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Personality maturation and personality relaxation: Differences of the Big Five personality traits in the years around the beginning and ending of working life

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SOEP papers
on Multidisciplinary Panel Data Research

Personality maturation and personality relaxation: Differences of the Big Five personality traits in the years around the beginning and ending of working life

Eva Asselmann and Jule Specht

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Personality maturation and personality relaxation: Differences of the Big Five personality traits in the years around the beginning and ending of working life

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Abstract

Objective: At work, people are confronted with clear behavioral expectations. In line with the Social Investment Principle, the beginning and ending of working life might thus promote changes in personality traits that are relevant at work (e.g., Conscientiousness).

Method: Based on the data from the Socio-Economic Panel Study (SOEP), we examined nuanced differences of the Big Five personality traits in the years around the beginning and ending of working life. Whether participants had started working or retired in the past year was assessed yearly. The Big Five personality traits were assessed in four waves between 2005 and 2017.

Results: In people who started working, multilevel analyses revealed that Conscientiousness was higher in the first year of working life versus all other years. Extraversion was higher in and after the first year of working life versus before, and Agreeableness increased gradually in the three years after people had started working. In people who retired, Conscientiousness was lower in and after the first year of retirement versus before. No other traits differed around the start of retirement.

Conclusions: Our findings suggest that the start of working life might promote personality maturation and that retirement might promote personality “relaxation.”

KEYWORDS

age differences, career, development, employment, first job, gender differences, life event, life transition, longitudinal, retirement

1 | INTRODUCTION

Over the course of our lives, we spend a considerable amount of time at work. Being reliable, diligent, and dedicated—people are typically confronted with clear behavioral demands at work and many employees aim to meet these expectations (Nye & Roberts, 2019). Therefore, the start of working life and retirement might relate to changes in personality traits that are highly relevant at work

(e.g., Conscientiousness) (Lodi-Smith & Roberts, 2007; Nye & Roberts, 2019). Consistent with this idea, Specht et al. (2011) found that Conscientiousness increased in people who started working and decreased in people who retired. Moreover, previous research revealed that certain experiences and characteristics at work (e.g., workload and demands, behavioral investments, and job satisfaction) were associated with changes in specific personality traits, most notably Conscientiousness (Bleidorn et al., 2018;

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Denissen et al., 2014; Roberts, 1997; Roberts et al., 2003; Schwaba et al., 2019; Scollon & Diener, 2006).

However, less is known about the timing of these changes: Does personality change already *before* the start of working life or retirement, for example, because people anticipate and prepare for their future role as an employee or retiree? Does personality change *immediately after* the respective transition, for instance, because people take on their new social role right away? Or do such changes *unfold gradually* over longer periods of time, for example, because new employees require continuous input and feedback from their superiors in order to adjust their behavior at work?

Based on the data from the Socio-Economic Panel Study (SOEP) we focused on different types of continuous and discontinuous short- and long-term changes in the Big Five personality traits before, during, and after the start of working life and retirement. We also investigated whether these changes vary by gender, age, and employment status.

1.1 | Personality development across the lifespan

Personality develops throughout life, especially in young adulthood and old age (Bleidorn & Schwaba, 2017; Specht, 2017). Various previous studies focused on age-graded changes in the Big Five personality traits (Allemand et al., 2007, 2008; Bleidorn et al., 2013; Mueller et al., 2016; Roberts & Mroczek, 2008; Roberts et al., 2006; Schwaba & Bleidorn, 2018; Specht et al., 2011; Wortman et al., 2012). Their findings revealed that Conscientiousness, Agreeableness, and Emotional Stability (i.e., reverse Neuroticism) tended to increase in young adulthood—a pattern labeled “maturity principle” (Roberts et al., 2005). In middle adulthood and old age, Openness to Experience tended to decrease, Agreeableness and Emotional Stability tended to increase, and Conscientiousness tended to increase in early old age but decrease in very old age—a pattern labeled “la dolce vita” effect (Marsh et al., 2013).

Both developmental periods—young adulthood and old age—are characterized by a high density of age-graded normative life events and transitions in different domains, including love, family, and work (Asselmann & Specht, 2020a, 2020b, 2020c; Bleidorn et al., 2013, 2018). With respect to work, young adults typically graduate from school or university and start working, whereas older people leave working life and retire. Previous research suggests that such age-graded life events and transitions might be an important source of personality development and contribute to the normative change trajectories of core personality traits across the life span (Bleidorn et al., 2013, 2018; Denissen et al., 2019; Specht et al., 2011, 2014).

1.2 | Social Investment Principle

In line with the Social Investment Principle (Nye & Roberts, 2019; Roberts & Wood, 2006) age-graded normative life events and transitions (e.g., the beginning and ending of working life) might lead to changes in social roles and social role demands. Personality might develop due to increased psychological and behavioral investments in these roles, that is, accumulated experiences in and higher commitment to these roles. For example, individuals who start working typically need to be reliable and diligent and behave professionally and friendly toward others in their new role as an employee. Such role demands might trigger adaptational processes toward more “mature” behavior and lead to an increase in Conscientiousness and Agreeableness (Lodi-Smith & Roberts, 2007; Nye & Roberts, 2019). Besides, more structured daily routines and success at work might lead to an increase in Emotional Stability (Lodi-Smith & Roberts, 2007; Nye & Roberts, 2019).

In contrast, individuals who retire face behavioral expectations that are less clear (Bleidorn et al., 2018; Schwaba & Bleidorn, 2019). After leaving working life they typically have to be less reliable and diligent and gain hours of free time, which might lead to a decrease in Conscientiousness. Retirees need to re-organize their life, re-define their identity, and set new goals. As a consequence, they might feel less stressed due to work but challenged due to unstructured days, financial constraints, or increasing health problems. Their ways to deal with these challenges might vary substantially, which impedes deriving clear hypotheses about normative changes in other Big Five personality traits (Bleidorn et al., 2018).

1.3 | Personality changes around the start of working life

A series of previous longitudinal studies investigated how the start of working life relates to personality development. In line with the Social Investment Principle (Roberts & Wood, 2006), their findings support the idea that the start of working life might lead to higher Conscientiousness and possibly also higher Openness and Emotional Stability (Denissen et al., 2019; Specht et al., 2011). However, only a few of these studies distinguished between continuous and discontinuous short- and long-term personality changes in the years before, during, and after the start of working life (Denissen et al., 2019).

Specht and colleagues (2011) used the data from the SOEP to examine changes in the Big Five personality traits over two waves, spaced 4 years apart. They found that Conscientiousness increased more strongly in people who did versus did not start working between these waves. Other

Big Five personality traits, however, did not change around this transition.

Using the data from the Longitudinal Internet Studies for the Social Sciences (LISS) Panel, Denissen and colleagues (2019) investigated how the start of working life was associated with changes in the Big Five personality traits across multiple waves over a period of up to nine years. Their findings revealed that individuals who started working increased in openness and Conscientiousness. These changes occurred in the years before but not after they started their first job (i.e., in anticipation of but not as a reaction to this transition). On average, individuals were also more emotionally stable after the start of working life versus before.

Lüdtke et al. (2011) investigated changes in the Big Five personality traits among senior high school students from Germany (TOSCA study) over a period of 4 years in up to three waves. Compared to participants who entered university, those who started vocational training or working during the study increased more strongly in Conscientiousness but less strongly in Agreeableness.

Other research found that senior high school students increased in openness, Conscientiousness, and Emotional Stability around their graduation and this applied, in particular, to individuals who invested much time and efforts into studying and homework (Bleidorn, 2012). Moreover, findings from the Household, Income, and Labor Dynamics in Australia (HILDA) Survey revealed that employees who did versus did not take on a higher job position increased more strongly in openness in the surrounding years (Nieß & Zacher, 2015).

