KEEPING YOUR HEADCOUNT WHEN ALL ABOUT YOU ARE LOSING THEIRS:

DOWNSIZING, VOLUNTARY TURNOVER RATES, AND

THE MODERATING ROLE OF HR PRACTICES

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ABSTRACT

Although both downsizing and voluntary turnover have been topics of great interest in the organizational literature, little research has addressed the possible relationship between the two. Using organization-level data from multiple industries, we first investigate whether downsizing predicts voluntary turnover rates. Second, to lend support to our causal model, we examine whether this relationship is mediated by aggregated levels of organizational commitment. Third, we test whether the downsizing-turnover rate relationship: (1) is mitigated by HR practices that tend to embed employees in the organization or convey procedural fairness; and (2) is strengthened by HR practices that enhance career development. Results support the hypothesized main, mediated, and moderated effects.

Downsizing is commonplace today, with deployment of the strategy constrained by neither company financial health nor employee type (Cascio, 2002a). Given the enormous organizational, individual, and societal implications of downsizing, the phenomenon warrants, and is receiving, substantial research attention. Much of the downsizing research involves effects on either employee attitudes or organizational performance. We know very little, however, about downsizing effects on the critical employee behaviors that likely accompany these attitudes and affect organizational performance. Perhaps the most telling of these behaviors is voluntary employee turnover.

For at least three reasons, assessments of downsizing viability or success appear to be incomplete without understanding turnover implications. First, downsizing, which is a planned reduction in the number of the organization's employees (Cascio, 1993), is undertaken to reduce headcount to some target level. Consequently, unexpected subsequent turnover essentially translates into missing that target and leaving the leaner organization understaffed, thus hindering efficiency. Second, turnover-related financial costs, which include employee replacement, training, and outplacement (Cascio, 2000; Sturman, Trevor, Boudreau, & Gerhart, 2003) are quite high, with per-leaver estimates often doubling leaver salary (e.g., Johnson, 1995; Solomon, 1988). Given that downsizing is undertaken primarily as a cost-cutting measure (Cascio, 1993; Cascio, 2002b), incurring unforeseen expenses of this magnitude may jeopardize its success. Third, although evidence on the relationship between downsizing and organizational performance is mixed (Cappelli, 2000; Madrick, 1995), turnover rates may shed light on the dynamic. Chadwick, Hunter, and Walston (2004) found that the performance of hospitals that downsized appeared to benefit from the high involvement human resource (HR) practices that several studies (e.g., Arthur, 1994; Batt, 2002; Guthrie, 2001; Huselid, 1995) have shown to

reduce turnover rates. Moreover, recent research indicates that turnover rates are negatively associated with business unit and organizational success (Glebbeek & Bax, 2004; Kacmar, Andrews, Rooy, Steilberg, & Cerrone, 2006; McElroy, Morrow, & Rude, 2001; Shaw, Gupta, & Delery, 2005). Thus, turnover rates, as well as the HR practices that affect them, may be key elements in understanding how, and when, downsizing influences organizational performance.

The downsizing-turnover relationship also is of considerable interest from the perspective of voluntary turnover research itself. Because more valuable employees are more likely to facilitate organizational success, the field is becoming increasingly focused on their retention (e.g., Lavelle, 2003; Lee, Mitchell, Sablynski, Burton, & Holtom, 2004; Sturman et al., 2003; Trevor, 2001; Trevor, Gerhart, & Boudreau, 1997). Hence, studying the voluntary turnover of downsizing survivors, who have been earmarked as those employees most worth keeping (Martin & Bartol, 1985), is especially relevant. Such research also should provide insights into the unfolding model of turnover (Lee, Mitchell, Wise, & Fireman, 1996), a major recent addition to the literature whose key tenets have received little attention in multivariate predictive models.

Despite the organizational performance and voluntary turnover implications, only one study (Batt, Colvin, & Keefe, 2002) has tested whether downsizing predicts voluntary turnover rates. Consequently, we use a broad sample to explore the relationship, the untested contention that organizational commitment mediates this association, and the extent to which the relationship depends on how organizations manage their human resources.

CONCEPTUAL DEVELOPMENT AND HYPOTHESES

Three issues require clarification prior to deriving our hypotheses. First, the unfolding model of turnover (Lee, Mitchell, Wise, & Fireman, 1996) describes how turnover decisions can be functions of "shocks" (i.e., jarring events for employees), with downsizing cited as one such

shock (Holtom et al., 2005). We focus on shocks in terms of both the downsizing event itself and the severity (i.e., magnitude) of the downsizing. The event aspect is evident in Lee and Mitchell's (1994) definition of a shock as a (p. 60): "very distinguishable event that jars employees toward deliberate judgments about their jobs and, perhaps, to voluntarily quit their job." The severity emphasis evolves from our assumption that larger downsizings are more jarring, shocking, and threatening than are smaller downsizings; this logic is consistent with downsizing's operationalization as a percentage or proportion in prior downsizing research (e.g., Batt et al., 2002). Second, although downsizing is a multifaceted process, our treatment of downsizing focuses on layoffs. The involuntary job loss aspect positions layoffs as downsizing at its most severe, and is thus particularly consistent with the notion of downsizing as a psychological contract violation (Robinson & Rousseau, 1994) and, subsequently, as a jarring event or shock that may prompt surviving employees to consider leaving. Third, we primarily rely on individual-level theories to derive organization-level predictions. Recent work indicates that organization-level turnover findings (e.g., Batt et al., 2002; McElroy et al., 2001; Shaw et al., 1998; Shaw et al., 2005) are consistent with expectations from individual-level frameworks; similarly, researchers have used individual-level perspectives on organizational commitment both to speculate about organization-level relationships involving turnover (e.g., Batt et al., 2002; Huselid, 1995; Mishra & Spreitzer, 1998) and, via aggregation, to test such relationships (e.g., Simons & Roberson, 2003).

Main Effect of Downsizing on Voluntary Turnover Rates

The unfolding model of turnover describes psychological and behavioral paths that employees take when quitting (Lee et al., 1996). In the model's most commonly followed turnover path (path 3), a shock leads employees to reevaluate their current work circumstances,

consider job alternatives, and then quit, usually for another offer or likely offer. Substantial individual-level research addressing the effects of downsizing on survivor attitudes is consistent with this path and the presumption that downsizing is an unpleasant shock that prompts fear and resentment. Downsizing has been found to negatively affect organizational commitment (Brockner, Grover, Reed, Dewitt, & O'Malley, 1987; Knudsen, Johnson, Martin, & Roman, 2003), job satisfaction (Armstrong-Stassen, 2002; Luthans & Sommer, 1999), job involvement (Brockner, Grover, & Blonder, 1988), and trust (Armstrong-Stassen, 2002). Given that such attitudes, particularly organizational commitment and job satisfaction, consistently predict voluntary turnover (e.g., Tett & Meyer, 1993), even at the business unit level (e.g., Simons & Roberson, 2003), a positive downsizing-turnover relationship seems likely. Indeed, in the only study to examine the relationship, Batt, et al. (2002) found a positive link between percent of core employees displaced and quit rates in the telecommunications industry.

