

**Reciprocal Relationships between Dispositional Optimism and Work Experiences:
A Five Wave Longitudinal Investigation**

Wen-Dong Li

Department of Management
The Chinese University of Hong Kong
No. 12 Chak Cheung Street, Shatin, NT, Hong Kong
E-mail: oceanbluepsy@gmail.com

Shuping Li

Department of Management and Marketing
The Hong Kong Polytechnic University
Li Ka Shing Tower, Hung Hom, Hong Kong

Doris Fay

Department of Psychology, University of Potsdam
14476 Potsdam OT Golm, Germany
E-mail: doris.fay@uni-potsdam.de

&

Michael Frese

Department of Management & Organization, National University of Singapore
Mochtar Riady Building, BIZ1 Storey 8, 15 Kent Ridge Drive, Singapore 119245

Accepted by Journal of Applied Psychology

Acknowledgement: An earlier version of this paper was presented at the 2017 Annual Conference for Society for Industrial and Organizational Psychology. This study was supported by a research grant from CUHK Business School, the Chinese University of Hong Kong awarded to the first author. We are indebted to Kenny Law, Brent Roberts, Michael Scheier, Suzanne Segerstrom, and Martin Seligman for insightful comments. We are also grateful for valuable suggestions and guidance from the action editor and the two reviewers.

**Reciprocal Relationships between Dispositional Optimism and Work Experiences:
A Five Wave Longitudinal Investigation**

Abstract

Previous research on dispositional optimism has predominantly concentrated on the selection effect of dispositional optimism on predicting work outcomes. Recent research, however, has started to examine the socialization effect of life experiences on fostering dispositional optimism development. Extrapolating primarily from the TESSERA framework of personality development (Wrzus & Roberts, 2017) and the literature on dispositional optimism, the current study represents a first attempt to reconcile the two seemingly contrasting perspectives. We proposed and examined change-related reciprocal relationships between dispositional optimism and work experience variables including income, job insecurity, coworker support, and supervisor support. Latent change score modeling of data from a five-wave longitudinal study demonstrated that dispositional optimism resulted in decreases in job insecurity, and the decreased job insecurity in turn promoted further increases in dispositional optimism later on. Furthermore, income gave rise to increases in dispositional optimism at a later point in time, but not vice versa. No significant relationships were observed between dispositional optimism and coworker and supervisor support. The findings provide a cautionary note to the majority of previous research based on cross-sectional and lagged designs that assumes causal effects of dispositional optimism on work outcomes. They also showcase the importance of examining personality change in organizational research and enrich our understanding of a more nuanced dynamic interplay between the optimistic employee and the work environment.

Keywords: optimism; work experience; career; personality change; reciprocal relationship

Popular thoughts and folk wisdom have accentuated the prominence of a positive orientation to life. In parallel, scholars have devoted a great deal of research attention to *optimism*, “a mood or attitude associated with an expectation about the social or material future--one which the evaluator regards as socially desirable, to his [or her] advantage, or for his [or her] pleasure” (Tiger, 1979, p. 18). The burgeoning literature has demonstrated the benefits of optimism in predicting employee job performance (Munyon, Hochwarter, Perrewé, & Ferris, 2010; Seligman & Schulman, 1986), leadership potentials (Chemers, Watson, & May, 2000), well-being (Aryee, Srinivas, & Tan, 2005; Gould, Dieffenbach, & Moffett, 2002; Lee, Ashford, & Jamieson, 1993), and even winners of Olympic games (Gould et al., 2002) and presidential candidates (Zullo & Seligman, 1990).

The majority of the literature on optimism has adopted an individual difference approach (Carver & Scheier, 2014; Forgeard & Seligman, 2012; Peterson, 2000). Thus in this study, we focus on *dispositional optimism*, “an individual difference variable that reflects the extent to which people hold generalized favorable expectancies for their future” (Carver, Scheier, & Segerstrom, 2010, p. 879). Previous research has mainly examined the selection effect of dispositional optimism on predicting employee career success and social relationships (Carver & Scheier, 2014; Forgeard & Seligman, 2012; Peterson, 2000). *Selection effects* are broadly defined as the influences of individual characteristics on shaping the situations that individuals engage in (e.g., through career choice or job crafting) (Schneider, 1983). Recently, scholars have started to investigate the other direction of causality: The *socialization effect* of life experiences on the development of dispositional optimism. For instance, Segerstrom (2007) reported that the size of social network and number of subordinates one supervised were significantly related to the change of dispositional optimism in a two wave longitudinal study.

The selection effect of dispositional optimism on modifying work outcomes and the socialization effect of work experiences on optimism development represent two contrasting views on the direction of causality in the relationship between dispositional optimism and work variables. Selection effects have been featured prominently in research adopting the classic dispositional perspective of personality (McCrae et al., 2000), such as the majority of organizational research (Tasselli, Kilduff, & Landis, 2018). It assumes that personality traits cause work outcomes, and negates the socialization effect, because personality traits are “endogenous dispositions that follow intrinsic paths of development essentially independent of environmental influences” (McCrae et al., 2000, p. 173). Hence, most organizational “researchers have tended to render such [personality] change impossible by definition” (Tasselli et al., 2018, p. 44). Likewise, dispositional optimism has been portrayed as “a relatively enduring characteristic that changes little with the vagaries of life” (Scheier & Carver, 1993, p. 27). Socialization effects are rooted in research adopting the radical contextualist perspective (e.g., Lewis, 2001), which highlights influences of contextual factors and often neglects influences of personality traits. Thus, there is a need to reconcile the two contradictory perspectives.

Extrapolating from the TESSERA framework (Wrzus & Roberts, 2017) that recognizes the coexistence of the selection and the socialization effect, we propose that the relationship between employee dispositional optimism and work variables is reciprocal in nature: Dispositional optimism likely changes one’s work experiences, and the changed work experiences may in turn give rise to further changes in optimism later on. Such an integrated perspective potentially reconciles the two seemingly conflicting views. It highlights that the selection effect and the socialization effect likely coexist and further reinforce each other over time. Essentially, this taps into a core question pertaining to a self-reinforcing cycle for

dispositional optimism, that is, whether the work experiences that can be altered by dispositional optimism tend to prompt dispositional optimism development at a later point in time.

Adopting a latent change score approach (Ferrer & McArdle, 2010; McArdle, 2001, 2009) with a five-wave longitudinal design, we examine change-related reciprocal relationships between dispositional optimism and work variables including income, job insecurity, coworker support, and supervisor support. Prior research has documented that pursuits of major life goals driven by dispositional optimism are likely to be reflected in two major arenas: Work achievements (Segerstrom, 2007; Seligman & Schulman, 1986), and social relationships (Assad, Donnellan, & Conger, 2007). Accordingly, we operationalize work experiences by drawing on the socioanalytic theory of personality and job performance (J. Hogan & Holland, 2003; R. Hogan, 1982; R. Hogan & Blicke, in press). It postulates that people are motivated by two basic needs: Getting ahead and getting along. “*Getting along* was defined as behavior that gains the approval of others, enhances cooperation, and serves to build and maintain relationships. *Getting ahead* was defined as behavior that produces results and advances an individual within the group and the group within its competition.” (J. Hogan & Holland, 2003; p. 103). As such, we employ the career success variables, income, and job insecurity to indicate getting ahead and social support from coworker and supervisor for getting along. *Income* has been widely adopted as an objective indicator of career success (Baruch & Bozionelos, 2010; Judge, Higgins, Thoresen, & Barrick, 1999; Ng, Eby, Sorensen, & Feldman, 2005). *Job insecurity* is defined as “perceived powerlessness to maintain desired continuity in a threatened job situation” (Greenhalgh & Rosenblatt, 1984, p. 438). As today’s organizations are facing numerous threats, changes, and challenges, employees are becoming increasingly vulnerable to job loss (Lee, Huang, & Ashford, 2018). Being able to maintain the stability and continuity of one’s job (i.e., low job insecurity)

becomes essential to employee career advancement and success (Lee et al., 2018; Shoss, 2017).

Coworker support and *supervisor support* refer to the amount of assistance that one receives from coworker and supervisor respectively (Karasek & Theorell, 1990). They have been studied as crucial forms of social relationships at work (Chiaburu & Harrison, 2008; Humphrey, Nahrgang, & Morgeson, 2007; Tews, Michel, & Ellingson, 2013).

This investigation contributes to the scholarship on optimism in three ways. First, examining change-related reciprocal relationships between dispositional optimism and work experiences represents a first step to integrate the two seemingly conflicting perspectives on the causal direction embedded in these linkages: Selection effect of dispositional optimism and socialization effect of work experiences. In his review, Peterson (2000) lamented that “little attention has been paid to the origins of this individual difference and in particular to the distinct possibility that its putative outcomes are ... its determinants” (p. 47). Fisher and Aguinis (2017) pointed out that knowledge on such change-related reciprocal relationships enables scholars to “improve the explanatory and predictive adequacy” of the theory on optimism (p. 449).

Second, this study sheds light on *what* and *how* work experiences change dispositional optimism and contributes to the new endeavors to “better understand how optimism is formed” (Forgeard & Seligman, 2012, p. 115). In doing so, this study challenges, and complements, the view that dispositional optimism changes little over time (Scheier & Carver, 1993) and promotes a developmental mindset (Yeager & Dweck, 2012). Examining lagged effects of work experiences on optimism development also represents a more stringent test of the socialization effect. Most recent research merely correlated change of optimism with concurrent change of life experiences (e.g., Chopik, Kim, & Smith, 2015). Correlating two change variables captured at the same time does not permit strong inferences for causality (Cook & Campbell, 1979).

Third, this study serves as a more rigorous examination of the dispositional perspective of dispositional optimism by probing its effect on changing work variables with a longitudinal design (Segerstrom, 2007). Put differently, we use dispositional optimism at Time n to predict changes in work variables from Time n to Time $n+1$. The majority of prior research has adopted cross-sectional or lagged designs (e.g., Aryee et al., 2005; Chemers et al., 2000; Gould et al., 2002; Lee et al., 1993; Munyon et al., 2010; Seligman & Schulman, 1986), which limits the examination of the causal effect of dispositional optimism (Cook & Campbell, 1979).

Theoretical Development and Hypotheses

Theory and Research on Personality Development

Personality traits are relatively stable patterns of behaviors, thoughts, and feelings (Johnson, 1997). Such patterns are stable enough to represent dispositions, but also able to change throughout adulthood (Bleidorn, 2015; Caspi, Roberts, & Shiner, 2005; Roberts & Mroczek, 2008). Meta-analyses report significant changes in population rank-order consistency and mean-level changes for the Big Five (Roberts & DelVecchio, 2000; Roberts, Walton, & Viechtbauer, 2006). A major reason for personality change is that different people have distinct life experiences, which lead to various forms of personality change (Roberts & Mroczek, 2008). As such, individual differences in personality change are at the forefront of research on personality development (Bleidorn, 2015; Specht et al., 2014).

