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Examining the Relationship Between Work Stress and Employee Outcomes: A Longitudinal Moderated-Mediation Model

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Examining the Relationship Between Work Stress and Employee Outcomes: A Longitudinal Moderated-Mediation Model

by

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Abstract

The experience of work stress is widespread and often associated with deleterious employee outcomes. However, researchers have found that some types of work stress are associated with beneficial employee outcomes. Hindrance stress, which is evoked by threatening aspects of a job, has consistently been related to negative outcomes. On the other hand, stress that emanates from opportunities for growth and gain (challenge), has been associated with positive outcomes. Little is known about the psychological mechanisms responsible for these effects. The purpose of this dissertation is extend previous empirical and theoretical work on the relationship between work stress and employee outcomes. To this end, a new model of stress was developed to investigate perceptions of Need-Supply (N-S) fit (the match between employee needs and organizational supplies) as an explanation (mediator) for the relationship between the experience of challenge and hindrance stress with several employee outcomes. In addition, job self-efficacy (beliefs about the ability to perform work related tasks) was proposed of moderate the mediated effect of challenge stress; self-esteem (an overall appraisal of self-worth) was proposed to moderate the mediated effect of hindrance stress. A full three-wave panel study was carried out using sample of full-time employees across a wide range of industries, located in a large Western Canadian City. Generally, the results of this study provided mixed support for perceptions N-S fit as a mediating mechanism linking stress to employee outcomes. The data failed to support lagged relationships of stress on perceptions of N-S fit. Some support was found for a model where the relationship between stress and perceptions of N-S fit happens in the same temporal space. The moderating effects of job self-efficacy and self-esteem failed to find support. Overall, the results suggest that perceptions of N-S fit and job attitudes are relatively stable and resistant to lagged relationships of stress over a six month time span. Theoretical implications, limitations,

suggestions for suture research, and managerial implications are discussed.

Keywords: Job, Stress, Challenge Stress, Hindrance Stress, Perceived Need-Supply Fit, Job Satisfaction, Organizational Commitment, Turnover Intentions

Dedication

First of all, I would like to thank my supervisor, Dr. Derek Chapman. His countless hours of guidance over the better part of the last decade has helped me grow and develop more than I ever thought possible. I am sincerely and forever grateful for the patience and time he has invested in me as a budding scientist-practitioner. His support and dedication is beyond words, and I simply cannot thank him enough. Another thank you to the members of my thesis committee for their time, insight, and encouragement. Their commitment throughout my degree program is more than appreciated.

My sincere thanks also goes out to my fellow I/O graduate peers. Over the past few years we have become a close knit group. There are many ups and downs in grad school; but even in the toughest times I could always turn to my peers for comfort, support, and encouragement. I will cherish the memories we made for the rest of my life: peers by chance, friends by choice.

Finally, I would like to thank my loving and beautiful wife, my two unbelievably sweet daughters, and my parents for their unconditional love and encouragement throughout my academic career. My wife has seen it all. She has endured all the trials and tribulations of my program indirectly through me, and has stuck by me no matter what. I am forever thankful and grateful to have her in my life. My daughters Aria and Ellie have been a source of inspiration through the joy and laughter they bring to my life. Last, I would like to thank my parents who have always supported me in my academic achievements, and who taught me to always follow my dreams. I cannot thank them enough for everything they have done for me – I love you both!

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Chapter 1: Introduction

Stress represents a zeitgeist of modern everyday life, and this is no exception when it comes to life at work (Bliese, Edwards & Sonnentag, 2017). In fact, 70% of adults report that work is a significant cause of stress (American Psychological Association, 2014). Some have gone as far a suggesting that stress is a pervasive modern day workplace epidemic (Wainwright & Calnan, 2002). To provide a sense of the interest in job stress, a recent Google search using the words "job" and "stress" resulted in 521 million hits. In the academic community, organizational stress research has endured and thrived over the better part of the last century (Katzell & Austin, 1992). For example, a recent search using the terms "job" and "stress" on Google scholar produced 3.67 million results, and on PsycInfo produced over 55 thousand publications.

Research on job stress has undoubtedly confirmed that high levels of stress are associated with deleterious mental and physical consequences (Cooper, Dewe, & O'Driscoll, 2001; Griffin & Clarke, 2011). In 1996, The National Institute of Occupational Health and Safety (NIOSH) (1999) developed an interdisciplinary task force to examine the organization of work, which included the subfield devoted to the examination of stress at work. This work has focused heavily on the identifying the causes and consequences of stress, stress management, and the reduction of stress in the workplace. However, despite many years of progress in the stress literature, theoretical and practical imperatives call for more research (Bliese et al., 2017).

In search of a more complete understanding of the stress process, there have been calls for integration among prominent stress models and frameworks (Cooper et al., 2001). However, this call for integration has largely gone unanswered (see Cavanaugh, Boswell, Roehling, & Boudreau, 2000 for an exception). For the most part, major theoretical approaches and

frameworks have been developed in parallel to one another, with minimal cross-fertilization over the last two decades.

The purpose of this dissertation is threefold. First and foremost, this dissertation reviews prominent stress models and frameworks, and integrates them in order to develop a new model of stress. The purpose of the model is to further elucidate the psychological process and boundary conditions linking work related stress to meaningful employee outcomes. The second purpose of this dissertation is to test the newly developed model of stress. The new model is tested longitudinally using a full three-wave panel design. Third, this dissertation will discuss the results, theoretical contributions and limitations, and offer suggestions for future research along with practical management advice.

Chapter 2: Review of the Literature

Although the history of stress research is rich, and includes thousands of empirical studies and several theoretical models, the review in this section is by no means exhaustive. Rather, the purpose is to define the construct of stress, discuss major transitions within the stress literature, and outline popular theories, models, and frameworks. This review will also highlight empirical studies that have guided organizational stress research.

A Definition of Stress

The definition of stress has evolved over the years. However, stress has mainly been defined from either a physiological or a psychological perspective. From a physiological perspective, stress has been defined as a reaction to environmental stimuli, whereby environmental forces take a toll on an individual (Selye, 1956). From a psychological perspective, researchers have given more credence to the role of appraisal in the stress process, and defined it as a transaction between the person and then environment (Lazarus, 1966; Lazarus & Folkman, 1984). Within the organizational literature, stress has been defined in terms of role characteristics (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964), but also in more transactional terms, as a mismatch between desired levels of role characteristics and perceptions regarding the actual level of those role characteristics (French & Kahn, 1962). In this later definition, incongruence between the person and their work environment results in the experience of stress.

The most recent conceptualizations of stress suggest that it is a dynamic, adaptive, and self-regulated process between the person and the environment; a process involving both discrepancy production and reduction (Bliese et al., 2017; Cummings & Cooper, 2000; Dewe, O'Driscoll, & Copper, 2012; Shurpe & McGrath, 2000). The process perspective on stress suggests that stress should be viewed as a complex process that includes various stages

including: appraisal, coping strategies, coping, and outcomes (Shupe & McGrath, 2000). The purpose of viewing stress as a process is to better understand the "mechanisms that underlie and best express the nature of the stress process, and the manner in which those mechanisms provide a causal pathway that expresses the notion of the experience" (Dewe et al., 2012, p. 25). Process theories of stress, such as the cybernetic model of stress and coping (Edwards, 2000), are similar to theories of stress developed in the field of medicine. Both consider stress to be a dynamic state in which the organism adapts to the demands of the environment (Wolff, 1953). These dynamic models maintain that stress is a force that disrupts the equilibrium between the person and the environment, which sets in motion discretionary efforts to reduce discrepancies in order to achieve futures state of equilibrium (Cummings & Cooper, 1979). The major difference between process models of stress and those found in medicine (c.f. Selye, 1956), is the notion that people are agentic in the stress production phase (Dewe et al., 2012). That is, people are motivated to create discrepancies between themselves and the environment, and are not just reactionary by attempting to reduce discrepancies as they arise. It is thought that individuals can create subordinate lower-level discrepancies between themselves and the environment (set goals) in order to reduce superordinate higher-level discrepancies (being successful) (Edwards, 1998). For example, an individual may create a discrepancy between their existing knowledge and what they would like to learn, as a way of resolving a higher level discrepancy associated with being well-learned. Therefore, according to these models, stress plays a continuous role in the relationship between an individual and their environment, and in some ways may be controlled by the individual.

A Brief History of Stress Research

For many years stress research lay outside the purview of the social sciences and organizational research. Before stress was inducted into the organizational literature it remained within the purview of biology and medicine. Selye (1956) for example, was one of the first to develop a model of stress, with a focus on the endocrine system. He developed a stimulus-response model of stress called General Adaptation Syndrome (GAS). Figure 1 depicts this basic stimulus-response model of stress.

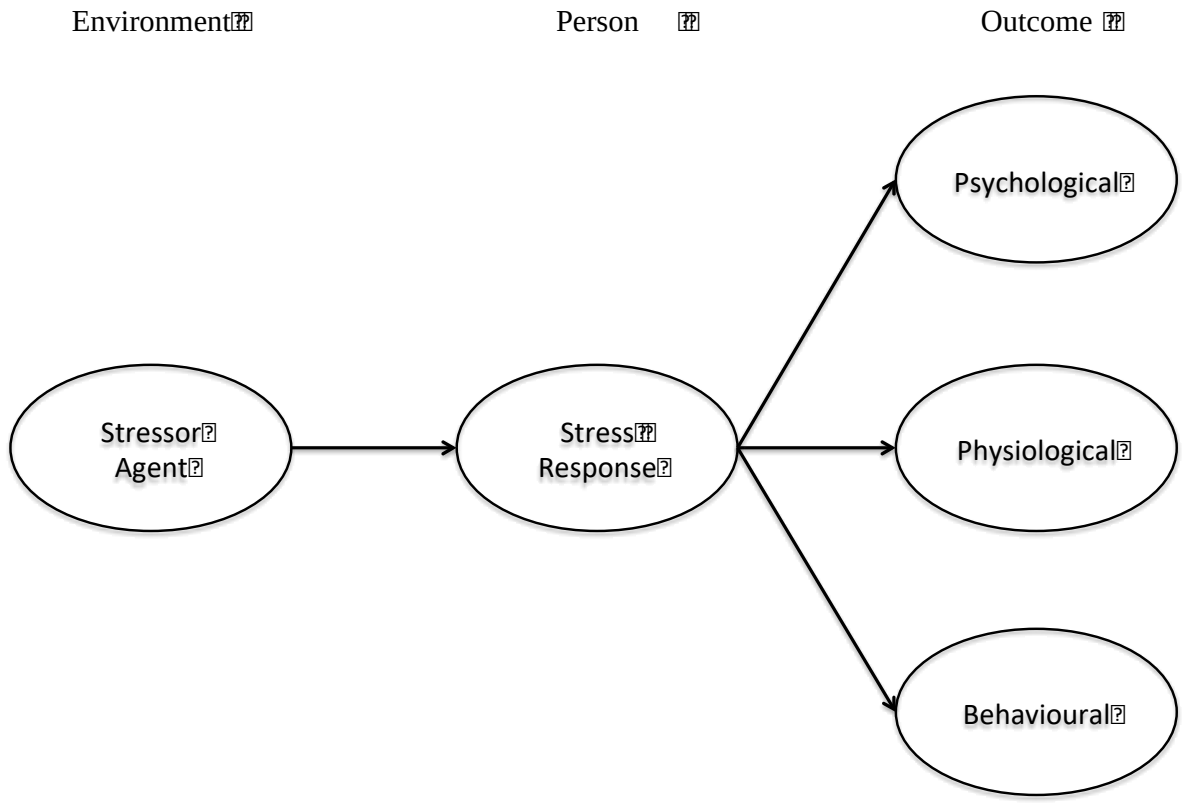

Figure 1. Stimulus-response model of stress.

According to GAS, stress is a "nonspecific response of the body to any demand, whether it is caused by, or results in, pleasant or unpleasant conditions" (Selye, 1956, p.74). The experience of stress is a hardwired biological reaction, proportional in response to the level of environmental demands (Selye, 1956). The model suggests that certain environmental conditions, or stressor agents, elicit a stress response, which then result in a broad array of psychological, physiological, and behavioural consequences. Accordingly, stressors are "that which produce stress" (Selye, 1956, p.78).

As stress research began to mature, it was brought into the realm of the social sciences (Cooper et al., 2001). Researchers began to focus more on the appraisal process, considering stress as a transaction between the self and the environment (Lazarus & Folkman, 1984). Transactional models suggest that stress is experienced when the environment appraised as taxing or exceeding personal resources, not the result of environmental stimuli alone (Lazarus & Folkman, 1984). Unlike stimulus-response models that consider individual differences as moderators, transactional models of stress consider individual differences within stress process itself through an emphasis on appraisal. Implicit in transactional models is the notion that the same stressor may elicit a different stress response from one individual to the next, dependent on their construal of environmental stimuli (i.e., stressors). Thus, stress appraisals can be different based on the type of stress stressor, the situation in which stress is experienced, as well as individual differences. The transactional model of stress has seen a great deal of support, and is used as a theoretical foundation for most stress and coping research (Dewe et al., 2012).

While stress has likely always been a part of organizational life, research on the effects of stress became a central focus of the organizational literature in the early 1960's as an extension of the human relations movement (Kahn et al., 1964). Kahn et al. (1964) is credited for providing

a theoretical basis for the study of occupational and work role stress effects (Sulsky & Smith, 2005). Their research involved a combination of qualitative and quantitative research into the effects of role conflict and role ambiguity (Kahn et al., 1964). Much of organizational stress research that followed focused on objective or subjective measures of environmental characteristics and their influence on both health and workplace outcomes. For example, Shaw and Riskind (1983) examined the deleterious employee outcomes that were associated with occupational level characteristics measured using the Position Analysis Questionnaire (PAQ). Their finding suggested that certain jobs characteristics were associated with the likelihood of employee stress. As another example, Jackson and Schuler (1985) found negative relationships between perceived levels of workplace stressors (i.e., role ambiguity and role conflict) with employee attitudes and behavior.

Although there was empirical support for the negative relationship between occupational and work role characteristics with mental and physical health, this line of research was considered by some to be inconclusive, plagued with contradictory findings, and lacked generalizability (Gangster & Schaubroeck, 1991; Podsakoff, LePine, & LePine, 2007). While many empirical investigations showed that high levels of stress were associated with negative outcomes, other empirical investigations provided evidence to the contrary. For example, Sarason & Johnson (1979) using a sample of 44 male naval personnel, found that positive organizational stress was related to increased employee satisfaction. In another study, Scheck, Kinicki, and Davy (1997) found that positive workplace stress events related to the job, work relationships, and compensation, positively related to problem focused coping and subjective well-being among a sample of 218 employees of a high tech firm. More recently, Cavanaugh et

al. (2000) found that stress was both positively and negatively related to employee attitudes and behaviour.

In light of contradictory findings within stress research there have been several attempts to consolidate the literature and provide some clarity. Recent reviews suggest that divergent findings may be due to the type of stress that is being examined, and whether it is deemed to be threatening or conducive to employee growth or gain (LePine et al., 2005; Podsakoff et al., 2007). This perspective on stress is known as the challenge stressor-hindrance stressor framework (LePine et al., 2005). The distinction between different types of stressors can be seen elsewhere. For example, the job-demands resource (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) focuses on the relationship between job demands and strain, where high job demands and low resources lead to employee burnout. Within this line of research, the notion that job demands can have both positive and negative effects on engagement has been highlighted (Schaufeli & Taris, 2014). Empirical research in the JD-R area has provided additional support for the distinction between challenging and hindering job demands in relation to employee engagement and burnout (Crawford, LePine & Rich, 2010).

In contrast to stress research that was generally based on stimulus-response models of stress, researchers also began to examine the concept of Person-Environment (P-E) fit, suggesting that congruence between the individual and the work environment would reduce stress and assist in employee adjustment (Dawis & Lofquist, 1984; French, Caplan, & Harrison, 1982). However, this line of research primarily developed in parallel to others stress research with little to now cross-fertilization. For example, Edwards and Harrison (1993) re-examined the data collected by French et al. (1982) to test provide a better understanding of the way job characteristics (job complexity, role ambiguity, responsibility, and workload) interacted with

employee desires for these job demands in relation to a wide variety of physical and psychological outcomes (e.g., satisfaction, depression, somatic complaints). These tests were primarily aimed at providing empirical support for the use of polynomial regression analysis, as oppose to difference scores when testing the proponents of P-E fit theory. The P-E fit approach to stress was initially focused on objective measures of work demands and employee desires. However, researchers began to incorporate more direct measures of P-E fit (Kristof, 1996). For example, Xie and Johns (1995) using a sample of 418 full-time employees across 143 different job titles, found support for moderating effects of perceived Demands-Abilities (D-A) fit on the relationship between job scope and employee anxiety. However, research using the P-E fit approach to stress has for many years been held back by methodological issues surrounding the functional form of fit, and how best to measure fit (Edwards, 2008). Regardless of these methodological issues, there is still a wide body of empirical research that suggests objective/subjective as well as perceived fit is associated with positive employee outcomes (Kristof-Brown & Guay, 2011; Kristof-Brown, Zimmerman, & Johnson, 2005).

Foundations of Stress Research

Transactional theory of stress and coping. The transactional theory of stress (Lazarus, 1966) has been a predominant foundation for most stress and coping research (Dewe et al., 2012). According to the transactional theory of stress, stress is "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus & Folkman, 1984, p. 19). Appraisal is a key component of the transactional theory to stress. Appraisal refers to an evaluative cognitive process that mediates the relationship between an encounter and a reaction (Lazarus & Folkman, 1984). The transactional theory of stress distinguishes between three types of appraisal (primary

appraisal, secondary appraisal, and reappraisal). Primary appraisal reflects an initial judgment about an encounter. These appraisals can be irrelevant, benign-positive, or stressful. Irrelevant appraisals are neutral, carry no weight, and are dismissed as not stressful. Benign-positive appraisals are associated with positive outcomes and pleasurable emotions, and are also not considered to be stressful. On the other hand, stress appraisals reflect a situation whereby the environment taxes or exceeds personal resources (Lazarus & Folkman, 1984). As stated by Lazarus and Folkman (1984), "stress appraisals include harm/loss, threat, and challenge" (p. 32). Harm or loss may be appraised when an individual has already incurred physical or psychological damage to the self. Threat appraisals are concerned with loss or damage that has not yet occurred, or in conjunction with loss or harm that has already occurred. Challenge appraisals are associated with foreseeable opportunities for personal gain or growth. Unlike threat appraisals, challenge is associated with positive emotion, and triggers the mobilization of personal resources. Of particular interest, challenge is considered stressful, and represents a situation whereby the environment is appraised as taxing or exceeding personal resources. Thus, what Lazarus and Folkman suggest is that regardless of the potential for personal growth and development, appraisals of challenge coincide with the understanding that personal resources will be taxed, or may not be enough to conquer a specific challenge. Therefore, appraisals of challenge are synonymous with the experience of stress.

Following primary appraisals of stress, secondary appraisal involves a cognitive evaluation of what might, or can, be done in response to an environmental stressor (Lazarus & Folkman, 1984). This stage relates to the coping strategy or strategies used in response to the experience of stress. Coping strategies refer to "constantly changing cognitive and behavioral

efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus, 1984, p. 141).

Although primary and secondary appraisals are distinct from one another, they are related (Lazarus & Folkman, 1984). Laboratory experiments and field research are consistent in showing that primary appraisal has a significant effect on secondary appraisal and the mobilization of individual resources (Drach-Zahavy & Erez, 2002; Fugate, 2013; Fugate, Kinicki & Prussia, 2008; LePine et al., 2005; Oreg, Vakola, & Armenakis, 2011). Generally speaking, appraisals of threat and or harm have been shown to promote emotion-based and avoidant coping styles (i.e., attempts to reduce the impact of negative affective responses to a stress), whereas challenge appraisals tend to be associated with active and problem-focused coping (i.e., doing something about the stress) (Folkman, Lazarus, Dunkel-Schetter, DeLongis & Gruen, 1986; LePine, et al., 2005; McCrae, 1984). However, for secondary appraisal it is important to consider the perceived control to change the source of stress. Research has shown that people tend to be more likely to use emotion-based and avoidance type strategies when they do not think they are able to handle their stress in a problem-focused way (Folkman & Lazarus, 1980; Folkman & Lazarus, 1985; Folkman et al., 1986). Thus, while it may seem as though problem-focused coping is more effective, the transactional theory of stress and coping suggests that there are no good or bad coping strategies. Coping ultimately serves the individual in their efforts to maintain personal well-being (Lazarus & Folkman, 1984). In cases where nothing can be done to reduce the amount of stress that is associated with a particular event, changing the way one feels about the stressor (emotion-focused), or avoiding it altogether, may by more advantageous for overall personal well-being.

Reappraisal, often not included in reviews of the transactional model of stress and coping, reflects a reconsideration of primary and secondary appraisal on account of new information (Lazarus & Folkman, 1984). After a person begins to cope with stress, success or failure to cope can influence subsequent primary and secondary appraisals. Empirical evidence suggests that there is a strong positive correlation between active coping strategies and positive reappraisal (Lazarus & Folkman, 1985). For example, if an employee appraises challenge when adapting to new workplace technology (e.g., learning to use MPLUS), these stress appraisals will tend to decrease over time conditional on adaptive coping strategies. If coping is successful, a reduction in the level of challenge triggered by the new technology will follow, resulting in decreased stress appraisals of the new technology.

Person-environment fit approach to stress. The person-environment (P-E) fit approach to stress (French et al., 1982) is one of the most widely discussed in the organizational stress and coping literature, and has been an underpinning to many other approaches to stress and well being (Dewe et al., 2012). The P-E fit approach stems from the work of Lewin (1935), who argued that behaviour is a function of the person and their environment. The basic idea of the P-E fit approach to stress is that the influence of particular workplace stressors cannot be determined without taking into account individual differences along commensurate dimensions. Accordingly, the experience of stress is the result of subjective incongruence between characteristics of the person and their work environment along commensurate dimensions (Caplan, 1987; Edwards, 2008; French & Kahn, 1962).

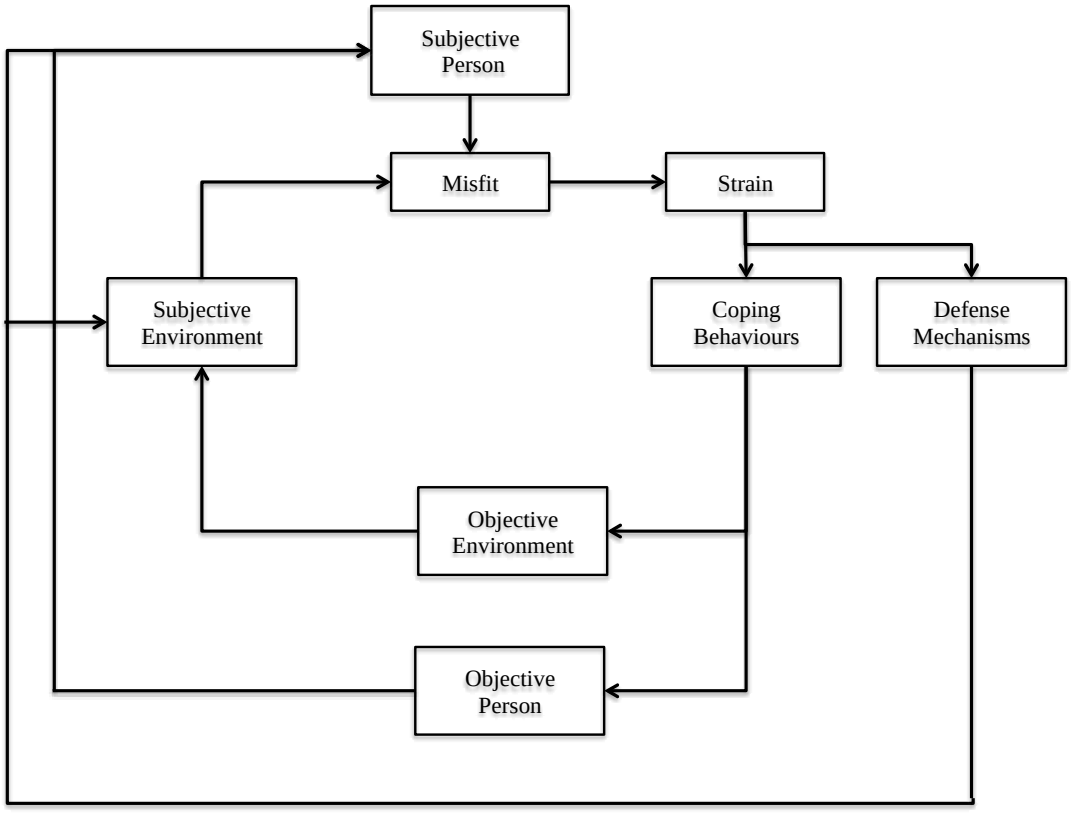

Figure 2. French, Caplan, & Harrison (1982) P-E fit model**.**

Figure 2 depicts the P-E fit approach to stress proposed by French et al. (1982). The model suggests that subjective person and workplace characteristics work together in the production of misfit, where incongruence between the two reflects a mismatch between the person and the work environment. In this model, misfit leads to strain, and subsequently provokes attempts on behalf of the individual to resolve misfit via coping behaviours or defense mechanisms. In terms of the restoration of P-E fit, coping behaviours are associated with change in the objective self or environment, whereas defense mechanisms are focused on changing subjective perceptions of the self or environment. As a reflection of the time in which this theory

was developed, defense mechanisms included both emotional and avoidance type coping strategies, which were believed to signal a dispositional defect (McCrae, 1984).

Within the P-E fit approach to stress, there has been an ongoing research effort to uncover the person and environment characteristics that can lead to misfit. The original P-E fit approach to stress was mainly concerned with how employee characteristics fit with the job itself (Person-Job (P-J) fit) (Edwards, 2008), P-J fit consists of two separate dimensions that include: 1) the congruence between individual needs or desires and what is supplied by the job (i.e., Needs-Supplies (N-S) fit); and 2) the congruence between job demands and individual knowledge, skills, and abilities to meet those demands (Demands-Abilities (D-A) fit) (Edwards, 1991, 1992, 2008). However, in a meta-analysis, Kristof-Brown et al. (2005) discussed several dimensions of P-E fit that have since been conceptualized in the literature.

Within the P-E fit literature, several approaches to the measurement of fit have emerged. Fit can be measured indirectly objectively or subjectively, or it can be measured directly as a perception (Kristof-Brown et al., 2005). Objective fit is generally used to express the match between employee characteristics are measured by the self, and actual workplace characteristics or ratings of workplace characteristics made by other members of the organization (Kristof-Brown et al., 2005). For example, objective fit can be measured by comparing self-rated need for autonomy in relation to actual autonomy of the job. Levels of autonomy can be measured through some objective indicator of autonomy, or it can be measured by asking employees performing similar roles within the organization. Alternatively, subjective fit may be used in place of objective fit. Similar to measuring objective fit, subjective fit is measured indirectly, whereby characteristics of the environment are empirically examined in relation to person characteristics along commensurate dimensions. The main difference is that both ratings come

from the person, instead of having measures of the environment come from alternate sources. Perceived measures of fit ask respondents to indicate their congruence between themselves and the work environment. They do not attempt to identify the important environmental characteristics. However, perceived fit allows the greatest level of cognitive manipulation because the assessment is all done in the mind of the respondents, allowing them to apply their own weighting scheme to various aspects of the environment (Kristof-Brown et al., 2005). It is important to note that research applying the P-E fit approach to stress have mainly focused on indirect measures of fit.

The P-E fit approach to stress suggests that employees are motivated to develop, maintain, and restore the relationship between themselves and their work environment, and that the experience of misfit triggers a negative feedback loop of discrepancy reduction efforts (Cummings & Cooper, 2000; Edwards, 1992; French, Rogers, & Cobb, 1974). In other words, employees continuously adjust to, or change job demands and organizational supplies over the employment lifecycle to maintain fit with the work environment (Caplan, 1987; Dawis & Lofquist, 1984). Although the French et al. (1982) model is by far the most cited in the P-E Fit literature (Kristof-Brown & Guay, 2011), it is somewhat limited when it comes to describing the process in which P-E fit unfolds overtime.

Cybernetic theory of stress, coping and organizational well-being. In an attempt to further advance the P-E fit approach to stress, and resolve limitations with previous stress models, Edwards (1992) developed the cybernetic theory of stress, coping, and organizational well being. Figure 3 depicts the model developed using this theory. Drawing of control theory as a foundation (Carver & Scheier, 1982), the cybernetic theory arguably depicts the corrective function suggested in the P-E fit approach to stress, but not readily explicated or incorporated

into models (i.e., French et al., 1982). From a modeling perspective, the difference is the inclusion of a direct pathway going from P-E discrepancy to coping.

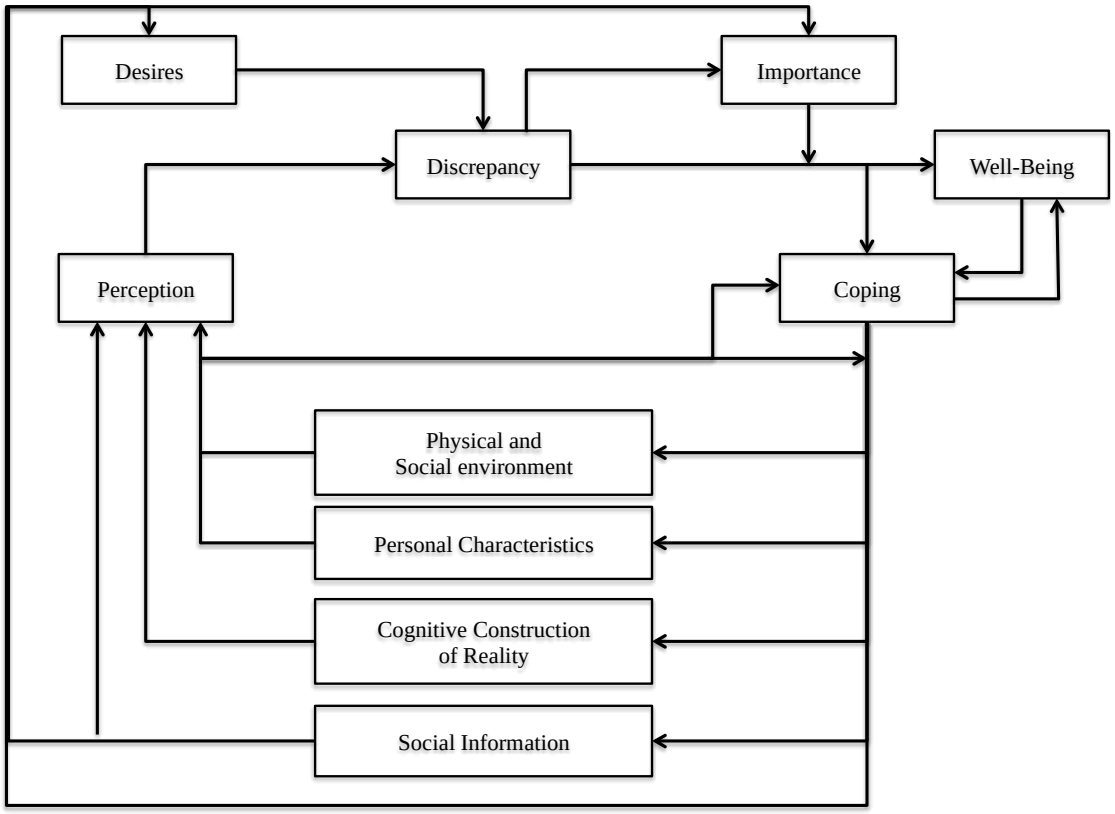

Figure 3. Cybernetic model of stress coping and well-being.

The implication of this pathway is that it allows for the potential mitigation of discrepancy effects on well being indirectly through coping. In other words, the relationship between misfit and well-being can be buffered by the use of coping. The French et al. (1982) model suggests that strain comes before the use of coping strategies and defense mechanisms, which precludes the possibility that people can handle misfit before it influences well-being, or at least occur simultaneously (Edwards, 1992). For example, if the demands of a job are increasing to the point where greater knowledge, skill, and or ability are required, an employee can improve personal characteristics to better meet the demands of the job, reducing misfit before it has a negative

effect on well-being (Caldwell, Herold, & Fedor, 2004). Employees may also partake in behaviours such as job crafting, role adjustment and deal making (proactive behaviour) in order to change the nature of the work environment to better suit personal characteristics (Yu & Yang, 2013). Furthermore, in contrast to the French et al. (1982) model, the cybernetic theory is better suited with respect to some people being better than others at managing the relationship between stress and strain (Bakker & Demerouti, 2007). The process of handling stress and restoring subjective fit has been conceptualized as P-E fit management, defined as any behaviour aimed at reducing objective or subjective discrepancies between commensurate person and environment characteristics (Yu & Yang, 2013). Accordingly, when an employee experiences P-E misfit they can manipulate the objective environment or characteristics of the self, subjectively change perceptions of the self or the environment, or do some combination the above (Yu & Yang, 2013).

Challenge stressor-hindrance stressor framework. The challenge stressor-hindrance stressor framework distinguishes between two types of workplace stressors (challenge and hindrance). Stressors can be defined as stimuli in the work environment that place demands on employees (LePine et al., 2005). Challenge stressors encompass workload, hours spent at work, time pressure, job scope, and responsibility. Hindrance stressors reflect organizational politics, pay, role ambiguity, job security, and lack of career advancement (Cavanaugh et al., 2000; LePine et al., 2005). The distinction between challenge and hindrance has important implications for understanding the relationship between work related stressors and employee outcomes including: job performance (LePine et al., 2005), job satisfaction, organizational commitment, turnover intentions, withdrawal behaviour, and turnover (Podsakoff et al., 2007), engagement and burnout (Crawford et al., 2010), as well as counterproductive and citizenship behaviours

(Rodell & Judge, 2009). The body of empirical evidence on the distinction between challenge and hindrance stress suggests that they display differential relationships with workplace attitudes and behaviour (Cavanaugh et al., 2000: LePine et al., 2005; Podsakoff et al., 2007).

The first test of the challenge stressor-hindrance stressor framework involved a nation-wide survey of self-reported work stress among 1886 American managers (Cavanaugh et al., 2000). Results from the Cavanaugh et al. (2000) study indicated that the experience of hindrance stress was related to decreased job satisfaction and increased job search behaviour; a pattern that was reversed when examining the effects of challenge stress on these outcomes. Bingham, Boswell, and Boudreau, (2005), using over 3000 high level managers across the United States and Europe, reconfirmed previous research providing additional support for the distinction between challenge and hindrance stress in relation to job satisfaction and job search. In two more longitudinal studies, the framework was shown to generalize to lower level employees as well as students (Boswell, Olson-Buchanan, & LePine, 2004; LePine, LePine, & Jackson, 2004).

In addition to one-off empirical investigations, there have been attempts to provide support for differential relationships between work related stressors and employee outcomes using meta-analysis. For example, LePine et al. (2005) derived a meta-analytic framework that provided evidence consistent with differential effects of workplace stressors on employee performance. For hindrance stressors, the meta-analysis indicated two negative indirect effects on performance through increased strain and decreased motivation. For challenge stressors, results indicated a negative indirect effect on performance through strain, but an offsetting positive indirect effect through motivation. The negative indirect effect of challenge through strain was weaker than the positive indirect effect through motivation. Thus, based on these results, both challenge and hindrance stress are associated with increased strain, but challenge stress has a

positive total effect on performance that is partly explained by increased motivation. In a follow-up meta-analysis, Podsakoff et al. (2007) extended the challenge stressor-hindrance stressor framework to include job satisfaction, organizational commitment, turnover intentions, withdrawal behaviour, and turnover as outcomes of challenge and hindrance stressors. The results of this meta-analysis were similar to what would be expected based on previous research (Cavanaugh et al., 2000; LePine et al., 2005). Figure 4 depicts an adapted version of the meta-analytically derived path analysis from Podsakoff et al. (2007) that includes standardized regression based effect sizes for each path.

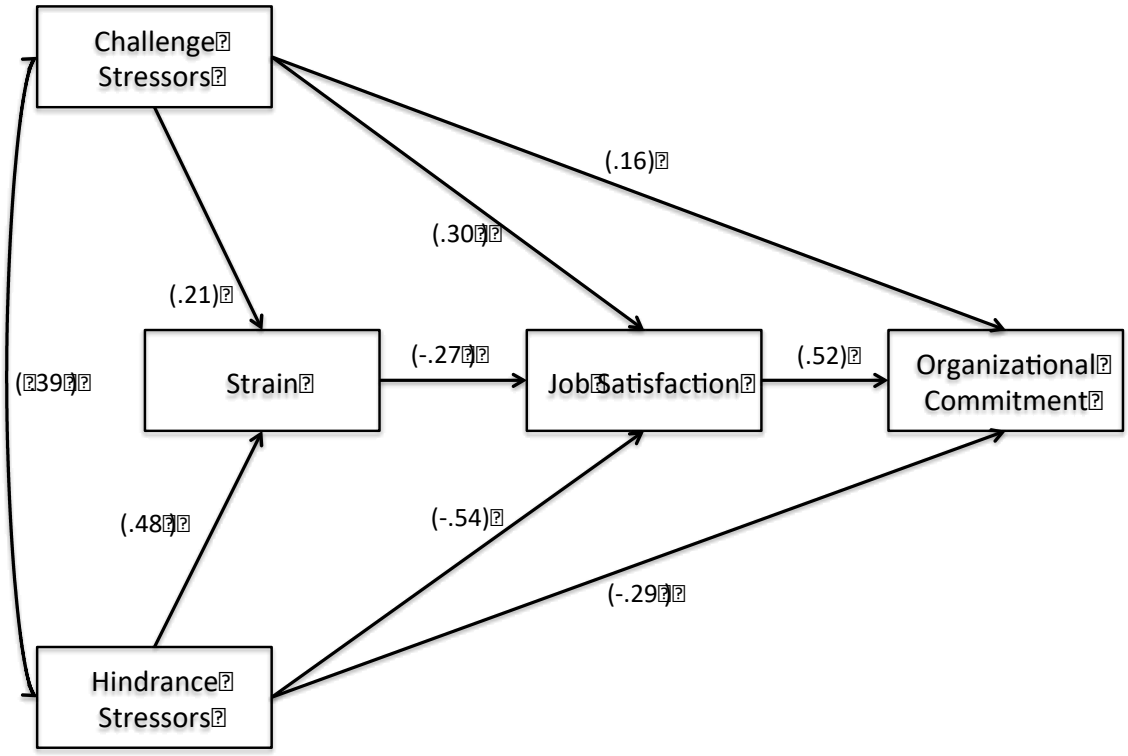

Figure 4. Challenge stressor-hindrance stressor framework.

LePine and colleagues (2005) suggest that challenge stress is positive, and should result in beneficial outcomes for reasons related to the potential for personal growth or gain. On the other hand, hindrance stress is appraised as potentially harmful or threatening to future gain or growth, which should lead to negative outcomes. Although there is scant empirical research on the effects of challenge stress in relation to coping strategies, hindrance stressors have been found to elicit negative affective and evaluative reactions, and increase the use of emotion-based or avoidant coping strategies (Fugate et al., 2008). In addition, some researchers have looked at emotional reactions to challenge and hindrance stress. For example, drawing on Affective Events Theory (AET), Rodell and Judge (2009) using a sample of 100 full time employees throughout the united states, found that challenge stress led to increased attentiveness and anxiety, whereas hindrance stress led to an increase in anxiety and anger. These emotional responses mediated the relationship between stress and organizational citizenship and counterproductive behaviour.

An important theoretical proposition made by LePine et al. (2005) and Podsakoff et al. (2007) is that employee strain suppresses the effect of challenge stressors on employee outcomes. Podsakoff et al. (2007) included several different constructs into their conceptualization of strain. They included measures of job tension, burnout, as well as other psychological and physical symptoms (Podsakoff, et al., 2007). Similarly, LePine et al. (2005) included measures of "anxiety, exhaustion, depression, and burnout" (p. 764). The zero-order correlations between challenge stress and employee outcomes hovers around zero, has a negative trend, and therefore, does not generalize across samples. However, once strain is controlled for in a regression equation, the relationship between challenge stress and employee outcomes becomes positive and significant. Therefore, when testing the challenge stressor-hindrance stressor framework, it is

crucial to control for strain in order to disentangle and isolate the intrinsic features associated with challenging environmental demands (Griffin & Clarke, 2011).

Unlike stress research focused on the presence of stressors in the work environment, Cavanaugh and colleagues (2000) developed a sociocognitive approach to stress to test effects of challenge and hindrance that fits well within interactional-based models of stress. Similar to stressor-strain models it focused on particular work related stressors. However, similar to transactional models of stress the experience of stress is operationalized as an appraisal. Therefore, unlike traditional stressor-strain models, stress is not operationalized as the absolute level or magnitude of a particular workplace stressor (e.g., amount of work to do). Instead, stress represents an idiosyncratic appraisal with respect to the amount of stress produced by a particular stressor (e.g., feeling stressed about the amount of work to do). Thus, implicit in the way stress is measured, the same amount of work or pay can elicit varying levels of stress depending on individual differences or the circumstances surrounding the presence of the stressor agents (Cavanaugh et al., 2000). However, unlike P-E fit approaches to stress, organizational characteristics and individual characteristics along commensurate dimensions were not included within this approach.

Limitations with Stress Research

Although researchers have learned a lot about stress, there is still more that can be understood about the psychological process that is responsible for the relationship between work stress and employee outcomes. Extensive reviews of the literature would suggest that a lack of integration between different models of stress is mainly responsible for this gap (Cooper et al., 2001). For example, a major limitation of stressor-strain models is that they have difficulty incorporating the interaction between the individual and the work environment (i.e., P-E fit

approaches). With the exception of the work done by Cavanaugh and colleagues, research on the positive effects of stress pay little attention to the role of appraisal, and focuses more on the presence of stressors. However, the presence of a stressor (e.g., job demands) does not necessarily mean that an employee will perceive it to be stressful, and thus trigger the stress process. Stress researchers have long supported the additional variance that can be accounted for by using objective or subjective measures (i.e., indirect measures) of P-E fit over perceptions of environmental characteristics alone (Harrison, 1985). However, measures of congruence within empirical tests of stressor-strain models are sorely lacking.

On the other hand, a major limitation with the P-E fit approach to stress is that theory is not specific with respect to the workplace characteristics that employees use to determine fit, or how environment and person characteristics interact (functional form or fit) (Edwards, 2008). This has made it difficult to relate objective/subjective (indirect) measures fit with perceived (direct) measures of fit. Theoretical development focusing on how different configurations of P-E incongruence influence employee outcomes is still needed (Edwards, 2008; Kristof-Brown & Guay, 2011). At a basic level, fit becomes worse when the environment does not meet individual needs, or when personal abilities fall below environmental demands; fit improves as environmental characteristics approach needs and as ability approaches environmental demands, but does little more once they are in excess (Edwards, 2008; Yang, Levine, Smith, Ispas, & Rossi, 2008). Still, regardless of the empirical sophistication of some research endeavors, researchers have had tremendous difficulty supporting an empirical relationship between indirect and direct measures of P-E fit (Kristof-Brown & Guay, 2011; see Mayers & Chapman, 2014 and Piasentin & Chapman, 2007 for exceptions). Some have referred to this problem as the “Black Box” of fit (Edwards, Cable, Williamson, Lambert, & Shipp, 2006). Although numerous calls

have been made for more research using perceptions of fit as an outcome variable (Kristof-Brown & Guay, 2011), a simple explanation for the limitation with previous research is that identifying dimensions relevant when employee form perceptions of fit a difficult task (Mayers & Chapman, 2014; Piasentin & Chapman, 2007). Establishing characteristics of the work environment that employees are likely to use in evaluating fit has substantially improved observed relationships between indirect and direct fit measures (Chapman & Mayers, 2013; Chapman, Reeves & Chapin, 2018; Piasentin & Chapman, 2007; Mayers & Chapman, 2014).

Integration among the different approaches to stress has been suggested as a way to further our understanding of the stress process (Dewe et al., 2012). To some extent, researchers have begun to integrate theoretical models and frameworks (Cavanaugh et al., 2000), and this has helped to resolve some of the ideological contrasts between stimulus–response and interaction based models of stress. For example, Cavanaugh operationalized stress as an experience in relation to particular role characteristics, rather than the actual amount or level of particular role characteristics. Provided that P-E fit approaches to stress consider stress as a reflection of objective/subjective P-E incongruence, measuring the experience of stress in relation to specific work role characteristics provides a lens through which you can examine the effects of particular work role characteristics within a P-E fit framework. Thus, the operationalization of stress as an appraisal better aligns stressor-strain models with the P-E fit approach to stress. This becomes important when researchers attempt to operationalize stress in research. By measuring stress as an appraisal rather than the actual level of environmental stimuli, researchers can have greater confidence that participants who endorse items are in fact experiencing stress in relation to particular work role characteristics, and thus some form of P-E incongruence.