It is possible, however, that despite the attitudinal fallout, downsizing survivors are not more likely to leave. Surviving job cuts, especially if the downsizing is attributed to strategic restructuring rather than simple cost-cutting, could lead to a greater appreciation of what one has, a perception of relative safety (i.e., having "dodged a bullet"), expectations of more varied work, and the belief that the company is positioned to excel. Overall, however, we believe it unlikely that such retention-enhancing impressions would tend to fully counteract the negative attitudinal effects described above. Hence, we first attempt to replicate the Batt et al. (2002) finding in a broad sample of occupations, firms, and industries.

Hypothesis 1: Downsizing will be positively related to voluntary turnover rates.

Mediated downsizing-turnover rate effect

Because attitudinal effects on voluntary turnover are central to so many turnover models

(e.g., Gerhart, 1990; Hom, Caranikas-Walker, & Prussia, 1992; March & Simon, 1958; Mobley, 1977; Trevor, 2001), Hypothesis 1 support will be enhanced if a relevant (aggregated) employee attitude emerges as a mediator. The Mishra and Spreitzer (1998) conceptual model positions organizational commitment as such a mediator and Batt et al. (2002) speculated that their downsizing-quit rate finding was due to a perceived threat to employment security and subsequently reduced organizational commitment. Further, empirical work identifies organizational commitment as both a downsizing consequence (e.g., Brockner et al. 1987; Knudsen et al., 2003) and a voluntary turnover antecedent (Tett & Meyer, 1993, meta-analysis).

> *Hypothesis 2: The positive relationship between downsizing and voluntary turnover rates will be mediated by organizational commitment.*

General Unfolding Model Contingency

Paralleling individual-level turnover research (e.g., Gerhart, 1990; Schwab, 1991; Trevor, 2001), turnover prediction at the organizational level should be highly context-dependent. Our proposed interactions are consistent with a general contingency framework that stems from the unfolding model of turnover: a shock such as downsizing will often result in employee scrutiny of the current job situation, which is then followed by job search, evaluation of alternative offers, and, depending on the evaluation results, potential quitting behavior (Holtom et al., 2005; Mitchell et al., 2001a). Thus, a downsizing shock that jars an employee onto this most common of turnover pathways will tend to lead to a quit or stay decision based on an analysis of the utility of (i.e., value of, satisfaction with) current employment relative to the expected utility of alternative employment. We argue that HR practice dimensions will moderate downsizing effects by affecting these post-downsizing utility levels (see Figure 1).

HR Practices that Buffer against Reduction in Utility of the Current Employer

Two HR practice dimensions that should become more salient as the downsizing shock leads to closer scrutiny of the employment situation may buffer (i.e., limit) the negative impact of downsizing on current employment utility and subsequent turnover. Exactly how this buffering unfolds, however, will depend on whether the HR practice dimension promotes perceptions of procedural justice or perceptions of job embeddedness.

Perceptions of procedural justice have to do with the fairness of procedures used in decisions that affect employees (Folger & Greenberg, 1985). The potential for HR practices associated with procedural justice to buffer downsizing effects stems from the fact that employment outcomes (e.g., pay) received over the long-term, given their larger impact on material gains, are seen as more important than a single short-term outcome. Procedural justice fuels optimism regarding these critical long-term outcomes, since fair processes suggest, even in light of short-term disappointment, that favorable outcomes lay ahead. This leads people to assign less weight to, and be less affected by, short-term outcomes; indeed, a variety of empirical work indicates that a single employment outcome has a smaller effect in the presence of procedurally just conditions that led to the outcome (Brockner & Wiesenfeld, 1996). This contingency suggests that, when in the presence of HR practices that promote procedurally just perceptions (e.g., a grievance or appeals process, a confidential problem-solving avenue, an ombudsperson designated for complaint resolution), the unfavorable short-term downsizing outcome will matter less in terms of reducing current employer utility; hence, high levels of such practices should result in a smaller effect of the downsizing shock on voluntary turnover.[1]

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[1] Our position presumes that procedural justice perceptions other than those solely associated with the downsizing event itself will reduce downsizing impact. As described above, procedural justice in one domain can reduce the effects of distributive outcomes because it can lead us to infer that we will be treated justly, and thus likely fare well, in the future (Brockner & Wiesenfeld, 1996). Given this stipulation of procedural justice generalizing from one domain to another, HR practices likely to yield procedural justice perceptions not specific to downsizing should also be likely to mitigate downsizing effects by yielding optimism regarding future treatment.

Hypothesis 3: Downsizing's positive relationship with voluntary turnover

rates will diminish at high levels of HR practices likely to promote

procedural justice perceptions.

The second HR practice dimension of interest from the perspective of buffering downsizing spillover is job embeddedness, which is the level to which employees are bound in a social web (both on and off the job) that keeps them attached to the organization (Lee et al., 2004; Mitchell et al., 2001b). To examine whether employment outcomes that tie employees' lives to the current employer reduce downsizing effects on turnover, we create a job embeddedness index from five practices that researchers (Mitchell et al., 2001a; Mitchell et al., 2001b) have specifically identified as contributing to job embeddedness perceptions (i.e., defined benefits plans, sabbaticals, on-site childcare, hiring for organizational fit, and flextime).

Although Mitchell et al. (2001a; p. 104) stated that job embeddedness "seems to buffer the individual from the effects of shocks that might otherwise prompt one to leave," empirical research has yet to explicitly test whether shock effects depend on either job embeddedness or the practices that lead to it. Specific rationale for expecting this interdependence is evident in a developing literature on multiple employment outcomes, which stems from Brockner and Wiesenfeld's (1996) extension of their procedural justice moderation work that we invoked for the previous hypothesis. The authors argued that, because people prefer positive outcomes, an unfavorable outcome in an exchange relationship may lead to greater attention to other relevant outcomes in the relationship. This premise, recently supported in a multiple pay outcome context (Trevor & Wazeter, 2006), thus suggests that the unfavorable downsizing outcome should lead to greater scrutiny of other relevant employment outcomes, such as those associated with the HR practices that yield job embeddedness perceptions (e.g., a defined benefit plan, on-site childcare,

and fit with the organization). This greater attention should, at high levels of these embeddedness-relevant HR practices, make heightened job embeddedness perceptions very salient; the heightened sense of attachment, in turn, constrains downsizing-driven reduction in current employer utility and reduces downsizing effects on turnover rates. In contrast, the unfavorable downsizing effect on employees should be greater at lower levels of embeddedness-relevant practices, where less favorable outcomes mean that there is little sense of embeddedness and attachment to constrain downsizing-driven reduction in utility of the current employer (i.e., little buffering of the downsizing shock).

> *Hypothesis 4: Downsizing's positive relationship with voluntary turnover rates will diminish at high levels of HR practices likely to embed employees in the organization.*

HR Practices that Enhance Alternative Employer Utility

Whereas our focus in the previous two hypotheses was on HR practice dimensions that reduce, or buffer, downsizing-driven reduction in utility of the *current* employer, here we address practices that, following a downsizing, should enhance the utility of *alternative* employers. Because alternative employment options are functions of both job search (e.g., Schwab, Rynes, & Aldag, 1987) and individual attributes that signal employee quality to the market (e.g., Spence, 1973), we focus on HR practices that positively affect search and signaling capabilities. Career development practices, in particular, should foster these capacities.

