Published in final edited form as:

Labour (Rome). 2017 June ; 31(2): 127–152. doi:10.1111/labr.12090.

Personality and Employment Transitions at Older Ages: Direct and Indirect Effects through Non-Monetary Job Characteristics

Marco Angrisan^{a,*}, Michael D. Hurd^b, Erik Meijer^{a,b}, Andrew M. Parker^b, and Susann Rohwedder^b

^aUniversity of Southern California

^bRAND Corporation

Abstract

We study whether individuals with different personality traits systematically exhibit different retirement trajectories. We find weak direct associations between personality and employment transitions. On the other hand, personality does contribute indirectly to these transitions by moderating the effects of non-monetary job characteristics. Specifically, workers with different traits are observed to follow different retirement paths when faced with similar physical demands, computer skills requirements, job flexibility and age discrimination in the workplace. Contrary to other economic domains, conscientiousness does not have the strongest association with retirement; the other components of the Big Five personality traits show more salient patterns.

Keywords

retirement; Big Five personality traits; job characteristics

1. Introduction

What shapes retirement paths for different individuals has not yet been completely unfolded. The timing of retirement has been found to be strongly influenced by the incentives embedded in the rules determining Social Security provisions and employer-provided pension benefits (Hurd, 1990 and Lumsdaine and Mitchell, 1999), and by the availability of early retirement options (Gruber and Wise, 1999 and 2004). Other “push” factors are labor market rigidities (Hurd, 1996), poor health (Currie and Madrian, 1999) and family caregiving obligations (Van Houtven, Coe and Skira, 2013).

The role of job demands and the work environment itself, conditional on given family circumstances and economic incentives, has also been explored. Bartel (1982) finds that senior workers are more likely to quit physically demanding jobs, but less likely to quit repetitious ones. Filer and Petri (1988) show that physical demands and stress reduce retirement age, while the possibility of part-time employment increases it. Hayward et al. (1989) document that job complexity delays the exit from the labor force, as opposed to

*Corresponding author: angrisan@usc.edu.

physical requirements which hasten it. More recently, Angrisani et al. (2015) and McFall et al. (2015) consider a variety of both self-reported and objective, occupation-level job attributes and assess their relative role in driving labor force transitions at older ages, while Rutledge et al. (2016) study how occupation opportunities for older workers vary with job characteristics and tasks.

An emerging literature (see Almlund et al., 2011, for an overview) emphasizes the role of personality in determining individuals' economic outcomes. Personality entails motivation, discipline, perseverance, ability to deal with difficult circumstances, and other "non-cognitive" factors that have been found to influence labor market, social and financial outcomes (Heckman, Stixrud and Urzua, 2006). The existing literature has not yet examined whether individuals with different personality traits systematically exhibit different retirement trajectories and to what extent these are shaped by different perceptions of job demands and job attributes. Conceivably, for given skills and abilities, individuals with different personalities may have different preferences for leisure versus work. These, in turn, may affect their desired retirement path directly or indirectly through the way they see different work environments and cope with them: what is stimulating or challenging for some workers may be too demanding or unpleasant for others. In this paper, we investigate the direct relationship between labor supply decisions at older ages and personality traits, conditional on workers' abilities, monetary and non-monetary job characteristics. Additionally, we assess the extent to which individuals with different personalities cope differently with similar work environments and, as a result, follow different retirement paths.

The literature mostly focuses on the Big Five personality traits (McCrae and Costa, 1987), which psychology recognizes as the main dimensions of personality: Openness to experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. For some of these traits, especially conscientiousness and neuroticism, authors have found relationships with specific outcomes, such as educational attainment and earnings (Borghans et al., 2006). Based on what we know about how personality traits correlate with economic outcomes, however, formulating unambiguous hypotheses about how each one of them may shape labor supply decisions at older ages appears to be a difficult task. For example, Duckworth and Weir (2010) and Hurd et al. (2012) show that conscientiousness is positively associated with higher lifetime earnings, more wealth conditional upon earnings, and better preparation for retirement. On the other hand, conscientiousness is also related to academic achievement (Poropat, 2009) and job performance (Roberts et al., 2007). Thus, while conscientious individuals may tend to retire earlier because they are less financially constrained, they may as well stay longer in the workforce because of higher productivity. Similar ambiguous relationships can be outlined between the decision to retire and the other Big Five personality traits. The analysis undertaken in this study constitutes a valuable contribution in its attempt to empirically establish what type of associations between older workers' labor supply decisions and personality traits are more likely to be observed.

One way in which personality has been found to affect economic outcomes is through moderating the effect of other determinants (e.g., Judge and Hurst, 2007; Judge et al., 2009). Our empirical analysis is designed and carried out to explicitly capture interaction effects between personality traits and non-monetary job characteristics. The objective is to assess

the extent to which job tasks and the work environment induce different retirement paths depending on the personality traits characterizing the individual. We will often be able to formulate less ambiguous expectations about the signs of possible interaction effects. For example, one could expect conscientious individuals to cope better with certain unfavorable working conditions and increasingly arduous job demands as they age, which may instead adversely impact the proclivity to work of less conscientious individuals. In section 5.1 below, we discuss in detail our prior expectations, based on the literature, about interaction effects between personality and job characteristics.

Exploiting the wealth of information about older workers provided by the Health and Retirement Study and the longitudinal dimension of the survey, we estimate the probability that a full-time worker transits to part-time, retirement or unemployment/out of the labor force across two consecutive waves. We model this transition probability as a function of a comprehensive set of socio-demographic variables, job compensation and benefits, institutional financial incentives, non-monetary job characteristics and personality traits. We outline expected associations between the Big Five personality traits and retirement trajectories and identify which ones receive support from the data. We study both direct associations and indirect ones stemming from interaction effects between personality and non-monetary job characteristics.

We find little evidence of a direct effect of personality on labor force transitions at older ages above and beyond that of education, cognitive ability, health, income, wealth, employer-provided pension arrangements and health insurance coverage. Yet, personality contributes to these transitions by moderating the effects of non-monetary job characteristics. Specifically, full-time workers with different personality traits are observed to follow different retirement paths when faced with similar physical demands, computer skills requirements, job flexibility and perceived level of age discrimination in the workplace.

2. Data

We use data from the Health and Retirement Study (HRS), a multipurpose, longitudinal household survey representing the U.S. population over the age of 50. Since 1992, the HRS has surveyed age-eligible respondents and their spouses every two years to track transitions from work into retirement, to measure economic well-being in later life and to monitor changes in health status as individuals age. Initially, the HRS consisted of individuals born 1931–1941 and their spouses, but additional cohorts have been added in 1993, 1998, 2004, and 2010. As of 2012, the number of individuals ever interviewed by the HRS is 37,319 belonging to 25,272 sampled households. Since our focus is on labor market outcomes of individuals on the verge of retirement, we restrict our analysis to full-time employed respondents between 51 and 79 years of age. Our sample covers the period 2002–2012.

We primarily use data from the RAND version of the HRS, version N (Chien et al., 2014). The RAND HRS is a large user-friendly subset of the HRS that combines data from all waves, adds information that may have been provided by the spouse to the respondent's record, has imputation of financial variables, and consistent definition and naming of variables. To this, we add additional variables from the employment module of each wave

obtained from the RAND FAT files. These are partially preprocessed files with all the raw HRS data of each wave combined into a single respondent-level data set.

