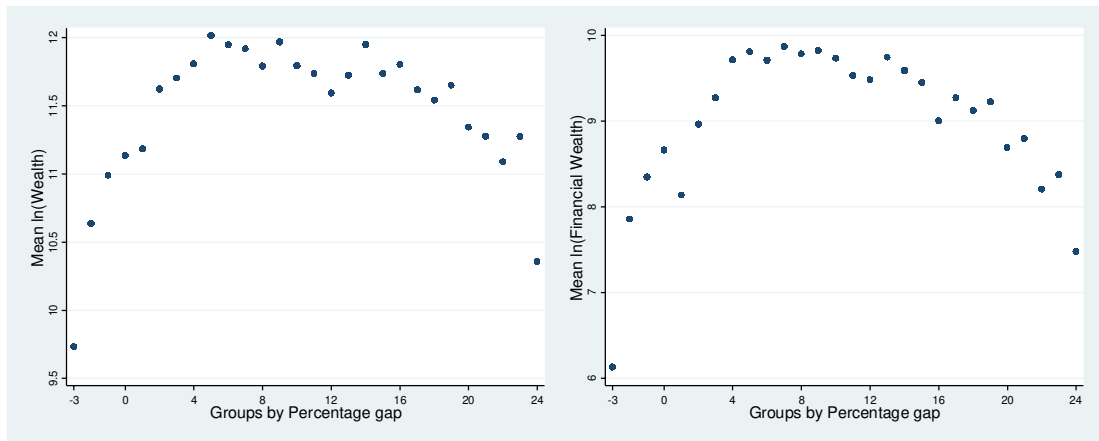
This figure shows the scatterplot of subjective age and chronological age (Panel A), mean and median subjective age for each chronological age and proportions of the groups Young, Same and Old (Panel B). In Panel A, the points are jittered to reduce overlaying. To make the figure more compact two observations with subjective ages larger than 110 are not shown in Panel A.

**Figure 3** Distribution of the subjective age percentage gap



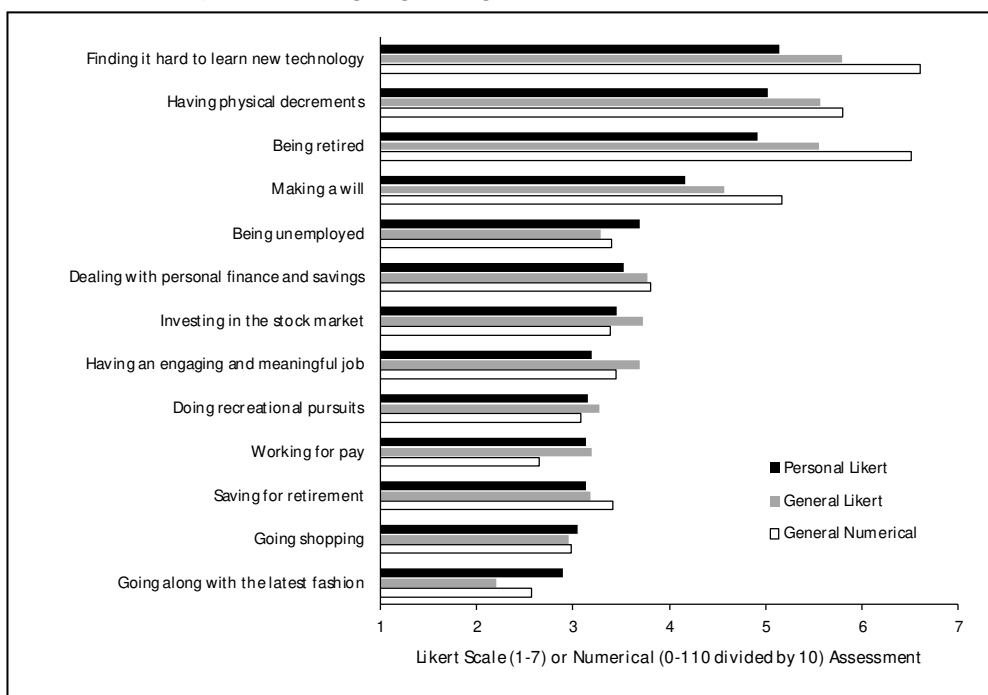
This figure shows the distribution of the percentage gap between subjective age and chronological age. To make the figure more compact observations with values larger than 0.5 or smaller than -0.5 are dropped.

**Figure 4** Mean wealth and financial wealth grouped by percentage gap



This figure shows the average wealth (left) and financial wealth (right) grouped by percentage gap. We group percentage gap to 28 bins and calculate the average for each variable within each bins. Observations with zero gap are in group 0. Variables are defined in Table 1.

**Figure 5** Average age categorization of behaviors and events.



This figure shows the average age categorization of 13 behaviors and events sorted by the personal assessment Likert scale measure mean rating. The original order in which the behaviors we asked to respondents is given in Table 12. “General Likert” refers to the Likert scale general assessment of behaviors and “General Numerical” refers to the age in years assessment. For this figure, the values for the general numerical assessment are scaled by dividing by 10.

