



Self-Esteem Change During Career Entry

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Abstract

Self-esteem is linked to several positive outcomes. Thus, it is important to improve our understanding of how self-esteem develops and why people exhibit different self-esteem trajectories. Important events pertaining to self-esteem are life transitions, such as starting a career in young adulthood. Drawing on data from nearly 2000 participants in the Panel Analysis of Intimate Relationships and Family Dynamics (pairfam), we used latent growth curve models to examine the extent to which career entry influences self-esteem trajectories in young adulthood, particularly with respect to success at career entry and social investments in the individual's career. In line with the notion of mastering developmental tasks, self-esteem decreased prior to career entry but increased thereafter; however, this pattern was observed only among individuals who entered the workforce at an average or late age. For early entrants, self-esteem remained stable. However, successful career entry enhanced the self-esteem trajectories of young and average-aged career entrants; namely, they exhibited greater increases in self-esteem after career entry if they were satisfied with their jobs, if their jobs paid well, and if those jobs were well respected. Social investments in one's career had no effect on self-esteem trajectories. All of the final analyses controlled for education, job status, and gender. Overall, the results of this research indicate that self-esteem increases alongside (successful) career entry.

Keywords Self-esteem change · Early adulthood · Career entry · Success at career entry · Social investment in work

Introduction

Self-esteem influences success and well-being in various important life domains. For example, high levels of self-esteem are associated with satisfaction in marriage and close relationships, physical and mental health, educational and academic success, success and satisfaction at work, and reduced criminal and anti-social behavior (Orth & Robins, 2014, 2022). Self-esteem refers to a “positive or negative attitude toward [...] the self” (Rosenberg, 1965, p. 30). It does not reflect a person's talents or abilities objectively (Orth & Robins, 2014) but rather indicates whether they feel “good enough” (Rosenberg, 1965, p. 31) and valuable.

Self-esteem therefore involves “an individual's subjective evaluation of her or his worth as a person” (Donnellan et al., 2011, p. 718) and is relevant to various life outcomes.

Self-esteem is dynamic and changes throughout life (James, 1890; Orth & Robins, 2014). Particularly in young adulthood, self-esteem can change dramatically because of the many opportunities, challenges, and changes that individuals encounter during this period of life (Arnett, 2000). Whereas the mean-level change trajectories of self-esteem have been well researched, our understanding of the reasons for and the conditions under which self-esteem changes occur remains limited. Further research is needed to explore individual differences in the changes in self-esteem that occur during young adulthood (Reitz, 2022; Reitz et al., 2020).

Life transitions have been identified as a key driver of self-esteem changes; that is, self-esteem remains relatively stable as long as no major life transitions occur (Reitz et al., 2020). Career entry is a crucial transition and turning point in young adulthood. It is related to many opportunities and changes that are relevant to the self. However, research on the changes in self-esteem that occur during career entry is

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limited. To our knowledge, two studies (Filosa et al., 2022; Reitz et al., 2020) are especially relevant to our research question: Reitz et al. (2020) investigated self-esteem changes during the transition from university to working life. Self-esteem increased during the study period, but that was only the case with participants who worked full-time at the second measurement point. Filosa et al. (2022) examined self-esteem trajectories over 14 years, considering the impact of career entry. Self-esteem increased over the entire study period, with greater increases before than after career entry—although the differences were not statistically significant.

However, career entry may not have a universal effect on self-esteem trajectories. Whether starting a career influences self-esteem positively or negatively may depend on whether the process was successful. In that sense, self-esteem could be an indicator of having successfully mastered the developmental task of starting a career (Havighurst, 1966; Reitz et al., 2020). In addition, the influence of career entry on self-esteem may depend on the extent to which career entrants invest in their new job. According to the social investment principle (Roberts et al., 2005), new social roles impact behavior (and thus personality in the long run) only if individuals invest in these roles.

The present study builds on the work of Filosa et al. (2022) and Reitz et al. (2020). Investigating the effects on self-esteem of entering a career is highly relevant because self-esteem subsequently has positive effects on various aspects of individuals' professional lives, including their job satisfaction, success, and work resources (Orth & Robins, 2022). Given the scarcity of literature on self-esteem trajectories during career entry, we first review existing research on self-esteem development in general.

Self-Esteem Change in Young Adulthood

Self-esteem is a dynamic construct that, like other personality traits, is moderately stable over time and across different contexts (Baldwin & Hoffmann, 2002; Rentzsch et al., 2016; Trzesniewski et al., 2003). It changes throughout individuals' entire lifespan and follows a quadratic trajectory. Empirical studies have revealed a relatively high level of self-esteem in childhood, which decreases during adolescence before increasing once again in young and middle adulthood. Self-esteem peaks at approximately the age of 60 years before then decreasing in old age (Orth & Robins, 2014; Orth et al., 2010, 2015; Robins & Trzesniewski, 2005). From a personality psychology perspective, the self-esteem increase in young adulthood may be explained by an investment in new social roles (Roberts et al., 2005), whereas from a developmental psychology perspective, it may be explained in light of the successful mastery of normative developmental tasks in young adulthood (Havighurst, 1966).

Social Investment Principle

The social investment principle (Roberts et al., 2005) is an approach rooted in personality psychology that explains the changes in self-esteem that occur during young adulthood. According to that theory, investing in age-specific social roles is a major driver of personality change. Social roles entail forms of behavior that are expected and appropriate. Appropriate behavior is rewarded, whereas inappropriate behavior is punished (Roberts et al., 2005). To meet the social expectations associated with a new role and exhibit appropriate behavior, people must change their behaviors. These new behaviors initially affect people's specific role identities before being internalized and transferred to other areas. In this way, new social roles and the corresponding expectations influence people's behaviors and personalities in the long term (Roberts & Wood, 2006).

Young adulthood introduces important new roles, such as becoming an employee or professional through the transition into the workforce (Hutteman et al., 2014). People invest heavily in these roles and, as a consequence, develop mature personality traits, such as emotional stability, conscientiousness, and agreeableness (Roberts & Wood, 2006).

The social investment principle suggests that investment in one's role is essential with respect to personality change. The questions of whether people work, are married, and so on are not essential; rather, *how* they engage in these activities is the crucial factor. Such differences in engagement in universal social roles lead to individual differences in personality change (Lodi-Smith & Roberts, 2007; Roberts et al., 2005).

Hudson and Roberts (2016) investigated associations between social investment in work and the Big 5 personality traits over a three-year period. Social investment in work was measured by job involvement, job investment, and counterproductive workplace behavior. They identified associations between social investment in work and all Big 5 personality traits with the exception of openness. Furthermore, changes in social investment at work were related to changes in conscientiousness and agreeableness.