Among the new theoretical developments (Fleeson, 2001; Fleeson & Jayawickreme, 2015; Roberts & Jackson, 2008), the TESSERA framework (Wrzus & Roberts, 2017) outlines the selection effect of personality traits by explaining that “individuals select or create personality-congruent situations” (p. 258) and the socialization effect by explaining how life experiences alter personality traits in the long-term “due to repeated short-term situational processes” (p.

253). In tandem, the framework suggests that personality traits change one's life experiences, and the altered life experiences in turn bring further changes in those personality traits.

In particular, in accounting for long-term personality development, the TESSERA framework stipulates that triggering situations first influence expectancies about which states (e.g., behaviors, thoughts, or feelings) are appropriate. State/States expression follows, which then results in reactions from oneself or other people. The ensuing two processes serve as the major mechanisms for personality change: *reflection* and *learning* from the reactions and consequences, because they influence whether behaviors, thoughts, or feelings will be repeated, generalized, and habituated in the future. Such repeated processes will change the patterns of behaviors, thoughts, or feelings, that is, by definition, personality traits (Johnson, 1997).

Applied to the current research, we expect the selection effect of dispositional optimism to play out in two work arenas related to getting ahead and getting along. Chiefly, optimistic individuals seek or create more challenging work tasks and exhibit greater persistence over time (Carver & Scheier, 2014). Hence, they tend to enjoy higher income and lower job insecurity. They also tend to experience increased coworker and supervisor support over time, because they exhibit greater levels of positive affect (Chang & Sanna, 2001; Kaplan, Bradley, Luchman, & Haynes, 2009), and are liked more by others (Carver, Kus, & Scheier, 1994).

The socialization effect of work experiences on development of optimism occurs when optimists successfully achieve their work goals of getting ahead and getting along. Achieving such goals provides ample opportunities to enhance optimistic individuals' confidence and growth. The positive reactions from others and themselves trigger reflection and learning, which in turn reinforce the tendency to form more favorable expectations in the future. As a result, optimists' behavioral tendencies likely get generalized and habituated. Increases in dispositional

optimism ensue. In concert, a recursive cycle likely emerges: Optimistic employees are likely to become more successful in achieving important work goals of getting ahead and getting along; increased achievements in obtaining those goals may further strengthen dispositional optimism.

In what follows, we first formulate hypotheses on the selection effect of dispositional optimism on changing work experiences. Then we delineate the rationale for the socialization effect of work experiences on changing dispositional optimism. Last, we present hypotheses on change-related reciprocal relationships between dispositional optimism and work experiences.

Selection Effect of Dispositional Optimism on Changes of Work Experiences

Dispositional optimism and changes of income and job insecurity. We expect optimistic employees to reap the benefits of obtaining greater levels of career goals of getting ahead (e.g., increases in income and decreases in job insecurity) for three reasons. First, optimistic employees tend to craft work environments that allow them to set up higher career goals and persevere more over time even in stressful situations (Carver & Scheier, 2014; Forgeard & Seligman, 2012; Peterson, 2000). As they have achieved their goals, they tend to set more challenging goals in the future (Bandura, 1999; Latham & Locke, 2007). Second, optimists are increasingly able to disengage from intractable and unobtainable goals, because disengagement from such goals liberates them to conserve resources and pursue more important and obtainable goals (Aspinwall, Richter, & Hoffman, 2001). Third, optimistic employees are able to attract more organizational sponsorship over time. Because optimists achieve higher levels of job performance (Seligman & Schulman, 1986) and are perceived as more leader-like (Chemers et al., 2000), they likely secure greater sponsorship from organizations over time. Organizational sponsorship has been shown to be a critical catalyst to facilitate career success (Ng et al., 2005). All the above reasoning suggests that optimistic employees likely achieve

greater success in terms of getting ahead, which may be reflected in earning higher income and having lower job insecurity over time.

Previous research provides indirect support for this prediction. For example, Seligman and Schulman (1986) found that optimistic sales agents outperformed their less optimistic counterparts. Segerstrom (2007) reported that dispositional optimism was positively related to income 10 years later. Cheng, Mauno, and Lee (2014) found a negative relationship between dispositional optimism and job insecurity. We thus propose that:

Hypothesis 1: Employee dispositional optimism is positively related to increases in income (H1a) and decreases in job insecurity (H1b) over time.

Dispositional optimism and increases in social support at work. We also predict positive relationships of dispositional optimism with increases in important work goals related to getting along: coworkers and supervisors support. Optimistic employees likely reach out to seek more support from coworker and supervisor over time to aid achieving more challenging work goals or dealing with stress. Social support from coworker and supervisor represents two important forms of resources at work (Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002; Humphrey et al., 2007; Karasek & Theorell, 1990). They are manifested in instrumental support including providing crucial information and resource to complete work tasks and emotional support providing assistance in dealing with stressors. As optimistic employees seek more and more challenging work goals, the importance of coworker and supervisor support tends to increasingly loom large. Furthermore, when facing relationship challenges with significant others, optimists tend to engage in more cooperative problem solving (Assad et al., 2007) and thus have long-term and successful relationships (Segerstrom, 2007). Last, optimistic employees are likely to attract more and more support from coworkers and

supervisors over time. They often exhibit greater levels of positive affect (Chang & Sanna, 2001; Tennen, Affleck, Urrows, Higgins, & Mendola, 1992) and confidence with their abilities in achieving work goals. Interacting with such upbeat and confident employees tends to be perceived as rewarding to coworkers and supervisors (Harker & Keltner, 2001).

Although there is lack of evidence in direct support for this prediction, research showed that dispositional optimism predicted increases in emotional support from friends and family (Brissette, Scheier, & Carver, 2002; Dougall, Hyman, Hayward, McFeeley, & Baum, 2001). Dispositional optimism was also reported to be positively related to increases in romantic relationship satisfaction (Assad et al., 2007). We thus hypothesize the following:

Hypothesis 2: Employee dispositional optimism is positively related to increases in coworker support (H2a) and supervisor support (H2b) over time.

Socialization Effect of Work Experiences on Development of Dispositional Optimism

Income, job insecurity, and changes of dispositional optimism. We expect that having achieved important work goals related to getting ahead and getting along will further spur increases in dispositional optimism over time through employees' reflecting upon and learning from successful work experiences (Wrzus & Roberts, 2017). First, getting ahead successfully, as reflected in earning high income (Baruch & Bozionelos, 2010; Judge et al., 1999; Ng et al., 2005) and experiencing low job insecurity (Greenhalgh & Rosenblatt, 1984; Lee et al., 2018; Shoss, 2017), may strengthen one's confidence in his or her abilities to pursue more challenging work goals in the future (Bandura, 1999; Latham & Locke, 2007). Achieving such a success also breeds more positive affect, which, in turn, broadens employees' thought-action repertoires and builds up more enduring intellectual and physical resources (Fredrickson, 2001). The gratifying work experience tends to become easily remembered and readily accessible, which is conducive

to reflection. Overtime, the process of reflection results in an enhanced positive view of oneself (Wrzus & Roberts, 2017). Given the salience of self enhancement, employees likely interpret the enhanced positive self-perceptions in such positive trait level languages as becoming more optimistic in the future (Kwan, John, Kenny, Bond, & Robins, 2004).

Second, jobs that grant high income and low job insecurity are typically complex and mentally challenging to perform (Glomb, Rotundo, & Kammeyer-Mueller, 2004; Lee et al., 2018; Shoss, 2017). Such jobs provide employees with important validation for their diligent work and capabilities in meeting difficult job demands. Consequently, a process of learning occurs, fostering more advanced work knowledge, and more sophisticated work methods and skills. Over time, employees will enhance their capabilities to complete more challenging tasks and work more diligently to meet future challenges (Wrzus & Roberts, 2017), a core behavioral manifestation of dispositional optimism (Scheier & Carver, 1993). Such a process may be generalized and habituated, which in turn gives rise to increases in dispositional optimism.

Prior research provides indirect support for this prediction. Sutin, Costa, Miech, and Eaton (2009) found that income was positively related to decreases in neuroticism. Roberts et al. (2003) reported that high occupational attainment (e.g., jobs with high levels of complexity and high hourly wage) was also predictive of later decreases in negative emotionality. Kinnunen, Feldt, and Mauno (2003) found that job insecurity was related to decreases in self-esteem.

Hypothesis 3: Employee income is positively (H3a), and job insecurity is negatively (H3b), related to increases in dispositional optimism over time.

Social support at work and increases of dispositional optimism. It is reasonable to expect that successfully getting along with others at work, as reflected via coworker and supervisor support, provides an impetus for increases in dispositional optimism through the

processes of reflection and learning. With respect to the reflection process, emotional support from coworker and supervisor satisfies employees' needs for affiliation (Ryan & Deci, 2000), which in turn will enhance their motivation and well-being at work (Tews et al., 2013). The support from coworkers and supervisors, and consequently the reactions from oneself, represent enjoyable work experiences. They facilitate forging more favorable expectations for future relationship with coworkers and supervisors. Such positive work experiences tend to get reflected upon, and are firmly encoded in one's long-term memory systems and readily accessible (Wrzus & Roberts, 2017). As a result, through repeated reflection upon the link between coworker and supervisor support and more favorable expectations for future work relationships, employees tend to generate more generalized and favorable expectations in all domains of their lives, leading to increase in dispositional optimism (Wrzus & Roberts, 2017).

Coworker and supervisor support also likely enhances dispositional optimism through the process of learning. Instrumental support from coworker and supervisor provides employees with necessary information, useful suggestions, and valuable performance feedback (Eisenberger et al., 2002; Karasek & Theorell, 1990; Tews et al., 2013). Such crucial resources are likely to facilitate employees' learning new task-related knowledge and even developing novel skills. Indeed, theory and research suggest that coworker support and supervisor support are conducive to skill development (Chiaburu & Harrison, 2008; Day, Harrison, & Halpin, 2009; DeRue & Wellman, 2009). Enhanced skills further enable employees to successfully accomplish more challenging future work tasks, which in turn breeds more favorable and generalized expectations for the future over time (Scheier & Carver, 1993).

In indirect support for the importance of social relationship on change of optimism, Segerstrom (2007) found that size of one's social network in all arenas of the life predicted

increases in optimism across 10 years. We thus predict:

Hypothesis 4: Employee supervisor support (H4a) and coworker support (H4b) are positively related to increases in dispositional optimism over time.

Change-Related Reciprocal Relationships between Dispositional Optimism and Work Experiences

Integrating the selection effect of dispositional optimism on changing work experiences (Hypotheses 1 to 2) and the socialization effect of work experiences on changing dispositional optimism (Hypotheses 3 to 4), we expect a change-related reciprocal relationship: Dispositional optimism will alter work variables, and the changed work variables in turn will prompt further increases in dispositional optimism later on. The TESSERA framework (Wrzus & Roberts, 2017) proposes that a personality trait tends to be strengthened by life experiences through “seeking or creating environments that reinforce the original personality trait” (p. 261; also see the corresponsive principle, Roberts & Wood, 2006). Stated differently, work experiences tend to strengthen the personality traits that lead individuals to those work experiences in the first place.