At higher levels of career development practices that enhance search (e.g., a career resource center, formal employee assessment to identify development opportunities) and/or signaling (e.g., formal succession planning, a transfer policy to support learning), employees should enjoy the ease of movement in the job market that alternative employment options bring.

At high levels of such ease of movement, when proxied by signals of employee quality (Trevor, 2001) and market-level job availability (Carsten & Spector, 1987, Gerhart, 1990), job dissatisfaction has been more likely to lead to voluntary turnover. Thus, it also seems likely that the downsizing-driven attitudinal fallout and scrutiny of the employment situation will be more likely to lead to quitting at higher levels of career development practices that enhance search, signaling, and subsequent alternative employment options (i.e., at high ease of movement). That is, shocked employees will be more likely to leave when HR practices enhance alternative employer utility by helping to provide better external job opportunities (see Figure 1).

We recognize, however, that career development practices also prepare employees for internal opportunities. As the downsizing shock drives employees to evaluate the employment situation, the perception of internal movement potential could enhance utility of the current employer. On balance, however, we expect that career development practices should do more, in the post-downsizing environment of decaying commitment and satisfaction, to enhance utility of alternative employers (via improved search and signaling) than to improve current employer utility.

> *Hypothesis 5: Downsizing's positive relationship with voluntary turnover*
> *rates will strengthen at high levels of HR practices likely to enhance*
> *career development.*

METHODS

Sample

Our sample consists of employee-friendly companies that were invited to submit detailed information in an application to make the 1998 and 1999 Fortune Magazine lists of "The 100 Best Companies to Work for in America" (Branch, 1999; Levering & Moskowitz, 2000). The

invitees were chosen by Levering and Moskowitz (2000) from their own database of over 1,000 companies; criteria for being invited to compete for the list included minimum existence (10 years) and employment (500 people) levels, as well as simply being considered by the authors as the most viable candidates for the list. Of the invitees for 1998, 206 companies agreed to complete the application process (Branch, 1999), while 236 did so for 1999 (Levering & Moskowitz, 2000). Hence, we began with a sample of 442 company-years. Missing data limited the sample for our multivariate turnover rate analyses to 106 companies in 1998 and 161 companies in 1999, for a total sample of 267 company-years.

The organization-level data used here come from an extensive company-level questionnaire designed by a Hewitt Associates, a management consulting firm. Each company applying to be on the 100 Best list was asked to complete this questionnaire on management practices. The survey was typically filled out by a team of the company's managers and human resource professionals. In 1998, the mean reported person-hours devoted to the survey was 47.3, suggesting considerable effort on the part of the respondents. Survey items were in reference to U.S.-based full-time exempt (i.e., salaried) and non-exempt (i.e., hourly) employees.

Each company applying to be on the 100 Best list also was required to administer an employee attitude survey created by the Great Place to Work® Institute. Although the attitudinal items used in selecting companies for the list were proprietary and unavailable to us, we did have access to two other items collected from the applicant companies' employees. In 1998 and 1999, the applying companies were instructed to randomly survey 250 and 275 employees, respectively. Explicit directions for randomly sampling employees and administrating the attitude survey were provided to each 100 Best applicant. Companies distributed the questionnaires along with a preaddressed and stamped envelope. Employees were directed to

return the questionnaires directly to the data processor at the Great Place to Work® Institute,

thus ensuring anonymity and confidentiality. Companies applying to be on the 100 Best list were

also required to share the precise sampling mechanism followed in distributing employee

questionnaires. The authors of the Fortune articles on the 100 Best companies (Levering and

Moskowitz, 2000) also checked for sampling irregularities by comparing survey respondent

demographics with each company's overall demographics, which were reported in the company-

level survey. Response rates across companies averaged 53% in 1998 and 52% in 1999.

Company and employee surveys were administered in the summers of 1998 and 1999.

For additional detail on the data acquisition, see Fulmer, Gerhart, and Scott (2003).

Measures

Voluntary turnover rate. Company survey respondents were asked to provide the number

of full-time voluntary leavers during the most recent twelve months and the number of full-time

employees from twelve months prior to the survey. We divided the former by the latter to create

the voluntary turnover rate. We then took the natural logarithm of the result to transform the

highly skewed dependent variable data to a more normal distribution.

Downsizing rate. The company survey asked for the calendar year of the most recent

reduction in force. We considered an organization to have downsized if the respondent reported a

reduction in force in the survey's calendar year or in the preceding two calendar years (e.g., a

1999 survey respondent with a reported downsizing in 1999, 1998, or 1997). Although there is

no research on how long downsizing effects on survivors may persist, we used the two preceding

years because a shock that eventually leads to turnover will often necessitate a considerable

period of evaluation and search before suitable alternative employment is found. On the more

recent end of the timeframes, we included year t downsizing in the measure for three reasons.

First, news and rumors of downsizing often precede the actual event, potentially prompting pre-event voluntary turnover. Consistent with this concern is Cascio's (2002a) contention that employees tend not to be surprised by layoffs and Swaen et al.'s (2004) finding that a downsizing announcement resulted in significant increases in psychological distress one month after the announcement and prior to the event itself. Second, including year t downsizing was necessary to ensure that we captured the immediate (within-year) effects on voluntary turnover. This is a particular concern given that turnover intentions appear to peak, relative to pre-downsizing attitudes, when measured closer to the event itself (Allen et al., 2001). Third, simultaneity concerns associated with same-year downsizing and turnover measures are minimal, as companies presumably do not downsize in response to increased turnover.

The company survey also asked what percentage of employees was downsized.[2] The response, which we first converted to a proportion, allowed us to model the severity of the downsizing, under the assumption that the extent of shock will be greater following larger downsizings. We then logged the highly (positively) skewed downsizing rates (after adding a constant of .0001 because the natural logarithm of zero is undefined; see Cohen, Cohen, West, & Aiken, 2003). Logging the independent variable enables examination of an underlying nonlinearity in which the effects are considerably larger at the lowest levels of the raw values of that variable (Cohen et al., 2003). This allowed us to infer whether the transition from non-downsizer to downsizer (i.e., the event) carries shock effects in addition to those carried by downsizing severity (we explore this further in the results and discussion sections).

All company respondents reporting a downsizing also reported implications for

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[2] Unfortunately, the item wording differed across years, as the 1998 survey asked "what percentage of employees were dismissed due to the most recent downsizing," while the 1999 survey asked "what percentage of employees left due to the most recent downsizing." Analysis of companies that were present in both years, however, indicates that the two items were answered from similar perspectives, as the correlation between responses to the 1998 item and the 1999 item (when referring to the same downsizing event) was .90.

"terminated employees in the most recent downsizing," indicating that all reported downsizings involved terminations. Downsizings were reported in 102 cases (38% of the sample), with mean proportions of .013 overall and .036 among the downsizers.

HR practices as moderators. We used twelve measures to create three theoretically driven additive indices of HR practices. Working at the index, rather than practice, level is consistent not only with our theory, but also with considerable prior research. Batt (2002) and Delery (1998), for example, describe theoretically driven additive indices in which higher scores mean greater investment in a range of applicable practices and similar results emerge as a function of practices substituting for one another in the index. Indices of this type are composed from multiple elements whose values, rather than being caused by an underlying construct, instead, when summed, comprise an index whose magnitude is relevant to the construct (Batt & Valcour, 2003). Such indices are the preferred method for creating a single measure from a series of underlying dimensions that can be cumulated to determine the level of the construct (Shaw et al., 2005).

