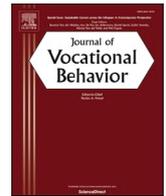




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Does success change people? Examining objective career success as a precursor for personality development

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ABSTRACT

Numerous studies established personality traits as predictors of career success. However, if and how career success can also trigger changes in personality has not received much attention. Drawing from the neosocioanalytic model of personality and its social investment and responsive principles, this paper investigated how the attainment of objective career success contributes to personality change in the Big Five traits of neuroticism, extraversion, openness, agreeableness, and conscientiousness. We conducted cross-lagged analyses with three measurement waves over eight years with a representative sample of 4767 working adults from the German Socio-Economic Panel and examined if objective success (i.e., income and occupational prestige) predicted changes in personality. We also tested if effects differed across age groups or between men and women. Results showed that career success predicted changes in personality for neuroticism, extraversion, and openness. Higher income predicted a decrease in neuroticism and increase in openness. Higher prestige predicted a decrease in extraversion and an increase in openness. Results did not differ according to age group or for men or women. We discuss the results in light of the effects that career success can exert on personality development and the complexity inherent in observing personality change.

Personality traits have long been considered as important predictors of vocational and organizational behavior and occupational attainment (Brown & Hirschi, 2013). In that literature, personality traits have often been viewed as mostly stable across the (adult) lifespan. However, there is an increasing recognition that personality shows meaningful change throughout the life course (Roberts & Mroczek, 2008; Tasselli, Kilduff, & Landis, 2018). Research showed that on average, personality traits develop in the direction of maturity (Roberts & Wood, 2006) with increases in conscientiousness, agreeableness, and emotional stability (Roberts, Walton, & Viechtbauer, 2006; Soto, John, Gosling, & Potter, 2011). In addition, individuals may experience changes in personality based on idiosyncratic life experiences, such as self-development or organizational and life events (Tasselli et al., 2018). As such, there is growing acknowledgment in organizational behavior research that personality traits can change as a result of various work experiences (Tasselli et al., 2018; Wrzus & Roberts, 2016).

Previous research showed, among others, that work experiences in terms of job characteristics (e.g., autonomy, stimulation, stress; job role demands; e.g., Li et al., 2020; Roberts, Caspi, & Moffitt, 2003; Wu, 2016), organizational climate (D. Spurk & Hirschi, 2018), entering paid employment (Denissen, Luhmann, Chung, & Bleidorn, 2019), or unemployment (Boyce, Wood, Daly, & Sedikides, 2015) can significantly affect personality traits (for reviews see Tasselli et al., 2018; Woods, Wille, & Wu, C.-h., Lievens, F., & De Fruyt, F.,

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2019). Such effects on personality are often explained with the neosocioanalytic model of personality and especially with the social investment principle included in this model (Lodi-Smith & Roberts, 2007). This principle proposes that the investment in social roles (such as the role of an employee or manager) is a key mechanism that may explain personality change.

In the present study, we focus on the effects of objective career success in terms of income and occupational prestige on personality change. Personality traits have traditionally been viewed as *predictors* of career success (Denissen et al., 2017; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007; D. Spurk, Hirschi, & Dries, 2019). From this perspective, traits such as extraversion or conscientiousness are resources that help individuals attain career goals and success (D. Spurk et al., 2019). Conversely, traits such as neuroticism can be hurdles or barriers that hinder the attainment of career goals and success (Ng & Feldman, 2014). However, while existing research has explored a vast array of predictors of career success (Ng, Eby, Sorensen, & Feldman, 2005; Ng & Feldman, 2014), the notion that career success could itself be a predictor of important consequences has remained relatively unaddressed (D. Spurk et al., 2019). A better understanding of the outcomes of career success is thus clearly needed to have a more complete picture of career success as one of the most important investigated outcomes in the career development literature (D. Spurk et al., 2019). Similarly, the vocational and counselling literature has broadly acknowledged that personality traits are important predictors of vocational behavior and occupational attainment and can be useful to assess in career counselling to help clients find an occupational niche which corresponds to their traits (Brown & Hirschi, 2013). However, this literature has generally not addressed the possibility that vocational behavior and occupational attainment could also lead to changes in personality traits.

Previous research which investigated changes in personality tended to focus on select samples such as young adults (Le, Donnellan, & Conger, 2014; Roberts et al., 2003), college alumni (Wille, Hofmans, Lievens, Back, & De Fruyt, 2019), or women (Roberts, 1997). Studies with broader samples exist (Nieß & Zacher, 2015; Sutin, Costa, Miech, & Eaton, 2009), but some used limited and specific indicators of success in terms of upward job changes into managerial and professional positions (Nieß & Zacher, 2015). As a result, the investigated specific and convenience samples in existing studies might suffer from selection bias and might not adequately represent the full spectrum of variance in personality traits and occupational attainment found in the working population. This can significantly bias results and limit generalizability of the findings. Additionally, studies used different personality measures making comparisons across studies less straightforward. Potentially as a result of the specific, nonrepresentative samples used in some studies, divergent measures of personality and career success, and/or unconsidered moderators, there are inconsistencies in findings linking personality and career success across studies. To address these issues, the present study is based on a large representative sample, investigates established indicators of traits and career success, and examines potential moderators.

In our study, we draw on the corresponsive mechanism from the neosocioanalytic model of personality (Roberts et al., 2003) to propose that the traits that promote career success are reinforced by success and that attaining and maintaining career success poses demands that lead to changes in personality traits. We address these issues by examining how career success predicts changes in personality traits over three measurement waves across eight years using data from a large representative sample of the German working population. We moreover examine the most widely established framework of personality: the Big Five traits of neuroticism, extraversion, openness, agreeableness, and conscientiousness (Costa & McCrae, 1997) and two well-established indicators of objective career success in terms of income and occupational prestige (D. Spurk et al., 2019). Finally, based on the available large representative sample, we explore if the relation between career success and personality may differ according to age groups (Sutin et al., 2009) or between men and women (Gelissen & de Graaf, 2006; G. Mueller & Plug, 2006; Nyhus & Pons, 2005).

As such, our study makes four key contributions. First, we address the call to advance knowledge on the outcomes of career success by showing how objective success can impact personality traits. Second, we contribute to the emerging larger literature on changes in personality traits over the life course, specifically as a result of work experiences. Third, we advance existing research by testing potential boundary conditions for whom career success might have a stronger or weaker effect on personality change by taking into account that the relation between career success and personality may vary according to age group and between men and women. Fourth, we provide a series of methodological advancements over existing studies by (a) examining personality change across three time points to assess repeated lagged effects and test reciprocal mechanisms; (b) using objective indicators of career success, which helps to overcome limitations of previous research, which typically used self-reports of work experiences, such as job satisfaction; and (c) investigating a large ($N = 4'767$) heterogeneous sample spanning entire adulthood; in so doing, we can prevent selection and sampling bias that often occurs both in personality traits and career success outcomes when using more specific or smaller convenience samples. In sum, our study will meaningfully advance the understanding of how and for whom work experiences generally, and objective career success specifically, can affect personality changes.

1. Personality change as a consequence of work experiences

Why work experiences can lead to personality change can be explained with the social investment principle (Lodi-Smith & Roberts, 2007; Roberts, Wood, & Smith, 2005). It suggests a context driven mechanism of change and proposes that normative life events (e.g. entering the workforce) and participation in social roles such as work, direct personality towards functional maturity (Woods, Lievens, De Fruyt, & Wille, 2013). This dynamic view corresponds to current perspectives from lifespan psychology where personality is seen as a system that remains open and malleable throughout adulthood (Baltes, 1987). This is supported by large-scale empirical research and meta-analyses (Roberts et al., 2006; Roberts & DelVecchio, 2000; Roberts & Mroczek, 2008; Roberts, Wood, & Caspi, 2008; Soto, John, Gosling, & Potter, 2011) which found evidence of personality change across the entire life course. Moreover, these studies suggest that personality changes gradually over several years in adulthood and that a timespan of 4–8 years is sufficient to capture meaningful change across different age groups.

A key tenet of the social investment principle is that most individuals invest in, and commit themselves to, social roles such as the

work role, and that the expectations, norms, and rewards associated with these roles prompt changes in personality (Hudson, Roberts, & Lodi-Smith, 2012; Lodi-Smith & Roberts, 2007; Roberts et al., 2008). Moreover, the corresponsive principle states that life experiences tend to deepen those personality traits that brought people to these experiences in the first place (Roberts et al., 2003). In combination, the social investment principle and corresponsive principle suggest that pre-existing personality characteristics lead people to select certain environments (e.g., their work environments), and that these environments activate and reinforce those same characteristics over time (Roberts et al., 2003). Based on research showing that personality predicts career success (Judge, Higgins, Thoresen, & Barrick, 1999; Le et al., 2014; Nieß & Zacher, 2015; Roberts et al., 2003; Sutin et al., 2009) and building upon the corresponsive mechanism, we hence propose that the same traits that promote career success are activated and reinforced by experiencing career success.