In the case of this study, the TESSERA framework (Wrzus & Roberts, 2017) suggests that optimistic employees shape work environments that are conducive to getting ahead and getting along, because they set up, and are able to achieve, more challenging work tasks throughout their careers. They are also capable of forging more supportive social relationships at work. Such a selection effect renders it likely for optimistic employees to enjoy higher income, lower job insecurity, and more coworker and supervisor support over time. Furthermore, having successfully achieved important life goals of getting ahead and getting along provides the positive reinforcement to validate the approaches that optimistic employees adopt. According to the TESSERA framework (Wrzus & Roberts, 2017), the gratifying affective reactions from

others and oneself render such successful experiences more likely to be reflected upon. At the same time, successfully getting ahead and getting along provide the opportunities and resources for optimistic employees' skill development through a learning mechanism. The two processes of reflection and learning enable optimistic employees to develop more generalized and favorable expectations in all life domains for the future. Over time, dispositional optimism will increase. Note that proposing a change-related reciprocal relationship does not mean that the two effects are equal in strength. It provides an account for the notion that dispositional optimism is both relatively stable, and open to change.

Examining reciprocal relationships in organizational research contributes to a more nuanced understanding of the dynamic interplays between the person and the environment rooted in interactional psychology (Schneider, 1983). Bandura's *reciprocal determinism* (2001) postulates that "people are producers as well as products of social systems" (p. 1). Among the few studies, sociologists Kohn and Schooler (1978, 1982) examined reciprocal relationships of work experiences with personality and intellectual flexibility. Personality psychologists (e.g., Roberts et al., 2003; Sutin & Costa, 2010) and organizational scholars (e.g., Frese, Garst, & Fay, 2007; Wu & Griffin, 2012) have also started to look into such issues. We thus propose that:

Hypothesis 5: There are change-related reciprocal relationships between dispositional optimism with work variables over time, such that dispositional optimism is positively related to increases in income, coworkers support, and supervisor support, and negatively related to decreases in job insecurity; the changed work variables further strengthen dispositional optimism later on.

Method

Participants and Procedures

Data used in this study were collected through a large research project conducted in East Germany after the reunification of East and West Germany (Dormann, Fay, Zapf, & Frese, 2006; Dormann & Zapf, 1999; Dormann & Zapf, 2001, 2002; Fay & Frese, 2000; Frese, Fay, Hilburger, Leng, & Tag, 1997; Frese et al., 2007; Frese, Kring, Soose, & Zempel, 1996; Garst, Frese, & Molenaar, 2000; Li, Fay, Frese, Harms, & Gao, 2014; Rybowskiak, Garst, Frese, & Batinic, 1999; Speier & Frese, 1997; Utsch, Rauch, Rothfufs, & Frese, 1999). The major purpose of this project was to examine how changes in working condition during the transition period affected employees' work and life in East Germany. The quasi-natural experiment with societal changes provided us with an appropriate setting to examine reciprocal relationships between dispositional optimism and work variables. **The Survey and Behavioral Research Ethics Committee of CUHK Business School of the Chinese University of Hong Kong granted using the archival data for this research (protocol number was, and the title of study granted was Influences of work experiences on change of optimism: A longitudinal study).**

Researchers identified participants of the large longitudinal study in the following manner. First, researchers randomly selected streets in Dresden, a large city in the south of East Germany. Then they chose every third house in each selected street, and invited individuals from every fourth apartment in each house. In smaller houses, individuals in every third apartment were invited. Last, researchers invited full-time employees in the selected apartments from ages of 18 to 65 to participate. Across the five waves of data used for the current research¹, the same 665 working employees were invited for each wave. Among them, 530, 536, 497, 474, and 486 provided usable information on study variables for the five waves respectively, yielding response rates of 79.7%, 80.6%, 74.7%, 71.2%, and 73.1%. To prevent participant attrition, after each data

¹ The first wave of data was not used, because in the first wave the measure of dispositional optimism missed one item due to a clerical error.

collection the researchers sent participants reports with key findings. Furthermore, about two months prior to each data collection, participants received a letter announcing the upcoming visit of a researcher. The procedures led to a representative sample in terms of age, gender, and social class of working population in the city.

Researchers collected the five waves of data during the following time periods: October to December, 1990, August to September, 1991, August to September, 1992, August to September, 1993, and August to September, 1995. A major consideration for choosing such time lags was that over time, the situation in East Germany became more stable and thus the influences of reunification gradually decayed. In our analyses, we included participants with all available information on study variables. Detailed information is reported in Table 1. The practice of using all possible data available has been suggested previously (Newman, 2009). This produced a maximum sample for analyses of 541 participants.

==== insert Table 1 about here ====

Measures

Dispositional optimism. We assessed dispositional optimism with the widely adopted eight-item measure of the Life Orientation Test (LOT) (Scheier & Carver, 1985) on a response scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*). Research has shown that dispositional optimism is distinct from other personality traits including the Big Five, trait anxiety, self-mastery, hope, locus of control, self-esteem, and positive and negative affectivity (Chang & Sanna, 2001; Scheier & Carver, 1985; Scheier, Carver, & Bridges, 1994). As such, LOT has been the most widely adopted measure to assess dispositional optimism (Carver & Scheier, 2014; Forgeard & Seligman, 2012; Peterson, 2000). This measure includes four positively and four negative worded items. Sample items were “In uncertain times, I usually expect the best” and “If

something can go wrong for me, it will” (negatively worded). Internal consistency coefficients (Cronbach’s α) were .72, .74, .73, .72, and .73 respectively for the five waves.

Income. We captured respondents’ monthly income with one item asking them to indicate the level of income from the following options in Deutsche Mark (In the years of data collection 1 Deutsche Mark was approximately 0.65 U.S. dollar): 1) less than 600, 2) 600-800, 3) 800-1000, 4) 1000-1200, 5) 1200-1400, 6) 1400-1600, 7) 1600-1800, 8) 1800-2000, and 9) more than 2000. Following previous research (Westerhof & Barrett, 2005), we utilized the middle value of the range indicated by each option (e.g., 700 to indicate option 2) 600-800; 300 was used for option 1) and 2000 was used for option 9)) and employed the natural logarithm transformation of the values in the analyses (Judge, Cable, Boudreau, & Bretz, 1995).

Job insecurity. We gauged participants’ job insecurity with a three-item scale by Frese and Hilligloh (1991), which has also been used previously (Garst et al., 2000) ($\alpha = .50, .55, .52, .49$ and $.49$, respectively for the five waves). Participants reported the extent to which they agreed or disagreed to questions regarding their job insecurity on a five-point scale (1=*Not true at all*, 5=*Completely true*). A sample item is “If you become unemployed, how good are your chances of actually finding a job?” Similar unidimensional measures of job insecurity have been adopted in previous research (e.g. Oldham, Kulik, Stepina, & Ambrose, 1986).

Social support from coworker and supervisor. We measured coworker and supervisor support using scales adapted from Caplan, Cobb, French, van Harrison, and Pinneau (1975). The two scales have been employed previously and demonstrated sufficient reliability and validity (Frese, 1999). Participants rated on a four-point scale (1=*Not at all*, 4=*Absolutely*) three questions with reference to supervisor and colleagues, respectively: “How much is ... willing to listen to your work-related problems?”, “How much is ... helpful for you to get your job done?”,

and "How much can ... be relied on when things get tough at work?". The two scales have appreciable reliabilities for all the five waves (for supervisory support, $\alpha = .86, .88, .87, .86$ and $.85$ respectively; for coworker support, $\alpha = .84, .83, .82, .83$ and $.81$).

Control variables. We included employees' sex and age in the analyses because they are related to both career success (Baruch & Bozionelos, 2010; Judge et al., 1999; Ng et al., 2005) and personality development (Bleidorn, 2015; Caspi et al., 2005; Roberts & Mroczek, 2008; Specht et al., 2014). We did not include education because optimistic people tend to have high educational achievements, which in turn may boost their career success (Segerstrom, 2007). Therefore, controlling education will eliminate one possible pathway for the effect of dispositional optimism on work outcomes.

Analytical Strategy

We adopted the classic latent change score approach (Ferrer & McArdle, 2010; McArdle, 2001, 2009) to test our hypotheses. This approach explicitly models change as a latent variable that can be derived from a construct of interest measured at two adjacent time points. Thus, it is more flexible than latent growth curve modeling that typically requires at least three waves of data to model a change variable (Bliese & Ployhart, 2002; Liu, Mo, Song, & Wang, 2016; Preacher, Briggs, Wichman, & MacCallum, 2008). Because of its advantage in explicitly modeling change in a flexible and straightforward manner, this approach has been recently applied to examine change related issues not only in personality psychology (Jackson, Hill, Payne, Roberts, & Stine-Morrow, 2012), but also in organizational research (e.g., Li et al., 2014; Ritter, Matthews, Ford, & Henderson, 2016; S. G. Taylor, Bedeian, Cole, & Zhang, 2014; Toker & Biron, 2012; Wu, Griffin, & Parker, 2015). Another unique advantage of this approach is that it allows scholars to examine reciprocal relationships directly related to change that do not

restrict the form of change to be linear. This is because a change variable can be modeled by a variable at two time points and thus change from Time n to Time $n+1$ does not have to bear a linear relationship with change from Time $n+1$ to Time $n+2$. It has advantages over latent growth curve modeling and cross-lagged analyses (McArdle, 2001, 2009). Latent growth curve modeling typically models change as the slope or high-order terms across at least three time points and it is typically not used to examining reciprocal relationships (Bliese & Ployhart, 2002; Liu et al., 2016; Preacher et al., 2008). Cross-lagged analyses, although often used to test reciprocal relationships, are not adopted in directly modeling changes in an explicit way. The latent change score approach is regarded as a more generalized and flexible approach incorporating the advantages of both latent growth curve modeling and cross-lagged analyses.

As depicted in Figure 1, following previous research (Ferrer & McArdle, 2010; McArdle, 2001, 2009), the classic bivariate latent change score model was utilized to examine a change-related reciprocal relationship between a work variable and dispositional optimism. A latent change variable (e.g., change of dispositional optimism from Time 1 to Time 2, Δ DO1) is modeled as the change of the same construct between Time 1 and Time 2 (in total, four latent change variables across the five time points were modeled). In addition, this model encompasses two change parameters that are often examined in latent growth curve modeling: An intercept and a slope, for each of the two constructs. The intercept (e.g., Intercept_{DO} for dispositional optimism) affects the starting point of a variable at Time 1 (e.g., DO1) and the slope (e.g., Slope_{DO} for dispositional optimism) affects all the latent change variables (e.g., Δ DO1 to Δ DO4). The selection effect of dispositional optimism was examined through the influence of optimism on the change in a work variable (γ_1) and the socialization effect was tested via the influence of a work variable on the change in dispositional optimism (γ_2). If the two effects are

both significant, then a change-related reciprocal relationship is supported. Following previous research (e.g., Lang, Bliese, Lang, & Adler, 2011; Meier & Spector, 2013), we used the following indices to evaluate model fitness: Comparative fit index (CFI), Tucker–Lewis index (TLI), and root mean square error of approximation (RMSEA) for the latent change score models. Standardized root-mean-square residual (SRMR) was also used in confirmatory factor analyses (CFAs). We performed the analyses using Mplus 8.0 (Muthen & Muthen, 1998-2017).