1.4 | Personality changes around the start of retirement

Furthermore, some previous research suggests that the start of retirement might be associated with a decrease in Conscientiousness (Löckenhoff et al., 2009; Specht et al., 2011) and potentially also changes in other Big Five personality traits (e.g., a transient increase but subsequent decrease in openness and Agreeableness, a decrease in Extraversion, or an increase in Emotional Stability) (Löckenhoff et al., 2009; Schwaba & Bleidorn, 2019).

In their study based on the data from the SOEP, Specht et al. (2011) found that individuals who retired decreased more strongly in Conscientiousness compared to individuals without this transition. However, the start of retirement was unrelated to changes in other Big Five personality traits. Moreover, retiring was unrelated to the rank-order stability of the Big Five, which does not support the idea that personality changes around this transition might vary considerably between individuals.

Schwaba and Bleidorn (2019) used the data from the LISS to study associations between the start of retirement

and changes in the Big Five personality traits over up to seven years. Their findings revealed that openness and Agreeableness increased in the first months after retirement but decreased gradually in the following years. Emotional Stability increased before and after retirement, whereas Conscientiousness and Extraversion remained unchanged around this transition.

Using the data from the East Baltimore Epidemiologic Catchment Area Study, Löckenhoff and colleagues (2009) examined personality changes over two waves, spaced nine years apart. They found that employees who did versus did not retire during this time frame decreased more strongly in self-discipline (a facet of Conscientiousness) and activity (a facet of Extraversion) and increased more strongly in Agreeableness. Again, these findings fit nicely to the idea of the “la dolce vita” effect and suggest that individuals might tend to become more “relaxed” in reaction to diminished social expectations after the end of working life (Marsh et al., 2013).

Finally, Mroczek and Spiro (2003) followed up a sample of men from the Normative Aging Study (mostly war veterans) over twelve years. During this time frame, changes in Extraversion and Emotional Stability did not differ between men who had versus had not retired in the year before the first personality assessment. Changes in other Big Five personality traits, however, were not assessed.

Taken together, these results highlight the importance to “take time seriously” (Luhmann et al., 2014): Personality development might be associated with major life transitions, might unfold in anticipation and as a reaction to these transitions, and might be transient or lasting. Examining such nuanced changes requires study designs with multiple personality assessments in the years before, during, and after the respective transition. Moreover, personality differences around the start of working life and retirement might vary as a function of additional factors, including sociodemographic (e.g., gender and age) and work-related (e.g., employment status) characteristics.

1.5 | The role of gender

In terms of gender, personality differences around the start of working life and retirement might be stronger in men versus women. Consistent with traditional gender stereotypes, men might (on average) spend more time at work and identify more closely with their job, whereas women might (on average) invest more in their family and other non-professional activities (Beham et al., 2019; Hagqvist et al., 2017). Therefore, men, in particular, might be constrained to behave in line with professional role demands and experience greater personality changes when entering and leaving working life.

Although few studies examined this issue, preliminary findings support this idea. Bleidorn (2012) found that male (vs. female) students who graduated from school increased more

strongly in Extraversion and achievement behaviors around this transition. Schwaba and Bleidorn (2019) showed that men (vs. women) were more agreeable and more emotionally stable in the month in which they retired. However, despite the known gender differences in personality trait levels, many studies did not find that personality changes (across the lifespan and in relation to work-related transitions) significantly differed between women and men (Graham et al., 2020; Specht et al., 2011).

1.6 | The role of age

Most people start their first job in young adulthood and retire in late middle adulthood or early old age (the statutory retirement age in Germany is in the 60s). Though, the age at which individuals enter and leave working life varies. For example, some people start working comparatively late because they have prolonged periods of education or they retire partially before the statutory retirement age.

In terms of age, the effects of the start of working life on personality might be stronger in younger versus older individuals. Especially in young adulthood, personality tends to be susceptible to change and to environmental influences (Bleidorn, 2015; Bleidorn et al., 2013, 2018). Teenagers who start working might, for example, have just finished school, still live with their parents, and be less experienced compared to people in their late 20s. Therefore, younger (vs. older) individuals who start their first job might increase more strongly in Conscientiousness, Agreeableness, and Emotional Stability.

With respect to retirement, the role of age seems less clear. Some comparatively young retirees might, for example, see early retirement as an opportunity to escape from occupational obligations and enjoy life, which might lead to higher Extraversion and Emotional Stability. Other relatively young retirees might be forced into early retirement due to serious health problems, which might lead to lower Extraversion and Emotional Stability around this transition (Schwaba & Bleidorn, 2019). Previous research did not find that personality changes around the start of retirement varied by age—possibly because such diverse processes might cancel each other out (Schwaba & Bleidorn, 2019).

1.7 | The role of employment status

In recent decades, flexible working hours and part-time work have gained importance (Messenger, 2011). Many individuals start working part-time or reduce their workload before they retire. Therefore, peoples' employment status needs to be taken into account. Individuals who are (vs. are not) employed full-time in the first year of working life or last year before retirement might experience the respective transition

as a sharper turning point in their life. Their daily routines, activities, and social investments might change more drastically, leading to stronger personality changes around the respective transition. However, research hereon is lacking so far.

1.8 | Aims

The aim of this study is to examine (a) whether the Big Five personality traits differ in the years before, during, and after the start of working life and retirement and (b) whether these differences vary by gender, age, and employment status. Modeling such nuanced personality differences requires fine-grained data (Luhmann et al., 2014). In other words, information on personality in different years before, during, and after the start of working life and retirement is needed in order to be able to model continuous and discontinuous short- and long-term personality changes around these transitions. A longitudinal study with personality assessments at only two-time points, for example, cannot distinguish between anticipation and socialization effects or between short- and long-term personality changes. Moreover, a large community sample needs to be followed up prospectively in order to capture personality data from a sufficient number of individuals who will start working or retire in the future. Only based on such data, anticipation effects (i.e., personality changes in the years before the respective transition) can be modeled. Similarly, a large and heterogeneous sample is required, so that potential moderators (e.g., gender, age, and employment status) can be considered based on adequately powered data.

To address these challenges, we used the data from the SOEP, a household panel study based on a large, nationally representative, and heterogeneous sample from Germany with ongoing yearly assessments since 1984. Participants of the SOEP were yearly asked about their employment status and personality was measured repeatedly in 2005, 2009, 2013, and 2017. We considered individuals who started working or retired between 2002 (three years prior to the first personality assessment) and 2018 (the most recent wave of the SOEP so far). For each individual, we coded the year in which they experienced the respective transition relative to the year(s) in which they provided information on their personality. Afterward, we combined the within-person information from all these people (who reported on their personality in 2005, 2009, 2013, and/ or 2017 and experienced the respective transition in different years). This modeling strategy provided us with fine-grained information on personality in different years before, during, and after the start of working life and retirement and allowed us analyzing nuanced personality changes around these transitions. At the same time, combining within- and between-person information increased the statistical power, which allowed us taking potential moderators (i.e., gender, age, and employment status) into account.

Specifically, we modeled anticipation effects to examine whether the Big Five personality traits increased or decreased gradually in the three years before the start of working life and retirement. At the same time, we analyzed socialization effects to investigate whether the personality traits increased or decreased gradually in the three years after the respective transition. A clear distinction between anticipation and socialization effects is crucial because both effects can differ or even counteract each other (Asselmann & Specht, 2020a, 2020b, 2020c; Denissen et al., 2019; Luhmann et al., 2014). For example, young adults might spend increased time with friends, travel, and explore new activities before they start working. However, they might have less time and energy to do so after starting their first job. As a consequence, openness and Extraversion might increase before but decrease after the start of working life. Such differences can only be seen when anticipation and socialization effects are clearly distinguished.