Six of the twelve HR practices used to create the indices were assessed separately for exempt and non-exempt employees. Because organizations manage exempt and non-exempt employees differently (Gerhart & Trevor, 1996; Lepak & Snell, 1999), this allowed for greater precision in identifying the extent to which the HR practice covered the overall workforce. For example, since we knew the exempt/non-exempt proportions for each organization, a company with 70% non-exempt employees that offered a certain practice only for exempts would be coded as ".30" (as compared to a less representative coding of "1"). Thus, our indices reveal presence and, to some extent, coverage of HR practices (though not the intensity of employee usage).

We created a *procedural justice index* to represent the organization's commitment to

providing employees with a formal process for addressing perceived injustices. Company survey respondents were asked about the presence of "an ombudsman who is designated to address any employee complaints," "a confidential hotline or other confidential problem/resolution/complaint center," and "a grievance or appeal process available to nonunion employees." Items were coded as "1" for yes and the values were then summed. The three items evolve directly from the formal procedures section of Moorman's (1991) procedural justice scale, which taps into the presence of such procedures that "provide opportunities to appeal or challenge," "have all sides affected by the decision represented," and "hear the concerns of all those affected." Moorman's formal procedures items originated in part from Leventhal's (1980) procedural justice rule of correctability (i.e., correcting past wrongs via grievance or appeals), which is consistent with our items, and is frequently the basis for procedural justice measures in the management literature (e.g., Tepper & Taylor, 2003; Thau, Aquino, & Wittek, 2007).

Two of the three major dimensions of job embeddedness are fit (i.e., compatibility with the company and the off-the-job environment) and sacrifice (i.e., the cost of what would be given up by leaving) (Mitchell et al., 2001a). Thus, we created a *job embeddedness index* of five HR practices that should yield perceptions along these dimensions (we did not have reliable HR practice measures of links to co-workers, the third dimension of job embeddedness). While the HR practices have never been tested as predictors of job embeddedness perceptions, researchers (Mitchell et al., 2001a; Mitchell et al., 2001b) explicitly emphasize certain practices as fostering job embeddedness. In terms of practices necessitating a substantial sacrifice if one were to leave, these authors cite defined benefits plans and sabbaticals, particularly given these practices' increasing value/availability as a function of employee longevity, and on-site childcare, given its relation to critical off-the-job concerns. Regarding practices that promote fit, hiring for

organizational fit is described by job embeddedness authors as increasing employee compatibility with the culture and values of the organization, while flextime is described as important to enabling a better fit with off-the-job considerations. These practices also parallel items used to assess job embeddedness perceptions (e.g., "I fit with the company's culture" and "The retirement benefits provided by this organization are excellent" from Mitchell et al., 2001b). To assess the job embeddedness practices, our company survey inquired about the presence of a defined benefits plan, presence of paid sabbaticals, presence of on-site childcare, presence of "flexible or nonstandard arrival and departure times," and the relative ranking of the importance that a firm placed on organizational fit when making hiring decisions. For the hiring for fit item, organizations ranked the importance of fit on a 1-14 scale (1=the most important hiring criterion); we reversed these fit scores by subtracting from 15. For the paid sabbatical and hiring for fit items, which were asked for both exempt and non-exempt populations, we weighted the responses by exempt and non-exempt proportions before combining. We then standardized and added the scores for the five practices to create the job embeddedness index.

Similarly, we created a *career development index* based on four practices likely to improve the ability to compete in the external job market via enhanced signaling or search capabilities. The presence of a "career resource center" demonstrates the company's willingness to commit resources toward employee development and should provide employees with tools and strategies for enhancing their development. The "assessment of skills, knowledge, and abilities to identify employees' development opportunities" should make employees more aware of their marketable characteristics and possible career paths. Together, these two practices appear likely to enhance search efficiency. The presence of formal succession planning often involves a variety of developmental activities, such as education, rotation through various jobs and

locations, and special (visible) assignments (Noe et al., 2003). Such activities are likely to leave employees with greater signaling capabilities. Although succession planning is often confined to the management and professional levels, over 30% of our companies reported using it for nonexempt populations. Finally, the presence of a formal policy enabling either voluntary or required transfers "to support learning (e.g., international assignments)" should provide experience breadth and contribute to better signaling on the job market (we used an affirmative response to either the voluntary or required formal transfer items as a single indicator). Both exempt and non-exempt populations were asked about all four practices, enabling us to weight the responses by the exempt and non-exempt proportions before combining. We then standardized and added the four scores to create the index.[3]

Because the substitutable elements in theoretically driven additive indices are not equivalent measures of an underlying construct, it is inappropriate to use an internal consistency reliability measure (e.g., coefficient alpha) to test the level of agreement among the elements (Batt & Valcour, 2003; Delery, 1998; Shaw et al., 2005). Test-retest correlations, however, suggest reasonable evidence for the reliability of the three indices. For the 67 companies in our analyses that provided surveys in both 1998 and 1999, we found year-to-year correlations of .78 for the procedural justice index, .73 for the job embeddedness index, and .75 for the career development index.

Organizational Commitment. The 1998 and 1999 employee attitude data from each company included two items that are, with very minor rewording, from Mowday, Steers, and Porter's (1979) Organizational Commitment Questionnaire (OCQ): "It would take a lot to get

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[3] Although the company surveys included an item on hours devoted to training, there was no indication as to the extent to which training was firm-specific (and likely enhancing current employer utility) or general (and likely enhancing alternative employer utility via signaling). Thus, we did not include the item, as its relevance to our theoretically driven index was unknown.

me to leave this organization" and "I am glad I chose this organization over others I was considering when I joined." These two items were scored on 5-point Likert scales anchored by "almost always untrue" (1) and "almost always true" (5). Coefficient alpha for all employee responses to these two questions is .84. We created the individual-level commitment score by summing the two item scores and dividing by two.

To determine whether aggregating these commitment scores to the organization level was appropriate, we followed the approach of recent studies using aggregated employee attitudes (e.g., Currall, Towler, Judge, & Kohn, 2005; Fulmer et al., 2003; Whitener, 2001), including organizational commitment (e.g., Simons & Roberson, 2003). We first calculated intraclass correlations (Schrout & Fleiss, 1979) of our commitment variable to estimate reliability of a single employee response, which revealed an ICC(1,1) of .056 in 1998 and .064 in 1999. Because our focus is on the company average score as a reliable differentiator among firms, however, the ICC(1,k) is more relevant (Fulmer et al., 2003; Glick, 1985). Bliese (1998) demonstrated that even low ICC(1,1) levels may lead to reliable aggregate level means with sufficiently large group sizes. With an average of 137 responses per company in 1998 (min.=41; max.=754) and 147 responses per company in 1999 (min.=62; max.=801), our ICC(1,k) was .89 in 1998 and .91 in 1999. These values indicate that mean level commitment is indeed a reliable differentiator of our companies, thus providing foundation for averaging individual commitment scores within company to create organization-level *commitment*.