**Table 1** Variable definitions

Variable	Definition
Age	Chronological age in years
Subjective age	Responses to the question: “What age do you feel?”
Percentage gap	$(\text{Age} - \text{Subjective age}) / \text{Age}$
Young	Indicator variable taking the value 1 if Subjective age < Age; 0 otherwise
Same	Indicator variable taking the value 1 if Subjective Age = Age; 0 otherwise
Old	Indicator variable taking the value 1 if Subjective Age > Age; 0 otherwise
Female	Gender: 1 = female, 0 = male
White	Race: 1 = white, 0 otherwise
Partner	Indicator variable taking the value of 1 if respondent is married or partnered; 0 otherwise
Child	Indicator variable taking the value 1 if respondent has children; 0 otherwise
College	Indicator variable taking the value of 1 if respondent has college degree: 0 otherwise
Retire	Indicator variable taking the value of 1 if respondent is (partly) retired; 0 otherwise
Employed	Indicator variable taking the value of 1 if respondent works for pay; 0 otherwise
Self-employ	Indicator variable taking the value of 1 if respondent is self-employed; 0 otherwise
Income	Household income
Financial wealth	Sum of 4 financial asset categories, i.e. safe (checking, savings, or money market accounts, CD, government savings bonds, and T-bills), retirement (IRAs and Keoghs), Bond (corporate, municipal and foreign bonds, and bond funds), stock (stock or stock mutual funds) assets
Wealth	Net worth of household total wealth including financial wealth, net worth of non-financial assets in real estate, vehicles, businesses, (primary and second) residence, and net worth of other assets (other savings as well as financial debts).
Risky share	Stock assets / (safe assets + bond assets + stock assets) (conditional on positive denominator)
Health	Self-perceived health status based on responses to the question: “Would you say your health is excellent, very good, good, fair, or poor?” 1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent.
Life expect	Self-reported life expectancy of living to 80-100 based on responses to the question: “What is the percent chance that you will live to be [85/80/90/95/100] or more?” 0 = "Absolutely no chance" and 100 = "Absolutely certain".
Optimism	Average score of dispositional optimism based on responses to a six-item version of the Life Orientation Test: respectively “If something can go wrong for me it will”, “I’m always optimistic about my future”, “In uncertain times, I usually expect the best”, “Overall, I expect more good things to happen to me than bad”, “I hardly ever expect things to go my way”, “I rarely count on good things happening to me”. 1 = Strongly disagree ... 6 = Strongly agree. Reverse coded items are 1, 5, 6.
Satisfaction	Self-reported life satisfaction based on responses to the question: “Please think about your life as a whole. How satisfied are you with it?” 1 = "Completely satisfied" and 6 = "Not at all satisfied"; reverse coded.
Work for pay	Self-reported probability of working for pay in the future conditional on being unemployed currently based on responses to the question: “What are the chances that you will be working for pay at some time in the future?” 0 = "Absolutely no chance" and 100 = "Absolutely certain".

Work62 (65, 70)	Self-reported probability of working full-time after 62 (65, 70) based on responses to the following question: “What do you think the chances are that you will be working full-time after you reach age 62 (65, 70)?” 0 = "Absolutely no chance" and 100 = "Absolutely certain".
Forward employed	Indicator variable taking the value of 1 if respondent works for pay in the next wave; 0 otherwise conditional on Work = 0.
Forward retire	Indicator variable taking the value of 1 if respondent is (partly) retired in the next wave; 0 otherwise conditional on Retire = 0.
Remain	Remaining working years calculated as: Planned retirement year – current year. If respondent reports never stopping working, maximum value of Remain in the data is assigned.
Work ability	Self-perceived work ability based on responses to the question: “How many points would you give your current ability to work?” (0-10).
For money	Indicator variable taking the value of 1 if respondent reports needing money based on the responses to the question: “Right now, would you like to leave work altogether, but plan to keep working because...?”; 0 otherwise
For insurance	Indicator variable taking the value of 1 if respondent reports needing health insurance based on the responses to the question: “Right now, would you like to leave work altogether, but plan to keep working because...?”; 0 otherwise
Risk tolerance	Financial risk tolerance based on responses to the question: “How willing are you to take risks in financial matters?” 0 to 10 scale where 0 = “Not at all willing” and 10 = “Very willing”.
Planning horizon	Financial planning horizon based on responses to the question: “In planning your (family's) saving and spending, which of the following time periods is most important to you [and your [husband/wife/partner]], the next few months, the next year, the next few years, the next 5-10 years, or longer than 10 years?” 1 = The next few months ... 5 = Longer than 10 years.
Financial control	Self-efficacy over financial situation based on responses to the question: “How would you rate the amount of control you have over your financial situation these days?” (0-10).
Control change	Self-efficacy change over financial situation based on responses to the question: “Has the amount of control you have over your financial situation changed in the last year?” -1 = “YES, I have less control now”; 0 = NO, the amount of control I have has stayed the same”; 1 = “YES, I have more control now”.