Moreover, we modeled short-term post-event effects to examine whether the Big Five traits differed in the first year of working life or retirement versus all other years before and after the respective transition. In addition, we analyzed long-term post-event effects to examine whether the Big Five Traits differed more than one year after the start of working life or retirement versus before. In line with Set Point Theory (Diener et al., 2009; Lucas, 2007), changes in thoughts, feelings, and behavior might be most pronounced in the first year of working life and retirement but attenuate over longer periods of time. In the first months of working life, for example, new employees might be particularly motivated to do a good job and get along well with their colleagues. Therefore, they might be more conscientious and agreeable in the first year of working life but bounce back to their setpoints of Conscientiousness and Agreeableness afterward. Such effects can only be seen when transient short-term and enduring long-term personality differences in and after the first year of working life and retirement are taken into account (Denissen et al., 2019; Luhmann et al., 2014).

We aimed to distinguish between event-related and other time-dependent effects (e.g., due to aging). Thus, personality differences around the start of working life and retirement were modeled over and above age and testing effects. Specifically, linear, quadratic, and cubic age were included as control variables to account for linear and non-linear age effects. Moreover and in line with previous publications (Asselmann & Specht, 2020a, 2020b, 2020c; Denissen et al., 2019), a testing variable was included to account for personality changes due to repeated personality assessments over time.

1.9 | Hypotheses

Our main hypotheses are as follows: In line with the Social Investment Principle (Roberts & Wood, 2006),

Conscientiousness, Agreeableness, and Emotional Stability increase gradually in the three years before and three years after the start of working life and are higher in and after the first year of working life versus before. In individuals who start working, we thus expect positive anticipation, socialization, short-term post-event, and long-term post-event effects on Conscientiousness, Agreeableness, and Emotional Stability, respectively.

Conversely and in line with the idea of the “*la dolce vita*” effect (Marsh et al., 2013), we expect that Conscientiousness decreases gradually in the three years before and three years after the start of retirement and that Conscientiousness is lower in and after the first year of retirement versus before. In individuals who retire, we thus expect negative anticipation, socialization, short-term post-event, and long-term post-event effects on Conscientiousness.

Our moderator hypotheses with respect to gender, age, and employment status are as follows: The beginning and ending of working life have stronger effects in men versus women, in younger versus older individuals (around the start of working life only), and in people who are versus are not employed full-time in the first year of working life or last year before retirement.

2 | MATERIALS AND METHODS

2.1 | Study sample

We used the data from the German Socio-Economic Panel Study (SOEP), a nationally representative household panel study from Germany with multistage probability sampling. The SOEP started in 1984 and is still ongoing. We considered information until 2018 in this paper, the most recent wave so far. Data are collected yearly and mostly stem from face-to-face interviews with all adult members of the target households.

The initial sample from 1984 is regularly replenished with new participants to counteract attrition, to increase the overall sample size, and to allow for detailed analyses of specific sub-samples. Therefore, panel members entered the study in different years and not all participants provided information on their employment status and personality over the entire course of the study. Our multilevel approach (see below) enables to deal with this missingness. Table S1 specifies how many individuals of the current sample came from the initial cohort and specific refreshment cohorts.

More detailed information on the SOEP (including the sample structure, individual subsamples, and panel attrition) has been previously presented (Goebel et al., 2019; Kroh et al., 2018) and is provided at <https://www.diw.de/en/soep>. A detailed description of all procedures and measures collected in the SOEP can be found at <https://panel>

data.org/soep-core. The SOEP data are available from the DIW Berlin after signing a contract on data distribution (https://www.diw.de/en/diw_02.c.222829.en/access.html). A summary of previous publications based on the SOEP data can be found at https://www.diw.de/sixcms/detail.php?id=diw_02.c.298578.en.

Based on the SOEP data, we previously examined associations of the Big Five personality traits with other major life events and transitions, including changes in romantic relationships (Asselmann & Specht, 2020a), the transition to parenthood (Asselmann & Specht, 2020b), and the death of a partner (Asselmann & Specht, 2020c). Moreover, Specht and colleagues (2011) investigated whether changes in the Big Five personality traits from 2005 to 2009 differed between individuals who did and did not start working or retire between these waves. This previous publication does not overlap with the current paper because it (1) did not include the personality data from later waves (i.e., 2013 and 2017) and (2) did not distinguish between anticipation, socialization, as well as short- and long-term post-event effects.

2.2 | Assessment of the start of working life and retirement

In the SOEP, participants were yearly asked whether they had started a new job or changed their job in the past year. Participants who affirmed this question were asked whether they (1) had started working for the first time in their life, (2) had returned to a previous employer after a break in employment, (3) had started a new job with a different employer, (4) were hired by the company (in which they previously worked as an apprentice, in a job creation measure, or on a freelance basis), (5) had changed positions within the same company, or (6) had become self-employed. In this paper, we considered participants who indicated to have started working for the first time in their life and coded the earliest year in which they reported this transition.

Furthermore, panel members of the SOEP were yearly asked whether they were retired or not. However, they were not directly asked whether they had retired in the past year. Therefore, we coded the earliest year in which participants indicated to be retired if they had (a) participated in the study and indicated to be employed in the previous year and (b) never indicated to be retired in any previous year.

2.3 | Assessment of personality

The Big Five personality traits Openness, Conscientiousness, Extraversion, Agreeableness, and Emotional Stability were assessed in 2005, 2009, 2013, and 2017 with the BFI-S, a short version of the Big Five Inventory (John et al., 1991,

2008; Lang et al., 2011). The BFI-S consists of 15 items (three items per trait), labeled from 1 (strongly disagree) to 7 (strongly agree). To maximize the validity of this short scale, heterogeneous items were selected per trait, which explains moderate internal consistencies (Lang et al., 2011). In people who started working, the internal consistencies (averaged across all four waves) were $\alpha = 0.59$ for openness, $\alpha = 0.62$ for Conscientiousness, $\alpha = 0.74$ for Extraversion, $\alpha = 0.50$ for Agreeableness, and $\alpha = 0.61$ for Emotional Stability. In people who retired, the internal consistencies were $\alpha = 0.63$ for openness, $\alpha = 0.55$ for Conscientiousness, $\alpha = 0.62$ for Extraversion, $\alpha = 0.46$ for Agreeableness, and $\alpha = 0.61$ for Emotional Stability. The test-retest reliability, convergent validity (compared to the full BFI and NEO-PI-R), and discriminant validity (compared to other validity criteria) were acceptable (Donnellan & Lucas, 2008; Gerlitz & Schupp, 2005; Hahn et al., 2012; Lang, 2005). The five-factor structure of the BFI-S in the SOEP has been shown to be robust across three different modes of assessment (face-to-face interview, telephone interview, and self-administered questionnaire; Lang et al., 2011).

2.4 | Statistical analysis

Stata 15 (StataCorp, 2017) was used for the analyses. Openly accessible data analysis scripts are attached as supplemental material. We considered individuals who (a) provided information on at least one item of the BFI-S in 2005, 2009, 2013, and/or 2017 and (b) started working ($N = 3,772$) or retired ($N = 2,886$) between 2002 (three years prior to the first personality assessment in 2005) and 2018 (the most recent wave of the SOEP so far). In the SOEP, a few participants indicated to have experienced the respective transition at an unusually low or high age (e.g., retired in their 20s). In this paper, we only included (a) people who were not older than 30 years when they started working ($N = 3,577$; $N = 195$ participants were excluded) and (b) people who were between 50 and 70 years old when they retired ($N = 2,592$; $N = 294$ participants were excluded). We did so (a) because our primary scope was to focus on personality changes among people who started working or retired at a normative age and (b) because individuals who were outside this age range might have experienced the respective transition due to extraordinary circumstances. For example, young adults might have retired early due to an accident, severe illness, or other stressful circumstances with different implications for personality development.