Additional control variables. By partialling the use of *early retirement* in the downsizing process, we increase the probability that we are seeing layoff effects in our downsizing measure. We included a dummy variable coded as "1" if the company indicated that an early retirement package was made available in association with the downsizing event. Substantial organizational

change, independent of downsizing, may alter the relationship between employer and employees and may be related to downsizing. We controlled for this potential bias by including *restructuring* ("Within the last 12 months, has your organization experienced any mergers, acquisitions, divestitures, or spinoffs that affected at least 5% of your employee population?"). Because labor costs often drive downsizing decisions (Cascio, 1993), and because pay is often related to turnover, we account for *pay level*, which is the response on a 4-point scale indicating whether the company targets compensation below market level, at market level, between the 51st and 74th percentiles, or between the 75th and 100th percentiles. Also due to possible associations with downsizing and turnover, we controlled for *organization age*, as well as the companies' *proportion male*, *proportion exempt*, *proportion union*, proportion of employees with *age* 25 or less, proportion of employees with *service* less than two years, number of *employees* (logged), and proportion *change in employees* from year *t* to year *t-1*. *Industry* health may affect both downsizing likelihood and turnover rates. Thus, we also included dummy variables to account for the effects of the 48 industries in our data at the 2-digit SIC code level. Finally, to more precisely account for industry-specific labor demand, we controlled for 2-digit industry *unemployment* rate data obtained from the Bureau of Labor Statistics (2006).

Data Analysis

Researchers modeling turnover rates have used both ordinary least squares (OLS) regression (e.g., Shaw et al., 1998) and tobit regression (e.g., Batt et al., 2002). Tobit models were originally derived because a concentration of observations at some limiting lower or upper value violates OLS assumptions. Absent such observations, however, OLS is appropriate (Tobin, 1958). Because we have no turnover rates equal to zero, we present OLS analyses. Unreported tobit models, with censoring stipulated for very low rates, yielded highly similar results.

Additionally, because 67 companies provided company-year observations for both 1998 and 1999, we used robust variance estimators with the standard regression model. As an extension to variance estimators created to account for heteroskedasticity (e.g., White, 1980), these also provide standard error estimates that require only that observations are independent across, but not necessarily within, the source of the dependence (Rogers, 1993).

RESULTS

Main and Mediated Downsizing Effects

Means, standard deviations, and correlations are presented in Table 1. The essentially zero correlation between downsizing rate and voluntary turnover rate is neither surprising nor indicative of lack of support for our focal relationship. The covariation among the two variables and several of our controls illustrates the potential for a zero-order correlation to inflate or deflate the more valid relationship estimate from a correctly specified multivariate model.

Multivariate tests are provided in Table 2. In support of Hypothesis 1, Model 1 reveals that downsizing rate has a statistically significant effect on voluntary turnover rates. Specifically, a one unit increase in logged downsizing rate predicts a .058 increase in logged turnover rate (coefficients in such "log-log" modeling are often referred to in economics as elasticities and are interpreted as the percent change in the raw dependent variable predicted by a one percent change in the raw independent variable). Marginal effects translated back into the original metrics of both variables yield more intuitive interpretation: the predicted raw turnover rate increases 25% (from .104 to .130) when going from non-downsizing status to a downsizing rate of .005 (the 22nd percentile of downsizing rate). As comparison, companies that downsize at rates of .02 (56th percentile), .05 (76th percentile), and .10 (94th percentile) are predicted to have raw turnover rate levels and increases (relative to non-downsizing status) of .141 and 36%, .149 and

43%, and .155 and 49%, respectively. Put another way, over half of the raw turnover rate increase projected from reducing the workforce by 10% occurs as a result of cutting the first one half of one percent of employees (Figure 2, top left).

As indicated in the figure, and consistent with Cohen et al.'s (2003) discussion of log transformations, our logging of downsizing rate allowed us to transform into linearity an underlying nonlinear relationship in which the effects on raw (or logged) voluntary turnover rates are considerably larger at low levels of raw downsizing rates. Because this nonlinearity is an important empirical and conceptual consideration that has yet to be explored in the downsizing literature, we conducted an additional analysis (available from the authors) to shed further light on why the effects appear to be so much stronger at the point of transition from non-downsizer to downsizer. We reran Models 1 and 3 in Table 2 after replacing log downsizing rate with both a downsizing dummy and the raw downsizing rate, thus capturing the downsizing event and the severity in separate variables in the same model. Both variables had positive statistically significant effects, further suggesting that the downsizing event and severity uniquely contribute to turnover via shock. We return to this issue in the discussion section.

In Hypothesis 2 we predicted that aggregated organizational commitment would mediate the downsizing effect on turnover rates. Model 2 illustrates the significant relationship between logged downsizing rate and commitment. In Model 3, when organizational commitment is added as a predictor to Model 1, commitment is a statistically significant predictor of logged turnover rates and the downsizing coefficient is reduced by 25%, thereby exhibiting partial mediation. More formally, Sobel's (1982) test reveals statistical support for mediation ($p < .05$).

Downsizing by HR Practice Index Interactions

Hypothesis 3's downsizing by procedural justice index interaction is supported in Table

2's Models 4 and 5 (the models are differentiated by the presence of commitment). In Model 4, for example, evaluating the downsizing effect at one standard deviation above and below the moderator mean indicates that the relationship between logged downsizing rates and logged voluntary turnover rates is about 3.5 times greater when the procedural justice index is low than when it is high (Figure 2, bottom left). In terms of marginal effects, downsizing .02 of the workforce, which is the median rate of the downsizers, predicts a raw turnover rate increase of 63% when the procedural justice index is low, but only an increase of 15% when it is high.[4]

Models 4 and 5 also support Hypothesis 4. In Model 4, the relationship between logged downsizing rates and logged voluntary turnover rates is almost four times greater when the job embeddedness index is low than when it is high (Figure 2, top right). Marginal effects reveal that downsizing .02 of the workforce predicts a raw turnover rate increase of 65% when the job embeddedness index is low, but only an increase of 14% when it is high.

Hypothesis 5 was also supported in both models. The relationship between logged downsizing rates and logged voluntary turnover rates in Model 4 is almost four times greater when the career development index is high than when it is low (Figure 2, bottom right). Marginal effects reveal that downsizing .02 of the workforce predicts a raw turnover rate increase of 13% when the career development index is low, but an increase of 66% when it is high.

Alternative Analyses

We conducted three additional variants of our primary analyses to check on the robustness of our findings. First, although our robust standard errors approach only requires independence between, but not within, companies, we also conducted analyses to ensure that the

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[4] A counterintuitive aspect of this interaction merits mention. In the absence of downsizing, turnover rates were higher when the procedural justice index was high (see Figure 2, bottom left). A potential explanation is that the practices in this index deal with the correction of injustices (e.g., via grievance or appeals). As such, more of these practices may be present when there are more wrongs in need of righting. Such an environment may contribute to voluntary turnover, especially in the absence of the focus on fair procedures that a downsizing shock should bring.