2.1 Core questionnaire

The HRS core questionnaire provides us with information about individual demographics, labor force status, financial situation, and health status. We assign respondents to different labor force status groups according to their employment situation. In doing so, we combine the RAND HRS definition of labor force status with information about whether the individual is self-employed, the number of working hours per week and the number of weeks worked in a year on the main job. Specifically, we classify individuals as full-time employees if they are not self-employed, and work at least 35 hours per week and 36 weeks per year on their main job. We follow Maestas (2010) and classify individuals as part-time employees if they are not self-employed, and work either less than 35 hours per week or less than 36 weeks per year on their main job. We classify individuals as retired if they are defined as such according to the RAND HRS labor force status variable. We form a final group consisting of those who are either out of the labor force or unemployed according to the RAND HRS labor force status variable. We exclude from our analysis individuals who report being disabled or self-employed. This leaves us with a sample of 8,528 individuals and 20,254 individual-time observations.

We focus on full-time employees in a certain wave and consider transitions to the four possible categories of labor force status (as described above) in the next wave.¹ There are 6,945 workers with valid transitions for a total of 14,453 individual-time observations. Table 1 shows the prevalence of these transitions in our sample, aggregated across all the waves we consider.

The majority of full-time employees are still employed full-time in the subsequent wave. This percentage is, of course, much larger for individuals age 51–61 than for those age 62–79. Only about half of the changes are from full-time employment to retirement, while more than a third concern individuals who move to part-time, especially among relatively older workers and females. Transitions from full-time employment to out of the labor force or unemployment are less frequent, although somewhat more common for those below the age of 62 and for female workers.

The HRS core questionnaire asks respondents who are currently working for pay about several aspects of their jobs. These include information about employer-provided health insurance, hourly wage, physical and mental requirements, degree of job flexibility, incentives and pressure to retire, and level of work-related stress. In what follows, we study to what extent these job conditions influence employment transitions and whether these associations are moderated by personality. The appendix provides further details about how these questionnaire items are combined into indexes describing specific job characteristics.

¹We do not distinguish between individuals who remain working full-time in their current job and individuals who remain full-time workers, but in a different job for the same employer or who switch employer. These are interesting employment paths that are outside the scope of this paper. See Rutledge et al. (2016) for a study of job changing among older workers.

2.2 Leave-behind questionnaire

In 2004, the HRS piloted a supplemental self-administered questionnaire that was left with the respondent after the completion of an in-person core interview. Because of its specific administration mode, this is called the Leave-Behind (LB) Questionnaire. Since 2004, the LB questionnaire has been administered in each biennial wave to a (randomly selected) rotating 50% of the core sample who were assigned to an in-person interview. The rotating design implies that, for each survey participant, answers to the LB questionnaire are available every other wave (or every four years).

The LB questionnaire measures personality. Respondents are asked to use a 4-point scale (where 1 corresponds to “not at all” and 4 corresponds to “a lot”) to rate themselves on a series of adjectives associated with the Big Five personality traits, namely openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. Following the procedure described in the appendix, we transform individual self-ratings into five indexes corresponding to the Big Five personality traits.

Because of the rotational design of the LB questionnaire, we can measure personality every other wave and, for some of the respondents, we only have one available observation. In order to maximize the sample size for our analysis, we assume that personality traits are stable over time and assign to each individual the average of their available personality measures over the observation period. In doing so, we rely on the fact that the Big Five personality traits are relatively stable over the lifecycle (Roberts and DelVecchio, 2000). Specht et al. (2011) show that there are some general trends with age and that personality traits respond to certain major life events, such as entering the labor force and retiring. However, the magnitude of these changes is rather small. Lucas and Donnellan (2011) find similar patterns. Cobb-Clark and Schurer (2012) largely replicate these results and conclude that, while personality traits are not completely constant, changes are small, mostly unrelated to changes in demographics, and not economically meaningful. These studies also document that changes in personality are most likely to occur very early (before age 40) or very late (after age 70) in life.

3. Econometric specification

We estimate multinomial choice models for the four possible employment transitions described above, where the determinants of employment outcomes are individual demographics, monetary job attributes, personality traits, non-monetary job characteristics, and the interaction between personality traits and non-monetary job characteristics. Formally, we are interested in the probability that a full-time employee transits to a different employment status in the next wave, given certain demographics, job-provided monetary incentives, personality traits and non-monetary job characteristics:

$$P_{itj} = \Pr(Y_{i,t+1} = j \mid X_{it}, \text{PTraits}_i, \text{JobC}_{it}) = F_j(X_{it}, \text{PTraits}_i, \text{JobC}_{it}, \theta),$$

where i is the individual, t is the wave number, $Y_{i,t+1}$ is the labor force status in the next wave, $j = 1$ (full-time), 2 (part-time), 3 (retired), or 4 (out of the labor force or unemployed),

X_{it} is a vector of individual demographics and monetary job attributes, $PTraits_i$ are personality traits and $JobC_{it}$ are non-monetary job characteristics. The function F_j is a probability function depending on a vector of unknown parameters θ . We adopt a multinomial logit model. Hence, our most comprehensive specification is:

$$F_j(X_{it}, PTraits_i, JobC_{it}, \theta) = \frac{\exp(V_{itj})}{\sum_{k=1}^4 \exp(V_{itk})}, j = 1, \dots, 4;$$

where

$$V_{itj} = X'_{it}\alpha_j + PTraits'_i\beta_j + JobC'_{it}\gamma_j + (PTraits_i \times JobC_{it})'\delta_j$$

and θ is a vector that collects all the parameters in the model $(\alpha, \beta, \gamma, \delta)$.

We start with specifications including only individual demographics and monetary job attributes. We then move to specifications featuring personality traits and non-monetary job characteristics. Finally, we estimate the most comprehensive model described here, where we allow the effect of non-monetary job characteristics on employment transitions to vary with personality traits.

Since we are interested in assessing the extent to which personality traits and non-monetary job characteristics affect the probability that a certain employment transition takes place, we focus on the marginal effects only. For each individual i in wave t and explanatory variable Z , these are defined as:

$$ME_{itz} = \frac{\partial F_j(X_{it}, PTraits_i, JobC_{it}, \theta)}{\partial Z_{it}}.$$

The marginal effects are nonlinear functions of the regressors, and thus are different for different observations. If the probabilities cover a wide range in the data, they may even be nonmonotonic for some categories. Therefore, in what follows, we report estimates of the average marginal effects, that is:

$$\overline{ME}_{jz} = \frac{1}{N} \sum_{t=1}^T \sum_{i=1}^{N_t} ME_{itz},$$

where T is the number of waves, N_t is the number of observations per wave, and N is the total number of observations across waves and individuals. Note that we may have multiple observations (from different waves) for each respondent. Standard errors are computed by the delta method and clustered at the respondent level to account for repeated employment transitions for the same respondent.

4. The effects of socio-demographic variables and job characteristics on employment transitions

Before focusing on personality traits, it is useful to first look at how basic demographics and job attributes are related to employment transitions. This will help us understand the relative importance of different factors shaping individuals' retirement paths. The sample for the empirical analysis in this and the next section consists of full-time workers with valid employment transitions and non-missing job characteristics and personality traits. It includes 4,148 individuals and 9,369 observations.