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This table presents variable names and definitions.

**Table 2** Summary statistics

Variable	N	Mean	Std. Dev.
Age	12,662	68.55	9.96
Subjective age	12,662	58.28	14.48
Percentage gap	12,662	0.15	0.18
Young	12,662	0.75	0.43
Same	12,662	0.15	0.35
Old	12,662	0.10	0.30
Female	12,662	0.37	0.48
White	12,662	0.80	0.40
Partner	12,662	0.51	0.50
Child	12,662	0.91	0.28
College	12,662	0.26	0.44
Retire	12,662	0.53	0.50
Employed	12,662	0.37	0.48
Self-employ	12,662	0.08	0.27
Income in 100,000	12,662	0.66	1.16
Financial wealth 100,000	12,662	2.02	5.27
Wealth in 100,000	12,662	4.74	10.85
Risky share	10,893	0.19	0.33
Life expect	12,662	0.45	0.32
Health	12,662	3.19	1.05
Optimism	12,662	4.21	0.95
Satisfaction	12,662	3.87	0.84
Work for pay	7,934	0.11	0.23
Work62	3,736	0.50	0.39
Work65	4,777	0.34	0.36
Work70	4,752	0.14	0.26
Remain	4,364	24.68	18.11
Forward employed	5,170	0.05	0.22
Forward retire	4,223	0.19	0.39
Work ability	4,620	8.56	1.51
For money	4,578	0.57	0.50
For insurance	4,067	0.75	0.43
Risk tolerance	3,330	3.25	2.68
Planning horizon	3,667	3.22	1.25
Financial control	12,530	7.44	2.49
Control change	9,418	-0.02	0.56

This table presents summary statistics for the HRS data. “n/a” denotes that the variable is not included in a survey. Losses of observations in some variables are due (i) questions being asked to only a fraction part of the whole sample; (ii) conditions on variables, for example, financial asset share; (iii) questions being asked only in some waves; (iv) missing values.

**Table 3** Explaining the subjective age percentage gap

	Percentage gap OLS (1)	Percentage gap OLS (2)	Percentage gap OLS (3)	Percentage gap OLS (4)	Percentage gap FE (5)
Age	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.009 (0.005)
Female	0.006 (0.006)	0.002 (0.005)	-0.006 (0.005)	0.001 (0.006)	
White	-0.033*** (0.005)	-0.039*** (0.005)	-0.030*** (0.005)	-0.023*** (0.005)	
Partner	-0.013** (0.006)	-0.011** (0.005)	-0.016*** (0.005)	-0.018*** (0.005)	-0.018 (0.014)
Child	-0.005 (0.007)	-0.006 (0.006)	-0.006 (0.006)	-0.004 (0.006)	-0.047 (0.084)
College	0.017*** (0.004)	0.005 (0.004)	0.001 (0.004)	0.003 (0.004)	
Retire	-0.019*** (0.006)	-0.014** (0.006)	-0.016*** (0.006)	-0.016*** (0.006)	-0.012 (0.010)
Employed	0.037*** (0.007)	0.020*** (0.007)	0.020*** (0.006)	0.021*** (0.007)	-0.003 (0.011)
Self-employ	-0.005 (0.006)	-0.006 (0.006)	-0.013** (0.006)	-0.013** (0.006)	-0.012 (0.017)
ln(Income)	0.005*** (0.002)	0.003 (0.002)	0.002 (0.002)	0.004** (0.002)	0.002 (0.003)
ln(Wealth)	0.002** (0.001)	-0.002** (0.001)	-0.002** (0.001)	-0.003*** (0.001)	-0.001 (0.002)
Health		0.048*** (0.002)	0.035*** (0.002)		0.023*** (0.004)
Life expect			0.071*** (0.006)	0.084*** (0.006)	0.022* (0.011)
Optimism			0.021*** (0.002)	0.023*** (0.002)	0.009** (0.004)
Satisfaction			0.009*** (0.002)	0.015*** (0.002)	0.000 (0.004)
Objective health controls	No	No	No	Yes	No
Wave FE	Yes	Yes	Yes	Yes	Yes
Adj. R2	0.027	0.098	0.126	0.117	0.026
Observations	12,662	12,662	12,662	11,721	12,662

This table presents the results from OLS regressions (Column 1-4) and individual FE regression (Column 5) of the determinants of the percentage gap between subjective age and chronological age. Objective health controls include lifestyle like smoke, drink, physical exercise and BMI, ADL, IADL as well as eight doctor-diagnosed health problems (i.e. hypertension, diabetes, cancer, chronic lung disease, heart problems, stroke, psychiatric problems, arthritis). Ln(X) is the natural logarithm of X plus 1. Variables are defined in Table 1. Household-level clustered standard errors are given in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively.