Our analyses follow the approach of recent studies in the field (Asselmann & Specht, 2020a, 2020b, 2020c; Denissen et al., 2019). That is, we coded the year in which participants started working or retired relative to the year of the respective personality assessment in 2005, 2009, 2013, and 2017.

We then applied multilevel analyses with measurement occasions (Level 1) nested within persons (Level 2) to combine the within-person information (on personality in 2005, 2009, 2013, and/ or 2017) of all participants with the respective transition. Because different people experienced the transition in different years, this combination of within- and between-person information provided us with fine-grained information on personality in the years before, during, and after the transition. We built separate models for each trait and transition and modeled the effects as fixed effects.

Specifically, we simultaneously regressed the standardized score of the respective personality trait on gender (to account for gender differences), linear, quadratic, and cubic age (to account for linear and non-linear age effects), a testing variable (to account for effects due to repeated personality assessments¹), and four event-related predictors (anticipation, socialization, short-term post-event, and long-term post-event). These predictors were used to model nuanced personality differences in the years around the respective transition. Table 1 summarizes how the control variables and event-related predictors were defined and coded. Table S2 specifies how the event-related predictors were coded in people who started working or retired in specific years between 2002 and 2018. Table S3 shows the numbers of observations per cell for each event-related predictor in people who started working or retired (at Level 1 in the multilevel analyses). Respective numbers are presented for the total sample as well as separately for women and men and individuals who were and were not employed full-time in the first year of working life or last year before retirement (due to our analyses on interactions with gender and employment status; see below).

2.4.1 | Model building strategy

Our aim was to build parsimonious models that allow analyzing nuanced personality differences in the years before, during, and after the respective transition (i.e., anticipation, socialization, short-term post-event, and long-term post-event effects) over and above potential confounders (i.e., gender, age, and testing effects). For each trait and transition, we started with a simple model that only included the intercept (Model 1) and stepwise added the following predictors: Gender (Model 2), linear age (Model 3), quadratic age (Model 4), cubic age (Model 5), the testing variable (Model 6), the short-term post-event variable (Model 7), the long-term post-event variable (Model 8), the socialization variable (Model 9), and the anticipation variable (Model 10). For each trait and transition, we compared Model 2 to Model 1, Model 3 to Model 2, and so on, to test whether the more complex model led to an improved model fit compared to the simpler model (likelihood-ratio tests). As shown in Table S4, each additional predictor led to an improved model fit for at least one

trait and transition and was thus included in our final models. We built the same models (i.e., with all predictors) for each trait and transition. This allowed us comparing the size of individual effects across different traits and transitions and also being consistent with previous publications (Asselmann & Specht, 2020a, 2020b, 2020c; Denissen et al., 2019).

2.4.2 | Variance inflation factors (VIFs)

Because our models included a relatively large number of potentially correlated predictors we calculated VIFs to account for multicollinearity. As shown in Table S5, nearly all VIFs were equal to or smaller than 5 and thus clearly below the cut-off score of 10 that is commonly used (Denissen et al., 2019). Only the VIFs for quadratic age (5.31–5.32) and cubic age (6.96–6.97) in the analyses in people who started working were slightly higher but still clearly below 10. That is, multicollinearity in our models was low.

2.4.3 | Random effects

To take into account the variability in personality differences around the start of working life and retirement, we repeated the analyses and included random effects for the event-related predictors (i.e., the anticipation, socialization, short-term post-event, and long-term post-event variable) in our models.

2.4.4 | Interactions with gender, age, and employment status

Moreover, we tested whether personality differences around the start of working life and retirement varied by gender, age, and employment status (moderators). Specifically, we repeated the analyses and added four interaction terms between the event-related predictors and (a) gender (1 = men vs. 0 = women, centered), (b) age (in years during the respective transition, centered), or (c) employment status (1 = employed full-time vs. 0 = not employed full-time in the first year of working life or last year before retirement, centered). To avoid multicollinearity, each interactive effect was tested separately.

2.4.5 | Alpha level and number of effects

We set the alpha level at 0.01. Our main analyses refer to two transitions (the start of working life and retirement) * five personality traits (openness, Conscientiousness, Extraversion, Agreeableness, and Emotional Stability) * four event-related effects (anticipation, socialization, short-term post-event, and long-term post-event). We

TABLE 1 Description and coding of the control variables and event-related predictors

Predictor	Description	Coding
Gender (Level 2)	<ul style="list-style-type: none"> Gender effects 	<ul style="list-style-type: none"> Coded with 0 for women Coded with 1 for men Grand-mean centered^a
Linear age (Level 1)	<ul style="list-style-type: none"> Linear age effects 	<ul style="list-style-type: none"> Age at the respective personality assessment (divided by 10^b) Grand-mean centered^a
Quadratic age (Level 1)	<ul style="list-style-type: none"> Quadratic age effects 	<ul style="list-style-type: none"> Linear age variable²
Cubic age (Level 1)	<ul style="list-style-type: none"> Cubic age effects 	<ul style="list-style-type: none"> Linear age variable³
Testing (Level 1)	<ul style="list-style-type: none"> Effects due to repeated personality assessments 	<ul style="list-style-type: none"> Coded with 0 for the first personality assessment Coded with 1 for the second personality assessment Coded with 2 for the third personality assessment Coded with 3 for the fourth personality assessment Grand-mean centered^a
Anticipation (Level 1)	<ul style="list-style-type: none"> Linear personality changes in the 3 years before the respective transition 	<ul style="list-style-type: none"> Coded with -1 for personality assessments 1 year before the respective transition Coded with -2 for personality assessments 2 years before the respective transition Coded with -3 for personality assessments 3 years before the respective transition Coded with 0 for all other personality assessments
Socialization (Level 1)	<ul style="list-style-type: none"> Linear personality changes in the 3 years after the respective transition 	<ul style="list-style-type: none"> Coded with 1 for personality assessments 1 year after the respective transition Coded with 2 for personality assessments 2 years after the respective transition Coded with 3 for personality assessments 3 years after the respective transition Coded with 0 for all other personality assessments
Short-term post-event (Level 1)	<ul style="list-style-type: none"> Short-term personality differences in the first year after the respective transition versus all other years 	<ul style="list-style-type: none"> Coded with 1 for personality assessments in the first year after the respective transition Coded with 0 for all other personality assessments
Long-term post-event (Level 1)	<ul style="list-style-type: none"> Long-term personality differences more than 1 year after the respective transition versus before 	<ul style="list-style-type: none"> Coded with 1 for personality assessments more than 1 year after the respective transition Coded with 0 for all other personality assessments

Note: ^aThe gender, linear age, and testing variable were centered so that the intercept in each model refers to an “average” person with an “average” gender, age, and number of previous Big Five personality assessments. The linear age variable was divided by 10 to ensure that the linear, quadratic, and cubic age effects are large enough to be able being displayed rounded at two decimals. The Big Five personality trait scores (outcome variables) were standardized for the analyses. However, no standardized beta-coefficients are reported because our models include not only dimensional predictors but also dummy and timing variables that cannot be interpreted in the same standardized metric. Specifically, the anticipation and socialization effects indicate the change of the respective Big Five personality trait per year before/ after the respective transition. The short-term post-event effect indicates the difference of the respective Big Five personality trait in the first year after the respective transition versus all other years. The long-term post-event effect indicates the difference of the respective Big Five personality trait more than 1 year after the respective transition versus before. The effect sizes of individual predictors are comparable across different Big Five personality traits because their standardized scores are used as outcomes in the analyses.

did not adjust for multiple testing (a) because the start of working life and retirement are two different transitions, (b) because the Big Five personality traits are theoretically conceptualized as five independent dimensions and only partially overlap (see Table S7), and (c) because each event-related effect indicates another type of personality change. Therefore, each test referred to another research question (Savitz & Olshan, 1995). However, researchers who believe that adjustment for multiple testing is necessary may refer to this number of main effects.