4.1 The effects of individual demographics and monetary job attributes

Table 2 shows the estimated marginal effects for the baseline set of controls, which is included in all other regressions. As far as demographics are concerned, this set features an indicator for whether the respondent is female, age, age difference between the respondent and his/her spouse, indicators for being age 62 or older (the earliest age to start receiving Social Security retirement benefits) and age 65 or older (the full Social Security retirement age for much of the sample and age of Medicare eligibility), education, marital status, spouse's working status, an indicator for fair or poor self-reported health status ("poor health"), cognitive ability, total household wealth, total household income except earnings and interview wave specific effects. The following monetary job characteristics are also accounted for: hourly wage, indicators for employer-provided pension plan types, an indicator for whether the respondent receives health insurance through the employer and an indicator for whether the spouse is covered by the respondent's employer-provided health insurance. Finally, the baseline model includes a variable measuring the respondent's preference for gradually reducing hours of work. For employment transitions defined between time t and $t + 1$, job characteristics and preference for reduced hours are observed at time t .

Some interesting patterns emerge from the estimates in Table 2. Female workers are less likely to remain employed full-time and more likely to move to a part-time job. As individuals age, they tend to either move to part-time or to retire altogether. Full-time employees over the age of 65 are more likely to remain employed full-time and less likely to retire. A possible explanation for this finding is that these individuals have a taste for work or may hold better jobs. As a consequence, their retirement decisions are driven to a lesser extent by crossing the Social Security full retirement age and by Medicare eligibility. There is some evidence of an education gradient, as workers with higher education become progressively more likely to stay employed full-time and less likely to retire. A working spouse increases the probability of remaining in the labor force. This result, together with the fact that a greater age difference with the spouse decreases the likelihood of retirement, points at the existence of couple complementarities in retirement decisions.

Poor health decreases the probability of remaining employed full-time by 6 percentage points and moving to part-time by 1.3 percentage points. It increases the likelihood of retirement by 5.5 percentage points and becoming unemployed or out of the labor force but not retired by nearly 2 percentage points. Cognitive ability is a weak predictor of

employment transitions: a good word recall test score is associated with a lower probability of retirement, but numerical ability, as captured by the Serial 7s test, does not show any significant effect.

A larger stock of household wealth increases the chances of retirement. On the other hand, non-labor household income is not correlated with employment transitions. Job-related financial incentives are important drivers of employment transitions. Specifically, a higher hourly wage is associated with a higher probability of retirement and lower probability of moving to part-time or out of the labor force/unemployed. This may reflect an income effect: keeping household total financial resources constant, those with a better paid job are in a better position to retire. Pension arrangements also matter, as those with employer-sponsored defined-benefits (DB) plans are 6 percentage points less likely to remain employed full-time and 8 percentage points more likely to retire.

Among the determinants of labor supply decisions at older ages, the availability of health insurance may play a key role. The results in Table 2 support this hypothesis. When respondents are covered by a health insurance plan through the employer, they are 7 percentage points more likely to remain employed full-time, 3.6 percentage points less likely to move to part-time and 3.2 percentage points less likely to retire. On the other hand, the likelihood of labor-force transitions is not affected by whether the spouse is covered by the respondent's employer-provided health insurance. These effects are net of the impact of age and Medicare eligibility, which are both controlled for in the regressions.²

Finally, a preference for reducing hours of work, as measured through agreement with the statement “*As I get older, I would prefer to gradually reduce the hours I work on this job, keeping my pay per hour the same*”, is indeed associated with a higher likelihood of moving to part-time and a lower likelihood of staying employed full-time. This stated preference, however, does not seem to affect the probability of withdrawing from the labor force.

4.2 The effects of non-monetary job characteristics

Table 3 shows the effects of non-monetary job characteristics above and beyond that of socio-demographic variables and work-related/institutional financial incentives. In Panel A, they are included in the model as single additional explanatory variables, while in Panel B they jointly feature on the right-hand-side of the regression equation. The second specification takes into account correlations among job attributes. As can be seen, the marginal effects are only slightly affected when all job characteristics are considered together.

Workers in jobs that demand more physical effort are less likely to remain employed full-time and more likely to either switch to part-time or retire. These effects, however, are less apparent when other non-monetary job characteristics are controlled for. Those whose jobs involve using a computer are more likely to stay employed full-time and are significantly less likely to move to part-time. Individuals with jobs requiring people skills are less likely to become unemployed or move out of the labor force.

²We obtain very similar results when we restrict the sample to employees below the age of 65 or below the age of 62.

We use two variables to describe the work environment. The first concerns the individuals' perceived difficulty of their jobs and work-related stress. This is negatively associated with the likelihood of remaining employed full-time and positively associated with the probability of retirement. The second is a combination of two items describing the extent to which older employees may feel discriminated in the workplace. More precisely, HRS respondents are asked whether younger individuals are preferred to older ones in decisions about promotion, and whether there is any pressure on older workers to retire before age 65. Answers are provided on a 1 to 4 scale, where 1 and 4 indicate strong disagreement and strong agreement with these statements, respectively and collected into a single index (see appendix A for more details). The estimated marginal effects reveal that a one-step increase on the scale of perceived age discrimination is associated with a decrease in the likelihood of remaining employed full-time of about 2 percentage points and an increase in the likelihood of retirement of the same magnitude.

The ability to vary tasks and hours of work may play a key role in influencing labor supply decisions of individuals approaching retirement. The HRS questionnaire features two questions about job flexibility. One asks "*My employer would let older workers move to a less demanding job with less pay if they wanted to.*" Answers to this questions are on a scale from 1 to 4, where 1 indicates strong disagreement and 4 strong agreement. We find that employees whose employer is more prone to accommodate lighter workloads are more likely to remain employed full-time and less likely to retire altogether. A second question asks: "*Could you reduce the number of hours in your regular work schedule?*" We estimate that those who cannot do so are 2 percentage points more likely to remain employed full-time, 3 percentage points more likely to transit to retirement, and nearly 5 percentage points less likely to move to part-time. These effects are net of individuals' preferences about reducing hours of work, which are controlled for in the model (see Table 2).

Overall, the results in Table 3 support the notion that non-monetary job characteristics have large effects on labor force transitions. To put these findings in perspective, for several non-monetary job characteristics a 2-point increase on a scale from 1 to 4 is associated with an increase in the likelihood of retirement as big as the one induced by poor health status, the financial incentives embedded in pension plans, or being covered by an employer-sponsored health insurance plan.

5. The effects of personality traits on employment transitions

In this section, we relate employment transitions to the Big Five personality traits. We first discuss what effects we may expect based on the literature about the Big Five personality traits and their association with economic behaviors and outcomes. We then discuss the estimated direct effects of personality on employment transitions at older ages. Finally, we present empirical evidence on the extent to which personality traits modify the effects of non-monetary job characteristics in shaping retirement paths (interaction effects).

5.1 Expected effects based on the literature about personality

Almlund et al. (2011), and John and Srivastava (1999) give a brief description of the Big Five and a list of facets contained in them. These descriptions generate some tentative

hypotheses about how personality traits might, directly or indirectly, affect labor force transitions at older ages. In most cases, there are no unambiguously hypothesized effects. Their direction will therefore be empirically determined by the estimates that follow in this section.

