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Research Article

Intra-individual variability in job complexity over time: Examining the effect of job complexity trajectory on employee job strain

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Summary Drawing on gestalt characteristics theory, we advance the literature on the effect of job complexity on employee well-being by considering intra-individual variability of job complexity over time. Specifically, we examine how the trend, or trajectory, of job complexity over time can explain unique variance of employee job strain. Across two longitudinal data sets, we consistently find that, with the average level of job complexity during a given period held constant, a positive job complexity trajectory (i.e., an increasing trend in complexity) is associated with higher employee job strain. Based on job-demand-control theory and the exposure-reactivity model, we further establish that job autonomy and employee emotional stability jointly moderate the relationship between job complexity trajectory and employee job strain. Specifically, for employees with high emotional stability, job autonomy mitigates the job strain brought by positive job complexity trajectory, whereas for employees with low emotional stability, job autonomy does not help to reduce the adverse effect of the increasing trend. These findings not only contribute to extend the understanding of the job complexity – strain relationship, but also suggest a promising, dynamic avenue to study the effects of work characteristics on employee well-being as well as other outcomes. Copyright © 2016 John Wiley & Sons, Ltd.

Keywords: job stress; job complexity; trajectory; job autonomy; emotional stability

Over the past 40 years, a proliferation of research has sought to identify antecedents to employee work strain. It is widely recognized, moreover, that the design of work plays a substantial role in the process of job stress[1] (Griffin & Clarke, 2011). In particular, the effect of job complexity on employees' physical and psychological well-being has received much scholarly attention (e.g., Chung-Yan, 2010; Schaubroeck, Ganster, & Kemmerer, 1994; Schaubroeck, Jones, & Xie, 2001; Schaubroeck & Merritt, 1997; Shaw & Gupta, 2004; Xie & Johns, 1995). Previous studies, using cross-sectional or predictive designs, established the relationship between job complexity and employee well-being as well as the important contingencies (e.g., proactive personality: Chung-Yan & Butler, 2011) of the relationship. Along this stream of research, however, the impact of dynamic changes in job complexity on employee well-being has been largely ignored, even though researchers have been calling for studies to explore the implications of dynamics in work characteristics (e.g., Grant & Parker, 2009).

One of the promising avenues to explore such dynamics is the idea of trajectory (Mitchell, Burch, & Lee, 2014), which has its theoretical roots in gestalt characteristic theory. Gestalt characteristics theory (Ariely & Carmon, 2000, 2003) suggests that people develop experience profiles as their experiences unfold and vary over time. The evaluation of a certain experience at a point in time is not limited to the end state or the average intensity of the transient

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[1]Following Jex, Beehr, and Roberts (1992), we use stressors to refer to environmental events or job conditions that require some adaptive response; use job strain to refer to the individual outcomes such as psychological and physical well-being; and use stress only when we refer to the general literature of stress or the existing theories in job stress such as cybernetic model of job stress (Cumming & Cooper, 1979).

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experiences that constitute the profile. Instead, the dynamic property of the profile—that is, the trend of that experience over time—plays an important role in shaping individuals' expectations of the future and thereby the current experience. Recent organizational behavior studies (e.g., Chen, Ployhart, Thomas, Anderson, & Bliese, 2011; Hausknecht, Sturman, & Roberson, 2011; Liu, Mitchell, Lee, Holtom, & Hinkin, 2012) consistently showed that the trajectory, or trend, of an attitude/perception in a given period explains unique and significant variance in individual outcomes beyond the average level of that attitude/perception.

The purpose of this paper is to extend the understanding of the relationship between job complexity and employee job strain with such a dynamic approach. Employees' perceptions of job complexity are likely to change over time. On one hand, the skills and knowledge needed at work may get routinized over time for some employees. As a result, they may gradually perceive decreasing job complexity. On the other hand, some employees may experience increasing job complexity over time when their work contents and tasks are restructured to a more sophisticated level or when they are assigned new tasks that require different knowledge and skills. Such task restructuring is especially likely when organizations/teams adopt new work procedures or new information systems in response to the competitive and dynamic market environment, or reallocate tasks because of company downsizing (Nikolova, Van Ruysseveldt, De Witte, & Syroit, 2014). In this paper, we study the intra-individual variability of job complexity over time and make the first attempt to explore whether the job complexity trajectory might exert unique influences on employees' well-being beyond the absolute (average) levels of job complexity.

Based on job-demand-control theory (Karasek, 1979) and the exposure-reactivity model (Bolger & Zuckerman, 1995), we further explore the moderating effects of job autonomy and emotional stability on the relationship between job complexity trajectory and job strain. According to job-demand-control theory, employees' control in decisions over their job can help them better cope with job demands. Empirical studies testing job-demand-control theory have, however, provided mixed results, with only roughly half of empirical studies supporting the theorized "buffering" effect of job control (see Van der Doef & Maes, 1999 for a review). As such, researchers began to realize that the provision of control helps some people—those with high self-efficacy, proactivity, and internal locus of control—cope with job demands but not others (Meier, Semmer, Elfering, & Jacobshagen, 2008; Parker & Sprigg, 1999; Salanova, Peiró, & Schaufeli, 2002; Schaubroeck et al., 2001; Schaubroeck & Merritt, 1997). Such extension is consistent with the overarching principle that strain is a product of the ongoing interaction between situational features and individual characteristics (e.g., Cooper, Dewe, & O'Driscoll, 2001; Griffin & Clarke, 2011; Lazarus & Folkman, 1984).

In this paper, we propose that job autonomy[2] attenuates the relationship between job complexity trajectory and employee job strain only when the focal employee is high in emotional stability (Figure 1). Emotional stability captures individuals' predisposition to experience negative affect (McCrae, 1990). We focus on emotional stability among the primary dimensions of personality because emotional stability—or its opposite form, neuroticism—is the strongest determinant of psychological distress, as shown in the meta-analysis conducted by Swider and Zimmerman (2010). More important, accumulated research has established that emotional stability plays the most central role in shaping individuals' reactivity to stressors in terms of the choice of coping strategies and the effectiveness of coping strategies (Bolger & Schilling, 1991; Bolger & Zuckerman, 1995; Gunthert, Cohen, & Armeli, 1999). Following this line of research, we suggest that employee emotional stability is particularly relevant as to whether employees can utilize job autonomy effectively to deal with the mental demands and challenges in a job.

In sum, this paper aims to contribute to literature in three ways. First, we extend the understanding of the relationship between job complexity and job strain by introducing the idea of individual trajectory, or intra-individual variability over time. We seek to establish that systematic increases or decreases in job complexity over time explain unique variance in employee job strain. Second, we demonstrate the relevance of dynamic changes in work characteristics over time when trying to understand their effects on employees. Taking trends into account can be a promising avenue to further shed light on the relationships between work characteristics and employees' well-being as well as important work behaviors (such as job performance and OCB). In short, rather than focusing only on *where*

[2]In this article, we use job control and job autonomy interchangeably.

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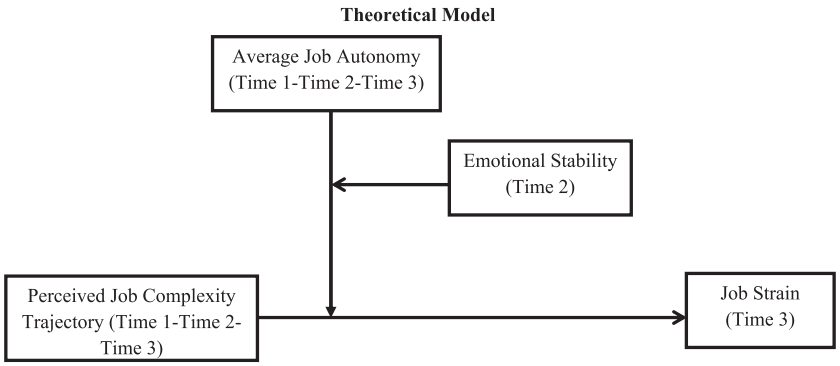

Figure 1. Theoretical model

employees are to predict *how they will be or behave*, we suggest that research on work design can benefit from also taking into account *what employees have been through*. Third, we seek to advise managers on managing increasing job complexities for employees, such as allowing sufficient time for employees to master new skills before taking on new responsibilities, shaping employee expectation on future job complexity, and ensuring job autonomy for high-emotional-stability employees.