3 | RESULTS

3.1 | Sample characteristics

Frequencies and percentages of individuals who provided information on their personality in 2005, 2009, 2013, and/ or 2017 and started working ($N = 3,577$) or retired ($N = 2,592$) between 2002 and 2018 are shown in Table 2. Means and standard deviations (SD) for the Big Five personality traits in 2005, 2009, 2013, and 2017 as well as across these waves are

presented in Table S6. Correlations of the Big Five personality traits are shown in Table S7.

There were 1,870 (52.28%) women and 1,707 (47.72%) men who started working. On average, they were 21.08 years old ($SD = 3.33$ years) in the year of this transition. Eight hundred and twenty-seven (23.12%) individuals were and 2,750 (76.88%) individuals were not employed full-time in the first year of working life.

Moreover, there were 1,137 (43.87%) women and 1,455 (56.13%) men who retired. On average, they were 62.76 years old ($SD = 3.84$ years) in the year of this transition. One thousand five hundred and thirty-five (59.22%) individuals were and 1,057 (40.78%) individuals were not employed full-time in the last year before retirement.

3.2 | Personality differences in the years around the start of working life

In people who started working, Conscientiousness, Extraversion, and Agreeableness differed around this transition (Table 3). In terms of Conscientiousness (Figure 1a), a positive short-term post-event effect ($b = 0.17$) indicated that Conscientiousness was higher in the first year of working life versus all other years.² That is, in people of average age and gender and with an average number of previous personality assessments, Conscientiousness was 0.17 SD higher in the first year of working life compared to all previous and subsequent years (over and above the other event-related effects).

In terms of Extraversion (Figure 1b), a negative anticipation effect ($b = -0.06$ per year) and a negative socialization effect ($b = -0.04$ per year) indicated that Extraversion tended to slightly decrease in the three years before and in the three years after the start of working life, respectively. At the same time, a positive short-term post-event effect ($b = 0.14$) and a positive long-term post-event effect ($b = 0.21$) indicated that Extraversion was higher in and especially after the first year of working life versus before.

In terms of Agreeableness (Figure 1c), a positive socialization effect ($b = 0.04$ per year) indicated that Agreeableness slightly increased in the three years after the start of working life. Taken together, individuals were more conscientious and more extraverted after versus before the start of working life and also became slightly more agreeable after this transition. There was no evidence that openness and Emotional Stability differed around the start of working life.

Furthermore, we repeated our models and included random effects for the event-related predictors. These models revealed highly similar results and none of the fixed effects reported above changed (Table S8). That is, the same personality differences around the start of working life were found when taking individual differences in these effects into account. In addition,

the long-term post-event effect on Conscientiousness reached statistical significance in these models ($b = 0.15$), indicating that Conscientiousness was higher after the first year of working life versus all previous years.

3.2.1 | Interactions with gender, age, and employment status

In terms of gender, we found that the anticipation effect on Conscientiousness differed between women and men ($b = 0.09$, 99% CI = 0.01; 0.16, $p = .003$): Only in men ($b = 0.06$ per year, 99% CI = -0.02 ; 0.15, $p = .059$) but not women ($b = -0.01$ per year, 99% CI = -0.05 ; 0.05, $p = .835$), Conscientiousness tended to increase gradually in the three years before the start of working life. However, because these effects were neither significant in women nor in men (in gender-specific analyses), we do not discuss them further. There was no evidence that the effects on any other Big Five personality trait around the start of working life differed between women and men.

None of the event-related predictors interacted with age or employment status. That is, there was no evidence that any personality changes around the start of working life differed between younger and older individuals (continuous information on age in years was used in the analyses) or between people who were and were not employed full-time in the first year of working life.

3.3 | Personality differences in the years around the start of retirement

In people who retired, only Conscientiousness but no other Big Five personality traits differed in the years around this transition (Table 4). More specifically, a negative short-term post-event effect ($b = -0.16$) and a negative long-term post-event effect ($b = -0.17$) indicated that Conscientiousness was lower in and after the first year of retirement versus before (Figure 2).

Including random effects for the event-related predictors revealed highly similar results and our fixed effects remained unchanged (Table S9). In other words, the same personality differences around the start of retirement were found when taking individual differences in these effects into account.

3.3.1 | Interactions with gender, age, and employment status

None of the event-related predictors interacted with gender, age, or employment status. That is, there was no evidence that any personality changes around the start of retirement differed between women and men, between

TABLE 2 Frequencies and percentages of individuals who provided information on their personality in 2005, 2009, 2013, and/ or 2017 and started working or retired between 2002 and 2018

	Personality assessment in								Number of assessments	
	2005		2009		2013		2017		<i>M</i>	<i>SD</i>
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%		
<i>Individuals who started working</i>										
Total sample (<i>N</i> = 3,577)	1,440	40.26	1,599	44.70	1,411	39.45	1,936	54.12	1.79	1.00
Started working in 2002 (<i>N</i> = 200)	198	99.00	119	59.50	77	38.50	52	26.00	2.23	1.22
Started working in 2003 (<i>N</i> = 196)	192	97.96	122	62.24	72	36.73	48	24.49	2.21	1.17
Started working in 2004 (<i>N</i> = 207)	204	98.55	124	59.90	60	28.99	32	15.46	2.03	1.08
Started working in 2005 (<i>N</i> = 236)	236	100.00	132	55.93	77	32.63	46	19.49	2.08	1.14
Started working in 2006 (<i>N</i> = 212)	185	87.26	155	73.11	79	37.26	44	20.75	2.18	1.04
Started working in 2007 (<i>N</i> = 186)	129	69.35	161	86.56	86	46.24	56	30.11	2.32	1.08
Started working in 2008 (<i>N</i> = 179)	84	46.93	167	93.30	78	43.58	55	30.73	2.15	1.03
Started working in 2009 (<i>N</i> = 251)	81	32.27	250	99.60	110	43.82	66	26.29	2.02	1.01
Started working in 2010 (<i>N</i> = 171)	45	26.32	127	74.27	93	54.39	75	43.86	1.99	1.04
Started working in 2011 (<i>N</i> = 150)	30	20.00	80	53.33	97	64.67	81	54.00	1.92	1.00
Started working in 2012 (<i>N</i> = 172)	21	12.21	48	27.91	129	75.00	115	66.86	1.82	0.85
Started working in 2013 (<i>N</i> = 213)	11	5.16	31	14.55	170	79.81	134	62.91	1.62	0.77
Started working in 2014 (<i>N</i> = 223)	11	4.93	25	11.21	120	53.81	173	77.58	1.48	0.73
Started working in 2015 (<i>N</i> = 224)	8	3.57	24	10.71	66	29.46	211	94.20	1.38	0.75
Started working in 2016 (<i>N</i> = 265)	3	1.13	16	6.04	46	17.36	259	97.74	1.22	0.56
Started working in 2017 (<i>N</i> = 311)	2	0.64	8	2.57	29	9.32	311	100.00	1.13	0.42
Started working in 2018 (<i>N</i> = 181)	0	0.00	10	5.52	22	12.15	178	98.34	1.16	0.47
<i>Individuals who retired</i>										
Total sample (<i>N</i> = 2,592)	1,982	76.47	2,008	77.47	2,011	77.58	1,801	69.48	3.01	1.10
Retired in 2002 (<i>N</i> = 145)	142	97.93	114	78.62	77	53.10	52	35.86	2.66	1.16
Retired in 2003 (<i>N</i> = 156)	155	99.36	125	80.13	90	57.69	74	47.44	2.85	1.21
Retired in 2004 (<i>N</i> = 148)	147	99.32	122	82.43	90	60.81	69	46.62	2.89	1.17
Retired in 2005 (<i>N</i> = 173)	173	100.00	143	82.66	108	62.43	80	46.24	2.91	1.15
Retired in 2006 (<i>N</i> = 154)	154	100.00	132	85.71	106	68.83	80	51.95	3.06	1.11
Retired in 2007 (<i>N</i> = 153)	129	84.31	136	88.89	107	69.93	89	58.17	3.01	1.11
Retired in 2008 (<i>N</i> = 128)	104	81.25	120	93.75	89	69.53	71	55.47	3.00	1.11
Retired in 2009 (<i>N</i> = 144)	121	84.03	144	100.00	106	73.61	80	55.56	3.13	0.91
Retired in 2010 (<i>N</i> = 148)	121	81.76	147	99.32	111	75.00	88	59.46	3.16	1.04
Retired in 2011 (<i>N</i> = 132)	114	86.36	126	95.45	115	87.12	93	70.45	3.39	0.77
Retired in 2012 (<i>N</i> = 124)	74	59.68	91	73.39	117	94.35	104	83.87	3.11	0.98
Retired in 2013 (<i>N</i> = 181)	103	56.91	116	64.09	181	100.00	149	82.32	3.03	1.01
Retired in 2014 (<i>N</i> = 144)	87	60.42	96	66.67	134	93.06	130	90.28	3.10	1.10
Retired in 2015 (<i>N</i> = 185)	96	51.89	112	60.54	171	92.43	175	94.59	2.99	1.08
Retired in 2016 (<i>N</i> = 161)	90	55.90	100	62.11	147	91.30	151	93.79	3.03	1.09
Retired in 2017 (<i>N</i> = 159)	90	56.60	98	61.64	142	89.31	159	100.00	3.08	1.11
Retired in 2018 (<i>N</i> = 157)	82	52.23	86	54.78	120	76.43	157	100.00	2.83	1.28