**Table 4** Subjective age, work and retirement expectations

	Work for Pay (1)	Work62 (2)	Work65 (3)	Work70 (4)	Remain (5)
Percentage gap	0.092*** (0.016)	0.060** (0.027)	0.046** (0.023)	0.051** (0.021)	4.020** (1.700)
Age	-0.044*** (0.005)	-0.055 (0.042)	-0.113*** (0.027)	0.023*** (0.005)	-2.257*** (0.484)
Age <sup>2</sup>	0.000*** (0.000)	0.001 (0.000)	0.001*** (0.000)	-0.000*** (0.000)	0.016*** (0.004)
Female	-0.017** (0.008)	-0.045** (0.017)	-0.032** (0.015)	-0.006 (0.010)	-2.843*** (1.017)
White	0.005 (0.007)	0.112*** (0.013)	0.081*** (0.011)	0.038*** (0.009)	2.694*** (0.727)
Partner	-0.006 (0.008)	-0.039** (0.017)	-0.028* (0.015)	0.010 (0.010)	-1.270 (0.958)
Child	-0.013 (0.010)	0.029* (0.017)	0.028* (0.016)	-0.000 (0.011)	1.032 (0.973)
College	0.009 (0.006)	0.037*** (0.014)	0.048*** (0.012)	0.024*** (0.008)	1.989*** (0.656)
Retire	-0.188*** (0.010)	-0.276*** (0.017)	-0.202*** (0.013)	-0.103*** (0.012)	-4.206* (2.375)
Employed		0.225*** (0.018)	0.159*** (0.015)	0.134*** (0.015)	
Self-employ		0.092*** (0.018)	0.144*** (0.018)	0.189*** (0.019)	7.716*** (0.714)
ln(Income)	0.008*** (0.002)	0.011*** (0.003)	0.006** (0.003)	-0.002 (0.002)	-0.285 (0.246)
ln(Wealth)	0.003*** (0.001)	-0.004* (0.002)	-0.007*** (0.002)	-0.005*** (0.001)	-0.225 (0.139)
Health	0.027*** (0.003)	0.032*** (0.006)	0.025*** (0.005)	0.011*** (0.003)	-0.037 (0.350)
Life expect	0.047*** (0.008)	0.095*** (0.020)	0.140*** (0.017)	0.087*** (0.011)	1.345 (1.030)
Optimism	0.004 (0.003)	-0.006 (0.006)	-0.007 (0.006)	0.002 (0.005)	0.394 (0.346)
Satisfaction	-0.022*** (0.003)	-0.018*** (0.007)	-0.027*** (0.006)	-0.014*** (0.004)	-1.017*** (0.389)
Wave FE	Yes	Yes	Yes	Yes	Yes
Adj. R2	0.298	0.341	0.267	0.336	0.047
Observations	7,934	3,736	4,777	4,752	4,364

This table presents the results from OLS regressions of work expectations and retirement planning on the percentage gap between subjective age and chronological age. Ln(X) is the natural logarithm of X plus 1. Variables are defined in Table 1. Household-level clustered standard errors are given in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively.

**Table 5** Subjective age and actual work and retirement decisions

	Forward employed (1)	Forward employed (2)	Forward retire (3)	Forward retire (4)	Work ability (5)	Forward retire (6)
Percentage gap	0.062*** (0.017)	0.036** (0.017)	-0.079** (0.033)	-0.094*** (0.033)	1.195*** (0.154)	-0.070** (0.032)
Work for pay		0.259*** (0.025)				
Remain				-0.001*** (0.000)		
Work ability						-0.014*** (0.004)
Age	-0.030*** (0.006)	-0.017*** (0.006)	0.048*** (0.009)	0.051*** (0.011)	0.005 (0.042)	0.043*** (0.011)
Age <sup>2</sup>	0.000*** (0.000)	0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000 (0.000)	-0.000*** (0.000)
Female	-0.002 (0.010)	0.001 (0.009)	0.008 (0.019)	-0.007 (0.020)	0.205*** (0.076)	0.001 (0.020)
White	0.010 (0.010)	0.008 (0.009)	-0.003 (0.014)	0.006 (0.014)	-0.124** (0.055)	0.007 (0.014)
Partner	0.004 (0.010)	0.004 (0.010)	-0.005 (0.018)	-0.016 (0.019)	0.019 (0.072)	-0.007 (0.019)
Child	0.014 (0.011)	0.016 (0.011)	-0.000 (0.018)	0.014 (0.017)	0.005 (0.075)	-0.000 (0.017)
College	0.008 (0.009)	0.007 (0.008)	-0.031*** (0.012)	-0.024** (0.012)	0.007 (0.047)	-0.021* (0.012)
Retire	-0.101*** (0.012)	-0.056*** (0.011)			-0.366* (0.208)	0.417*** (0.068)
Employed			-0.271*** (0.019)			
Self-employ			-0.078*** (0.013)	-0.057*** (0.014)	-0.205*** (0.055)	-0.070*** (0.013)
ln(Income)	0.006** (0.003)	0.004 (0.003)	0.008* (0.005)	-0.004 (0.005)	0.106*** (0.026)	-0.003 (0.005)
ln(Wealth)	0.003*** (0.001)	0.002** (0.001)	-0.000 (0.003)	0.001 (0.003)	0.003 (0.013)	-0.000 (0.003)
Health	0.017*** (0.003)	0.010*** (0.003)	-0.034*** (0.007)	-0.032*** (0.007)	0.313*** (0.029)	-0.029*** (0.007)
Life expect	0.022** (0.010)	0.011 (0.010)	-0.003 (0.020)	0.013 (0.021)	0.425*** (0.079)	0.019 (0.021)
Optimism	0.003 (0.003)	0.002 (0.003)	0.003 (0.006)	-0.002 (0.006)	0.118*** (0.029)	0.004 (0.006)
Satisfaction	-0.009** (0.004)	-0.003 (0.004)	0.023*** (0.008)	0.028*** (0.008)	0.142*** (0.031)	0.033*** (0.008)
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R2	0.097	0.149	0.206	0.081	0.163	0.111
Observations	5,170	5,140	4,223	3,097	4,620	3,326