==== insert Figure 1 about here ====

Results

Previous research (McArdle, 2009; Ployhart & Vandenberg, 2010; Preacher et al., 2008) suggests that in longitudinal research with multiple variables, it is important to demonstrate (a) the independence of all variables at each measurement occasion and (b) measurement invariance of the same variable across all the measurement occasions. Thus, we first conducted CFAs to demonstrate the study variables were independent from each other at each time point. Error terms of the negatively worded items for dispositional optimism were allowed to correlated with each other; the same for the parallel items of supervisor support and coworker support (which only differed in the reference, i.e., “supervisor” or “coworker”). Results showed that a four-factor model (with dispositional optimism, job insecurity, coworker support, and supervisor support) generated appreciable model fit indices for all the five waves of data (Table 2). Thus, the measures used at each wave were independent from each other.

We then examined two types of measurement invariance, configural (i.e., form) and metric (i.e., factor loading) equivalence (Vandenberg & Lance, 2000) across time. Error terms of the same item were allowed to correlated with each other across the five waves (Finkel, 1995). For each of the four variables (Table 2), setting the factor loadings of their items equal across the

five time points (i.e., testing metric invariance) did not significantly decrease model fitness compared to models with configural equivalence (Chen, 2007; Cheung & Rensvold, 2002). The results demonstrated sufficient measurement equivalence for the measures across time. We also tested the independence of study variables and their measurement equivalence simultaneously in one unified model, which fit the data satisfactorily (Table 2).

==== insert Table 2 about here ====

Tests of Hypotheses

The means, standard deviations, and correlations among study variables for the five waves are displayed in Table 3. The correlations of dispositional optimism across the five measurement occasions ranged from .53 to .75, indicating relative consistency across time. The correlations of the work variables across time fell within the range from .18 to .68, which seems to suggest less consistency. The mean levels of dispositional optimism for the whole sample did not change significantly across the five waves. Participants' mean level of income increased over time across time from wave 1 to wave 5. While participants did not experience significant change in supervisor support, they experienced significant increment in coworker support from wave 3 to wave 4. We suspect that the significant changes in mean levels of those variables might be related to the fact that after unification, there was a high necessity for former East German companies to invest in new technology, adopt contemporary management styles, and cope with the competition. Those changes might start to be manifested in numerous improvements in working conditions from wave 3 (Frese et al., 1996).

==== insert Table 3 about here ====

Hypotheses 1 and 2 predicted significant relationships between dispositional optimism and changes in income, job insecurity, and coworker and supervisor support. The bivariate latent

change score models fit data well (Table 4). The results showed that the lagged effect of optimism was only significant for job insecurity. Thus only Hypothesis 1b was supported. The intercepts and the slopes for the four work variables were significant. Thus, the starting points of the four variables were significant and over time they increased significantly.

==== insert Table 4 about here ====

Hypotheses 3 and 4 focused on the socialization effects of work variables on the development of dispositional optimism. Findings supported Hypothesis 3 by showing significant lagged effects of income and job insecurity on changing dispositional optimism, but not for Hypothesis 4 regarding lagged effects of social support at work on change of optimism.

Hypothesis 5 dealt with change-related reciprocal relationships between optimism and work variables. Overall, such a reciprocal relationship was observed for job insecurity. Dispositional optimism over time decreased job insecurity and the decreased job insecurity in turn fostered further increases in dispositional optimism. Hypothesis 5 was partially supported.

Discussion

In keeping with the majority of the previous research (Carver & Scheier, 2014; Forgeard & Seligman, 2012; Peterson, 2000), the current research adopted an individual difference approach in investigating change-related reciprocal relationships between dispositional optimism and employee work experiences in a five-wave longitudinal study. Extrapolating from the TESSERA framework of personality development (Wrzus & Roberts, 2017) and the literature on dispositional optimism, this investigation served as a first attempt to integrate the selection effect of dispositional optimism on changing work experiences and the socialization effect of work experiences on modifying the development of dispositional optimism.

Implications for Theory and Research

This study represents a more stringent examination of the causal effect of dispositional optimism by investigating its selection effect on changing work variables over time. Prior research has examined the influences of optimism using either cross-sectional or lagged designs without looking at changes of work outcomes (e.g., Aryee et al., 2005; Chemers et al., 2000; Gould et al., 2002; Lee et al., 1993; Munyon et al., 2010; Seligman & Schulman, 1986). The current investigation tested the causal effect of dispositional optimism more rigorously with a prospective longitudinal design by probing the lagged effect of dispositional optimism at Time n on change of work variables from Time n to Time $n+1$ (Cook & Campbell, 1979).

We found that dispositional optimism exerted significant effects on changes of job insecurity, not on change of income or social support at work. Thus, the present investigation serves as a cautionary note to previous research assuming that dispositional optimism is beneficial. This assumption is understandable, because organizational research has been heavily affected by the classic dispositional perspective of personality (McCrae & Costa Jr, 1999; McCrae et al., 2000). Likewise, dispositional optimism has been portrayed as a personality trait that changes little with life experiences (Scheier & Carver, 1993). As such, the observed significant relationships between dispositional optimism and work outcomes have typically been interpreted as suggesting the causal effect of dispositional optimism on work outcomes, not vice versa. Yet, our findings show the necessity to examine this assumption more rigorously by looking at whether dispositional optimism prompts changes in work variables longitudinally. Such an approach allows us to strike one step closer to examining the causal influences of dispositional optimism. From a temporal perspective, investigating the influence of dispositional optimism on changing work variables over time represents a theoretically distinct approach than examining their concurrent correlations in terms of time specification (Mitchell & James, 2001).

This partly explains the different findings between this research and previous cross-sectional research on dispositional optimism and career success. In fact, this is also the case for other personality traits. As one example, previous cross-sectional research found a significant relationship between proactive personality and income (Seibert, Crant, & Krainer, 1999). However, longitudinal research (Seibert, Kraimer, & Crant, 2001) reported that “proactive personality was not significantly correlated with salary progression or promotions” (p. 863). Similarly, Sutin et al. (2009) found that while a significant concurrent relationship between neuroticism and income was recorded, when examined longitudinally, neuroticism did not lead to changes in income over time. However, income significantly decreased neuroticism. Our findings are in fact in keeping with those from recent longitudinal research. Segerstrom (2007) found that dispositional optimism did not predict increases in social network size, satisfaction with social support, nor number of supportive others. Future research should use longitudinal designs including experience sampling methods (Beal, 2015) to reveal developmental patterns of behaviors, thoughts, and feelings of optimistic people.

The findings of the current research have implications for intervention research on changing optimism (Carver & Scheier, 2014). The assumption that dispositional optimism is beneficial serves as the very theoretical foundation for recent research looking into interventions that are able to promote optimism (e.g., Gillham, Reivich, Jaycox, & Seligman, 1995; Seligman, 2006). Otherwise, there will be no reason to change optimism. If dispositional optimism has little substantial effect on changing life outcomes, it will cast doubt on the approach of changing optimism as an avenue to promote performance and well-being. Our findings suggest that before conducting intervention research, perhaps it is informative for researcher to consolidate evidence to show that optimism indeed gives rise to changes in certain work variables of interest.

The current study investigated what and how work variables contribute to the development of dispositional optimism over time (Forgeard & Seligman, 2012). While the influences of coworkers support and supervisor support were not significant, employees with high levels of income and low levels of job insecurity experienced increases in dispositional optimism later on. Such findings pose a challenge to the traditional dispositional perspective that assumes dispositional optimism changes little with life experiences (Scheier & Carver, 1993). The findings suggest that the work variables related to getting ahead are more important in driving changes in dispositional optimism than those related to getting along. Our reading of the literature on socioanalytic theory of personality and job performance (J. Hogan & Holland, 2003; R. Hogan, 1982; R. Hogan & Blicke, in press) suggests that this literature has yet to distinguish the relative importance of the two important life goals of getting ahead and getting along. Thus, we speculate possible reasons for the differences. Variables related to getting ahead as we studied in this research reflect employees' capabilities to maintain their stability of employment and successfully advance their careers in an uncertain period (Baruch & Bozionelos, 2010; Greenhalgh & Rosenblatt, 1984; Judge et al., 1999; Lee et al., 2018; Ng et al., 2005; Shoss, 2017). Achieving such goals has significance for survival and reproduction from an evolutionary perspective (Bakan, 1966). As such, obtaining goals related to getting ahead seems more salient to employee career development than those of getting along. It follows that high income and low job insecurity may be more likely to promote the two processes underlying personality development: reflection upon and learning from such successful experiences. Thus they are more likely to prompt changes in dispositional optimism. Future research can build on our findings and formally test such differences with longitudinal designs.

Perhaps the most important contribution of the current research lies in its investigation of

change-related reciprocal relationships between dispositional optimism and work variables. Such an investigation recognizes that the causal direction in such relationships travels both ways and provides a potential reconciliation for the two contrasting perspectives discussed previously. Our findings revealed that such a reciprocal relationship occurred between dispositional optimism and job insecurity: Being an optimistic employee prompted decreases in job insecurity and the weakened job insecurity in turn strengthened one's optimistic disposition later on. This finding is consistent with previous research showing a reciprocal relationship between job insecurity and self-esteem (Kinnunen et al., 2003). Such reciprocal relationships have already been hinted by Peterson (2000) and suggested by Bandura (1997, 2001). Bell and Staw (1989) also argued that people are both sculptors and sculpture of their career development. Organizational research has demonstrated that such reciprocal relationships occurred between core self-evaluations and job satisfaction (Wu & Griffin, 2012), and between proactive personality and job demands and job control (Li et al., 2014). Our study extended this line of research to the literature on dispositional optimism and provides a more nuanced understanding of the development of optimism.

The finding that job insecurity bore a change-related reciprocal relationship with dispositional optimism raises the question how long such a virtuous cycle endures. Scholars (e.g., Keil & Cortina, 2001; Sonnentag & Frese, 2012; Sturman, 2007) suggest when optimistic employees set up more challenging goals as a result of low job insecurity, their skills may not develop fast enough to meet the new requirements. Such a situation will not generate lower job insecurity later on. Put differently, an enduring virtuous cycle entails self-correction and self-regulation, which ultimately results in asymptotes. Future research needs to examine this challenging question related to the sustainability of self-reinforcing cycles in greater depth.