- **Openness to experience** may be related to higher likelihood of retirement if retirement is seen as a new experience, but a lower likelihood if the work environment frequently generates new experiences. Thus, there may be a direct effect as well as an interaction with job characteristics. From the job characteristics in Table 3, we speculate that computer use and people skills are associated with varied experiences, whereas physical requirements may be associated with more monotonous work. Thus, we would expect individuals with high openness to experience to be less likely to retire from jobs with high scores on the former and more likely to retire from jobs with high scores on the latter.
- **Conscientiousness** is associated with achievement-striving, self-discipline, ambition, and work ethic, and, thus, may lead to later retirement. However, it is also related with better financial preparedness for retirement, which may induce individuals to exit the labor force earlier. We expect higher levels of conscientiousness to reduce the sensitivity to most job characteristics, but especially physical job requirements, difficulty and stress, and age discrimination.
- Facets of **extraversion** are excitement seeking and activity, but also gregariousness and friendliness. These may again be associated with both earlier and later retirement, depending on whether work or leisure provides relatively more of these kinds of stimulation. Extraversion is also defined as an orientation toward the outer world of people and things rather than the inner world of subjective experience. Thus, individuals with high levels of extraversion are expected to be less likely to retire from jobs that require people skills and more likely to retire from jobs that require the use of a computer, everything else being equal.
- **Agreeableness** includes the compliance, cooperation and tender-mindedness facets, the association of which with retirement may depend on the characteristics of the work environment. Other things equal, one would expect more agreeable individuals to cope better with more adverse work circumstances. Hence, we expect that more agreeable individuals are less sensitive to physical job requirements and difficulty/stress. They may also be better able to *cope* with age discrimination in the workplace, although the compliance facet may imply that they are more inclined to “take the hint” and leave.
- **Neuroticism** or emotional stability is associated with anxiety, hostility, and vulnerability to stress, as well as with self-consciousness and impulsiveness. These facets appear to point at earlier retirement, especially to the extent that they make individuals less able to deal with job demands. Thus, we expect individuals with higher levels of neuroticism to be more sensitive to physical job requirements and especially difficulty and stress. Similarly, they could be more

emotionally reactive to a more prejudiced and age discriminating work environment.

In this description, we have focused on the expected effects on the decision to retire as opposed to remaining employed full-time. The effects on moving to part-time are less clear-cut. Intuitively, part-time is an intermediate state, and thus its utility for an individual is expected to be in between the utilities of working full-time or being completely retired. An increased probability of moving to part-time may come from a decreased probability of staying employed full-time or a decreased probability of retiring completely or both. Therefore, even if we have strong expectations about whether a personality trait increases or decreases the utility of work versus leisure (possibly depending on the job characteristics), this does not a priori lead to an unambiguous expectation about the sign of the effect on working part-time. It is also much less clear a priori what the effects of personality traits are on the probability of moving out of the labor force or becoming unemployed. This category is relatively small and heterogeneous, so we do not expect to find apparent effects in our data.

5.2 The direct effects of personality traits

In Table 4, we gauge which of the possible direct effects of personality traits highlighted above receive empirical support from the data. We find rather weak direct relations between personality traits and the likelihood that full-time employees transit to a different labor force status. On a scale from 1 to 4, where 1 means “not at all” and 4 means “a lot”, a one point increase in the degree of conscientiousness is associated with a decrease in the probability of retirement of nearly 2 percentage points, although this estimated effect is only significant at 10%. This finding is consistent with industrious and achievement-striving tendencies typical of conscientious individuals. It may also help explain why more conscientious and emotionally stable adults are found to have higher lifetime earnings and are better financially prepared for retirement (Duckworth and Weir, 2010). Openness to experience is associated with a lower probability of a transition into retirement. This finding may indicate that the work environment is perceived as more stimulating than retirement. In the next section, we investigate this further by identifying potential job attributes whose effect on employment transitions might vary with this trait. Agreeableness appears to act in a very similar fashion as conscientiousness: more agreeable individuals are less likely to exit the labor force and more likely to remain employed full-time. This result is in line with the idea mentioned in section 5.1 that agreeable individuals may find it easier to cope with the work environment they face. In what follows, we study this mechanism further by focusing on the interaction between agreeableness and one important feature of the work environment faced by those on verge of retirement, namely perceived age discrimination. Finally, the regression results show that neuroticism is negatively correlated with the probability of retiring, but positively correlated with the likelihood of becoming unemployed or moving out of the labor force. In contrast, extraversion increases the likelihood of part-time and retirement and decreases the probability of being out of the labor force or unemployed (although these effects are not precisely estimated).

5.3 Interaction between non-monetary job characteristics and personality traits

The hypothesized relationships sketched in section 5.1 suggest that, beyond any direct influence on labor force transitions, personality may moderate the extent to which certain aspects of the work environment affect labor supply decisions at older ages. We therefore turn to study how the influence of non-monetary job characteristics on labor supply decisions varies with the “intensity” of each personality trait by estimating interaction terms between non-monetary job characteristics and the Big Five personality traits. The analysis in this section addresses the conjecture that some individuals may have a preference for certain job characteristics over others, that some workers are better able to cope with certain job conditions than others, and that this heterogeneity may be driven by personality traits.

For this purpose, we use a specification in which the set of covariates, featuring socio-demographic variables, monetary job attributes and personality traits, is augmented with one non-monetary job characteristic at a time and its interactions with all the Big Five personality traits (while the other non-monetary job characteristics are not included). In the interest of space, we only present a selected set of results, favoring interaction effects that are more precisely estimated and reveal interesting empirical patterns, which we attempt to place within the broad framework outlined in section 5.1 (the complete set of results is available upon request).

Figure 1 presents the interaction between neuroticism and physical effort in graphical form. We see that for individuals with very low levels of neuroticism, physical effort has little or no effect on the probabilities of labor force transitions. As the level of neuroticism increases, individuals with physically demanding jobs are progressively less likely to remain employed full-time (from 2 percentage points per scale point of physical effort when the degree of neuroticism is 2, to 7 percentage points when the degree of neuroticism is 4) and more likely to move to part-time (from 1 percentage point, when the degree of neuroticism is 2, to 4 percentage points when the degree of neuroticism is 4). The chances of retirement increase by 1 percentage point from the lowest to the highest level of neuroticism. These findings are consistent with neurotic individuals being more vulnerable to stress and less able to cope with difficult/challenging job demands. At the same time, their impulsiveness, which appears to be related to their lack of financial preparedness for retirement (Hurd et al., 2012), might explain the observed higher likelihood to move to part-time than to exit the labor force altogether.

As shown by Figure 2, extravert individuals who are required to use a computer are more likely to stay employed full-time and less likely to retire than individuals who are less extravert. Extraversion is defined as orientation toward the outer world of people and things, and facets of extraversion are excitement-seeking and activity. In section 5.1, we hypothesized that, since the use of computer could potentially inhibit these expressions, it may make extravert workers more likely to retire. This expectation seems to be contradicted by the empirical evidence provided in Figure 2. The introduction of new technologies, like computers, have considerably altered skill requirements among the cohorts of workers considered in this study. Intuitively, and as mentioned above, those who are more open to experience, thus exhibiting a preference for variety over routine and for complex problems, may have been more likely to acquire new skills, which could have opened better job

opportunities to them. This, coupled with the desire to recoup the benefits of the investment over a longer time horizon, may have delayed retirement. We do observe such an effect of computer use on employment transition along the scale measuring the degree of openness to experience (not presented in the graph). Individuals with more of this trait and who report using computers at work are more likely to prolong their attachment to the labor force.