There is some first empirical evidence for such reciprocal mechanisms. Studying young adults, Roberts et al. (2003) found that the specific traits (i.e., negative emotionality, communal positive emotionality, agentic positive emotionality, constraint) that predicted specific facets of occupational attainment (e.g., resource power, work satisfaction, financial security, work stimulation) were the same traits that changed as a result of occupational attainment. For individuals younger than 40, Sutin et al. (2009) found a reciprocal relation between neuroticism and career success (i.e., income), while Le et al. (2014) showed corresponsive associations between personality (e.g., agentic positive emotionality, constraint) and work conditions such as income and material benefits among a heterogeneous U.S. sample. Nieß and Zacher (2015) showed among a representative sample from Australia that openness predicted, and was predicted by, upward job changes. Finally, Wille et al. (2019) found support for mutual effects between personality and career success, although not in the expected corresponsive way. They found that narcissism predicted career advancement (i.e., managerial level) among college alumni and that advancement lead to a decrease in narcissism.

2. Objective career success and changes in the big five personality traits

The corresponsive mechanism implies that we expect mutual effects between career success and personality (see Fig. 1 for the conceptual model of the present study). However, as our aim is to focus on how success can predict personality change, we do not explicitly list reverse effect hypotheses (i.e., that personality predicts career success). We propose the same hypotheses for the two considered indicators of career success, occupational prestige and income, because we see these as parallel indicators of objective career success that should be related to personality change in the same general way. However, we choose to examine these indicators separately as their developmental trajectories might differ. For example, it could be that income shows more change than occupational prestige over one's career.

2.1. Neuroticism

Meta-analytic research (Ng et al., 2005; Ng & Feldman, 2014) showed a negative relation between neuroticism and objective career success in terms of salary and promotions. This suggests that neuroticism forms a barrier that handicaps the attainment of career success. Based on the corresponsive mechanism, higher levels of career success should thus prohibit the expression of neuroticism and

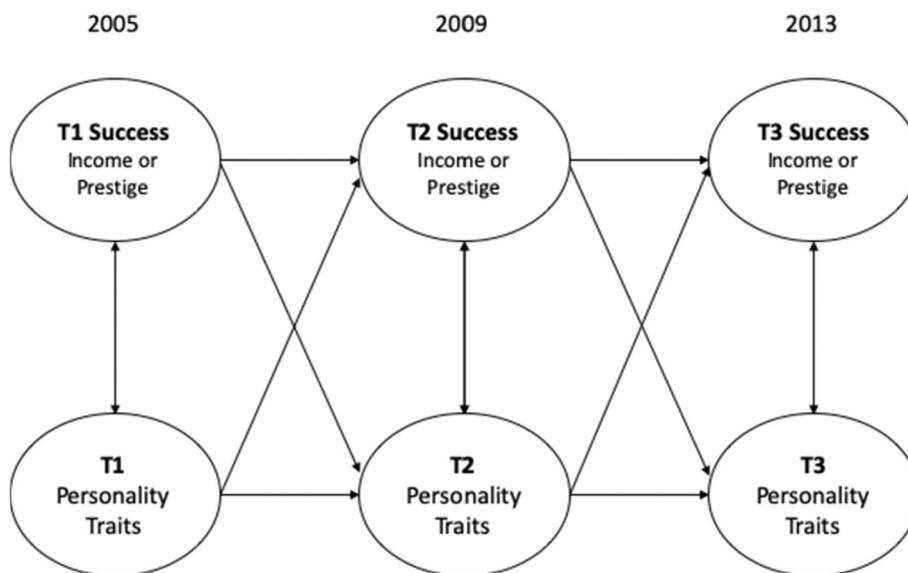


Fig. 1. Simplified conceptual model of cross-lagged relations between personality traits and career success. Each personality trait was modelled separately with each indicator of success (income and prestige), resulting in 10 models. For simplicity, the multigroup comparisons and control variables are not included in the figure.

in turn lead to a decrease in neuroticism. Moreover, attaining and maintaining objective career success can be expected to pose a series of demands, such as high workload, time pressure, and emotional demands at work, that call for lower levels of neuroticism to achieve a fit with these demands. Empirical studies have confirmed such mutual relations between success and neuroticism across two time points (Le et al., 2014; Roberts et al., 2003; Sutin et al., 2009).

Hypothesis 1. Income and occupational prestige predict a decrease in neuroticism over time.

2.2. Extraversion

Meta-analytic research supports a positive association between extraversion and promotions (Ng et al., 2005), and between extraversion and income (Ng et al., 2005; Ng & Feldman, 2014). Hence, this suggests that extraversion is a resource that helps to attain career success and based on the corresponsive mechanism, career success should thus activate and strengthen extraversion. Longitudinal studies showed that positive emotionality (a trait related to extraversion) was associated with higher occupational attainment and the likelihood of occupying a position with material benefits and higher income in adulthood (Le et al., 2014; Roberts et al., 2003). Moreover, being successful likely poses a series of social demands which call for increased extraversion such as building, maintaining, and using social networks and support from others, encouraging subordinates, or persuading others. Empirical studies also found some support for potential mutual effects between success and extraversion, in that individuals in jobs with higher levels of material benefits, occupational attainment, resource power, and financial security showed positive changes in both agentic and communal positive emotionality, constructs sharing some characteristics with extraversion (Le et al., 2014; Roberts et al., 2003). Roberts (1997) further found that women who were more successful became more agentic, which is a trait related to extraversion.

Hypothesis 2. Income and occupational prestige predict an increase in extraversion over time.

2.3. Openness

Meta-analytic findings confirm a positive association between openness and income (Ng et al., 2005). Openness is thus expected to promote career attainment and based on the corresponsive principle, success should therefore activate and reinforce openness. Being successful moreover can be expected to pose intellectual demands such as increased decision-making autonomy, the need for proposing new business ideas, or finding innovative solutions for work problems, which all call for increased levels of openness to meet such demands. Supporting this idea, Nieß and Zacher (2015) found that openness was a predictor of upward job changes and upward job changes predicated increases in openness.

Hypothesis 3. Income and occupational prestige predict an increase in openness over time.

2.4. Agreeableness

Existing research suggests that agreeableness can be a hindrance to attain objective career success. In their meta-analysis Ng et al. (2005) found that agreeableness correlated negatively with salary and promotions. In a series of longitudinal studies with large samples Judge, Livingston, and Hurst (2012) showed that agreeableness predicted lower levels of income, especially for men. Based on the corresponsive principle, we thus expect that career success leads to a decrease in agreeableness. Such effects could also be explained in the way that being successful poses social demands, such as making decisions that might affect some people negatively, giving critical feedback to subordinates, or successfully competing against others in and outside of the work environment, which call for decreased agreeableness to achieve a fit with these demands. Empirically, Wille and De Fruyt (2014) found support for this notion by reporting that those occupying positions with more responsibilities showed slower increases in agreeableness.

Hypothesis 4. Income and occupational prestige predict a decrease in agreeableness over time.

2.5. Conscientiousness

Meta-analytic evidence shows that conscientiousness is positively associated with extrinsic career success in terms of salary and promotions (Ng et al., 2005; Ng & Feldman, 2014). Based on the corresponsive principle, success should thus activate and reinforce conscientiousness. In addition, being successful could necessitate and increase demands such as increased responsibility, self-discipline, self-scheduling, and planning and controlling the work of others, which call for increased levels of conscientiousness to meet these demands. Empirically, longitudinal studies showed that financial security was related to an increase in one dimension of constraint (Roberts et al., 2003) and experiencing career success resulted in women becoming more norm adhering (Roberts, 1997), both constructs showing some overlap with conscientiousness. Li et al. (2020) found that becoming a leader was associated with small but significant increases in conscientiousness over time, mediated by increased job role demands.

Hypothesis 5. Income and occupational prestige predict an increase in conscientiousness over time.

3. Age group and gender as moderators

Although meta-analytic findings suggest meaningful relations between personality and career success, results also showed

significant variability of effects. This is also evident in single studies that produced some inconsistent findings. For example, some correlational studies showed that extraversion and income are not associated (Boudreau, Boswell, & Judge, 2001) or negatively associated (Nyhus & Pons, 2005). Nieß and Zacher (2015) observed in a longitudinal study that extraversion does not predict upward job changes (Nieß & Zacher, 2015). Other studies showed that openness is unrelated to extrinsic career success (Boudreau et al., 2001; Gelissen & de Graaf, 2006), managerial level (Moutafi, Furnham, & Crump, 2007), or promotions (Seibert & Kraimer, 2001), and negatively related to financial success (Seibert & Kraimer, 2001). Sutin et al. (2009) reports that occupational prestige predicted an increase in agreeableness. Finally, in some cross-sectional studies conscientiousness was unrelated to extrinsic career success (Boudreau et al., 2001), salary and promotions (Gelissen & de Graaf, 2006; Seibert & Kraimer, 2001), and hourly wage (Nyhus & Pons, 2005). Given the heterogeneity of findings, investigating moderators in the link between career success and personality seems important. We herein focus on age and gender as potentially critical variables in this regard.