Although Cavanaugh's research integrates stressor-strain and interaction based models of stress, the relationship between the experience of workplace stress and employee outcomes is still not fully understood. That is, researchers have only established direct relationships of stress with employee attitudes and behavior, over and above the indirect relationship transmitted through strain (Podsakoff et al., 2007; Schaubroeck, Cotton, & Jennings 1989). Thus, an explanation for these additional direct relationships has yet to emerge in the scientific literature. In addition to this, a full integration between stressor-strain models with the P-E fit approach to stress has not been accomplished. That is, the relationship between the experience of stress and measures of fit has yet to be tested longitudinally. However, given that stress is considered to represent P-E misfit, it is possible that there is a relationship between the experience of stress and P-E fit. This brings us to the purpose of this dissertation, and in following, a new model of stress that attempts to integrate the challenge stressor-hindrance stressor framework within the P-E fit approach to stress.

Chapter 3: A longitudinal Study

Purpose of the Present Study

Drawing on the challenge stressor-hindrance stressor framework (Cavanaugh et al., 2000), and extending it using the P-E fit approach to stress, the purpose of this dissertation is to provide a more complete understanding of the total effect of work related stress on employee outcomes. Previous research supports perceptions of N-S fit as mediator between subjective P-E incongruence and employee outcomes (Kristof-Brown et al., 2005; Piasentin & Chapman, 2007). Insofar as the experience of stress can be thought to result from subjective P-E incongruence (Cavanaugh et al., 2000; Cooper et al., 2001; Edwards & Harrison, 1993; Lazarus & Folkman, 1984), and that perceptions of fit occur subsequent to subjective misfit (Kristof-Brown & Guay, 2011), the present study examines perceptions of N-S fit as an outcome of stress, and that which fully explains the relationship between the experience of stress and employee outcomes.

To date, no research has examined perceptions of fit in relation to the experience of stress, or as a mechanism linking the experience of stress to employee outcomes. Thus, this study presents the first known test of perceptions of P-E fit as an explanation for the effects of workplace stress on employee outcomes. This study compliments existing theory within the stress and coping literature (Cooper et al., 2001), and builds on what others have done with respect to examining perceptions of fit as an outcome or mediating variable (Caldwell, 2011, 2013; Kristof-Brown & Guay, 2011). In addition, the present study offers several methodological advantages compared to cross-sectional or half-longitudinal designs, which help resolve some concerns when working with survey data (Zapf, Dormann, & Frese, 1996). As recommended when testing hypotheses involving mediation (Cole & Maxwell, 2003), a full three-wave panel design was conducted in order to test a new theoretical model of stress. While a causal effect

cannot be proven in field research using survey data, a case where covariation between predictor and outcome is present, and the predictor occurs prior to the outcome, causal inferences can be made so long as plausible alternatives can be ruled out (Cook & Campbell, 1979). One plausible alternative is reverse causation, which will be tested in this dissertation. For example, as opposed to a situation where 'x' predicts 'y', a model that predicts 'x' from 'y' should also be tested in order to consider this as an explanation for the data. Another alternative which can also be tested is the presence of synchronous effects. A synchronous effect suggests that covariation occurs in the same temporal space rather than occurring over time. Taken together, this dissertation tests a novel relationship, and tests alternative models in order to help increase the confidence that a particular model is the best representation of the relationships that exist between variables.

Overview of the Proposed Model

Figure 5 is a visual depiction of the proposed model, which includes directional hypotheses for each path explicated in the sections below. Consistent with the challenge stressor-hindrance stressor framework (LePine et al., 2005; Podsakoff et al., 2007), the proposed model predicts that there will be differential effects of challenge and hindrance stress on job satisfaction when strain is statistically controlled. Hindrance stressors are posited to have a direct effect on perceptions of N-S fit, and an indirect negative effect on perceived N-S fit transmitted through strain (Podsakoff et al., 2007). Higher scores on N-S fit indicate greater fit. Challenge stressors are proposed to have a positive direct effect on perceptions of N-S fit, as well as a negative indirect effect transmitted through strain (Podsakoff et al., 2007). Whereas the total effect of hindrance stress on perceptions of N-S fit is expected to be negative, the total effect of challenge stress is predicted to be positive (Podsakoff et al., 2007). As an extension of previous research, the model suggests that perceptions of N-S fit fully mediate the relationship between work

stressors and employee outcomes. In addition to proposing mediation, the present study proposes moderated-mediation hypotheses on the effects of work stressors on job satisfaction. The model proposes that employee job self-efficacy and self-esteem moderate the mediated relationships linking the experience of challenge and hindrance stress with job satisfaction respectively. The moderating effects are specific to the relationship between work stressors and perceptions of N-S fit. In the sections that follow, I will develop a theoretical rationale for the proposed relationships in the model.

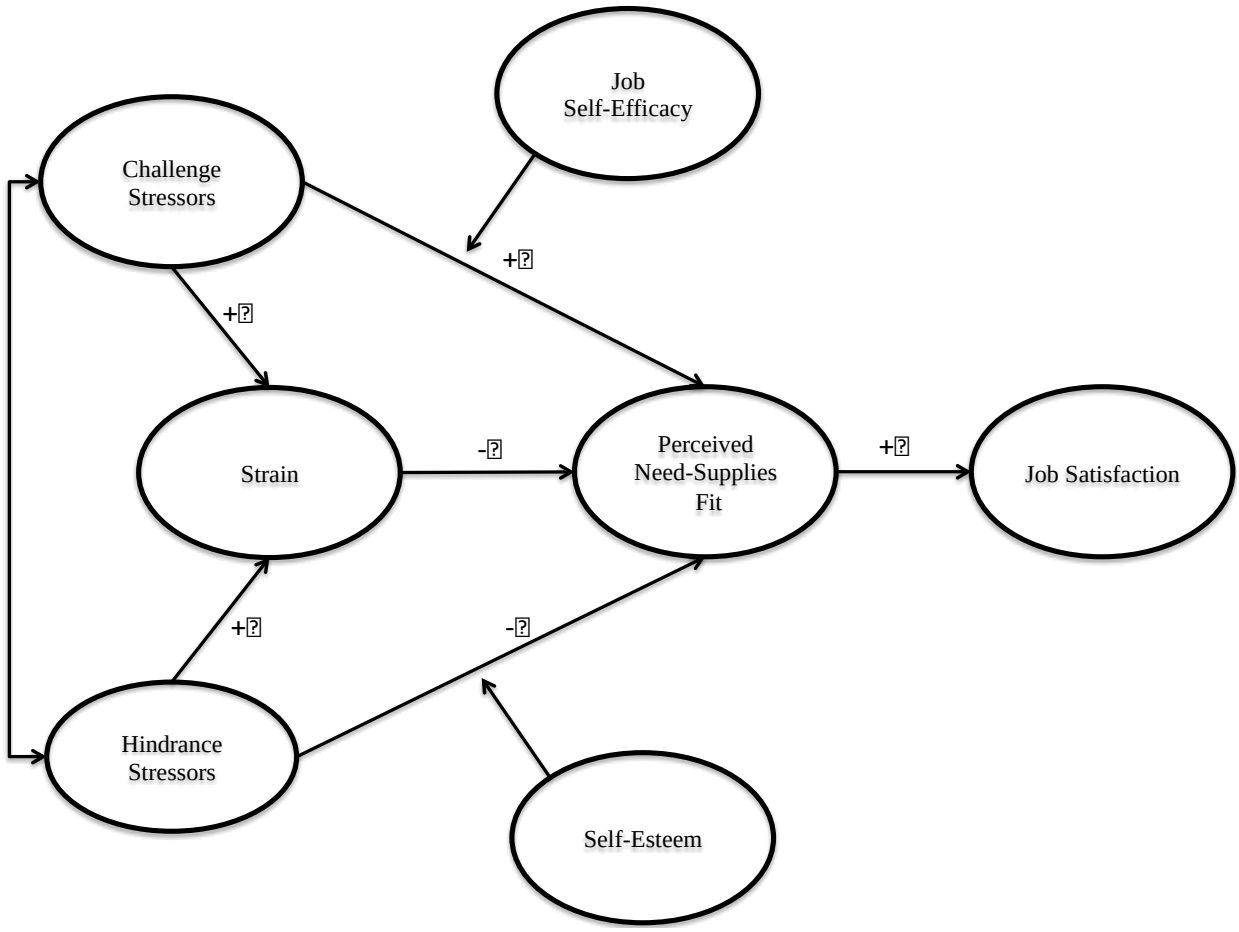

Figure 5. Proposed structural model of work stressors and N-S fit.

Importance of Perceived Need-Supplies Fit

Although there are many dimensions of fit that can be used to describe the relationship between a person and their work environment (Kristof-Brown et al., 2005), N-S fit (i.e., the congruence between employee needs and what is provided by a job) is considered to be an important dimension in relation to workplace outcomes (Cable & DeRue, 2002). Furthermore, empirical research suggests that N-S fit transmits the effect of other dimensions of fit on employee attitudes (Yu, 2016). The reason for including perceptions of N-S fit over other types of fit in the model, is their associated with need-satisfaction (Kristof, 1996). When researching N-S fit, some researchers focus on particular types of employee needs (Edwards & Cable 2009; Edwards & Harrison, 1993; Greguras, & Diefendorff, 2009), while others focus more on overall perceptions (Piasentin & Chapman, 2007). Perceptions of N-S fit are somewhat of a catchall, and reflect the degree to which a job meets the totality of potential needs that an employee may have. As will be discussed in more detail, stress is assumed to represent a critical psychological state of P-E misfit along specific work role characteristics, which elicits a self-regulatory process that influences employee outcomes through perceptions of N-S fit.

Linking Challenge Stressors to Need-Supplies Fit

According to the P-E fit approach to stress, the experience of stress is the consequence of subjective P-E discrepancy (French et al., 1982), which according to the cybernetic approach to stress, evokes a negative feedback loop aimed at reducing both lower and higher level discrepancies between the self and the work environment (Edwards, 1998). Specific to challenge stress, some have suggested that the experience of challenge stress represents a critical motivational state necessary for the satisfaction of higher order needs for growth and development (Deifendorff & Chandler, 2011). Thus, it may be a case that the experience of

challenge stress triggers a negative feedback loop that assists the satisfaction of higher order employee needs, through a reduction of lower level P-E discrepancies (Johnson, Taing, Chang, Kawamoto, 2013). In other words, the absence of challenge stress in a work environment provides no opportunity for growth and development. The present study suggests that after controlling for the effects of strain, the relationship between challenge stress and N-S fit will be positive. That is, higher levels of challenge stress will be associated with increased levels of perceived N-S fit.

Social Cognitive Theory (SCT) (Bandura, 1991) suggests that human behaviour is the result of a continuous drive for personal growth and development, which is satisfied through perpetual discrepancy production and reduction. Following from this premise, people should be driven towards challenge, as a way to nurture positive personal characteristics and satisfy psychosocial needs (Bandura, 1997). As stated by Bandura (1991), "after a given level of performance has been attained, it is no longer challenging and people seek new self-satisfactions by striving for progressive improvements" (p. 255). Accordingly, higher order needs for growth and development represent an overarching and lasting superordinate high-level incongruence between the current and future self, which promotes the creation or acknowledgement of lower level subordinate task level discrepancies (Bandura, 1991). Although individual characteristics may influence the strength of this growth need, the benefits of discrepancy reduction are considered universal (Kulik, Oldham, & Hackman, 1987). For instance, an individual difference known as growth need strength is be a better indicator of the likelihood that people will seek challenge, as opposed to how they may benefit from it (Fried & Ferris, 1987). Thus, the experience of challenge stress, in so far as it represents the opportunity for growth and development (LePine et al., 2005), should trigger a self-regulated process of discrepancy

reduction leading to the accomplishment of action goals and the reduction of both lower level and higher level discrepancies (Deifendorff & Chandler, 2011). Given that the need for growth and development is expected to be ongoing, as employee tenure increases, so too should perceptions of N-S fit.

In addition to a universal drive for growth and development, people are inclined to pursue tasks that they find intrinsically motivating (Deci & Ryan, 2000). Self Determination Theory (SDT) suggests that intrinsic motivation is enhanced when tasks express three innate, essential, and universal psychological needs that include: the need for autonomy, the need for relatedness, and the need for competence (Ryan & Deci, 2000). Jobs that involve a great deal of challenge, should increase the opportunity to express the three universal needs outline by SDT. As the experience of challenge stress increases, so too should cognitions and behaviours that reinforce perceptions of personal competence, autonomy, and relatedness. For example, increased job scope and responsibility may also occur alongside increased levels of autonomy and social integration. Thus, challenge stress may lead to higher levels of intrinsic motivation related to the performance of work related tasks. Goal setting theory (Locke & Latham, 1990) offers additional support for the positive effects of challenge on employee outcomes, in that goal setting is more motivating when goals are attainable yet sufficiently challenging. While meta-analysis already supports a positive relationship between challenge stressors and employee motivation (LePine et al., 2005), this study suggests that challenge stress is somewhat intrinsically motivating.

Another way to examine the relationship between challenge stress and N-S fit is to consider the nature of the relationship between a person and the environment that would produce challenge stress. The way a person interacts with the environment to predict work outcomes has been a topic of interest for many years (Kirstof-Brown et al., 2005). Muchinsky and Monahan

(1987) extended previous P-E fit theory and expanded the definition P-E fit into two separate conceptualizations, supplementary and complimentary fit. Supplementary fit is used to describe a P-E interaction where both P and E variables are the same or similar (Muchinsky & Monahan, 1987). The more they differ from one another the lower the level of fit. On the other hand, the basis for good complimentary fit is a "mutually offsetting pattern of relevant characteristics between the person and the environment" (Muchinsky & Monahan, 1987, p. 272). Unlike supplementary fit, complimentary fit involves incongruence between the person and environment. According to Kristof (1996), complimentary fit extends to N-S fit, which occurs when organizational supplies meet individual needs. Applied to the relationship between challenge stress and N-S fit, it is possible that job roles involving a high degree of challenge, and have the potential for growth or gain, can meet individual needs for growth and development. Following this line of reasoning, challenge stress represents what Kristof (1996) refers to as complimentary fit with respect to N-S fit, and therefore, the relationship between challenge stress and perceptions of N-S fit should be positive.

Taken together, SCT and SDT suggest that stress associated with challenge should have a positive effect on perceptions of N-S fit as a result of increased intrinsic motivation and self-regulated personal growth within the context of work. As previously mentioned, strain ought to be controlled for in order to capture the positive relationship between stress and perceptions of N-S fit (LePine et al., 2005). Thus, the following is hypothesized:

Hypothesis 1a: While controlling for strain, challenge stress will have a positive relationship with perceptions of Need-Supplies fit.

Linking Hindrance Stressors to Need-Supplies Fit

In addition to a negative effect of hindrance stress on employee outcomes through strain found in previous research (Podsakoff et al., 2007), this study proposes an additional indirect negative effect of hindrance stress on employee outcomes through perceptions of N-S fit. There are a few reasons to include perceptions of N-S fit as a consequence of hindrance stress. One reason to suspect a negative link between hindrance stressors and N-S fit comes from the social psychology literature. Attribution theory is concerned with the way people make causal attributions (Kelley, 1973). This theory proposes that causal attributions are used when people try to understand why things happen the way they do. For example, if a sales employee experiences stress in relation to reduced commissions because of decreased sales (i.e., stress about pay), they may try to make causal attributions in order to cultivate a rational reason for not making enough money. Causal attributions can be internal to the self (e.g., I did not work hard enough), or external to the self (e.g., I lacked the proper incentives I *needed* to close deals). The distinction between internal and external attributions has important implications for understanding how people should respond to hindrance stress. Events perceived to be threatening to the self, trigger an inner alarm that motivates people to increase self-protective defenses and tendencies to reaffirm the self (Cohen & Sherman, 2014; Steele, 1988). Similar outcomes are also predicted by terror management theory, which contends that people are more motivated to protect their ego in situations that present an existential threat to the self (Greenberg, Solomon, & Pyszczynski, 1997). In addition to this, research on self-serving bias in attributions – the tendency to attribute positive events to internal causes and negative events to external factors, has shown that external attributions increase when events are perceived as a threat to the self (Campbell & Sedikides, 1999). Unlike the positive experience of challenge stress, hindrance stress elicits negative

emotions (Fugate et al., 2008), and acts as a threat to personal well-being (LePine et al., 2005). Therefore, when stress poses a threat to the self, people may be more inclined to blame aspects of their job (external to the self) instead of considering how they might be to blame (internal to the self). This suggests that hindrance stress may lead to a cognitive bias whereby the relationship between oneself and their work environment is construed in a way that is favorable to ones self-esteem and detrimental to perceptions of the external environment (i.e., bolstering the self and capsizing the environment).

Of particular interest, there are likely situations when the experience of hindrance stress (i.e., pay, job security, role ambiguity, or politics) is self-induced. For example, pay and job security concerns may result from not meeting performance expectations (Yu, 2016). In this case, the negative event of stress is the result of incongruence between the demands of the job, and the employee's ability to meet those demands (i.e., Demands-Ability (D-A) Fit). Unfortunately, even if the relationship between hindrance stress and performance is made explicit, the nature of hindrance stressors should dampen or preclude internal attributions that are unfavorable, and instead, lead to misattributions and biased conclusions.

Another reason to suspect a relationship between hindrance stress and N-S fit, is based on the content domain of hindrance stress. Empirical research has found some support for the relationship between subjective P-E misfit and psychological need fulfillment using an 8-dimensional Work Values Survey (WVS) (Edwards & Cable, 2004). Operationalization of the WVS included dimensions related to pay, employee relationships, and security among other values, which were considered to reflect basic employee needs. Similar to French et al. (1982), need-fulfillment was operationalized as the perceived congruence between a desired amount of a resource, and the amount of that resource supplied by the organization. Conceptually this

definition overlaps substantially with the definition of perceived N-S fit, which is defined as the degree that employee needs, desires, or preferences are met by the job (Kristof-Brown et al., 2005). The content domain of hindrance-stress reflects the dimensions included in the (WVS) (i.e., pay, job security, role ambiguity and workplace politics). Thus, in so far as the experience of hindrance stress represents subjective incongruence along important employee needs (Edwards, 1992), hindrance stress should be negatively related to perceptions of N-S fit (Cable & DeRue, 2002; Kristof-Brown et al., 2005). In addition to this, it may also be the case where lacking the personal attributes to meet the demands of the job, naturally results in decreased organizational supplies which leads to stress and decreased job attitudes. For example, using a sample of 928 employees from a water service company in Eastern United States, Yu (2016) found that perceptions of N-S fit fully explained the relationship between perceptions of D-A fit and job satisfaction. Taken together, hindrance stress should translate into decreased perceptions of N-S fit. Thus, I hypothesize the following:

Hypothesis 1b: While controlling for strain, there will be a negative relationship between hindrance stress and N-S fit.

Linking Need-Supplies Fit to Job Satisfaction

Previous stress research suggests that job satisfaction precedes organizational commitment and turnover intentions (Podsakoff et al. 2007; Schaubroeck et al., 1989). The model being tested is an extension of both the Schaubroeck et al. (1989) stress-retention model, and the meta-analytically derived challenge-stressor hindrance-stressor framework (LePine et al., 2007). LePine et al. suggest that future research should use the same general framework to build theory- including the search for additional mediators. Thus, consistent with previous stress models, as well as suggestions for future theoretical extension, this dissertation considers job

satisfaction closer in proximity to the stress process compared to organizational commitment or turnover intentions. Accordingly, this dissertation focuses primarily on the relationship between perceptions of N-S fit and job satisfaction. Perceptions of N-S fit has been shown to have a robust relationship with many employee outcomes including job satisfaction, organizational commitment, turnover intentions and turnover (Kristof-Brown et al., 2005). However, with respect to the magnitude of the relationships, perceptions of N-S fit display the strongest relationship with job satisfaction (Kristof-Brown et a., 2005). Meta-analysis of the effects of perceptions of N-S fit have found a strong positive correlation between the two (r_c = .61). Therefore, the following is hypothesized:

Hypothesis 2: N-S fit will be positively related to job satisfaction.

The Mediating Role of Need-Supplies Fit

From a theoretical and empirical standpoint, perceptions of fit are expected to explain the relationship between subjective fit and employee outcomes (Cable & DeRue, 2002; Judge & Cable, 1997; Kristof-Brown & Billsberry, 2013). Perceptions of fit have been used as a mediating mechanism in several studies (e.g., Wang, Zhan, McCune, & Truxillo, 2011). However, despite a need for understanding the psychological mechanisms linking workplace stressors to employee outcomes (LePine et al., 2004; Podsakoff et al., 2007), little has been done integrate the P-E fit approach to stress within existing stressor-strain frameworks, or consider perceptions of fit as a mediating mechanism linking stress to employee outcomes (Cooper et al., 2001). Based on theory and empirical research, the present study proposes that perceptions of N-S fit fully mediate the effects of stress on job satisfaction. This dissertation proposes that the experience of work stress occurs subsequent to subjective misfit but prior to perceived fit. That is, it occurs somewhere in the middle. This statement has two parts. First, according to P-E fit

theory the experience of stress is expected to occur in response to objective or subjective misfit (French et al., 1982). Therefore, misfit between the individual and the work environment acts as a stimulus that sets the stress process in motion. This would suggest that the experience of stress occurs subsequent to the presence of objective or subjective misfit which is measured indirectly and does not entail construal with respect to P-E fit. Second, perceived fit is expected to occur in response to the experience of stress, and not perhaps before. There are a few reasons why this may be the case. Meta-analyses support the proximity of N-S fit perceptions to employee outcomes when considering the strength of construct relationships. There is a strong positive relationship between perceptions of N-S fit with job satisfaction and organizational commitment, and a negative relationship with turnover intentions and turnover (Kristof-Brown et al., 2005). The relationship between perceptions N-S fit and these outcomes tends to be stronger than the relationships that have been found when examining the effects of work stress. Interestingly, the effects of work stress are stronger than those found for indirect measures of fit (Kristof-Brown et al., 2005; Podsakoff et al., 2007). The stronger relationships may be one reason to suspect that perceptions of N-S fit are more proximal to employee outcomes in relation to the experience of stress. Another reason to suggest that perception of N-S fit occur after the experience of stress is based on previous research showing that stress has positive and negative relationships with employee attitudes depending on the type of stressor (Podsakoff et al., 2007). Based on meta-analytic work (Podsakoff et al., 2007), the experience of stress should have divergent relationships with employee attitudes. Given the nature of the relationships found between perception of N-S fit and employee attitudes in Kristof -Brown et al. (2005), you would expect similar divergent relationships between stress and perceptions of N-S fit. Including perceptions of N-S fit as a predictor of stress is somewhat at odds with this. For example, according to P-E fit

theory, if you were to generate a hypothesis placing perceptions of fit before the experience of challenge stress, it would have to be a negative relationship and not a positive one. This is in direct contrast to the propositions of the challenge stressor-hindrance stressor framework. Thus, in so far as stress can have both positive and negative effects of work outcomes, including perceived fit as an outcome allows for differential effects of stress to be tested while at the same time, reconciling differences between the P-E fit approach to stress and prior stress research (Podaskoff et al., 2007). Taken together, this dissertation considers the experience of stress to be located somewhere within the "black box" of fit (Edwards et al., 2006).

From a theoretical and empirical standpoint, perceptions of misfit are expected occur in response to subjective incongruence between an individual and their work environment (Cable & DeRue, 2002; French et al., 1982; Judge & Cable, 1997; Kristof-Brown & Billsberry, 2013). This ties in well with the challenge stressor-hindrance stressor framework, which conceptualizes the experience of stress as a response to subjective incongruence between self and the work environment (Cavanaugh et al., 2000). The present study extends this line of reasoning and argues that subjective P-E incongruence has its putative effect on employee outcomes through the experience of stress and perceived fit. Although the relationship between subjective incongruence and the experience of stress is somewhat of a dictum rather than empirically supported, testing that proposition is not within the purview of the present study. Instead, the present study considers the relationship between the experience of stress and perceptions of N-S fit. Thus, the proposed model suggests that the experience of stress emanates from objective/subjective misfit, and that perceptions of fit are formed, maintained, or changed over time in response to the experience of stress. Another way to understand this would be to suggest

that perceptions of N-S fit are in some way diagnostic of employees experiencing high levels of negative forms of stress, low levels of positive stress, and/or increased strain.

With respect to challenge stress, perceptions of N-S fit should mediate the relationship between challenge stress and employee outcomes largely due to the ability for challenge stress to facilitate the procurement of import psycho-social needs at work (Bandura, 1991; Deci & Ryan, 2000). In terms of hindrance stress, the case for perceptions of N-S fit as a mediating mechanism is understood by drawing on cognitive dissonance theory and motivated reasoning (Festinger, 1957; Kunda, 1990). Cognitive dissonance theory (Festinger, 1957) suggests that when the cause of dissonance cannot be resolved, motivation to reduce cognitive dissonance will be expressed through construal regarding attitudes. Research has shown threat is associated with emotion-focused or avoidant coping rather than problem-focused: a tendency that is determined partly by control over the stressor (Lazarus & Folkman, 1984). Thus, when employees experience hindrance stress, efforts will be made to reduce incongruence via construal level processes rather than changing the objective circumstances triggering the experience of hindrance stress. However, in the case of motivated reasoning towards dissonance reduction, reasoning is arguably bound by memory and reality (Kunda, 1990). Thus, a reduction in attitudes towards the job requires rational justification. Given that there are a vast number of employee needs that have been identified in the literature (Edwards et al., 2008), employees have ample facets of the environment to draw on in order to reduce cognitive dissonance. For example, an employee who is stressed about the lack of job security they have, may convince themselves that their job does not meet their needs for personal growth, feedback, supervision etc. etc. In this situation, the motivated reasoning process of establishing unmet needs is part of a larger dissonance reduction process to reduce the negative psychological consequences associated with hindrance stress.

Therefore, a decrease in perceived N-S fit is a means to reduce cognitive dissonance by justifying a subsequent decrease in job attitudes under threatening circumstances. Building on a case for motivated reasoning, N-S fit should mediate the relationship between hindrance stress and employee attitudes because of its ability to facilitate cognitive dissonance reduction. Thus, I hypothesize the following:

Hypothesis 3a: N-S fit will mediate the relationship between the experience of challenge stress and employee outcomes.

Hypothesis 3b: N-S fit will mediate the relationship between the experience of hindrance stress and employee outcomes.

The Moderating Role of Job Self-Efficacy

Historically, research on individual characteristics in relation to workplace outcomes has emphasized the adjustment process (Gibby & Zickar 2008). Over the years, researchers have developed several adequate measures of individual characteristics related to employee adjustment (Chen, Gully, & Eden, 2001; Rosenberg, 1965; Rotter, 1966). One that should be especially relevant to the proposed relationship between challenge stress and N-S fit is self-efficacy. Self-efficacy has been defined as "beliefs in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands" (Wood & Bandura, 1989, p.408), as well as an "individuals' perceptions of their ability to perform across a variety of different situations" (Judge, Erez, & Bono, 1998, p. 170).

According to SCT, self-efficacy moderates an individual's ability to grow and develop, by increasing the motivation to take on challenge, and persist through difficult circumstances (Bandura, 1991, 1997). Self-efficacy has been studied extensively by organizational researchers (Chen et al., 2001), and is related to a wide variety of meaningful employee outcomes

(Stanjkovic & Luthans, 1998). Thus, for those with high self-efficacy, the relationship between the experience of challenge stress and N-S fit should be magnified. This is based on the assumption that reducing challenge stress requires taking a proactive and problem-focused approach to dealing with stress. In light of the notion that those with high self-efficacy tend to take on challenge willingly (Bandura, 1991), self-efficacy is not expected to prevent an employee from experiencing stress. It quite possible that those who are more confident in their abilities will be more inclined to take on challenging work tasks (Goal setting), placing themselves under greater amounts of stress (Steel & Weinhardt, 2017). Thus, in so far as self-efficacy leads to behaviour initiation, effort, and persistence, those with low self-efficacy should experience a weaker relationship between challenge stress and N-S fit compared to those with high levels of self-efficacy (Bandura, 1997). When measuring self-efficacy, particularized efficacy beliefs tend to be the most predictive (Bandura, 1997). Therefore, the present study focuses on job self-efficacy, which represents an employee's belief in their ability to perform a wide range of tasks related to their job. Considering the above, I hypothesize the following:

> *Hypothesis 4a:* The link between challenge stressors and perceptions of N-S fit will be moderated by job self-efficacy. Specifically, when job self-efficacy is high, the positive relationship between challenge stressors and N-S fit will be stronger. Furthermore, when job self-efficacy is low the relationship between challenge stressors and N-S fit will be weaker.

The Moderating Role of Self-Esteem

The experience of hindrance stress is proposed to reflect a threat to an individual's self-concept (LePine et al., 2005). According to the self-threat model of self-serving bias (Campbell & Sedikides, 1999), self-serving bias increases proportional to the severity of threat perceived to

the self. While hindrance stress may evoke responses typical of when someone is under threat, there are individual differences that moderate these responses. One of these individual differences is self-esteem. Self-esteem is described as an overall appraisal of one's self-worth (Rosenberg, 1965). Research suggests that those with high self-esteem have the tendency to become more defensive when presented with threatening feedback from the environment (Blaine & Crocker, 1993). In addition, a meta-analysis on the use of self-serving bias indicates that self-esteem is the strongest individual difference moderator, suggesting that individuals high in self-esteem use self-serving bias to a significantly greater extent compared to those low in self-esteem (Campbell & Sedikides, 1999). In fact, those with low self-esteem do not employ self-serving bias in response to threat (Campbell & Sedikides, 1999). Thus, in so far as hindrance stress reflects a threat to the self, I hypothesize the following:

> *Hypothesis 4b:* The link between hindrance stressors and perceptions of N-S fit will be moderated by self-esteem. Specifically, when self-esteem is high, the negative relationship between hindrance stressors and N-S fit will be stronger. Furthermore, when self-esteem is low the relationship between hindrance stressors and N-S fit will be weaker.

The Relationship Between Challenge and Hindrance Stress

Based on previous research (Cavanaugh et al., 2000) and two meta-analyses (LePine et al., 2005; Podsakoff et al., 2007), there should be a positive correlation between challenge and hindrance stressors of about .39. In addition, the transactional model of stress posits that the experience of threat and challenge stress, while distinct, can, and often do occur simultaneously (Lazarus & Folkman, 1984). In the model, workplace stressors are also exogenous implying that there could be unmeasured antecedents of work stressors that account for their inter-correlation,

which are not included in this study. Because the relationship between challenge and hindrance stressors can be accounted for by a number of different explanations, the model allows for the covariance between challenge and hindrance stressors but does not make any a prioi hypothesis that attempt to explain this relationship (Kline, 2011).

Chapter 4: Methodology

Design

This study was designed to examine systematic change in perceptions of fit and employee attitudes in response to the experience of stress at work. While systematic change in the focal variables (i.e., job stressors, perceptions of fit, strain, and employee outcomes) can occur in response to significant changes at work (Caldwell, 2011, 2013), this dissertation does not include longitudinal predictions of that nature. Instead, the purpose of the present study is to build a better understanding of the relationship between stress, perceptions of N-S fit, and workplace outcomes as they unfold over the employee lifecycle. Longitudinal designs are considered to be better than cross-sectional or half-longitudinal research designs, especially when hypotheses involve mediation (Cole & Maxwell, 2003). In addition, studies should be designed in a way that permit tests of lagged and synchronous effects, help control for third variable problems, and account for potential reverse and reciprocal causation when working with stress data (Zapf et al., 1996).

As recommended when testing hypotheses involving mediation (Cole & Maxwell, 2003), a full, three-wave, cross-lagged panel design was conducted. With respect to the time lag used in the present study, it was not possible to determine the best time lag that would allow the hypothesized process to unfold based on previous research. Although cross-sectional research testing this relationship is available (Cornell, 2012), no previous research has examined the relationship between the experience of stress and N-S fit longitudinally. Therefore, common for longitudinal panel designs there was a time lag of three months between each wave of data collection (Zapf et al., 1996). Although longer time lags of six months or one year are also common, a time lag of three months was judged to be a reasonable amount of time.

In a full three-wave panel design, a sample of people is followed over time, collecting data on all variables at each wave of data collection. This is generally done through the use of interviews or surveys. Figure 6 is a fully saturated model that explains the relationships between stress, N-S fit, and employee outcomes.

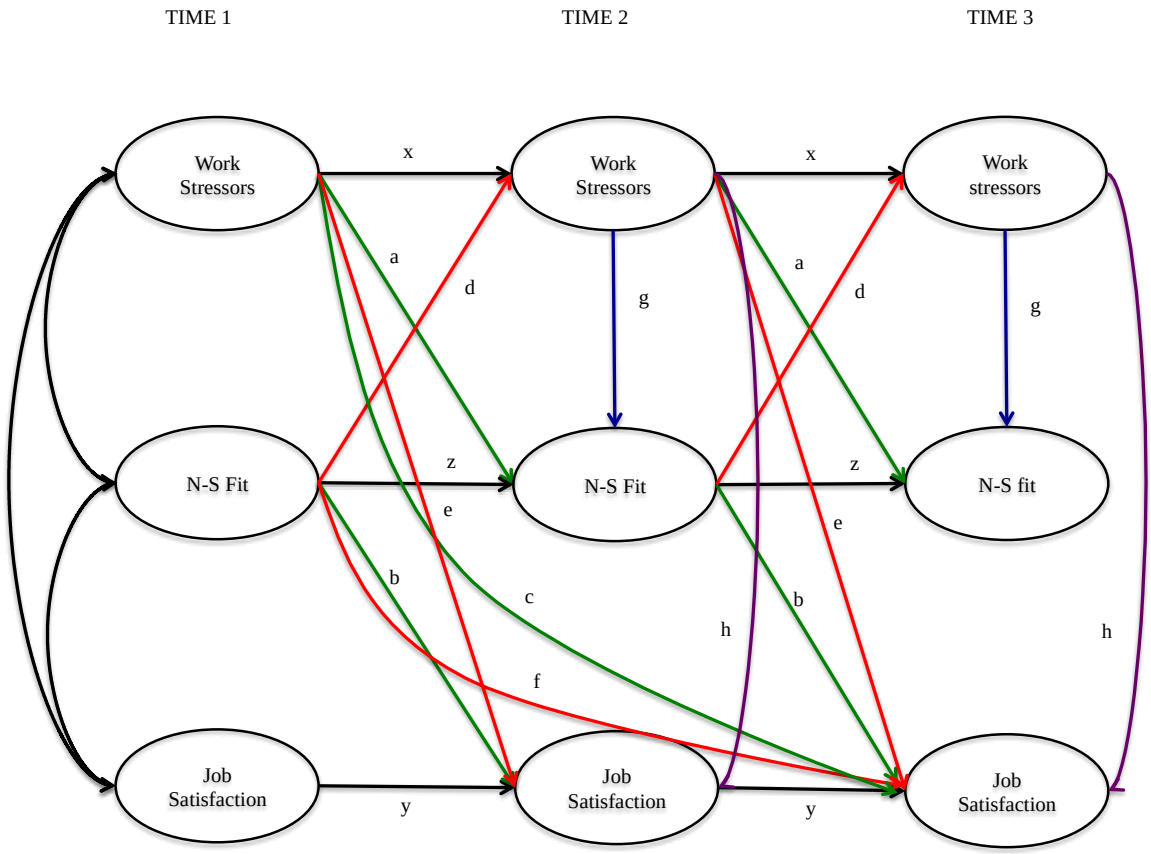

Figure 6. Autoregressive model linking stress to N-S fit and job satisfaction.

For the sake of simplicity in explaining the way a three-wave panel design works, both types of workplace stress have been collapsed together as well as employee outcomes. Time variant covariates (strain), as well as moderating variables (self-efficacy and self-esteem) are left out. The proposed model suggests that stress has an indirect relationship with workplace outcomes through N-S fit. The fully saturated model relaxes this constraint by allowing for the direct

relationship between stress and workplace outcomes. The green paths in figure 6 represent the paths proposed in the model. The product of paths ‘a’ and ‘b’ provide the indirect effect of stress through N-S Fit, while the direct effect is expressed through path ‘c’. The red lines represent a reversed causal effect of N-S fit on work stressors through stress. The product of path ‘d’ and ‘e’ reflect the indirect effect of N-S fit on workplace stressors through stress, while path ‘f’ represents the direct relationship between N-S fit and stress. Paths ‘g’ and ‘h’ represent synchronous effects between the proposed paths in the model. A synchronous effect means that one variable correlates, or causes another, but the effects happen in the same temporal space. Path ‘g’ reflects a synchronous effect in the proposed model, whereas path ‘h’ represents a synchronous effect in the reverse causal model. In both the synchronous effects models the lagged effect to workplace outcomes is removed (paths ‘a’ and ‘e’ respectively).

Sample

To test the proposed model, data was collected from 665 full-time employees working for a variety of different companies in a large Western Canadian city. This was a convenience sample, and was acquired by handing out flyers in high foot traffic areas in the downtown core of Calgary, Alberta. The flyers advertised the opportunity to participate in a psychological study (See figure 17 in appendix one for a sample flyer). The decision to use a convenience sample rather than collecting data from several different organizations, was based on the anticipated difficulty associated with the latter method of data collection. The final sample used for analysis included 565 full participants at time one. Just under half of the participants were male (44%). Participants had an average age 38, worked full time, with an average tenure of 60 months. The sample came from a wide variety of industries. However, as would be expected based on the location the data were collected, 34% of participants worked in Mining, Quarrying, and Oil and

Gas Extraction. Twelve percent worked in Professional, Scientific, and Technical Services, and 11% worked in Finance and Insurance. The rest of the sample was spread across 16 other industries.

Procedure

Time one data was collected between November 2016 and August 2017. During lunchtime and rush hour on weekdays (11:45am - 1:45pm; 4:30 pm – 6:00 pm), 25,000 flyers were handed out around the downtown CORE (i.e., TD shopping center). This method of data collection resulted in a 2.7% response rate. After potential participants received the flyer advertising the study, those that wanted to participate followed a link provided on the flyer. When potential participants followed the link they were directed to the consent form. When participants agreed to participate, they were redirected to an online survey. At time one, background information related to industry, age, sex, job level, and tenure was collected, in addition to measures of stress, strain, perceptions of N-S fit, job self-efficacy, self-esteem, and employee outcomes. Three quality control items developed in previous research to catch random responding were included (Dust, 2013). These were inserted 25%, 50%, and 75% throughout each survey.

When participants completed the first survey they were asked if they would like to participate in a follow up survey three months later. If they said yes, they were requested to provide an email address where they could be reached. If they declined, they were asked to provide an email address to receive their $50 prize if they were selected to win. In either case, participants were thanked for their participation and those who chose not to participate in follow up were debriefed along with all other participants. After data collection at each time point was complete, winners were drawn and sent their prize using an e-transfer.

At time two, participants were emailed and asked to complete the second survey. At the beginning of the survey participants were asked if they were still working for the same organization when completing the first survey. If the answer was yes, they were also asked if they were in the same position. If they were not in the same position they were asked to indicate how long they had been in their new position. If they were in the same position they started the survey. If participants were no longer working for the same organization, they were asked if they voluntarily left the organization, and then asked if they are currently employed. If they were still employed, they were asked how long they had been working for their new organization. They then begin the second survey. At time two, data was collected on stress, strain, perceptions of N-S fit, and employee outcomes, along with the quality control items. When participants were finished filling out the survey they were thanked for their participation. Similar to time one, after the data was collected, winners were drawn at random and sent their prize using an e-transfer. The data collection for time three was identical to the data collection procedure for time two.

Given the large sample size requirements for the present study, incentives were used to compensate participants for their time. When participants were recruited to participate in the first wave, the flyer included the following sentence, "to show our appreciation, for each **15-minute survey** completed, participants will receive one ticket into a $50 prize draw **(odds: 1 in 25)**". During the first wave, participants were reminded that participation in the second and third wave would provide an additional chance to win a $50 prize with the same 1 in 25 odds.

Measures

All the measures are included in the Appendix two.

Challenge and hindrance stress. Challenge and hindrance stressors were measured using the Cavanaugh et al. (2000) two-factor measure. This measure represents a culmination of

previously validated scales on workplace stressors and distinguishes between two separate types of workplace stressors (Caplan, Cobb, French, Harrison, & Pinneau, 1975; Ivancevich & Matteson, 1983; Sandman, 1992). In addition, the two-factor structure of workplace stressors has been confirmed on several occasions when using this measure (Cavanaugh et al., 2000; Podsakoff, 2007; Webster, Beehr, & Christiansen, 2010). Although some have altered the wording of each anchor (Webster et al., 2010), the original scales developed by Cavanaugh et al. (2000) were used in this study. Using a 7-point Likert type scale, participants were asked to respond to how much stress each of the 11 work-related items was causing them ranging from (1) = produces no stress to (7) = produces a great deal of stress. Sample items for challenge stressors include: "the number of projects and/or assignments I have", "the amount of time I spend at work", and "time pressure I experience". For hindrance stressors, sample items are "the inability to clearly understand what is expected of me on the job", "the lack of job security I have", and "the degree to which my career seems "stalled".

Need-supplies fit. N-S fit was measured using 3- items developed by Cable and DeRue (2002). Although other measures of N-S fit have been developed, this measure is arguably the most popular when measuring perceptions of N-S fit, and has been empirically supported across multiple empirical investigations (Kristof-Brown et al., 2005). Using a 5-point Likert scale ranging from (1) = strongly disagree to (5) = strongly agree, participants were asked indicate their level of agreement with three statements. A sample item for N-S fit is "there is a good fit between what my job offers me and what I am looking for in a job".

Strain. Strain was measured using 21-items measure developed by Pines and Aronson (1988). This is a measure of career burnout that includes a combination of emotional, physical and mental exhaustion (Malach-Pines, 2005). This scale has been previously validated and

correlates positively with job demands and workplace stressors (Etzion, Edan & Lapidot, 1998; Malach-Pines, 2005; MeLamed, Kushnir, & Meir, 1991). Participants were asked to rate how frequently they experience 21 stress-related occurrences. Responses were made on a 7-point Likert scale ranging from (1) = never, (7) = always. Some sample items are "being tired", "feeling depressed", and "being happy" (R).

Job self-efficacy. As previous researchers have done (Neff, Niessen, Sonnentag, & Unger, 2013), 8-items were adapted from the generalized self-efficacy scale developed by Chen, Gully, and Eden, (2001) in order to measure job specific self-efficacy. The original scale shows improved psychometric properties compared to other efficacy measures, and adapted versions have also displayed acceptable psychometric properties (Chen et al., 2001; Neff et al., 2013). Participants were asked to indicate their level of agreement with each item using a 5-point Likert scale from (1) strongly disagree to (5) strongly agree. A sample item is "when facing difficult tasks at work, I am certain that I will accomplish them".

Self-esteem. Self-esteem was assessed with the 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1979). Sample items include "I feel that I have a number of good qualities" and "I wish I could have more respect for myself" (reverse scored). Items were rated on a 5- point Likert type scale, which ranged from (1) strongly disagree to (5) strongly agree.

Job satisfaction. Job satisfaction was measured using a 3-item scale developed by Cammann, Fichman, Jenkins and Klesh (1983). This scale was chosen because it has been empirically validated several times, and is an efficient way to capture an employee's level of job satisfaction. In addition, meta-analysis suggest that multi-item scales measuring job satisfaction outperform single-item measures in relation to organizational commitment, turnover intentions and turnover criteria (Tett & Meyer, 1993). On a 5-point Likert scale, participants were asked to

indicate their level of agreement with each of the three items ranging from (1) = strongly disagree to (5) = strongly agree. A sample item is “all in all, I am satisfied with my job”.

Organizational commitment. Affective, normative, and continuance commitment were measured using Meyer, Allen, & Smith’s (1993) 3-factor measure of commitment. This measure has been used in numerous empirical studies, and has psychometric properties that are within the acceptable range. Employees were asked to indicate their level of agreement with 18 statements ranging from (1) = strongly disagree to (5) = strongly agree. A sample item for affective commitment is “this organization has a great deal of personal meaning for me”. For normative commitment, a sample item is “this organization deserves my loyalty”. And a sample item for continuance commitment is “too much in my life would be disrupted if I decided I wanted to leave my organization now”. Although data was collected on continuance commitment, it was not used in any of the subsequent analyses.

Turnover intentions. Turnover intentions were measured with a 3-item scale previously developed by Irving, Coleman and Cooper (1997). Empirical evidence suggests that this scale has an internal reliability within the acceptable range (Hinkin, 1998), and has good statistical conclusion validity (Irving, et al., 1997; Egan, Yang, & Bartlett, 2004). Using a 5-point Likert scale participants were asked to indicate their level of agreement with several statements ranging from (1) = strongly disagree to (5) = strongly agree. A sample item is “I intend to stay in this job for the foreseeable future”.

Turnover. Turnover was a dichotomous outcome measure (i.e., Yes, No) collected three and six months after the start of the study. Participants were asked if they were still working for the same organization as they were during the last wave of data collection.