In Figure 3, we present the interaction effects of agreeableness and age discrimination. At the lowest level of agreeableness, perceived age discrimination in the workplace decreases the chances of remaining employed full-time by 6 percentage points per scale point of perceived age discrimination and increases the odds of retirement by as much as 13 percentage points. At the highest level of agreeableness, age discrimination decreases the likelihood of remaining employed full-time by only 1 percentage point and increases the probability of retirement by as little as 0.5 percentage points. This result points at the possibility that agreeable individuals, who more notably exhibit the facets of compliance, cooperation and tender-mindedness, can better regulate hostility and cope with it (as hypothesized in section 5.1). The opposite patterns can be observed for the interaction of age discrimination with neuroticism (not presented in the graph). Specifically, a sense of age discrimination in the workplace is significantly more likely to induce retirement at high than at low levels of neuroticism. This finding is consistent with neurotic individuals being more emotionally reactive to perceived prejudice/discrimination than other types.

A final, interesting pattern is reported in Figure 4. For workers who are most open to experience, the perception that the employer is willing to accommodate lighter workloads increases the probability of staying employed full-time by 3 percentage points per scale point (an effect significant at 10%) and decreases the likelihood of retirement by nearly 4 percentage points. This interaction effect is in line with the direct effect of openness to experience found in section 5.2 and suggests that individuals who are open to experience may find the work environment relatively more stimulating, and may therefore prefer staying employed in a less demanding job over retiring.

6. Discussion

In this paper, we assess the extent to which personality traits are directly associated with labor force transitions at older ages and moderate the effect of non-monetary job characteristics on retirement decisions. Specifically, we take full-time employees age 51–79 in the Health and Retirement Study (HRS) and examine whether their employment transitions across two consecutive waves (approximately two years apart) are related to their Big Five personality traits (openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism), a number of non-monetary job characteristics, as well as interactions of these. Regression analyses are conditional on a rich set of social and demographic covariates, health, and more traditional monetary job attributes, aimed at reducing omitted variable biases in the parameters of interest.

We estimate relatively weak direct associations between personality traits and labor force transitions. Higher levels of openness to experience, conscientiousness, and agreeableness are associated with lower probabilities to retire, but these effects are generally modest in size

and not very precisely estimated. The existing literature has found that, among personality traits, conscientiousness is the strongest predictor of economic outcomes. Our results suggest that this trait is not a major driver of labor supply decisions at older ages.

A major contribution of our study is the investigation of how personality traits interact with non-monetary job attributes – physical demands, level of social interaction, use of computers, job flexibility, perceived stress and age discrimination – to shape labor supply decisions at older ages. Conceivably, personality traits contribute to individuals' self-selection into particular jobs, whose specific characteristics ultimately have an effect on retirement decisions.³ Personality traits are also likely to influence how workers perceive and report aspects of their jobs and workplaces: what is stimulating or challenging for some workers may be demanding or unpleasant for others. We find supportive evidence of such interaction effects between personality traits and non-monetary job characteristics. For example, more neurotic individuals, whose traits make them more vulnerable to stress and emotionally reactive to adverse circumstances, are more likely to retire in physically demanding jobs and age discriminating workplaces. Contrary to our a priori expectations, the use of a computer increases the likelihood of remaining full-time employed significantly more for extraverted older workers. Consistently with our hypothesis, though, the use of computer delays retirement among individuals with more prominent openness to experience. Age discrimination appears to be a much stronger push factor towards retirement for less agreeable individuals, who are less inclined to compromise their interests with others' and less likely to seek cooperation and social harmony. Finally, the extent to which the lack of flexibility in hours of work and job tasks induce retirement varies with the degree of openness to experience (although these relationships are not very precisely estimated).

Overall, the effect of personality traits on labor supply decisions at older ages is the result of complex dynamics acting through preferences for leisure over work, preferences for certain job attributes and selection into specific occupations, perception of and reaction to changing work environments and job demands. Because of that, it is difficult to form unambiguous priors about the direction of these effects. The approach taken in this study is to outline multiple possible relationships between personality and labor force transitions and empirically determine which ones receive support from the data.

Our analysis relies on cross-sectional choice models, which do not take into account the intrinsic dynamic nature of labor supply decisions. While our results are suggestive, we cannot claim that they are estimates of causal effects of non-monetary job characteristics and their interactions with personality on employment transitions at older ages. Besides personality traits, other unobservable individual preferences may affect both selection into jobs with specific characteristics and labor supply decisions. Structural models, such as the ones of Gustman and Steinmeier (1986), Rust and Phelan (1997), or French (2005), formalize individuals' forward looking behavior through expected lifetime utility maximization. They replicate stylized facts about retirement and Social Security claiming reasonably well and, as such, may be successfully used to evaluate the impact of policy interventions. An important step towards the development of more realistic structural models

³We find some suggestive evidence for this in Angrisani et al. (2013).

is to embed the findings of this paper into such analytical frameworks. Some hints of how findings from personality theory can be incorporated into dynamic economic models have been given in Almlund et al. (2011). The challenge for future research is to extend structural models of retirement to include economic incentives as well as non-monetary job characteristics and personality.

Acknowledgments

This research was supported by the Social Security Administration through the Michigan Retirement Research Center (MRRC), project UM13-Q4, by the National Institute of Health, grant R01AG037398, and by the Alfred P. Sloan Foundation Grant G-2014-13657 to the National Bureau of Economic Research. We thank Leandro Carvalho and Hans van Kippersluis for discussions that led to improvements in the paper and Orla Hayden for data construction.

Appendix A: Data construction

In this appendix, we describe how we construct the key variables of interest. As stated in the text, all data are taken from the Health and Retirement Study (HRS), starting with the main RAND version of the HRS (RAND HRS version N) and using variables from the RAND FAT files, which collect all the separate modules, as necessary. The two HRS modules that the FAT variables originate from are the employment module (section J) and the Leave-Behind (LB) questionnaire.

A.1 Job characteristics from the core questionnaire

We take the following items from the RAND HRS ($w = 6, 7, 8, 9, 10$ or 11 is the wave number):

<i>Variable</i>	<i>Description</i>	<i>Code</i>	<i>Name in Result Tables</i>
RwCOVR	R covered by R employer plan	Binary	Employer health insurance (HI).
SwCOVR	Spouse covered by R employer plan	Binary	Spouse covered by employer HI.
RwWGIHR	Imputed wage rate (hourly)	Continuous	Log hourly wage
RwPTYP1	Current pension type #1	Categorical	Employer-provided pension type
RwPTYP2	Current pension type #2	Categorical	Employer-provided pension type

We take the following item from the HRS core questionnaire (section J):

<i>Variable</i>	<i>Question</i>	<i>Code</i>	<i>Name in Result Tables</i>
J234	Not counting overtime hours, could you reduce the number of paid hours in your regular work schedule?	Binary	Employee cannot reduce hours of work

The items below are taken from the HRS core questionnaire (section J). All items are preceded by the introduction “*I ll read some statements that are true for some people’s jobs but not for other people’s jobs. Thinking of your job, please tell me how often these statements are true*” and use the scale 1 = all or almost all of the time; 2 = most of the time; 3 = some of the time; 4 = none or almost none of the time.