Study Limitations and Future Research

Study limitations. The results of this research should be interpreted in light of its limitations. First, the unique changing economic and social environment in East Germany, though providing a suitable context to test the hypotheses, limits the generalization of the findings (Shin, Morgeson, & Campion, 2007; P. J. Taylor, Li, Shi, & Borman, 2008). Yet, nowadays, many countries are experiencing political or economic changes in Latin America, Europe, Africa, and Asia (United Nations Development Programme, 2016). Furthermore, the increasing use of artificial intelligence and job automation has been changing not only the nature of work, but also job requirements of the workforce (Frey & Osborne, 2017; Manyika et al., 2017). Thus it seems premature to conclude that our findings have little implication for today's world. Future research needs to examine the reciprocal relationships in other economic and cultural settings. Second, the latent change score approach typically requires equal time intervals between adjacent measurement occasions. This ensures that the influences of study variables between adjacent occasions are equal. As in previous research (e.g., Toker & Biron, 2012), uneven time intervals were used in this research: The time intervals for the first four waves were approximately 1 year and the time interval was 2 years between the fourth and fifth wave. This concern may be alleviated, though, because the influences of reunification on people's work and life slowed down over time (Dormann & Zapf, 1999; Fay & Sonnentag, 2002). Third, time lag is a thorny issue for longitudinal research (Dormann & Griffin, 2015). Although consistent with previous research (Caspi et al., 2005; Roberts et al., 2003; Wu & Griffin, 2012; Wu et al., 2015), the selection of time lag in this study might not be optimal. Choosing the optimal time lag entails both empirical evidence and theoretical considerations (Dormann & Griffin, 2015). Fourth, because positively and negatively worded items were used in the measure of job insecurity, the internal reliability coefficients for this scale were relatively low (Weijters, Baumgartner, &

Schillewaert, 2013). However, this may reduce the chance to find significant findings and thus our study represents a conservative test of relationships related to job insecurity. Additional analyses with data using items of the job insecurity scale provided similar results. Fifth, consistent with previous research (Bleidorn, 2015; Caspi et al., 2005; Roberts & Mroczek, 2008; Tasselli et al., 2018), self-report questionnaires were used as the major way of data collection. Thus common method bias might influence the findings. However, the latent change score approach adopted in this study and the findings of this research suggest that this is not a serious problem. With the latent change score approach, a *change score* is defined as “the part of the score of Y[2] that is not identical to Y[1]” (McArdle, 2009, p. 583). If a variable at Time 1 is affected by common method bias, the same variable at Time 2 will also be influenced to the same extent (there is no theoretical reason to expect otherwise). As such, the change variable between Time 1 and Time 2 should be free from common method bias. Given that our hypotheses focused on change-related relationships, it seems unlikely that common method bias led to spurious significant results. This is probably the reason why we did not observe significant effect of dispositional optimism on changes of social support, nor vice versa.

Future research directions. Future research should explore change-related reciprocal relationships with other work experiences such as challenging work experiences (DeRue & Wellman, 2009), stressors, and leadership. For example, leader behaviors play a role because they influence both dispositional optimism and social support at work. Given the relationship between leadership behaviors and dispositional optimism also tends to be reciprocal, including one more variable will to a great extent complicate the bivariate relationship examined in this study. Future research should explore such trivariate relationships more thoroughly. In addition, future research should examine mechanisms for personality development, which has been

understudied in personality psychology (Roberts & Nickel, 2017). Organizational scholars need consider securing large research funds to launch large-scale longitudinal research in the future to tackle such issues in greater depth. Last, recent research suggests that state optimism is a component of psychological capital (Luthans, Avey, Avolio, & Peterson, 2010; Luthans, Avolio, Avey, & Norman, 2007). While it is unknown whether dispositional optimism and the other three constructs of psychological capital also represent a underlying dispositional construct, future research can examine change-related reciprocal relationships for the other three components of psychological capital to test whether this is true.

Practical Implications

Findings of this study offer important implications for organizations and employees to enhance employee career development. Our findings that income and job insecurity changed one's disposition to be optimistic have important implications for employees to effectively manage their careers. The findings suggest that employees should be mindful of the fundamental influences of their work experiences on altering their personality traits. If they are interested in maintaining or enhancing their dispositional optimism, they need to strategically create or seek out work environments that provide them with more opportunities of getting ahead (e.g., high levels of income and low job insecurity). Although great levels of career success are pursued by most employees, the findings regarding their influences on changing dispositional optimism provide employees with a more crucial reason to do so. In addition, our finding that the effect of dispositional optimism on changing work variables received support only on job insecurity serves a sobering note for both organizations and employees to introduce positive psychology interventions to enhance individual optimism (Seligman, 2006). Dispositional optimism did not have a significant impact on changing income, an objective indicator of career success. Thus,

interventions aiming at enhancing optimism may more likely have an effect on changing subjective rather than objective work outcomes. The notion is echoed by the criticism from Hackman (2009) who stated that the effect of positive psychological interventions should be examined more rigorously beyond employee perceptions.

Conclusion

As an important indicator of positive thinking, dispositional optimism has garnered much attention from both scholars and lay people. Drawing from the TESSERA framework (Wrzus & Roberts, 2017) and the dispositional optimism literature, the current study served as a first attempt to integrate the two seemingly contrasting perspectives in the literature on dispositional optimism: The selection effect of optimism and the socialization effect of life experiences on altering optimism. The findings provided support for the importance of getting ahead in enhancing dispositional optimism and a reciprocal relationship between dispositional optimism and job insecurity. Future research should examine personality development in longitudinal research as “one of the most vital outcomes of organizational experience” (Tasselli et al., 2018; p. 44). Future research also need to investigate change-related reciprocal relationships between other personality traits and work experiences in order to unravel more intriguing interplays between the agentic person and the work environment (Bandura, 2001)

References

- Aryee, S., Srinivas, E. S., & Tan, H. H. (2005). Rhythms of life: antecedents and outcomes of work-family balance in employed parents. *Journal of Applied Psychology, 90*(1), 132-146.
- Aspinwall, L. G., Richter, L., & Hoffman, R. R. (2001). Understanding how optimism works: An examination of optimists' adaptive moderation of belief and behavior. In E. C. Chang (Ed.), *Optimism and pessimism: Implications for theory, research, and practice* (pp. 217-238). Washington, DC: American Psychological Association.
- Assad, K. K., Donnellan, M. B., & Conger, R. D. (2007). Optimism: An enduring resource for romantic relationships. *Journal of personality and social psychology, 93*(2), 285-297.
- Bakan, D. (1966). *The duality of human existence*. Chicago: Rand McNally.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bandura, A. (1999). Social cognitive theory of personality. In A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 154-196). New York: Guilford.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*(1), 1-26.
- Baruch, Y., & Bozionelos, N. (2010). Career issues. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology* (Vol. 2, pp. 67-113). Washington, DC: American Psychological Association.
- Beal, D. J. (2015). ESM 2.0: State of the art and future potential of experience sampling methods in organizational research. *Annu. Rev. Organ. Psychol. Organ. Behav., 2*(1), 383-407.
- Bell, N. E., & Staw, B. M. (1989). People as sculptors versus sculpture: The roles of personality and personal control in organizations. In M. B. Arthur, T. H. Douglas, & B. S. Lawrence (Eds.), *Handbook of Career Theory*, (pp. 232-251). Cambridge, English: Cambridge University Press.
- Bleidorn, W. (2015). What accounts for personality maturation in early adulthood? *Current Directions in Psychological Science, 24*(3), 245-252.
- Bliese, P. D., & Ployhart, R. E. (2002). Growth modeling using random coefficient models: Model building, testing, and illustrations. *Organizational Research Methods, 5*(4), 362-387.
- Brisette, I., Scheier, M. F., & Carver, C. S. (2002). The role of optimism in social network development, coping, and psychological adjustment during a life transition. *Journal of personality and social psychology, 82*(1), 102-111.
- Caplan, R. D., Cobb, S., French, J. R. P., van Harrison, R., & Pinneau, S. R. (1975). *Job demands and worker health (NIOSH Publication Number 75-160)*. Washington, DC: U.S. Government Printing Office.
- Carver, C. S., Kus, L. A., & Scheier, M. F. (1994). Effects of good versus bad mood and optimistic versus pessimistic outlook on social acceptance versus rejection. *Journal of Social and Clinical Psychology, 13*(2), 138-151.
- Carver, C. S., & Scheier, M. F. (2014). Dispositional optimism. *Trends in cognitive sciences, 18*(6), 293-299.
- Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical Psychology Review, 30*(7), 879-889.
- Caspi, A., Roberts, B. W., & Shiner, R. L. (2005). Personality development: Stability and change. *Annual Review of Psychology, 56*, 453-484.

- Chang, E. C., & Sanna, L. J. (2001). Optimism, pessimism, and positive and negative affectivity in middle-aged adults: a test of a cognitive-affective model of psychological adjustment. *Psychology and aging, 16*(3), 524-531.
- Chemers, M. M., Watson, C. B., & May, S. T. (2000). Dispositional affect and leadership effectiveness: A comparison of self esteem, optimism, and efficacy. *Personality and Social Psychology Bulletin, 26*(3), 267-277.
- Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural equation modeling, 14*(3), 464-504.
- Cheng, T., Mauno, S., & Lee, C. (2014). Do job control, support, and optimism help job insecure employees? A three-wave study of buffering effects on job satisfaction, vigor and work-family enrichment. *Social Indicators Research, 118*(3), 1269-1291.
- Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural equation modeling, 9*(2), 233-255.
- Chiaburu, D. S., & Harrison, D. A. (2008). Do peers make the place? Conceptual synthesis and meta-analysis of coworker effects on perceptions, attitudes, OCBs, and performance. *Journal of Applied Psychology, 93*(5), 1082-1103.
- Chopik, W. J., Kim, E. S., & Smith, J. (2015). Changes in optimism are associated with changes in health over time among older adults. *Social Psychological and Personality Science, 6*(7), 814-822.
- Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis for field settings*. Chicago: Rand McNally.
- Day, D. V., Harrison, M. M., & Halpin, S. M. (2009) *An integrative approach to leader development: Connecting adult development, identity, and expertise*. New York: Psychology Press.
- DeRue, D. S., & Wellman, N. (2009). Developing leaders via experience: The role of developmental challenge, learning orientation, and feedback availability. *Journal of Applied Psychology, 94*(4), 859-875.
- Dormann, C., Fay, D., Zapf, D., & Frese, M. (2006). A state-trait analysis of job satisfaction: On the effect of core self-evaluations. *Applied Psychology: An International Review, 55*(1), 27-51.
- Dormann, C., & Griffin, M. A. (2015). Optimal time lags in panel studies. *Psychological Methods, 20*(4), 489-505.
- Dormann, C., & Zapf, D. (1999). Social support, social stressors at work, and depressive symptoms: testing for main and moderating effects with structural equations in a three-wave longitudinal study. *Journal of Applied Psychology, 84*(6), 874-884.
- Dormann, C., & Zapf, D. (2001). Job satisfaction: A meta-analysis of stabilities. *Journal of Organizational Behavior, 22*(5), 483-504.
- Dormann, C., & Zapf, D. (2002). Social stressors at work, irritation, and depressive symptoms: Accounting for unmeasured third variables in a multi - wave study. *Journal of Occupational and Organizational Psychology, 75*(1), 33-58.
- Dougall, A. L., Hyman, K. B., Hayward, M. C., McFeeley, S., & Baum, A. (2001). Optimism and traumatic stress: The importance of social support and coping. *Journal of Applied Social Psychology, 31*(2), 223-245.
- Eisenberger, R., Stinglhamber, F., Vandenberghe, C., Sucharski, I. L., & Rhoades, L. (2002). Perceived supervisor support: Contributions to perceived organizational support and employee retention. *Journal of Applied Psychology, 87*(3), 565-573.