Background factors. Based on previous research in the stress and coping literature, the present study included, age, gender, and tenure as potential control variables (Zapf et al., 1996). A measure of job level based on the Occupational Information Network (O*Net) was also included. O*Nets' job zone category uses a combination of education, experience, and training, in order to provide an overall estimate of job level. Thus, in order to capture job level as a control variable, three items were used reflecting the following: 1) education level, 2) extent of on-the-job training for current position, and 3) the experience needed to get their current position. Each item was rated on a 5-point Likert scale and then averaged together to develop an overall job level control variable.

Analytic Strategy

The most common approach to testing models similar to the one proposed in the present study is to use a two-stage structural regression equation modeling technique (Kline, 2011). This approach involves testing the measurement model first, and then testing a structural model that has the paths in the proposed model freely estimated. This approach is usually conducted using Maximum Likelihood (ML) estimation procedure. For the present study, this approach was conducted using Mplus version 7. First, in order to test the absolute fit of the measurement model, χ^2_M is examined to determine if the model implied covariance matrix differs significantly from the actual data covariance matrix. Residuals are also examined, as well as several approximate fit indexes including; the Root Mean Square Error of Approximation (RMSEA) (Steiger, 1990, the Comparative Fit Index (CFI) (Bentler, 1990), Tucker Lewis Index (TLI), and the Standardized Root Mean Square Residual (SRMR).

The second stage of data analysis included a test of the structural model. Once the fit of the measurement model was established, coefficients for the hypothesized paths were requested

and along with probability values and 95% confidence intervals. Then, only effects that were in the predicted direction, and had 95% confidence intervals that did not cross zero, indicated support for the proposed path.

Chapter 5: Results

Preliminary Analysis

Using data from time one, two, and three, participants were matched across time using a personal identifier (email address). At time one, there were a total of 588 participants. Of the total number of participants, 457 agreed to participate again. At time two there were 308 participants, and at time three there were 217 participants. Previous research suggests that conscientious responders are those who answer most random responder questions correctly (Marjanovic, Struthers, Cribbie, & Greenglass, 2014). Participants were given clear instructions on how to answer each random responder question. There were three random responder questions at each time point. Participants who failed to answer two or more questions at any time of the three waves were removed from further analysis. For time one data, total of 19 participants failed at least two random responder questions. At time two that number dropped to two, and for time three only one participant was considered to be a random responder. There was no turnover among the participants who were deemed to be random responders at time two or time three. Random responders were identified and removed.

Turnover and job change can have a significant influence on levels of stress and work attitudes (Boswell, Boudreau, & Tichy, 2005; Lazaru & Folkman, 1984). In order to control for this, data collected subsequent to the experience of either turnover or position change was not included in tests of the main hypotheses. Twenty-two participants at time two turned over and twelve changed positions. At time three, ten turned over and three changed positions (see Appendix Four for a summary of reasons for turnover). Two additional participants were removed for having missing data, and one participant removed for being unemployed at time

one. Thus, 565 participants remained for time one, and for time two and three there were 254 and 175 respectively.

Another issue when working with longitudinal data is attrition. Following the recommendations of Goodman and Blum (1996), multiple logistic regression was used to determine the presence of non-random sampling issues. A dichotomous outcome variable was created for participants who responded at time two (Stayers) and those that dropped out after the first round of data collection (Leavers). The independent variables included all of the variables of interest in the present study. Table 1 shows the results from the logistic regression analysis. Results of the logistic regression indicated that there were no variables that were able to account for attrition. This suggests that the sample of participants that stayed are random with respect to attrition.

Table 1. Multiple Logistic Regression Using Participant Attrition as the Outcome

Stayer vs. Leavers	*b*(SE)	Wald	P-value	95% Confidence Interval for Odds Ratio		
				Lower	Odds Ratio	Upper
Intercept	2.04(1.67)	1.48	.224			
Age	-0.01(.01)	1.81	0.179	0.97	0.99	1.01
Gender	-0.28(.19)	2.31	0.129	0.52	0.75	1.09
Tenure	0(0)	3.57	0.059	0.99	1	1
Job level	0.07(.01)	0.29	0.588	0.83	1.07	1.39
Hours per week	-0.01(.01)	0.21	0.65	0.97	0.99	1.02
Job self-efficacy	0.14(.26)	0.28	0.599	0.69	1.15	1.9
Self-esteem	0.34(.27)	1.55	0.214	0.82	1.4	2.38
Strain	0.01(.15)	0.01	0.923	0.75	1.01	1.37
Challenge stress	0.08(.08)	0.89	0.344	0.92	1.08	1.27
Hindrance stress	0.05(.08)	0.39	0.531	0.89	1.05	1.24
N-S fit	0.05(.17)	0.1	0.755	0.76	1.05	1.46
Job satisfaction	-0.29(.19)	2.4	0.122	0.52	0.75	1.08
Affect. commitment	0.11(.18)	0.38	0.538	0.78	1.12	1.59
Norm. commitment	0.23(.16)	2.19	0.139	0.93	1.26	1.71
Turnover intentions	0.1(.11)	0.7	0.402	0.88	1.1	1.38

Note. -2 Log likelihood = 695.42, R^2 = .04(Cox-Snell), .06 (Nagelkerke). Model $\chi^2(8) = 9.77$, $p = .282$.

Descriptive Statistics

Table 1 displays the reliabilities, correlations among the test variables. Before moving to tests of the main hypothesis, issues related to collinearity were addressed. Issues related to collinearity, and multivariate collinearity may detract from the ability to properly specify and test a theoretical model (Kline, 2011). Collinearity between two variables can be determined by looking at the correlation matrix. Some suggest that collinearity between two observed variables is achieved when the correlation between them exceeds $r = .90$ (Kline, 2011). Visual inspection of all inter-item correlations confirmed the absence on collinearity. Collinearity between three or more variables can examined using the squared multiple correlation between each variable and the rest of the variables. In the case of multivariate collinearity, a squared multiple correlation > .90 would suggest that the variance of the item in question is adequately captured by the rest of the data (Kline, 2011). For variables that exhibit multivariate collinearity, it is suggested to either delete or combine the information. Results of simultaneous regression analysis indicated that there were no cases of multivariate collinearity among the test variables. Examination of reliabilities suggests that they are all within an acceptable range (.75 - .95) (Hinkin, 1998).

Table 2. Means, Standard Deviations, Correlations and Cronbach's Alpha for Study Variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. Age	38.11	11.41	-									
2. Gender	.56	.50	-.07	-								
3. Tenure	59.57	64.39	.43**	.01	-							
4. Job Level	3.02	.75	.22**	-.13**	.17**	-						
5. Hours Pr. Week	40.02	8.17	0	-.18**	.02	.21**	-					
6. Job Self Efficacy	4.01	.50	.11*	-.06	.07	.13**	.06	(.81)				
7. Self-Esteem	3.83	.54	.22**	-.04	.14**	.21**	.08	.66**	(.87)			
8. Strain T1	3.20	.91	-.26**	.01	-.11**	-.22**	-.01	-.49**	-.63**	(.95)		
9. Strain T2	3.21	.91	-.20**	-.03	-.13*	-.19**	-.04	-.49**	-.58**	.82**	(.95)	
10. Strain T3	3.17	.88	-.14	-.05	-.14	.01	.02	-.29**	-.49**	.73**	.81**	(.95)
11. Challenge Stress T1	3.89	1.29	-.04	.01	.04	.14**	.20**	-.14**	-.13**	.32**	.23**	.19*
12. Challenge Stress T2	3.67	1.27	-.14*	.04	.03	.07	.19**	-.22**	-.22**	.31**	.35**	.27**
13. Challenge Stress T3	3.75	1.24	-.10	-.01	.03	.1	.23**	-.13	-.22**	.23**	.25**	.34**
14. Hindrance Stress T1	3.68	1.34	.02	-.01	-.06	-.02	.03	-.26**	-.23**	.38**	.48**	.37**
15. Hindrance Stress T2	3.60	1.29	-.09	.02	-.05	-.12	.01	-.33**	-.31**	.44**	.54**	.43**
16. Hindrance Stress T3	3.52	1.33	-.05	-.06	.03	.04	.1	-.13	-.14	.32**	.39**	.38**
17. N-S Fit T1	3.24	1.00	.16**	-.02	.17**	.25**	.04	.44**	.29**	-.43**	-.36**	-.26**
18. N-S Fit T2	3.22	.98	.06	0	.16*	.28**	.06	.34**	.28**	-.41**	-.44**	-.31**
19. N-S Fit T3	3.25	.93	.07	-.01	.19*	.19*	-.10	.27**	.18*	-.31**	-.38**	-.39**
20. Job Satisfaction T1	3.64	.96	.14**	-.04	.11**	.21**	.00	.48**	.30**	-.52**	-.48**	-.35**
21. Job Satisfaction T2	3.62	.89	.05	-.03	.10	.26**	.05	.50**	.36**	-.50**	-.54**	-.36**
22. Job Satisfaction T3	3.62	.86	.03	.01	.17*	.07	.01	.40**	.23**	-.39**	-.49**	-.45**
23. Affect. Commit. T1	2.96	.84	.10*	-.02	.17**	.20**	.02	.32**	.16**	-.35**	-.34**	-.24**
24. Affect. Commit. T2	2.95	.88	.07	-.02	.14*	.22**	.03	.31**	.22**	-.35**	-.39**	-.28**
25. Affect. Commit. T3	2.91	.84	-.03	0	.16*	.11	.05	.19*	.05	-.22**	-.33**	-.31**
26. Norm. Commit. T1	2.92	.90	-.07	.03	.06	.08	.02	.21**	-.02	-.19**	-.26**	-.18*
27. Norm. Commit.T2	2.83	.90	-.04	-.06	.06	.23**	.1	.18**	.05	-.16*	-.21**	-.08
28. Norm. Commit.T3	2.82	.84	-.06	.06	.05	.11	.12	.05	-.07	-.09	-.22**	-.19*
29. Turnover Intent.T1	2.85	1.17	-.18**	.02	-.24**	-.21**	-.04	-.22**	-.11*	.29**	.24**	.17*
30. Turnover Intent.T2	2.77	1.13	-.10	-.04	-.20**	-.25**	-.06	-.25**	-.21**	.30**	.33**	.26**
31. Turnover Intent.T3	2.76	1.09	-.25**	-.01	-.27**	-.26**	.10	-.16*	-.1	.17*	.25**	.23**
32. Turnover T2	-	-	-.11	.07	-.11	-.05	-.07	-.05	-.07	.07	-	-
33. Turnover T3	-	-	-.1	-.28**	-.15*	.02	.17*	-.06	-.02	.14	.20**	-

Table 2 (Continued)

Variable	11	12	13	14	15	16	17	18	19	20	21	22
1. Age												
2. Gender												
3. Tenure												
4. Job Level												
5. Hours Pr. Week												
6. Job Self Efficacy												
7. Self-Esteem												
8. Strain T1												
9. Strain T2												
10. Strain T3												
11. Challenge Stress T1	(.89)											
12. Challenge Stress T2	.64**	(.88)										
13. Challenge Stress T3	.52**	.67**	(.90)									
14. Hindrance Stress T1	.39**	.25**	.24**	(.75)								
15. Hindrance Stress T2	.25**	.41**	.29**	.72**	(.76)							
16. Hindrance Stress T3	.28**	.31**	.33**	.71**	.74**	(.76)						
17. N-S Fit T1	-.08	-.11	-.08	-.34**	-.35**	-.22**	(.89)					
18. N-S Fit T2	0	-.14*	.01	-.36**	-.48**	-.33**	.77**	(.91)				
19. N-S Fit T3	-.08	-.10	-.06	-.34**	-.35**	-.33**	.71**	.77**	(.89)			
20. Job Satisfaction T1	-.21**	-.21**	-.15	-.43**	-.42**	-.32**	.80**	.67**	.56**	(.91)		
21. Job Satisfaction T2	-.08	-.22**	-.13	-.43**	-.50**	-.36**	.73**	.82**	.67**	.77**	(.89)	
22. Job Satisfaction T3	-.17*	-.21**	-.22**	-.36**	-.40**	-.40**	.63**	.71**	.76**	.73**	.83**	(.87)
23. Affect. Commit. T1	-.10*	-.13*	-.03	-.36**	-.35**	-.28**	.68**	.58**	.53**	.69**	.65**	.57**
24. Affect. Commit. T2	-.07	-.15*	-.04	-.32**	-.40**	-.27**	.59**	.69**	.57**	.58**	.71**	.64**
25. Affect. Commit. T3	-.08	-.14	-.02	-.23**	-.30**	-.24**	.51**	.59**	.61**	.55**	.64**	.67**
26. Norm. Commit. T1	-.04	.01	-.01	-.35**	-.29**	-.23**	.57**	.49**	.48**	.57**	.52**	.49**
27. Norm. Commit.T2	.01	-.01	-.03	-.28**	-.34**	-.22**	.50**	.57**	.45**	.48**	.56**	.45**
28. Norm. Commit.T3	-.02	-.07	0	-.16*	-.23**	-.22**	.38**	.47**	.48**	.36**	.46**	.51**
29. Turnover Intent.T1	.06	.06	.05	.35**	.33**	.25**	-.66**	-.57**	-.56**	-.62**	-.54**	-.50**
30. Turnover Intent.T2	.02	.08	.07	.39**	.43**	.40**	-.60**	-.67**	-.55**	-.59**	-.64**	-.59**
31. Turnover Intent.T3	-.01	.01	.04	.31**	.31**	.33**	-.55**	-.60**	-.65**	-.47**	-.52**	-.61**
32. Turnover T2	.02	-	-	.06	-	-	-.05	-	-	-.10	-	-
33. Turnover T3	-.02	.06	-	.16*	.16*	-	-.30**	-.17*	-	-.32**	-.16*	-

Table 2 (Continued)

Variable	23	24	25	26	27	28	29	30	31	32	33
1. Age											
2. Gender											
3. Tenure											
4. Job Level											
5. Hours Pr. Week											
6. Job Self Efficacy											
7. Self-Esteem											
8. Strain T1											
9. Strain T2											
10. Strain T3											
11. Challenge Stress T1											
12. Challenge Stress T2											
13. Challenge Stress T3											
14. Hindrance Stress T1											
15. Hindrance Stress T2											
16. Hindrance Stress T3											
17. N-S Fit T1											
18. N-S Fit T2											
19. N-S Fit T3											
20. Job Satisfaction T1											
21. Job Satisfaction T2											
22. Job Satisfaction T3											
23. Affect. Commit. T1	(.81)										
24. Affect. Commit. T2	.64**	(85)									
25. Affect. Commit. T3	.52**	.67**	(86)								
26. Norm. Commit. T1	.39**	.25**	.24**	(.87)							
27. Norm. Commit.T2	.25**	.41**	.29**	.72**	(.88)						
28. Norm. Commit.T3	.28**	.31**	.33**	.71**	.74**	(.86)					
29. Turnover Intent.T1	-.60**	-.50**	-.49**	-.56**	-.51**	-.40**	(.88)				
30. Turnover Intent.T2	-.52**	-.57**	-.48**	-.52**	-.57**	-.38**	.75**	(.89)			
31. Turnover Intent.T3	-.51**	-.53**	-.51**	-.42**	-.48**	-.46**	.74**	.74**	(.88)		
32. Turnover T2	-.12*	-	-	-0.01	-	-	.19**	-	-	-	
33. Turnover T3	-.19**	-0.13	-	-.21**	-0.11	-	.21**	.24**	-	-	-

Note. ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed), Gender (1) = female, n (time 1) = 565, n (time 2) = 255, n (time 3) = 176, Reliability estimates are located on the diagonal in parentheses.

Measurement Stability Model

Table 3 displays the full model results for all nested models tested. First, a measurement stability model (M1) was run on challenge stress, hindrance stress, perceived N-S fit, strain, and job satisfaction, which included repeated measures of each variable at each of the three time points. Figure 7 (M1) depicts the measurement stability model. Strain was added at each time point to reflect a time variant covariate in order to control for it longitudinally. Parameters were estimated between each cause, mediator, outcome and control variable with the same measured variable across time. That is, the model included a statistical control for prior levels of the each variables over time. For example, perceived N-S fit at time two was regressed onto perceived N-S fit at time one. This was done in order to control for and extract the meaningful variance that can be accounted for by the same variable at t-1. Doing so is consistent with recommendations for testing mediation hypotheses because it helps alleviate concerns regarding extraneous third variable issues; one in particular being the variable itself (Cole & Maxwell, 2003; Zapf et al., 1996). In addition, an unstructured residual covariance pattern model was specified to account for systematic intra-individual response error variance (Wheaton, Muthen, Alwin, & Summers, 1977). In other words, observed variables were correlated with the same observed variables measured at different time points. Previous research suggests that challenge stress and hindrance stress are correlated factors (Podsakoff et al., 2007). In order to remain consistent with previous research, correlations between all other latent variables at time two and three were constrained to be zero. Last, strain was entered into the model as a single item latent variable by setting the residual variance equal to 1 minus the reliability multiplied by the sample variance (Muthén & Muthén, 2010). This was done because the large number of items create a condition whereby spurious and inconsequential relationships among individual items create problems for model fit.

The measurement stability model chi-square was significant $X^2(1308) = 2625.68$, $p < .001$. However, this estimate has been known to be sensitive to sample size (Jöreskog & Sörbom, 1993). Therefore, other fit indices were examined in order to get a better understanding of model fit. In terms of absolute fit, RMSEA was .042 (CI: .039, .044, $p = 1.00$). Therefore, the parsimony of the proposed model is supported (Browne & Cudeck, 1993). In addition, a narrow range of the 90% confidence interval for RMSEA further supports model parsimony; both lower and upper bound estimates were less than .05. Comparative Fit Index (CFI) was .901suggesting good fit. Tucker Lewis Index (TLI) also suggested a good fitting model at .891. Standardized Root Mean Square Residual (SRMR) was .096, which is consistent with inadequate fit. However, examination of the results indicated that the source of model misfit was the residual variance not accounted for in several observed indicators by the latent factors. In terms of the factor structure, each item loaded significantly onto its respective latent factors. Means and standard deviations reflected the descriptive statistics shown in Table 2.

Table 3. Model Fit Statistics for Models Including Job Satisfaction

Model	- 2 log likelihood	AIC	BIC	X^2, df, *p*	RMSEA	CFI	TLI	SRMR
M1	-25458.71	51379.42	52381.22	2625.68, (1308), .000	.042, (.040, .045), 1	.898	.888	.098
M2	-25433.09	51352.17	52406.02	2574.43, (1296), .000	.042, (.039, .044), 1	.901	.891	.096
M3	-25430.82	51351.65	52414.17	2569.91, (1294), .000	.042, (.039, .044), 1	.901	.891	.094
M4	-25439.91	51386.81	52432.34	2588.08, (1294), .000	.042, (.04, .044), 1	.900	.889	.091
M5	-25439.71	51371.43	52438.29	2587.69, (1293), .000	.042, (.04, .044), 1	.900	.889	.090
M6	-25417.79	51321.57	52375.42	2543.83, (1296), .000	.041, (.039, .044), 1	.903	.893	.092
M7	-25417.60	51325.20	52387.72	2543.46, (1294), .000	.041, (.039, .044), 1	.903	.893	.091
M8	-25425.43	51340.86	52403.38	2559.12, (1294), .000	.042, (.039, .044), 1	.902	.892	.087
M9	-25404.93	51303.87	52375.06	2518.13, (1292), .000	.041, (.039, .043), 1	.905	.895	.083

Note. M1 (measurement Stability Model); M2 (Proposed Structural Model); M3 (M2 With Direct Effects); M4 (Reverse Structural Model); M5 (M4 With Direct Effects); M6 (Synchronous Effect Model); M7 (M6 With Direct Effects); M8 (Reverse Synchronous); M9 (M8 With Direct Effects).

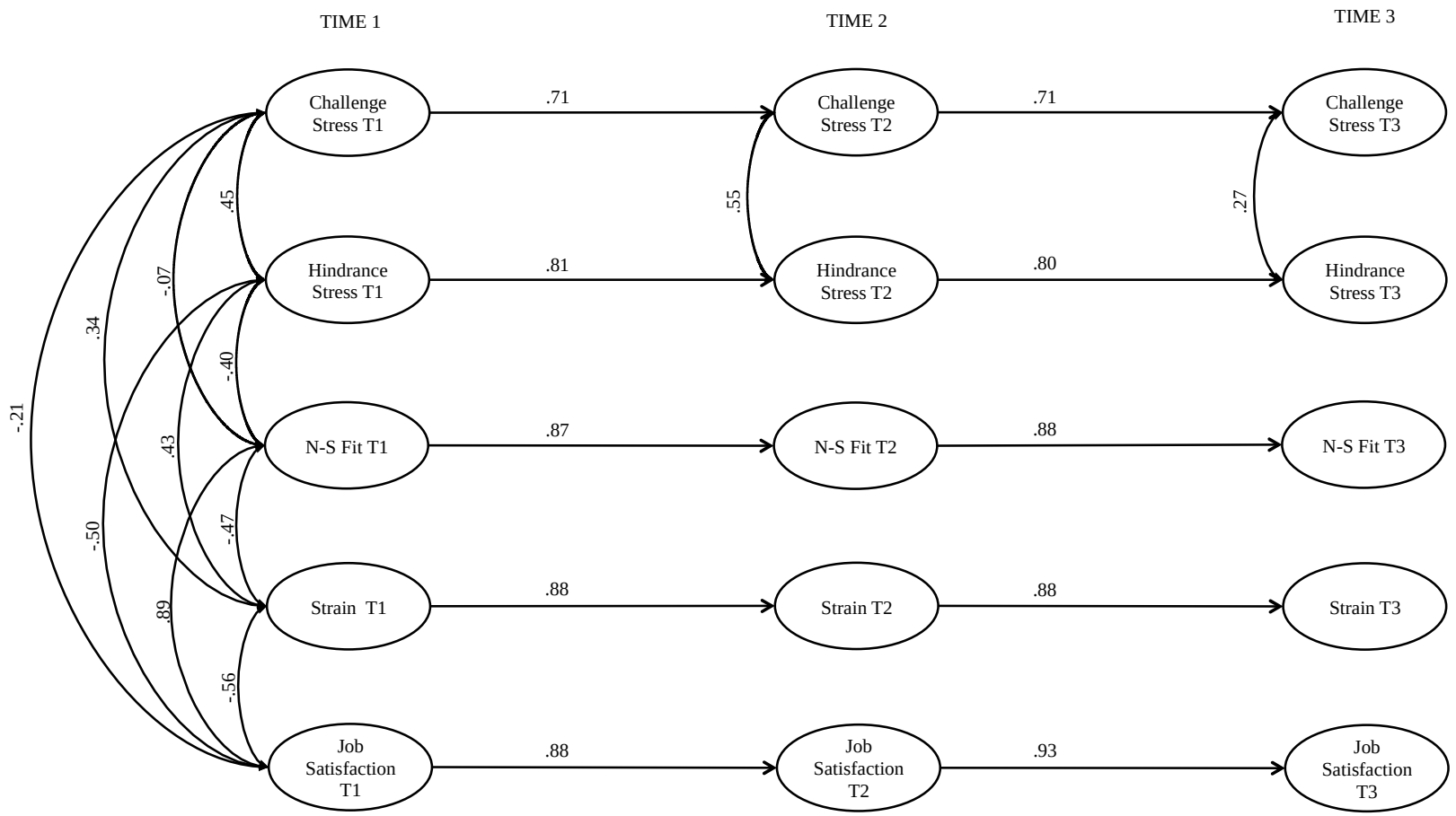

Figure 7. M1: Measurement stability model for job satisfaction.

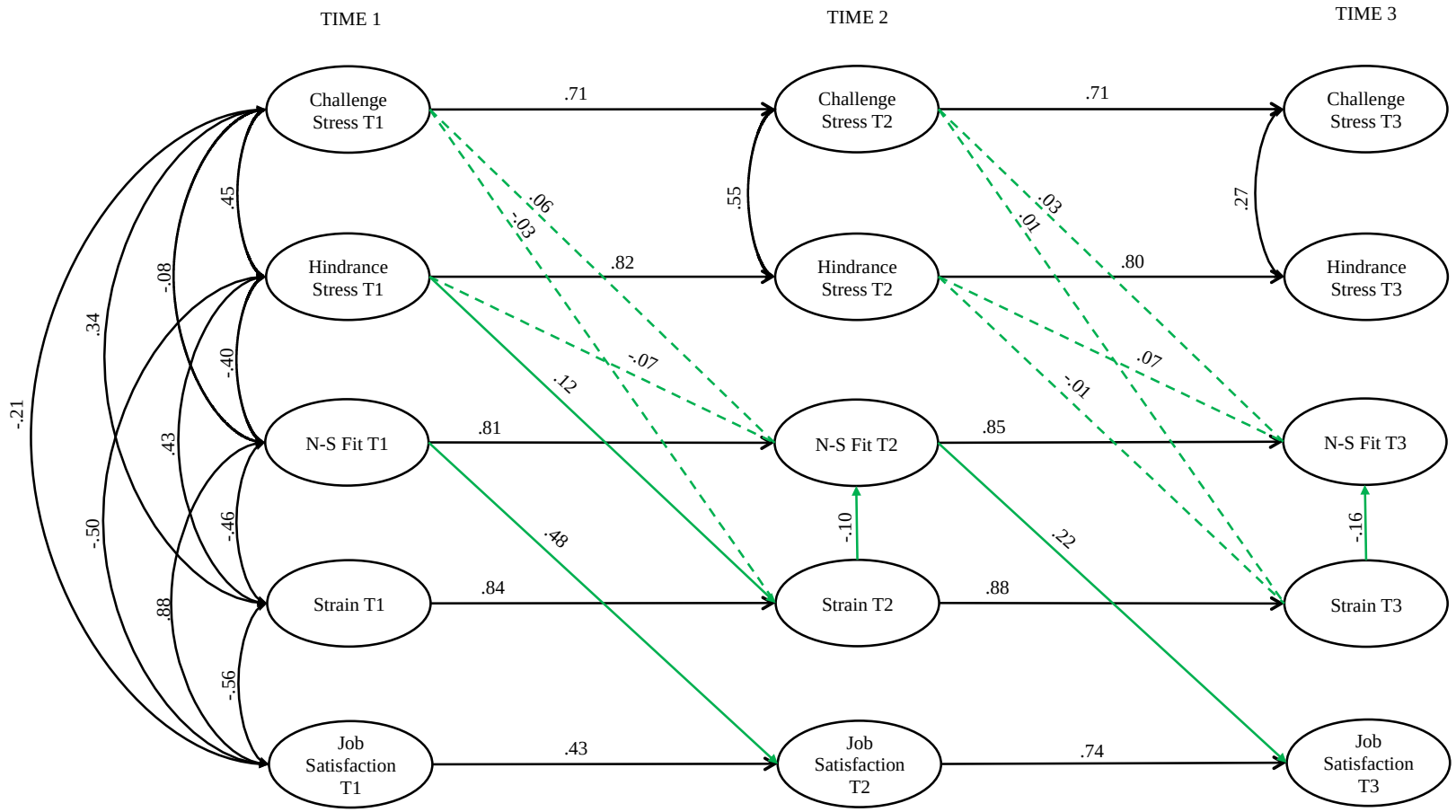

Figure 8. M2: Proposed structural model job satisfaction.

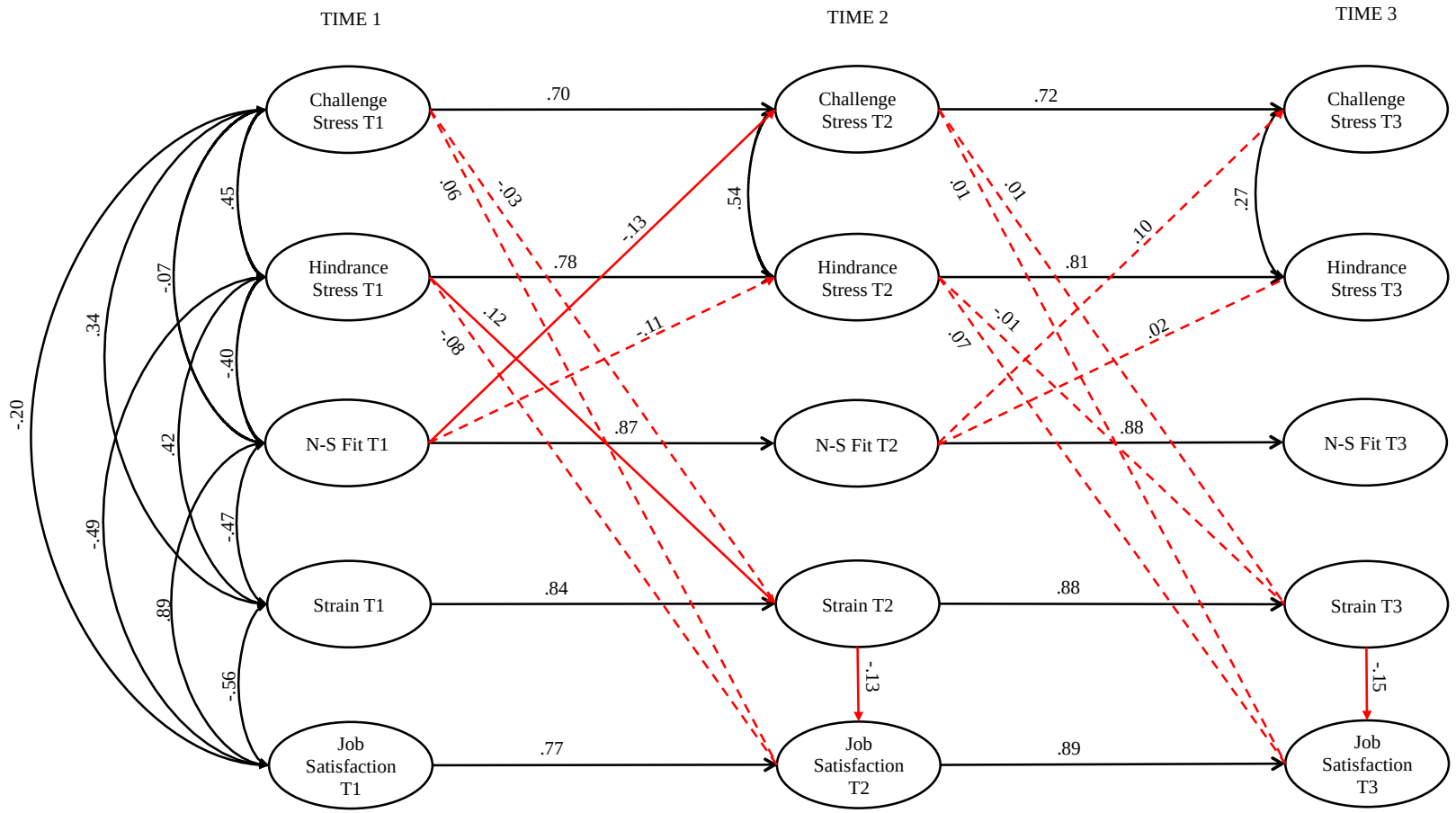

Figure 9. M4: Reverse causal model job satisfaction.

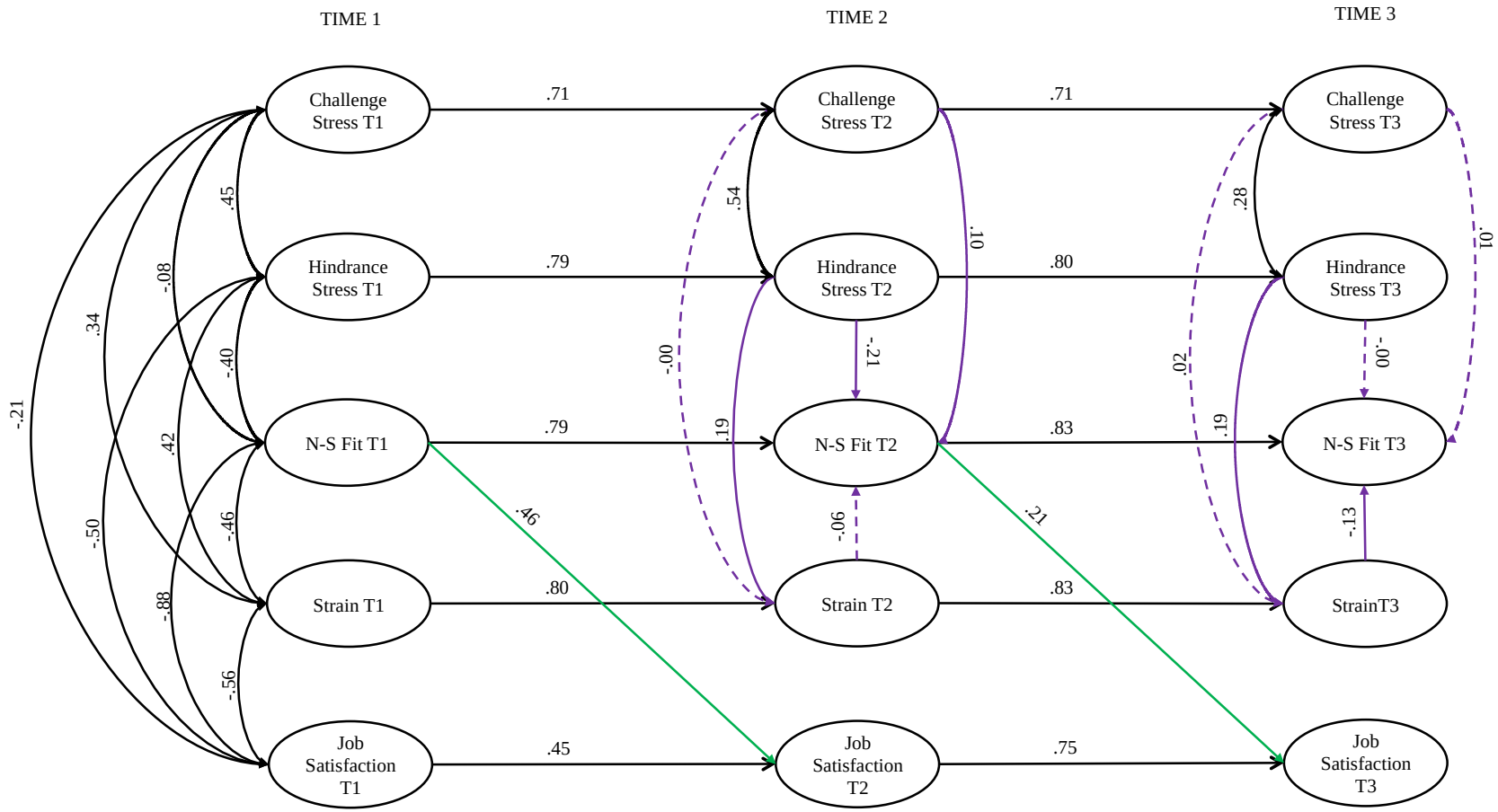

Figure 10. M6: Proposed synchronous effects model for job satisfaction.

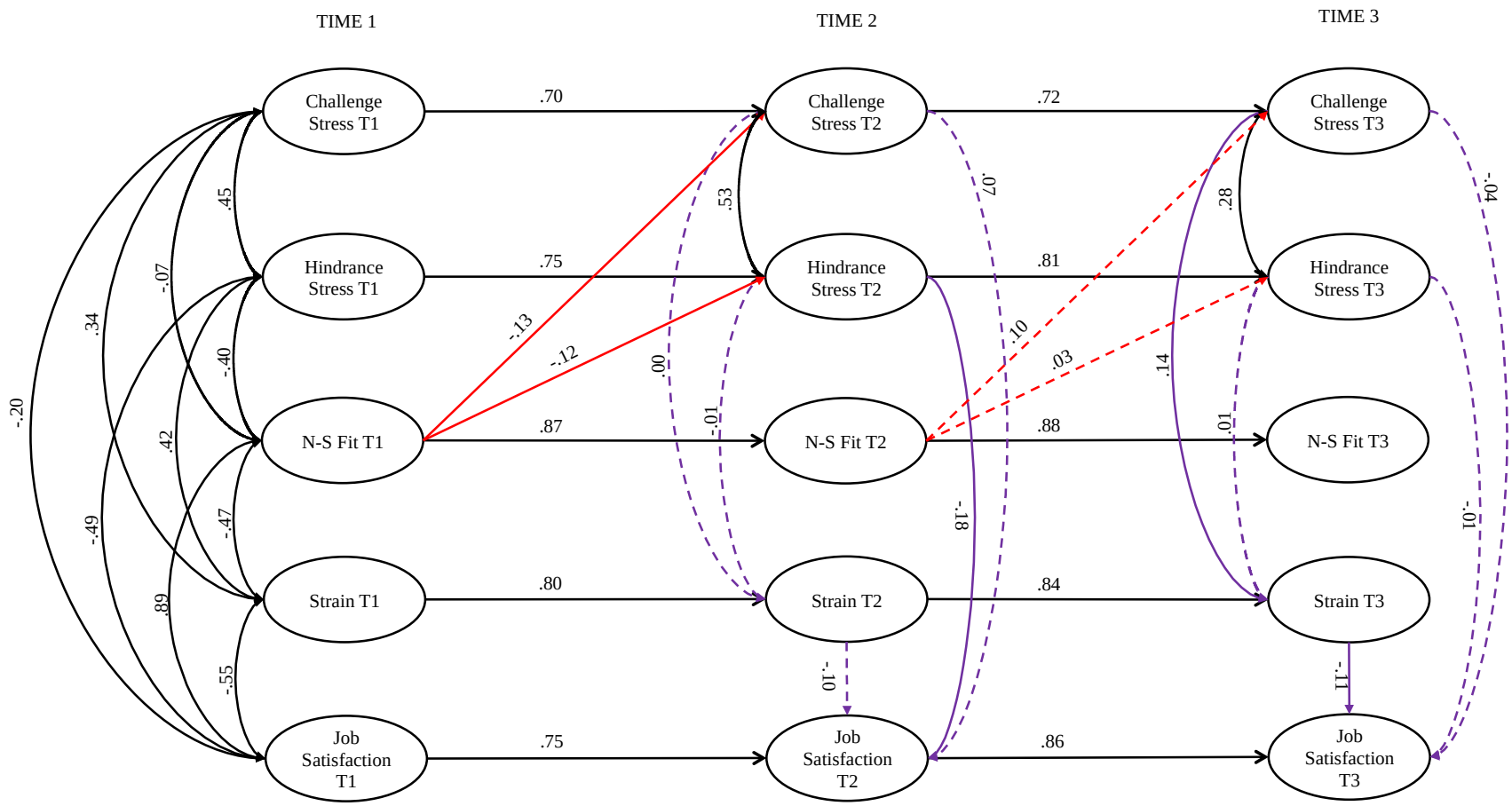

Figure 11. M8: Reverse synchronous effects model for job satisfaction.

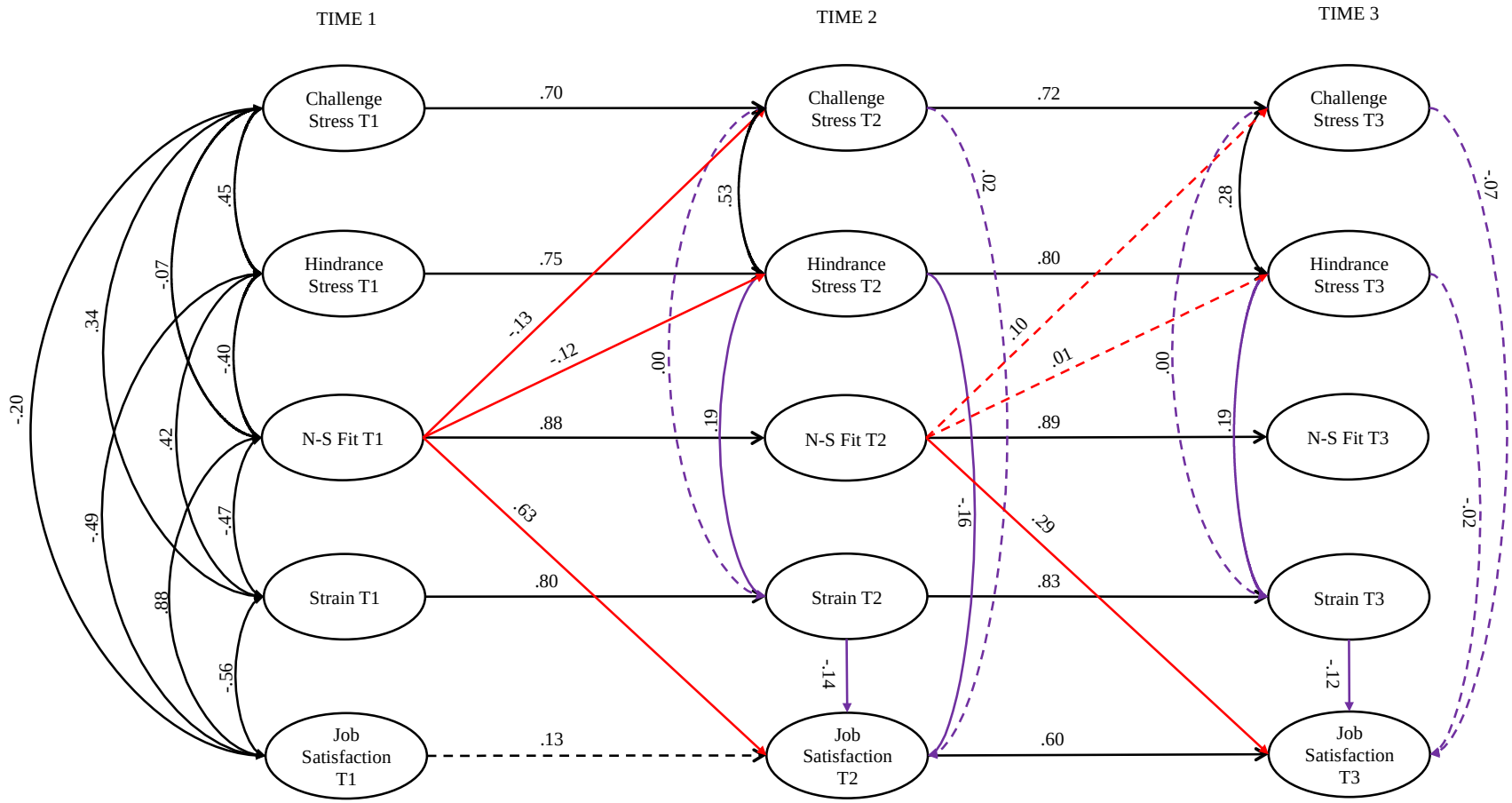

Figure 12. M9: Reverse synchronous effects model for job satisfaction.

Adding Control Variables

After a measurement model was fit to the data, age, gender, tenure, and job level were included as control variables. With respect to the control variable relationships, another model was tested to determine the significance of each control variable on each endogenous variable in the model. For example, challenge stress at time two and three was regressed onto age, gender, tenure, and job level.

Chi-Square for the fully saturated control variable model was significant $X^2(1484) = 2970.19$, $p < .001$. RMSEA was .042 (CI: .040, .045, $p = 1.00$), CFI = .885 TLI = .87, and SRMR = .10. In order to reduce chance relationships, bonferroni correction was used to adjust for type one error. For each control variable at total of ten regressions were tested. Thus, adjusted alpha level was set to .008. The results indicated that no control variable had an appreciable relationship with the substantive variables at time two or three. Thus, control variables were removed from further analyses.

Test of Main Hypotheses

The next step was to estimate the hypothesized paths in the model. This included a direct path from challenge stress and hindrance stress at time one and two with perceived N-S fit at time two and three respectively. Consistent with previous research (Podsakoff et al., 2007), paths were estimated between challenge stress and hindrance stress at time one and two, and with strain at time two and three. In addition, a path from strain at time two and perceived N-S fit at time two was estimated, as well as a path from strain at time three and perceived N-S fit at time three. This was done in order to model strain in a way similar to Podsakof et al. (2007). Last, paths were estimated for the direct relationship between perceived N-S fit and job satisfaction from time one to time two, and from time two to time three. Thus, the mediator (perceived N-S

fit) at time two was regressed on the cause (stress) at time one, and the mediator (perceived N-S fit) at time three was regressed on the cause (stress) at time two. In a similar fashion, the outcome (job satisfaction) at time two and three, was regressed on the mediator (perceived N-S fit) at time one and two. This proposed structural model suggests full mediation in so far as the path between challenge stress and hindrance stress at time one with job satisfaction at time three was constrained to zero. By including paths that were mirrored across time, the model provided a test of stability in regards to the relationships being tested. Figure 8 depicts the proposed model whereby stress exerts its effect on job satisfaction indirectly through perceptions of N-S fit. The green paths are those included to test the proposed structural model. The addition of these 12 paths led to a significant improvement in model fit over the measurement model $X^2(1296) = 2574.43$ $p < .001$. RMSEA was .042 (CI: .039, .044, $p = 1.00$), CFI = .901 TLI = .891, and SRMR = .096.