The social investment principle may also affect people's self-esteem because many of the mature personality traits included in this approach are also positively related to self-esteem. For example, Robins et al. (2001) investigated the correlations between the Big 5 personality traits and self-esteem. Overall, 34% of the variance in self-esteem could be attributed to the Big 5 personality traits. Individuals who exhibited high levels of self-esteem were more emotionally stable ($r = .50$), extraverted ($r = .38$), conscientious ($r = .24$), open to experiences ($r = .17$), and agreeable ($r = .13$).

In summary, the social investment principle posits that engagement in new social roles and the corresponding

behavioral expectations support mature personality development and should thus also increase people's self-esteem. Another approach to self-esteem changes in young adulthood is rooted in developmental psychology and based on developmental tasks (Havighurst, 1966).

Developmental Tasks

Developmental tasks are tasks that arise during certain stages of life. Successful mastery of these tasks can lead to happiness and success in the face of future tasks. Failure to accomplish a developmental task can result in unhappiness, societal disapproval, and difficulties with future tasks. Therefore, developmental tasks are particularly important topics for specific age groups and are essential with regard to individual development (Havighurst, 1966; Pinquart, 2019).

Societal expectations determine when individuals should pursue and achieve specific developmental tasks. People typically compare their own development to societal norms. If the individual's development matches the expected development, the individual can receive social support and reinforcement, whereas sanctions such as disapproval are implemented in cases of mismatch (Freund & Nikitin, 2018; Neugarten, 1972). Overall, societal expectations encourage individuals to complete certain developmental tasks at specific ages, such as starting a career during young adulthood. Successful mastery of developmental tasks at the intended time determines individuals' developmental success and ensures satisfaction and social rewards.

Self-esteem is an indicator of developmental success and is influenced by the successful mastery of developmental tasks (Reitz et al., 2020). Entering the workforce represents an important developmental task, and successful mastery therefore can influence a person's self-esteem. Moreover, work creates new and important roles in the lives of young adults, and career entry is accompanied by new demands and expectations. Thus, the transition into employment constitutes a critical turning point in young adulthood that can shape self-esteem. But how exactly could this be the case?

Self-Esteem Changes During Career Entry

Starting a career is a major task during young adulthood. This task is crucial, as it determines individuals' social status, allows them to obtain financial independence, and influences their self-perceptions. An adult's identity is strongly formed through work. In addition, work provides individuals with a regular daily routine, and the income it offers enables them to participate in the adult world (Faltermaier et al., 2014). Therefore, starting a career is highly relevant for self-esteem trajectories.

Wagner et al. (2013) investigated self-esteem during the transition from school to adult life over a six-year period.

Self-esteem showed a quadratic trajectory; i.e., it increased throughout the study period at an accelerating rate. That study examined specific life events, such as living with one's parents, relationship status, and educational path; however, it did not examine career entry specifically.

Filosa et al. (2022) directly investigated the impact of career entry on self-esteem changes among 368 adolescents who were interviewed multiple times over a 14-year period. Piecewise growth curve models revealed that self-esteem increased throughout the study period; however, this increase was slightly stronger before career entry than after career entry. However, the two slopes differed only slightly, and the model featuring equal slopes exhibited a better fit with the data.

All in all, initial research findings suggest that entering the workforce influences self-esteem. However, the timing of career entry has not been considered even though it may be decisive with respect to self-esteem trajectories, as social expectations shape the appropriate age of career entry. Entering the labor market at an early or late age may have a stronger influence on self-esteem than entering at an average age, as off-time events may have more influence on people's personalities (Luhmann et al., 2014; Neugarten, 1976). However, circumstances may differ between early and late career entrants: individuals who start their careers late often have higher levels of education and can thus enter more prestigious jobs than can people who enter the labor market at a very early age. Furthermore, early career entrants may have financial reasons for doing so, such as the need to earn a living, whereas late career entrants may face societal disapproval for not making their own money for a long time. These different motives of early and late career entrants may differentially influence self-esteem trajectories: The prestige-driven motives of late entrants may boost self-esteem more strongly than the often necessity-driven motives of early entrants. Thus, the present study not only examines changes in self-esteem during career entry but also considers how the timing of this transition—whether early, average, or late—may differentially affect individuals' self-esteem.

Young adults differ not only in terms of when they enter a job but also in terms of how successfully they master this important developmental task. Self-esteem reflects successful mastery: If individuals enter their careers successfully, their self-esteem should increase; otherwise, it should decrease. Various indicators can be used to assess success at career entry. Objective measures include, for example, salary; subjective measures include, for example, job satisfaction or perceived job characteristics such as occupational prestige. Some jobs may be more satisfying than others (Limmer & Schütz, 2021). As self-esteem is a subjective construct, our analyses place particular emphasis on these subjective indicators of success at career entry.

We are not aware of any studies that have explicitly analyzed the influence of *successful* career entry on changes in self-esteem. We aim to bridge this research gap by conducting the present study. Reitz et al. (2022) examined the reciprocal effects between self-esteem and transitions between unemployment and employment and revealed that job satisfaction had a moderating effect on changes in self-esteem: the self-esteem of people with satisfying jobs increased when they started such a job but decreased slightly thereafter, yet it did not return to the initial level. For individuals with less satisfying jobs, this increase in self-esteem was less pronounced. In addition, Krauss and Orth (2022) conducted a meta-analysis on the longitudinal relationships between self-esteem and indicators of job success, such as different work experiences, including job satisfaction, job success (e.g., performance, occupational prestige, or supervisor positions), income, job resources, job stressors, and employment status. This study revealed reciprocal effects between work experiences and self-esteem, with the effects of self-esteem on work experience being slightly larger than the effects of work experience on self-esteem. However, neither study considered the association between self-esteem change and success at career entry, even though career entry is an important turning point in young adulthood.

Successfully mastering the developmental task of career entry is not the only potential explanation of individual differences in self-esteem trajectories. Starting a career is linked to several expectations regarding young adults' behavior and actions. Job entrants who are more psychologically committed to their jobs invest more in their new social roles and are therefore more likely to fulfill the behavioral requirements of their jobs (Roberts et al., 2005). The new behavior they exhibit during this process is then internalized and subsequently transferred to other life domains. This process, in turn, should lead to the development of higher self-esteem. However, people vary in terms of their level of commitment to their jobs. Therefore, according to the social investment principle, we should observe different self-esteem trajectories at career entry depending on participants' social investment in work (Roberts et al., 2005). To test these theoretical assumptions, the present study analyses the effect of investment in work on self-esteem trajectories at career entry.