- Fay, D., & Frese, M. (2000). Working in East German socialism in 1980 and in capitalism 15 years later: A trend analysis of a transitional economy's working conditions. *Applied Psychology: An International Review*, 49(4), 636-657.
- Fay, D., & Sonnentag, S. (2002). Rethinking the effects of stressors: A longitudinal study on personal initiative. *Journal of occupational health psychology*, 7(3), 221-234.
- Ferrer, E., & McArdle, J. J. (2010). Longitudinal modeling of developmental changes in psychological research. *Current Directions in Psychological Science*, 19(3), 149-154.
- Finkel, S. E. (1995). *Causal analysis with panel data*. Thousand Oaks, CA: SAGE.
- Fisher, G., & Aguinis, H. (2017). Using theory elaboration to make theoretical advancements. *Organizational Research Methods*, 1(3), 438-464.
- Fleeson, W. (2001). Toward a structure-and process-integrated view of personality: Traits as density distributions of states. *Journal of personality and social psychology*, 80(6), 1011-1027.
- Fleeson, W., & Jayawickreme, E. (2015). Whole trait theory. *Journal of Research in personality*, 56, 82-92.
- Forgeard, M. J. C., & Seligman, M. E. P. (2012). Seeing the glass half full: A review of the causes and consequences of optimism. *Pratiques Psychologiques*, 18(2), 107-120.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American psychologist*, 56(3), 218-226.
- Frese, M. (1999). Social support as a moderator of the relationship between work stressors and psychological dysfunctioning: A longitudinal study with objective measures. *Journal of occupational health psychology*, 4(3), 179-192.
- Frese, M., Fay, D., Hilburger, T., Leng, K., & Tag, A. (1997). The concept of personal initiative: Operationalization, reliability and validity in two German samples. *Journal of Occupational and Organizational Psychology*, 70, 139-161.
- Frese, M., Garst, H., & Fay, D. (2007). Making things happen: Reciprocal relationships between work characteristics and personal initiative in a four-wave longitudinal structural equation model. *Journal of Applied Psychology*, 92(4), 1084-1102.
- Frese, M., & Hilligloh, S. (1991). *Aktives Handeln in einer Umbruchsituation: Eine Längsschnittstudie*. Bericht an die DFG: Universität Gießen.
- Frese, M., Kring, W., Soose, A., & Zempel, J. (1996). Personal initiative at work: Differences between East and West Germany. *Academy of Management Journal*, 39(1), 37-63.
- Frey, C. B., & Osborne, M. A. (2017). The future of employment: how susceptible are jobs to computerisation? *Technological forecasting and social change*, 114, 254-280.
- Garst, H., Frese, M., & Molenaar, P. (2000). The temporal factor of change in stressor-strain relationships: A growth curve model on a longitudinal study in East Germany. *Journal of Applied Psychology*, 85(3), 417-438.
- Gillham, J. E., Reivich, K. J., Jaycox, L. H., & Seligman, M. E. (1995). Prevention of depressive symptoms in schoolchildren: Two-year follow-up. *Psychological Science*, 6, 343-351.
- Glomb, T. M., Rotundo, M., & Kammeyer-Mueller, J. D. (2004). Emotional labor demands and compensating wage differentials. *Journal of Applied Psychology*, 89, 700-714.
- Gould, D., Dieffenbach, K., & Moffett, A. (2002). Psychological characteristics and their development in Olympic champions. *Journal of Applied Sport Psychology*, 14(3), 172-204.
- Greenhalgh, L., & Rosenblatt, Z. (1984). Job insecurity: Toward conceptual clarity. *Academy of Management review*, 9(3), 438-448.

- Hackman, J. R. (2009). The perils of positivity. *Journal of Organizational Behavior*, 30(2), 309-319.
- Harker, L., & Keltner, D. (2001). Expressions of positive emotion in women's college yearbook pictures and their relationship to personality and life outcomes across adulthood. *Journal of personality and social psychology*, 80(1), 112-124.
- Hogan, J., & Holland, B. (2003). Using theory to evaluate personality and job-performance relations: A socioanalytic perspective. *Journal of Applied Psychology*, 88(1), 100-112.
- Hogan, R. (1982). A socioanalytic theory of personality. In M. M. Page (Ed.), *Nebraska symposium on motivation: Personality-current theory and research* (pp. 58-89). Lincoln, NE: University of Nebraska Press.
- Hogan, R., & Blickle, G. (in press). Socioanalytic theory: Basic concepts, supporting evidence, and practical implications. In V. Ziegler-Hill & T. K. Shackelford (Eds.), *The SAGE handbook of personality and individual differences*. Thousand Oaks, CA: Sage.
- Humphrey, S. E., Nahrgang, J. D., & Morgeson, F. P. (2007). Integrating motivational, social, and contextual work design features: A meta-analytic summary and theoretical extension of the work design literature. *Journal of Applied Psychology*, 92(5), 1332-1356.
- Jackson, J. J., Hill, P. L., Payne, B. R., Roberts, B. W., & Stine-Morrow, E. A. L. (2012). Can an old dog learn (and want to experience) new tricks? Cognitive training increases openness to experience in older adults. *Psychology and aging*, 27(2), 286-292.
- Johnson, J. A. (1997). Units of analysis for the description and explanation of personality. In R. Hogan, J. A. Johnson, & S. R. Briggs (Eds.), *Handbook of Personality Psychology* (pp. 73-93). San Diego, CA: Academic Press.
- Judge, T. A., Cable, D. M., Boudreau, J. W., & Bretz, R. D. (1995). An empirical investigation of the predictors of executive career success. *Personnel Psychology*, 48, 485-519.
- 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.
- Kaplan, S., Bradley, J. C., Luchman, J. N., & Haynes, D. (2009). On the role of positive and negative affectivity in job performance: A meta-analytic investigation. *Journal of Applied Psychology*, 94(1), 162-176.
- Karasek, R. A., & Theorell, T. (1990). *Healthy work: Stress, productivity, and the reconstruction of working life*. New York: Basic Books.
- Keil, C. T., & Cortina, J. M. (2001). Degradation of validity over time: A test and extension of Ackerman's model. *Psychological bulletin*, 127(5), 673-697.
- Kinnunen, U., Feldt, T., & Mauno, S. (2003). Job insecurity and self-esteem: evidence from cross-lagged relations in a 1-year longitudinal sample. *Personality and Individual Differences*, 35(3), 617-632.
- Kohn, M. L., & Schooler, C. (1978). The reciprocal effects of the substantive complexity of work and intellectual flexibility: A longitudinal assessment. *American Journal of sociology*, 84(1), 24-52.
- Kohn, M. L., & Schooler, C. (1982). Job conditions and personality: A longitudinal assessment of their reciprocal effects. *American Journal of Sociology*, 87(6), 1257-1286.
- Kwan, V. S., John, O. P., Kenny, D. A., Bond, M. H., & Robins, R. W. (2004). Reconceptualizing individual differences in self-enhancement bias: an interpersonal approach. *Psychological review*, 111(1), 94-110.
- Lang, J., Bliese, P. D., Lang, J. W., & Adler, A. B. (2011). Work gets unfair for the depressed:

- Cross-lagged relations between organizational justice perceptions and depressive symptoms. *Journal of Applied Psychology*, 96(3), 602-618.
- Latham, G. P., & Locke, E. A. (2007). New developments in and directions for goal-setting research. *European Psychologist*, 12(4), 290-300.
- Lee, C., Ashford, S. J., & Jamieson, L. F. (1993). The effects of Type A behavior dimensions and optimism on coping strategy, health, and performance. *Journal of Organizational Behavior*, 14(2), 143-157.
- Lee, C., Huang, G.-H., & Ashford, S. J. (2018). Job Insecurity and the Changing Workplace: Recent Developments and the Future Trends in Job Insecurity Research. *Annual Review of Organizational Psychology and Organizational Behavior*, 5, 335–359.
- Lewis, M. (2001). Issues in the study of personality development. *Psychological Inquiry*, 12(2), 67-83.
- Li, W. D., Fay, D., Frese, M., Harms, P. D., & Gao, X. (2014). Reciprocal relationships between proactive personality and work characteristics: A latent change score approach. *Journal of Applied Psychology*, 99(5), 948-965.
- Liu, Y., Mo, S., Song, Y., & Wang, M. (2016). Longitudinal analysis in occupational health psychology: A review and tutorial of three longitudinal modeling techniques. *Applied Psychology: An International Review*, 65(2), 379–411.
- Luthans, F., Avey, J. B., Avolio, B. J., & Peterson, S. J. (2010). The development and resulting performance impact of positive psychological capital. *Human Resource Development Quarterly*, 21(1), 41-67.
- Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Positive psychological capital: Measurement and relationship with performance and satisfaction. *Personnel Psychology*, 60(3), 541-572.
- Manyika, J., Chui, M., Miremadi, M., Bughin, J., George, K., Willmott, P., & Dewhurst, M. (2017). The future that works: Automation, employment, and productivity. *McKinsey Global Institute*. .
- McArdle, J. J. (2001). A latent difference score approach to longitudinal dynamic structural analysis. In R. Cudeck, S. d. Toit, & D. So`rbom (Eds.), *Structural equation modeling: Present and future. A Festschrift in honor of Karl Jo`reskog* (pp. 341-380). Lincolnwood, IL: Scientific Software International
- McArdle, J. J. (2009). Latent variable modeling of differences and changes with longitudinal data. *Annual Review of Psychology*, 60, 577-605.
- McCrae, R. R., & Costa Jr, P. T. (1999). A five-factor theory of personality. In A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2 ed., pp. 139-153). New York: Guilford.
- McCrae, R. R., Costa Jr, P. T., Ostendorf, F., Angleitner, A., Hřebíčková, M., Avia, M. D., . . . Woodfield, R. (2000). Nature over nurture: Temperament, personality, and life span development. *Journal of personality and social psychology*, 78(1), 173-186.
- Meier, L. L., & Spector, P. E. (2013). Reciprocal effects of work stressors and counterproductive work behavior: A five-wave longitudinal study. *Journal of Applied Psychology*.
- Mitchell, T. R., & James, L. R. (2001). Building better theory: Time and the specification of when things happen. *Academy of Management review*, 26(4), 530-547.
- Munyon, T. P., Hochwarter, W. A., Perrewé, P. L., & Ferris, G. R. (2010). Optimism and the nonlinear citizenship behavior—Job satisfaction relationship in three studies. *Journal of Management*, 36(6), 1505-1528.