Hypothesis 1a and 1b failed to find support. While controlling for strain and N-S fit at t-1, challenge stress was not related to N-S fit at time two, β = .06, $t(250) = 1.24$, $p = .22$ (95% CI = -.04, .16). Neither was the relationship between hindrance stress and N-S fit at time two, β = .07, $t(250) = -1.17$, $p = .24$ (95% CI = -.19, .05). N-S fit at time one was a significant predictor of N-S fit a time two, β = .81, $t(250) = 13.59$, $p < .001$ (95% CI = .74, .88). Additionally, strain at time two was significantly related to N-S fit at time 2, β = -.10, $t(250) = -1.99$, $p = .047$ (95% CI = -.20, -.02). At time three the results were identical and showed stability over time. Challenge stress failed to predict N-S fit, β = .03, $t(175) = .59$, $p = .556$ (95% CI = -.08, .15), and neither did hindrance stress, β = -.071, $t(175) = 1.04$, $p = .299$ (95% CI = -.06, .20). Perceived N-S fit at time two predicted perceived N-S fit at time three β = .85, $t(175) = 11.50$, $p < .001$ (95% CI = .77, .93). Strain at time three was related to perceived N-S fit at time three β = -.16, $t(175) = -$

2.81, p = .005 (95% CI = -.27, -.05). Thus, the relationship between challenge stress and hindrance stress with perceived N-S fit failed to achieve significance at each time point. Results indicated that as strain increased, perceived N-S fit tended to decrease. In support of hypothesis 2, perceived N-S fit at time one was significantly related to job satisfaction at time two β = .48, $t(250) = 4.24$, $p < .001$ (95% CI = .26, .70), and perceived N-S fit at time two was also a significant predictor of job satisfaction at time three β = .22, $t(175) = 2.12$, $p < .001$ (95% CI = .02, .43). An additional model was run that freed direct paths between challenge stress and hindrance stress at time one with job satisfaction at time three. Chi-square did not improve with the addition of these paths $X^2_{diff}(2) = 4.52$, $p > .05$. Although the relationships were in the expected direction, the total effect, indirect effect, and direct effect on job satisfaction for both challenge stress and hindrance stress failed to find support. Thus, hypothesis 3a and 3b were unsupported. The positive indirect effect of challenge stress through perceptions of N-S fit was less than a quarter (18%) the strength of the direct effect of challenge stress on job satisfaction. For hindrance stress, more than half (53%) of the total effect was exerted through perceptions of N-S Fit. Overall, the results indicated that neither challenge stress nor hindrance stress accounted for a significant amount of variance in perception of N-S fit or job satisfaction once strain and prior levels of each variable were statistically controlled.

Test of Moderation Hypotheses

Analyses on the moderating effects of job self-efficacy and self-esteem on N-S fit were not significant. The results did not support a moderating effect of job self-efficacy on the relationship between challenge stress at time one and N-S fit at time two $t(250) = -1.02$, $p = .306$, or for challenge stress at time two to N-S fit at time three, $t(174) = -.602$, $p = .545$. Thus, hypothesis 4a did not find support. However, job self-efficacy was a significant predictor of

perceptions of N-S fit at time 2 $t(250) = -2.543$ $p = .011$. Hypothesis 4b, which predicted the relationship between hindrance stress and N-S fit would be moderated by self-esteem, failed to find support for N-S fit at time two $t(250) = -.154$, $p = .878$, and at time three $t(174) = -1.37$, $p = .171$. However, self-esteem had a main effect on N-S fit at both time two and time three $t(250) = -3.387$, $p = .001$, $t(174) = -2.236$, $p = .025$.

Test of Reverse Model

An advantage of the design used is that it permits tests of reverse causation. Although testing reverse causation is not done routinely, the importance of such analysis has been stressed (Zapf et al., 1996). In addition, meta-analysis on the effects of N-S fit considers strain to be an outcome of N-S fit (Kristof-Brown et al., 2005). While this may seem at odds with the proposed model, a closer examination of the work included in the meta-analysis reveals that Kristof-Brown and colleagues were not specific with respect to the operationalization of N-S fit in relation to strain, and whether it was measured objectively/subjectively or via perceptions. The proposed model includes strain as a predictor of perceptions of N-S fit. However, it is possible that perceptions of N-S fit precede strain. Should this be the case, it is also possible that perceptions of N-S fit precede the experience of stress, which is posited to have a direct relationship with strain. In order to test for the possibility of reverse causality, a model was tested that reversed the relationships between perceptions of N-S fit with challenge stress, hindrance stress, and strain. This model tested the proposition that perceived N-S fit exerts its effect on job satisfaction through the experience of stress and employee strain. Figure 9 (M4), depicts the reverse causal model, where the red paths are those used to test the reverse causal relationships. The reverse causal model, with two less degrees of freedom, fit the data substantially worse $X^2(1294) = 2588.08$, $p < .001$, $X^2_{diff}(2) = 13.65$, $p < .001$. Another model was tested to determine

a direct path between N-S fit at time one with job satisfaction at time 3. This did not improve the model fit $X^2_{diff}(1) = .41$, $p > .05$. However, within the model, N-S fit led to a decrease in challenge stress at time two, β = -.13, $t(250) = -2.38$, $p = .011$, (95% CI = -.23, -.03), but this effect did not replicate between time two and time three, β = .10, $t(174) = 1.49$, $p = .135$, (95% CI = -.03, .23).

Test of Synchronous Model

Although the proposed model proposes mediation, which would entail a temporal separation between both cause and mediator (Shadish, Cook, & Campbell, 2002), it is possible that the relationship between stress and N-S fit occur within the same temporal space (Zapf et al., 1996). That is, a model that predicts a relationship between challenge stress and hindrance stress measured at time two with N-S fit also measured at time two. An alternative synchronous model was fit to the data resulting in a significant improvement in Chi-Square compared to the proposed model $X^2(1296) = 2543.83$, $p < .001$, $X^2_{diff}(0) = 30.60$, $p < .001$. Figure 10 (M6), depicts the alternative synchronous effect model, with purple lines that reflect the synchronous effects between the experience of stress and perceptions of N-S fit.

Examining the relationships in the alternative synchronous model, challenge stress had a significant positive relationship to perceived N-S fit at time two, β = .10, $t(250) = 2.01$, $p = .045$, (95% CI = .00, .20). In addition, hindrance stress at time two was negatively related to N-S fit at time two, β = -.21, $t(250) = -3.27$, $p = .001$ (95% CI = -.325, -.089). Similar to the proposed model, perceived N-S fit measured at time one was a significant predictor of perceived N-S fit at time two, β = .79, $t(250) = 13.94$, $p < .001$ (95% CI = .72, .86). However, unlike the proposed model, strain measured at time two was no longer a significant predictor of perceived N-S fit at time two, β = -.06, $t(250) = -1.09$, $p = .274$, (95% CI = -.15, .04). For perceptions of N-S fit

measured at time three, the results did not replicate over time. While perceived N-S fit still predicted itself overtime, β = .83, $t(175) = 11.33$, $p < .001$, (95% CI = .75, .91), Hindrance stress displayed a significant negative relationship with perceived N-S fit β = -.13, $t(175) = -2.18$, $p = .029$, (95% CI = -.25, -.01). In addition, challenge stress failed to predict N-S fit, β = .01, $t(175) = .21$, $p = .833$ (95% CI = -.10, .13), nor did hindrance stress, β = -.00, $t(175) = -.04$, $p = .968$, (95% CI = -.13, .12). Thus, while the results of the synchronous effect model suggested that the effects of stress on perceived N-S fit occur in the same temporal space, these results did not replicate over time and were considered to be unstable. An additional model was tested that freed up a direct path from both types of stress at time two with job satisfaction at time three. This did not improve model fit, $X^2_{diff}(2) = .38$, $p > .05$.

Although the synchronous model provided some support for the proposed hypotheses, the total effect, indirect effect and direct effect of challenge stress and hindrance stress on job satisfaction remained not significant. For challenge stress, the direct effect was negative and the indirect effect is positive, resulting in a non-significant total effect, β = -.004, $t(175) = - .07$, $p = .948$, (95% CI = -.11, .10). The positive indirect effect transmitted through perceived N-S Fit was roughly 85% as large as the negative direct effect. For hindrance stress, the majority (85%) of the total negative effect was transmitted indirectly through perceptions of N-S fit.

Test of Reverse Synchronous Model

Figure 11 (M8) depicts a final model that was tested using the panel design methodology, whereby perceived N-S fit preceded the synchronous effect of stress on work attitudes. Compared to the alternative synchronous effects model, the reverse synchronous model fit the data substantially worse, $X^2_{diff}(2) = -15.29$, $p < .001$. The addition of a path leading from perceived N-S fit at time one with job satisfaction at time two, and from perceived N-S fit at time

two with job satisfaction at time three, led to improved model fit compared to the reverse synchronous effects model, $X^2_{diff}(2) = 40.99$, $p < .001$, as well as the alternative synchronous effects model $X^2_{diff}(4) = 25.70$, $p < .001$. Figure 12 (M9) depicts the reverse synchronous effects model with the additional direct paths leading from N-S fit to job satisfaction. In this model perceived N-S fit at time one was negatively related to challenge stress, β = -.00, $t(175) = -.04$, $p = .968$, (95% CI = -.13, .12), and hindrance stress, β = -.00, $t(175) = -.04$, $p = .968$, (95% CI = -.13, .12). The total effect of perceived N-S fit at time one on job satisfaction at time two was significant β = .65, $t(250) = 5.713$, $p < .001$, (95% CI = .44, .87), With only 3% of the total positive effect being accounted for by four separate indirect paths. The total effect was primarily driven by a significant direct effect, β = .634, $t(175) = 5.62$, $p < .001$, (95% CI = .42, .85). These results were consistent with those relating perceived N-S fit at time two with job satisfaction at time three, where 4% of the total positive effect was attributable to indirect relationships.

Post Hoc Analysis

The statistical approach used to test the proposed structural model is considered most appropriate when testing hypotheses involving mediation (Cole & Maxwell, 2004). However, it is possible that this methodology is either inappropriate, or too conservative for the present study. For dynamic processes where change is likely to occur over time in both the mediating and outcome variables, it is important to first extract variance associated with the mediator and outcome before attempting to account for variance hypothesized to be due to change over time. However, when systematic change does not occur over time, or when not enough time has passed to observe systematic change, accounting for the same variable over time may extract most of the meaningful variance in the outcome variable, leaving very little left to predict by other variables. In the present study, roughly 65% of the variance in perceived N-S fit at time

two was accounted for by perceived N-S Fit measured at t-1. Previous empirical investigations of the challenge stressor-hindrance stressor framework did not employ full-wave panel design methodology (Cavanaugh et al., 2000; Podsakoff et al., 2007). While there are no steadfast rules, it is best to report results both with, and without the inclusion of controls (Meehl, 1971). Therefore, a method similar to previous research was used in order to provide another test of the hypotheses. A model that included challenge stress and hindrance stress at time one, perceived N-S fit at time two, job satisfaction at time three, and strain at time two as a covariate was tested. While not as conservative as the full-wave panel design model, this model still resolves issues with respect to common method variance in both cross-sectional and half-longitudinal models (Cole & Maxwell, 2004; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

As done in the previous analyses, a measurement model was fit to the data before testing the proposed structural model. Table 4 includes the model test results for all post hoc analyses involving job satisfaction as an outcome. Chi-square for the measurement model was significant $X^2(135) = 696.772$, $p < .001$. In addition, RMSEA was .086 (CI: .080, .092, $p = .001$), suggesting less than ideal fit to the data. However, the measurement model fit the data reasonably well according to both CFI .85 and TLI .83. SRMR was not within the acceptable range .213. After testing the measurement model, a structural model was tested with the hypothesized paths. Figure 13 depicts the model linking the experience of stress to job satisfaction through perceptions of N-S fit. The proposed model resulted in a better fitting model $X^2(129) = 431.70$ $p < .001$, RMSEA = .064 (CI: .058, .071, $p < .001$), CFI = .917 TLI = .902, and SRMR = .077.

Table 4. Model Fit Statistics for Post Hoc Analysis with Job Satisfaction.

Model	- 2 log likelihood	AIC	BIC	X^2, df, *p*	RMSEA	CFI	TLI	SRMR
P1	-12838.68	25785.37	26019.55	696.77, (135), .000	.086, (.080, .092), .000	.846	.825	.213
P2	-12706.15	-12706.15	25792.50	431.70, (129), .000	.064, (.058, .071), .000	.917	.902	.077
P3	-12700.32	-12700.32	25793.52	420.05, (127), .000	.064, (.057, .071), .000	.920	.903	.063
P4	-7712.64	-7712.64	15811.82	358.01, (128), .000	.056, (.050, .063), .062	.914	.897	.103
P5	-7712.13	-7712.13	15817.13	356.98, (127), .000	.057, (.050, .064), .057	.914	.896	.101
P6	-7681.51	-7681.51	15762.25	295.76, (126), .000	.049, (.042, .056), .594	.936	.923	.063

Note. P1 (Post hoc measurement model); P2 (Proposed structural model); P3 (P2 with direct effects); P4 (Reverse causal model); P5 (P4 with direct effects); P6 (P5 With additional direct effect of N-S fit on job satisfaction).

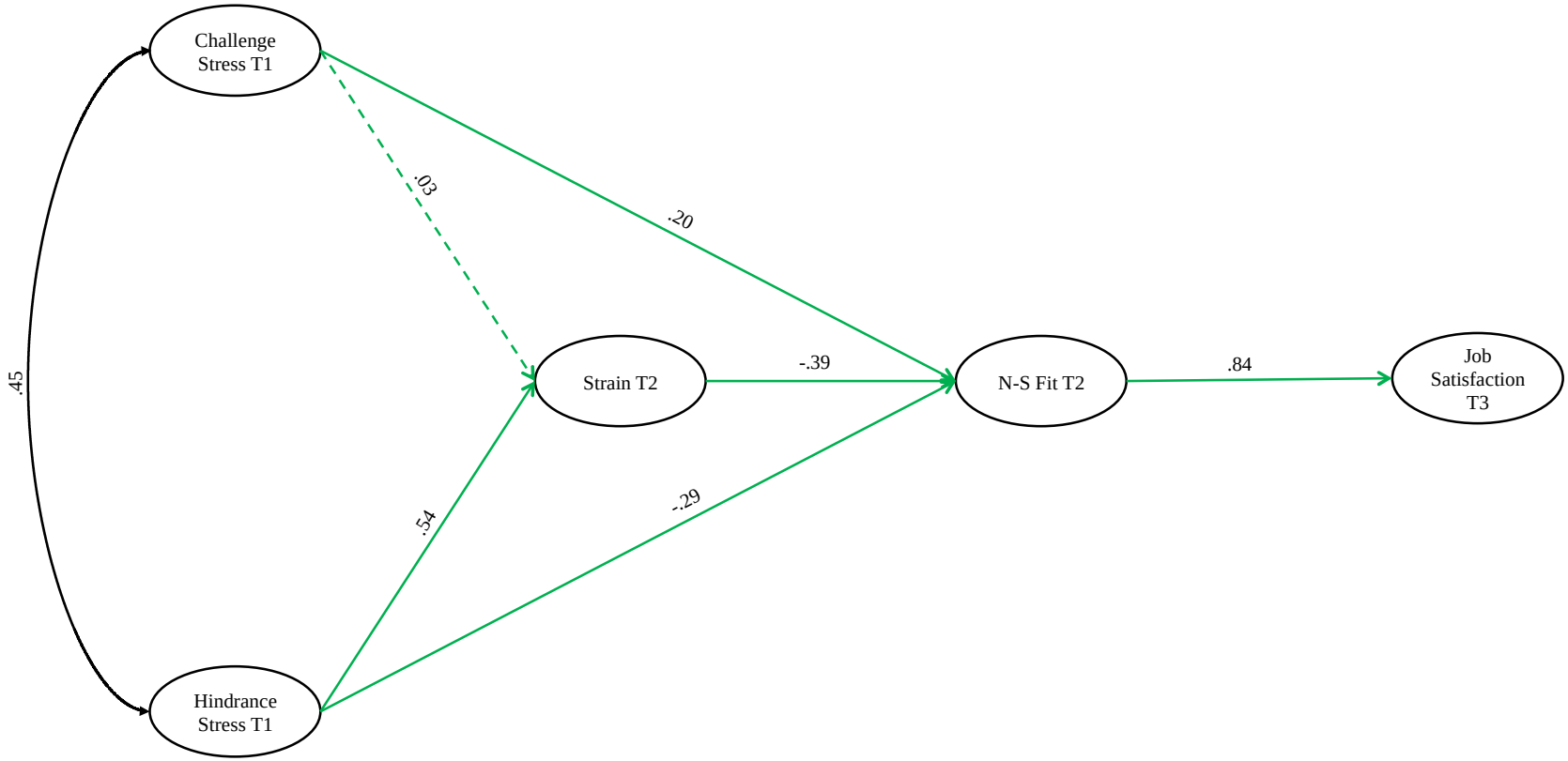

Figure 13. P2: Proposed post hoc structural model for job satisfaction.

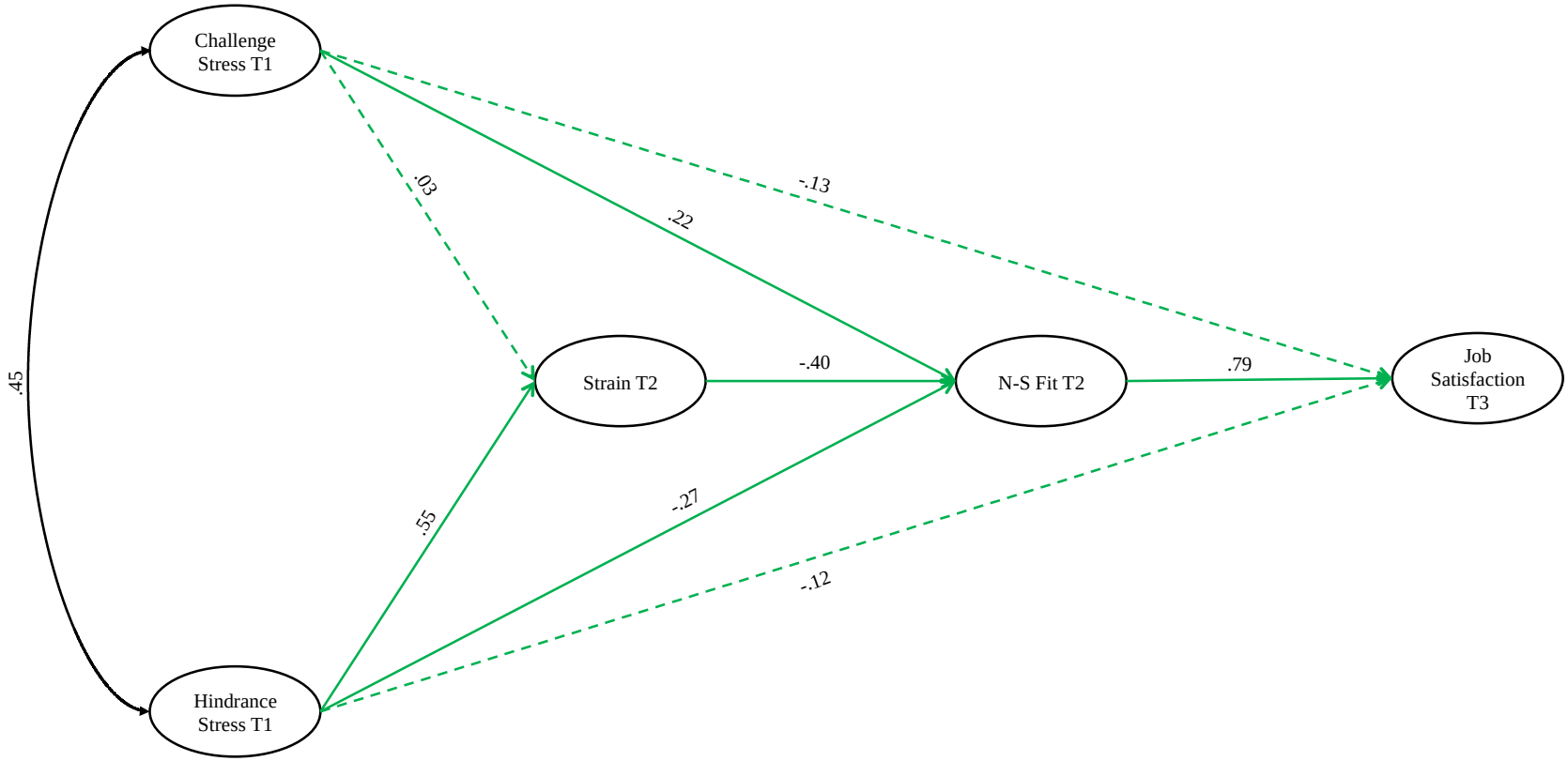

Figure 14. P3: Proposed post hoc structural model with direct effects for job satisfaction.

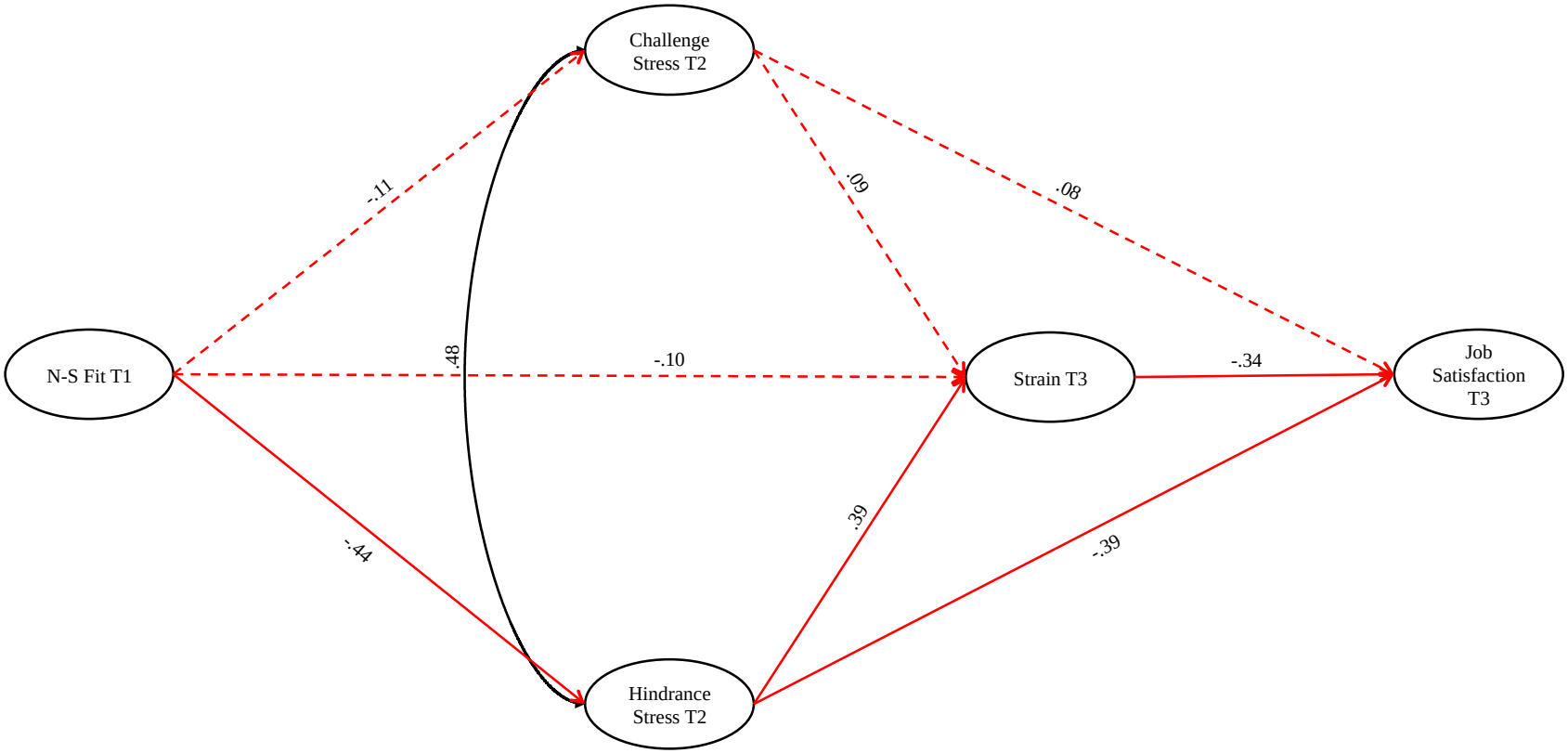

Figure 15. P5: Reverse causal model with direct effect to strain for job satisfaction.

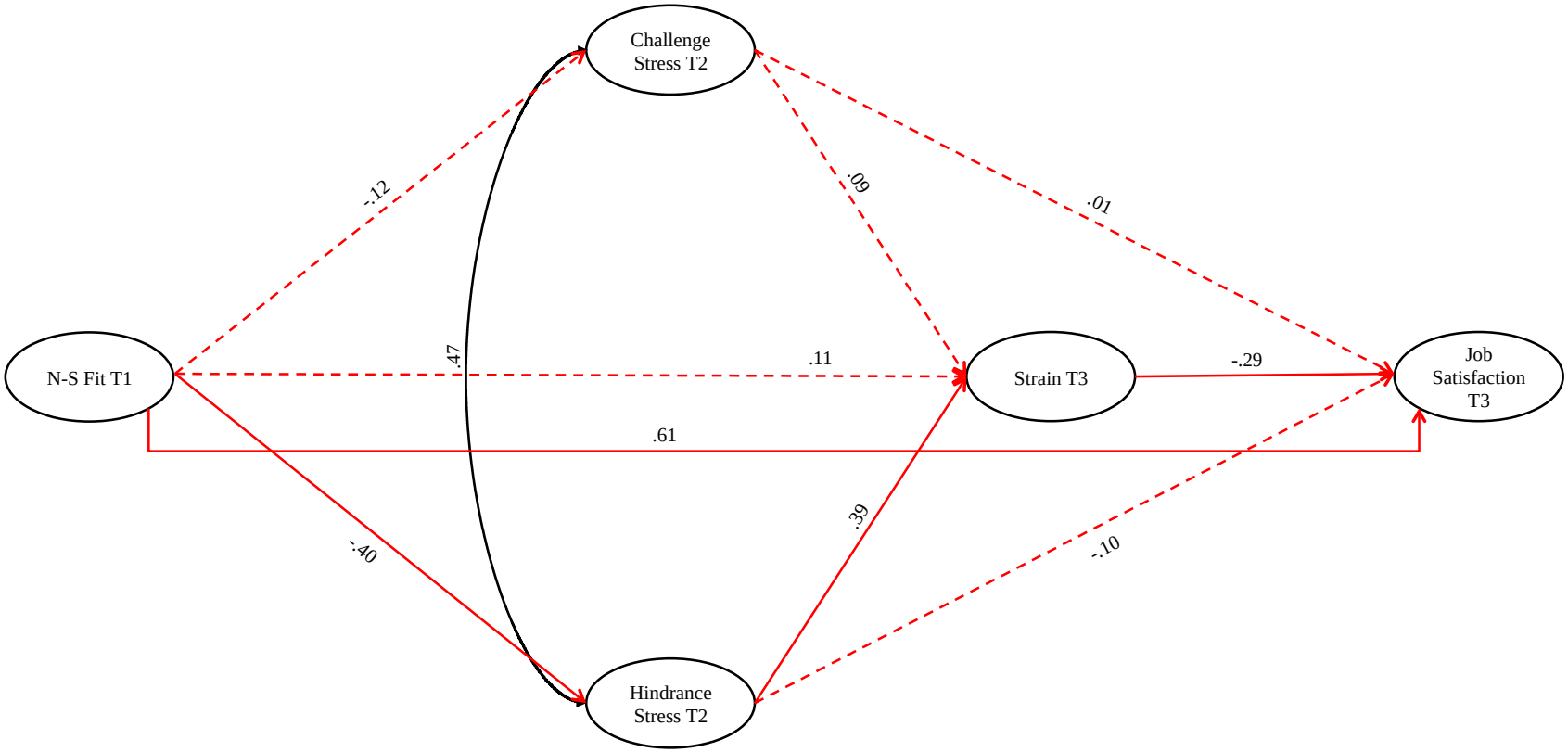

Figure 16. P6: Reverse causal model with direct effect to strain and job satisfaction.

With respect to the proposed paths, challenge stress at time one was positively and significantly related to N-S fit at time two, β = .20, $t(250) = 2.73$, $p = .005$, (95% CI = .06, .34). In addition to that, hindrance stress was a significant predictor of N-S fit at time two β = -.29, $t(250) = -3.07$, $p = .002$, (95% CI = -.46, -.11). Unlike the positive effect of challenge stress, hindrance stress was negatively related to N-S fit. Thus, in support of hypotheses 1a and 2a, challenge stress had a positive effect on N-S fit, whereas hindrance stress had a negative effect. As previously supported, N-S fit measured at time two was a significant predictor of job satisfaction at time three, β = .84, $t(174) = 11.52$, $p < .001$, (95% CI = .77, .90). In order to test for the possibility of partial mediation, another model was tested that freed parameters from challenge stress and hindrance stress at time one with job satisfaction at time three (Figure 14). This led to a significant improvement in model fit $X^2_{diff}(2) = 11.65$, $p < .01$. However, neither of the direct paths going from stress at time one to job satisfaction at time three was significant.

In terms of the mediation hypotheses, the indirect effect of challenge stress on job satisfaction through perceptions of N-S fit was positive and significant β = .17, $t(174) = 2.85$, $p = .004$, (95% CI = .06, .29). The total indirect effect, which included an indirect negative effect through strain was positive and significant β = .16, $t(174) = 2.52$, $p < .012$, (95% CI = .04, .23). Thus, the positive effect of challenge stress through N-S fit offset the negative effect of challenge stress through strain resulting in a positive total effect. For hindrance stress, the total indirect effect through N-S fit was negative and significant β = -.38, $t(174) = -5.01$, $p < .001$, (95% CI = -.50, -.26). In fact, 77% of the total effect of hindrance stress on job satisfaction was exerted through N-S fit. In support of hypotheses 3a and 3b, perceived N-S fit fully mediated the relationship between the experience of challenge and hindrance stress and job satisfaction.

Turning to the moderation hypotheses, the results did not indicate a significant moderating effect of job self-efficacy on the relationship between challenge stress and N-S fit, β = .16, *t*(250) = -1.33, *p* = .257, (95% CI = -.02, .33). There was support for a marginal direct effect of job self-efficacy on perceived N-S fit, β = -.12, *t*(250) = -1.96, *p* = .05, (95% CI = -.28, -.08). The moderating effect of self-esteem on the relationship between hindrance stress and N-S fit also failed to find support. Thus, post hoc analyses indicated that N-S fit fully mediated the relationship between both challenge stress and hindrance stress with job satisfaction but these relationship were not moderated job self-efficacy and self-esteem respectively.

Although a model linking challenge stress and hindrance stress to job satisfaction through perceived N-S fit found support, it is possible that a reverse causal model between challenge stress and hindrance stress with N-S fit would also provide a suitable fit to the data. Thus, a measurement model was tested using perceived N-S Fit measured at time one, stress and strain measured at time two, and job satisfaction measured at time three. Model chi-square was significant, $X^2(135) = 547.73$ $p < .001$, RMSEA = .074 (CI: .067, .080, $p < .001$), CFI = .85 TLI = .83, and SRMR = .207. Figure 15 depicts a reverse structural model linking N-S fit to job satisfaction through challenge stress, hindrance stress and strain. The reverse structural model provided a substantially better fit to the data, $X^2(127) = 356.98$ $p < .001$, RMSEA = .057 (CI: .050, .064), $p = .057$, CFI = .914 TLI = .896, and SRMR = .101. Results indicated a significant negative relationship between perceived N-S fit a time one and hindrance stress at time two β = -.44, *t*(250) = -5.28 $p <$. 001, (95% CI = -.57, -.31). The relationship between perceived N-S fit at time one and challenge stress at time two was not significant, β = -.11, *t*(250) = -1.597 $p =$ .11, (95% CI = -.25, .02). Job satisfaction at time three was influenced by hindrance stress, β = .39, *t*(174) = -3.41, *p* = .001, (95% CI = -.59, .19), and strain, β = -.34, *t*(174) = -3.96 $p < .001$,

(95% CI = -.50, -.18). The relationship between challenge stress and job satisfaction failed to find support, β = .08, *t*(174) = .85, *p* = .396, (95% CI = -.10, .247). Comparing the relationships for perceived N-S fit with hindrance stress and challenge stress across the two post hoc analysis, the relationship between challenge stress and perceived N-S fit is strongest for the proposed structural model, whereas the opposite is true for the relationship between hindrance stress and perceived N-S fit. A final model was tested that freed a path between perceived N-S fit at time one with job satisfaction at time three. This model provided the best fit to the data, $X^2(126) = 295.76$ $p < .001$, RMSEA = .049 (CI: .042, .056, $p < .001$), CFI = .936 TLI = .923, and SRMR = .063. The direct effect of perceived N-S fit measured at time one and job satisfaction measured at time three was significant, β = .61, *t*(174) = 8.17 $p < .001$, (95% CI = .49, .73). Once perceived N-S fit was entered into the model, hindrance stress was no longer significant, β = -.10, *t*(174) = -1.082, *p* = .279. Figure 16 depicts the reverse structural model which supports a direct relationship between perceived N-S fit at time one with job satisfaction at time three unmediated by stress but partially mediated by strain. The total effect of perceived N-S fit on job satisfaction was significant, β = .73, *t*(174) = 9.65 $p < .001$, (95% CI = .64, .82), where 84% was the result of the direct effect. The total indirect effect was also significant, β = .12, *t*(174) = 3.00 *p* = .003, (95% CI = .05, .19), however, none of the individuals paths were.

Chapter 6: Discussion

A review of the literature suggested that perceptions of N-S fit could provide an explanation for the differential relationships between employee stress and employee outcomes found in previous research (LePine et al., 2007). Accordingly, a P-E fit approach to the challenge stressor-hindrance stressor framework was used to develop and test a new model of stress. The model was based on the premise that the experience of stress exerts its force on employee outcomes through perceptions N-S fit. In accordance with research design methodology for testing hypotheses involving mediation (Cole & Maxwell, 2003; Gollob & Reichardt, 1991; Judd & Kenny, 1981; Maxwell, Cole & Mitchell, 2011; Zapf et al., 1996), a full three-wave panel study was designed in order to test an autoregressive model. Results failed to support lagged effects of stress on perceived N-S fit, but supported a relationship between perceived N-S fit and job satisfaction. Partial support for the proposed relationships between stress and perceptions of N-S fit was found for a synchronous model. Specifically, challenge stress had a positive effect on perceptions of N-S fit, whereas the relationship between hindrance stress and perceptions of N-S fit was negative. However, these results failed to replicate over time. Therefore, the results provided equivocal support for hypotheses that perceptions of N-S fit mediate the relationship between the experience of challenge and hindrance stress with job satisfaction. Overall, the results appear to suggest that perceived N-S fit is relatively stable over time, but might be dynamic in response to the input from challenge and hindrance stress on a day-to-day basis.

Post hoc analyses attempted to substantiate the proposed causal model using a more traditional approach to causal modeling. As opposed to the full-wave design, post hoc analysis did not control for prior levels of each variable at t-1. The first post hoc model tested included measures of stress at time one, perceived N-S fit at time two, and job satisfaction at time three.

Results of these analyses were interesting. Results indicated that perceptions of N-S fit fully mediated the relationship between the experience of stress measured at time one and job satisfaction measured at time three. These results were replicated using several other employee outcomes commonly used in organizational research including; affective commitment, normative commitment, and turnover intentions (See appendix five). Thus, results of the post hoc analysis were generally consistent with what would have been expected based on previous research. A reverse post hoc model that included perceptions of N-S fit preceding the experience of stress did provide a better fit to the data, making it difficult to dispel alternative explanations for the relationships between stress, perceptions of N-S fit, and job satisfaction. However, stress failed to predict job satisfaction when perceived N-S fit measured at time one was entered into a model. In addition, perceived N-S fit at time one was unrelated to challenge stress measured at time two. These results are somewhat at odds with previous research and meta-analyses that support a relationship between challenge stress and hindrance stress with several work outcomes (Cavanaugh et al., 2000; Podsakoff et al., 2007). Furthermore, in the reverse post hoc model, N-S fit was the strongest predictor of work outcomes. Thus, while the reverse causal model fit the data better, conclusions using this model are at odds with previous research, and still support N-S fit as more proximal to employee outcomes compared to the experience of stress. Findings from this study have theoretical importance, and offer practical guidance for the management.

Theoretical Contributions

First and foremost, the present study extends previous empirical research by employing a full three-wave panel design to study the relationship between stress and perceived N-S fit. Survey research is the most frequently used method within Industrial/Organization Psychology, where limitations with respect to method bias and causality are extremely common (Brutus, Gill,

& Duniewicz, 2010). Cross-sectional data collection is extremely common in the stress literature (Zapf et al., 1996). This is a major limitation with previous research because it obfuscates understanding of the true relationship between variables over time (Maxwell et al., 2011). This is a major limitation in the P-E fit literature as well, where the reliance on static research designs is also apparent across empirical studies of P-E fit (Kristof-Brown & Guay, 2011). Although cross-sectional studies have helped establish the pervasive nature of fit, they fail to provide adequate tests of P-E fit theories. P-E fit theory is couched in longitudinal terms, which have long proposed that individuals are motivated to maintain fit with the work environment throughout the employee lifecycle (French et al., 1982). However, very few studies examine P-E fit at multiple points in time (Caldwell, 2011, 2013). The results of the present study suggest that perceptions of N-S fit are relatively stable during the employee lifecycle, and support previous theory that employees are actively engaged in P-E fit management, and maintain fit with the work environment (Yu & Yang, 2013). The present study also shows that the effect of stress on lagged perceptions of fit is rather innocuous, and may only have an influence in the same temporal space. By observing perceived N-S fit longitudinally, the present study provides a test of P-E fit theory, and contributes toward a better understanding of the dynamic nature of fit and how it responds to the experience of challenge and hindrance stress.

Another somewhat related contribution is the use of an autoregressive modeling technique to study mediation. Controlling for prior levels of N-S fit and work outcomes when testing the lagged effects of stress is expected to provide a better test of the hypotheses, compared to simply separating the variables by time. For example, Judd and Kenny (1981) suggest that not accounting for prior assessments of a mediator or outcome variable can create bias in estimating mediation effects. Likewise, several authors have called into question previous

research that does not control for mediating variables at previous time points, with some going as far as saying that interpretation of effects are meaningless (Maxwell et al., 2011). Given the preponderance of cross-sectional research in the stress literature, the relationship between stress and workplace outcomes may be somewhat questionable (LePine et al., 2007). What is interesting is that post hoc analysis fully supported the proposed model, which was based on previous research using the challenge stressor-hindrance stressor framework. Thus, the present study offers support for previous research, while also providing what may be considered a more appropriate test of the proposed relationships. However, this interpretation is not without its critics (Meehl, 1971; Spector & Brannick, 2011; Spector, Zapf, Chen, & Frese, 2000). For example, Spector et al. (2000) questions the use of statistical controls, and provides a compelling argument against the practice of using control variables in certain situations. They suggest that statistical controls should only be used when a control variable biases the relationship between a predictor and outcome variable. In a case where there is true variance being accounted for, or when there is conceptual overlap between a control measure and the outcome, partialling out the variance accounted for by a control variable partials out the variance that is of most interest. Doing so is akin to "throwing out the baby with the bath water" (p. 91). In the case of perceptions of N-S fit measured at t and t-1, partialling out the variance at t-1 suggests that the construct itself has been partialled out, leaving only error variance. Thus, what is left does not reflect the construct of interest but something entirely different. In the case where a variable remains stable over time, or when not enough time has elapsed to observe systematic change, you must question whether partialling out the variance is an appropriate decision to make. In the present study it could be argued that it is the true, and not artificial variance, which is being partialled out. Thus, justification to partial out the variance using controls would require the

assumption that measures of perceptions of N-S fit are in some way biased as a result of prior levels of perceived N-S fit. This may seem rather unlikely, and thus, diametrically opposed to recommendations for controlling for the mediator at t-1, a model that includes only lagged measures of the mediator may be a best approach. While no official stance is taken on the merits of either approach, the present study offers empirical results for both approaches, finding that they lead to contradictory findings. It should be mentioned, however, that Spector et al. (2000) as well as others (Spector & Brannick, 2011) propose the use of autoregression as a potential solution when protecting against the possible bias of control variables. It may also be worth noting that calls for the use of autoregression within the behavioural sciences do so in relation to quasi-experimental or developmental research (Judd & Kenny, 1981). Thus, it is possible that the use of autoregression in the present study was testing the spurious relationship between stress and perceptions of N-S fit rather than the stated hypotheses (Spector & Brannick, 2011). It could also indicate that the use of mediation in the present study was not suitable in so far as systematic change in the mediating variable was not observed.

Another contribution of the present study is related to the temporal precedence of stress in relation to perceptions of N-S fit. Although the proposed lagged effects model failed to reach significance, model fit statistics provide some consolation for inferences regarding the relationships between the substantive variables (Fugate et al., 2008). Model fit statistics supported a model whereby the experience of stress preceded perceptions of N-S fit in relation to job satisfaction. This result was replicated with commitment measures as well as turnover intentions (See appendix five). Thus, the present study provides empirical support that the experience of stress occurs prior to perceptions of N-S fit. However, without empirical support

for lagged effects of stress, it is difficult to confirm if stress does in fact exert its force on work outcomes through perceptions of N-S fit.

Limitations

As is the case with any study, there are potential limitations. As stated by Brutus Gill and Duniewicz (2010), "self-reported limitations are not only expected, they are a sign of healthy self-assessment" (p. 930). In accordance with several recommendations for reporting limitations in Management and Industrial/Organizational Psychology research (Aguinis & Edwards, 2014; Brutus et al., 2010; Brutus, Aguinis, & Wassmer, 2013), the following is a separate section that focuses on several potential limitations related to design, measurement, and analysis. First, a potential limitation in the present study is the omission of variables measuring coping strategies. Unfortunately, the present study is unable to make assertions related to the way people handle the experience of challenge stress and hindrance stress at work. For example, Fugate et al. (2008) examined the effects of different coping strategies in response to the stress of organizational change. They hypothesized that escape coping (Avoidance) would be more likely in response to threat, and would lead to greater number of sick days, turnover intentions, and voluntary turnover. Their results indicated that "it is not one's appraisal of changes that influences turnover but also how one copes with and reacts emotionally to these changes" (Fugate et al., 2008, p. 28). Fugate and colleagues found support for a synchronous model whereby stress and coping occur in the same temporal space, and that avoidance coping had negative effect on both the individual and the organization. Contrary to what would be expected based on previous research (LePine et al., 2007), results of the present failed to find support for the negative effects of hindrance stress when lagged effects of stress were tested. However, support was found for a synchronous model when examining the effects of stress (Fugate et al., 2008). One potential reason for the lack of

lagged relationships is that employees cope with stress rather effectively, thereby reducing the potential for lagged relationships. However, without the collection of coping data, it precludes the possibility of making claims to that effect. Future research that includes coping measures may be required in order to provide a more complete understanding of the relationship between stress and perceptions of N-S fit.

Another potential limitation is related to the measures used to capture challenge and hindrance stress. Although the measures used in the present study have previously displayed statistical conclusion validity (Cavanaugh et al., 2000), a potential limitation is the construct validity of the measures, and whether they do in fact represent a manifestation of the constructs they are expected to measure. First, the measures are still relatively new and have not been used very often to test the differential effects of stress on employee outcomes. Second, the measures used capture the experience of stress rather than the presence of actual stressors themselves, which is distinct from other validated stress measures. Third, development of the scales used in the present study were not developed using the advised 6-step procedure outlined by (Hinkin, 1998), and were based on previous scales developed in the literature. Therefore, it is possible that they fail to capture the construct of stress, or the totality of challenge and hindrance stress that is experienced by employees. Fourth, it is possible that participants did not actually perceive challenge stressor items as challenging, and hindrance stressor items as hindering. The notion that appraisal may dramatically influence the way the people respond to and manage stress is well established (Latham & Pinder, 2005; Lazarus, & Folkman, 1984; LePine, et al. 2005). Thus, there may be meaningful variance in the way people perceive different types of workplace stressors, which would call into question the distinction between challenge and hindrance stress as they were measured in the present study. However, while the measures used did not ask

participants directly about whether they perceived the stressors to be challenging or hindering, the measures did include several items that have been considered to reflect distinct stressor constructs (Podsakoff, 2007; Webster et al., 2010). For example, Webster et al., (2010) tested the proposition that employees vary in their construal of challenge and hindrance stressors. They found empirical support for the challenge and hindrance distinction using a slightly altered version of the scale used in the present study. In addition, Podsakoff (2007) found that the Cavanaugh et al. measures converged with measures of challenge and hindrance developed using a more rigorous approach to scale development that first established work stressors as challenging or hindering. Thus, while it cannot be confirmed, previous research suggests that those who completed this survey considered challenge stress items as challenging and hindrance stress items as hindering. In addition to this, reliabilities were within the acceptable range (> .70) as set by Nunnally and Bernstein (1994), test-retest reliability displayed consistency in measurement across time, and correlations were consistent with both meta-analyses and previous empirical research (Cavanaugh, et al., 2000; LePine et al., 2005; Podsakoff, et al., 2007). Perhaps future research can include multiple operationalizations of challenge and hindrance stress within the proposed framework in order to further buttress construct validity.