Reitz et al. (2020) examined changes in self-esteem during the transition from university to work by reference to 163 students who had almost finished their master's degrees. Self-esteem was measured before and after graduation. Half of the participants were working full-time at the second measurement point, whereas the other half were not (i.e., these participants worked part-time jobs or internships or were unemployed). The study considered 14 diary entries through which these participants documented their daily achievement-related experiences, which could be

used as indicators of investment. However, the participants' experiences were rather broad and not directly related to work. Participants' self-esteem increased slightly during the study period, but this change was significant only for career entrants. Although the two groups did not differ significantly, the rank order stability exhibited by the group of nonjob entrants was higher than that exhibited by the job entrant group. This finding highlights self-esteem change during career entry and the diverse self-esteem trajectories that are observed during that phase. In addition, a significant positive correlation was observed between changes in achievement-related experiences and self-esteem among the job entrant group. The present study also examines whether *success* at career entry influences self-esteem trajectories. Moreover, this study focuses on more measurement points and a more heterogeneous sample, and it distinguishes among individuals with different ages at career entry.

The Present Study

Although starting a career represents a significant turning point in the lives of young adults, only a few empirical studies have addressed potentially associated changes in self-esteem (e.g., Filosa et al., 2022; Reitz et al., 2020; Wagner et al., 2013). Moreover, these studies have rarely considered role investment or the successful mastery of developmental tasks. Thus, little is known regarding the *conditions* under which self-esteem changes during career entry. The present study addresses this research gap by investigating the impact of successful career entry and investment in a new job on self-esteem change. Specifically, we propose four hypotheses:

H1 In young adulthood, many new social roles emerge and offer great potential for behavioral adjustments and thus for mature personality changes. Therefore, we expected self-esteem to increase throughout this period.

H2 We anticipated greater increases in self-esteem to occur after people enter a career than before they do so, as self-esteem is expected to respond to new social roles or the mastery of developmental tasks. Furthermore, we anticipated that people who start a career at an early or late age experience greater changes, as off-time events have particularly strong impacts on the development of personality and self-esteem (Luhmann et al., 2014; Neugarten, 1976). In addition, people who enter their careers later might have experienced social pressure to master this important developmental task at long last.

H3 Society expects young adults to successfully master the developmental task of career entry in young adulthood. Self-esteem is an indicator of developmental success. Thus, we expected individuals who have successfully entered their careers to experience greater increases in self-esteem than other individuals do. Additionally, we anticipated

associations between changes in success and changes in self-esteem.

H4 According to the social investment principle, it is not the mere emergence of new social roles that influences changes in self-esteem but rather the degree to which individuals invest in these roles. Greater investment in one's job increases the likelihood of adopting behaviors that are beneficial in that role, which in turn may lead to personality change. Therefore, we also anticipated greater increases in self-esteem among individuals who invest more in their jobs.

Methods

Design and Sample

We used data drawn from the Panel Analysis of Intimate Relationships and Family Dynamics (pairfam), release 13.0 (Brüderl et al., 2022; Huinik et al., 2011). This longitudinal study focuses on relationships and families while also collecting data on other life domains such as education, employment, health, or personality traits. We decided to use the pairfam data because, in addition to providing detailed information on employment, it also offers yearly information on self-esteem. Since its beginning in 2008, pairfam has surveyed three cohorts annually (1971–1973, 1981–1983, and 1991–1993). We focused on the youngest cohort, as these individuals entered the labor market during the study period. They were between the ages of 15 and 19 (on average, 17 years) during the first wave featuring usable self-esteem data.

As not all participants continued to participate in this research until the most recent study wave, it was impossible to determine which participants never entered the labor market and which participants dropped out of the study before career entry. Therefore, we excluded all participants who dropped out of the study and who did not report career entry from the analyses. The final sample thus included $N = 1994$ participants, of whom 50% were men. Participants who remained in the sample until the thirteenth wave were younger ($t(3553) = -2.65, p = .0082$) and more likely to be women ($X^2 = 7.63, p = .0057$) than those who dropped out of the study. However, these participants exhibited no differences with respect to self-esteem ($t(3509) = -1.06, p = .2909$) or satisfaction with school/apprenticeship/work ($t(2454.7) = 0.80, p = .4236$).

For the multigroup models, we divided the sample into three groups according to participants' age at career entry. This sorting resulted in the emergence of early, average, and late career entry groups, each of which included approximately one-third of the participants ($N_1 = 623, N_2 = 664, N_3 = 582$). These three groups differed systematically in terms of their levels of education and the occupations that

they pursued (years of education: $F(2, 1205.6) = 428.66, p < .001$; kldb¹: $X^2(16) = 149.18, p < .001$; ISEI²: $F(2, 1111.8) = 211.4, p < .001$). Early career entrants exhibited the lowest levels of education and were more likely to work in low-status occupations. Late career entrants exhibited the highest levels of education and tended to work in high-status occupations; average-aged career entrants were moderate in both respects. Early career entrants were mainly blue-collar workers, whereas average and late career entrants were mainly white-collar workers. Therefore, we controlled for years of education, the International Socio-Economic Index of Occupational Status (ISEI) associated with the participants' first jobs, and gender in all the final models consulted in this research.³

Measures

Career Entry We used the participants' current labor force status (education, vocational training, military, full-time work, part-time work, marginal employment, self-employment, unemployment, parental leave, homemaker, and retirement) in each wave to determine career entry. We coded the wave in which participants first indicated that they worked full-time, part-time or in self-employment as career entry. Marginal employment was not considered to indicate career entry.

Self-Esteem Pairfam measured self-esteem in 13 consecutive years via a simplified, short version of the Rosenberg self-esteem scale in German. This scale featured 3 items: (1) "Sometimes I believe that I'm worthless"; (2) "I like myself just the way I am"; and (3) "All in all, I am pleased with myself". Answers ranged from 1 (*not at all*) to 5 (*absolutely*). In wave 1, the participants responded to the self-esteem items during a personal interview, whereas beginning in wave 2, they did so through written or online interviews. The means and standard deviations of self-esteem differed significantly across these survey modes (Sonntag et al., 2014). Therefore, we excluded the first wave from our analyses. Reliability ranged from $\alpha = .75$ to $\alpha = .84$.

Successful Career Entry We selected indicators of successful career entry that, according to theoretical considerations, are likely to influence self-esteem. (1) *Satisfaction with work* is relevant for most adults in everyday life. It

¹ Kldb 2010: Klassifikation der Berufe 2010 (German classification of occupations).

² ISEI: International Socio-Economic Index of Occupational Status.