- Muthen, L. K., & Muthen, B. O. (1998-2017). *Mplus User's Guide* (8th ed.). Los Angeles, CA: Muthen & Muthen.
- Newman, D. A. (2009). Missing data techniques and low response rates: The role of systematic nonresponse parameters. In C. E. Lance & R. J. Vandenberg (Eds.), *Statistical and methodological myths and urban legends* (pp. 7-36). New York: Routledge.
- 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.
- Oldham, G. R., Kulik, C. T., Stepina, L. P., & Ambrose, M. L. (1986). Relations between situational factors and the comparative referents used by employees. *Academy of Management Journal*, *29*(3), 599-608.
- Peterson, C. (2000). The future of optimism. *American psychologist*, *55*(1), 44-55.
- Ployhart, R. E., & Vandenberg, R. J. (2010). Longitudinal research: The theory, design, and analysis of change. *Journal of Management*, *36*(1), 94-120.
- Preacher, K. J., Briggs, N. E., Wichman, A. L., & MacCallum, R. C. (2008). *Latent growth curve modeling*. Los Angeles: Sage Pubns.
- Ritter, K.-J., Matthews, R. A., Ford, M. T., & Henderson, A. A. (2016). Understanding role stressors and job satisfaction over time using adaptation theory. *Journal of Applied Psychology*, *101*(12), 1655-1669.
- Roberts, B. W., Caspi, A., & Moffitt, T. E. (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., & Jackson, J. J. (2008). Sociogenomic personality psychology. *Journal of personality*, *76*(6), 1523-1544.
- Roberts, B. W., & Mroczek, D. (2008). Personality trait change in adulthood. *Current Directions in Psychological Science*, *17*(1), 31-35.
- Roberts, B. W., & Nickel, L. (2017). A critical evaluation of the Neo-Socioanalytic model of personality. In J. Specht (Ed.), *Personality Development Across the Life Span* (pp. 157-177): Elsevier.
- 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), 1-23.
- Roberts, B. W., & Wood, D. (2006). Personality development in the context of the neo-socioanalytic model of personality. In D. Mroczek & T. Little (Eds.), *Handbook of personality development* (pp. 11-39). Mahwah, NJ: Lawrence Erlbaum.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, *55*(1), 68-78.
- Rybowiak, V., Garst, H., Frese, M., & Batinic, B. (1999). Error orientation questionnaire (EOQ): Reliability, validity, and different language equivalence. *Journal of Organizational Behavior*, *20*(4), 527-547.
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health psychology*, *4*(3), 219-247.
- Scheier, M. F., & Carver, C. S. (1993). On the power of positive thinking: The benefits of being optimistic. *Current Directions in Psychological Science*, *2*(1), 26-30.

- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of personality and social psychology*, 67(6), 1063-1078.
- Schneider, B. (1983). Interactional psychology and organizational behavior. In B. M. Staw & L. L. Cummings (Eds.), *Research in Organizational Behavior* (Vol. 5, pp. 1-31). Greenwich, CT: JAI Press.
- Segerstrom, S. C. (2007). Optimism and resources: Effects on each other and on health over 10 years. *Journal of Research in personality*, 41(4), 772-786.
- Seibert, S. E., Crant, J. M., & Krainer, M. L. (1999). Proactive personality and career success. *Journal of Applied Psychology*, 84(3), 416-427.
- Seibert, S. E., Kraimer, M. L., & Crant, J. M. (2001). What do proactive people do? A longitudinal model linking proactive personality and career success. *Personnel Psychology*, 54(4), 845-874.
- Seligman, M. E. (2006). *Learned optimism: How to change your mind and your life*. New York: NY: Random House.
- Seligman, M. E., & Schulman, P. (1986). Explanatory style as a predictor of productivity and quitting among life insurance sales agents. *Journal of personality and social psychology*, 50(4), 832-838.
- Shin, S. J., Morgeson, F. P., & Campion, M. A. (2007). What you do depends on where you are: Understanding how domestic and expatriate work requirements depend upon the cultural context. *Journal of International Business Studies*, 38, 64-83.
- Shoss, M. K. (2017). Job insecurity: An integrative review and agenda for future research. *Journal of Management*, 43(6), 1911-1939.
- Sonnentag, S., & Frese, M. (2012). Dynamic performance. In S. W. J. Kozlowski (Ed.), *The Oxford Handbook of Organizational Psychology* (pp. 548-575). New York, NY: Oxford University Press.
- Specht, J., Bleidorn, W., Denissen, J. J., Hennecke, M., Hutteman, R., Kandler, C., . . . Zimmermann, J. (2014). What drives adult personality development? A comparison of theoretical perspectives and empirical evidence. *European Journal of Personality*, 28(3), 216-230.
- Speier, C., & Frese, M. (1997). Generalized self efficacy as a mediator and moderator between control and complexity at work and personal initiative: A longitudinal field study in East Germany. *Human performance*, 10(2), 171-192.
- Sturman, M. C. (2007). The past, present, and future of dynamic performance research. In J. J. Martocchio (Ed.), *Research in Personnel and Human Resources Management* (Vol. 26, pp. 49-110). Bingley, UK: Emerald Group Publishing
- Sutin, A. R., Costa Jr, P. T., Miech, R., & Eaton, W. W. (2009). Personality and career success: Concurrent and longitudinal relations. *European Journal of Personality*, 23(2), 71-84.
- Sutin, A. R., & Costa, P. T. (2010). Reciprocal influences of personality and job characteristics across middle adulthood. *Journal of personality*, 78(1), 257-288.
- Tasselli, S., Kilduff, M., & Landis, B. (2018). Personality change: Implications for organizational behavior. *Academy of Management Annals*, 2, 467-493.
- Taylor, P. J., Li, W. D., Shi, K., & Borman, W. C. (2008). The transportability of job information across countries. *Personnel Psychology*, 61, 69-111.
- Taylor, S. G., Bedeian, A. G., Cole, M. S., & Zhang, Z. (2014). Developing and testing a dynamic model of workplace incivility change. *Journal of Management*, 0149206314535432.

- Tennen, H., Affleck, G., Urrows, S., Higgins, P., & Mendola, R. (1992). Perceiving control, construing benefits, and daily processes in rheumatoid arthritis. *Canadian Journal of Behavioural Science, 24*(2), 186-203.
- Tews, M. J., Michel, J. W., & Ellingson, J. E. (2013). The impact of coworker support on employee turnover in the hospitality industry. *Group & Organization Management, 38*(5), 630-653.
- Tiger, L. (1979). *Optimism: The biology of hope*. New York: Simon & Schuster.
- Toker, S., & Biron, M. (2012). Job burnout and depression: Unraveling their temporal relationship and considering the role of physical activity. *Journal of Applied Psychology, 97*(3), 699-710.
- United Nations Development Programme. (2016). *Human development report: Human development for everyone*. New York: United Nations Development Programme.
- Utsch, A., Rauch, A., Rothfufs, R., & Frese, M. (1999). Who becomes a small scale entrepreneur in a post-socialist environment: On the differences between entrepreneurs and managers in East Germany. *Journal of Small Business Management, 37*(3), 31-43.
- Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods, 3*(1), 4-70.
- Westerhof, G. J., & Barrett, A. E. (2005). Age identity and subjective well-being: A comparison of the United States and Germany. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 60*(3), S129-S136.
- Wrzus, C., & Roberts, B. W. (2017). Processes of personality development in adulthood: The TESSERA framework. *Personality and Social Psychology Review, 21*(3), 253-277.
- Wu, C. H., & Griffin, M. A. (2012). Longitudinal relationships between core self-evaluations and job satisfaction. *Journal of Applied Psychology, 97*(2), 331-342.
- Wu, C. H., Griffin, M. A., & Parker, S. K. (2015). Developing agency through good work: Longitudinal effects of job autonomy and skill utilization on locus of control. *Journal of Vocational Behavior, 89*, 102-108.
- Yeager, D. S., & Dweck, C. S. (2012). Mindsets that promote resilience: When students believe that personal characteristics can be developed. *Educational psychologist, 47*(4), 302-314.
- Zullow, H. M., & Seligman, M. E. (1990). Pessimistic rumination predicts defeat of presidential candidates, 1900 to 1984. *Psychological Inquiry, 1*(1), 52-61.

Table 1
Sample Characteristics Across Time

Sample characteristics	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5
Gender (% male)	52.1	52.2	51.3	50.7	50.8
Average age	40.51	41.51	42.58	43.74	45.58
Sample size	530	536	497	474	486
Occupation (%)					
Manufacturing and construction	14.8	---	---	---	6.6
White collar	17.2	---	---	---	13.0
Catering, cleaning, transportation	8.2	---	---	---	4.4
Trade	4.4	---	---	---	6.4
Education	7.8	---	---	---	6.8
Repair	4.9	---	---	---	3.5
Maintenance	4.9	---	---	---	2.7
Managerial work	5.7	---	---	---	4.7
Research	10.9	---	---	---	6.2
Security	1.5	---	---	---	0.5
Other	18.1	---	---	---	15.3
Missing	1.6	---	---	---	29.9

Note. Information on occupation from Wave 2 to Wave 4 were not available.

Table 2

Model Fit Indices for Testing Measurement Invariance and CFAs

Model	χ^2 (df)	CFI	TLI	RMSEA	SRMR	Δ CFI	Δ RMSEA	Δ SRMR
Dispositional optimism								
Configural equivalence	1398.46*** (662)	.920	.906	.045	.087	----	----	----
Metric equivalence	1437.73*** (690)	.919	.909	.045	.089	-.001	.000	.002
Job insecurity								
Configural equivalence	297.70** (77)	.896	.859	.074	.181	----	----	----
Metric equivalence	160.74** (85)	.964	.956	.041	.058	.068	-.027	-.123
Coworker support								
Configural equivalence	118.72** (77)	.985	.979	.032	.034	----	----	----
Metric equivalence	125.03** (85)	.986	.982	.030	.037	.001	-.002	.003
Supervisor support								
Configural equivalence	94.04 (77)	.995	.993	.021	.038	----	----	----
Metric equivalence	102.09 (85)	.995	.993	.020	.044	.000	-.001	.006
CFA, first wave	152.27*** (98)	.979	.971	.032	.043	----	----	----
CFA, second wave	168.80*** (98)	.972	.962	.037	.044	----	----	----
CFA, third wave	157.00** (98)	.974	.963	.035	.050	----	----	----
CFA, fourth wave	171.00*** (98)	.964	.950	.040	.043	----	----	----
CFA, fifth wave	113.77 (98)	.992	.989	.018	.037	----	----	----
Unified model: CFA and measurement equivalence	4001.44*** (2955)	.945	.933	.025	.056	----	----	----

Note. $N = 276-536$. * $p < .05$, ** $p < .01$, *** $p < .001$.