The sample used signals another potential limitation with the present study. Data was collected using a convenience sampling technique, which my limit the validity and generalizability of the results (Aguinis & Edwards, 2014; Cook & Campbell, 1979). Employees working within the oil and gas sector made up 33% the sample, and data was also collected during a time of economic downfall in the oil and gas sector. One way to see if the timing of data collection influenced the data is to examine the descriptive statistics for the variables of interest. For example, in Cavanaugh et al. (2000) study, the means for challenge stress and hindrance

stress were 2.71 and 2.80 respectively. Means for these variables in the present study were consistent with these estimates. Another potential limitation of the sample used in the present study relates to the issue of dependence and the multilevel nature of data structures. Because data were collected using a convenience sample, it is difficult to determine if the assumption of independence has been violated. For example, there may be several participants who worked for the same organization, or within the same work unit. Thus, there may be clusters of participants with similar data patterns as a result of the organizations they work for. Should this have been an issue in the present study it may have reduced observed relationships, increasing the chances of type II error (Bliese & Hanges, 2004).

A potential methodological limitation of the present study's design was the time lag used between data collection points. Initial tests of the challenge stressor-hindrance stressor framework used a twelve-month time lag (Cavanaugh et al., 2000). While controlling for prior levels of perceived N-S fit, both types of stress failed to have significant lagged effects. Additional tests also failed to find lagged effects for stress on employee outcomes. Thus, the inability to find lagged effects could have been due to the time lag, rather than the theory or model being tested. In other words, this study failed to capture the dynamic process through which stress exerts its force over time. A key feature in the P-E misfit approach to stress is the corrective function of coping behaviours and defense mechanisms (Caplan, 1987). The P-E fit approach to stress highlights the motivational (i.e., dynamic) nature of fit, as something that is malleable and likely to change when a discrepancy between the self and the work environment occurs along a meaningful dimension (Edwards, 1992). Although the results garnered some support for a synchronous model, these results may not be the best reflection of the dynamic process in question. Perhaps, a longer time lag, one that reduces the correlation of perceptions of

N-S fit with perceptions of N-S fit at t-1 would help to better establish lagged effects of stress. However, the correlation between perceived N-S fit measured at time one with perceived N-S fit measured at time two and time three was roughly the same. Thus, an increased time lag may also fail to support the hypotheses using the full wave panel design. Regardless, future research may want to develop a longitudinal framework that focuses on the appropriate time lags required to examine change in perceptions of N-S Fit throughout the employee lifecycle (Gollob & Reichardt, 1991). For example, it could be that perceptions of N-S fit are stable for the majority of an employee's tenure, and only changes in response to significant changes at work (Caldwell, 2011, 2013), or perhaps shocks (Lee & Mitchell, 1994). A better understanding of perceived N-S fit trajectories may provide guidance for the best time to predict systematic change.

Directions for Future Research

Researchers have long since proposed the adequacy of dynamic models to explain the influence of relational forms of stress on workplace adjustment and employee outcomes (Dawis, Lofquist, & Weisss, 1968; French et al., 1974). However, P-E fit research is still in its infancy, and these motivational models have yet to be fully explained or tested with respect to the P-E fit management process (Kristof-Brown & Billsberry, 2013). For example, the process of becoming a misfit is proposed to be a function of time (Billsberry & Talbot, 2010), yet little empirical research has been done with respect to the process of becoming a misfit, or how employees may prevent themselves from becoming one in light of discrepancies that may exist, or come into existence during transitional stages of employment (Yu & Yang, 2013). Both the synchronous model and post hoc analyses provide some support the hypothesized relationships. Thus, it appears possible that the experience of stress may, in some way, influence perceptions of N-S fit. Previous research has found the experience of stress and coping are best understood as occurring

in the same temporal space (e.g., Fugate et al., 2008). Thus, it is possible that a much shorter time lag may be best to capture the dynamic nature of fit. An experience sampling methodology that involves following people in their natural work environments, prompting them to provide responses as different points in the day using a portable beeper (Marco & Suls, 1993) or mobile phone interface (Foo, et al., 2009), may provide a better account of the way employees manage the relationship they have with the work environment. It could be that P-E fit management happens immediately, over the course of a few hours, or at a particular time of the day. Regardless, the data collected in the present study suggests that a time lag of 3-months may not be the best when testing the hypothesized effects. Therefore, future research that helps demarcate the appropriate time lags to observe the proposed causal relationships is encouraged.

On a related note, another suggestion for future research is to explore the hypothesized relationships within the context of change at work. The present study did not include longitudinal predictions regarding the variance or trajectory of the focal variables in response to change at work (See Caldwell, 2011, 2013 for good examples). This is primarily due to the context in which data was collected, in so far as employees were at different stages in the employee lifecycle. A major requirement for growth analysis is that all participants begin the study at the exact same time in the employee lifecycle or when systematic change in the focal variable is expected to occur. Future research could involve the examination of intra-individual change in perceptions of N-S fit in response to challenge and hindrance stress following work unit change (Caldwell, 2011), or during the socialization process (Wanberg & Kammeyer-Mueller, 2000; Wang et al., 2011). For example, using a sample of 800 registered Nurses going through a major change implementation, Caldwell (2011) conducted a longitudinal study that investigated the effect of organizational change on perceptions of Person-Organization (P-O) and P-J fit. It was

hypothesized that there would be an initial drop in D-A fit after change, but that fit would eventually restore itself over time. The study found that D-A fit remained relatively high after change occurred and did not fluctuate as much as fit with the organization. Post hoc analysis revealed that employees low in self-efficacy for change experienced the greatest decrease in D-A fit. D-A fit was stable for those high in self-efficacy. Although the Caldwell (2011) study provides evidence that P-E fit fluctuates after organizational change, the process by which change influences P-E fit is still unknown. Caldwell did not provide an explanation for these results, but did suggest future research explore the influence of change on P-E fit variables.

Testing the proposed model is a socialization context is also suggested as an avenue for future research. This is a stage of employment where perceptions of the job may be particularly malleable. For example, Wanberg and Kammeyer-Mueller (2000) focused on proactivity in the socialization process, and its moderating effect on the relationship between socialization tactics and P-O fit. Proactivity is a variable associated with traits and behaviours aimed at changing the environment in an attempt to preemptively manage future demands. However, given that some environmental variables are resistant or unchangeable, not all P-E misfit is amenable to proactive remediation. Therefore, future research that integrates the hypothesized model within the context of change, or periods of transitions within the employee lifecycle is recommended. Within the scope this recommendation, individual difference may also be included to provide an additional layer of insight (Fugate, 2013; Vakola, & Armenakis & Oreg, 2013). In addition to job self-efficacy and self-esteem, adaptability as an individual difference may influence perceptions of N-S fit via more effective P-E fit management (Schmitt & Chan, 2014). In other words, some employees may be more or less equipped to deal with significant changes that occur in their work environment, and/or transitional periods of the employee lifecycle.

Besides recommendations that focus on study design, there is room for future research that examines the relationship between objective/subjective P-E fit, stress, and perceptions of P-E fit in general. In the present study, the experience of stress is assumed to reflect objective/subjective incongruence along meaningful dimensions. This assumption is rather speculative in nature, and is without empirical validation. Future research is needed in order to establish a relationship between objective/subjective measures of P-E fit with the experience of challenge and hindrance stress. If done with objective fit, multi-level issues with respect to measurement will need to be addressed. When objective measures include collecting data from other employees, it is important to consider the multilevel nature of objective fit data. Specifically, this refers to issues stemming from within group differences in perceptions of workplace characteristics rated by employees (Chan, 1998). Aggregation of workplace perceptions of characteristics may not be warranted in some cases, precluding the proper analysis of objective fit measures. Therefore, researchers going down this avenue need to pay particular attention to appropriate levels of analysis before creating aggregated terms to represent environment characteristics.

Practical Implications

It is possible that the results of this study offer some practical advice in the area of human resource management. However, given that this is the first test of the proposed model, and that some relationships were not stable across time, recommendations are tentative and require additional research to support. In addition, recommendations requiring any manipulation of the work environment aimed at improving employee attitudes should not be instituted without additional quasi-experimental research. Practical implications relate to the management of stress at work, and tips for employee recruitment and selection.

The first recommendation has been extrapolated from the effects of stress on perceptions of N-S fit and strain. The recommendation is to reduce the experience of hindrance stress among employees. The results indicate a negative effect of hindrance stress on employee strain. Employee strain was also negatively related to perceptions of N-S fit. Multiple empirical investigations and several meta-analyses buttress this recommendation. Employees may benefit from reduced stress related to pay, job insecurity, career advancement, organizational politics, or role ambiguity. While some hindrance stressors may be easier to mitigate than others, the present study offers encouraging advice to those seeking to improve employee attitudes. Efforts to at prevent extremely high levels of hindrance stress, or providing guidance for effective coping mechanisms through the use of employee assistance programs, may be worthwhile. Previous research has shown that the effects of hindrance stress become increasingly negative with higher levels of hindrance stress (Podsakoff, 2007).

Another recommendation focuses on the experience of challenge stress. Although the lagged effects of challenge stress on perceptions of N-S fit failed to reach significance, the results of the synchronous effects model suggest a possible positive relationship between challenge stress and perceptions of N-S fit. The majority of lagged models also suggest that N-S fit has a negative lagged effect on the experience of challenge stress, and the experience of challenge stress has an unappreciable influence on employee outcomes or strain. Taken together, it may be the case that employees who perceive high levels of fit with their environment are less inclined to place themselves under greater amounts of challenge stress. Thus, it is possible that managers may be able to maintain or increase employee perceptions of N-S fit by finding ways to increase challenge stress. Providing greater scope of responsibility, increasing the number of projects that are to be accomplished, setting tighter deadlines, or increasing hours spent working

may facilitate employee growth and development beyond what would have occurred independently. Like a personal trainer who pushes their clients, managers may be advised to push their employees so long as they help manage the relationship between stress and strain. Similar to joggers high, or what organizational researchers call "flow" (Csikszentmihalyi, 1975), working under challenging circumstances may help promote a rewarding work environment and promote employee engagement (Rich, LePine, & Crawford, 2010). Although it appears as though challenge stress is positive, there may be a downside to too much challenge stress the must be considered. It is possible that a curvilinear relationship exists, where too much challenge stress can work against employees rather than promote growth or gain. For example, using measures similar to those used in the present study, Podsakoff (2007) found that challenge stress had a significant curvilinear relationship with emotional exhaustion and job satisfaction but not for performance. These curvilinear relationships were moderated by ability, which suggests that low ability employees are at the highest risk for extreme levels of challenge. The results suggest that for some, too much stress can have a debilitating effect on emotional well-being. Thus, while challenge stress may be good for employee performance, caution should be taken to avoid employee burnout in low ability employees. In the present study, curvilinear relationships were tested for the relationship between stress and perceived N-S fit. However, these effects were not significant.

Combining the recommendations with regards to stress, managers may be able to increase N-S fit and employee attitudes by maximizing challenge stress and minimizing hindrance stress. However, it may not be difficult to increase challenge stress while simultaneously reducing hindrance stress. An addressable concern is the positive relationship between challenge and hindrance stress. Perhaps interventions aimed at the reduction of this

relationship would allow employees to experience higher levels of challenge stress without an increase in the experience of hindrance stress. One way to do this would be to reframe the relationship between the employee and the organization. For example, in positions where sales are an integral part of the role, companies can design compensation structures that frame things in terms of challenge rather than hindrance. Many companies follow a commission-based pay structure for sales employees. If pay or job security is tied to sales performance, not meeting performance goals could produce a significant amount of hindrance stress. Organizations may want to test the effects of a different compensation structure that attempts to minimize hindrance stress. Instead of a structure where employees need to hit specific sales targets to get paid or remain employed, companies can develop a pay structure that includes a base level salary with the opportunity for bonuses if sales targets are reached. This would provide employees with increased perceptions of job security and less worry about pay, while also instituting a reward structure for good performance. This can be done without changing the overall amount paid to employees, and may results in decreased levels of hindrance stress and increased levels of challenge stress. For positions where it is not possible to reduce hindrance stress (i.e., contract work), management bay be able to mitigate stress effects on attitude by offering other means to maintain perceptions of N-S Fit.

Another implication of this study is the knowledge that in the absence of position change, N-S fit remains relatively stable over the course of six months. This is important in so far as perceptions of N-S fit had significant lagged effects on job satisfaction and turnover intentions. The stability of N-S fit perceptions also highlights the significant role of the recruitment process, and making sure that organizations do a good job of hiring candidates that are likely to have their needs met once they join the organization. Previous meta-analysis speaks to the significant role

of Person-Job (P-J) fit in job acceptance intentions, but not in actual job choice (Chapman, Uggerslev, Carrol, Piasentin, & Jones, 2005). Given that perceptions of N-S fit were resistant to change in response to the experience of stress, it might act as a buffer against the negative impact of stress on employee outcomes found in previous research. Therefore, effort spent identifying applicant's perceptions of fit in the hiring process may pay dividends throughout an employee's tenure at the organization.

References

American Psychological Association. (2014). Stress in America survey. *APA, Washington, DC*.

Bakker, A.B., & Demerouti, E. (2007). The Job Demands-Resources model: State of the art. *Journal of Managerial Psychology*, 22, 309–328.

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational behavior and human decision processes*, *50*(2), 248-287.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. Macmillan.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological bulletin*, *107*(2), 238-246.

Bingham, J. B., Boswell, W. R., & Boudreau, J. W. (2005). Job demands and job search among high-level managers in the United States and Europe. *Group & Organization Management*, *30*(6), 653-681.

Blaine, B., & Crocker, J. (1993). Self-esteem and self-serving biases in reactions to positive and negative events: An integrative review. In *Self-esteem* (pp. 55-85). Springer, Boston, MA.

Bliese, P. D., Edwards, J. R., & Sonnentag, S. (2017). Stress and well-being at work: A century of empirical trends reflecting theoretical and societal influences. *Journal of Applied Psychology*, *102*(3), 389-402.

Bliese, P. D. and Hanges, P. J. (2004). Being both too liberal and too conservative: the perils of treating grouped data as though they were independent. *Organizational Research Methods*, 7(4), 400-417.

Boswell, W. R., Boudreau, J. W., & Tichy, J. (2005). The relationship between employee job change and job satisfaction: the honeymoon-hangover effect. *Journal of applied psychology*, *90*(5), 882-892.

Boswell, W. R., Olson-Buchanan, J. B., & LePine, M. A. (2004). Relations between stress and work outcomes: The role of felt challenge, job control, and psychological strain. *Journal of Vocational Behavior*, *64*(1), 165-181.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. *Sage focus editions*, *154*, 136-136.

Brutus, S., Aguinis, H., & Wassmer, U. (2013). Self-reported limitations and future directions in scholarly reports: Analysis and recommendations. *Journal of Management*, *39*(1), 48-75.

Brutus, S., Gill, H., & Duniewicz, K. (2010). State of science in industrial and organizational psychology: A review of self-reported limitations. *Personnel Psychology*, *63*(4), 907-936.

Cable, D. M., & DeRue, D. S. (2002). The convergent and discriminant validity of subjective fit perceptions. *Journal of Applied Psychology*, *87*(5), 875-884.

Cable, D. M., & Edwards, J. R. (2004). Complementary and supplementary fit: a theoretical and empirical integration. *Journal of Applied Psychology*, *89*(5), 822-834.

Caldwell, S. D. (2011). Bidirectional relationships between employee fit and organizational change. *Journal of Change Management*, *11*(4), 401-419.

Caldwell, S. D. (2013). Change and fit, fit and change. In S. Oreg, A. Michel, & R. Todnem (Eds.), *The Psychology of Organizational Change: Viewing Change from the Employee's Perspective* (pp. 255-274). New York, NY: Cambridge University Press.

Caldwell, S. D., Herold, D. M., & Fedor, D. B. (2004). Toward an understanding of the relationships among organizational change, individual differences, and changes in person-environment fit: a cross-level study. *Journal of Applied Psychology*, *89*(5), 868.

Cammann. C., Fichman, M., Jenkins, G. D., Jr., & Klesh, J. R. (1983). Assessing the attitudes and perceptions of organizational members. In S. E. Seashore, E. E. Lawler, III, P. H.

Mirvis, & C. Cammann (Eds.), *Assessing Organizational change: A guide to methods, measures, and practices* (pp. 71-138). *New York: Wiley.*

Campbell, W. K., & Sedikides, C. (1999). Self-threat magnifies the self-serving bias: A meta-analytic integration. *Review of General Psychology, 3*(1), 23-43.

Caplan, R. D. (1987). Person-environment fit theory and organizations: Commensurate dimensions, time perspectives, and mechanisms. *Journal of Vocational behavior, 31*(3), 248-267.

Caplan, R. D., Cobb, S., French, J. R. P., Jr., Harrison, R. V., & Pinneau, S. R., Jr. (1975). *Job demands and worker health: Main effects and worker health* [HEW Publication No. (NIOSH) 75-160]. Washington, DC: U.S. Government Printing Office.

Carver, C. S., & Scheier, M. F. (1982). Control theory: A useful conceptual framework for personality–social, clinical, and health psychology. *Psychological Bulletin, 92*(1), 111-135.

Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., & Boudreau, J. W. (2000). An empirical examination of self-reported work stress among US managers. *Journal of Applied Psychology*, *85*(1), 65-74.

Chan, D. (2014). *Individual adaptability to changes at work: New directions in research*. New York, NY: Routledge.

Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of applied psychology*, *83*(2), 234-246.

Chapman, D. S., & Chapin, M. M. (2014). A lexical approach to identifying dimensions of organizational culture. In *Academy of Management Proceedings* (Vol. 2014, No. 1, p. 14816). Briarcliff Manor, NY 10510: Academy of Management.

Chapman, D. S., Uggerslev, K. L., Carroll, S. A., Piasentin, K. A., & Jones, D. A. (2005). Applicant attraction to organizations and job choice: a meta-analytic review of the correlates of recruiting outcomes. *Journal of Applied Psychology*, *90*(5), 928.

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods*, *4*(1), 62-83.

Cohen, G. L., & Sherman, D. K. (2014). The psychology of change: Self-affirmation and social psychological intervention. *Annual Review of Psychology*, *65*, 333-371.

Cole, D. A., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data: questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology*, *112*(4), 558-577.

Cook, T. D. and Campbell, D. T. (1979). *Quasi-Experimentation: Design and Analysis Issues for Field Settings* (Vol. 3). Chicago, IL: Rand McNally.

Cooper, C. L., Dewe, P. J., & O'Driscoll, M. P. (2001). *Organizational stress: A review and critique of theory, research, and applications*. Thousand Oaks, CA: Sage Publications.

Cornell, N. K. (2012). *Organizational culture incongruence and employee outcomes: Examining the effects of organizational value importance, self-esteem, and stress*. (*Unpublished masters thesis)*. University of Calgary, Calgary, AB.

Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to employee engagement and burnout: a theoretical extension and meta-analytic test. *Journal of Applied Psychology*, *95*(5), 834-848.

Csikszentmihalyi, M. (1975). Play and intrinsic rewards. *Journal of Humanistic Psychology*, 15(3), 41-63.

Cummings, T. G., & Cooper, C. L. (1979). A cybernetic framework for studying occupational stress. *Human Relations*, *32*(5), 395-418.

Cummings, T. G., & Cooper, C. L. (2000). A cybernetic theory of organizational stress. In C. L. Cooper (Ed.), *Theories of stress* (pp. 101-121). Oxford: Oxford University Press.

Dawis, R. V., & Lofquist, L. H. (1984). *A psychological theory of work adjustment*. Minneapolis: University of Minnesota Press.

Dawis, R. V., Lofquist, L. H., & Weiss, D. J. (1968). A theory of work adjustment: A revision. *Minnesota studies in vocational rehabilitation*.

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227-268.

Dewe, P. J., O'Driscoll, M. P., & Cooper, C. L. (2012). Theories of psychological stress at work. In R. J. Gatchel & I. A. Shultz (Eds.), *Handbook of occupational health and wellness* (pp. 23-38). New York, NY: Springer.

Diefendorff, J. M., & Chandler, M. M. (2011). Motivating employees. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology: Maintaining, expanding, and contracting the organization* (Vol. 3, pp. 65-135). Washington, DC: American Psychological Association.

Drach-Zahavy, A., & Erez, M. (2002). Challenge versus threat effects on the goal–performance relationship. *Organizational Behavior and Human Decision Processes*, *88*(2), 667-682.

Dust, S. B. (2013). The Motivational Effects of Work Characteristics Need-Supply Fit on Active Employees Behaviors (Unpublished doctoral dissertation). Drexel University, Pennsylvania.

Edwards JR. (1991). Person-job fit: A conceptual integration, literature review and methodological critique. In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology* (Vol. 6) (pp. 283-357). London: Wiley.

Edwards, J. R. (1992). A cybernetic theory of stress, coping, and well-being in organizations. *Academy of Management Review*, *17*(2), 238-274.

Edwards, J. R. (2008). 4 Person–Environment Fit in Organizations: An Assessment of Theoretical Progress. *The Academy of Management Annals*, *2*(1), 167-230.

Edwards, J. R., Cable, D. M., Williamson, I. O., Lambert, L. S., & Shipp, A. J. (2006). The phenomenology of fit: linking the person and environment to the subjective experience of person-environment fit. *Journal of Applied Psychology*, *91*(4), 802-827.

Edwards, J. R., & Van Harrison, R. (1993). Job demands and worker health: Three-dimensional reexamination of the relationship between person-environment fit and strain. *Journal of Applied Psychology*, *78*(4), 628-648.

Edwards, J. R., & Parry, M. E. (1993). On the use of polynomial regression equations as an alternative to difference scores in organizational research. *Academy of Management Journal*, 36(6), 1577-1613.

Egan, T. M., Yang, B., & Bartlett, K. R. (2004). The effects of organizational learning culture and job satisfaction on motivation to transfer learning and turnover intention. *Human Resource Development Quarterly*, 15(3), 279-301.

Etzion, D., Eden, D., & Lapidot, Y. (1998). Relief from job stressors and burnout: reserve service as a respite. *Journal of Applied Psychology*, *83*(4), 577-585.

Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior*, *21*(3), 219-239.

Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology*, *48*(1), 150-170.

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, *50*(5), 992-1003.

Foo, M., Uy, M. and Baron, R. A. (2009). 'How do feelings influence effort? An empirical study of entrepreneurs' affect and venture effort'. *Journal of Applied Psychology*, 94(4), 1086–1094.

French, J. R., Caplan, R. D., & Van Harrison, R. (1982). *The mechanisms of job stress and strain* (Vol. 7). Chichester [Sussex]; New York: John Wiley.

French, J. R., & Kahn, R. L. (1962). A Programmatic Approach to Studying the Industrial Environment and Mental Health. *Journal of Social Issues*, *18*(3), 1-47.

French, J. R. P., Jr. Rodgers, W. L., and Cobb, S. (1974). 'Adjustment as person-environment fit'. In G. Coelho, D. Hamburg, & J. Adams (Eds.), *Coping and Adaptation* (pp. 316-333). New York, NY: Basic Books.

Fried, Y., & Ferris, G. R. (1987). The validity of the job characteristics model: A review and meta-analysis. *Personnel psychology*, *40*(2), 287-322.

Fugate, M. (2013). Capturing the positive experience of change: antecedents, processes, and consequences. In S. Oreg, A. Michel, & R. Todnem (Eds.), *The Psychology of Organizational Change: Viewing Change from the Employee's Perspective* (pp. 15-39). New York, NY: Cambridge University Press.

Fugate, M., Kinicki, A. J., & Prussia, G. E. (2008). Employee coping with organizational change: An examination of alternative theoretical perspectives and models. *Personnel Psychology*, *61*(1), 1-36.

Gibby, R., Zickar, M. (2008). A history of the early days of personality testing in American industry: An obsession with adjustment. *History of Psychology*, *11*(3), 164-184.

Gollob, H. F., & Reichardt, C. S. (1991). Interpreting and estimating indirect effects assuming time lags really matter. In L. M. Collins & J. L. Horn (Eds.), *Best methods for the analysis of change: Recent advances, unanswered questions, future directions* (pp. 243–259). Washington, DC: American Psychological Association.

Greguras, G. J., & Diefendorff, J. M. (2009). Different fits satisfy different needs: linking person-environment fit to employee commitment and performance using self-determination theory. *Journal of Applied Psychology*, *94*(2), 465-477.

Greenberg, J., Solomon, S., & Pyszczynski, T. (1997). Terror management theory of self-esteem and cultural worldviews: Empirical assessments and conceptual refinements. In M. P. Zanna (Ed.), *Advances in experimental social psychology*, (Vol. 29, pp. 61-139). San Diego, CA: Academic Press.

Griffin, M. A., & Clarke, S. (2011). Stress and well-being at work. In S. Zedeck (Ed.), APA handbook of industrial and organizational psychology: Maintaining, expanding, and

contracting the organization, (Vol. 3, pp. 359–397). Washington, DC: American Psychological Association.

Harrison, R.V., (1985). The person-environment fit model and the study of job stress. In T. A. Beehr & R. S. Bhagat (Eds.), *Human stress and cognition in organizations*, (pp. *23-55).* New York, NY: Wiley.

Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, *1*(1), 104-121.

Irving, P. G., Coleman, D. F., & Cooper, C. L. (1997). Further assessments of a three-component model of occupational commitment: Generalizability and differences across occupations. *Journal of Applied Psychology*, *82*(3), 444-452.

Ivancevich, J. M., & Matteson, M. T. (1983). *Stress Diagnostic Survey*. Houston, TX: Stress Research Systems.

Johnson, R. E., Taing, M. U., Chang, C. H., & Kawamoto, C. K. (2013). A Self-Regulation Approach to Person–Environment Fit. In A. L. Kristof-Brown & J. Billsberry (Eds.), *Organizational Fit: Key Issues and New Directions*, (pp. 74-98). Chichester [Sussex]: John Wiley.

Jöreskog, K. G., & Sörbom, D. (1982). Recent developments in structural equation modeling. *Journal of Marketing Research*, 19(4), 404-416.

Judge, T. A., & Cable, D. M. (1997). Applicant personality, organizational culture, and organization attraction. *Personnel Psychology*, *50*(2), 359-394.

Judge, T. A., Erez, A., & Bono, J. E. (1998). The power of being positive: The relation between positive self-concept and job performance. *Human Performance*, 11(2-3), 167-187.

Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A. (1964). Organizational stress: Studies in role conflict and ambiguity.Oxford, England: John Wiley.

Katzell, R. A., & Austin, J. T. (1992). From then to now: The development of industrial-organizational psychology in the United States. *Journal of Applied Psychology*, 77(6), 803-835.

Kristof-Brown, A. L., & Billsberry, J. (2013). Fit for the future. *Organizational fit: Key issues and new directions*, 1-18. West Sussex, UK: John Wiley & Sons.

Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology, 49(1), 1-49.*

Kristof-Brown, A., & Guay, R. P. (2011). Person-environment fit. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology: Maintaining, expanding, and contracting the organization*, (Vol. 3, pp. 3–50). Washington, DC: American Psychological Association.

Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of individual's fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. *Personnel Psychology*, *58*, 281-342.

Kelley, H. H. (1973). The processes of causal attribution. *American Psychologist*, *28*(2), 107.

Kline, R. B. (2011). *Principles and practices of structural equation modeling*. New York: The Gilford Press.

Kulik, C. T., Oldham, G. R., & Hackman, J. R. (1987). Work design as an approach to person-environment fit. *Journal of Vocational Behavior*, 31(3), 278-296.

Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, *108*(3), 480.

Laird, D. A. (1933). The influence of noise on production and fatigue, as related to pitch, sensation level, and steadiness of the noise. *Journal of Applied Psychology*, 17(3), 320-330.

Latham, G. P., & Pinder, C. C. (2005). Work motivation theory and research at the dawn of the twenty-first century. *Annual Review of Psychology*, 56, 485-516.

Lazarus, R.S. (1966). *Psychological stress and the coping process.* New York, NY, US: McGraw-Hill.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal and coping.* New York: Springer.

Lee, T. W., & Mitchell, T. R. (1994). An alternative approach: The unfolding model of voluntary employee turnover. *Academy of Management Review*, *19*(1), 51-89.

LePine, J. A., LePine, M. A., & Jackson, C. L. (2004). Challenge and hindrance stress: relationships with exhaustion, motivation to learn, and learning performance. *Journal of Applied Psychology*, *89*(5), 883-891.

LePine, J. A., Podsakoff, N. P., & LePine, M. A. (2005). A meta-analytic test of the challenge stressor–hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. *Academy of Management Journal*, *48*(5), 764-775.

Lewin, K A (1935). *A dynamic theory of personality* (K. E. Zener & D. K. Adams, Trans.). New York, NY: McGraw-Hill.

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting & task performance*. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Malach-Pines, A. (2005). The burnout measure, short version. *International Journal of Stress Management*, *12*(1), 78-88.

Marco, C. A., & Suls, J. (1993). Daily stress and the trajectory of mood: Spillover, response assimilation, contrast, and chronic negative affectivity. *Journal of Personality and Social Psychology, 64*(6), 1053-1063.

Marjanovic, Z., Struthers, C. W., Cribbie, R., & Greenglass, E. R. (2014). The Conscientious Responders Scale: A new tool for discriminating between conscientious and random responders. *Sage Open*, *4*(3), 2158244014545964.

Maxwell , David A. Cole & Melissa A. Mitchell (2011) Bias in Cross-Sectional Analyses of Longitudinal Mediation: Partial and Complete Mediation Under an Autoregressive Model, *Multivariate Behavioral Research*, *46*(5), 816-841.

Mayers, D., & Chapman. (2014, May). *Examining the Origins of Perceived Fit with Organizations.* Paper being presented at the 29th Annual Conference of the Society for Industrial and Organizational Psychology, Honolulu, HI.

Meehl, P. E. (1971). High school yearbooks: A reply to Schwarz. *Journal of Abnormal Psychology, 77*(2), 143-148.

Melamed, S., Kushnir, T., & Meir, E. I. (1991). Attenuating the impact of job demands: Additive and interactive effects of perceived control and social support. *Journal of Vocational Behavior*, *39*(1), 40-53.

Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organizations and occupations: Extension and test of a three-component conceptualization. *Journal of Applied Psychology*, *78*(4), 538-551.

McCrae, R. R. (1984). Situational determinants of coping responses: Loss, threat, and challenge. *Journal of Personality and Social Psychology*, *46*(4), 919-928.

Muthén, L. K., & Muthén, B. O. (2010). *Mplus: Statistical analysis with latent variables: User's guide*. Los Angeles, CA: Muthén & Muthén.

National Institute for Occupational Health and Safety (NIOSH). (1999). Stress . . . at work. (DHHS Publication No. 99-101). Cincinnati, OH: Author.

Neff, A., Niessen, C., Sonnentag, S., & Unger, D. (2013). Expanding crossover research: The crossover of job-related self-efficacy within couples. *Human Relations, 66*(6), 803-827.

Oreg, S., Vakola, M., & Armenakis, A. (2011). Change recipients' reactions to organizational change A 60-year review of quantitative studies. *The Journal of Applied Behavioral Science, 47*(4), 461-524.

Piasentin, K. A., & Chapman, D. S. (2007). Perceived similarity and complementarity as predictors of subjective person-organization fit. *Journal of Occupational and Organizational Psychology, 80*(2), 341-354.

Pines, A., & Aronson, E. (1988). *Career burnout: Causes and cures*. New York, NY, US: Free Press.

Podsakoff, N. P., LePine, J. A., & LePine, M. A. (2007). Differential challenge stressor-hindrance stressor relationships with job attitudes, turnover intentions, turnover, and withdrawal behavior: a meta-analysis. *Journal of Applied Psychology, 92*(2), 438-454.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of applied psychology, 88*(5), 879-903.

Rich, B. L., LePine, J. A., & Crawford, E. R. (2010). Job engagement: Antecedents and effects on job performance. *Academy of Management Journal, 53*(3), 617-635.

Rodell, J. B., & Judge, T. A. (2009). Can "good" stressors spark "bad" behaviors? The mediating role of emotions in links of challenge and hindrance stressors with citizenship and counterproductive behaviors. *Journal of Applied Psychology, 94*(6), 1438-1451.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton, NJ: Princeton University Press.

Rosenberg, M. (1979). *Conceiving the self.* New York, NY: Basic Books.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80* (Whole No. 609).

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.

Talbot, D. L., & Billsberry, J. (2010, January). Comparing and contrasting person-environment fit and misfit. In *Exploring Organisational Fit and Misfit: Proceedings of the 4th Global e-Conference on Fit* (pp. 1-6). [Open University].

Tett, R. P., & Meyer, J. P. (1993). Job satisfaction, organizational commitment, turnover intention, and turnover: path analyses based on meta-analytic findings. *Personnel psychology*, *46*(2), 259-293.

Sandman, B. A. (1992). The measurement of job stress: Development of the Job Stress Index. In C. J. Cranny, P. C. Smith, & E. F. Stone (Eds.), *Job satisfaction: How people feel about their jobs and how it affects their performance* (pp. 241-254). New York: Lexington Books.

Sarason, I. G., & Johnson, J. H. (1979). Life stress, organizational stress, and job satisfaction. *Psychological Reports, 44*(1), 75-79.

Scheck, C. L., Kinicki, A. J., & Davy, J. A. (1997). Testing the mediating processes between work stressors and subjective well-being. Journal of Vocational Behavior, *50*(1), 96-123.

Schaufeli, W. B., & Taris, T. W. (2014). A critical review of the Job Demands-Resources Model: Implications for improving work and health. In G. Bauer & O. Hämmig (Eds.), Bridging occupational, organizational and public health (pp. 43–68). Dordrecht, the Netherlands: Springer.

Seligman, M. E., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*(1), 5-14).

Selye, H. (1956). *The stress of life*. New York, NY: McGraw-Hill.

Schaubroeck, J., Cotton, J. L., & Jennings, K. R. (1989). Antecedents and consequences of role stress: A covariance structure analysis. *Journal of Organizational Behavior*, *10*(1), 35-58.

Schurpe, E. I., & McGrath, J. E. (2000). Stress and the sojourner. In C. L. Cooper (Ed.), *Theories of stress* (pp. 86-100). Oxford: Oxford University Press.

Shadish, W. R., Cook, T. D. and Campbell, D. T. (2002). Experimental and Quasi-Experimental Designs for Generalized Causal Inference. Boston, MA: Houghton Mifflin.

Shaw, J. B., & Riskind, J. H. (1983). Predicting job stress using data from the Position Analysis Questionnaire. *Journal of Applied Psychology*, *68*(2), 253-261.

Schmitt, N., & Chan, D. (2014). Adapting to Rapid Changes at Work. In D. Chan (Ed.), *Individual adaptability to changes at work: New directions in research*, (pp. 3-17). New York, NY; Hove, East Sussex: Routledge.

Spector, P. E., & Brannick, M. T. (2011). Methodological urban legends: The misuse of statistical control variables. *Organizational Research Methods*, *14*(2), 287-305.

Spector, P. E., Zapf, D., Chen, P. Y., & Frese, M. (2000). Why negative affectivity should not be controlled in job stress research: Don't throw out the baby with the bath water. *Journal of Organizational Behavior*, *21*(1), 79-95.

Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin*, *124*(2), 240-261.

Steel, P., & Weinhardt, J. (2017). The building blocks of motivation. In D. Ones, N. Anderson, C. Viswesvaran, & H. Sinangil (Eds.), Handbook of industrial, work and organizational (IWO) psychology (2nd ed.)(pp. 27-54). Thousand Oaks, CA: SAGE.

Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. *Advances in experimental Social Psychology*, *21*(2), 261-302.

Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioral Research*, *25*(2), 173-180.

Sulsky, L., & Smith, C. S. (2005). *Work stress.* Belmont, CA: Wadsworth Publishing Company.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics.* Boston, MA: Person.

Talbot, D. L., & Billsberry, J. (2010, January). Comparing and contrasting person-environment fit and misfit. In *Exploring organizational fit and misfit: Proceedings of the 4th global e-conference on fit* (pp. 1-6). [Open University].

Vakola, M., Armenakis, A., & Oreg, S. (2013). Reactions to organizational change from an individual differences perspective: A review of empirical research. In S. Oreg, A. Michel, & R. Todnem (Eds.), *The Psychology of Organizational Change: Viewing Change from the Employee's Perspective* (pp. 95-122). New York, NY: Cambridge University Press.

Wainwright, D., & Calnan, M. (2002). *Work stress: The making of a modern epidemic*. UK: McGraw-Hill Education.

Wang, M. O., Zhan, Y., McCune, E., & Truxillo, D. (2011). Understanding Newcommers' Adaptability and Work Related Outcomes: Testing the Mediating Roles of Perceived P-E fit Variables. *Personnel Psychology*, *64*(1), 163-189.

Wanberg, C. R., & Kammeyer-Mueller, J. D. (2000). Predictors and outcomes of proactivity in the socialization process. *Journal of Applied Psychology*, *85*(3), 373-385.

Wheaton, B., Muthen, B., Alwin, D. F., & Summers, G. F. (1977). Assessing reliability and stability in panel models. In D. R. Heise, (Ed.), *Sociological methodology*, (pp. 84-136). San Francisco, CA: Jossey-Bass.

Webster, J. R., Beehr, T. A., & Christiansen, N. D. (2010). Toward a better understanding of the effects of hindrance and challenge stressors on work behavior. *Journal of Vocational Behavior*, *76*(1), 68-77.

Wolff, H. G. (1953). *Stress and disease.* Springfield, IL: Thomas.

Wood, R., & Bandura, A. (1989). Social cognitive theory of organizational management. *Academy of Management Review*, *14*(3), 361-384.

Xie, J. L., & Johns, G. (1995). Job scope and stress: Can job scope be too high?. *Academy of Management Journal*, *38*(5), 1288-1309.

Yang, L. Q., Levine, E. L., Smith, M. A., Ispas, D., & Rossi, M. E. (2008). Person–environment fit or person plus environment: A meta-analysis of studies using polynomial regression analysis. *Human Resource Management Review*, *18*(4), 311-321.

Yu, K. Y. T. (2014). Person–organization fit effects on organizational attraction: A test of an expectations-based model. *Organizational Behavior and Human Decision Processes*, *124*(1), 75-94.

Yu, K. Y. T. (2016). Inter-Relationships among different types of Person–Environment fit and job satisfaction. *Applied Psychology*, *65*(1), 38-65.

Yu, T., & Yang, K. (2013). A motivational model of person–environment fit: Psychological motives as drivers of change. In In A. L. Kristof-Brown & J. Billsberry (Eds.), *Organizational Fit: Key Issues and New Directions*, (pp. 19-49). Chichester [Sussex]: John Wiley.

Zapf, D., Dormann, C., & Frese, M. (1996). Longitudinal studies in organizational stress research: a review of the literature with reference to methodological issues. *Journal of Occupational Health Psychology*, *1*(2), 145-269.

Appendix One

Figure 17. Sample flyer for the proposed sampling strategy.

Appendix Two

Workplace Stressors

Stem: At this point in the survey, you will be provided with a series of work related items. For each one, decide how much stress does each work related item causes you. Then indicate your response using the following scale

1 = *Produces no stress*

7 = *Produces a great deal of stress*

Challenge Stressors

1. The number of projects and/or assignments I have
2. The amount of time I spend at work.
3. The volume of work that much be accomplished in the allotted time.
4. Time pressure I experience.
5. The amount of responsibility I have.
6. The scope of responsibility my position entails.

Hindrance Stressors

1. The degree to which politics rather than performance affects organizational decisions.
2. The inability to clearly understand what is expected of me on the job.
3. The amount or red tape I need to go through to get my job done.
4. The lack of job security I have.
5. The degree to which my career seems "stalled".

Strain

Stem: In this part of the survey you are asked to indicate how frequently you experience variety of stress-related occurrences. Please read each one and decide how frequently you experience each one using the following. Then indicate your response using the following rating scale:

(1) = *never*
(2) = *once in a great while,*

(3) = *rarely*,
(4) = *sometimes*,
(5) = *often*,
(6) = *usually*, and
(7) = *always.*

Please provide a response for each one, even if you are not completely sure of your response

Items

1. Being tired
2. Feeling depressed
3. Having a good day (R)
4. Being physically exhausted
5. Being emotionally exhausted
6. Being happy (R)
7. Being "wiped out"
8. "Can't take it anymore"
9. Being unhappy
10. Feeling run-down
11. Feeling trapped
12. Feeling worthless
13. Being weary
14. Being troubled
15. Feeling disillusioned and resentful
16. Being weak and susceptible to illness
17. Feeling hopeless
18. Feeling rejected
19. Feeling optimistic (R)
20. Feeling energetic (R)
21. Feeling anxious

Person-Environment Fit, Job-Self Efficacy, Self-Esteem, and Employee Outcomes

Stem: On the following pages, you will find a series of statements about you. Please read each statement and decide how much you agree or disagree with that statement. Then indicate your response using the following scale:

5 = strongly agree

4 = agree

3 = neutral (neither agree nor disagree)

2 = disagree

1 = strongly disagree

Please answer every statement, even if you are not completely sure of your response.

Need-Supply Fit

1. There is a good fit between what my job offers me and what I am looking for in a job.
2. The attributes that I look for in a job are fulfilled very well by my present job.
3. The job that I currently hold gives me just about everything that I want from a job.

New Job Self-Efficacy

1. I will be able to achieve most of the goals that I have set for myself at work.

2. When facing difficult tasks at work, I am certain that I will accomplish them.

3. In terms of my job, I think that I can obtain outcomes that are important to me.

4. At work, I believe I can succeed at most any endeavour to which I set my mind.

5. I will be able to successfully overcome many challenges at work.

6. I am confident that I can perform effectively on many different work tasks.

7. Compared to other people, I can do most work tasks very well.

8. Even when things are tough, I can perform quite well at my job.

Self-Esteem

1. On the whole, I am satisfied with myself.
2. At times I think I am no good at all. (R)
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. I feel 1do not have much to be proud of. (R)
6. I certainly feel useless at times. (R)
7. I feel that I'm a person of worth.
8. I wish I could have more respect for myself. (R)
9. All in all, I am inclined to think that I am a failure. (R)
10. I take a positive attitude toward myself.

Job Satisfaction

1. All in all, I am satisfied with my job
2. In general, I don't like my job (R)
3. In general, I like working here

Organizational commitment

Items denoted with (R) are reversed scored.

affective commitment items:

1. I would be very happy to spend the rest of my career with this organization
2. I really feel as if this organization's problems are my own
3. I do not feel like "part of the family" at my organization (R)
4. I do not feel "emotionally attached" to this organization (R)
5. This organization has a great deal of personal meaning for me
6. I do not feel a strong sense of belonging to my organization. (R)

normative commitment items:

1. I do not feel any obligation to remain with my current employer (R)
2. Even if it were to my advantage, I do not feel it would be right to leave my organization now
3. I would feel guilty if I left my organization now
4. This organization deserves my loyalty
5. I would not leave my organization right now because I have a sense of obligation to the people in it
6. I owe a great deal to this organization

Turnover Intentions

1. I intend to stay in this job for the foreseeable future (R)
2. I will probably look for a new job within the next year
3. I do not intend to pursue alternate employment in the foreseeable future

Job Level

Education Required

Stem: How much prior training was required for your current position?

1) Little to no prior training preparation needed
2) Some prior training preparation needed
3) Medium amount of prior training and preparation needed
4) Considerable prior training preparation Needed
5) Extensive prior training preparation Needed

Experience Required

Stem: How much prior experience do you need to get your current position?

1) Little to no experience required
2) Some experience required
3) Medium amount of experience required
4) Considerable experience required
5) Extensive experience required

On-the-job Training

Stem: How much on-the-job training is or was there for your current position

1) Little to no on-the job training
2) Some on-the job training
3) Medium amount of on-the job training
4) Considerable on-the job training
5) Extensive on-the job training

Quality control Items

1. Please select “agree” in order to indicate that you are carefully completing each question.
2. Please select “strongly agree” in order to indicate that you are carefully completing each question
3. In order to indicate that you are paying close attention to each item, please select “strongly disagree”.

Appendix Three

Reasons for quitting

Below is qualitative data regarding the reasons for voluntary turnover in the present study.