This table presents the results from OLS regressions of actual work (retirement) decisions on the percentage gap between subjective age and chronological age. Ln(X) is the natural logarithm of X plus 1. Variables are defined in Table 1. Household-level clustered standard errors are given in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively.

**Table 6** Mediation analysis: direct and indirect effects

	Direct	Indirect	Total	Indirect/ Total
	(1)	(2)	(3)	(4)
Forward employed: Work for pay	0.036	0.024	0.060	40.00%
Forward retire: Remain	-0.094	-0.006	-0.100	6.00%
Forward retire: Work ability	-0.070	-0.012	-0.082	14.63%
Forward retire: For money	-0.071	-0.003	-0.074	4.05%

This table presents the results of a mediation analysis, i.e., estimating direct and indirect effects of the impact of the percentage gap between subjective age and chronological age on actual work and retirement decisions. The numerical input for this table is based primarily on Tables 4 and 5. For example, the direct effect of the percentage gap on the actual decision to take up work for pay is given in Table 5, column 2 (coefficient for percentage gap). The indirect effect of the percentage gap on the decision to take up work (i.e., indirect through an expectations channel) of 0.024 is calculated as the product of the coefficient of the percentage gap in the work for pay expectation regression (0.092, Table 4, column 1) and the coefficient of the work for pay expectations in the Forward employed regression (0.259, Table 5, column 2). The total effect in column 3 is the sum of column 1 and 2. Numbers in this table slightly differ from Table 4 because we re-run the regression model using the observations used for analyses in Table 5, column 2.

**Table 7** Subjective age and saving behavior

	ln(Wealth)	ln(Financial wealth)	ln(Wealth)	ln(Financial wealth)
	(1)	(2)	(3)	(4)
Percentage gap	-0.079 (0.155)	0.039 (0.270)	-0.122 (0.202)	0.143 (0.275)
Percentage gap <sup>2</sup>	-0.472* (0.280)	-0.942* (0.539)	-1.063*** (0.380)	-2.555*** (0.532)
Age	0.059** (0.026)	0.031 (0.040)	0.141*** (0.036)	0.116** (0.047)
Age <sup>2</sup>	-0.000** (0.000)	-0.000 (0.000)	-0.001*** (0.000)	-0.000 (0.000)
Female	-0.045 (0.058)	0.008 (0.085)	-0.202** (0.098)	0.013 (0.115)
White	0.248*** (0.053)	0.736*** (0.086)	1.492*** (0.085)	2.408*** (0.103)
Partner	0.204*** (0.053)	0.086 (0.086)	0.747*** (0.089)	0.499*** (0.115)
Child	-0.104* (0.057)	-0.135 (0.090)	-0.258*** (0.099)	-0.546*** (0.126)
College	0.162*** (0.025)	0.517*** (0.053)	0.833*** (0.048)	1.638*** (0.075)
Retire	0.057 (0.066)	0.278*** (0.092)	0.559*** (0.104)	0.713*** (0.122)
Employed	0.082 (0.069)	0.111 (0.102)	0.493*** (0.108)	0.241* (0.131)
Self-employ	0.006 (0.043)	-0.071 (0.096)	0.399*** (0.078)	0.142 (0.125)
ln(Income)	0.136*** (0.022)	0.349*** (0.030)	0.536*** (0.036)	0.875*** (0.043)
Lag ln(Wealth)	0.788*** (0.013)			
Lag ln(Financial Wealth)		0.664*** (0.010)		
Health	0.108*** (0.019)	0.192*** (0.030)	0.404*** (0.029)	0.591*** (0.040)
Life expect	-0.083 (0.058)	-0.069 (0.093)	-0.103 (0.091)	-0.224* (0.121)
Optimism	0.028 (0.017)	0.102*** (0.033)	0.157*** (0.030)	0.275*** (0.042)
Satisfaction	0.035 (0.022)	0.029 (0.035)	0.048 (0.035)	0.080* (0.046)
Wave FE	Yes	Yes	Yes	Yes
F test	4.01**	3.25**	6.99***	16.58***
Extreme point	-0.084	0.021	-0.058	0.028
Adj. R2	0.733	0.630	0.333	0.361
Observations	11,198	11,198	12,662	12,662