<i>Variable</i>	<i>Question</i>	<i>Code</i>	<i>Part of which index</i>
J538	My job requires lots of physical effort	1 to 4	Physical job requirements
J539	My job requires lifting heavy loads	1 to 4	Physical job requirements
J540	My job requires stooping, kneeling, or crouching	1 to 4	Physical job requirements
J541	My job requires good eyesight	1 to 4	Physical job requirements
J543	My job requires skills in dealing with other people	1 to 4	Job requires people skills
J544	My job requires to work with computers	1 to 4	Job requires use of computer

We reverse the scale for all these items so that 1 is “None or almost none of the time” and 4 is “All or almost all of the time”. We combine J538–J541 into the single index “Physical job requirements”. In doing so we average the scores across the items included in the index and set the final index to missing if more than half of the items have missing values.

The items below are taken from the HRS core questionnaire (section J). All items are preceded by the introduction “*Here are some statements that are true for some people’s jobs but not for other people’s jobs. Again, thinking of your job, please indicate how much you agree or disagree with each statement*” and use the scale 1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree.

<i>Variable</i>	<i>Question</i>	<i>Code</i>	<i>Part of which index</i>
J546	My job requires to do more difficult things than it used to	1 to 4	Level of difficulty & stress
J547	My job requires a lot of stress	1 to 4	Level of difficulty & stress
J548	In decisions about promotions, my employer gives younger people preference over old people	1 to 4	Age discrimination
J549	My co-workers make older workers feel that they ought to retire before age 65	1 to 4	Age discrimination
J550	As I get older, I would prefer to gradually reduce the hours I work on this job, keeping my pay per hour the same	1 to 4	Preference for reducing hours
J551	My employer would let older workers move to a less demanding job with less pay if they wanted to	1 to 4	Employer accommodates lighter work

We reverse the scale for all these items so that 1 is “strongly disagree” and 4 is “strongly agree.” We combine J546 and J547 into the single index “Level of difficulty & stress”; J548 and J549 into the single index “Age discrimination.” In doing so, we average the scores across the items included in the index and set the final index to missing if more than half of the items have missing values.

All questions about job characteristics are only asked of those respondents who are working for pay at the time of the interview. Since we select full-time employees in wave t and focus on their employment transitions from wave t to wave $t+1$, we use individual job characteristics observed in wave t when all individuals in the selected sample are employed full-time.

A.2 Personality traits

The items below are taken from the HRS leave behind questionnaire. These questions are asked in waves 8, 9, 10 and 11 (2006, 2008, 2010 and 2012). All items ask “*Please indicate how well each of the following describes you*” using the scale 1 = a lot; 2 = some; 3 = a little; 4 = not at all.

Variable	Question	Code	Big Five Assignment
Q33a	Outgoing	1 to 4	Extraversion
Q33b	Helpful	1 to 4	Agreeableness
Q33c	Moody	1 to 4	Neuroticism
Q33d	Organized	1 to 4	Conscientiousness
Q33e	Friendly	1 to 4	Extraversion
Q33f	Warm	1 to 4	Agreeableness
Q33g	Worrying	1 to 4	Neuroticism
Q33h	Responsible	1 to 4	Conscientiousness
Q33i	Lively	1 to 4	Extraversion
Q33j	Caring	1 to 4	Agreeableness
Q33k	Nervous	1 to 4	Neuroticism
Q33l	Creative	1 to 4	Openness to Experience
Q33m	Hardworking	1 to 4	Conscientiousness
Q33n	Imaginative	1 to 4	Openness to Experience
Q33o	Softhearted	1 to 4	Agreeableness
Q33p	Calm	1 to 4	Neuroticism
Q33q	Intelligent	1 to 4	Openness to Experience
Q33r	Curious	1 to 4	Openness to Experience
Q33s	Active	1 to 4	Extraversion
Q33t	Careless	1 to 4	Conscientiousness
Q33u	Broad-minded	1 to 4	Openness to Experience
Q33v	Sympathetic	1 to 4	Agreeableness
Q33w	Talkative	1 to 4	Extraversion
Q33x	Sophisticated	1 to 4	Openness to Experience
Q33y	Adventurous	1 to 4	Openness to Experience
Q33z	Thorough	1 to 4	Conscientiousness

We follow Duckworth and Weir (2010) and measure the Big Five personality traits according to the assignment shown in this table. We reverse the scale of all original question items so that 1 is “not at all” and 4 is “a lot”, except for items Q33p (Calm) and Q33t (Careless), which use the original scale. When creating the five indexes corresponding to the Big Five personality traits we average the scores across the items included in the index and set the final index to missing if more than half of the items have missing values. In order to maximize the sample size for our analysis, we assume that personality traits are stable over

time and assign to each individual the average of their available personality measures over the observation period.

Appendix B: Full set of results

Table B1

Full set of marginal effects (Table 3, Panel B in main text)

	Transitions from full-time employed to:			
	Full-time employed	Part-time employed	Retired	Out of the LF/ unemployed
Female	−0.046*** (0.010)	0.049*** (0.007)	−0.003 (0.008)	0.000 (0.005)
Age	−0.022*** (0.002)	0.006*** (0.001)	0.017*** (0.001)	−0.001 (0.001)
Age difference with spouse	0.001 (0.001)	0.001* (0.001)	−0.003*** (0.001)	0.000 (0.001)
62 or older	−0.003 (0.020)	0.002 (0.010)	0.008 (0.010)	−0.007 (0.007)
65 or older	0.077*** (0.020)	−0.024*** (0.009)	−0.061*** (0.010)	0.008 (0.010)
High school graduate	−0.004 (0.010)	0.003 (0.009)	0.013 (0.010)	−0.012* (0.007)
Some college	0.006 (0.020)	0.008 (0.010)	−0.003 (0.010)	−0.011 (0.007)
College or more	0.003 (0.020)	0.025** (0.010)	−0.021 (0.010)	−0.008 (0.008)
Couple	−0.017 (0.010)	0.012 (0.009)	0.009 (0.010)	−0.004 (0.007)
Spouse working	0.031*** (0.010)	−0.005 (0.008)	−0.024*** (0.009)	−0.003 (0.006)
Poor health	−0.056*** (0.010)	−0.013 (0.008)	0.050*** (0.010)	0.018*** (0.006)
Word recall score above median	0.006 (0.009)	0.009 (0.006)	−0.014** (0.007)	−0.001 (0.004)
Serial 7s score above median	−0.006 (0.009)	0.003 (0.006)	0.007 (0.007)	−0.004 (0.004)
Total household wealth	−0.002** (0.001)	−0.000 (0.001)	0.002** (0.001)	0.001 (0.000)
Total hh income (excl. earnings)	−0.003* (0.002)	0.001 (0.001)	0.002* (0.001)	−0.001 (0.001)
Log hourly wage	−0.002 (0.009)	−0.014** (0.007)	0.025*** (0.007)	−0.009** (0.004)
DB pension	−0.055** (0.030)	−0.016 (0.020)	0.074*** (0.020)	−0.004 (0.010)