- Bullied into quitting
- Got more relevant opportunity in a field of my future career
- Layoffs/restructuring
- New job
- Not sufficiently challenged by role and leader not supportive of growth.
- Laid off - asset was sold
- Better opportunity and more pay
- I needed a break from the customer service
- Wanted more long-term opportunities and career growth
- Unfair treatment, disrespect
- Starting own co.
- Terrible Culture and Pay
- Better opportunity came along
- Looking for more positive environment
- I was laid off at the time of the first survey
- More money and more interesting job
- Layoffs
- Higher compensation, more senior position, more flexible work environment
- Layoff

- needed a change
- More opportunities, better work environment, more aligned with what I went to school for, better pay elsewhere

Appendix Four

Sample Syntax: Proposed structural model for job satisfaction.
TITLE: Proposed Structural Model for Job Satisfaction.
DATA: FILE IS May14.dat; !DATA: File is "C:/directory/subdirectory/datafile.dat
VARIABLE: NAMES ARE Mood1 Industry1 GENDER AGE
HRSWK1 OTen1 PTen1 JLV1_1 JLV1_2 JLV1_3 CS1_1 HS1_1 HS1_2
HS1_3 HS1_4 CS1_2 CS1_3 CS1_4 HS1_5 CS1_5 CS1_6
JSE1_1 SE1_1_R AC1_1 SE1_2 NC1_1 JSE1_2 SE1_3 CC1_1
JSE1_3 POF1_1 RR1_1 SE1_4 SE1_5 DAF1_1 SE1_6_R
AC1_2_R NC1_2 NC1_3_R CC1_2 SE1_7_R SE1_8 CC1_3
CC1_4 NC1_4 TI1_1_R JSE1_4 POF1_2 NSF1_1 JSE1_5
DAF1_2 NC1_5 TI1_2_R JS1_1_R JS1_2 CC1_5 JSE1_6
DAF1_3 NSF1_2 TI1_3 AC1_3 POF1_3 JS1_3 RR1_2
NC1_6 NSF1_3 AC1_4_R CC1_6 AC1_5_R SE1_9_R JSE1_7
JSE1_8 AC1_6 SE1_10_R RR1_3 ST1_1_R ST1_2 ST1_3
ST1_4 ST1_5_R ST1_6 ST1_7_R ST1_8 ST1_9 ST1_10_R
ST1_11 ST1_12 ST1_13 ST1_14 ST1_15 ST1_16 ST1_17
ST1_18 ST1_19 ST1_20 ST1_21 Turnover2 PCHNG2 PTen2
VTurnover EMPLOYED2 NOTen2 NOPten2 NHRSWK2 Industry2
JLVL2_1 JLVL2_2 JLVL2_3 Mood2 CS2_1 HS2_1
HS2_2 HS2_3 HS2_4 CS2_2 CS2_3 CS2_4 HS2_5 CS2_5
CS2_6 JSE2_1 SE2_1_R AC2_1 SE2_2 NC2_1 JSE2_2 SE2_3
CC2_1 JSE2_3 POF2_1 RR2_1 SE2_4 SE2_5 DAF2_1 SE2_6_R
AC2_2_R NC2_2 NC2_3_R CC2_2 SE2_7_R SE2_8
CC2_3 CC2_4 NC2_4 TI2_1_R JSE2_4 POF2_2 NSF2_1 JSE2_5
DAF2_2 NC2_5 TI2_2_R JS2_1_R JS2_2 CC2_5
JSE2_6 DAF2_3 NSF2_2 TI2_3 AC2_3 POF2_3 JS2_3 RR2_2
NC2_6 NSF2_3 AC2_4_R CC2_6 AC2_5_R SE2_9_R
JSE2_7 JSE2_8 AC2_6 SE2_10_R RR2_3 ST2_1_R ST2_2
ST2_3 ST2_4 ST2_5_R ST2_6 ST2_7_R ST2_8 ST2_9
ST2_10_R ST2_11 ST2_12 ST2_13 ST2_14 ST2_15 ST2_16
ST2_17 ST2_18 ST2_19 ST2_20 ST2_21 MRG2 MRGP2
MRGT2 MRGTS2 Turnover3 PCHNG3 NPten3 Vturnover3
EMPLOYED3 NOTen3 NOPTen3 HRSWK3 Industry3 JLVL3_1
JLVL3_2 JLVL3_3 Mood3 CS3_1 HS3_1 HS3_2 HS3_3 HS3_4
CS3_2 CS3_3 CS3_4 HS3_5 CS3_5 CS3_6 JSE3_1
SE3_1_R AC3_1 SE3_2 NC3_1 JSE3_2 SE3_3 CC3_1 JSE3_3
POF3_1 RR3_1 SE3_4 SE3_5 DAF3_1 SE3_6_R AC3_2_R
NC3_2 NC3_3_R CC3_2 SE3_7_R SE3_8 CC3_3 CC3_4 NC3_4
TI3_1_R JSE3_4 POF3_2 NSF3_1 JSE3_5 DAF3_2
NC3_5 TI3_2_R JS3_1_R JS3_2 CC3_5 JSE3_6 DAF3_3
NSF3_2 TI3_3 AC3_3 POF3_3 JS3_3 RR3_2 NC3_6 NSF3_3
AC3_4_R CC3_6 AC3_5_R SE3_9_R JSE3_7 JSE3_8 AC3_6
SE3_10_R RR3_3 ST3_1_R ST3_2 ST3_3 ST3_4 ST3_5_R

```
   ST3_6 ST3_7_R ST3_8 ST3_9 ST3_10_R ST3_11 ST3_12
   ST3_13 ST3_14 ST3_15 ST3_16 ST3_17 ST3_18 ST3_19
   ST3_20 ST3_21 MRG3 MRGP3 MRGT3 MRGS3 SE1_1 SE1_6
   AC1_2 NC1_3 SE1_7 TI1_1 TI1_2 JS1_1 AC1_4 AC1_5
   SE1_9 SE1_10 SE2_1 SE2_6 AC2_2 NC2_3 SE2_7 TI2_1
   TI2_2 JS2_1 AC2_4 AC2_5 SE2_9 SE2_10 SE3_1 SE3_6
   AC3_2 NC3_3 SE3_7 TI3_1 TI3_2 JS3_1 AC3_4 AC3_5
   SE3_9 SE3_10 ST1_1 ST1_5 ST1_7 ST1_10 ST2_1 ST2_5
   ST2_7 ST2_10 ST3_1 ST3_5 ST3_7 ST3_10 jlvl1 jlvl2
    jlvl3 CS1 CS2 CS3 HS1 HS2 HS3 NSF1 NSF2 NSF3 POF1
   POF2 POF3 JSE1 JSE2 JSE3 SE1 SE2 SE3 AC1 AC2 AC3
   NC1 NC2 NC3 CC1 CC2 CC3 DAF1 DAF2 DAF3 TI1 TI2 TI3
   JS1 JS2 JS3 ST1 ST2 ST3 RR11 RR21 RR31 RR12 RR22
   RR32 RR13 RR23 RR33 RR1 RR2 RR3;

MISSING = ALL (-999);
USEVARIABLES =
!Control variables
    !OTen1 AGE GENDER jlvl1
!observed variables
CS1_1 CS1_2 CS1_3 CS1_4 CS1_5 CS1_6
HS1_1 HS1_2 HS1_3 HS1_4 HS1_5
CS2_1 CS2_2 CS2_3 CS2_4 CS2_5 CS2_6
HS2_1 HS2_2 HS2_3 HS2_4 HS2_5
CS3_1 CS3_2 CS3_3 CS3_4 CS3_5 CS3_6
HS3_1 HS3_2 HS3_3 HS3_4 HS3_5
NSF1_1 NSF1_2 NSF1_3
NSF2_1 NSF2_2 NSF2_3
NSF3_1 NSF3_2 NSF3_3
JS1_1 JS1_2 JS1_3
JS2_1 JS2_2 JS2_3
JS3_1 JS3_2 JS3_3
ST1 ST2 ST3;

MODEL:
!CFA
CS1 BY CS1_1 CS1_2 CS1_3 CS1_4 CS1_5 CS1_6;
HS1 BY HS1_1 HS1_2 HS1_3 HS1_4 HS1_5;

CS2 BY CS2_1 CS2_2 CS2_3 CS2_4 CS2_5 CS2_6;
HS2 BY HS2_1 HS2_2 HS2_3 HS2_4 HS2_5;

CS3 BY CS3_1 CS3_2 CS3_3 CS3_4 CS3_5 CS3_6;
HS3 By HS3_1 HS3_2 HS3_3 HS3_4 HS3_5;
```

```
NSF1 BY NSF1_1 NSF1_2 NSF1_3;
NSF2 BY NSF2_1 NSF2_2 NSF2_3;
NSF3 BY NSF3_1 NSF3_2 NSF3_3;

JS1 BY JS1_1 JS1_2 JS1_3;
JS2 BY JS2_1 JS2_2 JS2_3;
JS3 BY JS3_1 JS3_2 JS3_3;

!Single Item latent Variable
Strain1 BY ST1;
ST1@0.041;

Strain2 By St2;
ST2@0.0415;

STrain3 By ST3;
ST3@0.0385;

!Panel-design
  CS2 ON CS1;
  HS2 ON HS1;
  NSF2 ON NSF1;
  JS2 ON JS1;
  CS3 ON CS2;
  HS3 ON HS2;
  NSF3 ON NSF2;
  JS3 ON JS2;
  Strain2 ON Strain1;
  Strain3 ON Strain2;

  !No residual correlation for endogenous variables.

  CS3 WITH NSF3@0;
  CS3 WITH JS3@0;
  HS3 WITH NSF3@0;
  HS3 WITH JS3@0;
  NSF3 WITH JS3@0;
  CS3 WITH Strain3@0;
  HS3 WITH Strain3@0;
  NSF3 ON Strain3@0;
  JS3 ON Strain3@0;

  !Correlation between challenge and hindrance stress
  CS1 WITH HS1;
  CS2 WITH HS2;
```

```
CS3 WITH HS3;

!Residual covariance between items over time
  CS1_1 WITH CS2_1 CS3_1;
  CS1_2 WITH CS2_2 CS3_2;
  CS1_3 WITH CS2_3 CS3_3;
  CS1_4 WITH CS2_4 CS3_4;
  CS1_5 WITH CS2_5 CS3_5;
  CS1_6 WITH CS2_6 CS3_6;
  CS2_1 WITH CS3_1;
  CS2_2 WITH CS3_2;
  CS2_3 WITH CS3_3;
  CS2_4 WITH CS3_4;
  CS2_5 WITH CS3_5;
  CS2_6 WITH CS3_6;

  HS1_1 WITH HS2_1 HS3_1;
  HS1_2 WITH HS2_2 HS3_2;
  HS1_3 WITH HS2_3 HS3_3;
  HS1_4 WITH HS2_4 HS3_4;
  HS1_5 WITH HS2_5 HS3_5;
  HS2_1 WITH HS3_1;
  HS2_2 WITH HS3_2;
  HS2_3 WITH HS3_3;
  HS2_4 WITH HS3_4;
  HS2_5 WITH HS3_5;


  NSF1_1 WITH NSF2_1 NSF3_1;
  NSF1_2 WITH NSF2_2 NSF3_2;
  NSF1_3 WITH NSF2_3 NSF3_3;
  NSF2_1 WITH NSF3_1;
  NSF2_2 WITH NSF3_2;
  NSF2_3 WITH NSF3_3;

  JS1_1 WITH JS2_1 JS3_1;
  JS1_2 WITH JS2_2 JS3_2;
  JS1_3 WITH JS2_3 JS3_3;
  JS2_1 WITH JS3_1;
  JS2_2 WITH JS3_2;
  JS3_3 WITH JS3_3;

!proposed model

NSF2 ON HS1 CS1 Strain2;
```

NSF3 ON HS2 CS2 Strain3;
JS3 ON NSF2 CS1 HS1;
JS2 ON NSF1;
Strain2 ON CS1 HS1;
Strain3 ON CS2 HS2;

MODEL INDIRECT:
JS3 IND CS1;
JS3 IND HS1;

OUTPUT: SAMPSTAT STAND CINTERVAL;

Appendix Five

Table 5. Model Fit Statistics with Affective Commitment.

Model	- 2 Log likelihood	AIC	BIC	X^2, df, *p*	RMSEA	CFI	TLI	SRMR
M1	-30175.24	60886.48	62048.75	3339.53 (1811), .000	0.039, (.037 , .041), 1	0.889	0.88	0.089
M2	-30160.07	60880.14	62094.45	3309.19 (1799), .000	0.042, (.036, .041), 1	0.89	0.88	0.089
M3	-30158.84	60881.69	62104.67	3306.74, (1797), .000	0.039, (.036, .041), 1	0.89	0.88	0.089
M4	-30161.82	60887.63	62110.62	3312.68, (1797), .000	0.039, (.037-.041), 1	0.89	0.88	0.085
M5	-30161.68	60889.36	62116.68	3312.41, (1796), .000	0.039, (.037, .041), 1	0.889	0.88	0.089
M6	-30144.39	60848.78	62063.09	3277.83, (1799), .000	0.038, (.036-.040), 1	0.892	0.88	0.084
M7	-30143.61	60851.22	62074.21	3276.27, (1797), .000	0.038, (.036, .040), 1	0.892	0.883	0.084
M8	-30152.16	60868.32	62091.31	3293.37, (1797), .000	0.038, (.036-.040), 1	0.891	0.881	0.083
M9	-30151.85	60871.70	62103.35	3292.74, (1795), .000	0.038, (.036, .040), 1	0.891	0.881	0.083

Note. M1 (Measurement stability model); M2 (Proposed structural model); M3 (M2 with direct effects); M4 (Reverse structural model); M5 (M4 with direct effects); M6 (Synchronous effect model); M7 (M6 with direct effects); M8 (Reverse synchronous model); M9 (M8 with direct effects).

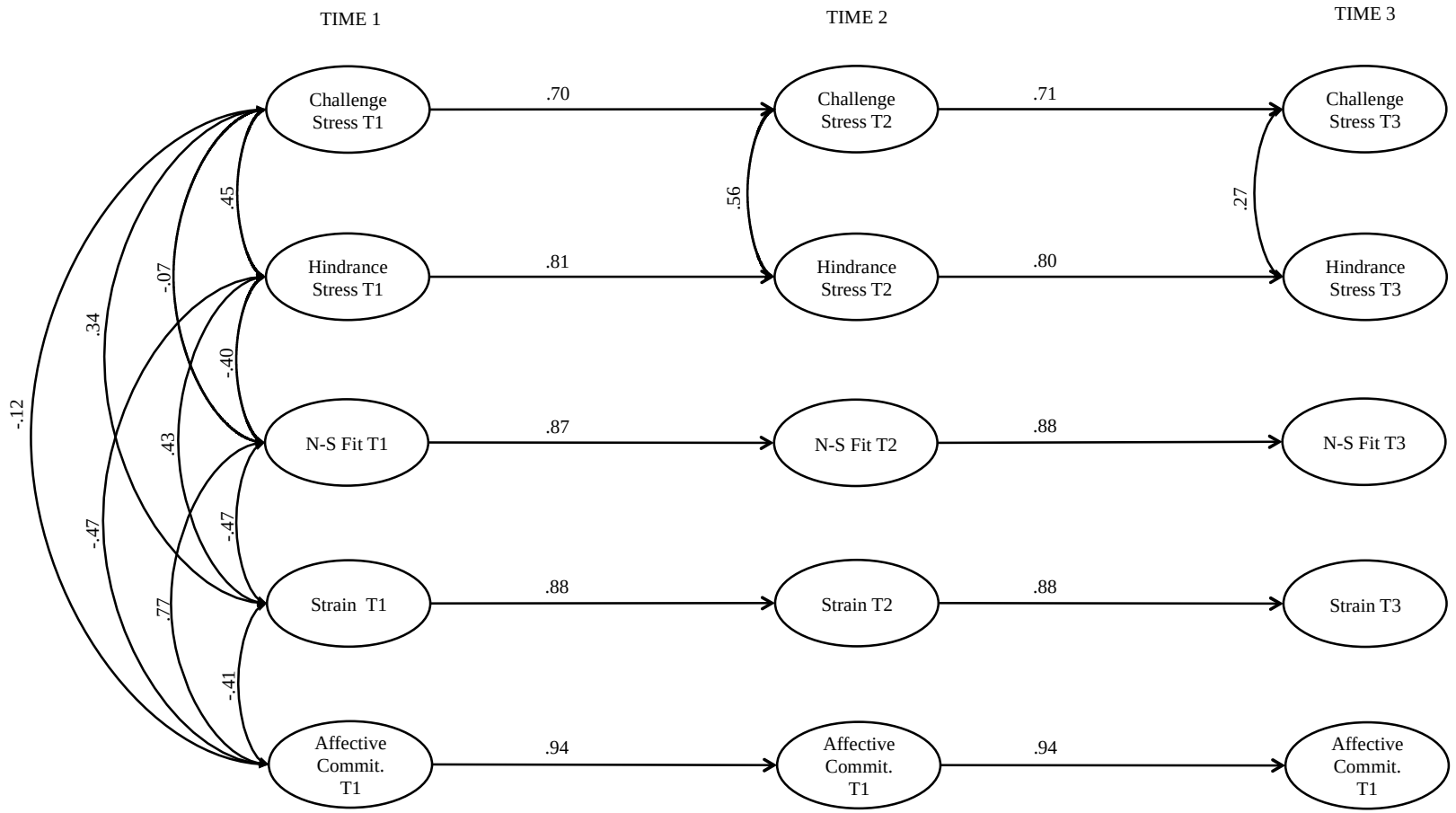

Figure 18. M1: Measurement stability model for affective commitment.

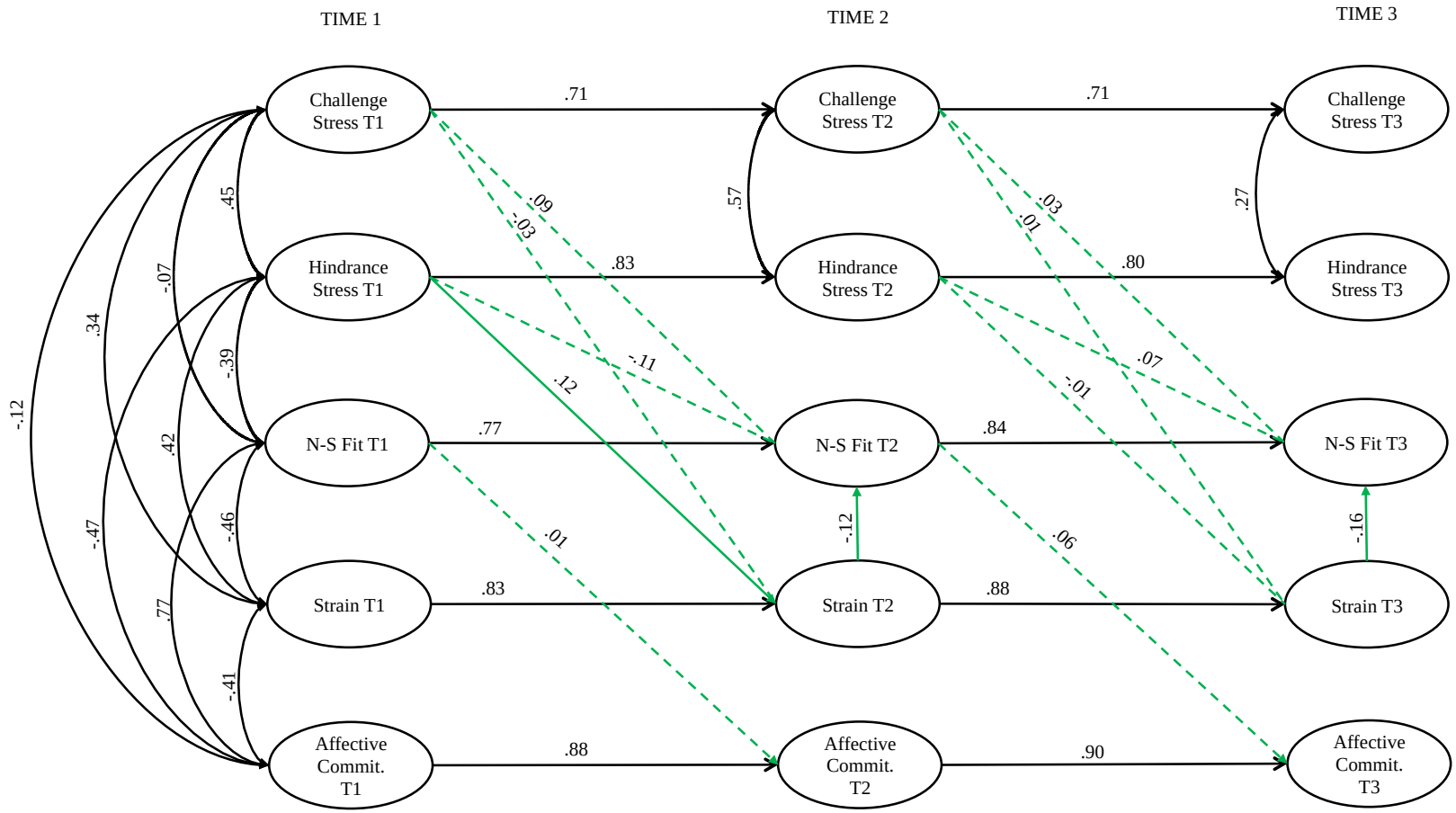

Figure 19. M2: Proposed structural model for affective commitment

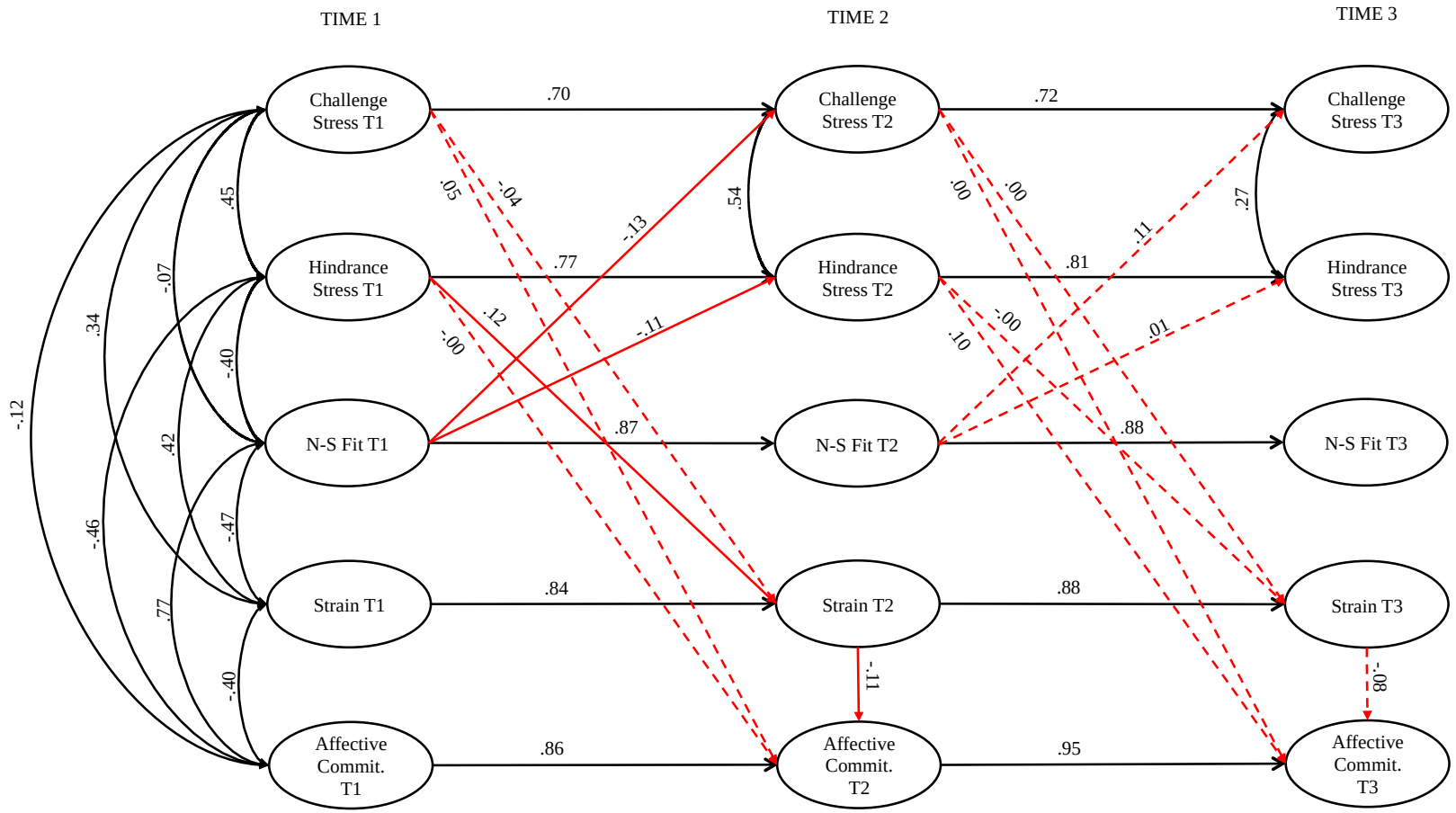

Figure 20. M4: Reverse structural model for affective commitment.

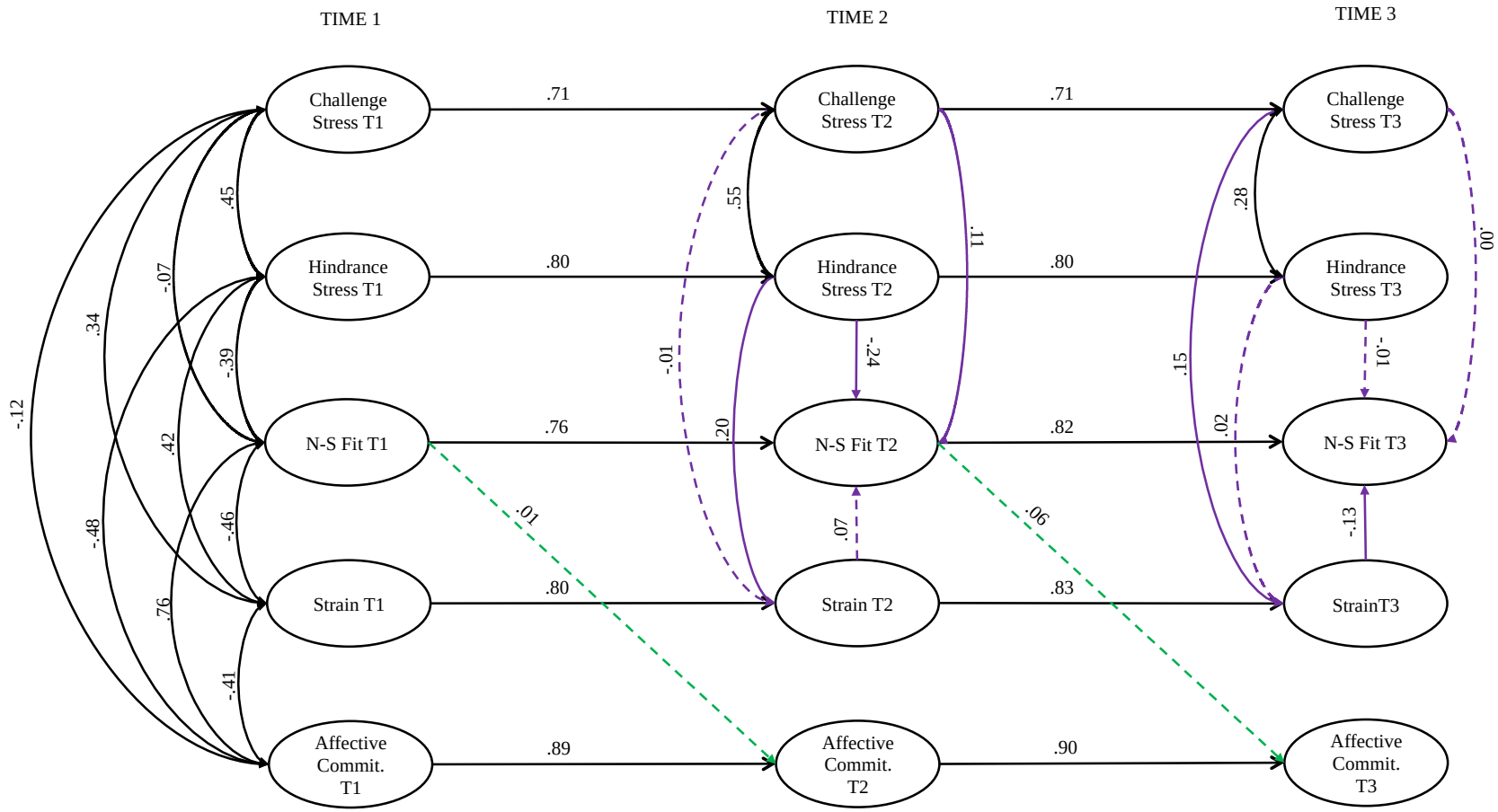

Figure 21. M6: Proposed synchronous effects model for affective commitment.

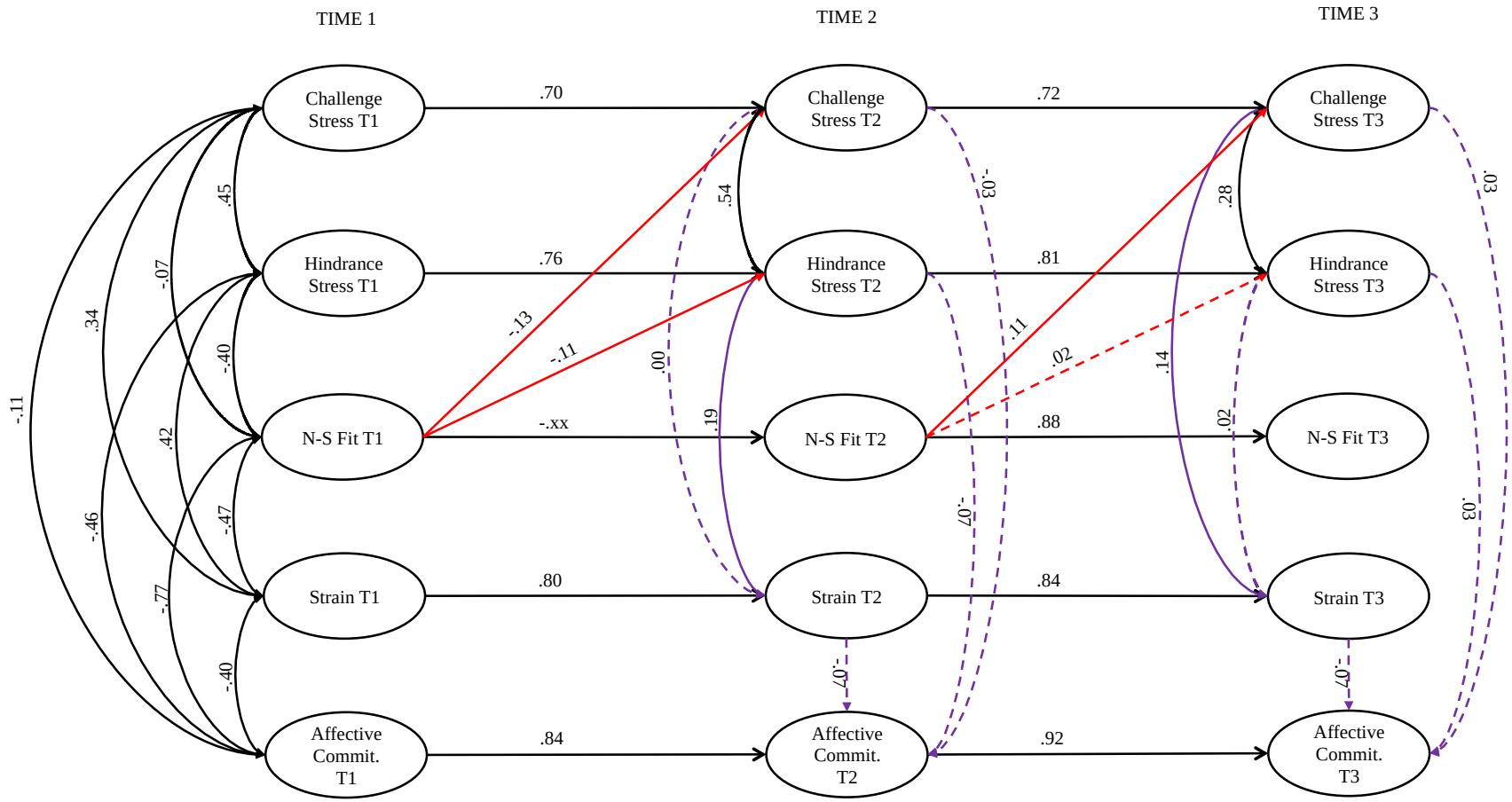

Figure 22. M8: Reverse synchronous effects model for affective commitment.

Table 6. Post Hoc Model Statistics for Affective Commitment.

Model	- 2 Log likelihood	AIC	BIC	X^2, df, *p*	RMSEA	CFI	TLI	SRMR
P1	-13619.97	27365.94	27639.16	708.79, (189), .000	.070, (.064, .075), .000	.862	.847	.182
P2	-13515.60	27169.20	27468.45	500.06, (183), .000	.055, (.05, .061), .063	.916	.903	.072
P3	-13515.06	27172.13	27480.04	498.98, (181), .000	.056, (.050, .062), .051	.916	.902	.072
P4	-8509.25	17158.50	17462.08	435.75, (182), .000	.05, (.044, .056), .526	.91	.896	.101
P5	-8508.65	17159.31	17467.22	434.56, (181), .000	.05, (.044, .056), .513	.91	.896	.099
P6	-8492.42	17128.83	17441.08	402.08, (180), .000	.047, (.041, .053), .805	.921	.908	.07

Note. P1 (Post hoc measurement model); P2 (Proposed structural model); P3 (P2 with direct effects); P4 (Reverse causal model); P5 (P4 with direct effects); P6 (P5 with additional direct effect of N-S fit on affective commitment).

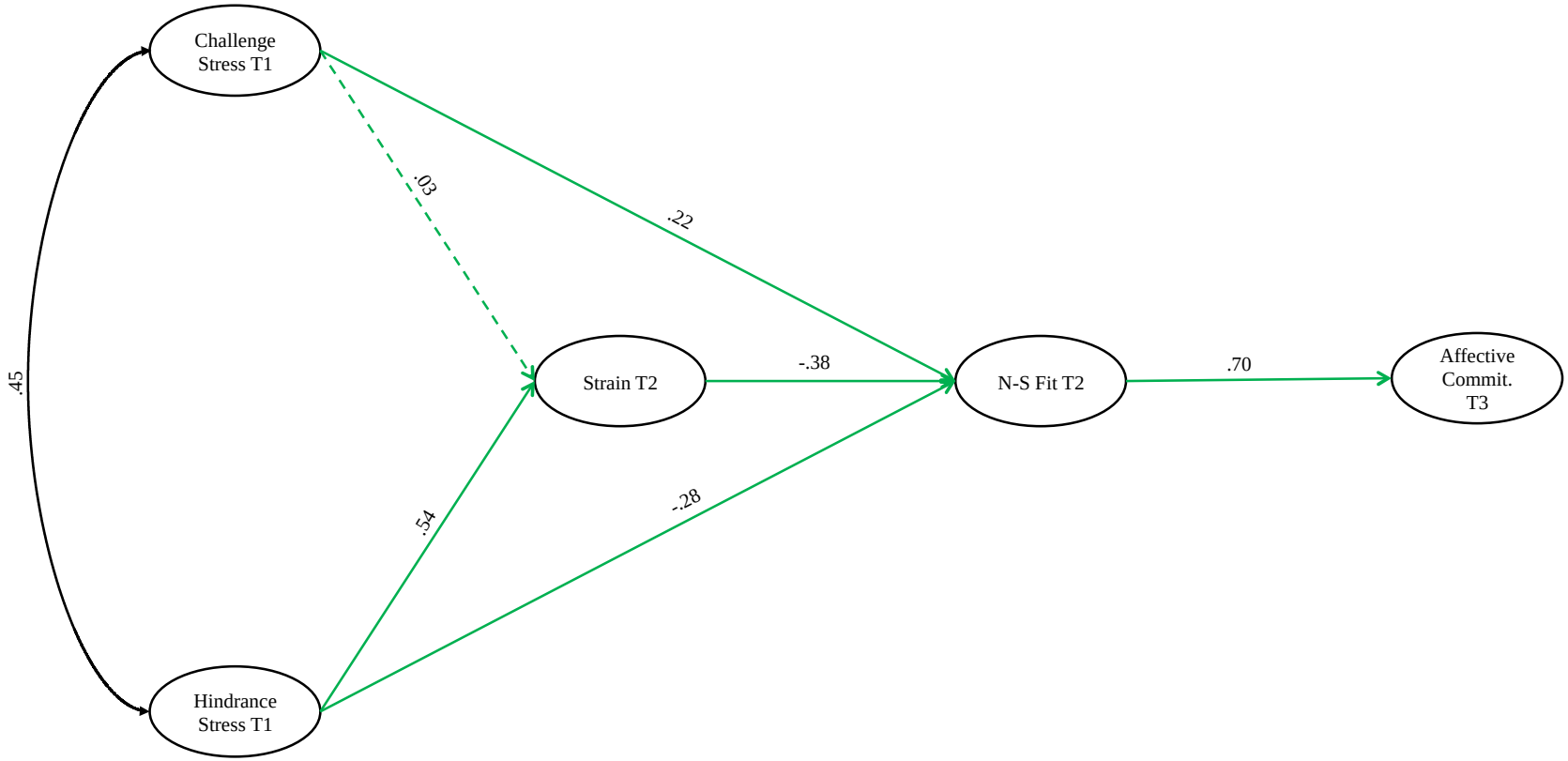

Figure 23. P2: Proposed post hoc model for affective commitment.

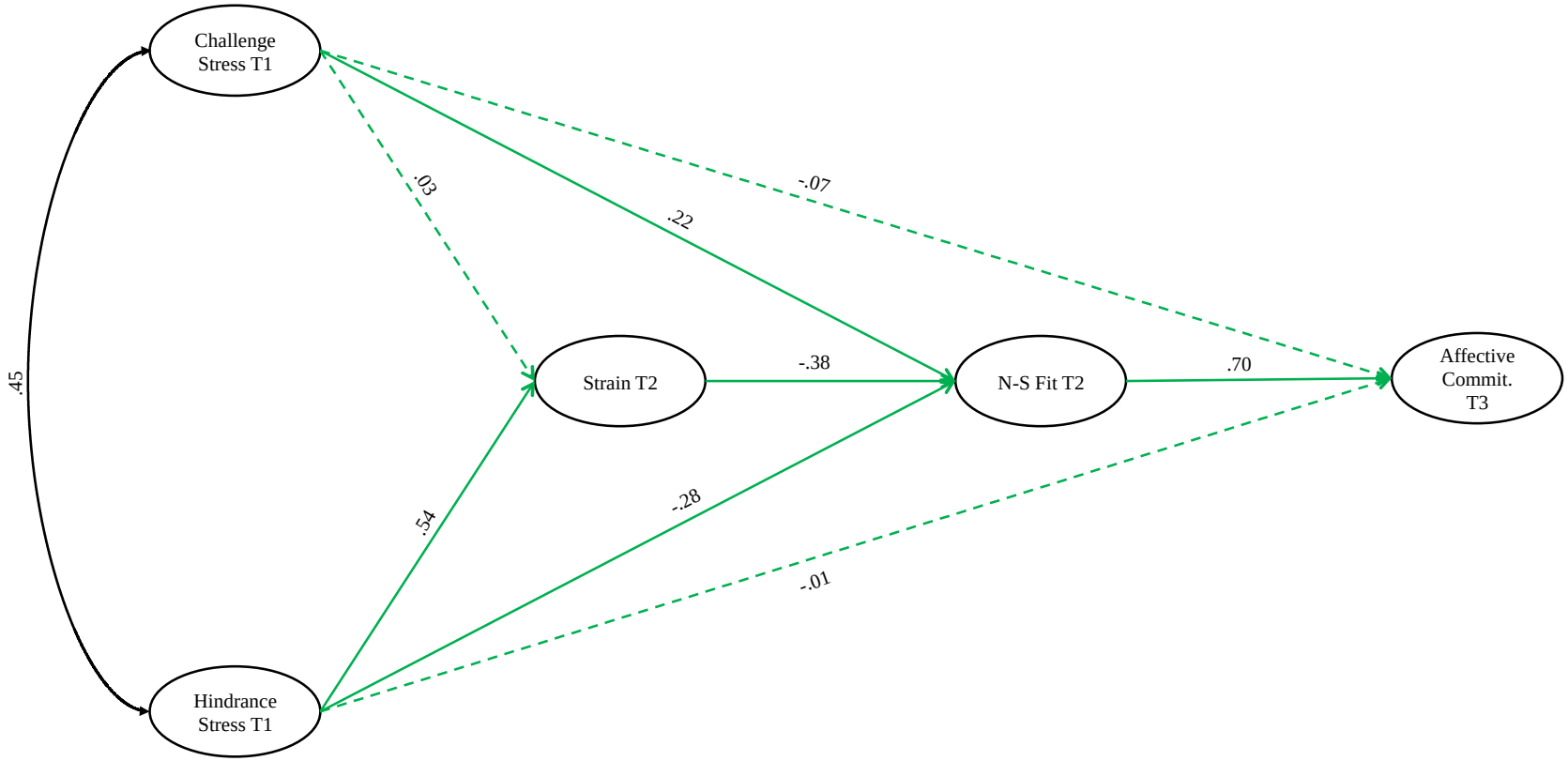

Figure 24. P2: Proposed post hoc model for affective commitment with direct effects.

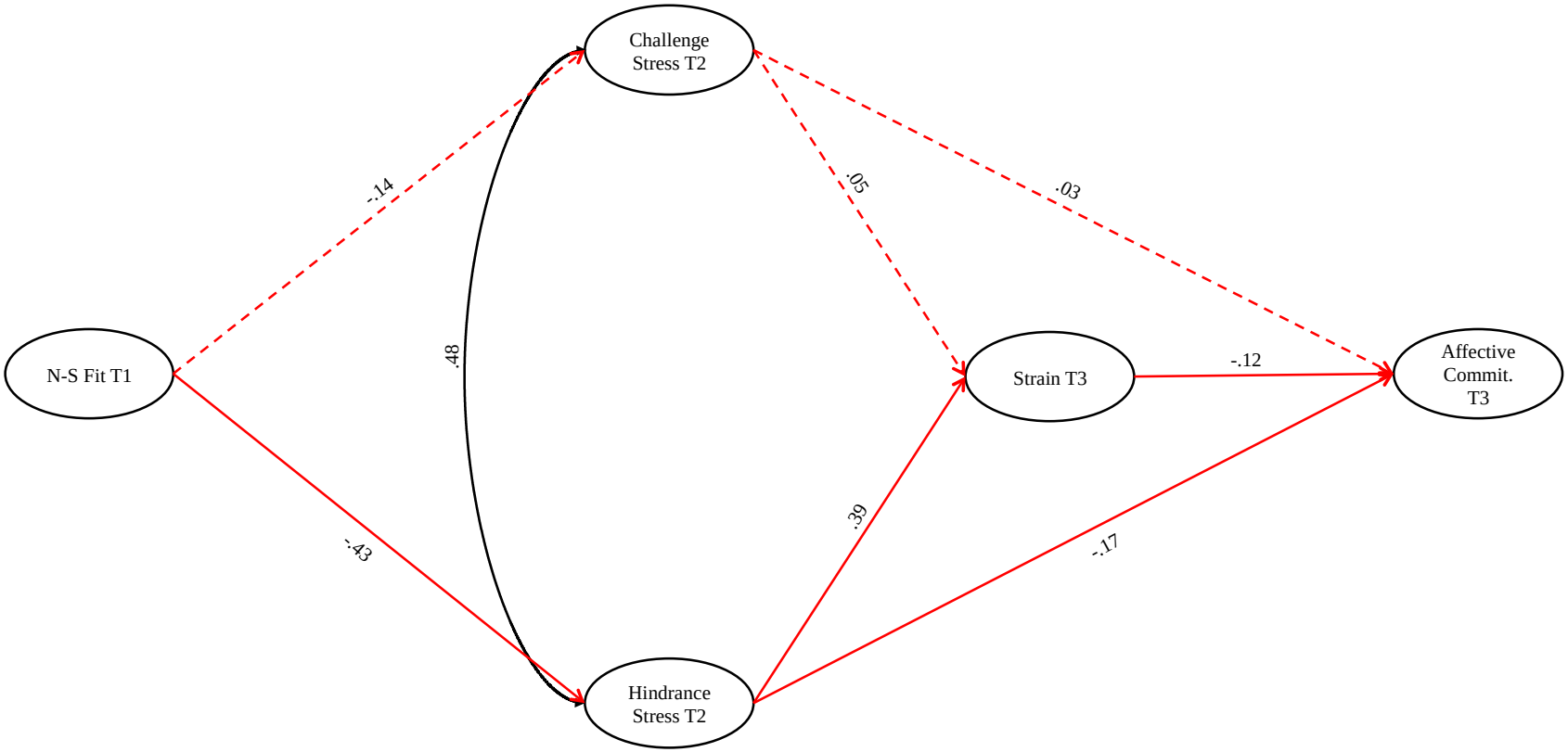

Figure 25. P4: Reverse post hoc model for affective commitment.