Overall, research suggests that personality change is more prominent in young adulthood and shows more stability in older age (Roberts et al., 2006; Roberts & Mroczek, 2008; Schwaba & Bleidorn, 2018; Specht, Egloff, & Schmukle, 2011). According to the social investment principle, major role changes, and therefore more pronounced personality change, is expected during young adulthood because this is the period in which individuals are making the greatest investment in new roles and are encountering new norms and expectations (Lodi-Smith & Roberts, 2007). We can thus expect that success has a weaker effect on personality change in older age, when personality traits are generally more consolidated.

In addition, meta-analytic research (Kooij, De Lange, Jansen, Kanfer, & Dikkers, 2011) suggests that when younger, people generally value extrinsic work rewards, such as prestige and compensation, more highly than in older age. Conversely, when older, people generally value intrinsic work characteristics more, such as helping people or using skills (Kooij et al., 2011). Hence, with increasing age, people are less likely to place a high value on attainments of extrinsic career success which would mean attaining success has less of an effect on their identities and thus less effect on personality change (Wood & Roberts, 2006).

Hypothesis 6. The relation between career success and personality change will be strongest for young adults when compared to middle-aged and older adults and stronger for middle-aged adults when compared to older adults.

Gender is another key-demographic parameter that may act as a moderator of the link between success and personality. Meta-analytic research shows that men and women generally value different aspects of the work environment (Konrad, Ritchie Jr, Lieb, & Corrigan, 2000). Men typically value job attributes that are associated with masculine gender roles such as earnings, power, responsibility, prestige, and recognition, whereas women more likely value attributes associated with feminine gender roles such as social contact at work, opportunities to help others, and work that does not interfere with the role of homemaker (Konrad et al., 2000). Hence, this research suggests that men on average place a higher value on extrinsic career success compared to women.

Moreover, women tend to place less importance on the work role than men (Greer & Egan, 2012). According to the social investment principle, more personality change following investment in roles is expected when psychological commitment to a role is strong (Lodi-Smith & Roberts, 2007; Roberts et al., 2005). Combined, this line of research implies that women would place less value on extrinsic career success and the work role more generally, which means that experiencing career success would not affect their identity as much as for men, leading to less impact of career success on personality change (Wood & Roberts, 2006).

Hypothesis 7. The relation between career success and personality change is stronger for men than for women.

4. Method

4.1. Participants and procedure

Our analyses are based on data of the German Socio-Economic Panel Study (SOEP) from the waves of 2005 (T1), 2009 (T2), and 2013 (T3). As a longitudinal data collection, the SOEP started in 1984 and is based on a random sample of private households in Germany (Wagner, Frick, & Schupp, 2007). Information on topics such as work or health was gathered through face-to-face interviews or via questionnaires, resulting in a total of 21,105 participants in 2005, 21,035 in 2009 and 23,763 in 2013 (Goebel, 2016).

For the subsequent analyses, we included all employed persons aged between 18 and 57 years in 2005 and who participated in at least two of the three herein examined waves ($N = 6993$). Further, because unemployment can affect personality (Boyce et al., 2015) and thus potentially distort our results, we excluded 1994 participants who experienced unemployment between 2005 and 2013. We moreover excluded 213 participants who were marginally part-time employed and working 16 h or less per week, corresponding to approximately 40% of the average full-time work week in Germany in 2005 (Kümmerling, Jansen, & Lehndorff, 2009). These individuals would be primarily investing in nonwork life roles, which could bias results. We finally excluded 19 participants who represented clear outliers in reported hourly income with more than 100 Euro/h (vs. a mean of 17.76 Euro/h; $SD = 9.17$ in 2005). The final sample comprised 4767 individuals (58.7% male), of diverse educational levels and working in a large range of industries and occupations representative of the German working population within the applied sample restrictions. At the first time point, age ranged from 19 to 57 years ($M = 41.59$; $SD = 8.37$), with most people aged between 36 and 50 years (60.4%). At T3, in 2013, the maximum organizational tenure amounted to 50 years ($M = 18.59$; $SD = 10.47$).

4.2. Measures

4.2.1. Personality

A German translation of the Big Five Inventory (BFI-S) was included in the SOEP survey in 2005, 2009, and 2013 (Gerlitz & Schupp, 2005). Each trait is measured by 3 items on a scale from 1 (*does not apply to me at all*) to 7 (*applies fully to me*), the full item list is presented in the Appendix. Table 1 shows Cronbach’s α for neuroticism, extraversion, openness, agreeableness, and conscientiousness ranging between 0.47 and 0.68. Lower Cronbach’s α can be expected because of the low number of items to measure each trait and the use of positively and negatively keyed items. However, item selection for the BFI-S aimed to capture as much bandwidth of each dimension as possible, rather than striving for homogeneity. Examining the validity and reliability of the BFI-S, Hahn et al. (2012, p. 355) conclude “that in research settings with a pronounced need for parsimony, the BFI-S offers a sufficient level of utility.” Other research showed that the BFI-S has comparable psychometric properties compared to longer FFM scales. For example, Lang, John, Ludtke, Schupp, and Wagner (2011) evaluated the BFI-S and found that it showed a robust five-factor structure across different age groups. Donnellan and Lucas (2008) showed that each of the scales contained in the SOEP correlates highly (at least $r = 0.88$) with corresponding subscales of the full Big Five Inventory. Further supporting the validity and utility of the scale, a range of studies have used this measure to provide important insights into questions related to personality development (e.g., Boyce et al., 2015; S. Mueller, Wagner, Wagner, Ram, & Gerstorf, 2019; Specht et al., 2011).

4.2.2. Income

For income we created an hourly income variable. Participants provided their gross monthly income in Euros which we then rescaled to an hourly income, by dividing the monthly income by the indicated contractual work hours per month. This allowed to have a comparable indicator of income across participants, irrespective of their employment amount.

4.2.3. Occupational prestige

Occupational prestige was captured by the Standard International Occupational Prestige Scale (SIOPS) (Ganzeboom & Treiman, 1996). The SIOPS is an empirically derived measure of occupational prestige, based on large-scale international research on social evaluations of prestige of different occupations (Ganzeboom & Treiman, 1996). It is widely used in sociology, economic, or vocational psychology research (e.g., Etzel & Nagy, 2019; Oesch & Piccitto, 2019). The SOEP data directly provide the SIOPS score, ranging from 6 to 78 with higher scores indicating higher occupational prestige (SOEP Group, 2014).

Table 1
Means, standard deviations, and correlations.

	M	SD	1	2	3	4	5	6	7	8	9	10
1. T1 Age	41.59	8.37	–									
2. Gender	1.41	0.49	0.01	–								
3. T1 Neuroticism	3.77	1.19	0.03	0.18***	(0.61)							
4. T2 Neuroticism	3.66	1.18	0.00	0.18***	0.58***	(0.63)						
5. T3 Neuroticism	3.62	1.17	0.03	0.19***	0.55***	0.63***	(0.63)					
6. T1 Extraversion	4.88	1.11	–0.06***	0.14***	–0.15***	–0.12***	–0.10***	(0.65)				
7. T2 Extraversion	4.76	1.14	–0.06***	0.12***	–0.09***	–0.15***	–0.10***	0.65***	(0.68)			
8. T3 Extraversion	4.78	1.12	–0.06***	0.12***	–0.12***	–0.14***	–0.15***	0.63***	0.68***	(0.68)		
9. T1 Openness	4.52	1.14	0.04**	0.10***	–0.07***	–0.06***	–0.03	0.36***	0.27***	0.25***	(0.61)	
10. T2 Openness	4.40	1.15	0.07***	0.10***	–0.05***	–0.05**	–0.04*	0.26***	0.33***	0.27***	0.60***	(0.59)
11. T3 Openness	4.48	1.15	0.08***	0.07***	–0.06**	–0.05**	–0.03	0.26***	0.30***	0.35***	0.56***	0.64***
12. T1 Conscientiousness	6.02	0.84	0.09***	0.08***	–0.11***	–0.09***	–0.07***	0.20***	0.13***	0.13***	0.18***	0.09***
13. T2 Conscientiousness	5.93	0.85	0.07***	0.11***	–0.06***	–0.13***	–0.10***	0.13***	0.20***	0.14***	0.13***	0.15***
14. T3 Conscientiousness	5.91	0.87	0.05**	0.11***	–0.04*	–0.08***	–0.12***	0.15***	0.15***	0.22***	0.10***	0.10***
15. T1 Agreeableness	5.38	0.96	0.03	0.15***	–0.14***	–0.07***	–0.09***	0.11***	0.05***	0.04*	0.15***	0.09***
16. T2 Agreeableness	5.23	0.98	0.05**	0.16***	–0.08***	–0.12***	–0.09***	0.06***	0.09***	0.06**	0.12***	0.16***
17. T3 Agreeableness	5.26	0.95	0.03	0.14***	–0.07***	–0.07***	–0.15***	0.05*	0.05**	0.08***	0.10***	0.09***
18. T1 Income	17.76	9.17	0.23***	–0.19***	–0.12***	–0.14***	–0.11***	–0.01	–0.01	0.00	0.06***	0.08***
19. T2 Income	19.22	9.89	0.15***	–0.19***	–0.12***	–0.14***	–0.12***	0.00	0.00	–0.01	0.05***	0.07***
20. T3 Income	21.51	11.36	0.10***	–0.18***	–0.13***	–0.16***	–0.12***	0.01	0.01	0.00	0.06**	0.07***
21. T1 Occupational Prestige	46.35	12.82	0.08***	0.00	–0.06***	–0.07***	–0.05**	0.00	–0.03*	–0.03	0.12***	0.14***
22. T2 Occupational Prestige	46.23	12.82	0.07***	0.01	–0.08***	–0.08***	–0.09***	0.02	–0.02	–0.01	0.12***	0.13***
23. T3 Occupational Prestige	46.95	12.77	0.06**	0.01	–0.07***	–0.07***	–0.08***	0.01	–0.02	–0.01	0.11***	0.13***

Note. Cronbach’s Alpha are in parentheses in the diagonal. Age is measured in years; gender 1 = male, 2 = female; income refers hourly income (scaled to a 100% full time job) and is reported in Euros; occupational prestige is treated as a continuous variable with higher values indicating more occupational prestige.