³ It would also be interesting to divide the groups according to participants' status or education at career entry. In fact, we tested this alternative approach and obtained very similar results. Ultimately, we chose to divide the groups according to age, as this division was well justified theoretically: developmental tasks must be mastered at a certain point in time, i.e., at a specific age.

determines whether people enjoy going to work, feel happy with their job, or would prefer to change their workplace. The participants rated their satisfaction from wave 1 to wave 13 on a scale ranging from 0 (*very dissatisfied*) to 10 (*very satisfied*). (2) *Good payment* is important for covering one's living expenses and participating in social life. Moreover, payment also influences professional status. As it is not the actual salary but the perceived level of income that is crucial for self-esteem, the analyses considered self-assessed income ("I am paid well for my job"). (3) An *accepted and respected occupation* also contributes to occupational status. It plays a key role in whether individuals feel proud of their job and are satisfied working in that profession. Therefore, the individual perception of whether an occupation is accepted and respected should also be relevant to self-esteem ("My occupation is accepted and respected"). The participants responded to these two items from waves 1 to 13 on a scale ranging from 1 (*disagree completely*) to 5 (*agree completely*).

Investment in Work We selected the indicators based on theory. According to the social investment principle (Roberts et al., 2005), new social roles (such as starting a career) can influence self-esteem. Only if individuals identify with the new social role will they adopt the corresponding behaviors (item 1: "Others see me as a career person"). In addition, adaptation is more likely if the new role is in line with one's own interests (item 2: "Most of my interests revolve around my job") and plays an important role in one's life (item 3: "Most of the important things that happen in my life are related to my job"). Additionally, it is only if individuals internalize the new behavior and transfer it to other areas of life that the new role can also influence their self-esteem. In the analyses, we combined the three items into a scale that exhibited a reliability value of $\alpha = .79$. The participants responded to these items in wave 12 on a scale ranging from 1 (*disagree completely*) to 5 (*agree completely*).

Analyses

First, we conducted a general confirmatory factor analysis (CFA) that included all self-esteem measurement points and freely estimated covariances between latent self-esteem constructs. This model serves as a foundation for latent growth curve models and is therefore useful with regard to testing basic assumptions such as indicator-specific method effects and measurement invariance. Self-esteem was measured via the same three items in all waves; thus, we first developed a model that featured indicator-specific factors (Eid, 2000) and compared it with a model that lacked such indicator-specific factors via a χ^2 test. The model that included the method factor fit the data significantly better than did the model without it.

We further tested for measurement invariance over time and across groups (e.g., Widaman & Reise, 1997). To obtain configural measurement invariance, the number of latent variables and the loading pattern must be identical over time or across groups—which was the case for our analyses. First, we established a model that featured metric measurement invariance and tested it against the baseline model via a χ^2 test. We then developed models that featured scalar and residual measurement invariance and tested it against the models that featured metric and scalar measurement invariance. Another method to assess measurement invariance is to compare the fit indices of the models. Measurement invariance is supported when changes in the comparative fit index (CFI) are less than .010, when changes in the root mean square error of approximation (RMSEA) are less than .015, and when changes in the standardized root mean squared residual (SRMR) are less than .030 for metric measurement invariance or less than .010 for scalar and residual measurement invariance (Chen, 2007).

Subsequently, we calculated several latent growth curve models (LGCMs). In the first step, we analyzed a 2nd-order linear LGCM that was used to capture changes in self-esteem from waves 2 to 13. We also calculated the multi-group version of this model separately for people with and without career entry during the period under observation as well as separately for people with early, average, and late career entry.

We then centered the time at career entry and calculated multigroup two-piece LGCMs (Flora, 2008). These models are LGCMs that feature two separate linear slopes—one slope that measured changes in self-esteem before career entry and one that measured changes in self-esteem after career entry—as well as an intercept that captured self-esteem at career entry. Once again, we formed the groups in terms of early, average, and late career entry.

Finally, we included different indicators for success at career entry and investment in the job with the aim of testing the influence of these factors on changes in self-esteem. We calculated separate models for each indicator. As recent research has suggested the existence of differences in self-esteem (trajectories) between men and women as well as education-related differences (e.g., Orth et al., 2010), we controlled for years of education, ISEI, and gender in all final models (i.e., in all the two-piece LGCMs). This approach also allowed us to address the issue that individuals with early, average, and late career entry differ in terms of their levels of education and occupational status. Figure 1 illustrates the final model. We performed all analyses with the assistance of R software (R Core Team, 2022). For analyzing the structural equation models, we used the lavaan