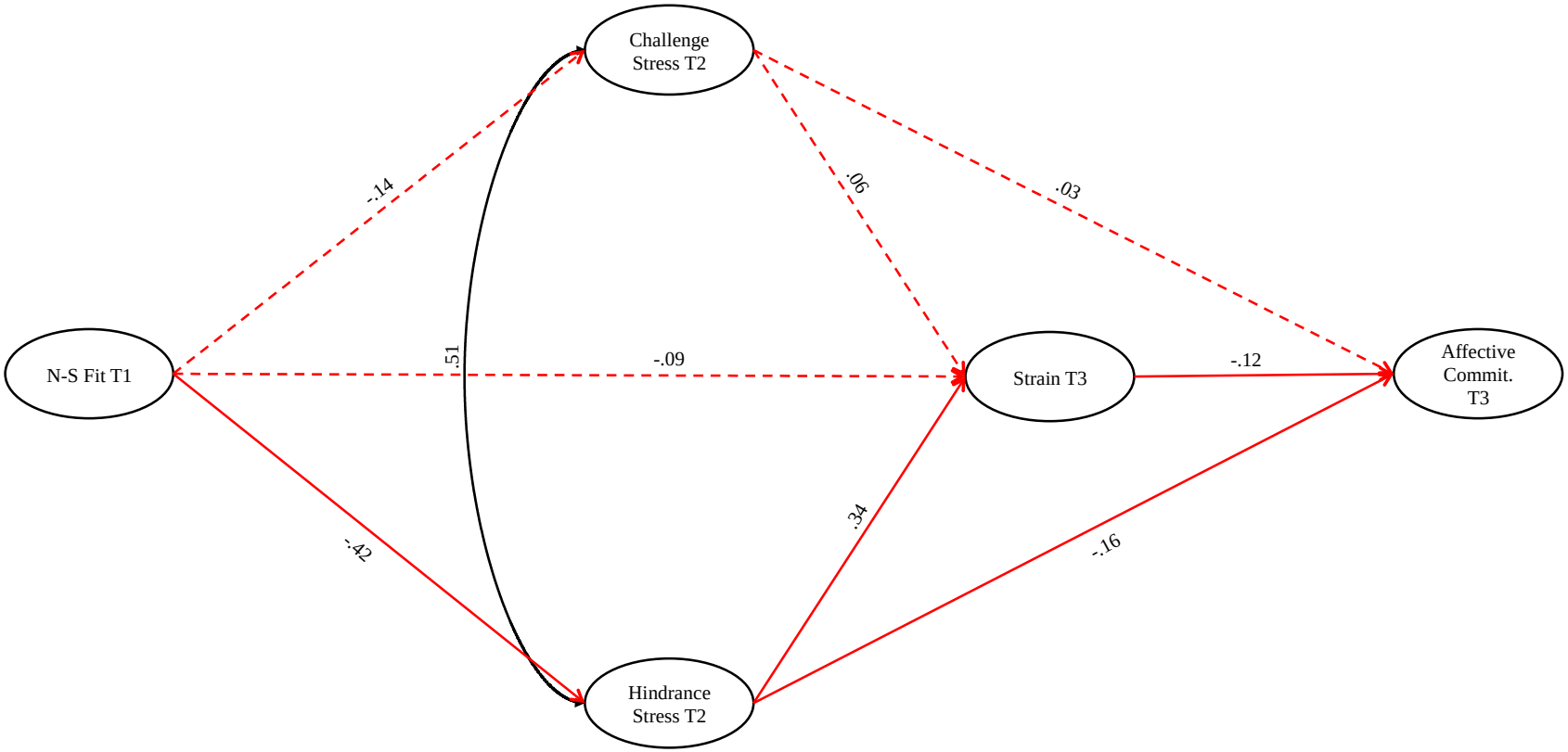

Figure 26. P5: Reverse post hoc model for affective commitment with direct effect to strain.

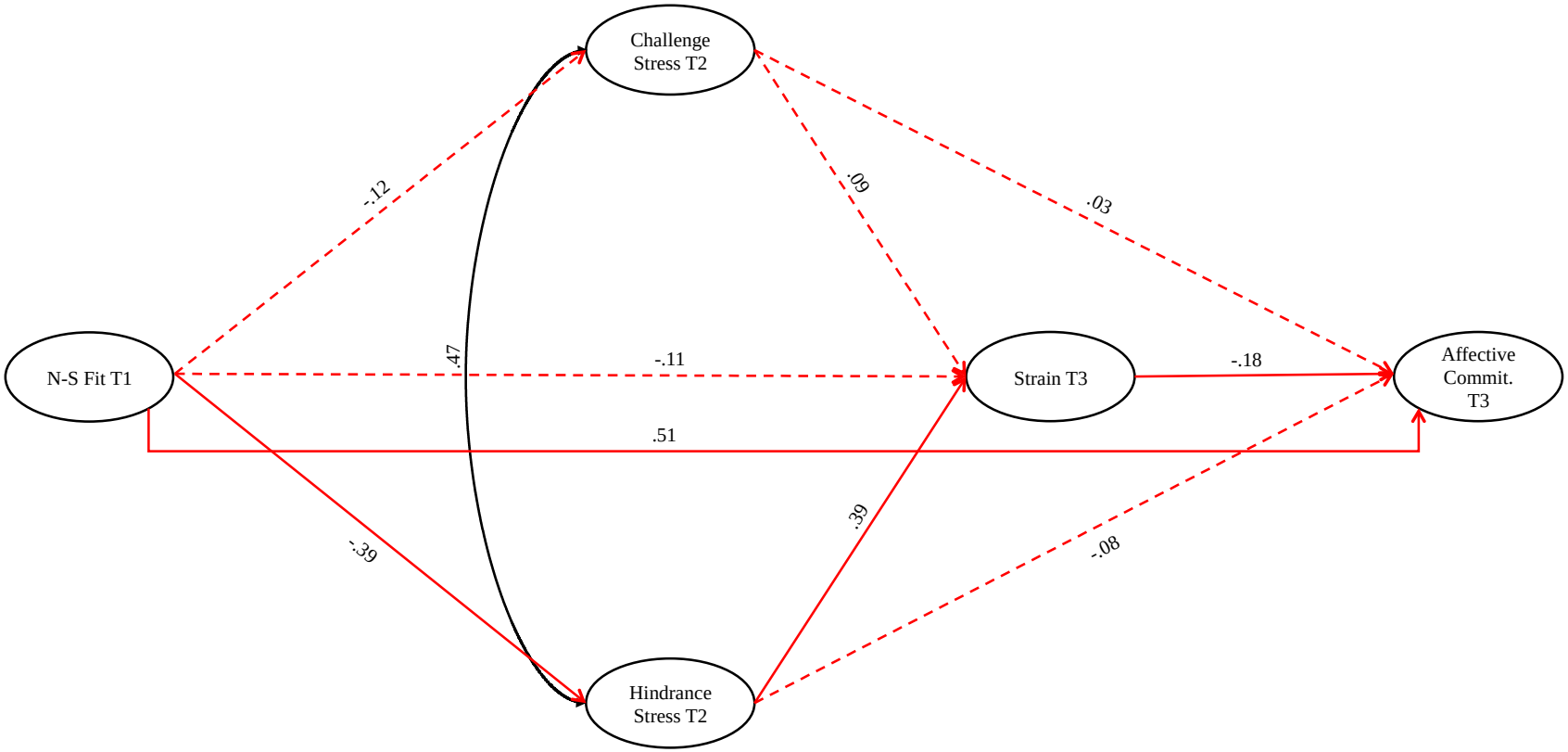

Figure 27. P6: Reverse post hoc model for affective commitment with direct effect to strain and affective commitment.

Table 7. Model Fit Statistics With Normative Commitment.

Model	- 2 log likelihood	AIC	BIC	X^2, df, *p*	RMSEA	CFI	TLI	SRMR
M1	-30147.89	60831.79	61994.06	3388.12, (1811), .000	0.039, (.037, .041), 1	0.885	0.876	0.085
M2	-30132.76	60825.51	62039.82	3357.84, (1799), .000	0.039, (.037, .041), 1	0.887	0.877	0.083
M3	-30132.62	60829.24	62052.23	3357.57, (1797), .000	0.039, (.037, .041), 1	0.887	0.877	0.083
M4	-30136.82	60837.65	62060.63	3365.98, (1797), .000	0.039, (.037, .041), 1	0.886	0.876	0.082
M5	-30136.57	60839.15	62066.47	3365.48, (1796), .000	0.039, (.037, .041), 1	0.886	0.876	0.082
M6	-30116.92	60793.84	62008.16	3326.18, (1799), .000	0.039, (.037, .041), 1	0.889	0.879	0.079
M7	-30116.69	60797.37	62020.36	3325.70, (1797), .000	0.039, (.037, .041), 1	0.889	0.879	0.08
M8	-30123.19	60810.38	62033.37	3338.72, (1797), .000	0.039, (.037, .041), 1	0.888	0.878	0.08
M9	-30122.34	60812.68	62044.34	3337.02, (1796), .000	0.039, (.037, .041), 1	0.888	0.878	0.08

Note. M1 (Measurement stability model); M2 (Proposed structural model); M3 (M2 with direct effects); M4 (Reverse structural model); M5 (M4 with direct effects); M6 (Synchronous effect model); M7 (M6 with direct effects); M8 (Reverse synchronous model); M9 (M8 with direct effects).

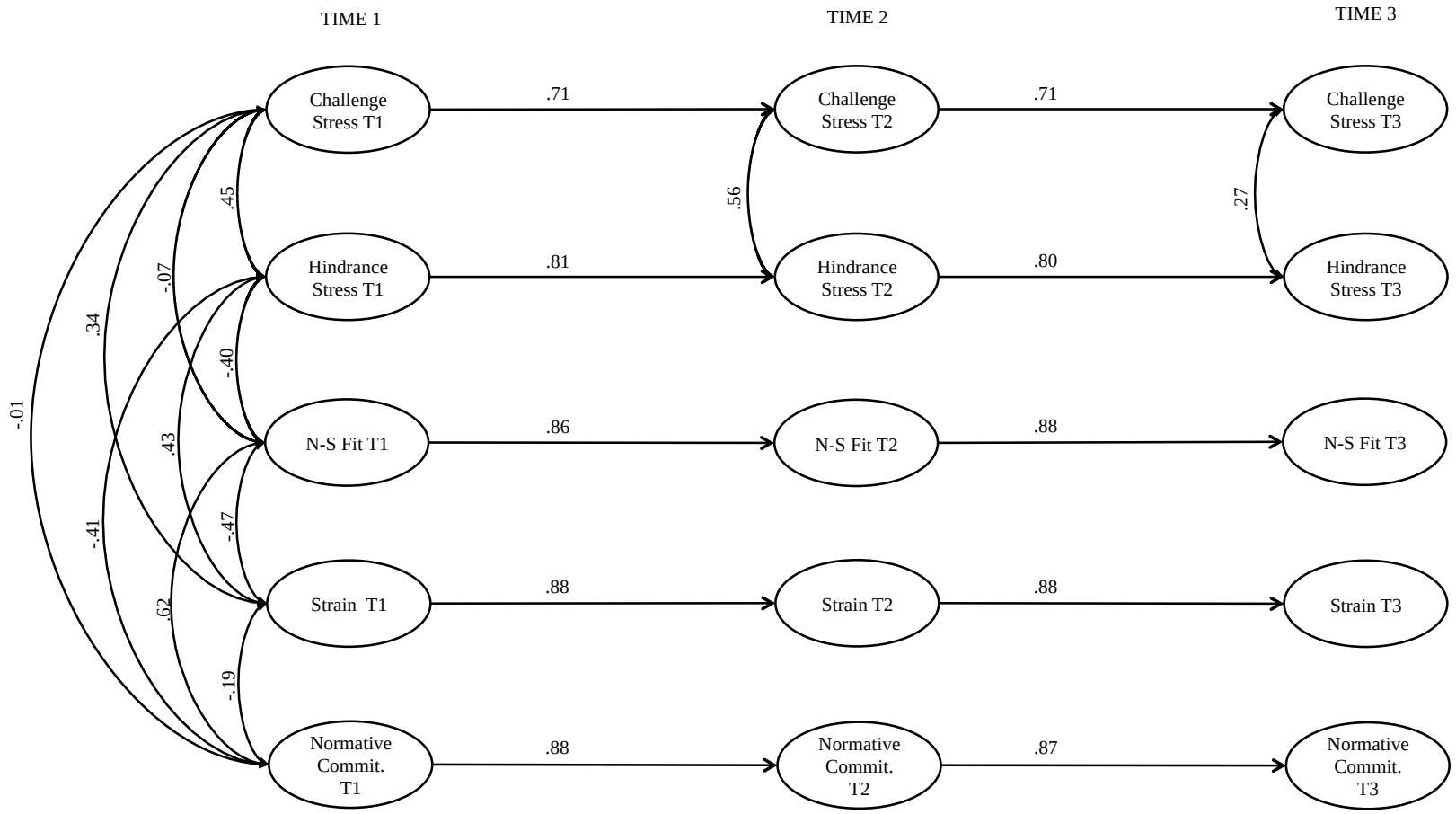

Figure 28. M1: Measurement stability model for normative commitment.

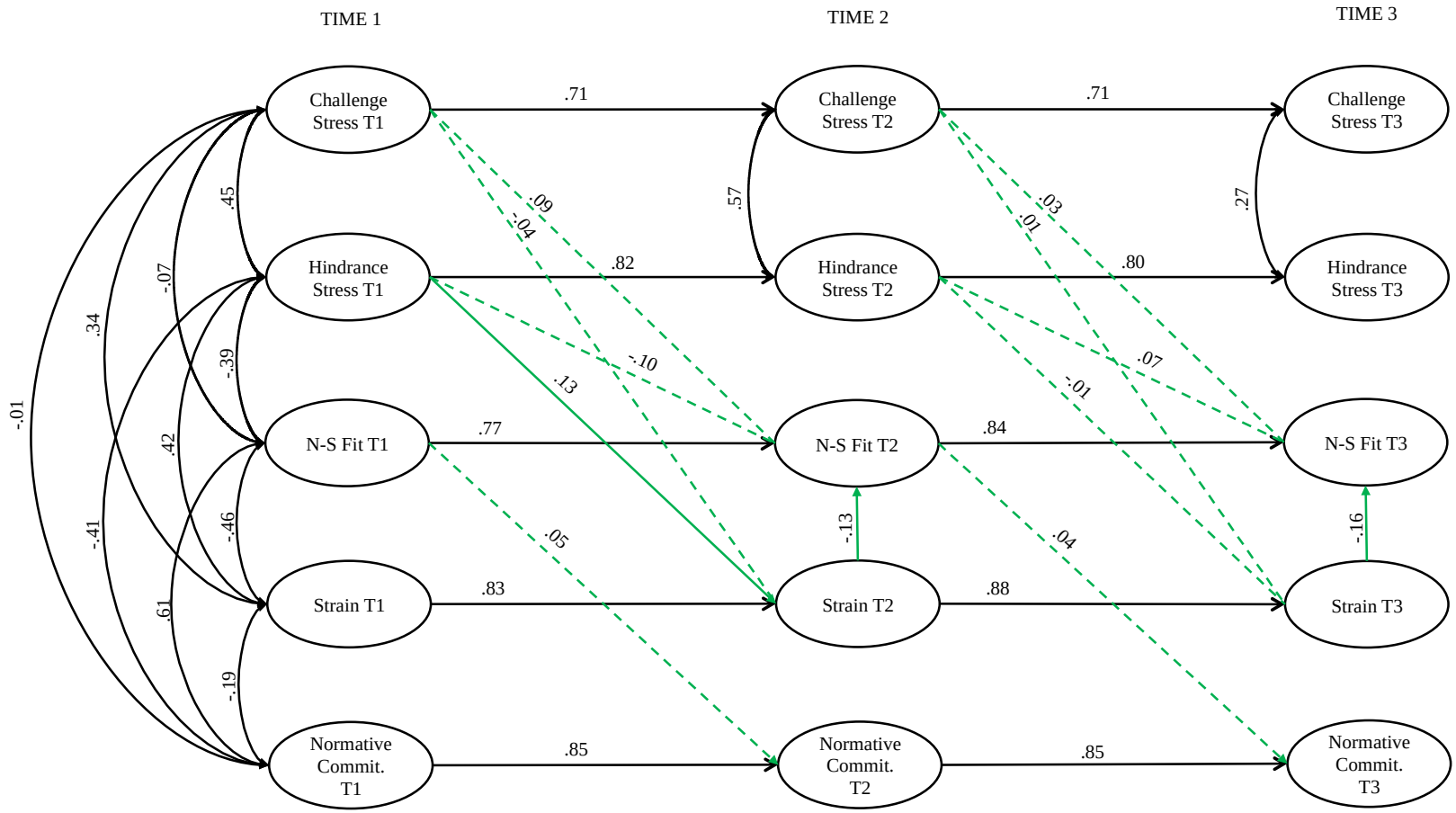

Figure 29. M2: Proposed structural model for normative commitment.

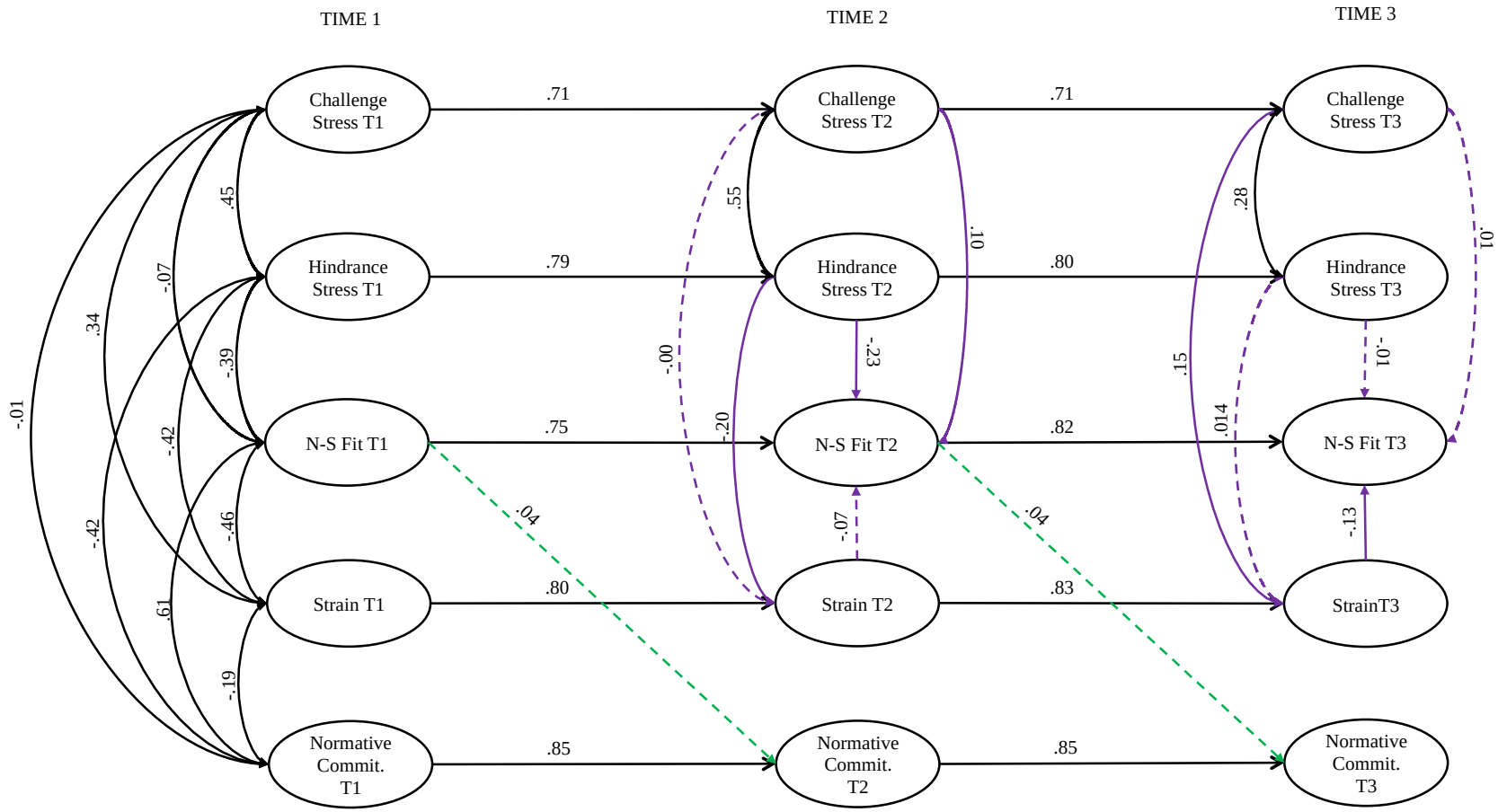

Figure 30. M6. Proposed synchronous effects model for normative commitment.

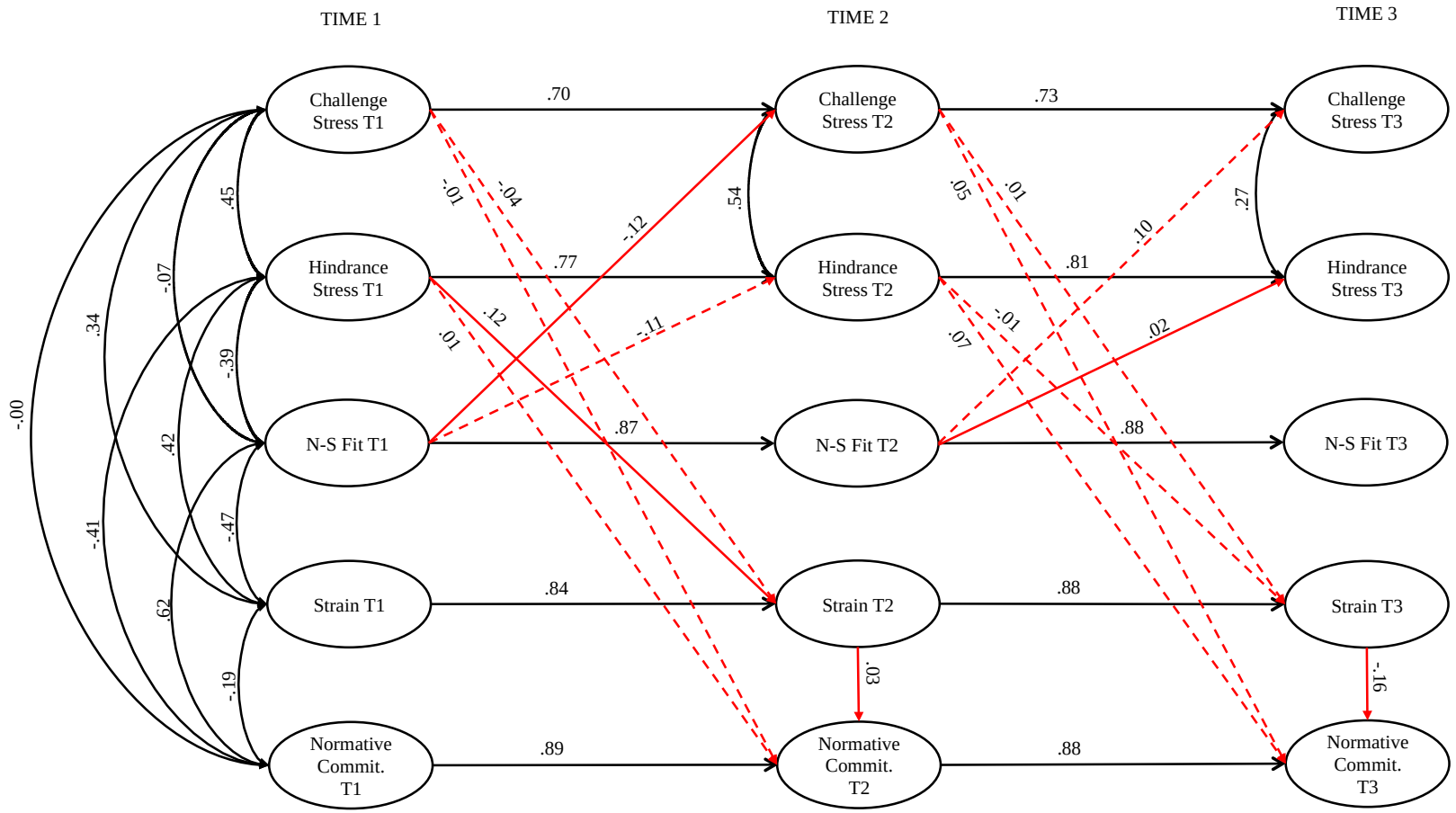

Figure 31. M4: Reverse structural model for normative commitment.

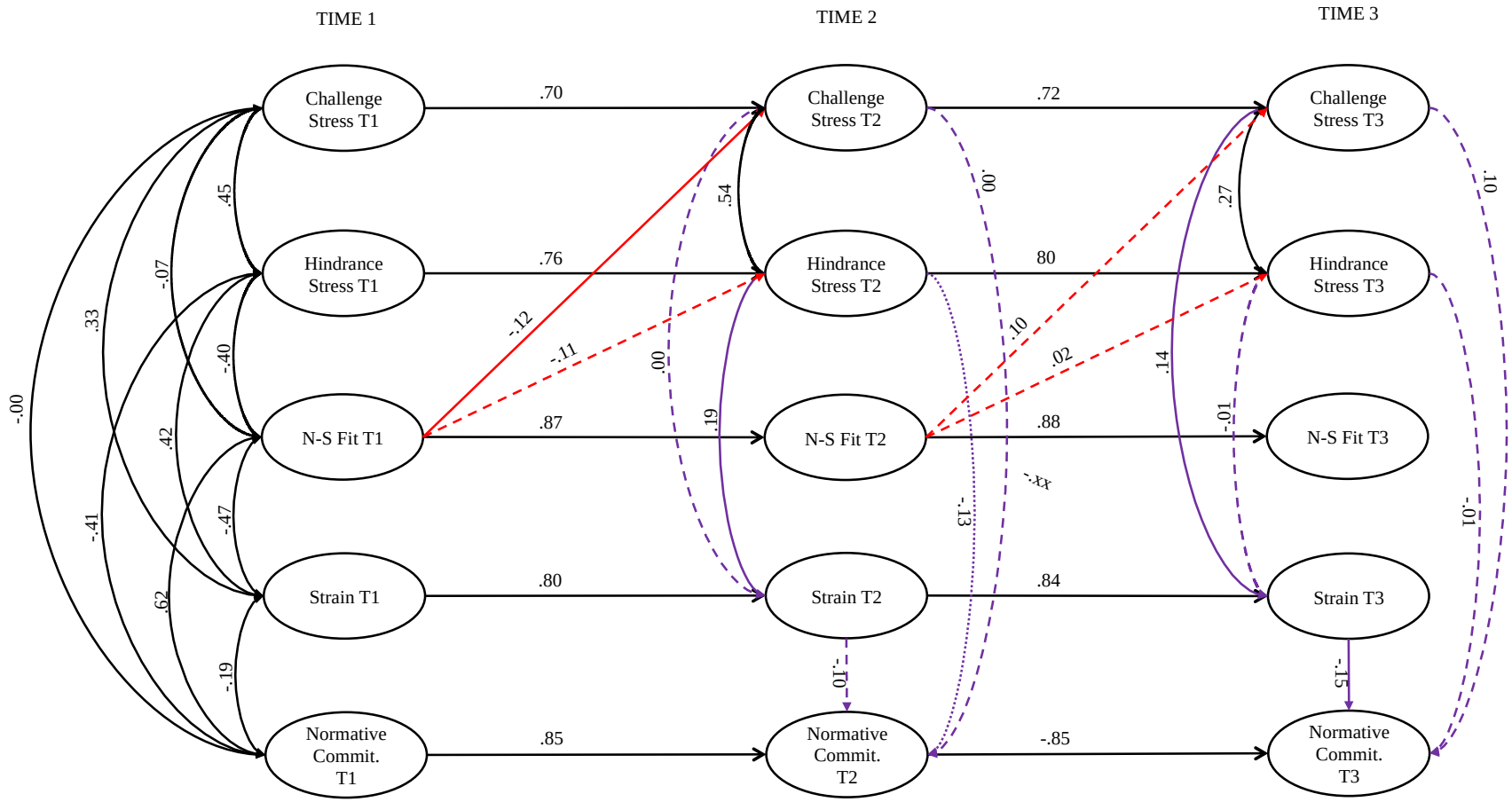

Figure 32. M8: Reverse synchronous effects model for normative commitment.

Table 8. Post Hoc Model Statistics for Normative Commitment.

Model	- 2 log likelihood	AIC	BIC	X^2, df, *p*	RMSEA	CFI	TLI	SRMR
P1	-13604.37	27334.75	27607.97	640.79, 189), .000	.065, (060, .071), .000	.878	.864	.155
P2	-13517.06	27172.11	27471.35	466.16, (183), .000	.052, (.046, .058), .25	.923	.912	.061
P3	-13517.04	27176.09	27484.00	466.13, (181), .000	.053, (.047, .059), .211	.923	.92	.062
P4	-8499.83	17139.65	17443.23	395.91, (182), .000	.046, (.039, .052), .878	.923	.911	.084
P5	-8499.21	17140.42	17448.34	394.68, (181), .000	.046, (.040, .052), .872	.923	.91	.083
P6	-8490.31	17124.61	17436.86	376.86, (180), .000	.044, (.038, .050), .943	.929	.927	.061

Note. P1 (Post hoc measurement model); P2 (Proposed structural model); P3 (P2 with direct effects); P4 (Reverse causal model); P5 (P4 with direct effects); P6 (P5 With additional direct effect of N-S fit on normative commitment).

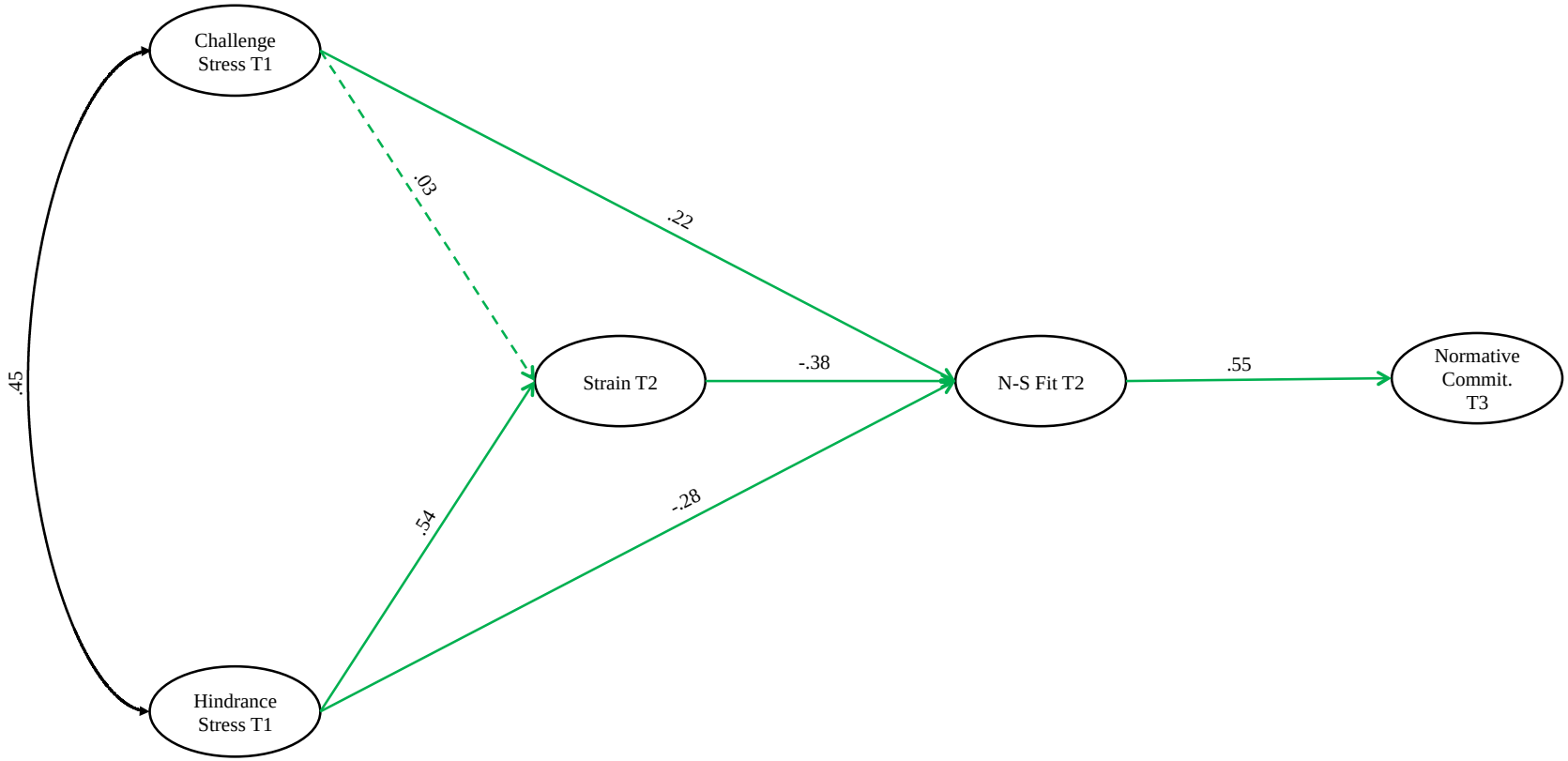

Figure 33. P2: Proposed post hoc model for normative commitment.

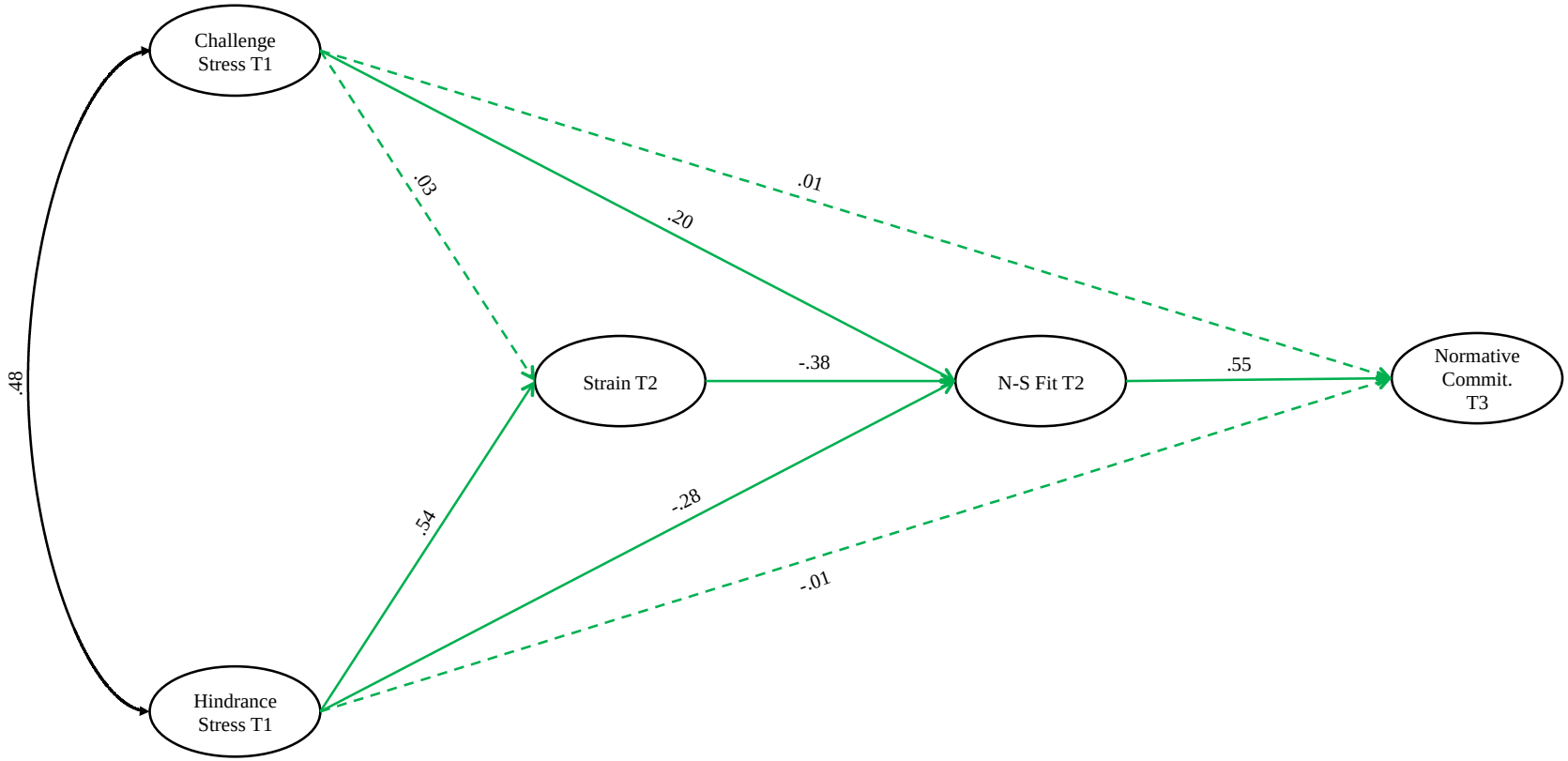

Figure 34. P3: Proposed post hoc model for normative commitment with direct effects.

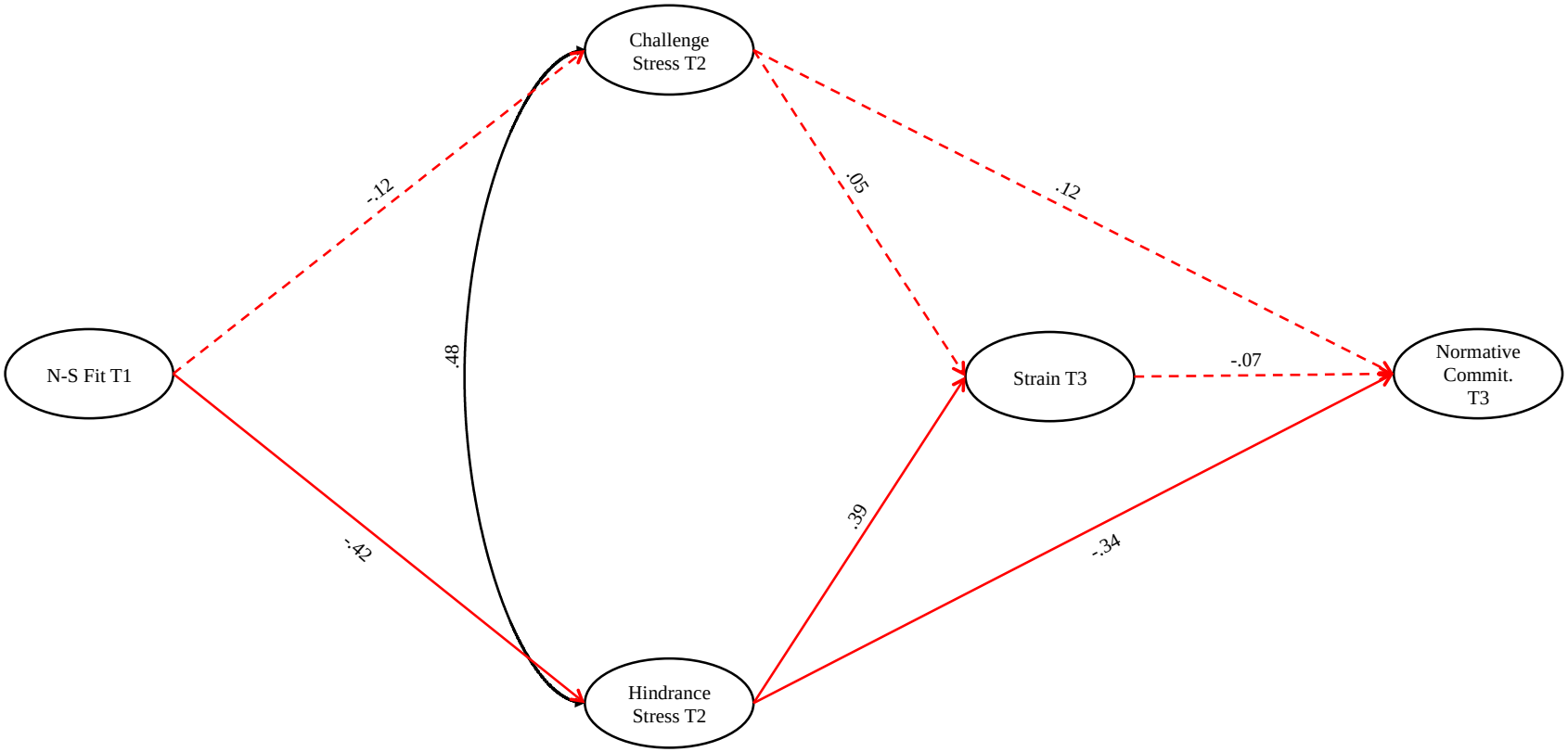

Figure 35. P4: Reverse post hoc model for normative commitment.

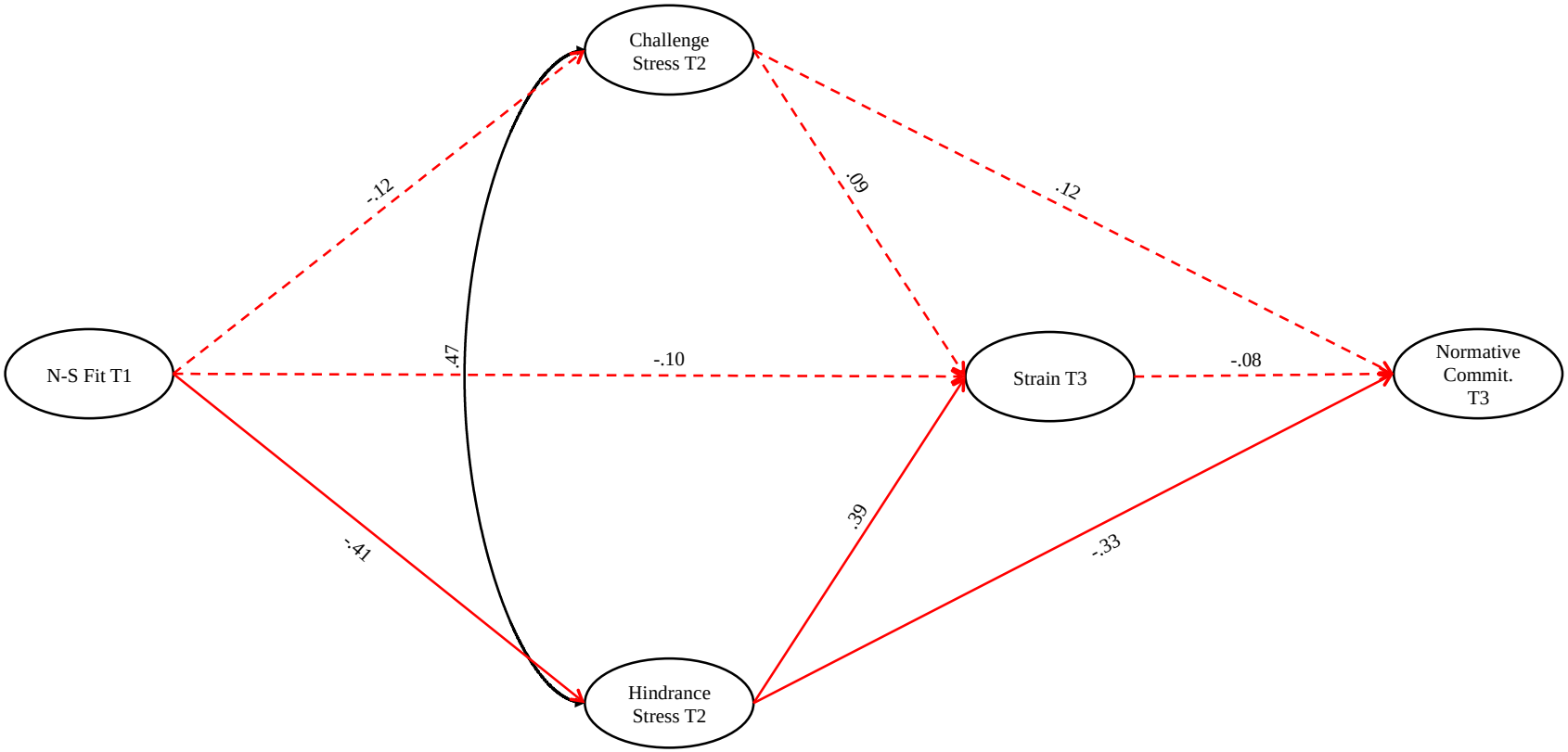

Figure 36. P5: Reverse post hoc model for normative commitment with direct effect to Strain.