Abbreviations: *M*, Mean; *SD*, Standard Deviation.

TABLE 3 Personality differences around the start of working life ($N = 3,577$)

Fixed effects	Openness			Conscientiousness			Extraversion			Agreeableness			Emotional Stability		
	<i>b</i>	99% CI	<i>p</i>	<i>b</i>	99% CI	<i>p</i>	<i>b</i>	99% CI	<i>p</i>	<i>b</i>	99% CI	<i>p</i>	<i>b</i>	99% CI	<i>p</i>
Intercept	0.07	-0.05 0.19	0.130	-0.05	-0.17 0.07	0.306	-0.13	-0.25 -0.01	0.005	0.02	-0.10 0.15	0.669	-0.04	-0.16 0.08	0.405
Gender	-0.17	-0.25 -0.09	<0.001	-0.29	-0.37 -0.22	<0.001	-0.15	-0.23 -0.08	<0.001	-0.18	-0.26 -0.11	<0.001	0.57	0.50 0.65	<0.001
Linear age	0.17	0.03 0.30	0.001	0.34	0.21 0.47	<0.001	-0.13	-0.26 0.00	0.011	-0.01	-0.15 0.12	0.804	0.01	-0.11 0.14	0.786
Quadratic age	-0.03	-0.19 0.13	0.640	-0.25	-0.41 -0.09	<0.001	-0.04	-0.19 0.11	0.531	0.08	-0.09 0.24	0.247	0.07	-0.09 0.24	0.258
Cubic age	0.03	-0.09 0.15	0.517	0.02	-0.10 0.14	0.673	0.03	-0.09 0.14	0.563	-0.05	-0.17 0.08	0.352	-0.03	-0.16 0.09	0.521
Testing	-0.09	-0.15 -0.03	<0.001	-0.02	-0.08 0.04	0.396	-0.01	-0.06 0.05	0.822	0.00	-0.06 0.06	0.968	0.04	-0.02 0.10	0.075
Anticipation	0.00	-0.05 0.06	0.865	0.03	-0.03 0.09	0.207	-0.06	-0.11 0.00	0.008	0.00	-0.06 0.06	0.975	0.00	-0.06 0.06	0.878
Socialization	-0.01	-0.04 0.03	0.567	0.00	-0.04 0.03	0.907	-0.04	-0.07 0.00	0.003	0.04	0.01 0.08	0.002	-0.01	-0.05 0.03	0.449
Short-term post-event	-0.06	-0.18 0.06	0.169	0.17	0.05 0.28	<0.001	0.14	0.03 0.26	0.001	-0.01	-0.13 0.12	0.867	0.04	-0.07 0.16	0.336
Long-term post-event	-0.08	-0.22 0.06	0.131	0.13	-0.01 0.27	0.015	0.21	0.07 0.35	<0.001	-0.10	-0.24 0.04	0.077	0.04	-0.10 0.17	0.498
Random effects	Var.	99% CI		Var.	99% CI		Var.	99% CI		Var.	99% CI		Var.	99% CI	
Variance of intercept	0.54	0.49 0.60		0.50	0.45 0.56		0.58	0.53 0.64		0.46	0.41 0.51		0.42	0.37 0.47	
Residual variance	0.45	0.42 0.48		0.45	0.42 0.48		0.39	0.37 0.42		0.53	0.49 0.57		0.50	0.47 0.53	

Abbreviations: *b*, coefficient from multilevel mixed-effect models; CI, confidence interval; *p*, *p* value; Var., variance.

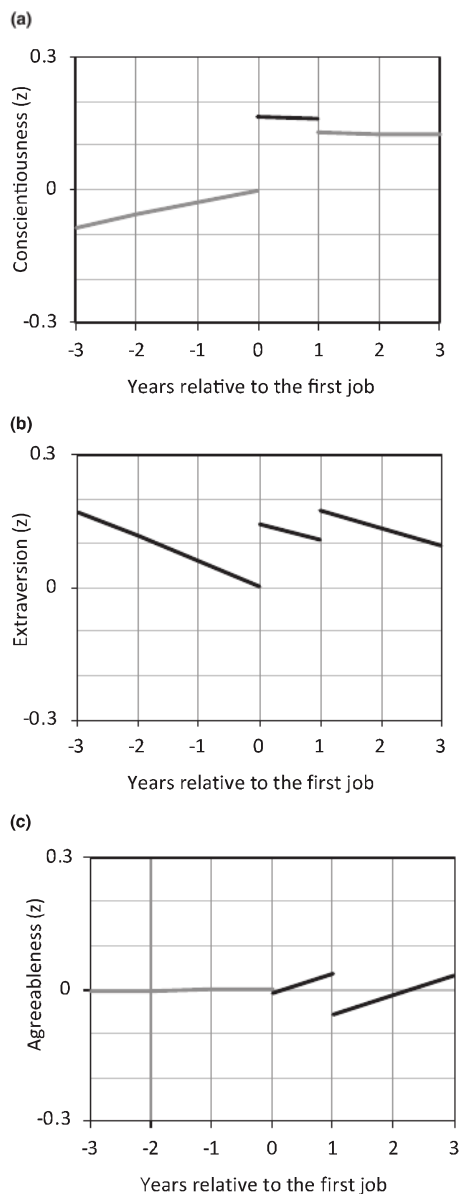


FIGURE 1 Differences in (a) Conscientiousness, (b) Extraversion, and (c) Agreeableness around the start of working life. The first line indicates personality differences in the three years before the start of working life. It is based on the anticipation effect multiplied by the number of years before this transition. The second line indicates personality differences in the first year of working life. It is based on the sum of the short-term post-event effect and the socialization effect multiplied by the number of years after the start of working life. The third line indicates personality differences after the first year of working life. It is based on the sum of the long-term post-event effect and the socialization effect multiplied by the number of years after the start of working life. A black line indicates that any of the effects during the respective time frame reached statistical significance (first line: anticipation effect; second line: short-term post-event and/or socialization effect; third line: long-term post-event and/or socialization effect)

younger and older individuals, and between people who were and were not employed full-time in the last year before retirement.