67 companies that were present in both 1998 and 1999 were not driving our results. Dropping one of the observations for each of these 67 companies (e.g., dropping the 1999 observation) yielded no meaningful changes, indicating that dependent observations are not a major concern. Second, we reran our analyses after reconfiguring the downsizing variable so as to exclude year *t*, thus leaving only years *t-1* and *t-2* downsizing to predict year *t* turnover. Results were mixed, indicating that excluding shared variation between same-year downsizing and turnover is problematic in that much of the turnover driven by downsizing likely occurs reasonably close to the event (see the downsizing measure description for our rationale for including year *t* downsizing). Third, we reran the downsizing-by-career development index interaction using only the transfer policy and succession planning items to comprise the index. The dropped items (career resource center and employee assessment) were intended to reflect practices that would enhance employee search capabilities, but we wanted to check that our career development index was not instead capturing downsizers' attempts to help downsizing victims and other potential leavers find external employment. The streamlined measure replicated the original interaction finding, alleviating concerns that we were misinterpreting downsizer encouragement of turnover as search and signal driven turnover.

DISCUSSION

In sum, we found a positive relationship between downsizing rates and voluntary turnover rates, mediation of that relationship by aggregated levels of organizational commitment, and moderation of the downsizing effect by procedural justice, job embeddedness, and career development indices. We next address these findings in terms of modeling the downsizing construct, implications for theory and practice, limitations, and future research.

Modeling the Downsizing Construct

While a larger downsizing might be thought to generate proportionally greater shock, the unfolding model's characterization of shock as a very distinguishable event (Lee & Mitchell, 1994) suggests that the downsizing event itself may carry shock effects of its own. That is, the processes we have described in terms of comparing the utilities of the current and alternative employers may be partially initiated simply by the presence of downsizing, somewhat irrespective of its severity. Our use of logged downsizing rate allowed us to model a linear relationship that, when converted back into raw original metrics, revealed a nonlinear relationship that supports this interpretation. Moreover, our supplementary analyses (available upon request) with a downsizing dummy and the raw downsizing rate provide further insight. Because the downsizing event and its severity each contribute unique variance to voluntary turnover rates, shock appears to manifest from the mere transition from non-downsizer to downsizer, as well as from how much of the workforce is reduced. The effect size, which indicates that the transition alone predicts a 19% increase in turnover rates, highlights the importance of the transition to downsizer status. Thus, researchers should carefully consider the potential nonlinear, event, and severity considerations when conducting downsizing studies. Similarly, unfolding model research would benefit from work that recognizes the potential unique influences of the shock's event and severity.

Implications for Theory

Our results support the general logic of the unfolding model of turnover (Lee et al., 1996), in which shocks such as downsizing often lead employees to stay or leave based on an examination of the utility of their current employer relative to the expected utility of a viable alternative employer. These results complement prior unfolding model work (e.g., Holtom et al., 2005) by showing that shocks can be potent predictors of turnover rates. Hence, while our

findings are consistent with traditional approaches to turnover that emphasize the comparison between current and alternative situations (e.g., March & Simon, 1958; Mobley, 1977), we also provide evidence that shocks may address the same lack of explained turnover variance that motivated the unfolding model's derivation (see Lee, Gerhart, Weller, & Trevor, forthcoming, for a related perspective that focuses on unsolicited job offers as shocks precipitating turnover).

While we confirmed earlier speculation that downsizing should precipitate voluntary turnover through reductions in commitment (e.g., Batt et al., 2002; Mishra & Spreitzer, 1998), the mediation issue remains complex. The partial (25%) mediation aspect is consistent with the unfolding model principle that shocks lead to turnover via attitudes under certain conditions, but lead to turnover irrespective of attitudes under others. In addition to reflecting unfolding model paths that do not involve attitudes, the non-mediated downsizing association with voluntary turnover could indicate unmeasured downsizer tendencies to actively encourage leaving behavior. Interestingly, we do not know exactly where in our Figure 1 model, relative to the interactions, the commitment mediation occurs. One possibility is that commitment mediates the moderated effects (i.e., the mediation occurs to the right of the points of moderation in the model). We would interpret this as HR practices moderating the relationship between downsizing and the commitment that predicts turnover. Replacing the turnover dependent variable with commitment and rerunning the basic moderated analysis, however, reveals little evidence of this, as the interactions do not emerge (additionally, simply including a commitment covariate does little to change the interaction terms). Furthermore, commitment mediation could occur at more than one place in the model, suggesting that detecting its exact location(s) may require more finely grained individual-level data. The topic is a fruitful area for future study.

Regardless of exactly where they fall relative to commitment, our interactions provide

more nuanced support for the unfolding model's general logic. That is, certain sets of HR practices reduced the downsizing shock's effect on turnover, while others strengthened it. Presumably, this occurred via the tendency for the job embeddedness and procedural justice practices to mitigate the extent to which downsizing reduces current employer utility. Similarly, we assume that the career development practices magnify the extent to which downsizing enhances the utility of alternative employers (see Figure 1). These interactions support the organization-level extensions of several individual-level models that we invoked to illuminate the underlying processes through which the moderation might occur (e.g., Brockner & Wiesenfeld, 1996; Carsten & Spector, 1987; Gerhart, 1990; Lee et al., 1996; Trevor, 2001; Trevor & Wazeter, 2006).

Although we used some of these individual-level frameworks to provide distinct rationales for the procedural justice index and job embeddedness index moderation, at a very broad level it is also reasonable to infer a single explanation. The buffering of downsizing's turnover effects appears to occur at high levels of HR practices that are generally considered to reflect well on current employment, as these practices constrain downsizing-driven reductions in current employer utility (albeit in different ways). Research that characterizes HR on a single dimension could be viewed as suggesting, in light of this general explanation, that the greater the degree of, for example, high involvement practices (e.g., Guthrie, 2001) in the HR system, the more buffered turnover tendencies will be from downsizing shocks (see Zatzick & Iverson, 2006, for a somewhat opposing take when predicting productivity). This unidimensional HR approach, however, would not explain the career development index moderation, which suggests that downsizing triggers a greater role for the search and signaling benefits from career development practices than for any enhanced current employment utility that these practices bring. Despite

this qualification, formal testing of unidimensional HR factors in future downsizing and turnover research would be of value.

Implications for Practice

Although downsizing is sometimes an integral part of a broader restructuring strategy (Cascio, 2002a), its allure is its potential to quickly yield substantial savings in employment costs. This promise, however, can be compromised, at least in part, by the considerable costs associated with unanticipated increases in voluntary turnover. These costs stem from the inefficiencies associated with understaffing and from the likely need for subsequent hiring and training of replacements to return the organization's workforce to its target level. In an effort to avoid such inefficiency and expense caused by post-downsizing turnover, company decision-makers should be mindful of the turnover implications when deciding how many people to cut. Our results suggest that companies can expect a post-downsizing turnover increase, with the size of this increase dependent on the levels of job embeddedness, procedural justice, and career development HR practices. Being cognizant of these relationships provides a means for an improved projection of post-downsizing employment levels and, in turn, more accurate determination of the number of employees that need to be downsized.

An issue potentially more fundamental than how much to downsize is whether to downsize. It would be wise to consider the turnover implications when making this decision. For example, our marginal effects analysis predicts, for an average company, a 31% increase in post-downsizing voluntary turnover rates even if downsizing just .01 of the workforce; if the organization also has low levels of practices that promote procedural justice and job embeddedness perceptions, the predicted increase in quitting becomes 112%. This daunting prediction illustrates how downsizing strategies in certain contexts may fail, given the

understaffing inefficiencies and replacement cost considerations. Hence, our results not only suggest how HR practices may mitigate downsizing effects on turnover, but also how HR practices may, via turnover implications, hinder downsizing success. If downsizing is inevitable, adopting job embeddedness and procedural justice practices prior to the event could pay dividends via reducing downsizing's effect on turnover. The appropriateness of implementing or terminating HR practices in a downsizing context, of course, should be considered in relation to the estimated costs.