*** $p < .001$.

** $p < .01$.

* $p < .05$.

4.2.4. Age groups

We computed the age of the participants by subtracting the year of birth from the year the interview took place. For the multigroup analyses, we constructed three age groups using participants' age at T1. The young group contained participants aged 18 through 35 ($N = 1127$, 59.8% male), the middle group included everyone aged 36 to 50 ($N = 2880$, 58.4% male), and the old group contained participants aged 51 to 57 (which increased up to age 65 at T3; $N = 760$, 58.1% male). We chose these age groups to represent different prototypical career stages, with the young group typically in the exploration and establishment stage, the middle group typically in the mid-career phase, and the old group typically in the late career stage (Super, 1980).

4.2.5. Gender

Gender was obtained from the SOEP person-related meta-dataset. We coded males as 1 and females as 2.

5. Results

5.1. Analytical procedure

Our analyses were conducted with Mplus 7 using robust maximum likelihood estimation (Muthén & Muthén, 2010). We started with measurement invariance testing, before testing our hypotheses concerning change in personality traits as a result of career success using cross-lagged analyses (CLA). CLA allowed us to test reciprocal relations between personality and success, while controlling for previous levels of personality and the concurrent relation between personality and success. Hence, CLA allows assessing how variables are related from one time point to the next (see Fig. 1).

For the measurement invariance testing and the fit of the cross-lagged models, a comparative fit index (CFI) of at least 0.90, a Tucker-Lewis index (TLI) above 0.95, and a root mean square error of approximation (RMSEA) of 0.05 or less were considered as acceptable (Browne & Cudeck, 1993; Cheung & Rensvold, 2002; Hu & Bentler, 1999). For model comparisons, we used the difference in CFI, with a difference of less than 0.01 considered acceptable (Cheung & Rensvold, 2002).

5.2. Descriptive statistics

Table 1 provides the means, standard deviations, and correlations of the big five traits, income, and occupational prestige. All big five dimensions were strongly correlated across time. Mean income increased from 2005 to 2013, showing a negative correlation with neuroticism, agreeableness, and conscientiousness, a positive relation with openness, and no correlation to extraversion at all three

	11	12	13	14	15	16	17	18	19	20	21	22	23
(0.60)													
0.07***	(0.59)												
0.09***	0.50***	(0.56)											
0.11***	0.47***	0.56***	(0.55)										
0.10***	0.30***	0.18***	0.15***	(0.50)									
0.14***	0.17***	0.26***	0.18***	0.54***	(0.52)								
0.13***	0.18***	0.18***	0.27***	0.50***	0.56***	(0.47)							
0.09***	-0.02	-0.01	-0.02	-0.05***	-0.05**	-0.05**	-						
0.08***	-0.05**	-0.02	-0.04*	-0.06***	-0.05**	-0.06***	0.80***	-					
0.09***	-0.06**	-0.04*	-0.06**	-0.05**	-0.06**	-0.07***	0.77***	0.85***	-				
0.15***	-0.07***	-0.06***	-0.06***	0.00	0.00	-0.02	0.46***	0.49***	0.49***	-			
0.14***	-0.07***	-0.05***	-0.06***	0.01	0.01	-0.02	0.44***	0.47***	0.49***	0.82***	-		
0.14***	-0.08***	-0.05**	-0.06**	-0.01	-0.01	-0.01	0.43***	0.46***	0.48***	0.79***	0.82***	-	

time points. Occupational prestige was negatively related to neuroticism, extraversion, and conscientiousness, positively correlated with openness, and not related to agreeableness at all three time points.

5.3. Longitudinal measurement invariance

We first tested if the big five personality traits displayed measurement invariance over time. We specified a longitudinal measurement invariance model for each trait separately. In a first three-factor measurement model (configural invariance), factor loadings were freely estimated at T1 to T3. In a second model (metric invariance), we constrained the item factor loadings to be equal across time.

Results of the longitudinal measurement invariance testing for the big five personality dimensions are displayed in Table 2. The configural models for all personality traits showed CFI of at least 0.90, TLI above 0.95 and a RMSEA of 0.05 or less, indicating a good fit to the data. For agreeableness, in the configural model, the residual item correlations pertaining to one item were fixed to zero because this item explained a large proportion of variance in the personality factor in comparison to the other items. For neuroticism, extraversion, and openness, constraining the item factor loadings to be equal across time was supported by a $\Delta\text{CFI} \leq 0.01$. Thus these traits reached metric invariance. For agreeableness, only partial metric invariance was obtained as one item needed to freely load over time. Similarly, for conscientiousness, one item needed to be allowed to freely load over time to reach partial metric invariance. For all personality traits, the metric invariance constraints are maintained in all further analyses.

5.4. Cross-lagged analyses

Building upon, and including, the measurement model, for the cross-lagged analyses, the two success measures, income and occupational prestige, were examined with each of the big five personality traits, resulting in 10 combinations. While our study focuses on the effects of success on change in personality traits, based on research suggesting that traits predict success, we expected reciprocal relations between personality and success. We thus tested a *full reciprocal model* (Fig. 1) for each combination that included autoregressive effects (personality at T1 [T2] to personality at T2 [T3]; success at T1 [T2] to success at T2 [T3]), effects of success (at T1 or T2) on personality (at T2 or T3) and effects of personality (at T1 or T2) on success (at T2 or T3). We also tested if we could maintain cross-wave equality constraints on the auto-regressive and cross-lagged coefficients. In all cases, the models with equality constraints fit equally well as the models without these constraints. This suggests that there were no significant differences in the auto-regressive and cross-lagged paths between measurement waves. In the interest of parsimony, we thus present the results with cross-wave equality constraints.

5.4.1. Income

Model fit indices of the cross-lagged models concerning the relation between income and personality are shown in Table 3, with all models showing good fit to the data. The coefficients for the autoregressive and cross-lagged effects are shown in Table 4. Higher income predicted lower neuroticism ($\beta = -0.02$) and increased openness ($\beta = 0.04$) over time, confirming Hypothesis 1 for neuroticism, and Hypothesis 3 for openness. However, income did not predict change in extraversion, agreeableness, or conscientiousness, refuting Hypotheses 2, 4 and 5. In terms of effects of traits on changes in income, we found that higher levels of neuroticism ($\beta = -0.03$) and conscientiousness ($\beta = -0.03$) predicted a decrease in income while higher levels of openness ($\beta = 0.02$) predicted an increase in income.

Table 2
Longitudinal measurement invariance testing for personality.

Model	χ^2	df	CFI	TLI	RMSEA (90% CI)	ΔCFI
Neuroticism						
Configural invariance	18.49	15	1.000	0.999	0.007 [0.000, 0.016]	
Metric invariance	103.1003	22	0.990	0.984	0.028 [0.023, 0.033]	0.01
Extraversion						
Configural invariance	64.69	15	0.995	0.989	0.026 [0.020, 0.033]	
Metric invariance	81.573	22	0.994	0.991	0.024 [0.018, 0.029]	0.001
Openness						
Configural invariance	18.64	15	1.000	0.999	0.007 [0.000, 0.016]	
Metric invariance	114.997	22	0.989	0.982	0.030 [0.025, 0.035]	0.01
Agreeableness						
Configural invariance	105.24	16	0.985	0.966	0.034 [0.028, 0.041]	
Partial metric invariance	117.08	20	0.983	0.970	0.032 [0.026, 0.038]	0.001
Conscientiousness						
Configural invariance	47.34	15	0.994	0.986	0.021 [0.015, 0.028]	
Metric invariance	57.19	19	0.993	0.987	0.021 [0.015, 0.027]	0.001

Note. χ^2 = chi-square test statistic; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root-mean-square error of approximation; CI = confidence interval; ΔCFI = change in CFI. Metric models are compared to the configural model.