4 | DISCUSSION

This study aimed to examine (a) whether the Big Five personality traits differ in the years around the beginning and ending of working life and (b) whether these differences vary by gender, age, and employment status. Our main results are threefold. First, the start of working life was followed by an increase in Conscientiousness, Extraversion, and Agreeableness. These findings support the idea that the first job might promote personality maturation in young adulthood (Roberts et al., 2005) and explain normative personality trait changes that typically unfold during this developmental period (Bleidorn et al., 2013; Bleidorn & Schwaba, 2017; Roberts & Mroczek, 2008; Roberts et al., 2006; Wortman et al., 2012). However, other than expected, Emotional Stability did not differ around the start of working life. That is, increases in Emotional Stability that are typically seen in young adulthood do not seem to be driven by this transition.

Second, the start of retirement was followed by a decrease in Conscientiousness but unrelated to changes in any other personality traits. These findings support the idea that the start of retirement might lessen behavioral expectations that are highly prevalent in occupational contexts (e.g., being reliable and diligent) and thus promote personality “relaxation”—a pattern also labeled “la dolce vita” effect (Marsh et al., 2013).

Third, there was little evidence that the effects on personality around the beginning and ending of working life varied by gender, age, or employment status. These findings suggest that mean-level personality changes in the years before, during, and after these transitions did not differ between women and men,³ between younger and older individuals, and between people who were and were not employed full-time in the first job of working life or last year before retirement.

4.1 | Personality differences around the start of working life

Examining personality differences around the start of working life revealed the following results: Conscientiousness was higher in the first year of working life (vs. all other years), Extraversion was higher in and after the first year of working life (vs. before), and Agreeableness tended to slightly increase in the three years after individuals had started their first job. These findings are consistent with previous evidence that people who graduated from school (Bleidorn, 2012), started vocational training, or started working (Denissen et al., 2019; Lüdtke et al., 2011; Specht et al., 2011) increased in Conscientiousness. Moreover, our results considerably extend this research because we studied personality differences around the start of working life in a particularly fine-grained resolution and distinguished between continuous and

TABLE 4 Personality differences around the start of retirement (N = 2,592)

Fixed effects	Openness			Conscientiousness			Extraversion			Agreeableness			Emotional Stability						
	b	99% CI	p	b	99% CI	p	b	99% CI	p	b	99% CI	p	b	99% CI	p				
Intercept	0.00	-0.09	0.09	0.11	0.02	0.19	0.001	0.01	-0.07	0.10	0.659	-0.01	-0.09	0.08	0.863	0.03	-0.05	0.11	0.348
Gender	-0.06	-0.15	0.03	0.068	-0.16	-0.24	<0.001	-0.24	-0.33	-0.15	<0.001	-0.39	-0.47	-0.31	<0.001	0.38	0.29	0.46	<0.001
Linear age	0.07	-0.04	0.18	0.086	0.08	-0.03	0.19	0.054	0.08	-0.02	0.19	0.046	0.03	-0.08	0.14	0.500	0.13	0.02	0.24
Quadratic age	-0.01	-0.05	0.04	0.736	-0.02	-0.07	0.02	0.191	0.00	-0.05	0.04	0.903	0.04	-0.01	0.09	0.026	-0.07	-0.11	<0.001
Cubic age	-0.04	-0.08	0.00	0.006	-0.03	-0.07	0.01	0.073	-0.05	-0.09	-0.02	<0.001	0.04	-0.01	0.08	0.029	-0.05	-0.08	0.003
Testing	-0.01	-0.04	0.03	0.632	-0.08	-0.12	-0.04	<0.001	-0.01	-0.05	0.03	0.416	-0.03	-0.07	0.01	0.042	0.03	0.00	0.07
Anticipation	0.00	-0.03	0.04	0.791	-0.01	-0.05	0.03	0.460	0.01	-0.03	0.04	0.703	-0.02	-0.06	0.02	0.224	-0.01	-0.05	0.03
Socialization	0.01	-0.03	0.04	0.638	-0.01	-0.04	0.03	0.591	-0.01	-0.04	0.02	0.439	0.01	-0.02	0.05	0.362	-0.01	-0.05	0.02
Short-term post-event	-0.03	-0.13	0.07	0.430	-0.16	-0.26	-0.05	<0.001	-0.03	-0.13	0.07	0.451	-0.02	-0.13	0.08	0.577	0.00	-0.10	0.10
Long-term post-event	0.00	-0.12	0.12	0.981	-0.17	-0.29	-0.05	<0.001	-0.03	-0.14	0.09	0.576	-0.05	-0.17	0.07	0.299	-0.02	-0.14	0.09
Random effects	Var.	99% CI	Var.	99% CI	Var.	99% CI	Var.	99% CI	Var.	99% CI	Var.	99% CI	Var.	99% CI	Var.	99% CI	Var.	99% CI	Var.
Variance of intercept	0.58	0.53	0.64	0.49	0.44	0.54	0.60	0.55	0.66	0.47	0.42	0.52	0.42	0.52	0.54	0.49	0.59	0.59	0.59
Residual variance	0.43	0.41	0.45	0.49	0.46	0.51	0.40	0.38	0.42	0.50	0.47	0.52	0.47	0.52	0.42	0.40	0.44	0.44	0.44

Abbreviations: b, coefficient from multilevel mixed-effect models; CI, confidence interval; p, p value; Var., variance.

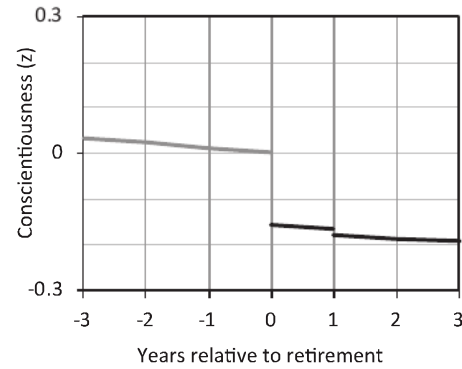


FIGURE 2 Differences in Conscientiousness in the years around the start of retirement. The first line indicates personality differences in the three years before the start of retirement. It is based on the anticipation effect multiplied by the number of years before this transition. The second line indicates personality differences in the first year of retirement. It is based on the sum of the short-term post-event effect and the socialization effect multiplied by the number of years after the start of retirement. The third line indicates personality differences after the first year of retirement. It is based on the sum of the long-term post-event effect and the socialization effect multiplied by the number of years after the start of retirement. The second and third line are drawn in black because the short- and long-term post-event effect reached statistical significance

discontinuous short- and long-term effects in the years before, during, and after this transition.

There was little evidence that personality changed before the start of working life: We found no anticipation effects, except that Extraversion tended to slightly decrease in the three years before individuals started their first job. During this time frame, people typically graduate from school or university, prepare for their final exams, and start to apply for jobs. Due to such constraints, they might have fewer resources to go out and socialize with others, which could lead to lower Extraversion.