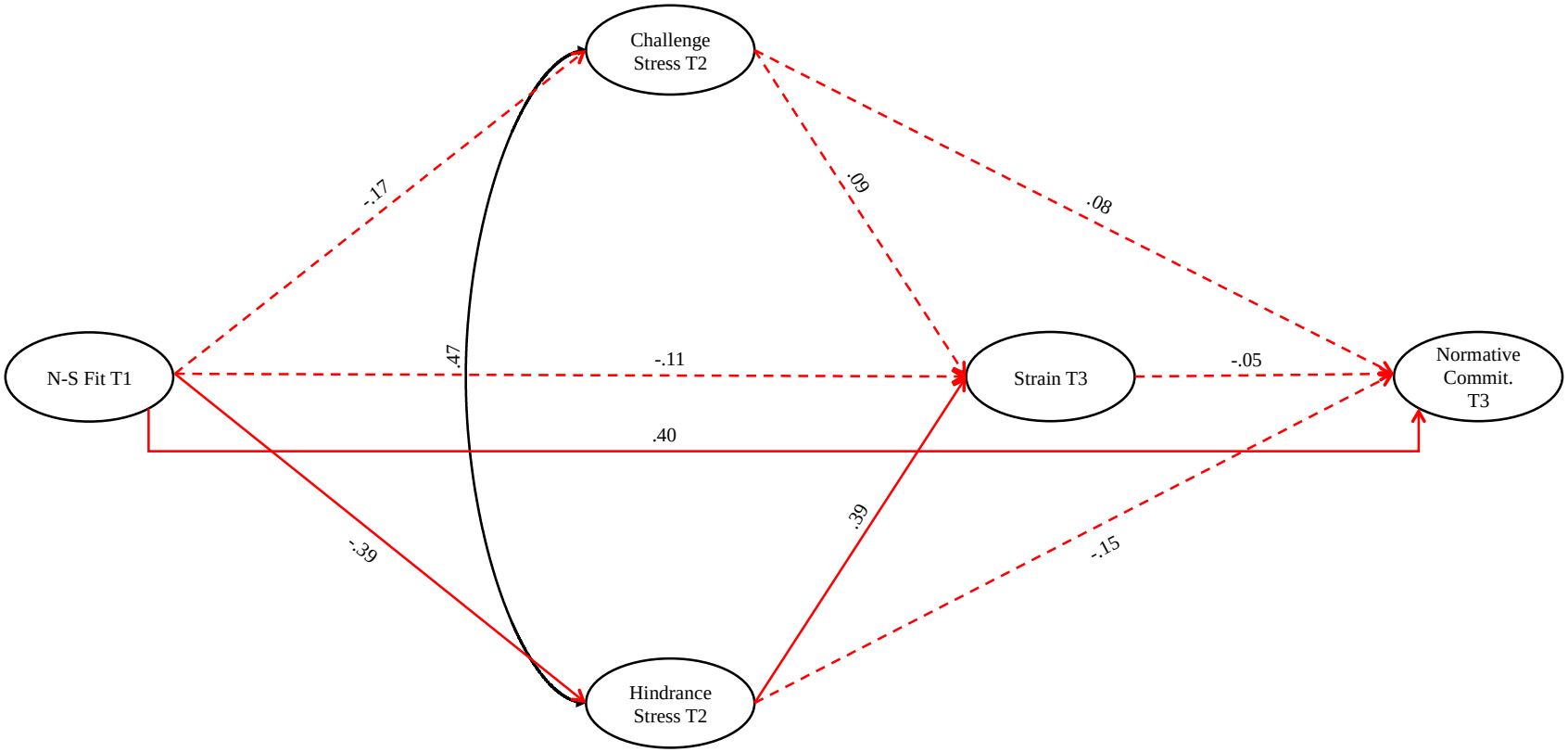

Figure 37. P6: Reverse post hoc model for normative commitment with direct effect to strain and normative Commitment.

Table 9. Model Fit Statistics for Turnover Intentions

Model	- 2 log likelihood	AIC	BIC	X^2, df, *p*	RMSEA	CFI	TLI	SRMR
M1	-26393.93	53249.86	54251.67	2497.91, (1308), .000	.04, (.038, .043) 1	.903	.894	.093
M2	-26371.40	53228.79	54282.64	2452.84, (1296), .000	.04, (.037, .042) 1	.905	.896	.087
M3	-26370.58	53231.17	54293.69	2451.22, (1294), .000	.04, (.037, .042) 1	.905	.895	.088
M4	-26379.85	53249.70	54312.22	2469.75, (1294), .000	.04, (.038, .043) 1	.904	.894	.086
M5	-26377.93	53247.85	54314.71	2465.90, (1293), .000	.04, (.038, .043) 1	.904	.894	.085
M6	-26356.20	53198.40	54252.25	2422.45, (1296), .000	.039, (.037, .042) 1	.908	.898	.083
M7	-26354.55	53199.10	54261.62	2419.15, (1294), .000	.039, (.037, .042) 1	.908	.898	.084
M8	-26367.32	53224.65	54287.17	2444.70, (1294), .000	.04, (.037, .042) 1	.906	.896	.084
M9	-26361.68	53217.36	54288.55	2433.41, (1292), .000	.04, (.037, .042) 1	.907	.897	.081

Note. M1 (Measurement stability model); M2 (Proposed structural model); M3 (M2 with direct effects); M4 (Reverse structural model); M5 (M4 with direct effects); M6 (Synchronous effect model); M7 (M6 with direct effects); M8 (Reverse synchronous model); M9 (M8 with direct effects).

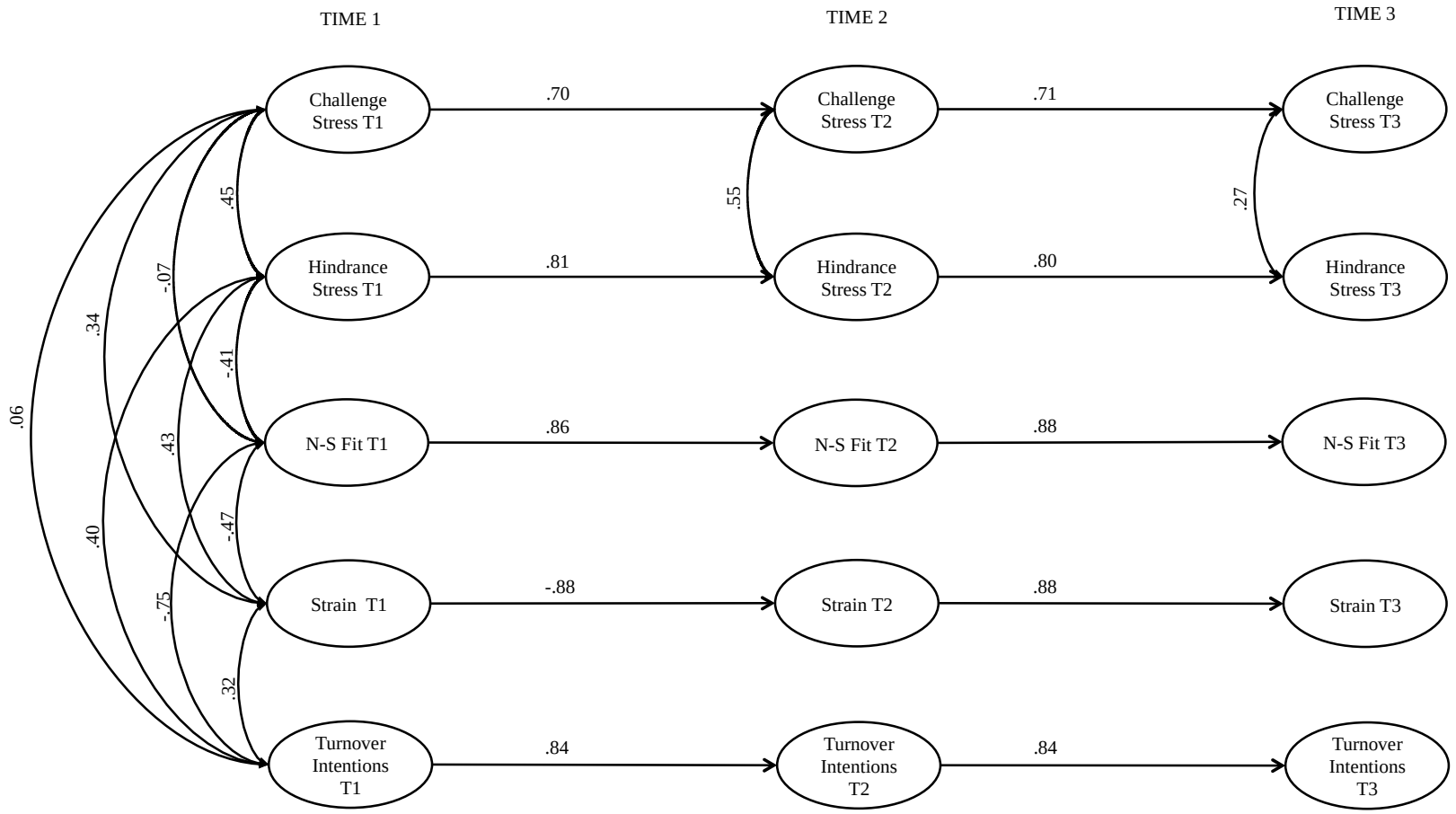

Figure 38. M1: Measurement stability model for turnover intentions.

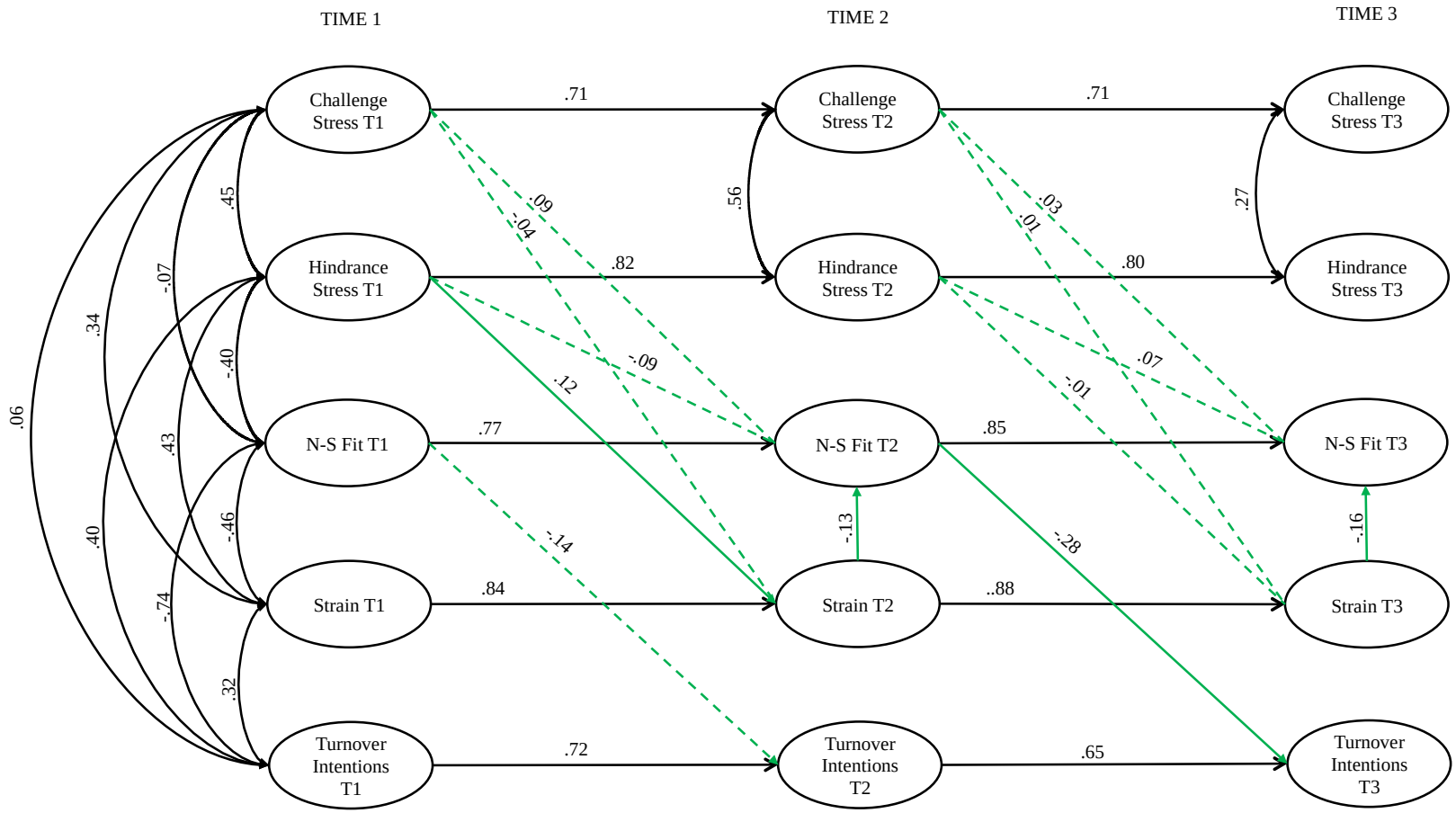

Figure 39. M2: Proposed structural model for turnover intentions.

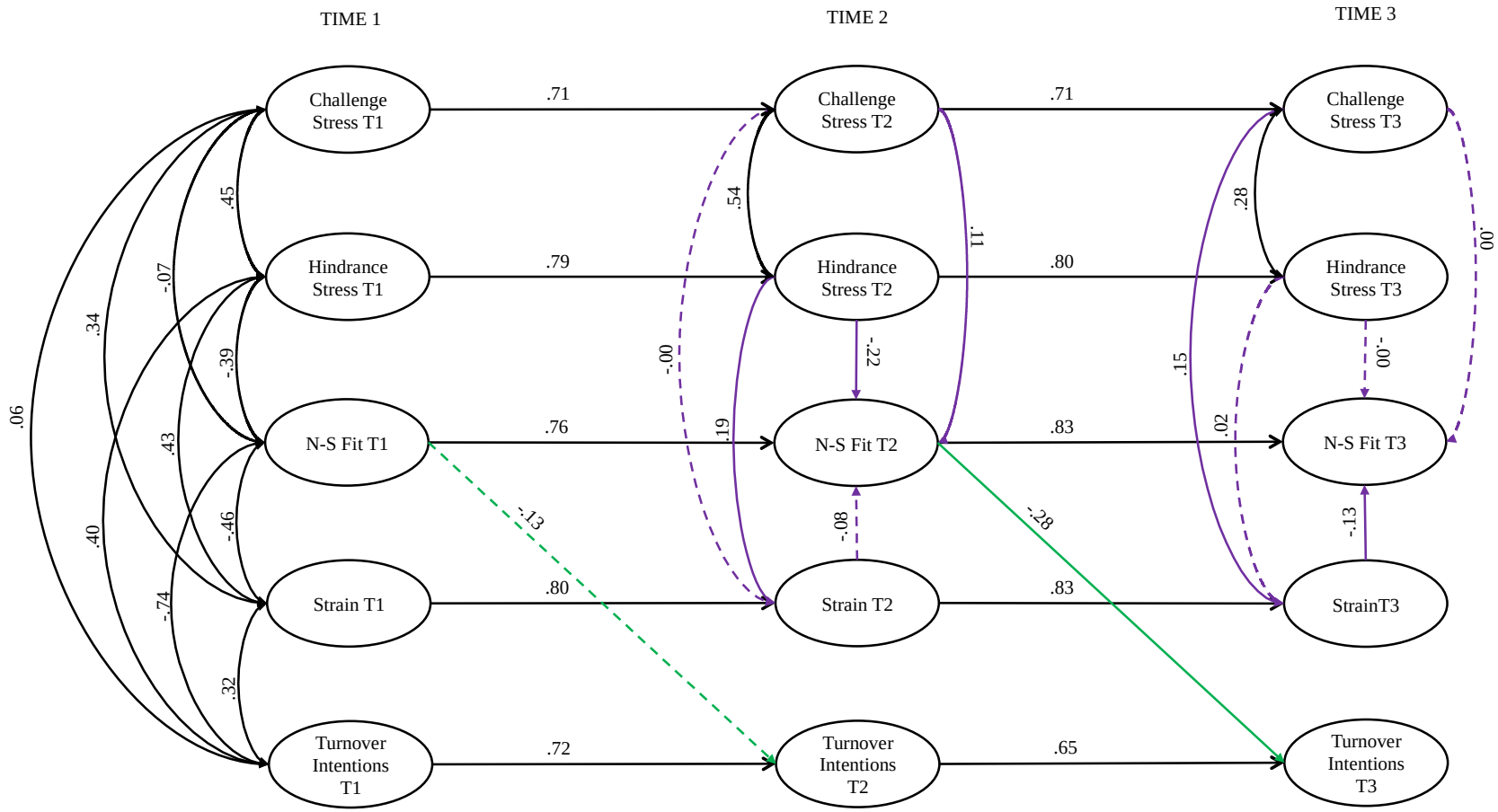

Figure 40. M6: Proposed synchronous effects model for turnover intentions.

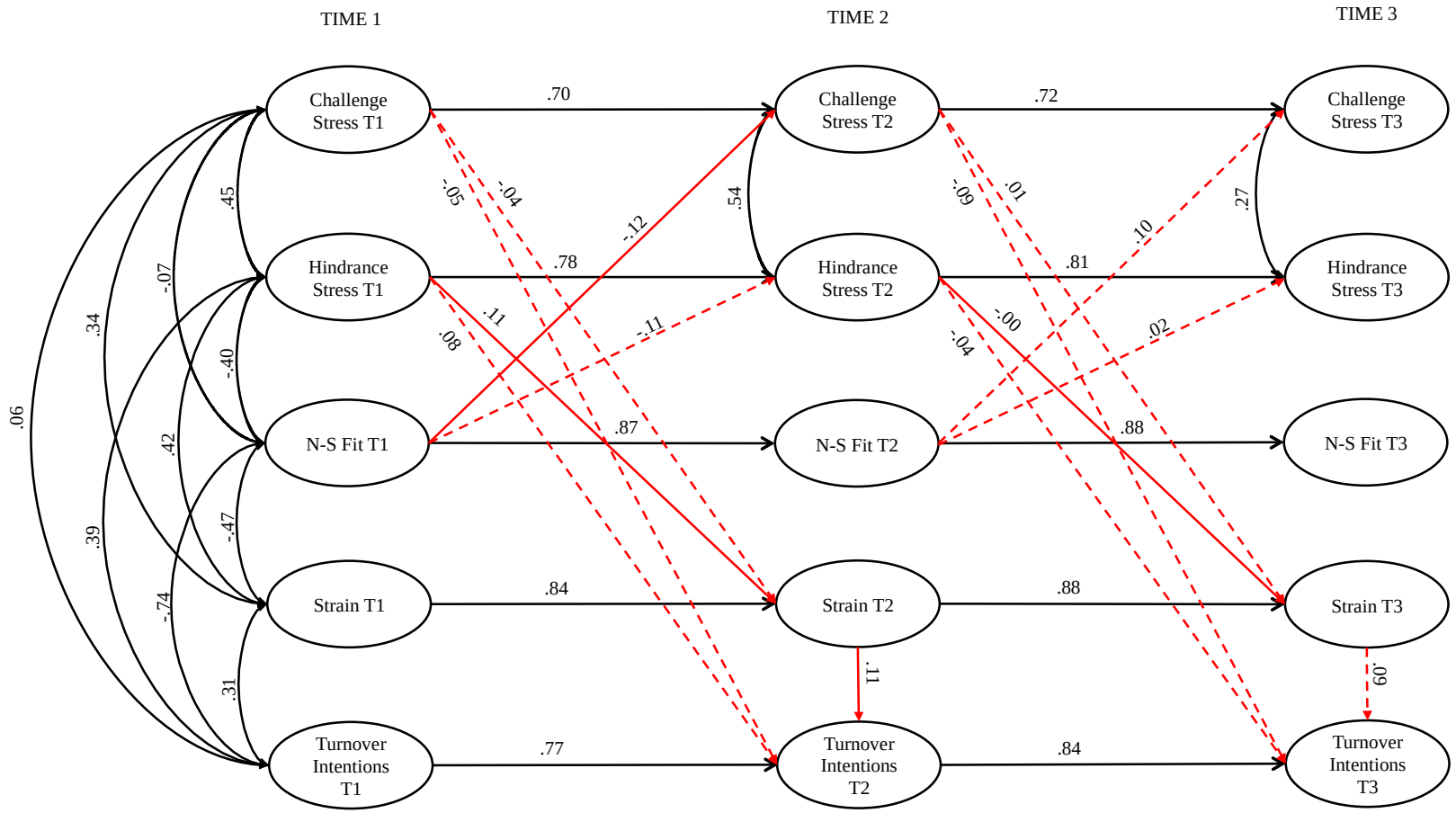

Figure 41. M4: Reverse structural model for turnover intentions.

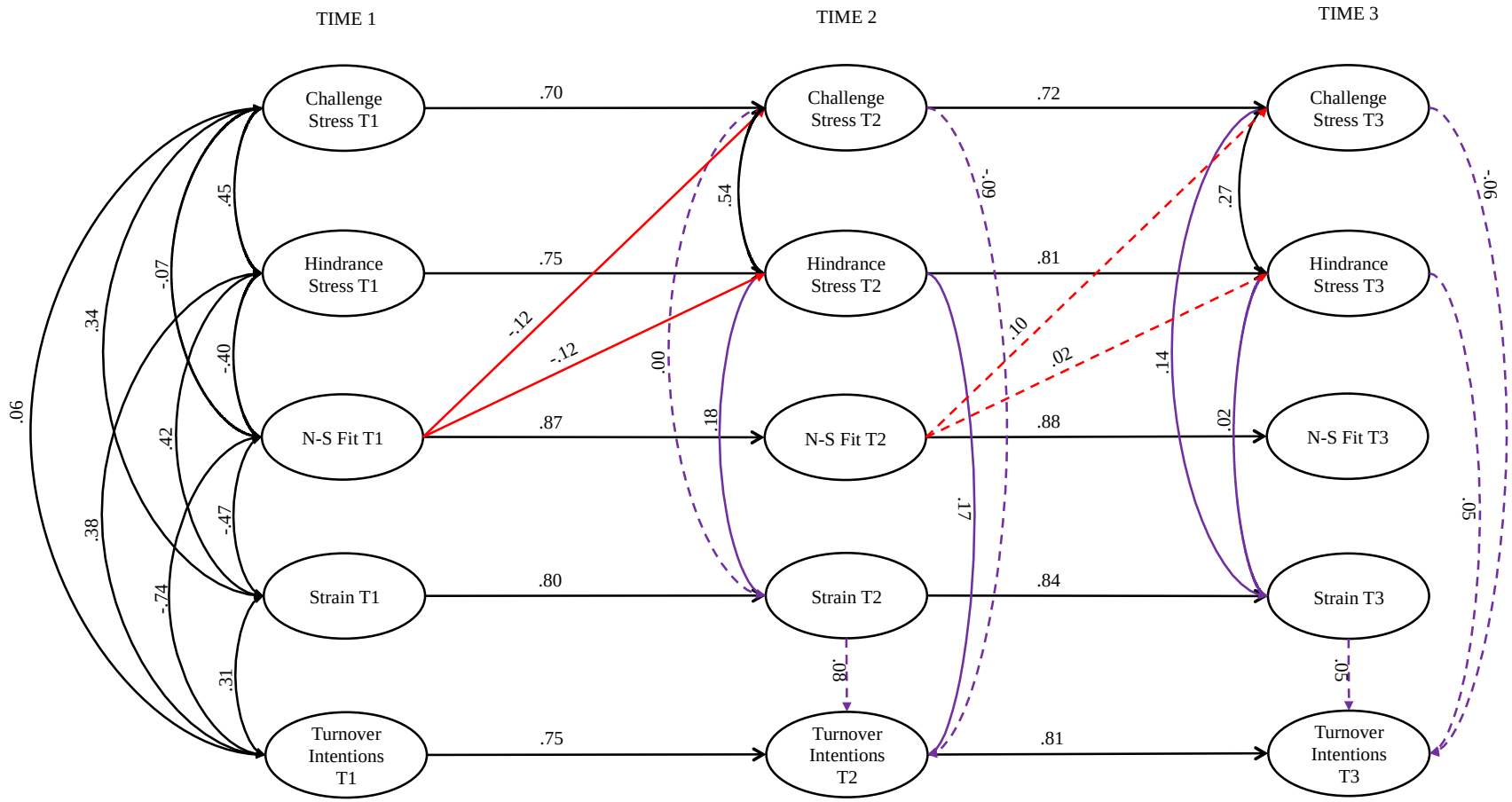

Figure 42. M8: Reverse synchronous effects model for turnover intentions.

Table 10. Post Hoc Model Statistics for Turnover Intentions.

Model	- 2 log likelihood	AIC	BIC	X^2, df, *p*	RMSEA	CFI	TLI	SRMR
P1	-12955.56	26019.12	26253.30	598.33, (135), .000	.078, (.072, .084), .000	.87	.852	.183
P2	-12848.61	25817.22	26077.43	384.43, (129), .000	.059, (.052, .066), .013	.928	.915	.065
P3	-12847.21	25818.41	26087.30	381.62, (127), .000	.06, (.053, .066), .011	.928	.914	.064
P4	-7842.87	15807.74	16072.28	353.38, (128), .000	.056, (.049, .063), .081	.915	.898	.098
P5	-7842.49	15808.97	16077.86	352.62, (127), .000	.056, (.049, .063), .073	.915	.897	.098
P6	-7820.83	15767.67	16040.89	309.31, (126), .000	.051, (.044, .058), .421	.931	.916	.066

Note. P1 (Post hoc measurement model); P2 (Proposed structural model); P3 (P2 with direct effects); P4 (Reverse causal model); P5 (P4 with direct effects); P6 (P5 With additional direct effect of N-S fit on turnover intentions).

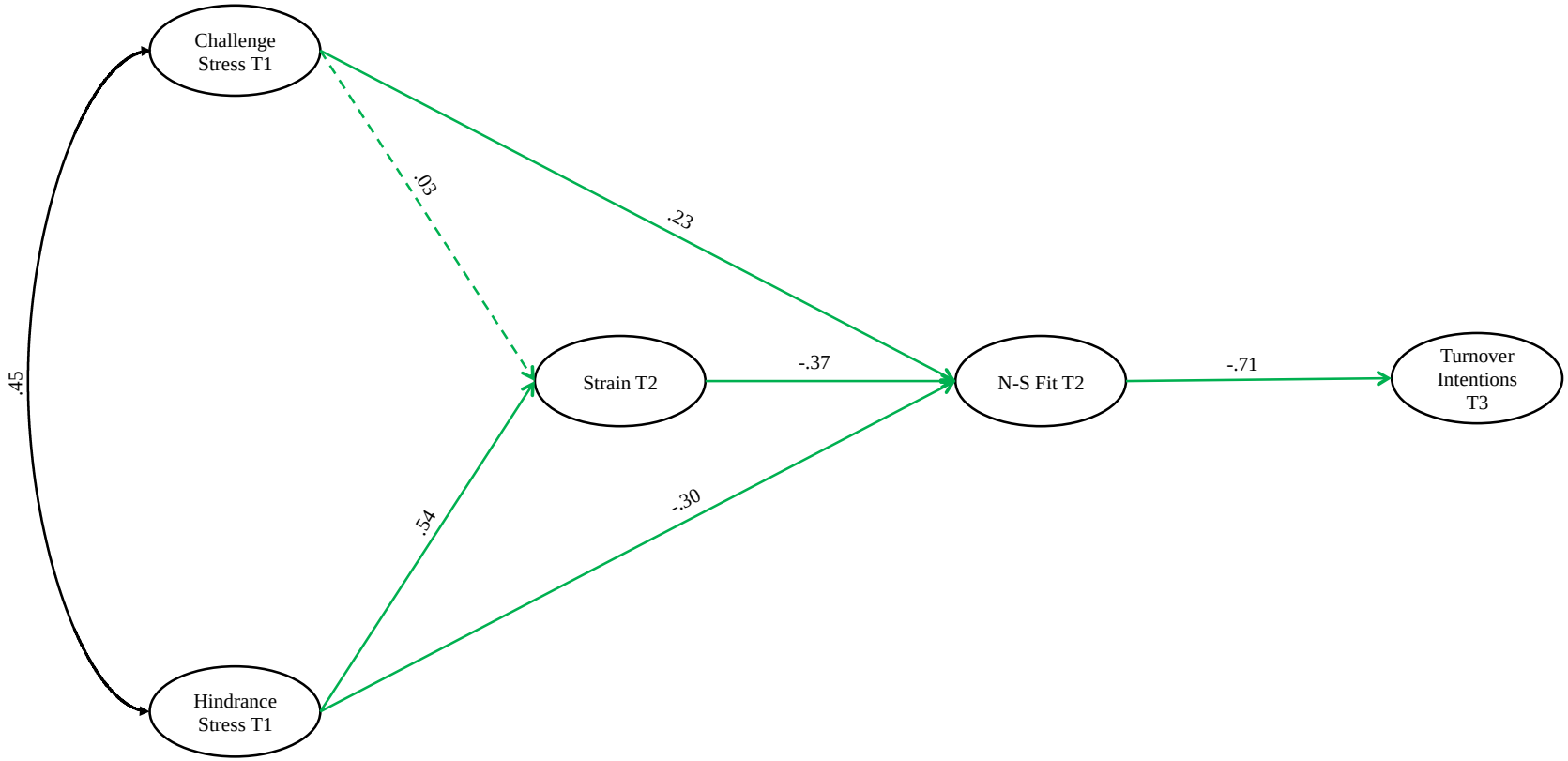

Figure 43. P2: Proposed post hoc model for turnover intentions.

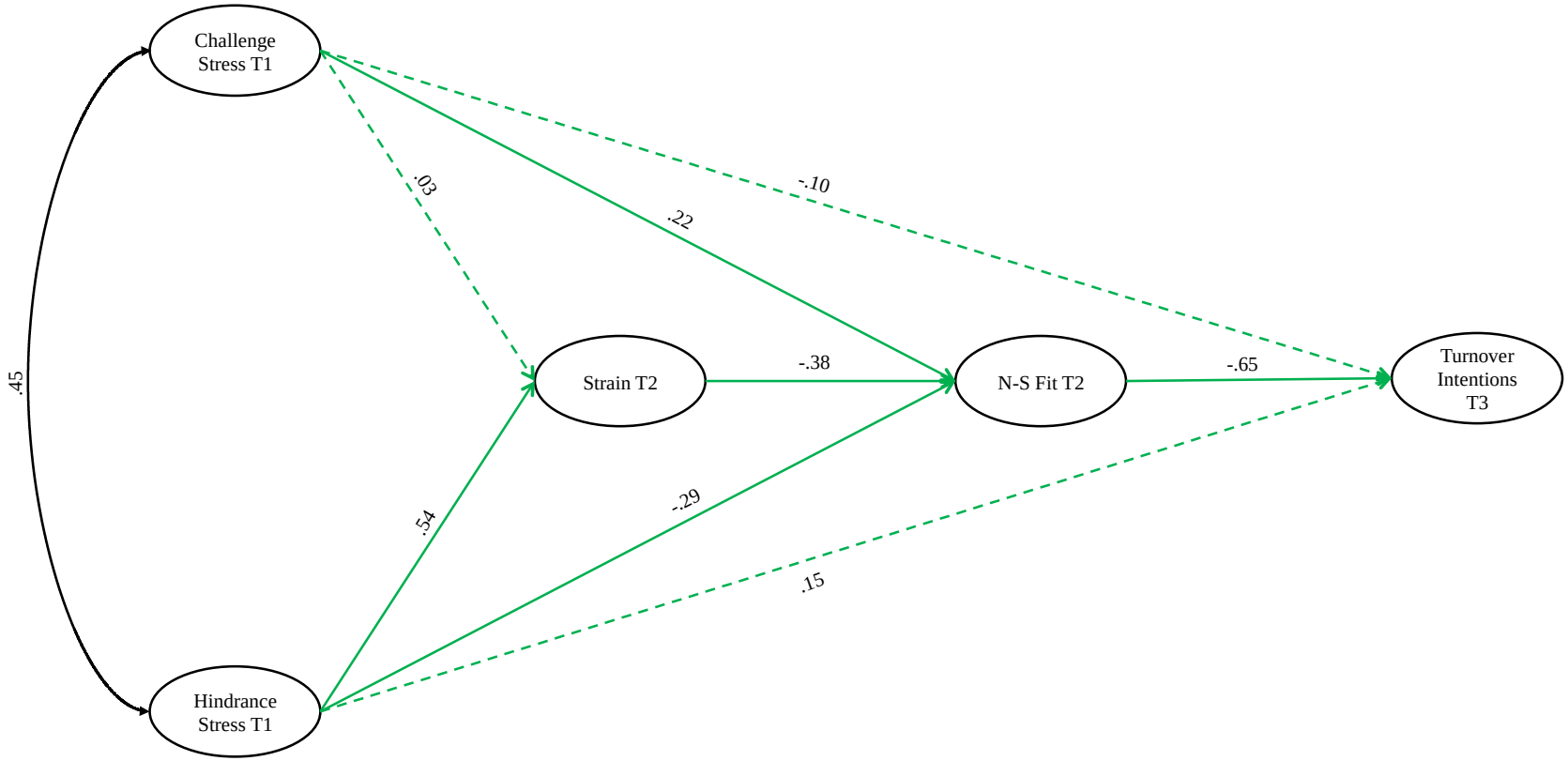

Figure 44. P3: Proposed post hoc model for turnover intentions with direct effects.

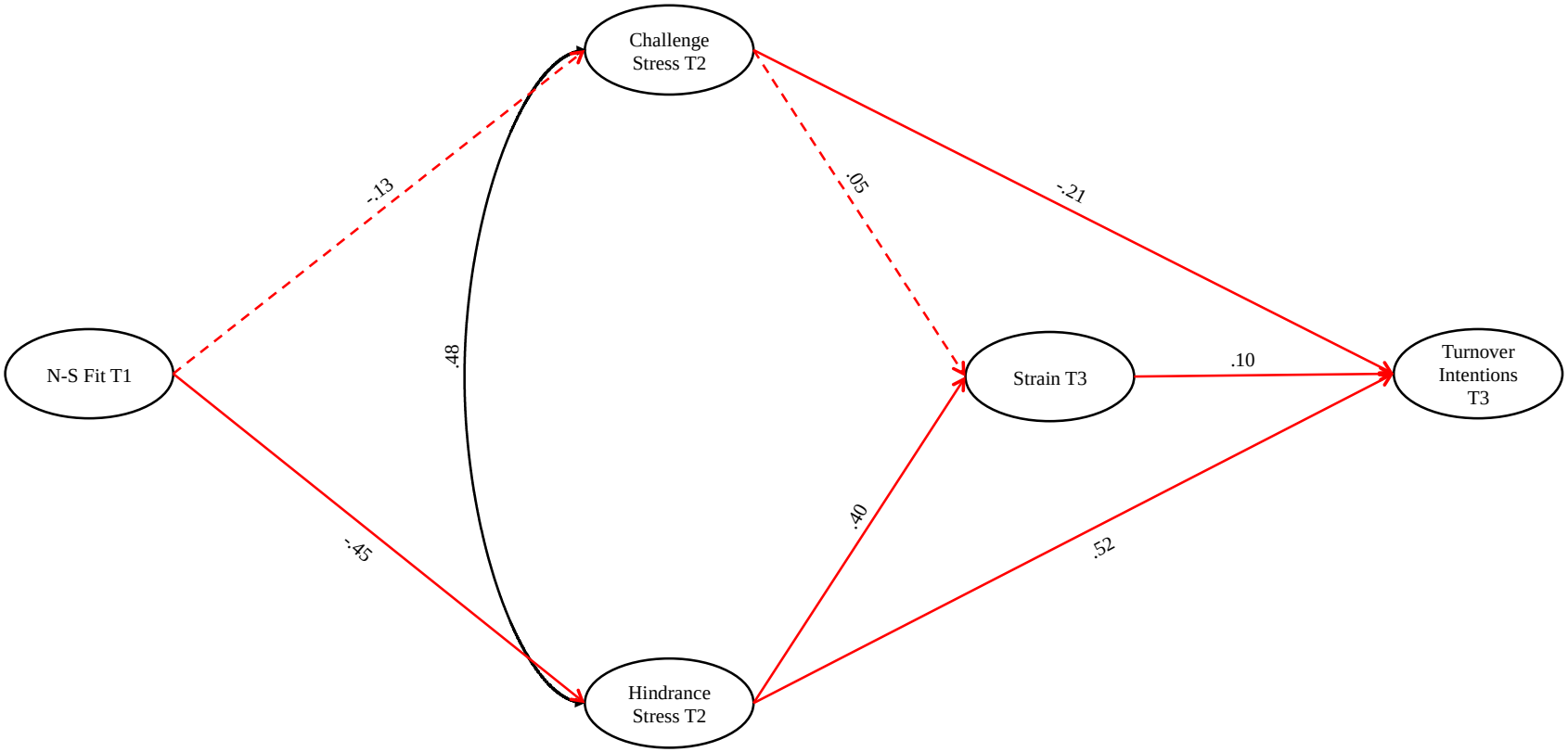

Figure 45. P4: Reverse post hoc model for turnover intentions.

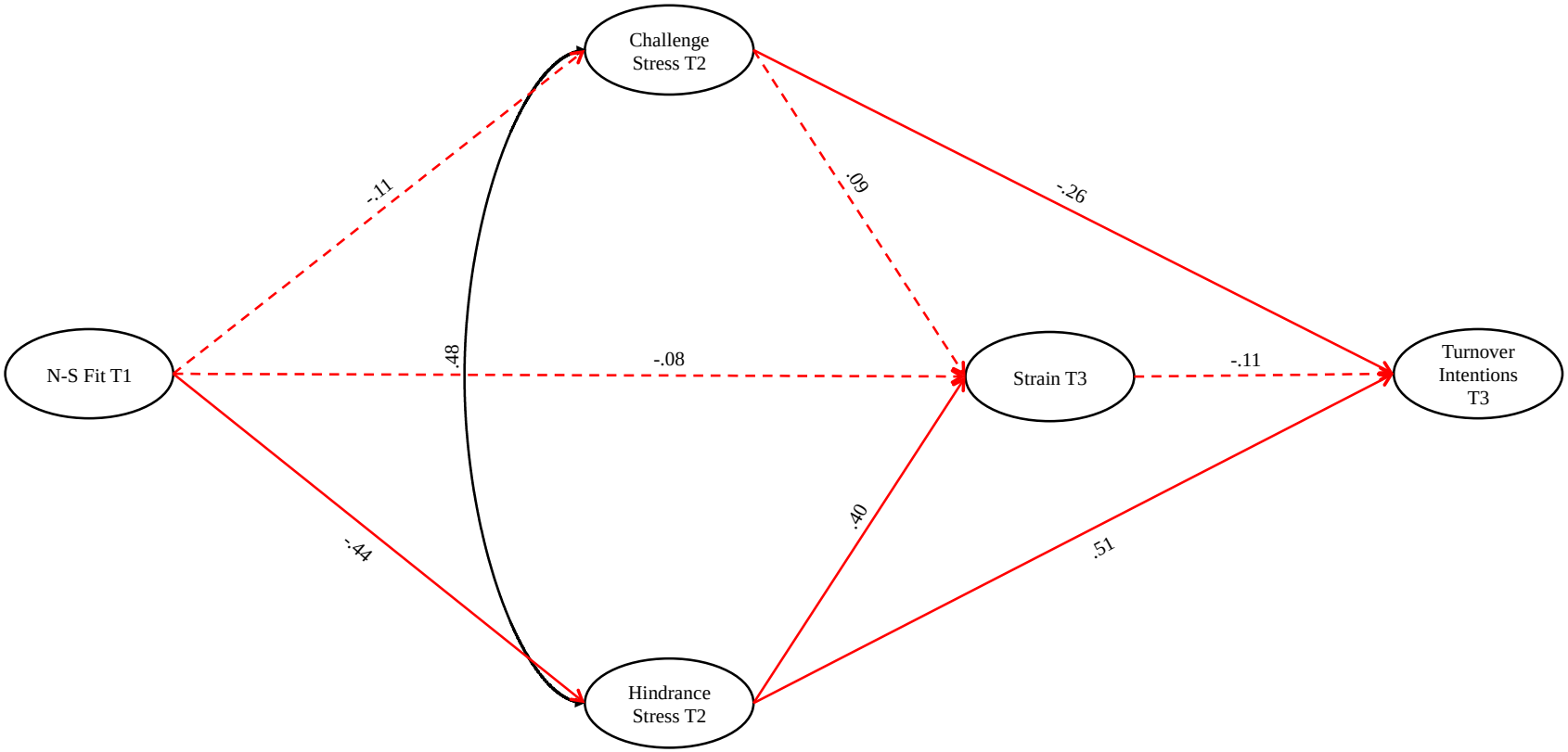

Figure 46. P5: Reverse post hoc model for turnover intentions with direct effect to Strain.

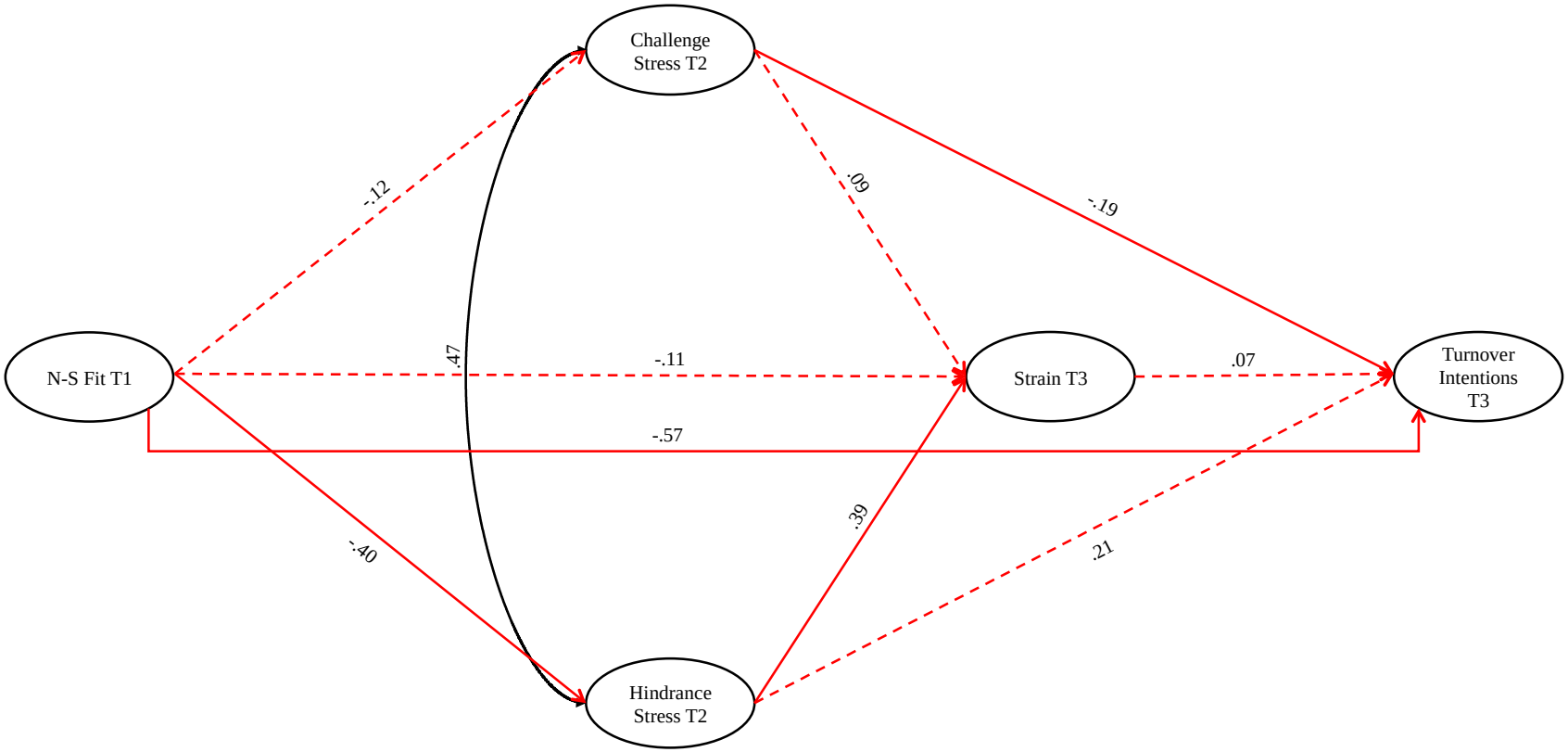

Figure 47. P6: Reverse post hoc model for turnover intentions with direct effect to strain and turnover intentions.