Table 3
Model fit results of the full reciprocal models.

Model	χ^2	df	CFI	TLI	RMSEA (90% CI)
Models for income and personality					
Neuroticism	280.49	45	0.982	0.974	0.033 [0.029, 0.037]
Extraversion	325.60	45	0.982	0.974	0.036 [0.033, 0.040]
Openness	256.86	45	0.984	0.977	0.031 [0.028, 0.035]
Agreeableness	305.44	44	0.976	0.964	0.035 [0.032, 0.039]
Conscientiousness	281.93	43	0.978	0.966	0.034 [0.030, 0.038]
Models for prestige and personality					
Neuroticism	514.13	45	0.969	0.955	0.047 [0.043, 0.050]
Extraversion	574.23	45	0.970	0.956	0.050 [0.046, 0.053]
Openness	571.18	45	0.967	0.951	0.050 [0.046, 0.053]
Agreeableness	550.63	46	0.960	0.940	0.049 [0.046, 0.053]
Conscientiousness	501.99	43	0.963	0.943	0.047 [0.044, 0.051]

Note. Reciprocal models included autoregressive effects plus standard and reverse causal lags. Models contain cross-wave equality constraints. χ^2 = chi-square test statistic; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root-mean-square error of approximation; CI = confidence interval.

Table 4
Standardized coefficients from the full reciprocal models.

	Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Models for income and personality					
Income → Personality	-0.02*	-0.01	0.04***	-0.01	-0.00
Personality → Income	-0.03***	-0.00	0.02**	-0.02	-0.03***
Autoregressive effects					
Income	0.91***	0.91***	0.91***	0.91***	0.91***
Personality	0.79***	0.84***	0.79***	0.75***	0.70***
Models for occupational prestige and personality					
Prestige → Personality	-0.02	-0.02*	0.04***	-0.02	-0.02
Personality → Prestige	-0.01	0.00	0.03***	-0.01	-0.00
Autoregressive effects					
Prestige	0.82***	0.82***	0.82***	0.82***	0.82***
Personality	0.79***	0.84***	0.79***	0.75***	0.70***

Note. Results show averaged coefficients across measurement intervals based on standardized coefficients with imposed equality constraints.

*** $p < .001$.

** $p < .01$.

* $p < .05$.

5.4.2. Occupational prestige

Model fit results of the cross-lagged models concerning the relation between occupational prestige and personality are shown in Table 3, with all models showing good fit. The coefficients for the reciprocal models are shown in Table 4. Higher occupational prestige predicted a decrease in extraversion ($\beta = -0.02$) but an increase in openness ($\beta = 0.04$), in contradiction of Hypothesis 2 for extraversion, but confirming Hypothesis 3 for openness. Higher openness predicted an increase in prestige ($\beta = 0.03$) while we found no predictive effects for the other traits.

To check the robustness of our results, we reran the models controlling for age in years, gender, marital status, and region (i.e. East vs. West Germany) on T1 through T3 income, prestige, and personality traits. The pattern of results remained the same, which suggests that the general findings were not significantly affected by the control variables.

In sum, the results showed that changes in personality follow career success, and also evidence that personality predicts career success. For the traits of neuroticism and openness, these relations were corresponsive such that the same traits that predicted success were also predicted by success. The most consistent result was found for increased openness as predicted by both income and prestige (and also predicting increases in both success indicators). Partial support was found for decreased neuroticism as predicted by income (and also predicting increase in income), but not prestige. However, the expected results were not confirmed for the other traits.

5.5. Examining age group and gender effects

To test if age and/or gender moderate the relations between personality and success, we conducted multi-group comparisons, in accordance the procedure used in other research (e.g., Hudson et al., 2012). For each trait paired with each success measure, we tested a full reciprocal model where the lagged effects between success and personality were constrained to be equal across age or gender groups against a model with no respective constraints, while maintaining the cross-wave equality constraints as done in the general analyses. The fit of the constrained and unconstrained models were compared with chi-square difference tests.

5.5.1. Multi-group comparisons for age

For each of the 10 models (i.e., five personality traits each paired with income and occupational prestige, respectively), we compared young adults to middle adults; young adults to old adults; and middle to old adults. In all cases, the unconstrained models did not show a better fit compared to the constrained models (all $ps < 0.05$), indicating no significant age group differences in effects, refuting [Hypothesis 6](#).

5.5.2. Multi-group comparisons for gender

We compared men and women in each of the 10 models. Refuting [Hypothesis 7](#), in all cases, the fit of the unconstrained models did not show a better fit compared to the constrained models (all $ps < 0.05$), indicating no significant differences between men and women.

5.5.3. Post-hoc multi-group comparisons

As a post-hoc analyses, we compared men and women within each of the age groups (e.g. young women compared to young men). The unconstrained models did not show significantly better fit to the constrained models in all cases (all $ps < 0.05$), indicating that there were no interaction effects between age and gender.

6. Discussion

The aim of this paper was to test how personality traits change due to achieved objective career success. We thereby contribute to the limited research on the consequences of career success ([D. Spurrk et al., 2019](#)) and to the literature on how work experiences affect changes in personality traits ([Tasselli et al., 2018](#)). We also contribute to personality-related vocational and counselling psychology research ([Brown & Hirschi, 2013](#)) by highlighting that personality traits not only can affect occupational attainment, but that occupational attainment can also lead to changes in personality. In an important extension of existing research, which is typically based on selective and non-representative convenience samples, we investigated our hypotheses in a large representative sample and conducted multigroup analyses to examine potential age group and gender differences. Globally, our results show evidence for personality change following career success and also that personality predicts career success.

6.1. Reciprocal influences between career success and personality

The results of the cross-lagged analyses gave some evidence for the notion that career success prompts changes in personality. Higher income preceded a decrease in neuroticism, but an increase in openness. More prestige preceded an increase in openness and a decrease in extraversion. The direction of the relations for neuroticism and openness were expected, with success supporting the developmental trend of personality towards functional maturity over time as indicated by less neuroticism and more openness ([Roberts & Wood, 2006](#)).

The relation between neuroticism and income was reciprocal and negative, which confirms previous research in a smaller U.S. sample assessed with two measurement waves over 10 years ([Sutin et al., 2009](#)). These results suggest that neuroticism is a hindrance to the attainment of objective career success, presumably because achieving career success necessitates emotional stability, and dealing with stressful work challenges and uncertainties in a productive way. Based on the corresponsive principle ([Roberts et al., 2003](#)), the results moreover imply that attaining and sustaining success poses social role demands that are contrary to neuroticism, which leads successful people to suppress and decrease their neurotic tendencies over time.

The relation between openness and success was reciprocal and positive, also confirming our assumption and previous results that assessed the relation between upward job changes and openness in a representative Australian sample ([Nieß & Zacher, 2015](#)). The findings suggest that openness is a resource for the attainment of objective career success, presumably because attaining and maintaining success necessitates meeting intellectual role demands, such as being open to new ideas and opportunities or finding innovative solutions to challenges and problems at work. In turn, meeting such demands would activate and strengthen openness over time.

We had expected that extraversion would increase, not decrease, as a consequence of success. Previous research showed that aspects of extraversion, such as positive emotionality, are important for attaining success ([Le et al., 2014](#); [Roberts et al., 2003](#)). However, some research found that while extraversion may be predictive of attaining positions with certain occupational characteristics, these same characteristics do not necessarily predict changes in extraversion ([Wille & De Fruyt, 2014](#)). Thus, it may be that once individuals attain a certain level of prestige, there is less need to be sociable, because one's position in interpersonal contexts is defined by one's status, and less by one's social relations. Moreover, successful individuals might depend less on the support from others, decreasing their need to be sociable. Hence, our findings suggest that being in a prestigious occupation might decrease sociable role demands, resulting in decreases of extraversion over time.

In terms of personality predicting success, we also observed that conscientiousness predicted a decrease in income, which goes against meta-analytic findings of a positive association between conscientiousness and salary and promotions ([Ng et al., 2005](#); [Ng & Feldman, 2014](#)). However, research on the relation between conscientiousness and success has not produced consistent results, with several studies reporting no significant relation between conscientiousness and objective career success (e.g., [Nyhus & Pons, 2005](#); [Seibert & Kraimer, 2001](#)). This suggests that the relation between conscientiousness and objective career success is not straightforward. The negative predictive effect of conscientiousness in our sample might be explained in the way that conscientious individuals tend to select conventional occupations ([Barrick, Mount, & Gupta, 2003](#)) which in some cases may include jobs with a lower salary ([Ghetta, Hirschi, Herrmann, & Rossier, 2018](#)). In addition, it may be that individuals with higher levels of conscientiousness may prefer to fulfill the duties in their current jobs and not look for higher success opportunities, which in turn, results in a decrease in income over

time. In addition, some work demands associated with increased objective success, such as leading and supervising, might be in contradiction to typical aspects of high conscientiousness, such as rigidity or perfectionism, leading successful individuals to lower their manifestations of conscientiousness over time to achieve a better fit.