Instead, our findings support the idea that personality maturation takes place after the start of working life and that some of these changes unfold gradually, whereas others occur suddenly and are either transient or lasting. Occupational contexts typically require being reliable and diligent, proactive and assertive, as well as friendly and professional. In line with the Social Investment Principle (Roberts & Wood, 2006), such behavioral expectations might force new employees to be more conscientious, extraverted, and agreeable and thus promote personality maturation (Lodi-Smith & Roberts, 2007). Though, the effects on Conscientiousness, Extraversion, and Agreeableness in our study were small (i.e., the effect size ranged from $b = 0.14$ to $b = 0.21$ for the short- and long-term post-event effects on Conscientiousness and Extraversion and was $b = 0.04$ per year for the socialization effect on Agreeableness).

Interestingly, Conscientiousness was primarily higher in but less so after the first year of working life versus before.⁴

Based on these results, one could speculate whether new employees tend to be particularly motivated to do a good job in the first months of working life. With accumulating job experience, however, they might become more “relaxed” and somewhat bounce back toward their “set-point” of Conscientiousness in the long run (Diener et al., 2009; Lucas, 2007).

Moreover, we did not find that Emotional Stability changed around the start of working life. This result is inconsistent with our hypotheses put forward by the Social Investment Principle (Roberts & Wood, 2006) and with previous evidence that Emotional Stability tends to increase in young adulthood (Bleidorn & Schwaba, 2017).

4.2 | Personality differences around the start of retirement

Our study further revealed that Conscientiousness was lower in and after the first year of retirement. This is consistent with some previous evidence (Löckenhoff et al., 2009; Specht et al., 2011) and considerably adds to the existing literature because we modeled nuanced personality differences in the years before, during, and after the start of retirement. Specifically, we found no anticipation effects, which speaks against the idea that retirees-to-be might become less conscientious because they disengage from work and prepare for their third part of life. Instead, we found that Conscientiousness decreased immediately after the start of retirement and continued to be lower in the following years. These results speak in favor of the idea of the “la dolce vita” effect (Marsh et al., 2013): Retirees might tend to become more “relaxed” in reaction to diminished social expectations after the end of working life. Though, these effects were relatively small (i.e., the effect size was $b = 0.16$ for the short-term and $b = 0.17$ for the long-term post-event effect on Conscientiousness).

Interestingly, the start of retirement was unrelated to any other personality differences. Based on these findings, one could speculate whether people differ in how they cope with the costs and benefits of retirement (Bleidorn et al., 2018; Schwaba & Bleidorn, 2019). Paradoxical Theory of Personality Coherence (Caspi & Moffitt, 1993) posits that personality changes might be likely, in particular, in contexts that (a) create a strong press to behave in a specific way and (b) clearly inform how to behave appropriately. In our study, only the start of working life but not retirement was associated with personality changes beyond Conscientiousness, which supports this idea: Oftentimes, the start of working life but not retirement comes along with clear behavioral expectations. This might explain why only Conscientiousness but no other personality traits differed after versus before the start of retirement.

4.3 | The role of gender, age, and employment status

There was little evidence that personality differences around the start of working life or retirement varied by gender, age, or employment status. Thus, our moderator hypotheses with respect to gender, age, and employment status were not confirmed. These findings suggest that sociodemographic factors (i.e., gender and age) and objective job characteristics (i.e., employment status) play only a minor role for personality development around the start of working life and retirement. Based on these results, one could speculate whether subjective perceptions and evaluations of the first job and retirement are more important for personality changes around the respective transition (Luhmann et al., 2020; Schwaba & Bleidorn, 2019). For example, some people might see (early) retirement as an opportunity to escape from work and enjoy their third part of life, whereas others might be forced into (early) retirement due to serious health impairments. In this case, motivational and contextual factors might have a larger impact on personality development than age. Because such motivational factors were not assessed in the SOEP additional studies are needed to test this assumption in greater detail.

4.4 | Strengths and limitations

We used data from the SOEP, a large and socio-demographically diverse household panel study from Germany with ongoing assessments. Participants were yearly asked about their employment status and personality was measured repeatedly. This allowed us modeling nuanced personality differences in the years around the start of working life and retirement, including the role of gender, age, and employment status.

However, our study is not without limitations: First, the Big Five personality traits in the SOEP were only assessed with a short scale (BFI-S). The psychometric properties of the BFI-S have been shown to be acceptable (Gerlitz & Schupp, 2005; Hahn et al., 2012; Lang, 2005). Nonetheless, the BFI-S is less reliable compared to other, more comprehensive measures.

Second, the Big Five personality traits were only assessed in 2005, 2009, 2013, and 2017. Moreover, the SOEP was regularly replenished with refreshment cohorts, so that some participants entered the panel after 2005 and did not provide full information on their personality in 2005, 2009, 2013, and 2017. In order to deal with this missingness and to be able to model nuanced personality changes around the start of working life and retirement based on these data, we combined within- and between-person information. That is, we considered individuals who experienced the respective transition

between 2002 and 2018. For each individual, we coded the year in which they experienced the transition relative to the year(s) in which they provided information on their personality. Afterward, we combined the within-person information from all these people (who reported on their personality in 2005, 2009, 2013, and/or 2017 and started working or retired in different years). This modeling strategy provided us with fine-grained information on personality in different years before, during, and after the respective transition. Nonetheless, additional studies are needed to replicate our results based on pure within-person information.

Third, our findings come from a nationally representative sample from Germany and might not be generalizable to other populations outside of Germany. For example, in countries with poorer social safety nets (e.g., no statutory pension) and more traditional gender roles, personality changes around the start of working life and retirement might be more pronounced and differ more strongly between women and men.

4.5 | Conclusions

Our findings suggest that the start of working life might drive personality maturation in young adulthood, whereas the start of retirement might drive personality “relaxation” in old age: Young adults increased in Conscientiousness, Extraversion, and Agreeableness after they had started their first job, whereas older adults decreased in Conscientiousness after they had retired. All of these changes occurred after the respective transition, which supports the idea that changes in social roles and role demands might be a major source of personality development: Occupational contexts typically come along with clear behavioral expectations. Therefore, people who enter working life might become more “mature,” whereas people who leave working life might become more “relaxed.”

Prospective longitudinal studies with fine-grained personality assessments before, during, and after the start of working life and retirement are needed to replicate our findings based on pure within-person trajectories. Moreover, observational studies are necessary to examine how specific social roles and role demands change when people enter and leave working life. Future research might also test how such changes in social roles (a) relate to changes in momentary thoughts, feelings, and behaviors (at work and outside work) and (b) translate into transient and enduring personality trait changes over time.

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CONFLICT OF INTEREST

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

ETHICAL STATEMENT

The current study only involved secondary analyses of anonymized data of the German Socio-Economic Panel Study (SOEP). Thus, obtaining ethical approval for the current study was not necessary. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2013.

AUTHOR CONTRIBUTIONS

All authors contributed to the conception of the current work. Eva Asselmann wrote the manuscript draft and conducted the statistical analyses. Jule Specht provided critical feedback to the initial and revised version of the manuscript.

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ENDNOTES

- ¹ In line with previous publications (Asselmann & Specht, 2020a, 2020b, 2020c; Denissen et al., 2019), we only modeled linear testing effects. More complex non-linear (e.g., quadratic and cubic) testing effects are theoretically also possible but were not included to not overstrain our models.
- ² In the results section, we report regression coefficients without confidence intervals and *p* values for effects that are additionally reported in a table. We report regression coefficients with confidence intervals and *p* values for effects that are not included in a table.
- ³ In people who started working, the anticipation effects on conscientiousness varied by gender. However, because the anticipation effect on conscientiousness was neither significant in women nor in men we do not discuss this finding further.
- ⁴ Only in our models that additionally included random effects for the event-related predictors, the long-term post-event effect on conscientiousness was also significant.

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SUPPORTING INFORMATION

Additional Supporting Information may be found online in the Supporting Information section.

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