CFI = Comparative Fit Index, TLI = Tucker–Lewis Index, RMSEA = Root Mean Square Error of Approximation, SRMR = Standardized Root Mean Square Residual.

Table 3
Means, SDs, and Correlations for the Study Variables

	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Dispositional optimism T1	4.80	.85	---										
2. Income ^a T1	6.95	.47	.04	---									
3. Job insecurity T1	2.90	.77	-.24**	.01	---								
4. Coworker support T1	2.97	.63	.10*	.02	-.10*	---							
5. Supervisor support T1	2.72	.72	.15**	.12*	-.13**	.41**	---						
6. Dispositional optimism T2	4.75	.84	.65**	.05	-.20**	.09	.06	---					
7. Income ^a T2	7.12	.58	.05	.61**	-.11*	-.06	.09	.04	---				
8. Job insecurity T2	2.60	.72	-.25**	-.02	.59**	-.12*	-.09	-.31**	-.20**	---			
9. Coworker support T2	3.02	.62	.07	-.01	-.05	.54**	.25**	.02	-.01	-.09	---		
10. Supervisor support T2	2.86	.75	.09	.12*	-.09	.30**	.52**	.10	.14**	-.12*	.44**	---	
11. Dispositional optimism T3	4.73	.85	.65**	-.03	-.21**	.10*	.06	.70**	-.02	-.30**	.05	.06	---
12. Income ^a T3	7.34	.53	.03	.50**	-.15**	.01	.14**	.02	.59**	-.14**	-.06	.08	-.01
13. Job insecurity T3	2.50	.74	-.28**	-.11*	.44**	-.04	-.08	-.29**	-.22**	.62**	-.11*	-.15**	-.35**
14. Coworker support T3	3.00	.56	.12*	-.07	-.02	.39**	.25**	.06	-.11*	-.01	.49**	.26**	.10
15. Supervisor support T3	2.85	.71	.10	.05	-.08	.27**	.35**	.03	.06	-.11	.30**	.41**	.10
16. Dispositional optimism T4	4.76	.83	.58**	.04	-.18**	.09	.09	.67**	.04	-.23**	.04	.09	.75**
17. Income ^a T4	7.48	.54	.01	.47**	-.11*	.06	.10	.05	.54**	-.20**	-.02	.12*	.02
18. Job insecurity T4	2.47	.67	-.21**	-.05	.47**	-.04	-.10	-.23**	-.15**	.62**	-.05	-.01	-.27**
19. Coworker support T4	3.05	.58	.03	-.15**	-.06	.38**	.21**	.00	-.02	-.06	.41**	.18**	.05
20. Supervisor support T4	2.92	.68	.09	-.01	-.13*	.23**	.28**	.07	.05	-.21**	.15*	.30**	.08
21. Dispositional optimism T5	4.81	.83	.53**	.05	-.15**	.10*	.10	.60**	.04	-.24**	.08	.08	.66**
22. Income ^a T5	7.58	.55	.05	.36**	-.04	.02	.12*	.04	.45**	-.10	-.04	.13*	.01
23. Job insecurity T5	2.51	.66	-.18**	-.10	.39**	-.13*	-.08	-.19**	-.16**	.53**	-.19**	-.13*	-.24**
24. Coworker support T5	3.09	.56	.03	-.15**	-.15**	.32**	.15**	.10	-.14**	-.13*	.34**	.18**	.07
25. Supervisor support T5	2.93	.67	.06	-.02	-.06	.17**	.18**	.06	-.01	-.08	.19**	.20**	.04

Table 3, Continued
Means, SDs, and Correlations for the Study Variables

	12	13	14	15	16	17	18	19	20	21	22	23	24
13. Job insecurity T3	-.27**	---											
14. Coworker support T3	-.08	-.15**	---										
15. Supervisor support T3	.06	-.24**	.44**	---									
16. Dispositional optimism T4	.05	-.27**	.07	.08	---								
17. Income ^a T4	.80**	-.25**	-.09	.05	.04	---							
18. Job insecurity T4	-.16**	.67**	-.07	-.16**	-.33**	-.16**	---						
19. Coworker support T4	-.05	-.13*	.59**	.16**	.06	-.01	-.15**	---					
20. Supervisor support T4	.03	-.15**	.21**	.52**	.10	.07	-.27**	.37**	---				
21. Dispositional optimism T5	.01	-.26**	.11*	.07	.70**	.11*	-.35**	.10	.12*	---			
22. Income ^a T5	.65**	-.26**	-.01	.04	.02	.68**	-.13*	.03	.06	.04	---		
23. Job insecurity T5	-.12*	.56**	-.12*	-.20**	-.26**	-.11*	.68**	-.18**	-.26**	-.29**	-.11*	---	
24. Coworker support T5	-.10	-.09	.42**	.21**	.13*	-.06	-.11	.48**	.26**	.13*	-.09	-.15**	---
25. Supervisor support T5	-.06	-.05	.28**	.39**	.11	-.01	-.15**	.26**	.48**	.13*	-.01	-.23**	.41**

Note. $N = 276-537$, respectively. * $p < .05$; ** $p < .01$. ^a indicates that natural logarithm transformation of income was used.

Table 4

Fitness and Parameter Estimates for Bivariate Latent Change Score Models with Dispositional Optimism and Work Experience Variables

Bivariate LCS Model	Model fit indices				Parameter estimates (<i>S.E.</i>)				
	χ^2 (<i>df</i>)	CFI	TLI	RMSEA	Lagged effect of optimism, γ_1	Lagged effect of work experience, γ_2	Mean of Slope 2, linear trajectory for work experience	Mean of Intercept 2, starting point for work experience	
Dispositional optimism with									
Income, Model 1	220.70*** (58)	.94	.93	.072	.01 (.01)	.09* (.04)	1.37*** (.27)	7.08*** (.10)	
Job insecurity Model 2	103.51*** (58)	.98	.98	.038	-.21*** (.04)	-.12* (.05)	1.99*** (.24)	1.77*** (.16)	
Coworker support, Model 3	83.59* (58)	.99	.99	.029	.01 (.02)	.07 (.06)	.97* (.42)	3.34*** (.13)	
Supervisor support, Model 4	92.58** (58)	.98	.98	.034	.01 (.03)	.06 (.05)	.52 (.30)	2.76*** (.16)	

Note. $N = 276-536$. * $p < .05$, ** $p < .01$, *** $p < .001$. Age and gender were controlled. Parameters are unstandardized. CFI = Comparative Fit Index, TLI = Tucker–Lewis Index, RMSEA=Root Mean Square Error of Approximation.

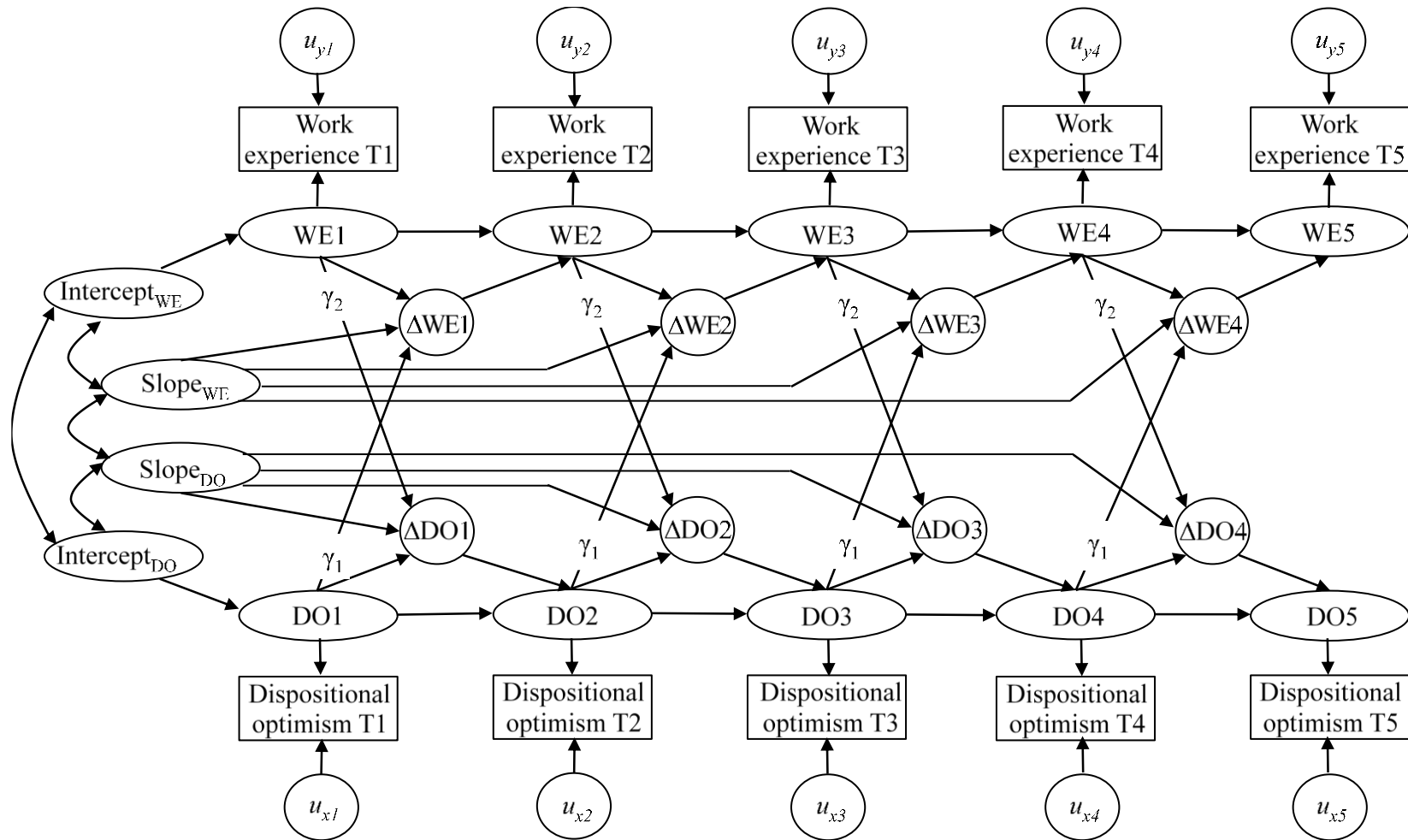


Figure 1: Bivariate Latent Change Score Model for Dispositional Optimism and One Work Experience Variable.

This is a simplified representation of a bivariate latent change score model for ease of presentation. See McArdle (2001; 2009) for more details. DO = dispositional optimism; WE = work experience; ΔDO = change in dispositional optimism; ΔWE = change in work experience.