Our examinations on how career success predicts subsequent changes in personality also make a more general contribution to the investigation of the corresponsive principle of personality development (Roberts et al., 2003). Based on this perspective, we assumed the same traits that predict career success should also change as a result of career success and that attaining and maintaining objective success poses demands that trigger personality adjustment processes. We found support for corresponsive mechanisms for neuroticism and openness. For extraversion, success predicted a change in this trait, but this trait did not predict changes in success.

For agreeableness, no significant relations were observed in either direction. This is in contrast to research showing that agreeableness is negatively related to objective career success (Judge et al., 2012; Ng et al., 2005) and that individuals in positions with more responsibilities showed slower increases in agreeableness over time (Wille & De Fruyt, 2014). However, other studies found that more prosocial individuals (a characteristic closely related to agreeableness) have higher incomes (Eriksson, Vartanova, Strimling, & Simpson, 2018). It could be that the relation with career success is thus more complex and moderated by other factors, such as occupation or organization. For example, in a more competitive climate where individual contributions are highly valued, agreeableness might be less positive for objective career success compared to in environments where cooperation and team performance are more important (Bolino & Grant, 2016). Also, being successful might cause individuals to be less dependent on others and thus reduce their agreeableness. However, it could also be that the security of having achieved success might induce individual to become more invested in (pro)social activities (Harari, Herst, Parola, & Carmona, 2017), potentially increasing their agreeableness over time. Future research could more closely examine under which conditions agreeableness might relate positively or negatively with career success.

To understand the nonsignificant findings, it is also important to remember that objective career success and personality do not develop in a vacuum, and it is the merit of the social investment principle to have pointed attention to the different roles that people take up during the life course and their potential impact on personality development processes. For example, research showed that life events such as child birth or unemployment can have a meaningful impact on personality change (Denissen et al., 2019). Such live events could also affect the attainment of objective career success and can thus affect the relations between success and personality change in many ways that our study could not account for. As such, when applying the social investment principle and the corresponsive mechanism, it seems necessary to attend to multiple influences of personality development.

An inherent difficulty in empirically examining the claims of the social investment principle is determining at what time people start to invest in a particular role, and how investment in different roles at the same time works out across a longer time frame for individuals. Investing in two different roles at the same time may affect personality in similar ways, hence strengthening changes in a particular trait, but roles may also affect traits in opposite ways, without noticeable change. A promotion towards a more managerial job with more responsibilities and work demands may make someone more emotionally stable (i.e., lower in neuroticism), whereas a baby at home may challenge that person's neuroticism score in the opposite direction (Denissen et al., 2019). Such examples resulting from the social investment principle illustrate the complexities to demonstrate its claims and predictions.

Our findings also have important implications for vocational and counselling psychology research which is mostly focused on assessing traits as relatively stable predictors of career choices, vocational behavior, occupational attainment, and occupational niche-finding (Brown & Hirschi, 2013). Extending this literature, our study shows that occupational attainment can lead to changes in personality also in adulthood and that personality traits are thus more dynamically linked with vocational behavior and attainment than typically assumed. This insight could for example inform future theory and research on the social cognitive career theory (SCCT; R.W. Lent & Brown, 2013; R.W. Lent, Brown, & Hackett, 1994) which acknowledges that more distal person inputs in terms of personality traits can have important effects on vocational interests, career choices, performance, and career self-management behaviors. Our findings could extend this framework by investigating how career attainments can have feedback effects not only on more proximal but also more distal person factors, thereby acknowledging even more dynamic social cognitive processes in career development. Similarly, in career construction theory (Savickas, 2013) the framework of adaptivity, adaptability, adaptive responses, and adaptation (Hirschi, Herrmann, & Keller, 2015) sees traits as components of adaptivity which predicts other outcomes. In extension, our findings suggest that adaptation outcomes could also lead to changes in adaptivity.

6.2. Moderating effects

Our multigroup comparisons showed no evidence for age group or gender differences in how personality traits and career success impact each other. While previous research has shown that personality change is most prominent in young adulthood (Schwaba & Bleidorn, 2018), our results show that career success and personality relate to each other in uniform ways across age. This suggests that sustained social investment in the work role, and the attainment of objective career success, can have an impact on individuals' personality not only in early or middle adulthood (Roberts et al., 2003; Roberts & Mroczek, 2008) but throughout the entire working lifespan into older age. Similarly, the impact that personality can have on career success attainment seems to remain consistent across age too. This suggests that the importance of personal characteristics for objective career success is not limited to the early career years, but that personality remains an influential factor throughout one's career.

Our results also showed that there are no differences between men and women in how success relates to personality change. This finding advances previous research focusing on gender differences in the relation between personality and success (Gelissen & de Graaf, 2006; G. Mueller & Plug, 2006; Nyhus & Pons, 2005). Our results are line with previous research showing that developmental trends of personality do not differ for men and women (Damian, Spengler, Sutu, & Roberts, 2018). Thus, while men and women may experience the work role differently and may attain differing salaries and levels of occupational prestige, the way that career success

and personality impact each other seems consistent for men and women. Overall, our findings suggest that the attainment and maintenance of objective career success poses demands on personality traits that are comparable across age groups and gender, which leads to comparable effects of success on personality change across groups.

6.3. Limitations

Our study has some notable strengths that include the use of a large, representative, heterogeneous sample spanning adulthood; cross-lagged analyses with three measurement points over several years; the consideration of age group and gender as moderators; and the use of objective indicators of career success. Nonetheless, some limitations of this study should be kept in mind when considering the results. First, several of the expected relations between success and personality were not confirmed in our study. Because we examined a representative and large sample and conducted a series of robustness checks, the nonsignificant findings are unlikely to result from sample bias or lack of statistical power. More likely is the interpretation that changes in income and occupational prestige are influenced by multiple factors, and so are changes in personality. This results in overall small direct effects, that in some cases become negligible. The relatively small effects found in our study thus caution against overstating the effects of success on personality. However, it is important to interpret effect sizes according to a meaningful benchmark (Funder & Ozer, 2019). We report cross-lagged effects, which take into account the stability of the construct and autoregressive effects over time. Because the examined constructs in our study are very stable, small cross-lagged effects can be expected. Indeed, the effects sizes reported in our study are comparable to the average cross-lagged effects between personality traits (e.g., self-esteem, positive emotionality) and other variables (e.g., social relationships, depression) reported in meta-analyses (Harris & Orth, 2019; Khazanov & Ruscio, 2016). It is also important to note that while all observed effects were small, small effects might be consequential over time (Funder & Ozer, 2019), and even small changes in personality can have a meaningful impact on an individual's life (Roberts et al., 2006). Second, the personality measure used in this study only included three items per personality trait. While the applied measure is comparable to other longer measures of personality (Donnellan & Lucas, 2008), the full scope of each personality trait is not covered. For example, the extraversion items in the applied measure cover sociability, but to a lesser extent positive emotions and energy. Investigations into personality facets and how these might change as a result of work success (Sutin et al., 2009) could therefore not be conducted. This could be important as research has shown that changes in traits (e.g., extraversion) can depend on which facets of the trait are investigated (Roberts et al., 2006; Soto, John, Gosling, Potter, 2011). It is thus possible that we failed to detect changes in specific facets of the examined traits.

6.4. Future research

Our study hypotheses were based on the corresponsive mechanism within the neosocioanalytic model of personality (Roberts et al., 2003). However, we were not able to directly test which specific expectations, norms, and rewards associated with career success lead to changes in traits. One area for future research would thus be to investigate possible mechanisms that explain why experiencing success at work leads to changes in personality. The social investment principle suggests that psychological role commitment is relevant for personality change (Lodi-Smith & Roberts, 2007). Hence, role involvement and commitment or job satisfaction may be possible mediators, or moderators, in the link between success and personality change. Furthermore, the expectations, norms, and demands associated with roles are an important source of personality change (Lodi-Smith & Roberts, 2007; Woods et al., 2019). Thus, future research may want to investigate to what extent the specific expectations, norms, and demands associated with successful positions, and the resulting behavior of the individual, prompt personality development. In situations where there is a clear behavior difference, as well as a clearer trait-behavior link, it may be more likely to observe the corresponsive mechanism at work.

6.5. Conclusion

This study contributed to the emerging research on the consequences of career success and the effects of work experiences on personality development. The results highlight the complexity in studying success and personality change, as both are influenced by multiple factors. Nonetheless, experiencing success at work does seem to have some bearing on how personality develops for working adults. The results have implications for further theory development and research in vocational and organizational behavior concerning how changes in personality take place and how the work role and career outcomes lead to changes in personality.