Theory and Hypotheses

The power of trajectory

Employees' experience at work unfolds and likely changes over time. For instance, employees' job satisfaction may vary with changes in compensation and task structures as well as certain positive or negative events at work (Chen et al., 2011). Boswell and colleagues identified the pattern for employees to have high job satisfaction when taking on a new job, and job satisfaction may in general decline over time (Boswell, Boudreau, & Tichy, 2005; Boswell, Shipp, Payne, & Culbertson, 2009). In addition, research on justice perceptions reveals that individuals' perception of justice varies substantially over months or even on a daily basis (Holtz & Harold, 2009; Loi, Yang, & Diefendorff, 2009). According to gestalt characteristics theory, individuals reflect on their past experience (e.g., job satisfaction and justice) to project their future state; such projection in turn influences their current experience (Ariely & Carmon, 2003). In retrospection on their experience profile, people do not reflect on each individual component of the profile or combine the intensity of the transient states. Instead, because of limitations in human cognition, they tend to extract two gestalt characteristics of their experience profile—a static characteristic that reflects a particular key point in time (e.g., the peak or the final moment) and a dynamic characteristic that reflects the change in the intensity of the states as experience progresses (i.e., the trend of the profile). Research in behavioral decision making supports the effects of these two gestalt characteristics (e.g., Ariely & Loewenstein, 2000; Loewenstein & Prelec, 1993).

Recently, some organizational behavior scholars started to examine the power of trend, or trajectory, in predicting important work outcomes. For example, Reb and Cropanzano (2007), via an experiment, revealed that an improving trend of performance over a given period has a strong, positive effect on the final performance evaluation, given the performance mean over the period controlled. Hausknecht et al. (2011) applied gestalt characteristics theory to address how the temporal patterns of justice perception influence important work outcomes. They established that, after controlling for the end-state levels of justice, an increasing trend (i.e., positive trajectory) in individual fairness

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perception is associated with higher organizational commitment, higher job satisfaction, and lower turnover intentions. Meanwhile, Chen et al. (2011) advanced understanding of the relationship between job satisfaction and turnover intentions by showing how the trend in job satisfaction influences employees' turnover intentions beyond average job satisfaction in a given period. They showed that the trajectory of job satisfaction serves to shape employees' expectations about their future in the organizations, which in turn influences their intent to leave. Later, Liu et al. (2012) extended the unique effect of job satisfaction trajectory to predict employees' actual turnover behavior. More important, they further demonstrated that the effect of job satisfaction trajectory is contingent on the social cues pertaining to the trajectory of unit satisfaction and the dispersion of satisfaction within the unit.

The accumulated research shows that the trajectory approach helps advance the understanding of some traditionally held relationships in organizational behavior, such as justice-attitudes and satisfaction-turnover. In this article, we seek to apply such perspective to the job complexity–strain relationship. As such, we not only answer to the call for a dynamic view on work characteristics (e.g., Grant & Parker, 2009), but also extend gestalt characteristic theory to the domain of work design.

Job complexity trajectory and job strain

Job complexity refers to "the extent to which the tasks on a job are complex and difficult to perform," and a complex job "requires the use of numerous high-level skills and is more mentally demanding and challenging" (Morgeson & Humphrey, 2006: 1323). The work contents are usually dynamic and flexible, rather than routine and static (Chung-Yan & Butler, 2011). Consequentially, complex jobs usually require additional or sustained physical, psychological, as well as emotional effort from employees. According to job-demand-control theory (Karasek, 1979), such excessive demands derived from complex tasks will cause significant strain in employees. In comparison, a simple job requires only a minimum level of skill and knowledge, and employees can easily fulfill the demands of their work and experience little job strain. In addition, the cybernetic model of stress (Cummings & Cooper, 1979) indicates that job strain originates from the discrepancy between goals and actual conditions. In complex jobs, tasks are more difficult and complicated, which adds uncertainty to whether employees can accomplish the task. The failure to accomplish the assigned tasks will in turn cause strain.

As noted earlier, employees' perception of job complexity is likely to change over time. Employees might experience decreasing job complexity over time as they gradually master the knowledge and skills needed at work. In this case, these employees have a negative job complexity trajectory. On the other hand, some employees might experience a positive job complexity trajectory when their work contents and tasks are restructured to a more advanced level or when they are assigned new set of tasks.

To illustrate, suppose employee A and B have the same end-state job complexity. In arriving at this end state, however, employee A experienced a declining trajectory in job complexity while B experienced an increasing one. In other words, employee A used to have higher job complexity, and employee B used to have lower job complexity. From a traditional, static view, one might expect that employee A should have the same job strain as employee B, given the same end-state job complexity they experience. Nonetheless, by taking into account the dynamic nature of complexity, we speculate that employee A should experience less job strain than employee B because of the decreasing trajectory.

Gestalt characteristics theory (Ariely & Carmon, 2000, 2003) posits that individuals have a strong preference for improving sequences. That is because individuals naturally draw expectations for future state based on their past and current experience, and incorporate such expectations into their evaluation of the current state—a process Ariely and Carmon term "naïve extrapolation." With a deteriorating sequence, individuals are likely to predict that the situation will continue to worsen. Such anticipated negativity, in turn, is likely to make the present experience feel worse. Chen et al. (2011) provided substantial support to such notion by showing that an increasing job satisfaction trajectory is associated with more positive expectations at work, which further reduces employees' intent to leave. Applying this idea to our context, we argue that, when an employee experiences an increasing trend of job complexity,

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he/she will anticipate that the job complexity will continue to increase in the future—that is, work will be more and more mentally demanding and challenging. Such negative anticipation not only directly adds to employees' anxiety, but also renders the current level of job complexity more intimidating and more draining. Comparatively, a decreasing job complexity trajectory indicates a continuous improvement over time and instills the expectation that the job will get easier and easier. Such an expectation relieves employees from anxiety and stress, and helps employees better deal with the current level of job complexity.

The trajectory also varies in degrees. A more positive (negative) trajectory indicates greater increments (decrements) in job complexity over time. Sharper declines or improvements in a perception/attitude over time are "more salient than more moderate declines or improvements because they are more noticeable, meaningful, and informative to employees" (Chen et al., 2011: 163). A more positive trajectory in job complexity is associated with higher perceived job strain than a less positive trajectory. In the same way, a more negative trajectory leads to lower job strain than a less negative trajectory. Accordingly, we expect the following.

Hypothesis 1: With the average level of job complexity during a given period held constant, job complexity trajectory is positively related to job strain. Greater increments (decrements) in job complexity are associated with higher (lower) job strain.

Autonomy and emotional stability on job complexity trajectory → strain

The relationship above is built on the premise that dealing with mental demand and challenge inherent in a complex job represents negative experience to employees, thus the anticipation of more complexity in the future drains employees and the expectation of less complexity relieves them. Nonetheless, we recognize that the extent to which dealing with job complexity represents negative and draining experience may vary across different contexts and different individuals (Griffin & Clarke, 2011). The strength of the relationship between job complexity trajectory and employee strain is in turn contingent on certain contextual and individual factors.

In particular, job-demand-control theory posits that employees' job control, or decision latitudes, over work can mitigate the adverse effects of job demands on job strain. According to Karasek (1979), high job demands in conjunction with high job control can make the job "active" and facilitate employees' learning and development of new skills, which are critical in sustaining employees' vitality at work (Fritz, Lam, & Spreitzer, 2011). Thus, by letting employees have control over their time and authority over their decisions at work, the adverse effect of job demands can be to some extent "buffered." In other words, dealing with the mental demands and challenges in a complex job will become less of an unpleasant experience when employees have autonomy at work. As such, the expectation of more job complexity in the future—derived from an increasing trajectory—should result in less job strain when the focal employee has high autonomy during the given period.

Accumulated research, however, presents mixed results on the constructive effect of job autonomy (Van der Doef & Maes, 1999). Specifically, while some employees can take advantage of job control to cope with the adverse effects of job demands, job control may fail to help dealing with job demands for other employees. With higher job autonomy, employees enjoy more flexibility and authority to make decisions in their own work. At the same time, however, job autonomy also adds uncertainty to work and increases the focal employee's responsibility on work outcomes (Hackman & Oldham, 1980). As a result, the job-demand-control model has been extended to incorporate individual characteristics into the interaction between job demands and job control. Extant research establishes that the "buffering" effect of job control tends to hold for individuals with higher self-efficacy (Salanova et al., 2002; Schaubroeck et al., 2001; Schaubroeck & Merritt, 1997), more proactive personality (Parker & Sprigg, 1999), and higher internal locus of control (Meier et al., 2008). In this study, we argue that employee emotional stability has significant bearings in the extent to which employees can utilize decision latitudes at work to handle job complexity.

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According to Bolger and Zuckerman's (1995) exposure-reactivity model, emotional stability plays a critical role in not only shaping an individual's exposure to stressors, but also in affecting their reactivity to stressors by influencing their choice of coping strategies. Individuals with low emotional stability are prone to be tense, anxious, moody, skeptical, insecure, and not self-confident (Barrick & Mount, 1991). Research has shown that low-emotional-stability individuals are less likely to engage in problem-focused coping strategies when facing stressors (Endler & Parker, 1990; Hooker, Frazier, & Monahan, 1994). Instead, they tend to rely on emotion-focused forms of coping that typically involve wishful thinking, escape-avoidance, self-blame, and hostile reaction (Bolger, 1990; Endler & Parker, 1990; Gunthert et al., 1999; Hooker et al., 1994; McCrae & Costa, 1986; O'Brien & DeLongis, 1996). Such differences might be explained by the fact that low-emotional-stability individuals have significantly lower coping efficacy—that is, they are less confident in their ability to cope with potential stressors (Gunthert et al., 1999).

As low-emotional-stability individuals focus on passive and emotion-based coping strategies, they are less likely to constructively utilize the decision latitudes to better deal with job complexity. Therefore, for more neurotic employees, dealing with job complexity represents a negative experience regardless of their job autonomy over the given period. As such, the anticipation of higher job complexity in the future—results from an increasing job complexity trajectory—should significantly increase employee job strain, no matter how much job autonomy the focal employee had. In contrast, high-emotional-stability individuals tend to actively cope with problems, and the decision latitudes will relieve them off time pressures and enable them to deal with the mental and skill demands in the way they feel most comfortable. That is, for less neurotic employees, dealing with job complexity will become less of a negative experience when they have higher job autonomy; therefore, the effect of job complexity trajectory on job strain should be weaker when the employee has more job autonomy over a given period.

To conclude, we contend that job autonomy can buffer the effect of job complexity trajectory on employee job strain only when the focal employee has high emotional stability; whereas such buffering effect of job autonomy tends to dissipate when the focal employee has lower emotional stability. Specifically, we hypothesize that:

> *Hypothesis 2*: Employee emotional stability and average job autonomy jointly moderate the relationship between job complexity trajectory and employee job strain. Specifically, average job autonomy attenuates the positive relationship between job complexity trajectory and job strain only when the focal employee has high emotional stability.

Methods

Data and sample

The data to test our hypotheses comes from the Household, Income, and Labor Dynamics in Australia (HILDA) Survey (Summerfield et al., 2011), which is publicly available. The HILDA Survey is a broad social and economic longitudinal survey that focuses on household formation, income and work-related topics. HILDA comprises four different instruments: the Household Form, the Household Questionnaire, the Person Questionnaire, and the Self-Completion Questionnaire. The first three questionnaires are completed during an interview and the Self-Completion Questionnaire is collected by the interviewer at a later date or returned by mail. The Self-Completion Questionnaire includes mainly attitudinal questions, many of which cover topics that respondents may feel slightly uncomfortable answering in a face-to-face interview. The subjects in the data are household based. If there is more than one adult in a household, only one adult responds to the survey. The sample selection process is as follows:

> "The households were selected using a multi-staged approach. First, a sample of 488 Census Collection Districts (CDs) were selected from across Australia (each of which consists of approximately 200 to 250 households). Second, within each of these

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CDs, a sample of 22 to 34 dwellings was selected, depending on the expected response and occupancy rates of the area. The selections were made after all dwellings within each of the CDs were fully listed. Finally, within each dwelling, up to three households were selected to be part of the sample" (Summerfield et al., 2011: 113).

More detailed information on the HILDA survey is available in the official manual (Summerfield et al., 2011). Participants are invited to complete the survey every year from 2001 to 2010. Among the core variables in this study, job complexity, job strain, and job autonomy were collected for each person over 10 years from 2001 to 2010 (although there are missing years for some participants). As personality is considered to be relatively stable over time (e.g., Conley, 1985; Hampson & Goldberg, 2006; Specht, Egloff, & Schmukle, 2011; Vaidya, Gray, Haig, & Watson, 2002), Big Five personality traits were assessed only in year 2005 and year 2009. Because of this restriction of the data on personality, we rely on two sets of three-year longitudinal data to test our theoretical model.

The first set of data ranges from 2004 to 2006. To test our model, we calculate a subject's job complexity trajectory based on their reported job complexity in 2004, 2005, and 2006. The idea of trajectory is different from the traditional approach of using difference scores between Time 1 and Time 2 to operationalize change over time. Instead, trajectory is designed to model the temporal changes over multiple measurement times. Specifically, researchers use random coefficient models (also known as hierarchical linear models [Bliese & Ployhart, 2002]) and calculate a Bayes slope estimate for each individual. A positive value indicates a general increase of the focal variable over time (the more positive, the greater the increase), and vice versa.

We use job complexity trajectory to predict employee job strain in year 2006, while controlling for average job complexity (2004–2006), demographic variables (age and gender in 2005), and perceived job security in 2005. For moderators, we use the average job autonomy over three years (i.e., 2004, 2005, and 2006) and emotional stability (measured in 2005). We test the idea of trajectory based on the three-year time frame (as opposed to 4 or above) for several reasons. First, given the fact that personality is only assessed in 2005 and 2009, using a three-year time frame allows us to conduct analyses and replications with two data sets that were not overlapping. Second, the use of three-year time frame is also consistent with the existing research studying trajectories (Chen et al., 2011; Hausknecht et al., 2011; Liu et al., 2012). Third, although at least three time points are necessary to capture a reliable change pattern over time, there is no rule of thumb as to how many time points are ideal. Nonetheless, when more time points are included, a curvilinear or quadratic pattern, rather than a linear pattern, may become more accurate in reflecting the change over time. As we theorize the linear pattern of job complexity change over time, three time points seem sufficient and appropriate for our research purpose. Fourth, the core to gestalt characteristic theory is that the previous experience will shape an individual's perception of the current state in the form of a trend. We believe that the experience of job complexity four or five years ago is no longer salient or vivid to the focal individuals.

We deal with the missing data through list-wise deletion.[3] We also exclude those respondents who change their jobs in the middle of the three years, as job changing might confound the effect of job complexity trajectories over the three years. As a result, we are left with 4043 participants in the 2004–2006 data set to test our model.

The second data set is from 2008 to 2010. We conducted the same analysis as in the 2004–2006 dataset with the purpose of replicating our results. We calculate a subject's job complexity trajectory over 2008, 2009, and 2010, and predict employee job strain in year 2010, while controlling for average job complexity (2008–2010), demographic variables (age and gender in 2009), and perceived job security in 2009. The moderators are the average job autonomy over 2008–2010 and emotional stability in 2009. We again deal with missing data with list-wise deletion, and exclude respondents who change their job between 2008 and 2010. As a result, we have 4252 responses for the

[3]We reran our models using multiple imputation to investigate whether the list-wise deletion of missing data could bias our results. As some variables had an extreme amount of missing data, we used a high number of imputations (Enders [2010] recommends a minimum of 20 imputations to achieve a similar level of power as missing increases past 50% on a particular variable; we applied 40 imputations as recommended by Graham, 2009). For 2004–2006 the imputed sample size was 18,252 and for 2008–2010 the imputed sample size was 18,297. After creating imputations and rerunning the regressions for both the 2004–2006 and 2008–2010 time intervals, we found that the pooled results replicated the original regression analyses in all material respects. That is, items that were statistically significant in the original analyses maintained statistical significance using multiple imputation and their coefficients remained in the same direction. These analyses provide evidence that list-wise deletion of missing data does not bias our results.

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2008–2010 data set. Among the 4252 respondents, 1988 of them (46.8%) are also included in the 2004–2006 data set described above.[4]

Measures

Job strain

Job strain was collected in the Self-Completion Questionnaire with two items ("My job is more stressful than I had ever imagined" and "I fear that the amount of stress in my job will make me physically ill"). The 7-point Likert scale was applied to reflect the degree to which the subjects agree/or disagree ("1", strongly disagree, to "7", strongly agree). Data on job strain used in the analysis were assessed in year 2006 (Cronbach's $\alpha = .81$) and in year 2010 (Cronbach's $\alpha = .80$). We recognized that this two-item measure does not come from an established scale. Existing literature in general captures strain in *three* ways (cf. Van der Doef & Maes, 1999; Van Vegchel, de Jonge, & Landsbergis, 2005). The first stream focuses on physiological indices such as blood pressure (Schaubroeck & Merritt, 1997); upper respiratory illness symptoms (Schaubroeck et al., 2001); as well as sickness, absence, and psychosomatic health complaints (Van Vegchel et al., 2005). The second stream examines general psychological well-being, such as the General Health Questionnaire (Panatik, O'Driscoll, & Anderson, 2011), the Global Severity Index of the Symptom (Derogatis, 1983), and life satisfaction. The third stream focuses on more job-related psychological well-being, such as burnout (Salanova et al., 2002), emotional exhaustion (Xie & Johns, 1995), job-related anxiety (Parker & Sprigg, 1999), job satisfaction, and job-related affective well-being (JAWS; Van Katwyk, Fox, Spector, & Kelloway, 2000). Our measure of job strain in our study belongs to the *third* approach.

To provide some evidence for the convergent validity of our measure, we conducted a separate study to investigate how our measure is correlated with other measures on job-related psychological well-being. Specifically, we surveyed 82 currently employed individuals in the United States through Amazon Mechanical Turk. Participants were asked to report their current situations at work based on our 2-item measure of job strain, the 6-item measure of emotional exhaustion from Maslach and Jackson (1986), and the 8-item measure of anxiety–contentment from Warr (1990). The scale of emotional exhaustion asks participants how often they experienced the feelings such as "I feel emotionally drained from my work" and "I feel burned out from my work." The scale of anxiety–contentment asks participants to rate how much of the time, in the past month, their job had made them feel (1) tense, (2) uneasy, (3) worried, (4) anxious, (5) contented, (6) relaxed, (7) calm, and (8) comfortable. Results showed that our measure is correlated with emotional exhaustion at .76, and is correlated with anxiety at .70. Given these results, we are cautiously confident that our measure of job strain has sufficient convergent validity.

Job complexity trajectory

In the HILDA survey, job complexity is measured with two items ("My job is complex and difficult", and "My job often requires me to learn new skills"), based on 7-point Likert scale. Cronbach's alpha for our job complexity scale is .70. Similar to the measure of job strain, the measure of job complexity was not directly adopted from well-established measures. To demonstrate the validity of our measure, we also collected data using our 2-item measure together with the 4-item measure of job complexity used by Morgeson and Humphrey (2006) into the survey mentioned above. Morgeson and Humphrey (2006) used four reverse-score items to capture job complexity, such as "The tasks on the job are simple and uncomplicated". Our measure is correlated with their measure at .70. Given this result, we are cautiously confident that our measure has sufficient convergent validity to proceed. In line with previous studies (e.g., Chen et al., 2011; Hausknecht et al., 2011; Liu et al., 2012), we captured the temporal change of job complexity over time with random coefficient models (for details, cf. Bliese & Ployhart,

[4]The samples of 2004–2006 data and 2008–2010 data are different because of participant attrition and our list-wise deletion of missing data. Among the 2008–2010 respondents ($N = 4252$), those who also appear in the 2004–2006 data ($N = 1988$) do not significantly differ from those who are not included in the 2004–2006 data ($N = 2264$) on any substantive variables such as age, education, job complexity, emotional stability, and job strain.

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2002; Chen et al., 2011). A Bayes slope coefficient is obtained in the model for each individual, representing the change of job complexity across three measurement times. More positive (negative) values indicate greater increases (decreases) over time.

Job autonomy

Job autonomy was collected in the Self-Completion Questionnaire with three items ("I have a lot of freedom to decide how to do my own work", "I have a lot of say about what happens on my job", and "I have a lot of freedom to decide when I do my work"). Participants responded based on the 7-point Likert scale mentioned above. The Cronbach's alpha is .83. The mean of job autonomy over three years (2004–2006 and 2008–2010) represented the employees' average job autonomy in the three-year period.

Emotional stability

The Big Five personality traits were only assessed in years 2005 and 2009. The measure employed in HILDA is an adaptation of the adjective-based measure developed by Saucier (1994). All items were measured on a 9-point Likert scale, with each response gauging the extent to which each particular adjective described the respondent accurately. The actual items used in the HILDA measure are as follows: (i) Emotional stability—envious (reversed), moody (reversed), touchy (reversed), jealous (reversed), temperamental (reversed), and fretful (reversed); (ii) Extroversion—talkative, bashful (reversed), quiet (reversed), shy (reversed), lively, and extroverted; (iii) Agreeableness—sympathetic, kind, cooperative, and warm; (iv) Conscientiousness—orderly, systematic, inefficient (reversed), sloppy (reversed), disorganized (reversed), and efficient; and (v) Openness to experience—deep, philosophical, creative, intellectual, complex, imaginative. Although the HILDA dataset itself only provides the aggregated measures for each of the five traits (making our own calculation of internal consistency impossible), the HILDA organization reports (Wooden, 2012) the following internal consistency statistics for the 2005 and 2009 measures, respectively: Emotional Stability ($\alpha = .81$; .81), Extroversion ($\alpha = .74$; .74), Agreeableness ($\alpha = .78$; .79), Conscientiousness ($\alpha = .78$; .78), and Openness to experience ($\alpha = .74$; .75). We also calculated the Pearson correlation between the 2005 and 2009 personality measures to provide evidence on the test-retest reliability: $r = .64$ for emotional stability; $r = .74$ for extraversion; $r = .59$ for agreeableness; $r = .69$ for conscientiousness; and $r = .70$ for openness to experience. While emotional stability is introduced to the model as a moderator, the other four dimensions of Big-Five personality are included as control variables.

Control variables

First, we control for respondents' age and gender (1 = male, 2 = female). Second, we control for the other four dimensions of Big-Five personality (i.e., conscientiousness, extraversion, openness to experience, and agreeableness), as meta-analysis suggests that they are in general significantly associated with employee burnout (Swider & Zimmerman, 2010). Third, we control for job security because of its significant effect on employee job strain (Sparks, Faragher, & Cooper, 2001). Specifically, job security is collected in the Self-Completion Questionnaire with three items ("I have a secure future in my job", "The company I work for will still be in business in 5 years", and "I worry about the future of my job [reverse-coded]"), based on a 7-point Likert scale. The control variables are based on year 2005 for the 2004–2006 data and year 2009 for the 2008–2010 data. In order to capture the unique effect of job complexity trajectory on employee job strain, we control for the average level of job complexity over the 2004–2006 and 2008–2010 periods, respectively.

Analysis

To demonstrate evidence of discriminant validity, a confirmatory factor analysis was conducted on the items used to measure job autonomy, job security, job complexity, and job strain. In the baseline model, the four constructs were

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entered as separate constructs. To assess model fit, we examined chi-square, CFI, IFI, GFI, and RMSEA. Alternative three-factor models were conducted to compare their model fit with the baseline model.

We tested the hypotheses by conducting hierarchical linear regressions and conditional effect analysis (Hayes, 2013). We conduct the same analysis in the two datasets (2004–2006 and 2008–2010). For simplicity, we detail the following analysis procedures based on 2004–2006 dataset only. We first regressed job strain in 2006 on job complexity trajectory (across 2004–2006), with age, gender, job security in 2005, and average job complexity (across 2004–2006). To test hypothesis 2, we further enter average job autonomy (2004–2006), emotional stability (2005), as well as the interaction terms with job complexity trajectory into the regression. All the variables included in the interaction are centered to mitigate any multicollinearity effects.

Results

Discriminant validity

We conduct the confirmatory factor analysis based on the data from year 2006, where our dependent variable is assessed. The baseline measurement model (four-factor model) fit the 2006 data well ($\chi^2[df=29]=662.50$, $p<.01$; CFI = .95, GFI = .97, IFI = .95, RMSEA = .07). We test a three-factor alternative model in which we make the correlation between job complexity and job strain as 1. The results show that the three-factor model is significantly worse off ($\chi^2[df=30]=675.00$, $\Delta\chi^2[1]=12.50$, $p<.01$), thus providing confidence in the discriminant validity of the measures of job complexity and job strain.

Hypothesis tests with 2004–2006 sample

We provide descriptive statistics and zero-order correlations for the variables in the lower half of Table 1. We first regressed job strain in 2006 onto the control variables including age, gender, job security, and average job complexity over 2004–2006. Model 1 in Table 2 shows that job security and average job complexity were significant predictors of employee job strain, which is consistent with previous research. To test Hypothesis 1, we entered job complexity trajectory into regression and found that it was significantly and positively related to job strain (Model 2, $B=1.46$, $p<.01$), explaining unique variance beyond the average job complexity over the given time period ($\Delta R^2=1.2\%$, *F Change* = 60.00, $p<.01$). Hypothesis 1 is supported.

To test Hypothesis 2, the interactive effect of job complexity trajectory and average job autonomy is entered next into the regression (Model 3 in Table 2). We further entered the interaction terms of emotional stability with job complexity trajectory and job autonomy into the regression. Model 4 in Table 2 shows that the three-way interaction of job complexity trajectory, job autonomy, and emotional stability was significant ($B=-.23$, $p<.05$). The conditional effect analysis from the SPSS PROCESS Macro developed by Hayes (2013) enables us to unravel the differentiated effect of job complexity trajectory across the different levels of job autonomy and emotional stability. Table 3 shows that for employees with higher emotional stability (one standard deviation above average), the interactive effect of complexity trajectory and autonomy is significant (*interactive effect*: $B=-.42$, $t=-2.43$, $p<.05$, *95% CI* = [−.76, −.08]). Specifically, when employees had high emotional stability and low autonomy, the effect of complexity trajectory on job strain is significant ($B=1.90$, $t=5.49$, $p<.01$, *95% CI* = [1.23, 2.58]). However, for employees with high emotional stability and high job autonomy, the effect was less positive ($B=.75$, $t=2.10$, $p<.05$, *95% CI* = [.04, 1.44]).

Nonetheless, for employees with low emotional stability (one standard deviation below average), the story is different, as the interactive effect of job complexity trajectory and job autonomy is not significant (*interactive effect*: $B=.05$, $t=.31$, $p=.76$, *95% CI* = [−.29, .40]). Specifically, for employees with low emotional stability and low

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Table 1. Means, standard deviations, and correlations [a].

Variables	*M* [b]	*SD*	*M2*	*SD2*	1	2	3	4	5	6	7	8	9	10	11	12
1. Job Strain	2.87	1.43	2.88	1.41	—	−.17	−.11	.38	.05	−.09	−.01	.10	−.05	−.17	.01	.04
2. Emotional Stability	5.15	1.04	5.20	1.01	−.21	—	.10	−.02	−.01	.15	.16	−.20	.27	.18	.03	.19
3. Average Job Autonomy	4.33	1.38	4.31	1.36	−.08	.10	—	.15	−.04	.09	.03	.17	.11	.12	−.14	.19
4. Average Job Complexity	4.31	1.35	4.38	1.36	.35	−.01	.15	—	−.23	.01	.03	.24	.05	.07	−.09	.01
5. Job Complexity Trajectory	.06	.11	−.02	.09	.05	.00	−.05	−.16	—	.00	.01	−.05	−.03	−.02	.07	−.04
6. Extraversion	4.43	1.09	4.42	1.07	−.08	.20	.08	.00	.02	—	.14	.05	.10	.12	.12	−.08
7. Agreeableness	5.34	.88	5.34	.87	−.05	.16	.04	−.00	−.00	.16	—	.26	.25	.17	.28	.10
8. Openness	4.27	1.00	4.2	1.02	.11	−.16	.12	.24	−.01	.03	.26	—	.09	−.00	−.03	−.02
9. Conscientiousness	5.13	1.01	5.15	.97	−.08	.28	.10	.04	−.02	.13	.26	.07	—	.14	.11	.16
10.Job Security	5.42	1.22	5.5	1.21	−.12	.19	.10	.07	.02	.14	.14	−.02	.15	—	.06	−.02
11.Gender [c]	1.46	.50	1.47	.50	−.02	.03	−.14	−.12	.05	.28	.28	−.04	.13	.10	—	−.02
12.Age	40.3	12.1	40.9	12.9	−.01	.16	.20	−.01	−.08	.07	.07	−.01	.13	−.02	−.03	–

[a]: The correlations of 2004–2006 data ($n = 4043$) are presented in the lower half of the table; the correlations of 2008–2010 data ($n = 4252$) are presented in the upper half of the table. Correlations greater in absolute value than .03 are significant at $p < .05$; correlations greater in absolute value than .05 are significant at $p < .01$

[b]: M and SD denote mean and standard deviation for 2004–2006 data, while M2 and SD2 denote mean and standard deviation for 2008–2010 data.

[c]: 1 = Male; 2 = Female.

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Table 2. Hierarchical linear regression predicting job strain.

	2004–2006 data ($n = 4043$)				2008–2010 data ($n = 4252$)			
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Constant	1.82**	1.74**	1.74**	1.73**	1.70**	1.56**	1.56**	1.55**
	(.21)	(.21)	(.21)	(.21)	(.19)	(.19)	(.19)	(.19)
Age	.004*	.005**	.005**	.005**	.01**	.01**	.01**	.01**
	(.002)	(.002)	(.002)	(.002)	(.00)	(.00)	(.00)	(.00)
Gender	.11*	.10*	.10*	.10*	.11**	.09*	.09*	.09*
	(.04)	(.04)	(.04)	(.04)	(.04)	(.04)	(.04)	(.04)
Extraversion	−.03	−.04	−.04	−.04	−.06**	−.06**	−.06**	−.06**
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Agreeableness	−.01	−.01	−.01	.00	.03	.03	.03	.03
	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)	(.03)
Openness	.03	.02	.02	.02	.01	.01	.01	.01
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Conscientiousness	−.05*	−.04*	−.04*	−.04*	−.03	−.03	−.03	−.03
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Emotional Stability (EMOT)	−.22**	−.22**	−.22**	−.23**	−.17**	−.17**	−.17**	−.18**
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Job Security	−.12**	−.13**	−.13**	−.13**	−.18**	−.18**	−.18**	−.18**
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Avg. Job Autonomy (AVEAUTO)	−.11**	−.11**	−.11**	−.11**	−.15**	−.15**	−.15**	−.15**
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Average Job Complexity	.39**	.41**	.41**	.41**	.42**	.46**	.46**	.46**
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Job Complexity Trajectory (TRAJ)		1.46**	1.43**	1.46**		2.17**	2.15**	2.20**
		(.19)	(.19)	(.19)		(.21)	(.21)	(.21)
TRAJ × AVEAUTO			−.19	−.18			−.12	−.13
			(.13)	(.13)			(.15)	(.15)
TRAJ × EMOT				−.13				−.05
				(.17)				(.19)
AVEAUTO × EMOT				−.04**				−.01
				(.01)				(.01)
TRAJ × AVEAUTO × EMOT				−.23*				−.32*
				(.11)				(.13)
Adjusted R^2	18.7%	19.9%	19.9%	20.1%	22.3%	24.2%	24.2%	24.3%
F change		60.00**	2.13	3.69*		104.12**	0.71	2.33†
ΔR^2		1.2%	0	0.2%		1.9%	0	0.1%

Note: Unstandardized coefficients are reported. Standard errors of coefficients are in the parentheses.
†$p < .10$;
*$p < .05$; **$p < .01$.

job autonomy, the conditional effect of job complexity trajectory on job strain is significant ($B = 1.52$, $t = 4.92$, $p < .01$, *95% CI* = [.91, 2.12]). For employees with low emotional stability and high job autonomy, the effect is similarly positive ($B = 1.67$, $t = 4.30$, $p < .01$, *95% CI* = [.91, 2.43]). That is, job autonomy does not help to mitigate the effect of job complexity trajectory on employee job strain when employees have low emotional stability. As such, Hypothesis 2 is also supported. To aid interpretation, we plotted the conditional effects in Figure 2a (high emotional stability) and 2b (low emotional stability).

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Table 3. Conditional effects.

Conditional effect of job complexity trajectory on job strain (2004–2006 sample)						
		Effect	SE	*t*	*p*	95% CI
High emotional stability	Low autonomy	1.90	0.35	5.49	0.00	[1.23, 2.58]
	High autonomy	0.75	0.36	2.10	0.04	[.05, 1.44]
Low emotional stability	Low autonomy	1.52	0.31	4.92	0.00	[.91, 2.12]
	High autonomy	1.67	0.39	4.30	0.00	[.91, 2.43]
Conditional effect of complexity trajectory × autonomy interaction on job strain (2004–2006 sample)						
		Effect	SE	*t*	*p*	95% CI
High emotional stability		−0.42	0.17	−2.43	0.02	[−.76, −.08]
Low emotional stability		0.05	0.18	0.31	0.76	[−.29, .40]
Conditional effect of job complexity trajectory on job strain (2008–2010 sample)						
		Effect	SE	*t*	*p*	95% CI
High emotional stability	Low autonomy	2.77	0.41	6.81	0.00	[1.97, 3.57]
	High autonomy	1.53	0.40	3.80	0.00	[.74, 2.31]
Low emotional stability	Low autonomy	1.97	0.35	5.63	0.00	[1.29, 2.66]
	High autonomy	2.52	0.43	5.91	0.00	[1.68, 3.35]
Conditional effect of complexity trajectory × autonomy interaction on job strain (2008–2010 sample)						
		Effect	SE	*t*	*p*	95% CI
High emotional stability		−0.46	0.20	−2.28	0.02	[−.85, −.06]
Low emotional stability		0.20	0.20	1.01	0.31	[−.19, .59]

Hypothesis tests with 2008–2010 sample

The 2004–2006 data provided complete support for our hypotheses. The means, standard deviations, and correlations among variables in 2008–2010 are presented in the upper half of Table 1. The results of hierarchical linear regression and conditional effect analysis for 2008–2010 data are presented in Tables 2 and 3. In general, the 2008–2010 data replicated the findings we had from 2004–2006 data and again provided support for our hypotheses.

Specifically, Model 6 in Table 2 shows that, with average job complexity in a given period held constant, job complexity trajectory was significantly and positively related to employee job strain ($B = 2.17$, $p < .01$), explaining an additional 1.9% variance in job strain beyond average job complexity (F *change* $= 104.12$, $p < .01$). Hence, Hypothesis 1 is supported.

Also, Model 8 in Table 2 shows that the three-way interaction between job complexity trajectory, job autonomy and employee emotional stability is significant ($B = -.32$, $p < .05$). The conditional effects of job complexity trajectory exhibit a very similar pattern to that of the 2004–2006 data. When employees have high emotional stability, the interactive effect of job complexity trajectory and job autonomy is significant (*interactive effect*: $B = -.46$, $t = -2.28$, $p < .05$, *95% CI* $= [-.85, -.06]$). Specifically, the effect of complexity trajectory on job strain is stronger for those with low job autonomy ($B = 2.77$, $t = 6.81$, $p < .01$, *95% CI* $= [1.97, 3.57]$) than those with high job autonomy ($B = 1.53$, $t = 3.80$, $p < .01$, *95% CI* $= [.74, 2.31]$). In comparison, the interaction of job complexity trajectory and job autonomy is not significant for employees with low emotional stability (*interactive effect*: $B = .20$, $t = 1.01$, $p > .10$, *95% CI* $= [-.19, .59]$). That is, the "buffering" effect of job autonomy only holds when employees have high emotional stability. Specifically, when employees have low emotional stability, the effects of job complexity trajectory on employee job strain are similar across employees with low job autonomy ($B = 1.97$, $t = 5.63$, $p < .01$, *95% CI* $= [1.29, 2.66]$) or high job autonomy ($B = 2.52$, $t = 5.91$, $p < .01$, *95% CI* $= [1.68, 3.35]$). To aid interpretation, we plotted the conditional effects for employees with high emotional stability in Figure 3a and for employees with low emotional stability in Figure 3b. Taken together, Hypothesis 2 is again supported in this second sample.

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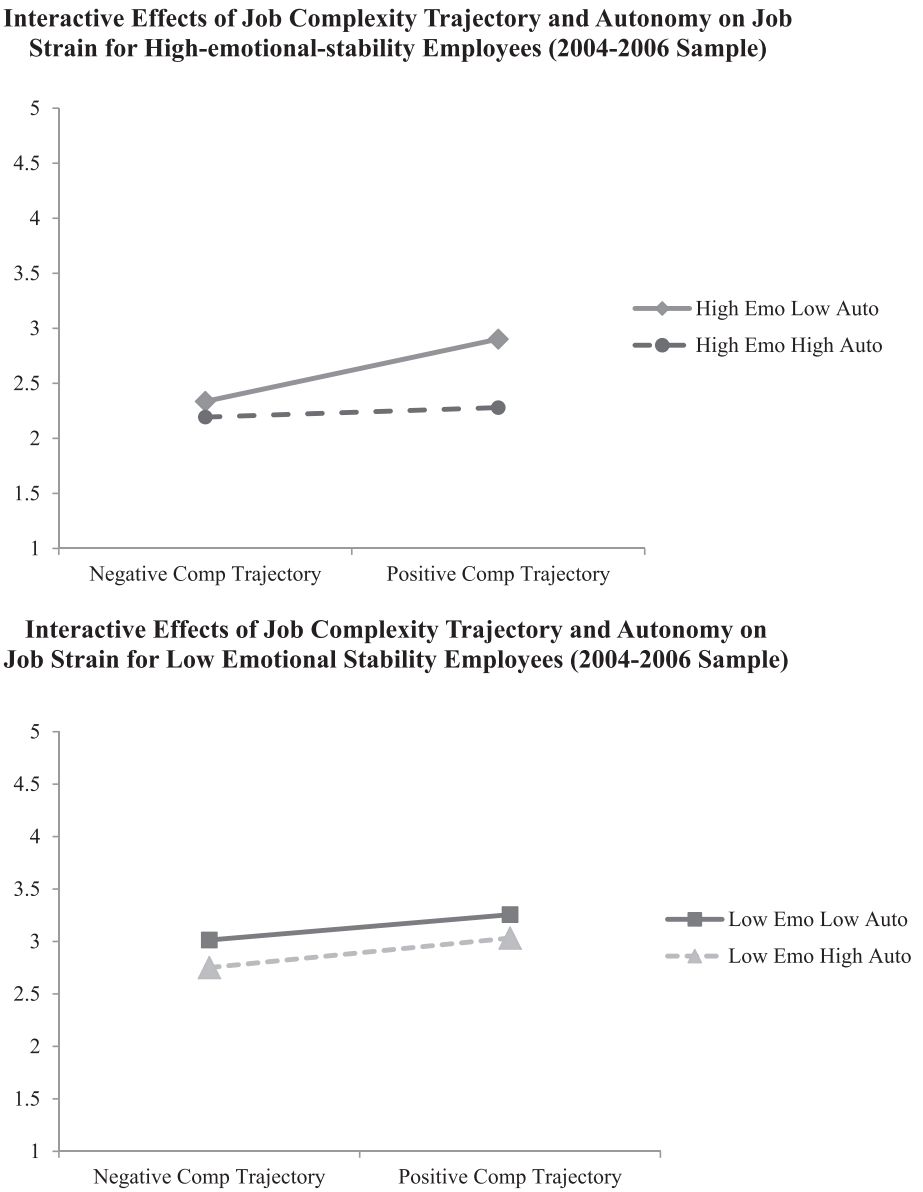

Figure 2. (a) Interactive effects of job complexity trajectory and autonomy on job strain for high-emotional-stability employees (2004–2006 sample) and (b) interactive effects of job complexity trajectory and autonomy on job strain for low-emotional-stability employees (2004–2006 sample)

Discussion

With two sets of longitudinal data, we show that, with the average job complexity in a given period held constant, the trajectory of job complexity is significantly related to employee job strain (H1). That is, an employee who experienced an upward trajectory in job complexity is likely to experience more strain than the one who experienced a

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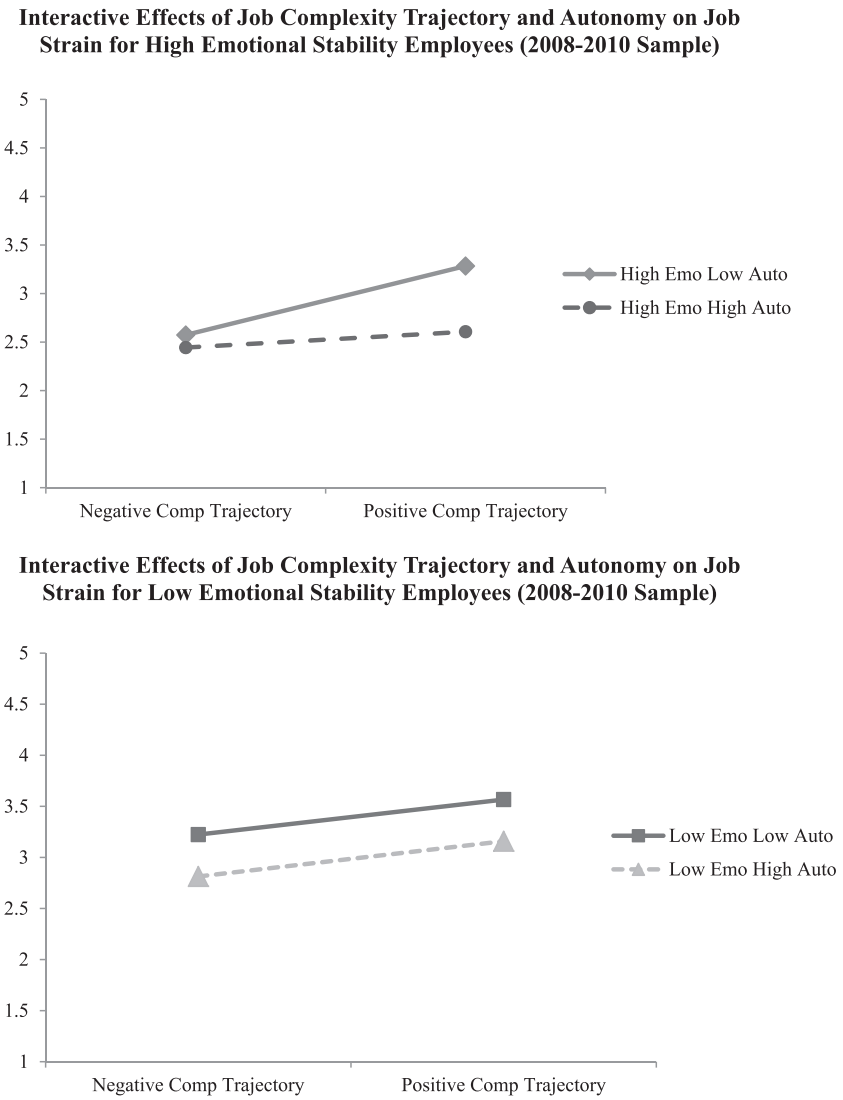

Figure 3. (a) Interactive effects of job complexity trajectory and autonomy on job strain for high-emotional-stability employees (2008–2010 sample) and (b) interactive effects of job complexity trajectory and autonomy on job strain for low-emotional-stability employees (2008–2010 sample)

downward trajectory, holding constant their average job complexity over time. Our study also sheds light on how this effect is jointly moderated by job autonomy and employees' emotional stability (H2). Specifically, for employees with higher emotional stability, job autonomy during the given period manages to mitigate the strain brought on by the increasing job complexity trajectory (Figures 2a and 3a); whereas for those with lower emotional stability, job autonomy did not make a difference in the relationship between job complexity trajectory and job strain (Figures 2b and 3b).

Further, three empirical strengths of our study are noteworthy. First, a large sample size (more than 4000) increases the power of our study to confirm a three-way interaction effect. Second, our sample allows for generalization beyond

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a specific company or profession. With the nation-wide, relatively random sampling design, people in our study are sampled from different ages, races, professions, companies, etc. Third, by extracting, analyzing, and replicating our results in two different longitudinal datasets from two different time periods, we provide strong support for the theoretical model.

We recognize that the variances explained by job complexity trajectory and its three-way interaction are relatively small, which to some extent casts doubt on the practical implications of our findings. We speculate that the time interval (one year) of capturing job complexity over time is likely responsible for such small variances explained. Existing organizational studies examining the effect of trajectory use much shorter timeframes. For example, Hausknecht et al. (2011) captured perceived justice trajectory with three months as the interval. Chen et al. (2011) conducted three studies and use intervals ranging from one month to three months. Boswell et al. (2009) and Liu et al. (2012) measured job satisfaction every six months, which is the longest interval adopted in existing organizational studies on trajectories. Although there is no clear guideline on the timeframe for capturing a trajectory, Ariely and Carmon (2003) note that memory decay may play a role in shaping individuals' summary assessment of a trend. When forming a summary assessment of a certain experience, how long ago would an individual recall to retrieve related information remains an open empirical question. The timeframe we adopt in this study is substantially longer than the existing experimental and organizational studies on gestalt characteristics theory. We speculate that the effect of trajectory identified in our study is diluted as a result of the year-long interval imposed by the archival data we use.

The small effect sizes of our findings may also result from the relatively limited variance of job complexity trajectory that we observe in our data ($M = .06$, $SD = .11$ in the 2004–2006 data, and $M = -.02$, $SD = .09$ in the 2008–2010 data), compared to existing research on job satisfaction trajectory that normally report a standard deviation from .15 to .31 (Chen et al., 2011; Liu et al., 2012). As we noted, employees are more likely to experience a salient increasing trajectory of job complexity when they face major task restructuring, which often occurs with organizational changes, work procedures improvement, new information technology adoption, and company downsizing. In other situations without major work changes or events, the change of job complexity (and other work characteristics) over time may be less dramatic. Therefore, we encourage future research to study job complexity trajectory in contexts where researchers can capture more dramatic changes in job complexity, such as newcomer socialization. Newcomers are more likely to experience increasing job complexity as they are assigned more sophisticated tasks over time. Alternatively, researchers can also study changes in job complexity in companies that are going through major organizational changes. We speculate that, by capturing more variance in job complexity trajectory, the explanatory power of job complexity trajectory and the interactive effects can be improved.

Still, our study represents an early or initial investigation on the trajectory perspective of work characteristics and its contingencies. Even with our modest explained variance, our theory grounded, theory informed, and significant results justify future research aimed at replicating, expanding upon, or simply falsifying our "early on" research. In other words, we focus more on avoiding Type 2, instead of Type 1, errors.

Theoretical implications

Our paper contributes to the literature of work design, gestalt characteristics theory, and job-demand-control theory. First, this study suggests that considering the trajectory of work characteristics is a promising perspective in examining dynamics in work characteristics and can improve our understanding of the relationships between work design and relevant employee outcomes. Researchers have long called for more dynamic perspectives on examining work design (Brousseau, 1983); one of them is to look at the reciprocal process between work characteristics and employee outcomes (Grant & Parker, 2009). As an example, Clegg and Spencer (2007) show that employees with higher performance gain more trust from managers; managers, in turn, offer more autonomy and allow them to expand their roles, which further leads to higher intrinsic motivation and consequentially

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higher job performance. Our research suggests another avenue in exploring the dynamics of work characteristics. Drawing on gestalt characteristics theory, we suggest that researchers can improve the prediction of employee work outcomes by going beyond using *where employees are* to predict *how they will be or behave*; instead, we should extend the focus to include *where they were* or *what they have been through*. Future research might study trajectories or trends of other work characteristics and extend the outcomes of interest to job performance, OCB, and turnover. This line of research can provide insights on managerial restructuring of employees' work. For example, although job autonomy is in general thought to increase employees' intrinsic motivation and performance, an abrupt increase in autonomy—without giving sufficient time for adaptation—might back fire and increase employees' pressure without enhancing motivation.

Second, this paper advances gestalt characteristics theory by not only extending its application to the context of work design, but, more importantly, also examining it in a context where the positivity or negativity of an experience is less clear. Early psychological studies on gestalt characteristics theory focus on unpleasant experiences such as discomfort, medical procedures, and queuing, while giving little attention to pleasant experiences (Ariely & Carmon, 2003). In contrast, recent organizational studies examining experience trajectory focus on positive and pleasant experiences such as job satisfaction and perceived justice. These two streams of research consistently examine the experiences that are clearly deemed as positive or negative. In our paper, we suggest that the positivity/negativity of the experience of dealing with job complexity might vary across different contexts and different individuals; thus, the effect of job complexity trajectory on job strain is in turn contingent on certain contextual and individual factors. As such, the presented research offers a new perspective on exploring the contingencies of the dynamic gestalt characteristic—that is, taking into consideration the factors that might shape the negativity or positivity of a certain experience. We believe that such perspective is critical as gestalt characteristics theory is applied to a broader range of organizational experiences that have seemingly less clear labels of positivity or negativity.

Third, the moderating role of emotional stability identified in our study contributes to job-demand-control theory (Karasek, 1979) by bridging it to emotional stability and the exposure-reactivity model (Bolger & Zuckerman, 1995). Job-demand-control theory is one of the most influential theories in the literature of job stress. Although the notion that job control can "buffer" the adverse effect of job demand on job strain has received substantial support since its introduction, there are also a large number of studies failing to support it. The mixed empirical evidence is to some extent attributed to differences in the measurement of job demands and strain (cf. Van der Doef & Maes, 1999). However, there is a growing consensus that individual differences play an important role in whether job control can be utilized to counter the strain brought by job demands (Meier et al., 2008; Parker & Sprigg, 1999; Salanova et al., 2002; Schaubroeck et al., 2001; Schaubroeck & Merritt, 1997). Our findings lend supports to this important direction for refining and improving job-demand-control theory. More important, we introduce Bolger and Zuckerman's (1995) exposure-reactivity model to explain why individual characteristics make a difference in the "buffering" effect of job control—that is, job control does not help to mitigate job strain for some employees because they rely on more on passive and emotion-based coping strategies, rather than active and problem-solving strategies where job control will be useful.

Practical implications

Our results indicate that an increasing trend of job complexity is associated with higher employee job strain. The more dramatic that increase is, the more additional job strain is brought to an employee. In some cases, task restructuring for employees occurs when organizations/teams adopt new work procedures, use a new information system, or reallocate tasks because of downsizing (Nikolova et al., 2014). As such, new skills and knowledge are required of them, which may result in a significant increase in employees' perceived job complexity and in turn more strain.

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Based on our findings, we have several suggestions for managers and organizations to minimize the adverse effect of increasing job complexity on employee job strain. First, managers and organizations should plan ahead and allow sufficient time for the employees to gradually learn the new knowledge and skills required of the tasks before taking on them. As such, perceived job complexity will increase in a much steadier manner and the focal employee will experience less strain. Second, even when such planning ahead is not available because of time urgency or unexpected request, managers may still effectively intervene by directly shaping employees' expectation of future job complexity. This is because an upward job complexity trajectory, according to gestalt characteristics theory, increases employee strain by instilling the expectation that job complexity will continue to rise in the future. Third, when managers are choosing which employee to assign for the new tasks that require complex knowledge and skills, managers should tilt toward employees with higher emotional stability and ensure sufficient job autonomy, so that the incremental job strain can be minimized. As a final note, when managers believe that assigning some new tasks to employees may increase their job complexity, it may not necessarily appear the same way in the eyes of the focal employees. Therefore, bilateral communication is needed to confirm the newly added tasks are indeed increasing employees' perceived job complexity before applying the suggestions we address above.

Limitations and future research

Our study has several shortcomings that might require further investigations in the future. First, the timeframe for the effects of individual difference and job characteristics on job strain merit further investigation. According to Mitchell and James (2001), the time when X and Y are measured is crucial for estimating the true strength of the relationship. In our study, data are collected annually. We cannot be sure whether a one-year interval is the most appropriate. As noted earlier, we speculate that one year as the length of the interval may have attenuated the effects of the trajectory found in our study, and is in part responsible for the small variance explained by the three-way interactions. To address this, we suggest that future research should examine the trajectory of job complexity work characteristics by shortening the time interval between assessments, and focusing on contexts where the change of work characteristics is more salient (i.e., during organizational change, or newcomer socialization).

Second, the measure of job complexity and job strain are not from well-established scales. Nonetheless, the evidence on the convergent validity of the two measures should lessen somewhat concerns with construct validity. Future research might adopt, however, more established scales for our focal constructs in order to replicate and/or extend our study.

Third, we speculate that employees' learning goal orientation and performance goal orientation may also be important contingencies on the effect of job complexity trajectory on employee job strain. Employees with high learning goal orientation may be motivated and enthused by the opportunities to learn new skills and knowledge as job complexity continue to increase. As such, the effect of an increasing trend of job complexity on job strain might be significantly attenuated when employees have high learning goal orientation.

Conclusions

Researchers have been calling for a more dynamic investigation on how work characteristics influence employee outcomes. Drawing from gestalt characteristics theory and using two longitudinal data sets, our study answers to this call by focusing on how the intra-individual variability of job complexity influence employee strain. We encourage more future research to explore the value of applying the perspective of trajectory in linking work characteristics to employee outcomes.

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