This table presents the results from OLS regressions of short-term (column 1-2) and long-term (column 3-4) wealth on the percentage gap between subjective age and chronological age and its squared term. H0 of F test is that "coefficient of percentage gap = coefficient of percentage gap<sup>2</sup> = 0". The extreme point is calculated with the equation:  $-(\text{coefficient of percentage gap}^2) / (2 \times \text{coefficient of percentage gap})$ . Ln(X) is the natural logarithm of X plus 1. Variables are defined in Table 1. Household-level clustered standard errors are given in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively.

**Table 8** Subjective age and saving behavior: Young and Old

Panel A:	ln(Wealth)	ln(Wealth)	ln(Financial wealth)	ln(Financial wealth)
Short-term				
Sub-samples	Young=1	Old=1	Young=1	Old=1
	(1)	(2)	(3)	(4)
Percentage gap	-0.501***	0.383	-0.791***	1.400*
	(0.141)	(0.488)	(0.239)	(0.838)
Lag wealth controls	Yes	Yes	Yes	Yes
Basic controls	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes
Adj. R2	0.739	0.681	0.619	0.643
Observations	8,479	1,063	8,479	1,063
Panel B:	ln(Wealth)	ln(Wealth)	ln(Financial wealth)	ln(Financial wealth)
Long-term				
Sub-samples	Young=1	Old=1	Young=1	Old=1
	(1)	(2)	(3)	(4)
Percentage gap	-1.399***	0.250	-2.188***	2.510***
	(0.235)	(0.591)	(0.303)	(0.795)
Lag wealth controls	No	No	No	No
Basic controls	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes
Adj. R2	0.330	0.301	0.357	0.341
Observations	9,545	1,281	9,545	1,281

This table presents the results from OLS regressions of short-term (panel A) and long-term (panel B) wealth on the percentage gap between subjective age and chronological age for two sub-samples of group Young and Old. Basic controls include Age, Age<sup>2</sup>, Female, White, Partner, Child, College, Retire, Employed, Self-employ, ln(Income), Health, Life expect, Optimism, Satisfaction. Ln(X) is the natural logarithm of X plus 1. Lag wealth control for Wealth is ln(Wealth), and for Financial wealth ln(Financial Wealth). Variables are defined in Table 1. Household-level clustered standard errors are given in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively.

**Table 9** Subjective age and economic characteristics

Panel A:	Risk tolerance	Risk tolerance	Risk tolerance	Planning horizon	Planning horizon	Planning horizon
(Sub-) Sample	All	Young	Old	All	Young	Old
	(1)	(2)	(3)	(4)	(5)	(6)
Percentage gap	0.882***	0.071	1.512**	0.308**	0.419**	0.604
	(0.277)	(0.438)	(0.768)	(0.131)	(0.189)	(0.441)
Basic controls+	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R2	0.099	0.098	0.112	0.044	0.050	0.015
Observations	3,330	2,483	361	3,667	2,702	437
Panel B:	Financial control	Financial control	Financial control	Control change	Control change	Control change
(Sub-) Sample	All	Young	Old	All	Young	Old
	(1)	(2)	(3)	(4)	(5)	(6)
Percentage gap	0.998***	0.143	2.658***	0.170***	0.111**	0.333**
	(0.153)	(0.194)	(0.655)	(0.038)	(0.054)	(0.135)
Basic controls+	Yes	Yes	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R2	0.145	0.113	0.158	0.035	0.027	0.063
Observations	12,530	9,445	1,270	9,418	7,082	974

This table presents the results from OLS regressions of economic characteristics on the percentage gap between subjective age and chronological age for the whole sample and two sub-samples of group Young and Old. Basic controls+ include Age, Age<sup>2</sup>, Female, White, Partner, Child, College, Retire, Employed, Self-employ, ln(Income), ln(Wealth), Health, Life expect, Optimism, Satisfaction. ln(X) is the natural logarithm of X plus 1. Variables are defined in Table 1. Household-level clustered standard errors are given in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively.

**Table 10** Subjective age and saving behavior: group differences

	ln(Wealth)	ln(Financial wealth)	ln(Wealth)	ln(Financial wealth)
	(1)	(2)	(3)	(4)
Percentage gap	-0.420*** (0.137)	-0.517** (0.233)	-1.086*** (0.213)	-1.380*** (0.279)
Young	0.057 (0.049)	0.073 (0.082)	0.343*** (0.080)	0.291*** (0.108)
Old	-0.112 (0.072)	-0.151 (0.107)	-0.129 (0.112)	-0.340** (0.145)
Lag wealth controls	Yes	Yes	No	No
Basic controls	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes
Adj. R2	0.733	0.630	0.334	0.361
Observations	11,198	11,198	12,662	12,662

This table presents the results from OLS regressions of short-term (column 1-2) and long-term (column 3-4) wealth on the percentage gap between subjective age and chronological age and group dummies for Young and Old. Basic controls include Age, Age<sup>2</sup>, Female, White, Partner, Child, College, Retire, Employed, Self-employ, ln(Income), Health, Life expect, Optimism, Satisfaction. Ln(X) is the natural logarithm of X plus 1. Lag wealth control for Wealth is ln(Wealth), and for Financial wealth ln(Financial Wealth). Variables are defined in Table 1. Household-level clustered standard errors are given in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively.