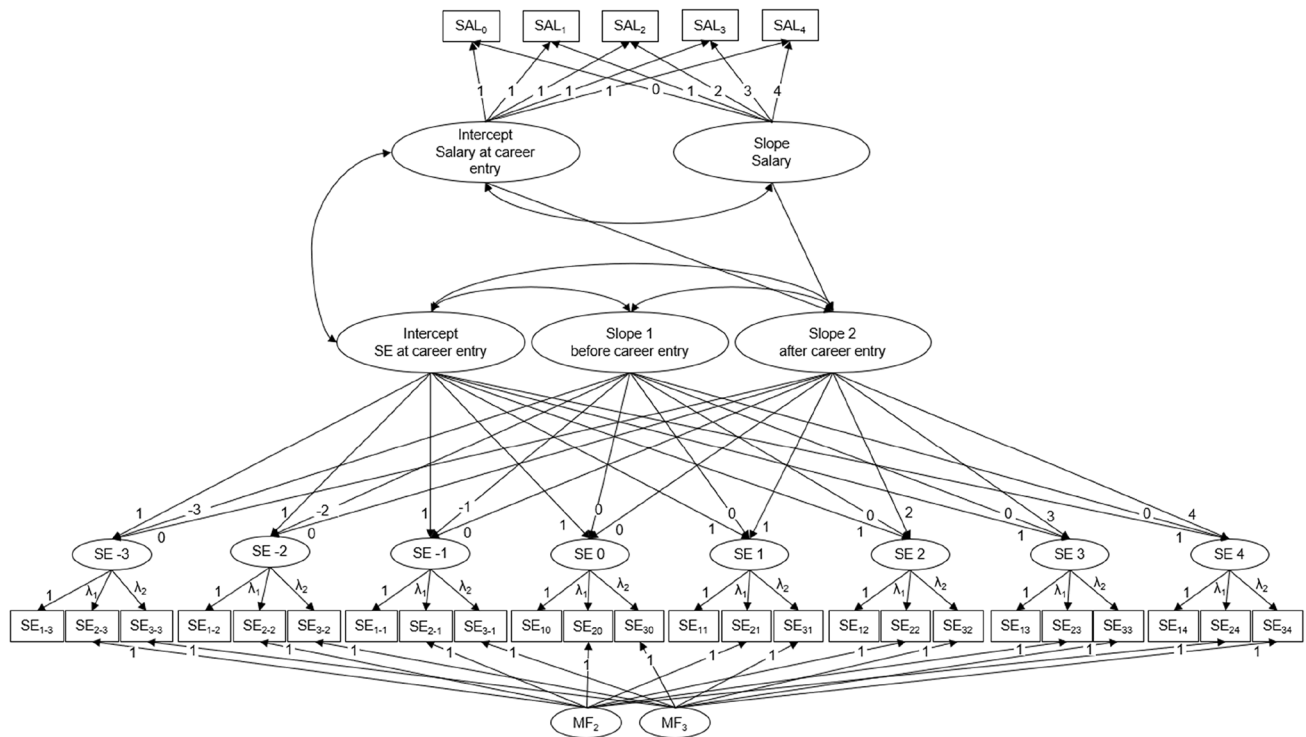


Fig. 1 Two-Piece Latent Growth Curve Model with Good Salary as a Predictor. Note. MF = method factor, SAL = good salary, SE = self-esteem

package (Rosseel, 2012) and accounted for missing values via the full information maximum likelihood method.

Results

First, we analyzed general CFA models with the goal of testing for measurement invariance and indicator-specific method effects. The model that included the method factor exhibited a good model fit ($CFI=0.979$, $TLI=0.974$, $RMSEA=0.031$ (90% CI [0.029, 0.034]), $SRMR=0.060$) and fit the data significantly better than did the model that lacked the method factor ($X^2(24)=2958.5$, $p<.001$). However, the χ^2 tests indicated that measurement invariance across time and metric measurement invariance across groups (age at career entry) as well as residual invariance across groups were not present. Nevertheless, the models that featured metric and scalar measurement invariance and most models that featured residual measurement invariance exhibited an acceptable model fit, and the differences in CFI, RMSEA, and SRMR were rather small. Given the differences in the fit indices and a reference to the suggestions of Chen (2007), we analyzed the models with scalar measurement invariance. We decided against implementing residual measurement invariance, as scalar invariance is sufficient for comparing latent means and the fit indices in those models were superior to those in models featuring

residual invariance. See Table 1 for further details regarding the analyses of measurement invariance.

Subsequently, we estimated linear LGCMs for both the full sample and the group models by age at career entry and career entry during the study period. The model fit exhibited by all three models was acceptable ($CFI=0.947$ – 0.959 , $TLI=0.947$ – 0.960 , $RMSEA=0.039$ – 0.045 (90% CI [0.037, 0.041]–[0.042, 0.048]), $SRMR=0.076$ – 0.086). When all the participants were analyzed together, self-esteem decreased slightly over the entire study period; this change was still significant. However, when the different groups were analyzed separately, a different picture emerged. Namely, for people who did not enter the workforce during the study period, self-esteem decreased slightly, whereas self-esteem increased for people who did enter the workforce. When people were considered separately according to their age at career entry, the self-esteem of early career entrants decreased slightly, whereas individuals with medium or late career entry experienced an increase in self-esteem over the study period.

To explore the changes in self-esteem at career entry in further detail, we centered time at career entry and estimated a two-piece LGCM. CFI (0.970), TLI (0.968), $RMSEA$ (0.037, 90% CI [0.032, 0.043]), and $SRMR$ (0.074) indicated good model fit, and these values exhibited improvements compared with the model that captured time chronologically and that featured only one linear slope. The Akaike

information criterion (AIC) (66,284.318 vs. 103,105.707) and Bayesian information criterion (BIC) (67,263.861 vs. 104,275.717) were also lower than those observed in the previous model. Self-esteem at career entry was considerably higher for people with early career entry than for people with average or late career entry. Unlike the previous model, which featured only one slope, we did not observe any significant changes in self-esteem before or after career entry for early career entrants, which could be the result of a ceiling effect. For people with either average or late career entry, self-esteem decreased before career entry and increased once again after career entry.

Finally, we examined whether the various indicators of successful career entry or investment in work influenced changes in self-esteem. All the conditional models fit the data well. Among average-aged career entrants in particular (but also among early career entrants), successful career entry was relevant to self-esteem change. Job satisfaction trajectories positively predicted the changes in self-esteem that occurred after career entry among all three entrant groups, as did job satisfaction at career entry for both early and late entrants. Furthermore, the perception of being paid well for one's work positively predicted the self-esteem trajectories of early and average career entrants—both the perception at career entry as well as the change in this perception had an effect on self-esteem trajectories. Additionally, believing that one's occupation is socially accepted and well respected positively affected the self-esteem trajectories of people who exhibited early or average career entry. Interestingly, only the indicator job satisfaction predicted self-esteem changes among late career entrants. Investment in work had no effect on self-esteem for either group. See Table 2 for detailed results on the latent growth curve models.

Discussion

Life transitions, such as starting a career during young adulthood, have the potential to change individuals' self-esteem. However, little is known concerning the conditions under which self-esteem changes. To explore these conditions in further detail, the present study investigated self-esteem trajectories at career entry in light of individuals' success and social investment in the job.

We first analyzed individuals' general self-esteem trajectories as young adults over time. Contrary to previous research on this topic and our first hypothesis (e.g., Orth & Robins, 2014; Orth et al., 2015), among the participants in our sample, self-esteem decreased between the ages of 17 and 28. However, this finding can be attributed primarily to individuals who did not start a career and those who started a career at an early age. The decrease in self-esteem observed among early career entrants might be explained

in part by the relatively low status of the occupations in which these individuals worked as well as by a need to start earning money at a relatively young age. In contrast, self-esteem increased among individuals who exhibited average or late career entry. These findings provide initial support for the hypothesis that starting a career may influence individuals' self-esteem; furthermore, they are in line with Reitz et al. (2020), who also reported that the self-esteem of young adults increased only for individuals who entered the workforce.

To investigate this issue in further detail, we next considered solely people who had started a career during the study period. We analyzed the participants' self-esteem trajectories before and after career entry via separate slopes and differentiated among various groups according to their age at career entry, as the timing of the mastery of developmental tasks, such as starting a career, is relevant in this context. Unlike the results of previous models featuring only one slope, the self-esteem of early career entrants did not change before or after they entered the labor market. However, their self-esteem at the time of career entry was higher than that of participants in the other groups. Their higher self-esteem at career entry might have occurred because these individuals began earning their own money at a young age. In contrast, the self-esteem of average and late career entrants decreased before they entered the labor market and increased thereafter. This result is partly consistent with our second hypothesis, which stated that self-esteem increases more strongly after career entry than before—although it assumes an increase across the entire study period. Individuals may experience some degree of anticipation and anxiety before they begin a job and then experience a feeling of success thereafter. The self-esteem trajectories were thus generally in line with the underlying theory and the hypotheses proposed in this research: self-esteem depends on starting a career.