	Transitions from full-time employed to:			
	Full-time employed	Part-time employed	Retired	Out of the LF/ unemployed
DC pension	-0.010 (0.020)	-0.019 (0.010)	0.018 (0.020)	0.011 (0.010)
DB + DC pension	-0.042 (0.030)	0.006 (0.020)	0.017 (0.020)	0.019 (0.020)
Missing pension type	-0.053 ** (0.030)	0.011 (0.010)	0.014 (0.020)	0.028 * (0.020)
Employer HI	0.071 *** (0.010)	-0.034 *** (0.009)	-0.034 *** (0.010)	-0.003 (0.005)
Spouse covered by employer HI	0.015 (0.010)	-0.004 (0.008)	-0.005 (0.009)	-0.005 (0.005)
Preference for reducing hours	-0.014 ** (0.005)	0.011 *** (0.004)	0.000 (0.004)	0.003 (0.003)
Physical job requirements	-0.013 * (0.007)	0.008 (0.005)	0.006 (0.005)	0.000 (0.003)
Job requires use of computer	0.013 *** (0.004)	-0.008 *** (0.003)	-0.006 * (0.003)	0.001 (0.002)
Job requires people skills	0.003 (0.006)	0.005 (0.004)	-0.001 (0.005)	-0.007 *** (0.003)
Level of difficulty & stress	-0.011 (0.007)	-0.000 (0.005)	0.009 * (0.005)	0.002 (0.003)
Age discrimination	-0.018 ** (0.007)	-0.001 (0.005)	0.018 *** (0.006)	0.001 (0.003)
Employer accommodates lighter work	0.017 *** (0.006)	-0.001 (0.004)	-0.013 *** (0.005)	-0.003 (0.003)
Employee cannot reduce hours of work	0.019 ** (0.010)	-0.046 *** (0.006)	0.028 *** (0.008)	-0.001 (0.004)

Sample Size: N = 9,369. Delta Method clustered standard errors in parentheses.

* $p < 0.10$,

** $p < 0.05$,

*** $p < 0.01$. Interview wave specific effects are included.

Table B2

Full set of marginal effects (Table 4 in main text)

	Transitions from full-time employed to:			
	Full-time employed	Part-time employed	Retired	Out of the LF/ unemployed
Female	-0.051 *** (0.010)	0.049 *** (0.008)	0.003 (0.008)	-0.002 (0.005)
Age	-0.022 ***	0.006 ***	0.017 ***	-0.001

	Transitions from full-time employed to:			
	Full-time employed	Part-time employed	Retired	Out of the LF/ unemployed
	(0.002)	(0.001)	(0.001)	(0.001)
Age difference with spouse	0.001	0.001 *	−0.003 ***	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
62 or older	−0.002	0.001	0.008	−0.006
	(0.020)	(0.010)	(0.010)	(0.007)
65 or older	0.076 ***	−0.024 **	−0.060 ***	0.008
	(0.020)	(0.009)	(0.010)	(0.010)
High school graduate	−0.004	0.003	0.014	−0.013 *
	(0.010)	(0.009)	(0.010)	(0.007)
Some college	0.004	0.008	−0.000	−0.012
	(0.020)	(0.010)	(0.010)	(0.007)
College or more	0.002	0.026 **	−0.018	−0.009
	(0.020)	(0.010)	(0.010)	(0.008)
Couple	−0.016	0.012	0.009	−0.004
	(0.010)	(0.009)	(0.010)	(0.007)
Spouse working	0.031 ***	−0.004	−0.023 ***	−0.002
	(0.010)	(0.008)	(0.009)	(0.006)
Poor health	−0.055 ***	−0.010	0.050 ***	0.015 **
	(0.010)	(0.008)	(0.010)	(0.006)
Word recall score above median	0.005	0.009	−0.012 *	−0.002
	(0.009)	(0.006)	(0.007)	(0.004)
Serial 7s score above median	−0.007	0.003	0.008	−0.004
	(0.009)	(0.006)	(0.007)	(0.004)
Total household wealth	−0.002 **	−0.000	0.002 **	0.001
	(0.001)	(0.001)	(0.001)	(0.000)
Total hh income (excl. earnings)	−0.003 *	0.001	0.002 *	−0.001
	(0.002)	(0.001)	(0.001)	(0.001)
Log hourly wage	−0.002	−0.014 **	0.026 ***	−0.010 **
	(0.009)	(0.007)	(0.007)	(0.004)
DB pension	−0.054 **	−0.016	0.074 ***	−0.004
	(0.030)	(0.020)	(0.020)	(0.010)
DC pension	−0.001	−0.019	0.018	0.011
	(0.020)	(0.010)	(0.020)	(0.010)
DB + DC pension	−0.042	0.006	0.017	0.018
	(0.030)	(0.020)	(0.020)	(0.020)
Missing pension type	−0.053 **	0.011	0.014	0.027 *
	(0.030)	(0.010)	(0.020)	(0.020)
Employer HI	0.071 ***	−0.034 ***	−0.034 ***	−0.002
	(0.010)	(0.009)	(0.010)	(0.005)
Spouse covered by employer HI	0.015	−0.004	−0.005	−0.005

	Transitions from full-time employed to:			
	Full-time employed	Part-time employed	Retired	Out of the LF/ unemployed
	(0.010)	(0.008)	(0.009)	(0.005)
Preference for reducing hours	-0.014 **	0.011 ***	-0.000	0.003
	(0.005)	(0.004)	(0.004)	(0.003)
Physical job requirements	-0.014 **	0.007	0.006	-0.000
	(0.007)	(0.005)	(0.005)	(0.003)
Job requires use of computer	0.012 ***	-0.008 ***	-0.005	0.001
	(0.004)	(0.003)	(0.003)	(0.002)
Job requires people skills	0.002	0.004	0.001	-0.007 ***
	(0.006)	(0.004)	(0.005)	(0.003)
Level of difficulty & stress	-0.013 *	0.001	0.012 **	0.000
	(0.007)	(0.005)	(0.005)	(0.003)
Age discrimination	-0.018 **	-0.001	0.017 ***	0.001
	(0.007)	(0.005)	(0.006)	(0.003)
Employer accommodates lighter work	0.017 ***	0.001	-0.013 ***	-0.003
	(0.006)	(0.004)	(0.005)	(0.003)
Employee cannot reduce hours of work	0.019 **	-0.046 ***	0.028 ***	-0.001
	(0.010)	(0.006)	(0.008)	(0.004)
Openness to experience	0.012	-0.008	-0.013	0.008 *
	(0.010)	(0.008)	(0.008)	(0.005)
Conscientiousness	0.010	0.004	-0.018 *	0.004
	(0.010)	(0.009)	(0.009)	(0.006)
Extraversion	-0.011	0.009	0.009	-0.008 *
	(0.010)	(0.007)	(0.008)	(0.005)
Agreeableness	0.018	-0.005	-0.021 **	0.007
	(0.010)	(0.008)	(0.009)	(0.006)
Neuroticism	0.009	-0.007	-0.014 **	0.013 ***
	(0.008)	(0.006)	(0.006)	(0.004)

Sample Size: N = 9,369. Delta Method clustered standard errors in parentheses.

*

$p < 0.10$,

**

$p < 0.05$,

$p < 0.01$. Interview wave specific effects are included.