**Table 11** Subjective age and portfolio choice

Sub-samples	Risky share	Risky share	Risky share
	All	Young=1	Old=1
	(1)	(2)	(3)
Percentage gap	0.006	-0.061**	0.098*
	(0.020)	(0.027)	(0.055)
Percentage gap <sup>2</sup>	-0.077**		
	(0.036)		
Basic controls+	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes
F test	2.65*		
Extreme point	0.039		
Adj. R2	0.154	0.158	0.127
Observations	10,893	8,339	1,009

This table presents the results from OLS regressions of the risky share on the percentage gap between subjective age and chronological age. Basic controls+ include Age, Age<sup>2</sup>, Female, White, Partner, Child, College, Retire, Employed, Self-employ, ln(Income), ln(Wealth) Health, Life expect, Optimism, Satisfaction. ln(X) is the natural logarithm of X plus 1. Variables are defined in Table 1. Household-level clustered standard errors are given in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively.

**Table 12** General and personal age categorization of behaviors

Behavior	General Evaluation				Personal Feeling	
	Likert Scale		Numerical Scale		Likert Scale	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Being retired	5.56	0.88	65.13	8.06	4.93	1.28
Having an engaging and meaningful job	3.70	0.94	34.47	11.35	3.20	1.15
Finding it hard to learn new technology	5.80	1.66	66.03	18.19	5.15	1.51
Dealing with personal finance and savings	3.77	1.75	38.05	20.49	3.53	1.19
Making a will	4.58	1.38	51.75	15.52	4.17	1.32
Saving for retirement	3.18	1.23	34.18	16.28	3.14	1.31
Going shopping	2.95	1.74	29.84	21.33	3.05	1.28
Going along with the latest fashion	2.20	1.58	25.72	18.13	2.89	1.49
Working for pay	3.20	1.45	26.48	20.67	3.15	1.17
Having physical decrements	5.57	1.33	57.99	23.40	5.03	1.49
Investing in the stock market	3.73	1.13	33.92	11.63	3.46	1.11
Being unemployed	3.29	2.32	34.10	24.21	3.70	1.86
Doing recreational pursuits	3.28	1.83	30.93	21.45	3.16	1.43

This table shows the means and standard deviations of the age categorization of 13 behaviors and events. The order in which the behaviors we asked to respondents is reproduced in the first column.

**Table 13** Subjective age and saving behavior: Single and Partnered

Panel A1: Single	ln(Wealth)	ln(Financial wealth)	ln(Wealth)	ln(Financial wealth)
Sub-samples	All (1)	All (2)	All (3)	All (4)
Percentage gap	-0.017 (0.261)	0.255 (0.370)	-0.126 (0.340)	0.317 (0.386)
Percentage gap <sup>2</sup>	-0.780* (0.451)	-1.208* (0.700)	-1.163* (0.597)	-2.954*** (0.705)
Lag wealth controls	Yes	Yes	No	No
Basic controls	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes
F test	3.08**	1.87	3.35**	11.38***
Extreme point	-0.011	0	-0.054	0.054
Adj. R2	0.708	0.628	0.264	0.344
Observations	5,469	5,469	6,235	6,235
Panel A2: Single	ln(Financial wealth)	ln(Financial wealth)	ln(Financial wealth)	ln(Financial wealth)
Sub-samples	Young==1 (1)	Old==1 (2)	Young==1 (3)	Old==1 (4)
Percentage gap	-0.818** (0.341)	2.621** (1.180)	-2.599*** (0.423)	3.413*** (1.135)
Lag wealth controls	Yes	Yes	No	No
Basic controls	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes
Adj. R2	0.608	0.664	0.328	0.334
Observations	4,174	515	4,725	636
Panel B1: Partnered	ln(Wealth)	ln(Financial wealth)	ln(Wealth)	ln(Financial wealth)
Sub-samples	All (1)	All (2)	All (3)	All (4)
Percentage gap	-0.123 (0.163)	-0.133 (0.374)	-0.029 (0.196)	0.083 (0.362)
Percentage gap <sup>2</sup>	-0.133 (0.286)	-0.702 (0.783)	-0.968** (0.400)	-2.134*** (0.756)
Lag wealth controls	Yes	Yes	No	No
Basic controls	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes
F test	1.26	1.76	4.30**	5.45***
Extreme point	×	×	-0.015	0.019
Adj. R2	0.719	0.596	0.337	0.330
Observations	5,729	5,729	6,427	6,427
Panel B2: Partnered	ln(Financial wealth)	ln(Financial wealth)	ln(Financial wealth)	ln(Financial wealth)
Sub-samples	Young==1 (1)	Old==1 (2)	Young==1 (3)	Old==1 (4)
Percentage gap	-0.758** (0.327)	0.362 (1.151)	-1.707*** (0.415)	1.926* (1.105)
Lag wealth controls	Yes	Yes	No	No
Basic controls	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes
Adj. R2	0.595	0.580	0.340	0.289
Observations	4,305	548	4,820	645