Nevertheless, we expected normative self-esteem increase over the entire study period because other aspects, such as social relationships, also influence self-esteem during young adulthood (e.g., Harris & Orth, 2020). Instead, self-esteem decreased before career entry and increased once again thereafter. It appears that starting a career is an important aspect of identity determination for many young adults and that failing to enter a career may negatively impact individuals' self-esteem. However, Filosa et al. (2022) reported that self-esteem increased both before and after career entry, including a particularly large increase before career entry. These authors did not find any significant relationship between individuals' age at their first jobs and their self-esteem trajectories after controlling for other covariates, whereas the present study revealed different self-esteem trajectories by age at career entry. Although the data reported by Filosa et al. (2022) are comparable to those examined in

the present study with respect to age, their sample size was smaller, and their data collection process took place in Italy. Germany and Italy may exhibit relevant differences in this context, e.g., in terms of societal and family expectations.

One aim of the present study was to investigate the conditions under which self-esteem changes during career entry. According to the concept of developmental tasks (Havighurst, 1966) and the social investment principle (Roberts et al., 2005), successful mastery of the developmental task career entry and social investment in one's career are the primary factors, rather than career entry per se, that determine changes in self-esteem. Our analysis confirmed this assumption only partially: contrary to our fourth hypothesis, investment in work (as measured by the self-rated importance of one's job/career) did not influence self-esteem changes. The social investment principle (Roberts et al., 2005) was therefore not confirmed with our data. Investing in new social roles might influence personality traits like conscientiousness rather than self-esteem. However, self-rated career importance is not necessarily identical to actual investment in work. Reitz et al. (2020) measured investment in work in terms of achievement-related experiences and reported that change was correlated with change in self-esteem, although the experiences on which those authors focused were rather general. Further analysis on the basis of an indicator that asks participants directly about their investment in work would be interesting and could yield further insights.

However, in the present study, successful career entry (measured by job satisfaction, self-rated good income and working in a well-respected job) influenced self-esteem trajectories, particularly among individuals who entered their career at a young or average age. This finding is in line with Havighurst's (1966) concept of developmental tasks and our third hypothesis. Individuals with a successful career entry at a time that is in line with societal expectations exhibited particular increases in self-esteem. For late career entrants, success was much less important. Instead, for late entrants, it may be more important that they have finally mastered this important developmental task and no longer depend on their parents; thus, their success and investment are of only secondary importance. In addition, late entrants were mainly university graduates, who tend to have better-paying and more prestigious jobs. If success at career entry is higher overall among this group, success may consequently be less important with respect to their self-esteem trajectories.

Limitations

This study has several limitations. First, the high dropout rate in the pairfam data led to uncertainty regarding whether

these individuals never entered the labor market or whether they dropped out of the study before career entry. As a result, the sample did not contain a sufficient number of participants who did not enter the labor market during the study period to provide meaningful comparisons between their self-esteem changes and those of career entrants. Instead, we compared groups by age at career entry. However, this comparison was also not optimal, as the groups differed in terms of their levels of education, occupations, and occupational status, which is why we controlled for these variables. Furthermore, we use secondary data in our analyses. These data extensively captured participants' success at career entry, but they were less effective with regard to capturing their investment in work. The investment indicator tends to reflect the importance that an individual attributes to a career rather than that individual's investment in work specifically.

Conclusion

The present study aimed to reveal the conditions under which self-esteem changes during young adulthood by investigating self-esteem trajectories at career entry, particularly in light of success and social investment in the job. Self-esteem decreased prior to career entry and increased thereafter, but only among individuals with average or late career entry. For people without career entry, self-esteem tended to decrease throughout the entire study period.

Success at career entry had a positive effect on the self-esteem trajectories of young and average-aged career entrants, whereas career entry itself appeared to be the relevant factor with respect to the self-esteem trajectories of late career entrants. Overall, starting a career apparently has considerable influence on self-esteem trajectories during young adulthood. Young adults should therefore be provided with a range of counseling and support services that can help them start their careers successfully and cope with potential difficulties.

Appendix

See Tables 1 and 2.

Table 1 Results of the measurement invariance analyses

Model	Fit indices	Δ Fit indices	χ^2 test	Evaluation
Baseline model	CFI=0.979, TLI=0.974, RMSEA=0.031 (90% CI [0.029, 0.034]), SRMR=0.060			
Metric MI time	CFI=0.978, TLI=0.975, RMSEA=0.031 (90% CI [0.028, 0.034]), SRMR=0.063	Δ CFI=0.001, Δ TLI=0.001, Δ RMSEA=0, Δ SRMR=0.003	$\chi^2(44)=82.86, p<.001$	The results of the χ^2 test were significant, but the differences among the fit indices were very small. Therefore, according to Chen (2007), measurement invariance is present
Scalar MI time	CFI=0.972, TLI=0.970, RMSEA=0.034 (90% CI [0.032, 0.036]), SRMR=0.065	Δ CFI=0.006, Δ TLI=0.005, Δ RMSEA=0.003, Δ SRMR=0.002	$\chi^2(22)=221.65, p<.001$	The results of the χ^2 test were significant, but the differences among the fit indices were very small. Therefore, according to Chen (2007), measurement invariance is present
Residual MI time	CFI=0.962, TLI=0.960, RMSEA=0.039 (90% CI [0.036, 0.041]), SRMR=0.067	Δ CFI=0.01, Δ TLI=0.01, Δ RMSEA=0.005, Δ SRMR=0.002	$\chi^2(33)=220.51, p<.001$	The results of the χ^2 test were significant; however, according to the cutoff criteria proposed by Chen (2007), residual measurement invariance would still be supported based on the RMSEA and SRMR differences but not based on the CFI difference. As scalar measurement invariance is sufficient to compare latent means, we therefore implemented scalar measurement invariance in all subsequent models
Baseline group model—age at career entry	CFI=0.948, TLI=0.943, RMSEA=0.049 (90% CI [0.045, 0.053]), SRMR=0.083			
Metric MI group—age at career entry	CFI=0.947, TLI=0.942, RMSEA=0.049 (90% CI [0.045, 0.053]), SRMR=0.085	Δ CFI=0.001, Δ TLI=0.001, Δ RMSEA=0, Δ SRMR=0.002	$\chi^2(4)=16.27, p=.0027$	The results of the χ^2 test were significant, but the differences among the fit indices were very small. Therefore, according to Chen (2007), measurement invariance is present
Scalar MI group—age at career entry	CFI=0.947, TLI=0.942, RMSEA=0.049 (90% CI [0.045, 0.053]), SRMR=0.085	Δ CFI=0, Δ TLI=0, Δ RMSEA=0, Δ SRMR=0	$\chi^2(4)=2.29, p=.6830$	Measurement invariance is present

Table 1 (continued)

Model	Fit indices	Δ Fit indices	χ^2 test	Evaluation
Residual MI group—age at career entry	CFI=0.944, TLI=0.941, RMSEA=0.049 (90% CI [0.049, 0.046]), SRMR=0.086	Δ CFI=0.003, Δ TLI=0.001, Δ RMSEA=0, Δ SRMR=0.001	$\chi^2(72)=123.21, p<.001$	The results of the χ^2 test were significant, but the differences among the fit indices were very small. Therefore, according to Chen (2007), measurement invariance is present. As scalar measurement invariance is sufficient to compare latent means, we nevertheless implemented scalar measurement invariance in all subsequent models
Baseline group model—no career entry	CFI=0.950, TLI=0.944, RMSEA=0.048 (90% CI [0.044, 0.051]), SRMR=0.077			
Metric MI group—no career entry	CFI=0.950, TLI=0.944, RMSEA=0.048 (90% CI [0.044, 0.051]), SRMR=0.076	Δ CFI=0, Δ TLI=0, Δ RMSEA=0, Δ SRMR=0.001	$\chi^2(2)=2.19, p=.3339$	Measurement invariance was present
Scalar MI group—no career entry	CFI=0.950, TLI=0.945, RMSEA=0.048 (90% CI [0.044, 0.051]), SRMR=0.076	Δ CFI=0, Δ TLI=0.001, Δ RMSEA=0, Δ SRMR=0	$\chi^2(2)=0.45, p=.7973$	Measurement invariance was present
Residual MI group—no career entry	CFI=0.945, TLI=0.941, RMSEA=0.049 (90% CI [0.046, 0.052]), SRMR=0.076	Δ CFI=0.005, Δ TLI=0.004, Δ RMSEA=0.001, Δ SRMR=0	$\chi^2(36)=126.71, p<.001$	The results of the χ^2 test were significant, but the differences among the fit indices were very small. Therefore, according to Chen (2007), measurement invariance is present. As scalar measurement invariance is sufficient to compare latent means, we nevertheless implemented scalar measurement invariance in all subsequent models

Table 2 Results of the latent growth curve models

	Model fit	Covariances	Means	Variances	Regressions
<i>Self-esteem change W2–I3</i>					
Career entry	CFI=0.955 TLI=0.955 RMSEA=0.041 (90% CI [0.039, 0.044]) SRMR=0.078	$i \sim s = -0.014^{***}$	$i = 3.025^{***}$ $s = 0.106^{***}$	$i = 0.397^{***}$ $s = 0.004^{***}$	
No career entry	CFI=0.955 TLI=0.955 RMSEA=0.041 (90% CI [0.039, 0.044]) SRMR=0.078	$i \sim s = -0.023^{**}$	$i = 3.807^{***}$ $s = -0.022^{**}$	$i = 0.539^{***}$ $s = 0.005^{***}$	
Early career entry	CFI=0.947 TLI=0.947 RMSEA=0.045 (90% CI [0.042, 0.048]) SRMR=0.086	$i \sim s = -0.016^{***}$	$i = 3.930^{***}$ $s = -0.013^{**}$	$i = 0.427^{***}$ $s = 0.004^{***}$	
Average career entry	CFI=0.947 TLI=0.947 RMSEA=0.045 (90% CI [0.042, 0.048]) SRMR=0.086	$i \sim s = -0.012^{***}$	$i = 3.027^{***}$ $s = 0.105^{***}$	$i = 0.376^{***}$ $s = 0.003^{***}$	
Late career entry	CFI=0.947 TLI=0.947 RMSEA=0.045 (90% CI [0.042, 0.048]) SRMR=0.086	$i \sim s = -0.015^{***}$	$i = 3.019^{***}$ $s = 0.108^{***}$	$i = 0.391^{***}$ $s = 0.004^{***}$	
<i>Self-esteem centered at career entry</i>					
Early career entry	CFI=0.970 TLI=0.968 RMSEA=0.037 (90% CI [0.032, 0.043]) SRMR=0.074	$i \sim s1 = 0.026$ $i \sim s2 = -0.011$ $s1 \sim s2 = 0.002$	$i = 4.058^{***}$ $s1 = 0.051$ $s2 = -0.062$	$i = 0.409^{***}$ $s1 = 0.018$ $s2 = 0.014^{**}$	
Average career entry	CFI=0.970 TLI=0.968 RMSEA=0.037 (90% CI [0.032, 0.043]) SRMR=0.074	$i \sim s1 = 0.045^{***}$ $i \sim s2 = -0.023^{**}$ $s1 \sim s2 = -0.003$	$i = 2.510^{***}$ $s1 = -0.537^{***}$ $s2 = 0.305^{***}$	$i = 0.450^{***}$ $s1 = 0.029^{***}$ $s2 = 0.013^{***}$	
Late career entry	CFI=0.970 TLI=0.968 RMSEA=0.037 (90% CI [0.032, 0.043]) SRMR=0.074	$i \sim s1 = 0.035^{***}$ $i \sim s2 = -0.011$ $s1 \sim s2 = 0.005$	$i = 2.189^{***}$ $s1 = -0.400^{***}$ $s2 = 0.243^{***}$	$i = 0.419^{***}$ $s1 = 0.029^{***}$ $s2 = 0.003$	
<i>Satisfaction</i>					
Early career entry	CFI=0.954 TLI=0.952 RMSEA=0.040 (90% CI [0.035, 0.045]) SRMR=0.099	$i \sim s1 = 0.027$ $i \sim s2 = -0.023^{*}$ $s1 \sim s2 = -0.001$	$i = 4.054^{***}$ $s1 = 0.053$ $s2 = -0.025$	$i = 0.412^{***}$ $s1 = 0.019$ $s2 = 0.012^{*}$	$s2 \sim s3 = 0.252^{*}$ $s2 \sim i2 = 0.054^{***}$
Average career entry	CFI=0.954 TLI=0.952 RMSEA=0.040 (90% CI [0.035, 0.045]) SRMR=0.099	$i \sim s1 = 0.045^{***}$ $i \sim s2 = -0.030^{***}$ $s1 \sim s2 = -0.004$	$i = 2.508^{***}$ $s1 = -0.537^{***}$ $s2 = 0.286^{***}$	$i = 0.451^{***}$ $s1 = 0.029^{***}$ $s2 = 0.013^{***}$	$s2 \sim s3 = 0.0158^{**}$ $s2 \sim i2 = 0.021$
Late career entry	CFI=0.954 TLI=0.952 RMSEA=0.040 (90% CI [0.035, 0.045]) SRMR=0.099	$i \sim s1 = 0.035^{***}$ $i \sim s2 = -0.019$ $s1 \sim s2 = 0.004$	$i = 2.190^{***}$ $s1 = -0.399^{***}$ $s2 = 0.239^{***}$	$i = 0.420^{***}$ $s1 = 0.029^{***}$ $s2 = 0.003$	$s2 \sim s3 = 0.174^{*}$ $s2 \sim i2 = 0.036^{*}$

Table 2 (continued)

	Model fit	Covariances	Means	Variances	Regressions
<i>Good Payment</i>					
Early career entry	CFI=0.970 TLI=0.969 RMSEA=0.033 (90% CI [0.027, 0.038]) SRMR=0.080	$i \sim s1 = 0.026$ $i \sim s2 = -0.017$ $s1 \sim s2 = 0.002$	$i = 4.054^{***}$ $s1 = 0.055$ $s2 = -0.011$	$i = 0.411^{***}$ $s1 = 0.018$ $s2 = 0.013^{**}$	$s2 \sim s3 = 0.212^{**}$ $s2 \sim i2 = 0.058^{***}$
Average career entry	CFI=0.970 TLI=0.969 RMSEA=0.033 (90% CI [0.027, 0.038]) SRMR=0.080	$i \sim s1 = 0.045^{***}$ $i \sim s2 = -0.026^{**}$ $s1 \sim s2 = -0.003$	$i = 2.512^{***}$ $s1 = -0.536^{***}$ $s2 = 0.322^{***}$	$i = 0.450^{***}$ $s1 = 0.029^{***}$ $s2 = 0.011^{**}$	$s2 \sim s3 = 0.297^{**}$ $s2 \sim i2 = 0.040^{**}$
Late career entry	CFI=0.970 TLI=0.969 RMSEA=0.033 (90% CI [0.027, 0.038]) SRMR=0.080	$i \sim s1 = 0.035^{***}$ $i \sim s2 = -0.011$ $s1 \sim s2 = 0.005$	$i = 2.188^{***}$ $s1 = -0.400^{***}$ $s2 = 0.241^{***}$	$i = 0.419^{***}$ $s1 = 0.029^{***}$ $s2 = 0.003$	$s2 \sim s3 = 0.095$ $s2 \sim i2 = 0.005$
<i>Respected occupation</i>					
Early career entry	CFI=0.964 TLI=0.963 RMSEA=0.036 (90% CI [0.031, 0.041]) SRMR=0.086	$i \sim s1 = 0.026$ $i \sim s2 = -0.014$ $s1 \sim s2 = 0.003$	$i = 4.061^{***}$ $s1 = 0.050$ $s2 = -0.068$	$i = 0.410^{***}$ $s1 = 0.018$ $s2 = 0.030^{**}$	$s2 \sim s3 = 0.199$ $s2 \sim i2 = 0.042^{*}$
Average career entry	CFI=0.964 TLI=0.963 RMSEA=0.036 (90% CI [0.031, 0.041]) SRMR=0.086	$i \sim s1 = 0.045^{***}$ $i \sim s2 = -0.026^{**}$ $s1 \sim s2 = -0.003$	$i = 2.511^{***}$ $s1 = -0.537^{***}$ $s2 = 0.305^{***}$	$i = 0.450^{***}$ $s1 = 0.029^{***}$ $s2 = 0.013^{***}$	$s2 \sim s3 = 0.194^{*}$ $s2 \sim i2 = 0.032^{*}$
Late career entry	CFI=0.964 TLI=0.963 RMSEA=0.036 (90% CI [0.031, 0.041]) SRMR=0.086	$i \sim s1 = 0.035^{***}$ $i \sim s2 = -0.011$ $s1 \sim s2 = 0.005$	$i = 2.187^{***}$ $s1 = -0.401^{***}$ $s2 = 0.257^{***}$	$i = 0.419^{***}$ $s1 = 0.029^{***}$ $s2 = 0.002$	$s2 \sim s3 = 0.165$ $s2 \sim i2 = 0.019$
<i>Investment</i>					
Early career entry	CFI=0.964 TLI=0.963 RMSEA=0.037 (90% CI [0.032, 0.042]) SRMR=0.073	$i \sim s1 = 0.026$ $i \sim s2 = -0.011$ $s1 \sim s2 = 0.002$	$i = 4.058^{***}$ $s1 = 0.051$ $s2 = -0.089$	$i = 0.409^{***}$ $s1 = 0.018$ $s2 = 0.014^{**}$	$s2 \sim \text{investment} = 0.013$
Average career entry	CFI=0.964 TLI=0.963 RMSEA=0.037 (90% CI [0.032, 0.042]) SRMR=0.073	$i \sim s1 = 0.045^{***}$ $i \sim s2 = -0.023^{**}$ $s1 \sim s2 = -0.003$	$i = 2.511^{***}$ $s1 = -0.537^{***}$ $s2 = 0.311^{***}$	$i = 0.450^{***}$ $s1 = 0.029^{***}$ $s2 = 0.013^{***}$	$s2 \sim \text{investment} = -0.003$
Late career entry	CFI=0.964 TLI=0.963 RMSEA=0.037 (90% CI [0.032, 0.042]) SRMR=0.073	$i \sim s1 = 0.035^{***}$ $i \sim s2 = -0.011$ $s1 \sim s2 = 0.005$	$i = 2.187^{***}$ $s1 = -0.401^{***}$ $s2 = 0.220^{***}$	$i = 0.419^{***}$ $s1 = 0.029^{***}$ $s2 = 0.003$	$s2 \sim \text{investment} = 0.013$

CFI=comparative fit index, TLI=Tucker-Lewis Index, RMSEA=root mean square error of approximation, SRMR=standardized root mean squared residual; $\sim$ =covariance, $\sim$ =regression; i =intercept, s =slope, $s1$ =slope before career entry, $s2$ =slope after career entry, $s3$ =slope satisfaction/good payment/respected occupation, $i2$ =intercept satisfaction/good payment/respected occupation

* $p < .05$; ** $p < .01$; *** $p < .001$

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Declarations

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