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Figure 1.
Effect of physical effort on employment transitions by degree of neuroticism

Figure 2.
Effect of use of computer on employment transitions by degree of extraversion

Figure 3.
Effect of age discrimination on employment transitions by degree of agreeableness

Figure 4.
Effect of employer accommodating lighter work on employment transitions by degree of openness to experience

Table 1

Labor force status transitions from full-time employment

Next wave labor force status	All		Age 51–61		Age 62–79		Males		Females	
	N	%	N	%	N	%	N	%	N	%
Full-time employee	11,001	76.1	8,200	83.1	2,801	61.2	5,404	77.4	5,597	74.9
Part-time employee	1,161	8.0	574	5.8	587	12.8	445	6.4	716	9.6
Retired	1,699	11.8	662	6.7	1,037	22.6	857	12.3	842	11.3
Out of LF/Unemployed	592	4.1	437	4.4	155	3.4	274	3.9	318	4.2
Total	14,453	100.0	9,873	100.0	3,010	100.0	6,980	100.0	7,473	100.0

Table 2

Marginal effects of demographics and monetary job characteristics

	Transitions from full-time employed to:			
	Full-time employed	Part-time employed	Retired	Out of the LF/unemployed
Female	−0.038 *** (0.010)	0.044 *** (0.007)	−0.005 (0.008)	−0.001 (0.005)
Age	−0.022 *** (0.002)	0.006 *** (0.001)	0.017 *** (0.001)	−0.001 (0.001)
Age difference with spouse	0.001 (0.001)	0.001 (0.001)	−0.003 *** (0.001)	0.000 (0.000)
62 or older	−0.002 (0.020)	0.003 (0.010)	0.006 (0.010)	−0.007 (0.007)
65 or older	0.075 *** (0.020)	−0.021 ** (0.009)	−0.061 *** (0.010)	0.008 (0.010)
High school graduate	0.004 (0.020)	−0.002 (0.009)	0.010 (0.010)	−0.012 * (0.007)
Some college	0.020 (0.020)	0.002 (0.010)	−0.011 (0.010)	−0.011 (0.007)
College or more	0.021 (0.020)	0.017 (0.010)	−0.029 ** (0.010)	−0.009 (0.008)
Couple	−0.014 (0.010)	0.011 (0.009)	0.008 (0.010)	−0.005 (0.007)
Spouse working	0.033 *** (0.010)	−0.005 (0.008)	−0.024 *** (0.009)	−0.003 (0.006)
Poor health	−0.060 *** (0.010)	−0.013 * (0.008)	0.055 *** (0.010)	0.018 *** (0.006)
Word recall score above median	0.010 (0.009)	0.006 (0.006)	−0.015 ** (0.007)	−0.001 (0.004)
Serial 7s score above median	−0.001 (0.009)	−0.001 (0.006)	0.006 (0.007)	−0.003 (0.004)
Total household wealth	−0.002 ** (0.001)	−0.000 (0.000)	0.002 ** (0.001)	0.001 (0.000)
Total hh income (excl. earnings)	−0.003 (0.002)	0.002 (0.001)	0.002 (0.001)	−0.001 (0.001)
Log hourly wage	0.004 (0.009)	−0.019 *** (0.006)	0.024 *** (0.007)	−0.009 ** (0.004)
DB pension	−0.058 ** (0.030)	−0.018 (0.020)	0.080 *** (0.020)	−0.003 (0.010)
DC pension	−0.007 (0.020)	−0.020 (0.010)	0.016 (0.020)	0.011 (0.010)

	Transitions from full-time employed to:			
	Full-time employed	Part-time employed	Retired	Out of the LF/unemployed
DB + DC pension	−0.041 (0.030)	0.002 (0.020)	0.018 (0.020)	0.020 (0.020)
Missing pension type	−0.054 ** (0.030)	0.018 (0.010)	0.008 (0.020)	0.028 * (0.020)
Employer HI	0.071 *** (0.010)	−0.036 *** (0.009)	−0.032 *** (0.010)	−0.003 (0.005)
Spouse covered by employer HI	0.014 (0.010)	−0.005 (0.008)	−0.004 (0.009)	−0.005 (0.005)
Preference for reducing hours	−0.016 *** (0.005)	0.012 *** (0.004)	0.001 (0.004)	0.003 (0.003)

Sample Size: N = 9,369. Delta method clustered standard errors in parentheses.

*
 $p < 0.10$,

**
 $p < 0.05$,

 $p < 0.01$. Interview wave specific effects are included. Omitted categories: less than high school, no employer-provided pension plan. Total household wealth and total household income are transformed using the inverse hyperbolic sine function. We consider and pull together the characteristics of the two most important employer-provided pension plans.

Table 3

Marginal effects of non-monetary job characteristics

	Transitions from full-time employed to:			
	Full-time employed	Part-time employed	Retired	Out of the LF/unemployed
Panel A: Non-Monetary Job Characteristics One-by-One				
Physical job requirements	−0.021 *** (0.007)	0.011 ** (0.004)	0.011 ** (0.005)	−0.001 (0.003)
Job requires use of computer	0.015 *** (0.004)	−0.010 *** (0.003)	−0.006 * (0.003)	0.000 (0.002)
Job requires people skills	0.004 (0.006)	0.005 (0.004)	−0.002 (0.005)	−0.007 *** (0.003)
Level of difficulty & stress	−0.010 (0.007)	−0.002 (0.005)	0.011 ** (0.005)	0.001 (0.003)
Age discrimination	−0.021 *** (0.007)	−0.001 (0.005)	0.021 *** (0.006)	0.002 (0.003)
Employer accommodates lighter work	0.015 ** (0.006)	0.006 (0.004)	−0.017 *** (0.005)	−0.003 (0.003)
Employee cannot reduce hours of work	0.012 (0.010)	−0.047 *** (0.006)	0.034 *** (0.008)	0.001 (0.004)
Panel B: Non-Monetary Job Characteristics Included Jointly				
Physical job requirements	−0.013 * (0.007)	0.008 (0.005)	0.006 (0.005)	0.000 (0.003)
Job requires use of computer	0.013 *** (0.004)	−0.008 *** (0.003)	−0.006 * (0.003)	0.001 (0.002)
Job requires people skills	0.003 (0.006)	0.005 (0.004)	−0.001 (0.005)	−0.007 *** (0.003)
Level of difficulty & stress	−0.011 (0.007)	−0.000 (0.005)	0.009 * (0.005)	0.002 (0.003)
Age discrimination	−0.018 ** (0.007)	−0.001 (0.005)	0.018 *** (0.006)	0.001 (0.003)
Employer accommodates lighter work	0.017 *** (0.006)	−0.001 (0.004)	−0.013 *** (0.005)	−0.003 (0.003)
Employee cannot reduce hours of work	0.019 ** (0.010)	−0.046 *** (0.006)	0.028 *** (0.008)	−0.001 (0.004)

Sample Size: N = 9,369. Delta Method clustered standard errors in parentheses.

*
 $p < 0.10$,**
 $p < 0.05$,***
 $p < 0.01$. All covariates as in Table 2 are included. The full set of results is in Table B1 in the appendix.

Table 4

Marginal effects of personality traits

	Transitions from full-time employed to:			
	Full-time employed	Part-time employed	Retired	Out of the LF/unemployed
Openness to experience	0.012 (0.010)	−0.008 (0.008)	−0.013 (0.008)	0.008 [*] (0.005)
Conscientiousness	0.010 (0.010)	0.004 (0.009)	−0.018 [*] (0.009)	0.004 (0.006)
Extraversion	−0.011 (0.010)	0.009 (0.007)	0.009 (0.008)	−0.008 [*] (0.005)
Agreeableness	0.018 (0.010)	−0.005 (0.008)	−0.021 ^{**} (0.009)	0.007 (0.006)
Neuroticism	0.009 (0.008)	−0.007 (0.006)	−0.014 ^{**} (0.006)	0.013 ^{***} (0.004)

Sample Size: N = 9,369. Delta Method clustered standard errors in parentheses.

^{*}
 $p < 0.10$,^{**}
 $p < 0.05$,^{***}
 $p < 0.01$. Controls: all covariates as in Table 2. The full set of results is in Table B2 in the appendix.