Limitations and Future Research

While our results here largely confirmed our hypotheses, several limitations to the study are important to consider. Certainly, external validity is an important concern. On the one hand, our sample spans multiple industries, both publicly and privately held companies, and companies of a wide variety of sizes. Yet, the fact that our entire sample is made up of relatively admirable companies for whom to work raises the question of whether our findings tell us anything about downsizing effects in less employee-friendly places. One might speculate that, relative to such companies, our main effects are an overestimate; i.e., downsizing in our employee-friendly organizations might constitute a more severe breach of the employee's perceived psychological contract (Ho, Weingart, & Rousseau, 2004), as job security expectations may be much higher than in an average company. Alternatively, the potential for our results to underestimate effects in a broader population appears to be just as plausible. In our sample of great workplaces, there may have been a layer of employee good will and trust that buffered the downsizing fallout. Hence, the downsizings could have been seen as somewhat justified or unavoidable, with employees reacting less severely than they might have without the good will and trust. Similarly, the nature of the overall sample may have yielded range restriction in downsizing, HR practice

indices, commitment, and turnover rates, which also may constrain effect sizes (and generalizability) for all of our effects. Clearly, research on downsizing effects on turnover in other company populations would be a welcome addition to our study.

Second, although our data allowed us to make inferences about the company as a whole, knowing exactly who was being downsized and who quit might have added considerably to our findings. We were unable to examine, for example, the reasonable expectation that survivors will react more strongly when they bear more similarity to downsizing victims. Relatedly, knowing the job performance levels of post-downsizing leavers would be instructive, as turnover implications change dramatically according to leaver job performance (e.g., Sturman et al., 2003; Trevor et al., 1997). Indeed, to the extent that leavers are easily replaceable by higher performing and/or less expensive workers, turnover may be desirable (Dalton et al., 1982; Hollenbeck & Williams, 1986; Martin & Bartol, 1985), suggesting a more positive interpretation of our downsizing effects. In contrast, any increase in high performer turnover, post-downsizing, would be particularly detrimental to the organization. Future research on exactly who leaves following a downsizing, and on how context affects the distributional characteristics of this group, would be of great interest to researchers and practitioners.

Third, although companies were instructed to randomly select employees for the survey from which we obtained the organizational commitment measures, we have no actual proof that this was done. Hence, to the extent that company representatives acted upon the incentive to be chosen for the 100 Best list by selectively choosing employees to take the survey, our mediation results may reflect bias. While the safeguards employed by the administrators of the 100 Best list likely discouraged self-serving tactics, we cannot dismiss the possibility. Fourth, the timing of the measures was not ideal. HR practices are reported in the summer of year t, while turnover

rate was calculated from the summer of year *t-1* to the summer of year *t*. This raises simultaneity questions. The complexity of moderated relationships may reduce these concerns, as the alternative interpretation of our findings would be that turnover rate effects on HR practice indices depended on downsizing in a manner that produced results that correspond to our conceptually grounded hypotheses. While this seems unlikely, we cannot rule it out. Another factor that may partially alleviate simultaneity concerns is that, for the 67 companies in our analyses that provided surveys in both 1998 and 1999, the reported values for the HR practices remained relatively constant across years; year-to-year correlations averaged .75 for our three HR practice indices. Fifth, common method bias is possible in that the same employee may have provided the data on number of voluntary leavers, total employees, downsizing occurrence and timing, and HR practices. The relatively objective nature of these questions reduces this concern; so also does the fact that independently collected organizational commitment, aggregated to the company level, mediated the downsizing-turnover rate relationship in a manner consistent with our rationale.

Finally, although we control for several aspects of downsizing context (e.g., restructuring, early retirement), alternative explanations remain possible. We were unable to account for whether companies were repeat downsizers, which may have shed additional light on our findings. We also could not control for voluntary buyouts, which could conceivably have been figured into both the reported downsizing rate and the number of voluntary leavers. This concern, however, is diminished to the extent that voluntary buyouts co-varied with the early retirement control. Additionally, because even the total number of employees downsized tends to be considerably smaller than the number of voluntary leavers, any "double counting" of employees taking voluntary buyouts likely would have little effect on the turnover rate measure.

These concerns notwithstanding, we believe that our study's variation in downsizing, HR practices, turnover rates, and aggregated attitudes is noteworthy. Despite its flaws, the data provide an unprecedented opportunity to better understand the turnover ramifications of downsizing and the HR context.

CONCLUSION

Evidence is amassing that turnover rates are negatively related to financial performance. Thus, business strategies that affect turnover rates should be examined very carefully. In our study, downsizing, which is designed to reduce costs, predicted greater turnover rates, which increase costs; moreover, certain types of HR practices mitigated the downsizing-turnover relationship, while other HR practices strengthened it. Hence, it appears that the HR context has considerable impact on whether and the extent to which the shock of downsizing ultimately, via turnover rates, translates to organizational performance.

Perhaps too easily lost in our analysis is the plight of the downsizing victims. The downsizing-turnover relationship suggests a sad irony in that employees are laid off by companies that subsequently find themselves understaffed. Moreover, to the extent that turnover rates hinder organizational performance, the performance of downsizing companies may well suffer further through the leaving behavior that the layoffs generate. The formidable costs to downsizing victims (and perhaps to the society that absorbs them) may be seen as unavoidable in today's business environment, but this position is much more palatable when the costs do not appear to be in vain. Hence, though we acknowledge the frequent necessity of downsizing, we also emphasize that downsizing wisely is imperative. Careful attention to HR practices and the downsizing-turnover relationship, given the implications for costs, understaffing, and organizational performance, appears to be one avenue toward downsizing wisely.

REFERENCES

Allen, T.D., Freeman, D.M., Russell, J.E.A., Reizenstein, R.C., & Rentz, J.O. 2001. Survivor reactions to organizational downsizing: Does time ease the pain? *Journal of Occupational and Organizational Psychology*, 74: 145-164.

Armstrong-Stassen, M. 2002. Designated redundant but escaping lay-off: A special group of lay-off survivors. *Journal of Occupational and Organizational Psychology*, 75: 1-13.

Arthur, J.B. 1994. Effects of human resource systems on manufacturing performance and turnover. *Academy of Management Journal*, 37: 670-687.

Batt, R. 2002. Managing customer services: Human resource practices, quit rates, and sales growth. *Academy of Management Journal*, 45: 587-597.

Batt, R., Colvin, A.J.S., & Keefe, J. 2002. Employee voice, human resource practices, and quit rates: Evidence from the telecommunications industry. *Industrial & Labor Relations Review*, 55: 573-594.

Batt, R., & Valcour, M. 2003. Human resources practices as predictors of work-family outcomes and employee turnover. *Industrial Relations*, 42, 189-220.

Bliese, P.D. 1998. Group size, ICC values, and group-level correlations: A simulation. *Organizational Research Methods*, 1: 355-373.

Branch, S. 1999. The 100 best companies to work for in America. *Fortune*, 139: 118-130.