This table presents the results from OLS regressions of short-term and long-term wealth on the percentage gap between subjective age and chronological age for sub-samples grouped by partnership (panel A1 and B1). In panels A2 and B2, the groups are further separated based on Young and Old. H0 of the F test is that “coefficient of percentage gap = coefficient of percentage gap<sup>2</sup> = 0”. The extreme point is calculated with the equation:  $-(\text{coefficient of percentage gap}^2) / (2 \times \text{coefficient of percentage gap})$ . Basic controls include Age, Age<sup>2</sup>, Female (if Partner equates to 0), White, Child, College, Retire, Employed, Self-employ, ln(Income), Health, Life expect, Optimism, Satisfaction. ln(X) is the natural logarithm of X plus 1. Lag wealth control for Wealth is ln(Wealth), and for Financial wealth ln(Financial Wealth). Variables are defined in Table 1. Household-level clustered standard errors are given in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively.

**Table 14** Potential interaction from saving behaviors to work behaviors

	For money (1)	For insurance (2)	Forward retire (3)
Percentage gap	0.064* (0.035)	0.018 (0.044)	-0.071** (0.032)
For money			-0.054*** (0.015)
Basic controls+	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes
Adj. R2	0.144	0.221	0.115
Observations	4,578	4,067	3,308

This table presents the results from OLS regressions of reasons to continue working (columns 1 and 2) and actual retirement decisions (column 3) on the percentage gap between subjective age and chronological age. Basic controls+ include Age, Age2, Female, White, Partner, Child, College, Retire, Employed, Self-employ, ln(Income), ln(Wealth) Health, Life expect, Optimism, Satisfaction. Ln(X) is the natural logarithm of X plus 1. Variables are defined in Table 1. Household-level clustered standard errors are given in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively.

**Table 15** Potential interaction from work behaviors to saving behaviors

Panel A: Short-term	ln(Wealth)	ln(Wealth)	ln(Financial wealth)	ln(Financial wealth)
	(1)	(2)	(3)	(4)
Percentage gap	0.052 (0.195)	0.046 (0.198)	0.282 (0.286)	0.264 (0.286)
Percentage gap <sup>2</sup>	-0.642* (0.342)	-0.637* (0.345)	-1.166** (0.534)	-1.152** (0.535)
Work for pay		0.058 (0.120)		0.168 (0.173)
Lag wealth controls	Yes	Yes	Yes	Yes
Basic controls	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes
F test	2.55*	2.57*	2.69*	2.67*
Extreme point	0.041	0.036	0.121	0.115
Adj. R2	0.743	0.743	0.656	0.656
Observations	7,313	7,313	7,313	7,313
Panel B: Long-term	ln(Wealth)	ln(Wealth)	ln(Financial wealth)	ln(Financial wealth)
	(1)	(2)	(3)	(4)
Percentage gap	-0.275 (0.264)	-0.332 (0.267)	0.188 (0.338)	0.112 (0.339)
Percentage gap <sup>2</sup>	-1.247*** (0.479)	-1.198** (0.480)	-3.043*** (0.628)	-2.978*** (0.629)
Work for pay		0.473** (0.184)		0.635*** (0.225)
Lag wealth controls	Yes	Yes	Yes	Yes
Basic controls	Yes	Yes	Yes	Yes
Wave FE	Yes	Yes	Yes	Yes
F test	6.90***	7.16***	16.18***	16.27***
Extreme point	-0.11	-0.138	0.031	0.019
Adj. R2	0.333	0.334	0.373	0.374
Observations	7,934	7,934	7,934	7,934

This table presents the results from OLS regressions of short-term (Panel A) and long-term (Panel B) wealth on the percentage gap between subjective age and chronological age (and work expectation in the future) with the subsamples who are not employed currently. H0 of the F test is that “coefficient of percentage gap = coefficient of percentage gap<sup>2</sup> = 0”. The extreme point is calculated with the equation:  $-(\text{coefficient of percentage gap}^2) / (2 \times \text{coefficient of percentage gap})$ . Basic controls include Age, Age<sup>2</sup>, Female (if Partner equates to 0), White, Child, College, Retire, Employed, Self-employ, ln(Income), Health, Life expect, Optimism, Satisfaction. ln(X) is the natural logarithm of X plus 1. Lag wealth control for Wealth is ln(Wealth), and for Financial wealth ln(Financial Wealth). Variables are defined in Table 1. Household-level clustered standard errors are given in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively.