



The building blocks of job insecurity: The impact of environmental and person-related variables on job insecurity perceptions

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This study unites two perspectives concerning the determinants of job insecurity perceptions that exist in the literature and that resemble the classical nature–nurture debate. On the ‘nurture’ side, we investigated the company performance and type of contract, while we focused on negative affectivity and locus of control on the ‘nature’ side. In addition to demonstrating the known main effects of the respective predictors, we examined the proportional reduction in prediction error for both predictor types. Based on Lazarus’ stress model, we also hypothesized interactive effects between the environmental and person-related predictors. Multilevel analyses of 640 employees from 50 companies revealed that all four variables significantly and incrementally predicted job insecurity in the hypothesized direction. Interestingly, the person-related variables contributed more than twice as much to the reduction in prediction error in job insecurity perceptions when compared with the environmental variables. Among the hypothesized interaction effects, only locus of control significantly interacted with type of contract in predicting job insecurity perceptions (employees on a temporary contract experienced a steeper incline in job insecurity perceptions with increasing levels of external locus of control relative to employees on a permanent contract). We discuss implications for the conceptualization of job insecurity as well as practical implications.

Practitioner points

- The study shows that the person-related variables negative affectivity and locus of control weigh more heavily in the reduction in prediction error in job insecurity perceptions compared with the environmental variables company performance and type of contract. Above this, external locus of control was more strongly related to job insecurity perceptions among employees on a temporary contract, compared with employees on a permanent contract.
- To reduce job insecurity perceptions, managers should try to decrease temporary contract arrangements and take employees’ personality dispositions into account (e.g., when assigning employees to work teams). By doing so, employees with extremely high negative affectivity and a strong external locus of control might be ‘positively’ affected by other team members (with less severe levels on these traits).
- Moreover, managers should try to reduce any negative cues about future employment prospects that employees could interpret the wrong way. Instead, managers should try to give positive feedback concerning employment (if this fits the situation at hand) and/or verbalize negative messages with an unambiguous interpretation.

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There is a broad consensus among researchers that job insecurity is a detrimental work stressor. The most recent meta-analysis (Cheng & Chan, 2008) has shown that job insecurity, that is, a person's 'concern about the future permanence of the job' (Van Vuuren & Klandermans, 1990, p. 133), goes hand in hand with reduced job attitudes, impaired mental and physical well-being, and performance decrements. Primary studies have investigated several additional correlates of job insecurity, such as less 'esprit de corps' among co-workers (Reisel, Chia, & Maloles, 2005), increased sickness presenteeism (Heponiemi *et al.*, 2010), and decreased safety motivation and safety compliance (Probst & Brubaker, 2001).

However, less research and less agreement exists with regard to the question of exactly why people feel job insecurity, that is, what are the main drivers of job insecurity perceptions. In essence, two perspectives dominate this issue, which bears great resemblance to the classical nature–nurture debate. The first, more prominent, perspective centres around environmental or 'nurturelike' determinants of job insecurity at both the company level and at the level of the individual employee. Profit problems of the respective company and precarious employment conditions are widely described as such aspects leading people to perceive their jobs are at risk (De Witte, 2005; Kinnunen & Nätti, 1994). The second perspective can be summarized as centring around 'naturelike' characteristics that characterize people's attitudes, beliefs and values. In the context of this study, our focus will be on personality variables that determine how people generally view the world and external stimuli around them (Näswall, Sverke, & Hellgren, 2005; Spector, Zapf, Chen, & Frese, 2000).

As things stand, these two different lines of thought about the major determinants of job insecurity co-exist independently in the literature. The current study will connect these two perspectives for the first time, making it possible to investigate incremental additive and interactive effects of the respective variables. Lazarus' (Lazarus, 2001; Lazarus & Folkman, 1984) transactional stress model will serve as the theoretical basis of this study, as it views stressor perceptions as transactions resulting from the person–environment interface. On the 'nurture' side, we focus on company performance and contract type – two constructs that have been repeatedly discussed in the area of job insecurity (Büssing, 1999; De Witte & Näswall, 2003; Greenhalgh & Rosenblatt, 1984). On the 'nature' side, we focus on two personality variables: Negative affectivity (NA, i.e., a person's disposition to experience aversive mood states, Watson & Clark, 1984) and locus of control (i.e., a person's belief about the controllability of events, Rotter, 1966). Both variables are considered central constructs in general stress research (Spector, 1988; Spector & O'Connell, 1994; Spector *et al.*, 2000; Wang, Bowling, & Eschlemann, 2010) and in the job insecurity field (De Witte, 2005; Näswall *et al.*, 2005). In essence, both variables have been demonstrated to be crucial for shaping people's perceptions and reactions towards external stimuli (Hart & Cooper, 2001).

This study makes several contributions to the literature. First, our research provides deeper insight into the building blocks of job insecurity perceptions. As this study allows for estimating relative impacts and interactions of the proposed determinants, we will gain a better understanding of the construction of job insecurity perceptions, as, as Klandermans, Klein Hesselink, and Van Vuuren (2010, p. 559) put it, 'understanding job insecurity and differentiating what part originates in people's head and what part in their circumstances is crucial for those who want to redress its negative consequences'. Second, our study is a response to the call for a multilevel perspective on stressors and stress processes (Bliese & Jex, 1999, 2002; Probst, 2010; Sinclair, Sears, Probst, & Zajack, 2010): Because analyses will be based on a multicompany data set consisting of 640

employees nested in 50 companies, our study enables us to simultaneously study predictors at both the company level and the level of the individual employee. Third, our study will provide practical insights regarding which environmental and person-related variables are additively and interactively associated with the perception of job insecurity. Based on this knowledge, practical recommendations and specific interventions can be given and be planned to reduce job insecurity perceptions.

The following theoretical section is organized as follows: We will start by introducing Lazarus' (Lazarus, 2001; Lazarus & Folkman, 1984) stress model to make the case that stressor perception is a transactional process based on both person and environment factors. Next, we will explain additive effects of environmental and person-related variables that have been the subject of previous research and which we consider crucial blocks in building the perception of job insecurity. Afterwards, we will formulate a research question about the relative reduction in prediction error of both variable types and also hypothesize interaction effects between them – two issues that have not been dealt with before, but that will allow a deeper understanding about why and how people perceive job insecurity.

Stressor perception in the context of Lazarus' transactional stress model

Although researchers have continuously aimed at measuring stressors as objectively as possible, the way a person perceives stressors is not a direct reflection of any objective characteristics (Perrewé & Zellars, 1999; Semmer, Grebner, & Elfering, 2004). According to Lazarus' (Lazarus, 2001; Lazarus & Folkman, 1984, p. 19) transactional stress model, stressor perception is a conglomerate of both objective stimuli and individual characteristics. That 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'. The process of this person–environment transaction results in a classification of the stressor (i.e., being a challenge, a threat or a harm/loss) and accompanying behavioural or emotional coping reactions.

Environmental variables: Company performance and contract type

The impact of company-related performance on individual job insecurity has been theorized from the beginnings of systematic research into this topic (Greenhalgh & Rosenblatt, 1984, 2010). In fact, many companies choose organizational downsizing as their method of choice to cope with performance decrements (De Meuse, Bergmann, Vanderheiden, & Roraff, 2004; McKinley & Scherer, 2000). Benefits of downsizing are seen in the reduction in operating costs, the elimination of unnecessary levels of management, streamlining of the operation, an enhancement of overall effectiveness, and the improved competitiveness of a company (De Meuse *et al.*, 2004). This strategy implies that as soon as employees get negative information about their company's effectiveness, they may perceive their jobs to be at stake (i.e., they experience job insecurity).

Until now, only a few studies have focused on the relationship between company performance and job insecurity. Dooley, Rook, and Catalano (1987) conducted a first study among randomly dialled people in which they compared employees' job insecurity perceptions with archival employment information about the industry sector of the company they worked for. Job insecure employees were found to work in sectors that had experienced significantly more economic downturn prior to data

collection than their job secure counterparts, although the difference could be considered negligible (Cohen's $d = .08$). Similar approaches in which company risk or prosperity was operationalized with sector type (Kinnunen, Mauno, Nätti, & Happonen, 2000) or other indicators (such as reorganization plans or archival company data, Büssing, 1999; Klandermans & Van Vuuren, 1999; Probst, 2003; Roskies & Louis-Guerin, 1990) can be found in the few other studies. In sum, these studies tentatively suggest a moderate relationship between objective company circumstances and job insecurity perceptions.

However, in operationalizing company performance, these studies mainly relied on data that captured only certain facets or rather distal indicators of the construct. For this reason, the current study will benefit from employing a company performance indicator as is commonly used in business science for assessing credit risk ratings (Butera & Faff, 2006; Danos, Holt, & Imhoff, 1989; Ernst, Schneider, & Thielen, 2006). The advantage of such a performance indicator lies in the fact that it is a well-validated measure that incorporates a multitude of performance-relevant aspects at the same time. As the indicator employs a common metric, it can be easily used in a multicompany setting as is the case in this study. Our first hypothesis therefore states:

Hypothesis 1: Company performance will be negatively related to individual job insecurity perceptions.

The second predictor that constitutes an essential building block in the prediction of job insecurity perceptions is an employee's type of employment contract (i.e., permanent vs. contingent/temporary contracts). Whereas permanent contracts are open-ended in their duration and usually encompass a fixed number of working hours, contingent contracts are dependent jobs of limited duration that may additionally encompass varying working hours (Connelly & Gallagher, 2004). Contingent work can take different forms, such as being employed on a fixed-term contract (e.g., for the duration of a certain project or in the form of temporary replacement), on a contract for temporary work (i.e., seasonal work or filling short-term vacancies), or on a temporary agency contract (i.e., the worker is officially employed by the agency, but temporarily hired out to a client firm; Aronsson, 1999; Connelly & Gallagher, 2004; McLean Parks, Kidder, & Gallagher, 1998). Due to strategies that aim at adding flexibility to the labour market, contingent employment arrangements have experienced an upsurge in both Western and Eastern nations within the last decades (Quinlan & Bohle, 2004). According to Eurostat (2013), the proportion of employees with a contract of limited duration rose to an average 14% in the EU-27 in 2011.

Job insecurity has repeatedly been described as being an inherent feature of temporary employment arrangements (De Witte & Näswall, 2003). In fact, a number of researchers term the employment contract as being one of the most crucial factors affecting job insecurity (De Witte & Näswall, 2003; Kinnunen & Nätti, 1994; Sverke, Gallagher, & Hellgren, 2000). Some even go as far as saying that job insecurity is 'hidden beneath' the type of contract (De Cuyper & De Witte, 2005; De Witte & Näswall, 2003). Indeed, a number of studies have shown that job insecurity perceptions are significantly higher among temporaries compared with permanents (De Witte & Näswall, 2003; Kinnunen & Nätti, 1994; Klein Hesselink & Van Vuuren, 1999; Parker, Griffin, Sprigg, & Wall, 2002). In line with this, our second hypothesis states:

Hypothesis 2: Type of contract will be related to job insecurity perceptions, with employees on a temporary contract reporting higher levels of job insecurity compared with employees on a permanent contract.

Person-related variables: Negative affectivity and locus of control

As we mentioned above, several person-related characteristics, especially personality variables, have been argued to affect stressor appraisal (Spector *et al.*, 2000; Watson & Pennebaker, 1989). Within the particular field of job insecurity, personality variables have been repeatedly argued to have special relevance (De Witte, 2005; Kinnunen, Feldt, & Mauno, 2003), with a number of studies demonstrating considerable relationships between job insecurity perceptions and a diverse set of personality variables (Ashford, Lee, & Bobko, 1989; Kinnunen, Mauno, Nätti, & Happonen, 1999; Kinnunen *et al.*, 2003; Näswall *et al.*, 2005; Orpen, 1994; Roskies & Louis-Guerin, 1990; Van Vuuren, Klandermans, Jacobson, & Hartley, 1991). Among those, NA and locus of control are particularly prominent personality variables both in the context of job insecurity (De Witte, 2005; Näswall *et al.*, 2005) and in general stress research (Spector & O'Connell, 1994; Spector *et al.*, 2000). Both personality characteristics are related to a negative perception of the self, others and environmental cues in general (Spector *et al.*, 2000; Watson & Pennebaker, 1989). Hence, according to Hart and Cooper (2001; Näswall *et al.*, 2005), they are of utmost importance in the prediction of occupational health and well-being phenomena relative to other personality variables (e.g., conscientiousness), which appear to be more relevant in performance-related predictions.

Negative Affectivity is a person's tendency to experience aversive mood states, such as anger, fearfulness or depression (Watson & Pennebaker, 1989). Due to their negative world view, high NA people have been argued to experience stressors at a higher level than their low NA counterparts (Spector *et al.*, 2000). Put differently, people high in NA are hypervigilant towards stressful stimuli; they are inclined to focus on negative information in their environment (Levin & Stokes, 1989; Necowitz & Roznowski, 1994) and appraise stimuli as potentially threatening that others may overlook (Watson & Pennebaker, 1989). NA and job insecurity share a considerable amount of variance (Bosman, Rothmann, & Buitendach, 2005; Mak & Mueller, 2000; Näswall *et al.*, 2005; Roskies, Louis-Guerin, & Fournier, 1993). Although these studies were cross-sectional in nature, the findings allow the assumption that high NA people tend to absorb negative aspects of the world, which they then generalize to their individual perception of job insecurity.

In addition, locus of control is likely to have a similar effect on the perception of job insecurity. Locus of control is defined as 'a generalized expectancy that rewards, reinforcements or outcomes in life are controlled either by one's own actions (internality) or by other factors (externality)' (Spector, 1988, p. 335). People with an internal locus of control differ from those with an external locus of control in their perceptual processing of the (work) environment (Wang *et al.*, 2010). Whereas internals are inclined to perceive their work environment as more positive and controllable, externals focus on the negative aspects that they cannot change (Judge, Locke, & Durham, 1997; Judge, Locke, Durham, & Kluger, 1998; Rotter, 1966; Wang *et al.*, 2010). In the context of job insecurity, employees with an internal locus of control can be expected to see themselves and their behaviour as a major factor in

diminishing job insecurity; they will therefore perceive their jobs to be less at risk, as they feel they can do something to protect against this threatening situation.

In sum, NA and locus of control emerge as crucial personality factors in determining job insecurity perceptions. Hence, we expect them to best represent a filter influencing how employees recognize and appraise job-related cues around them.

Hypothesis 3: An employee's NA will be positively related to his or her job insecurity perception.

Hypothesis 4: An employee's external locus of control will be positively related to his or her job insecurity perception.

So far, we have argued that both environmental and person-related variables are predictive of an employee's job insecurity perceptions. As mentioned in the introductory section, these predictors have previously been researched independently. In our attempt to connect two different lines of thinking about the central predictors of job insecurity, our study also aims at disentangling the relative contributions of the described variable types in the prediction of individual job insecurity perceptions. Therefore, we formulate the following research question:

Research question: What are the relative impacts of the 'nurturelike' environmental predictors (i.e., company performance and type of contract) versus the 'naturelike' person-related variables (i.e., NA and locus of control)? That is, what is their proportional reduction in prediction error?

Investigating person × environment interactions

In addition to additive effects of both environmental and person-related variables, Lazarus' (Lazarus, 2001; Lazarus & Folkman, 1984) transactional model also suggests that interactive effects occur between these two types of predictors. In line with this reasoning, NA and locus of control can be viewed as variables that determine how environmental stimuli are perceived. That is, they modulate how people perceive and interpret environmental cues and stimuli. Therefore, employees high on NA and with an external locus of control should perceive the two stimuli of company performance and contract type as more negative and uncontrollable, respectively, thereby leading to a heightened level of perceived job insecurity. Generally, this reasoning is also in line with the hyper-responsivity mechanism (Spector *et al.*, 2000), which was originally proposed for NA, but was then extended to other personality variables in the context of stress (Höge & Büssing, 2004; Näswall *et al.*, 2005). According to this mechanism, NA and an external locus of control predispose people to react in a more sensible way to environmental stimuli. Specifically, people high on NA and with an external locus of control are theorized to react more negatively to negative external stimuli and less positively to positive external stimuli. Hence, company performance should interact with NA and external locus of control in predicting job insecurity perceptions. Put differently, we propose both personality variables will weaken the negative impact that company performance has on job insecurity. In

a similar vein, we propose that NA and external locus of control will likewise interact with contract type in predicting job insecurity perceptions. As people high on these traits experience more negative reactions towards adverse external stimuli, the impact of temporary contract (vs. permanent contract) on job insecurity perceptions should be strengthened by NA and external locus of control. Based on this reasoning, we propose the following interaction-based hypotheses:

Hypothesis 5: (A) NA and (B) locus of control interact with company performance in predicting job insecurity perceptions. Specifically, the (A) higher NA and (B) the more external one's locus of control, the weaker is the impact that company performance has on job insecurity perceptions.

Hypothesis 6: (A) NA and (B) locus of control interact with type of contract in predicting job insecurity perceptions. Specifically, the (A) higher NA and (B) the more external one's locus of control, the stronger is the impact that temporary contract (vs. permanent contract) has on job insecurity perceptions.

Method

Procedure and sample

Data were collected from employees of small- to medium-sized companies within the German-speaking part of Switzerland between late 2009 and late 2010. Although Switzerland has a relatively low unemployment rate (approximately 3.3%, Staatssekretariat für Wirtschaft SECO, 2011), unemployment has been repeatedly shown to constitute the biggest concern among Swiss people (Credit Suisse, 2012).

We approached companies by phone and told them that we were conducting a study on the 'experience of work'. After the company had given consent, we approached employees via company mail and invited them to participate in our anonymous internet survey. In case the employees could not be reached by e-mail or were not familiar with answering online questionnaires, we offered them paper-and-pencil questionnaires with pre-stamped return envelopes (these were only requested by five salespeople from a jewellery shop). In sum, 159 companies participated in the study. As we only included companies in the analysis that provided at least five fully completed employee questionnaires, the number of companies was reduced to 59. For nine of these companies, no company performance data were available from Dun and Bradstreet; hence, the final sample consisted of 50 companies that provided a total of 640 questionnaires.

On average, participants were 38 years old ($SD = 12$ years); 48% of participants were male, 82% had a full-time position, 28% had a supervisor position and 32 people had a permanent contract. As regards educational level, 4.3% of the participants indicated to have had the mandatory years of schooling, 46.2% had performed a 2- to 3-year professional training, 18.3% had performed a 2- to 3-year professional training and had obtained an additional degree, 6% had obtained a high school diploma, 12.8% had attended a university of applied sciences and 12.3% had attended a university, had an MBA certificate or a doctoral degree (6% of the respondents did not provide information on this variable). Companies came from various types of industries, such as construction, manufacturing, transportation, communications, wholesale, retail, finance, real estate and services. Concerning the different company sectors, 5.2% of participants worked in the manufacturing

sector, 52.2% were office workers, 1.9% were warehouse workers and 11.3% were working in sales and distribution. The remaining 19.5% were working in other areas, with the majority working in the fields of customer service and research and development. In sum, participants in our study had very diverse educational backgrounds and occupational positions. In return for their participation, companies received a summary of the results, and a benchmark comparing their results with those of other companies in their industry.

Measures

Data were obtained at the company level (Level 2) and the level of the individual employee (Level 1). At the company level, we obtained objective company performance, and at the employee level,¹ we obtained measures of job insecurity, NA, work locus of control, type of contract and several control variables.

Company-level measure

Objective company performance was operationalized using the Failure Score provided by Dun and Bradstreet. The Failure Score indicates a company's likelihood of bankruptcy and is originally scaled from 1 (high risk) to 100 (low risk). Dun and Bradstreet calculates this score on the basis of information concerning the company's debt enforcements, transaction volume, equity capital, legal form, company age, number of employees, company location, relations to parent and subsidiary companies and branch affiliation. The Failure Score is a well-recognized credit risk score and is often directly used by banks in their lending decisions (Danos *et al.*, 1989) or to externally validate self-constructed methods to determine their clients' bankruptcy risk (Butera & Faff, 2006). Because company performance measures are highly industry dependent and can only be interpreted meaningfully by taking into account the respective industry scores (Ernst *et al.*, 2006), we centred company scores at the respective industry score provided by Dun and Bradstreet. We rescored this measure such that higher scores indicate better company performance.

Employee-level measures

Job insecurity was measured with four items assessing cognitive job insecurity (i.e., the perception of the likelihood of losing one's job) taken from Borg (1992; for the same shortened scale see Staufienbiel & König, 2010). Each item was assessed on a 7-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. A sample item is 'In my opinion, I will retain my job in the near future' (reverse-coded). Cronbach's $\alpha = .91$.

Negative Affectivity was measured with 10 items of the Positive and Negative Affect Schedule (PANAS, Watson, Clark, & Tellegen, 1988; German version by Krohne, Egloff, Kohlmann, & Tausch, 1996). All items were adjectives to be rated on a 5-point Likert scale ranging from 1 = not at all to 5 = extremely. Participants were asked how well the items describe their affective state in general. Sample items were 'distressed', 'upset' and 'irritable'. Cronbach's $\alpha = .81$.

Work locus of control was measured with the 16-item Work Locus of Control Scale (Spector, 1988; German version by Büssing & Glaser, 1998). All items were assessed on a

¹ Please note that the employee level encompasses all variables that may vary between persons/employees (i.e., not only personality variables, but also positional variables such as age, gender, etc.).

7-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. A sample item is 'on most jobs, people can pretty much accomplish whatever they set out to accomplish' (reverse-coded). Higher scores indicate a more external locus of control. Cronbach's $\alpha = .81$.

Control variables

We included age, gender, full-time employment and supervisor position as control variables at the employee level. Past research has shown that older people tend to have less job insecurity (Näswall *et al.*, 2005), as they might view themselves less in solely the role of the money earner, and instead might prepare themselves for their new role, namely retirement (De Witte, 1999). Further, it appears that men have higher job insecurity than women (Kinnunen *et al.*, 1999), which might be explained on the basis of role theory. For (married) men, working and earning money is still the core of their role in society, whereas (married) women have more alternative roles available (household duties, taking care of the children, etc.). Moreover, people in a supervisor position (Orpen, 1993) often report less job insecurity than those without a supervisor position, and part-time employees have been found to report higher job insecurity levels compared with full-time employees (D'Souza, Strazdins, Lim, Broom, & Rodgers, 2003).

Data analysis

Data were collected at both the employee (Level 1) and at the company level (Level 2), that is, employees were nested within companies. We chose multilevel modelling to analyse the data, because it takes into account the dependencies at the lower level (Bryk & Raudenbush, 1992; Snijders & Bosker, 1999). Following the recommendations by Enders and Tofighi (2007) to test for cross-level interactions and interactions between pairs of Level 1 variables, we centred employee-level predictors at the group mean and company-level predictors at the grand mean.

To test the hypotheses, we followed a hierarchical test procedure and compared a set of nested models. We started with a model including only the intercept and added the four control variables in Model 1. In line with the order of hypotheses, the environmental predictors were added in Model 2. In Model 3, we entered the person-related predictors. Finally, we entered the respective interaction terms between the environmental and the person-related variables. We tested the improvement of every model with a likelihood ratio statistic and used the HLM 6.0 software (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2009) to analyse the data.

Results

Means, standard deviations and zero-order correlations are displayed in Table 1.

To determine whether multilevel modelling was indeed appropriate for analysing our data, we calculated the intraclass correlation coefficient 1 (ICC1), which indicates the percentage of variance at the company level (Bliese, 2000; LeBreton & Senter, 2008). The ICC1 was .131 for our data, indicating that 13.1% of the variance in employee job insecurity was accounted for by between-company differences. Put differently, the remaining 86.9% of the variance in individual job insecurity perceptions was accounted for by between-person differences (including error variance). As the ICC1 was greater

Table 1. Means, standard deviations, and zero-order correlations

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Company performance	41.20 ^e	18.38	—	-.28*	-.18	-.18	-.19	-.02	.10	.10	.20
2. Job insecurity	2.74	1.18		—	-.03	.56**	.14	.07	-.06	.20	.14
3. Negative affectivity	1.54	0.50		.19**	—	.16	-.20	.11	.10	.14	.03
4. Locus of control	3.06	0.66		.38**	.31**	—	.00	.18	.15	.43**	-.03
5. Age	38.41	11.75		.02	-.14**	.02	—	-.37**	.04	-.19	-.21
6. Gender ^a	1.52	0.50		-.03	-.08*	.01	-.16**	—	.31*	.48**	.07
7. Full-time employment ^b	1.18	0.39		.03	-.10*	.09*	.15**	.35**	—	.29*	-.20
8. Supervisor position ^c	1.72	0.45		.15**	.10*	.20**	-.25**	.25**	.16**	—	-.02
9. Type of contract ^d	1.05	0.21		.12**	-.02	-.05	-.27**	.04	-.07	.09*	—

Note. Correlations below the diagonal are individual-level correlations (N = 640). Correlations above the diagonal are company-level correlations, with individual-level measures being aggregated to the company level (N = 50).

^a1 = male, 2 = female.

^b1 = yes, 2 = no (i.e., part-time employment).

^c1 = yes, 2 = no.

^d1 = permanent, 2 = temporary.

^eMean and standard deviation of the company performance score were calculated based on the industry-centred scores. For the uncentred scores the mean was 89.2 and the standard deviation was 11.

p* < .05; *p* < .01 (two-tailed).

Table 2. Multilevel estimates for predicting job insecurity

	Nullmodel <i>t</i>	Model 1 <i>t</i>	Model 2 <i>t</i>	Model 3 <i>t</i>
Intercept	35.68 ***	35.62***	37.31***	37.08***
Age		0.16	0.98	1.17
Gender		-2.37*	-2.42*	-1.67
Full-time employment		1.55	1.66	1.59
Supervisor position		4.39***	4.26***	2.64**
Company performance			-2.13*	-2.13*
Type of contract			3.45**	4.43***
Negative affectivity				3.64**
Locus of control				7.34***
-2*log(lh)	1997.52	1973.07	1956.94	1869.84
Difference -2*log		24.45***	16.13**	87.10***
Δ df		4	2	2
Pseudo R^2 Level 1		0.0315	0.0344	0.1067
Pseudo R^2 Level 2		0.0000	0.0825	0.0000
Relativized pseudo R^2 Level 1		0.0274	0.0299	0.0927
Relativized pseudo R^2 Level 2		0.0000	0.0108	0.0000

Note. Relativized pseudo R^2 were calculated as follows: Relativized pseudo R^2 Level 1 = Pseudo R^2 Level 1 * 0.869; Relativized pseudo R^2 Level 2 = Pseudo R^2 Level 2 * 0.131.

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

than 0, it is appropriate to analyse the data by means of multilevel modelling (LeBreton & Senter, 2008).

Test of the main effect hypotheses

Table 2 displays the results of our hierarchical testing procedure to test for the main effects hypotheses. We tested the improvement of every model with a likelihood ratio statistic. In Model 1, the control variables significantly improved the model fit (difference $-2*\log = 24.45$, $df = 4$, $p < .001$), with gender and supervisor position emerging as significant predictors for job insecurity. In Model 2, both company performance and type of contract emerged as significant predictors in the hypothesized direction (for company performance $t = -2.13$, $p < .05$; for type of contract $t = 3.45$, $p < .01$); conjointly, they improved the model fit significantly (difference $-2*\log = 16.13$, $df = 2$, $p < .01$). Hence, Hypothesis 1 (stating that company performance would be negatively related to job insecurity) and Hypothesis 2 (stating that job insecurity would be higher among employees with a temporary contract) were supported. In Model 3, the two personality variables NA and locus of control significantly improved the model fit and predicted job insecurity in the hypothesized direction (for NA $t = 3.64$, $p < .01$; for locus of control $t = 7.34$, $p < .001$; difference $-2*\log = 87.10$, $df = 2$, $p < .001$). Hence, Hypothesis 3 (stating that NA would be positively related to job insecurity) and Hypothesis 4 (stating that external locus of control would be positively related to job insecurity) were supported.

To get a more thorough understanding of the relative contributions of our predictors of interest and to answer our research question, we calculated a pseudo R^2 measure for multilevel models (i.e., proportional reduction of prediction error) for both levels (Hox, 2010; Snijders & Bosker, 1994). We then put these values in

relation to the overall variance parts of each of the two levels (i.e., 13.1% on Level 2 and 86.9% on Level 1; for the exact calculation see the notes section below Table 2), which allowed us to directly compare the pseudo R^2 across both levels. Table 2 displays the results. Adding company performance and type of contract in Model 2 resulted in a 4.07% (i.e., 2.99 + 1.08%) incremental reduction in prediction error of the job insecurity scores across both levels. Adding NA and locus of control in Model 3 resulted in a 9.27% (i.e., 9.27 + 0.00%) incremental reduction in prediction error of the job insecurity scores across both levels. These results provide an answer to our research question: The two personality variables contributed more than twice as much to the reduction in prediction error compared with the environmental variables company performance and type of contract.

Test of the interaction hypotheses

We then tested the postulated interaction hypotheses (i.e., Hypotheses 5 and 6) by first introducing a random slope for the predictors of NA and locus of control to investigate whether the slopes did indeed vary across employees (Hox, 2010; Snijders & Bosker, 2012). Despite the fact that both slopes did not vary significantly, $\chi^2(48) = 44.08, p = ns.$, for NA; $\chi^2(48) = 47.44, p = ns.$, for locus of control, we proceeded with testing the cross-level interaction effects (for a detailed discussion on why cross-level interactions should be tested despite non-significant random slopes see Bliese & Jex, 2002; Snijders & Bosker, 2012). We then entered the two cross-level interactions (i.e., company performance \times NA, company performance \times locus of control, i.e., Hypotheses 5A and 5B) and the two Level 1 interactions (i.e., type of contract \times NA, type of contract \times locus of control, i.e., Hypotheses 6A and 6B) simultaneously into the regression model. While the type of contract \times locus of control interaction (i.e., Hypothesis 6B) turned out to be a significant predictor ($t = 2.41, p < .05$) of job insecurity perceptions, all other interaction terms were non-significant ($t = 0.78, p = ns.$, for company performance \times NA, Hypothesis 5A; $t = -1.37, p = ns.$, for company performance \times locus of control, Hypothesis 5B; $t = 1.14, p = ns.$, for type of contract \times NA, Hypothesis 6A).

Figure 1 displays the significant interaction between type of contract and locus of control in predicting job insecurity. As type of contract is a dichotomous variable, we plotted separate regression lines for each type of contract (i.e., temporary vs. permanent

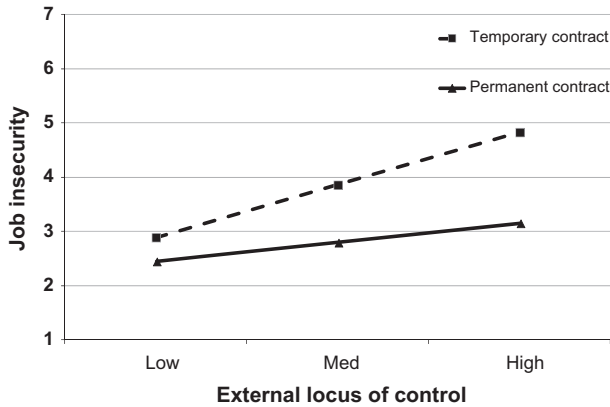


Figure 1. The interaction between type of contract and external locus of control in predicting job insecurity.

contract); locus of control is therefore displayed on the *x*-axis. In addition to plotting the interaction, we also computed simple slopes (Aiken & West, 1991). The simple slope of the regression of job insecurity on locus of control among employees with a permanent contract was significant, slope = .52, $t(636) = 7.18$, $p < .001$; the same applied to the simple slope among employees with a temporary contract, slope = 1.50, $t(636) = 3.66$, $p < .001$. In line with Hypothesis 6B, employees on a temporary contract experienced a steeper incline in job insecurity perceptions with increasing levels of external locus of control as compared to employees on a permanent contract. In sum, our findings support Hypothesis 6B, while the other three Hypotheses (i.e., 5A, 5B, and 6A) received no support.

As we had previously entered all four interaction effects simultaneously into the same model (thereby performing a more conservative test of the proposed hypotheses), we also ran separate analyses for the two interaction terms with NA (i.e., company performance \times NA, Hypothesis 5A, and type of contract \times NA, Hypothesis 6A) and the two interactions with locus of control (i.e., company performance \times locus of control, Hypothesis 5B, and type of contract \times locus of control, Hypothesis 6B). When solely entering the two NA interaction terms, type of contract \times NA (i.e., Hypothesis 6A) became a significant predictor ($t = 2.20$, $p < .05$) in the hypothesized direction (i.e., compared with employees on a permanent contract, employees on a temporary contract experienced a steeper incline in job insecurity perceptions with increasing levels of NA); the company performance \times NA interaction (i.e., Hypothesis 5A) remained non-significant ($t = 1.33$, $p = \text{ns.}$). When solely entering the two locus of control interaction terms, type of contract \times locus of control (i.e., Hypothesis 6B) stayed a significant predictor ($t = 3.32$, $p < .01$), while company performance \times locus of control (i.e., Hypothesis 5B) remained non-significant ($t = -1.13$, $p = \text{ns.}$). Hence, the additional analyses supported both Hypotheses 6A and 6B.

Discussion

This study connects two different lines of thought regarding the predictors of job insecurity perceptions. In sum, the results contain elements of the classic nature–nurture debate, with two environmental, ‘naturelike’ variables (i.e., company performance and type of contract) and the two person-related, ‘naturelike’ variables (NA and locus of control) significantly predicting job insecurity perceptions in the hypothesized direction. This finding is in line with previous arguments. When connecting the two variable types, our data revealed that the ‘naturelike’ variables weigh more heavily than the ‘nurturelike’ variables in predicting job insecurity perceptions. Moreover, we showed that environmental and person-related variables at least partly interact in predicting job insecurity perceptions, with employees on a temporary contract experiencing a steeper incline in job insecurity perceptions with increasing levels of external locus of control (compared with employees on a permanent contract).

Based on these findings, our study makes a number of contributions to the literature. First, our study highlights the need to unite the two different perspectives that have previously only been studied separately in the literature. In doing so, our study was able to estimate more than just the predictor types’ relative contributions in predicting job insecurity perceptions. By showing how variables from both perspectives interact in predicting job insecurity perceptions, we also made clear how their previous separation in the literature in fact missed an important part of the story.

Related to this, our findings raise the question of what is actually measured with perceived job insecurity, as we demonstrated that the two chosen personality variables contribute more than twice as much to the reduction in prediction error compared with the two environmental predictors. In fact, Näswall *et al.* (2005; Hellgren *et al.*, 1999) found that when adding these two personality variables above job insecurity in the prediction of various strains, the effects of job insecurity greatly diminished or even disappeared. Have we interpreted job insecurity results as perhaps too substantial, wrongly de-emphasizing the impact of personality? Yes and no. On the one hand, the impact of personality for shaping an individual's job insecurity perceptions has received far less attention compared with performance-related measures and economic indicators. However, a meta-analysis by Ferguson, Daniels, and Jones (2006) showed the following: A model for the prediction of concurrent and future strains that was solely based on negatively oriented personality (i.e., NA) fit the data better than a model that relied on perceived negative job characteristics. On the other hand, the chosen personality variables led to a 9% reduction in prediction error. As such, there is much variance left over, suggesting that there are many more determinants that make up perceived job insecurity. For this reason, and in line with De Witte (2005), it would be a mistake to reduce job insecurity perceptions to personality and something that just occurs in one's head. As we demonstrated by including contract type in this study, there are additional, positional variables at the individual level that make employees particularly vulnerable to experiencing job insecurity (for an overview see De Witte, 2005). Additionally, as we mentioned above, job insecurity perceptions have been demonstrated to be linked to a number of environmental and economic circumstances. Therefore, instead of asking questions related to the 'ultimate' driver for job insecurity, we should, as was performed in the current study, ask about additive and interactive effects.

Second, by gathering information from different levels, our study is a response to the call made by a number of researchers to study stress processes within a multilevel framework (Bliese & Jex, 2002; Probst, 2010). Within the field of job insecurity, this study is the first to investigate the nature–nurture perspective on job insecurity within a multilevel design (for the other three multilevel studies on different aspects of job insecurity see Debus, Probst, König, & Kleinmann, 2012; Sora, Caballer, Peiró, & De Witte, 2009; Sora, Caballer, Peiró, Silla, & Gracia, 2010). Applying such a multilevel design has far-reaching consequences, as it enables researchers to estimate the source of certain variance segments and focuses on how variables from different levels interact with each other. Indeed, many stress models (French and colleagues' person-environment fit model, 1982; Hobfoll's conservation of resources theory, 1989; Karasek's demands-control model, 1979; Van Harrison, 1978) explicitly argue for contextual factors at higher levels that may affect the stress process. However, these factors, particularly their interactions with lower-level variables, are often not modelled by researchers (Probst, 2010; Sinclair *et al.*, 2010). Hence, future research on occupational health phenomena should explicitly adopt a multilevel perspective.

In fact, even if we employed the above-highlighted multilevel perspective, our study investigated a selection of both environmental and person-related antecedents of job insecurity. As mentioned previously, we selected variables that are both important from a theoretical perspective, but have also received the greatest research attention in the field of job insecurity. Hence, there might be additional variables, particularly environmental variables, at the investigated levels that might additively and/or interactively explain variance in individual job insecurity perceptions. At the company level, for example, a

company's history of restructuring, the percentage of temporary workers and company's HR policies might be important additional variables to consider. At the individual level, an employee's former experience with restructuring and unemployment, for example, might also be highly predictive of his or her job insecurity perceptions. Likewise, job-related variables that are indicative of a worker's social class (e.g., manual vs. non-manual work, company sector in which an employee is working, cf. Sverke, Hellgren, & Näswall, 2002) might also have a substantial impact on an employee's job insecurity perceptions.

Moreover, recent research (Anderson & Pontusson, 2007; Erlinghagen, 2008; Green, 2009) and theoretical accounts in the field of economic stressors (Sinclair *et al.*, 2010) demonstrate that one should at least differentiate between three levels: (1) microlevel variables (i.e., variables at the level of the individual employee), (2) mesolevel variables (i.e., organizational or even regional variables) and (3) macrolevel variables (i.e., country-level variables). In other words, job insecurity perceptions and subsequent reactions might well be affected by country-level variables, such as legislation, gross domestic product or unemployment rate (for single-level studies that demonstrate a relationship between job insecurity perceptions and both the national unemployment rate and the economic situation see De Weerd, De Witte, Catellani, & Milesi, 2004; Nätti, Happonen, Kinnunen, & Mauno, 2005). In fact, a recent study (Debus *et al.*, 2012) among 15,200 employees nested in 24 countries demonstrated that relationships between job insecurity and job attitudes were affected by the cultural value of enacted uncertainty avoidance and the country-level social safety net. Hence, to gain a more thorough understanding of how people perceive and deal with job insecurity, future research needs to take into account these contextual factors.

Two findings merit further consideration. First, our data revealed that only 13% of the variance in job insecurity ratings was due to differences between companies, while the rest (i.e., 87%) was due to differences between employees. Although the impact of between-company differences appears relatively small at first sight, this finding in fact corroborates similar multilevel research. For example, in a 3-level longitudinal study on psychological distress, Marchand, Demers, and Durand (2006) found that 64% of the variance was due to variations over time, 32.4% was due to differences between individuals and only 3.6% was due to differences between occupations (for a similar finding in a 2-level design in which employees were nested in organizations see Sora *et al.*, 2009; see also Claes, Schalk, & Jong, 2010; Debus *et al.*, 2012; Morrison, Payne, & Wall, 2003; Sora, Caballer, Peiró *et al.*, 2010). At the same time, however, it has to be taken into account that the lowest level of analysis also contains error variance (Bryk & Raudenbush, 1992; Hox, 2010).

Second, a reader might wonder about the relatively low correlations between job insecurity and both type of contract and supervisor position. With regard to job insecurity and type of contract ($r = .12$ in our study), there are indeed studies with much higher correlation coefficients ($r = .34$, De Cuyper & De Witte, 2005; $r = .54$, De Cuyper & De Witte, 2006; $r = -.42$, Sora, Caballer, & Peiró, 2010), but also studies with correlation coefficients similar to ours ($r = .10$ in Italy up to $.33$ in Sweden, Näswall & De Witte, 2003; $r = .15$, Näswall *et al.*, 2005). In fact, these differing correlation coefficients might be due to the different proportions of temporary workers among studies with high correlations (32% temporary workers and a total N of 656, De Cuyper & De Witte, 2005; 27% temporary workers and a total N of 544, De Cuyper & De Witte, 2006; 33% temporary workers and a total N of 942, Sora, Caballer, & Peiró, 2010) as compared to studies with lower correlation coefficients (11% temporary workers and a total N of 323 in Italy, up to

18% temporary workers and a total N of 1,328 in Sweden, Näswall & De Witte, 2003; 15% temporary workers and a total N of 400, Näswall *et al.*, 2005). Moreover, our study consisted of 5% temporary workers, which equals the amount of temporary workers in Switzerland (Bundesamt für Statistik, 2011). Thus, the relation between job insecurity and type of contract also depends on the distribution of the focal variables within the investigated sample. For this reason, our findings appear to appropriately mirror the Swiss context. With regard to job insecurity and supervisor position, the correlation in our study (i.e., $r = .15$) is even slightly higher compared with $r = .07$ found in the study with the largest sample size in the field of job insecurity (i.e., 15,200, Debus *et al.*, 2012).

There are some limitations associated with our study. First, we employed a cross-sectional design, suggesting that we cannot draw any longitudinal inferences about whether the suggested personality variables do indeed determine the level of perceived job insecurity, and whether company performance does indeed affect job insecurity ratings. However, as personality is conceptualized as being a set of enduring psychological traits and mechanisms (Larsen & Buss, 2008) with genetic underpinnings (Larsen & Buss, 2008; Sen, Burmeister, & Ghosh, 2004), it appears rather unlikely that a process of reversed causation could explain our findings, that is, that job insecurity perceptions would have caused a change in personality traits. Related to this, Spector *et al.* (2000) have suggested a number of additional mechanisms on the role of personality variables (especially NA) in the stress process. For example, high NA people might occupy more stressful jobs than low NA people either through self-selection or drift (i.e., selection mechanism). Additionally, high NA people might create adverse job-related circumstances by their behaviour (i.e., stressor creation mechanism). In sum, several alternative explanations appear plausible in the context of this study. However, these alternatives can only definitely be ruled out by applying a longitudinal design with a time-lag of several years.

Second, locus of control was measured in a work-related form, whereas the NA measure was uncontextualized. In fact, contextualized personality items have been shown to be more valid predictors of same-context criteria (for a recent meta-analysis see Shaffer & Postlethwaite, 2012) compared with uncontextualized items. For this reason, comparing the predictive power of both locus of control and NA in this study should be performed with caution. What is more, it might be the case that NA would have significantly interacted with company performance and/or type of contract (in the same regression model) if we had measured it in a contextualized way. Future research might explore this possibility in more detail.

Moreover, we assessed some of our variables (i.e., job insecurity and personality) with self-reports. A reader may thus argue that we have overestimated the effect of personality and should instead have obtained the two personality variables through a different source (such as colleagues or the respective spouse; c.f., Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, this approach rests on problematic assumptions. First, although meta-analytic findings show substantial correlations between self and observer ratings of personality, they also indicate that both rating types carry substantial unique variance, in other words variance parts that are not shared (Connolly, Kavanagh, & Viswesvaran, 2007; Oh, Wang, & Mount, 2011). Second, if both predictor and criterion are assessed by different sources, downward method bias (Conway, 2007) likely occurs: As each method has its unique sources of error variance, using different methods can result in a bias that inappropriately diminishes relationships. Furthermore, Lance, Dawson, Birkelbach, and Hoffman (2010) have recently shown that method variance accounts for less variance (18%) than has been thought before and, even more importantly, that common method

bias in regression-based analyses is almost completely offset by measurement error. This implies that regression weights and estimates of explained variance might not be biased after all.

Several further research questions arise from the current study. First, we employed an objective company performance indicator to predict individual job insecurity perceptions. However, we did not investigate to what extent individual employees were directly aware of this variable. Hence, it appears reasonable to assume that the relationship between objective company performance and individual job insecurity perceptions is mediated by the employee's own perceptions of their company's prosperity. In addition, there might be additional variables (such as the company's communication policy) that further moderate the relationship between objective company performance and employees' job insecurity perceptions.

Second, our data were sampled in companies in Switzerland – a country with a relatively low unemployment rate of 3.3% and a stable economic situation (Staatssekretariat für Wirtschaft SECO, 2011). Hence, the relative role of the company level or other even higher levels when predicting job insecurity may be different in other countries.

Finally, our study has several practical consequences. First, our findings imply that managers should be aware of the fact that job insecurity perceptions are not primarily affected by company-level variables, such as the widely discussed company performance. In fact, managers have to be aware of boundary conditions, such as type of contract or personality variables, which are of substantive importance in the perception of job insecurity and possibly also its subsequent outcomes. As such, managers should try to decrease temporary contract arrangements and focus on the cues that employees could possibly misinterpret (due to their personality). Instead, managers should try to convey positive information concerning the employment situation and give positive feedback concerning employment (if this fits the situation at hand). Additionally, if managers have to convey certain negative messages, they should verbalize them with an unambiguous interpretation, whereby employees have as little wiggle room as possible to fill with their own cognitions (on the role of organizational communication in the job insecurity context see also König, Debus, Häusler, Lendenmann, & Kleinmann, 2010; Vander Elst, Baillien, De Cuyper, & De Witte, 2010). Moreover, when composing work teams, managers and HR representatives should also take employees' personality dispositions into account. By doing so, employees with extremely high NA and a strong external locus of control might be positively affected by other team members (with less severe levels on these traits), thereby hopefully experiencing a 'reality check' when perceiving job insecurity (Büssing & Glaser, 1998; Krohne *et al.*, 1996).

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