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CRedit authorship contribution statement

Andreas Hirschi: Conceptualization, Methodology, Writing – original draft, Writing – review & editing, Supervision, Funding acquisition. **Claire S. Johnston:** Conceptualization, Methodology, Formal analysis, Writing – original draft, Writing – review & editing, Supervision. **Filip De Fruyt:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing. **Anja Ghetta:** Methodology, Formal analysis, Writing – original draft. **Ulrich Orth:** Methodology, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

- Baltes, P. B. (1987). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. *Developmental Psychology*, 23(5), 611–626. <https://doi.org/10.1037/0012-1649.23.5.611>.
- Barrick, M. R., Mount, M. K., & Gupta, R. (2003). Meta-analysis of the relationship between the five-factor model of personality and Holland's occupational types. *Personnel Psychology*, 56(1), 45–74. <https://doi.org/10.1111/j.1744-6570.2003.tb00143.x>.
- Bolino, M. C., & Grant, A. M. (2016). The bright side of being Prosocial at work, and the dark side, too: A review and agenda for research on other-oriented motives, behavior, and impact in organizations. *Academy of Management Annals*, 10(1), 599–670. <https://doi.org/10.1080/19416520.2016.1153260>.
- Boudreau, J. W., Boswell, W. R., & Judge, T. A. (2001). Effects of personality on executive career success in the United States and Europe. *Journal of Vocational Behavior*, 58(1), 53–81. <https://doi.org/10.1006/jvbe.2000.1755>.
- Boyce, C. J., Wood, A. M., Daly, M., & Sedikides, C. (2015). Personality change following unemployment. *Journal of Applied Psychology*, 100(4), 991–1011. <https://doi.org/10.1037/a0038647>.
- Brown, S. D., & Hirschi, A. (2013). Personality, career development, and occupational attainment. In S. D. Brown, & R. W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (2nd ed., pp. 299–328). John Wiley & Sons.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen, & J. S. Long (Eds.), *Testing structural equation models*. Sage.
- Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, 9(2), 233–255. https://doi.org/10.1207/S15328007SEM0902_5.
- Costa, P. T., & McCrae, R. R. (1997). Personality trait structure as a human universal. *American Psychologist*, 52(5), 509–516. <https://doi.org/10.1037/0003-066x.52.5.509>.
- Damian, R. I., Spengler, M., Sutu, A., & Roberts, B. (2018). Sixteen going on sixty-six: A longitudinal study of personality stability and change across 50 years. *Journal of Personality and Social Psychology*. <https://doi.org/10.1037/pspp0000210>.
- Denissen, J. J. A., Bleidorn, W., Hennecke, M., Luhmann, M., Orth, U., Specht, J., & Zimmermann, J. (2017). Uncovering the power of personality to shape income. *Psychological Science*, 29(1), 3–13. <https://doi.org/10.1177/0956797617724435>.
- Denissen, J. J. A., Luhmann, M., Chung, J. M., & Bleidorn, W. (2019). Transactions between life events and personality traits across the adult lifespan. *Journal of Personality and Social Psychology*, 116(4), 612–633. <https://doi.org/10.1037/pspp0000196>.
- Donnellan, M. B., & Lucas, R. E. (2008). Age differences in the Big Five across the life span: Evidence from two national samples. *Psychology and Aging*, 23, 558–566. <https://doi.org/10.1037/a0012897>.
- Eriksson, K., Vartanova, I., Strimling, P., & Simpson, B. (2018). Generosity pays: Selfish people have fewer children and earn less money. *Journal of Personality and Social Psychology*. <https://doi.org/10.1037/pspp0000213>.
- Etzel, J. M., & Nagy, G. (2019). Evaluation of the dimensions of the spherical model of vocational interests in the long and short version of the Personal Globe Inventory. *Journal of Vocational Behavior*, 112, 1–16. <https://doi.org/10.1016/j.jvb.2019.01.003>.
- Funder, D. C., & Ozer, D. J. (2019). Evaluating effect size in psychological research: Sense and nonsense. *Advances in Methods and Practices in Psychological Science*, 2(2), 156–168. <https://doi.org/10.1177/2515245919847202>.
- Ganzeboom, H. B., & Treiman, D. J. (1996). Internationally comparable measures of occupational status for the 1988 International Standard Classification of Occupations. *Social Science Research*, 25, 201–239. <https://doi.org/10.1006/ssre.1996.0010>.
- Gelissen, J., & de Graaf, P. M. (2006). Personality, social background, and occupational career success. *Social Science Research*, 35(3), 702–726. <https://doi.org/10.1016/j.ssresearch.2005.06.005>.
- Gerlitz, J.-Y., & Schupp, J. (2005). Zur Erhebung der Big-Five-basierten Persönlichkeitsmerkmale im SOEP [Collection of the Big-Five personality characteristics in SOEP]. In 4. DIW Research Notes (pp. 1–36).
- Ghetta, A., Hirschi, A., Herrmann, A., & Rossier, J. (2018). A psychological description of the Swiss labor market from 1991 to 2014. *Swiss Journal of Psychology*. <https://doi.org/10.1024/1421-0185/a000206>.
- Goebel, J. (2016). SOEP documentation. Codebook: generated variables personal level. T. G. S. panel. https://www.diw.de/en/diw_02.c.239921.en/codebooks.html.
- Greer, T. W., & Egan, T. M. (2012). Inspecting the hierarchy of life roles: A systematic review of role salience literature. *Human Resource Development Review*, 11(4), 463–499. <https://doi.org/10.1177/1534484312445322>.
- Hahn, E., Gottschling, J., & Spinath, F. M. (2012). Short measurements of personality - Validity and reliability of the GSOEP Big Five Inventory (BFI-S). *Journal of Research in Personality*, 46(3), 355–359. <https://doi.org/10.1016/j.jrp.2012.03.008>.
- Harari, M. B., Herst, D. E. L., Parola, H. R., & Carmona, B. P. (2017). Organizational correlates of public service motivation: A meta-analysis of two decades of empirical research. *Journal of Public Administration Research and Theory*, 27(1), 68–84. <https://doi.org/10.1093/jopart/muw056>.
- Harris, M. A., & Orth, U. (2019). The link between self-esteem and social relationships: A meta-analysis of longitudinal studies. *Journal of Personality and Social Psychology*. <https://doi.org/10.1037/pspp0000265> (Advance online publication).
- Hirschi, A., Herrmann, A., & Keller, A. C. (2015). Career adaptivity, adaptability, and adapting: A conceptual and empirical investigation. *Journal of Vocational Behavior*, 87, 1–10. <https://doi.org/10.1016/j.jvb.2014.11.008>.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <https://doi.org/10.1080/1070519990540118>.
- Hudson, N. W., Roberts, B. W., & Lodi-Smith, J. (2012). Personality trait development and social investment in work. *Journal of Research in Personality*, 46(3), 334–344. <https://doi.org/10.1016/j.jrp.2012.03.002>.
- Judge, T. A., Higgins, C. A., Thoresen, C. J., & Barrick, M. R. (1999). The big five personality traits, general mental ability, and career success across the life span. *Personnel Psychology*, 52(3), 621–652. <https://doi.org/10.1111/j.1744-6570.1999.tb00174.x>.
- Judge, T. A., Livingston, B. A., & Hurst, C. (2012). Do nice guys—And gals—Really finish last? The joint effects of sex and agreeableness on income. *Journal of Personality and Social Psychology*, 102(2), 390–407. <https://doi.org/10.1037/a0026021>.
- Khazanov, G. K., & Ruscio, A. M. (2016). Is low positive emotionality a specific risk factor for depression? A meta-analysis of longitudinal studies. *Psychological Bulletin*, 142(9), 991–1015. <https://doi.org/10.1037/bul0000059>.
- Konrad, A. M., Ritchie, J. E., Jr., Lieb, P., & Corrigall, E. (2000). Sex differences and similarities in job attribute preferences: A meta-analysis. *Psychological Bulletin*, 126(4), 593–641. <https://doi.org/10.1037/0033-2909.126.4.593>.
- Kooij, D. T., De Lange, A. H., Jansen, P. G., Kanfer, R., & Dikkers, J. S. (2011). Age and work-related motives: Results of a meta-analysis. *Journal of Organizational Behavior*, 32(2), 197–225. <https://doi.org/10.1002/job.665>.
- Kümmerling, A., Jansen, A., & Lehndorff, S. (2009). Die Veränderung der Beschäftigungs- und Arbeitszeitstrukturen in Deutschland 2001 bis 2006 [The change in employment and working time structures in Germany 2001 to 2006]. Hans-Böckler-Stiftung https://www.boeckler.de/pdf_fof/96781.pdf.
- Lang, F. R., John, D., Ludtke, O., Schupp, J., & Wagner, G. G. (2011). Short assessment of the Big Five: Robust across survey methods except telephone interviewing. *Behavior Research Methods*, 43(2), 548–567. <https://doi.org/10.3758/s13428-011-0066-z>.

- Le, K., Donnellan, M. B., & Conger, R. (2014). Personality development at work: Workplace conditions, personality changes, and the corresponsive principle. *Journal of Personality*, 82(1), 44–56. <https://doi.org/10.1111/jopy.12032>.
- Lent, R. W., & Brown, S. D. (2013). Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span. *Journal of Counseling Psychology*, 60(4), 557–568. <https://doi.org/10.1037/a0033446>.
- Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior*, 45(1), 79–122. <https://doi.org/10.1006/jvbe.1994.1027>.
- Li, W.-D., Li, S., Feng, J., Wang, M., Zhang, H., Frese, M., & Wu, C.-H. (2020). Can becoming a leader change your personality? An investigation with two longitudinal studies from a role-based perspective. *Journal of Applied Psychology*. <https://doi.org/10.1037/apl0000808>. Advance online publication.
- Lodi-Smith, J., & Roberts, B. W. (2007). Social investment and personality: A meta-analysis of the relationship of personality traits to investment in work, family, religion, and volunteerism. *Personality and Social Psychology Review*, 11(1), 68–86. <https://doi.org/10.1177/1088868306294590>.
- Moutafi, J., Furnham, A., & Crump, J. (2007). Is managerial level related to personality? *British Journal of Management*, 18(3), 272–280. <https://doi.org/10.1111/j.1467-8551.2007.00511.x>.
- Mueller, G., & Plug, E. (2006). Estimating the effect of personality on male and female earnings. *Industrial & Labor Relations Review*, 60(1), 3–22.
- Mueller, S., Wagner, J., Wagner, G. G., Ram, N., & Gerstorf, D. (2019). How far reaches the power of personality? Personality predictors of terminal decline in well-being. *Journal of Personality and Social Psychology*, 116(4), 634–650. <https://doi.org/10.1037/pspp0000184>.
- Muthén, L. K., & Muthén, B. O. (2010). *Mplus: Statistical analysis with latent variables: User's guide* (6th ed.). (Muthén & Muthén).
- Ng, T. W. H., Eby, L. T., Sorensen, K. L., & Feldman, D. C. (2005). Predictors of objective and subjective career success. A meta-analysis. *Personnel Psychology*, 58(2), 367–408. <https://doi.org/10.1111/j.1744-6570.2005.00515.x>.
- Ng, T. W. H., & Feldman, D. C. (2014). A conservation of resources perspective on career hurdles and salary attainment. *Journal of Vocational Behavior*, 85(1), 156–168. <https://doi.org/10.1016/j.jvb.2014.05.008>.
- Nieß, C., & Zacher, H. (2015). Openness to experience as a predictor and outcome of upward job changes into managerial and professional positions. *PLoS One*, 10(6), e0131115.
- Nyhus, E. K., & Pons, E. (2005). The effects of personality on earnings. *Journal of Economic Psychology*, 26(3), 363–384. <https://doi.org/10.1016/j.joep.2004.07.001>.
- Oesch, D., & Piccitto, G. (2019). The polarization myth: Occupational upgrading in Germany, Spain, Sweden, and the UK, 1992–2015. *Work and Occupations*, 46(4), 441–469. <https://doi.org/10.1177/0730888419860880>.
- Roberts, B. W. (1997). Plaster or plasticity: Are adult work experiences associated with personality change in women? *Journal of Personality*, 65(2), 205–232. <https://doi.org/10.1111/j.1467-6494.1997.tb00953.x>.
- Roberts, B. W., Caspi, A., & Moffitt, T. (2003). Work experiences and personality development in young adulthood. *Journal of Personality and Social Psychology*, 84(3), 582–593.
- Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin*, 126(1), 3–25.
- Roberts, B. W., Kuncel, N. R., Shiner, R., Caspi, A., & Goldberg, L. R. (2007). The power of personality: The comparative validity of personality traits, socioeconomic status, and cognitive ability for predicting important life outcomes. *Perspectives on Psychological Science*, 2(4), 313–345. <https://doi.org/10.1111/J.1745-6916.2007.00047.X>.
- Roberts, B. W., & Mroczek, D. (2008). Personality trait change in adulthood. *Current Directions in Psychological Science*, 17(1), 31–35. <https://doi.org/10.1111/j.1467-8721.2008.00543.x>.
- Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: A meta-analysis of longitudinal studies. *Psychological Bulletin*, 132(1), 1–25. <https://doi.org/10.1037/0022-3514.84.3.582>.
- Roberts, B. W., & Wood, D. (2006). Personality development in the context of the neo-socioanalytic model of personality. In D. Mroczek, & T. D. Little (Eds.), *Handbook of personality development* (pp. 11–39). Lawrence Erlbaum Associates Publishers.
- Roberts, B. W., Wood, D., & Caspi, A. (2008). The development of personality traits in adulthood. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (pp. 375–398) (Guilford).
- Roberts, B. W., Wood, D., & Smith, J. L. (2005). Evaluating five factor theory and social investment perspectives on personality trait development. *Journal of Research in Personality*, 39(1), 166–184.
- Savickas, M. L. (2013). Career construction theory and practice. In S. D. Brown, & R. W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (2nd ed., pp. 42–70). Wiley.
- Schwaba, T., & Bleidorn, W. (2018). Individual differences in personality change across the adult life span. *Journal of Personality*, 86(3), 450–464. <https://doi.org/10.1111/jopy.12327>.
- Seibert, S. E., & Kraimer, M. L. (2001). The five-factor model of personality and career success. *Journal of Vocational Behavior*, 58(1), 1–21. <https://doi.org/10.1006/jvbe.2000.1757>.
- SOEP Group. (2014). *SOEP 2013: Documentation of person-related status and generated variables in PGEN for SOEP v30 (Report No. 250)*. DIW/SOEP.
- Soto, C. J., John, O. P., Gosling, S. D., & Potter, J. (2011). Age differences in personality traits from 10 to 65: Big Five domains and facets in a large cross-sectional sample. *Journal of Personality and Social Psychology*, 100(2), 330–348. <https://doi.org/10.1037/a0021717>.
- Specht, J., Egloff, B., & Schmukle, S. C. (2011). Stability and change of personality across the life course: The impact of age and major life events on mean-level and rank-order stability of the Big Five. *Journal of Personality and Social Psychology*, 101(4), 862–882. <https://doi.org/10.1037/a0024950>.
- Spurk, D., & Hirschi, A. (2018). The Dark Triad and competitive psychological climate at work: A model of reciprocal relationships in dependence of age and organization change. *European Journal of Work and Organizational Psychology*, 27(6), 736–751. <https://doi.org/10.1080/1359432X.2018.1515200>.
- Spurk, D., Hirschi, A., & Dries, N. (2019). Antecedents and outcomes of objective versus subjective career success: Competing perspectives and future directions. *Journal of Management*, 45(1), 35–69. <https://doi.org/10.1177/0149206318786563>.
- Super, D. E. (1980). A life-span, life-space approach to career development. *Journal of Vocational Behavior*, 16(3), 282–298. [https://doi.org/10.1016/0001-8791\(80\)90056-1](https://doi.org/10.1016/0001-8791(80)90056-1).
- Sutin, A. R., Costa, P. T., Miech, R., & Eaton, W. W. (2009). Personality and career success: Concurrent and longitudinal relations. *European Journal of Personality*, 23(2), 71–84. <https://doi.org/10.1002/per.704>.
- Tasselli, S., Kilduff, M., & Landis, B. (2018). Personality change: Implications for organization behavior. *Academy of Management Annals*, 12(2), 467–493. <https://doi.org/10.5465/annals.2016.0008>.
- Wagner, G. G., Frick, J. R., & Schupp, J. (2007). The German Socio-Economic Panel study (SOEP): Scope, evolution and enhancements. *Schmollers Jahrbuch*, 127, 139–169.
- Wille, B., & De Fruyt, F. (2014). Vocations as a source of identity: Reciprocal relations between Big Five personality traits and RIASEC characteristics over 15 years. *Journal of Applied Psychology*, 99(2), 262.
- Wille, B., Hofmans, J., Lievens, F., Back, M. D., & De Fruyt, F. (2019). Climbing the corporate ladder and within-person changes in narcissism: Reciprocal relationships over two decades. *Journal of Vocational Behavior*, 115, 103341. <https://doi.org/10.1016/j.jvb.2019.103341>.
- Wood, D., & Roberts, B. W. (2006). Cross-sectional and longitudinal tests of the personality and role identity structural model (PRISM). *Journal of Personality*, 74(3), 779–809. <https://doi.org/10.1111/j.1467-6494.2006.00392.x>.
- Woods, S. A., Lievens, F., De Fruyt, F., & Wille, B. (2013). Personality across working life: The longitudinal and reciprocal influences of personality on work. *Journal of Organizational Behavior*, 34(S1), S7–S25. <https://doi.org/10.1002/job.1863>.

- Woods, S. A., Wille, B., & Wu, C.-h., Lievens, F., & De Fruyt, F.. (2019). The influence of work on personality trait development: The demands-affordances TrAnsactional (DATA) model, an integrative review, and research agenda. *Journal of Vocational Behavior*, 110, 258–271. <https://doi.org/10.1016/j.jvb.2018.11.010>.
- Wrzus, C., & Roberts, B. W. (2016). Processes of personality development in adulthood the TESSERA framework. In *Personality and Social Psychology Review*. <https://doi.org/10.1177/1088868316652279>.
- Wu, C. H. (2016). Personality change via work: A job demand-control model of Big-five personality changes. *Journal of Vocational Behavior*, 92, 157–166. <https://doi.org/10.1016/j.jvb.2015.12.001>.