Brockner, J., Grover, S., Reed, T., Dewitt, R., & O'Malley, M. 1987. Survivors' reactions to layoffs: We get by with a little help for our friends. *Administrative Science Quarterly*, 32: 526-541.

Brockner, J., Grover, S.L., & Blonder, M.D. 1988. Predictors of survivors' job involvement following layoffs: A field study. *Journal of Applied Psychology*, 73: 436-442.

Brockner, J. & Wiesenfeld, B.M. 1996. An integrative framework for explaining reactions to decisions: Interactive effects of outcomes and procedures. *Psychological Bulletin*, 120: 189-208.

Cappelli, P. 2000. Examining the incidence of downsizing and its effect on establishment performance. In D. Neumark (Ed.), *On the Job: Is Long-Term Employment A Thing of the Past*: 463-516. New York, NY: Russell Sage Foundation.

Carsten, J.M. & Spector, P.E. 1987. Unemployment, Job Satisfaction, and Employee Turnover: A Test of the Muchinsky Model. *Journal of Applied Psychology*, 72(3): 374-381.

Cascio, W.F. 1993. Downsizing: What do we know? What have we learned? *The Academy of Management Executive*, 7: 95-104.

Cascio, W.F. 2000. *Costing human resources: The financial impact of behavior in organizations* (4th ed.). Boston, MA: Kent.

Cascio, W.F. 2002a. *Responsible restructuring: Creative and profitable alternatives to layoffs*. San Francisco, CA: Berret-Koehler Publishers, Inc.

Cascio, W.F. 2002b. Strategies for responsible restructuring. *Academy of Management Executive*, 16: 80-91.

Chadwick, C., Hunter, L.W., & Walston, S.L. 2004. Effects of downsizing practices on the performance of hospitals. *Strategic Management Journal*, 25: 405-427.

Cohen, J., Cohen, P., West, S.G., & Aiken, L.S. 2003. *Applied multiple regression/ correlation analysis for the behavioral sciences*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Currall, S.C., Towler, A.J., Judge, T.A., & Kohn, L. 2005. Pay satisfaction and organizational outcomes. *Personnel Psychology*, 58(3): 613-640.

Dalton, D. R., Todor, W. D., & Krackhardt, D. M. 1982. Turnover overstated: The functional taxonomy. *The Academy of Management Review*, 7(1): 117-123.

Delery, J.E. 1998. Issues of fit in strategic human resource management: Implications for research. *Human Resource Management Review*, 8: 289-309.

Folger, R. & Greenberg, J. 1985. Procedural justice: An interpretive analysis of personnel systems. In K. H. G. Gerris (Ed.), *Research in personnel and human resources management*, Vol. 3: 141-183. Greenwich, CT: JAI Press.

Fulmer, I.S., Gerhart, B., & Scott, K.S. 2003. Are the 100 best better? An empirical investigation of the relationship between being a "great place to work" and firm performance. *Personnel Psychology*, 56: 965-993.

Gerhart, B. 1990. Voluntary turnover and alternative job opportunities. *Journal of Applied Psychology*, 75: 467-476.

Gerhart, B. & Trevor, C.O. 1996. Employment variability under different managerial compensation systems. *Academy of Management Journal*, 39: 1692-1712.

Glebbeek, A.C. & Bax, E.H. 2004. Is high employee turnover really harmful? An empirical test using company records. *Academy of Management Journal*, 47: 277-286.

Glick, W. H. 1985. Conceptualizing and measuring organizational and psychological climate: Pitfalls in multilevel research. *Academy of Management. The Academy of Management Review* 10(000003): 601-616.

Guthrie, J.P. 2001. High-involvement work practices, turnover, and productivity: Evidence from New Zealand. *Academy of Management Journal*, 44: 180-190.

Ho, V.T., Weingart, L.R., & Rousseau, D.M. 2004. Responses to broken promises: Does personality matter. *Journal of Vocational Behavior*, 65(2): 276-293.

Hollenbeck, J. R. & Williams, C. R. 1986. Turnover functionality versus turnover frequency: A note on work attitudes and organizational effectiveness. *Journal of Applied Psychology*, 71(4): 606-611.

Holtom, B.C., Mitchell, T.R., Lee, T.W., & Inderrieden, E.J. 2005. Shocks as causes of turnover: what they are and how organizations can manage them. *Human Resource Management*, 44: 337-352.

Hom, P.W., Caranikas-Walker, F., & Prussia, G.E. 1992. A Meta-analytical structural equations analysis of a model of employee turnover. *Journal of Applied Psychology*, 77: 890-909.

Huselid, M. 1995. The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 38: 635-672.

Johnson, A.A. 1995. The business case for work-family programs. *Journal of Accountancy*, 180: 53-57.

Kacmar, K.M., Andrews, M.C., Rooy, D.L.V., Steilberg, R.C., & Cerrone, S. 2006. Sure everyone can be replaced...but at what cost? Turnover as a predictor of unit-level performance. *Academy of Management Journal*, 49: 133-144.

Knudsen, H.K., Johnson, J.A., Martin, J.K., & Roman, P.M. 2003. Downsizing survival: The experience of work and organizational commitment. *Sociological Inquiry*, 73: 265-283.

Lavelle, L. 2003. After the jobless recovery, a war for talent. *Business Week,* 3851: 92-92.

Lee, T.H., Gerhart, B., Weller, I., & Trevor, C.O. Forthcoming. Understanding voluntary turnover: Path-specific job satisfaction effects and the importance of unsolicited job offers. *Academy of Management Journal*.

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

Lee, T.W., Mitchell, T.R., Wise, L., & Fireman, S. 1996. An unfolding model of voluntary employee turnover. *Academy of Management Journal*, 39: 5-36.

Lee, T.W., Mitchell, T.R., Sablynski, C.J., Burton, J.P., & Holtom, B.C. 2004. The effects of job embeddedness on organizational citizenship, job performance, volitional absences, and voluntary turnover. *Academy of Management Journal*, 47: 711-722.

Lepak, D.P. & Snell, S.A. 1999. The human resource architecture: Toward a theory of human capital allocation and development. *The Academy of Management Review*, 24: 31-48.

Leventhal, G.S. 1980. What should be done with equity theory? New approaches to the study of fairness in social relationships. In M. G. K. Gergen, & R. Willis (Ed.), *Social exchange*: 27-55. New York: Plenum Press.

Levering, R. & Moskowitz, M. 2000. The 100 best companies to work for. *Fortune*, 141: 82-110.

Luthans, B.C. & Sommer, S.M. 1999. The impact of downsizing on workplace attitudes. *Group & Organization Management*, 24: 46-70.

Madrick, J. 1995. Corporate surveys can't find a productivity revolution, either. *Challenge*, 38: 31-34.

March, J. & Simon, H.A. 1958. *Organizations*. New York: John Wiley.

Martin, D.C. & Bartol, K.M. 1985. Managing turnover strategically. *The Personnel Administrator*, 30: 63-73.

McElroy, J.C., Morrow, P.C., & Rude, S.N. 2001. Turnover and organizational performance: A comparative analysis of the effects of voluntary, involuntary, and reduction-in-force turnover. *Journal of Applied Psychology*, 86: 1294-1299.

Mishra, A.K. & Spreitzer, G.M. 1998. Explaining how survivors respond to downsizing: The role of trust, empowerment, justice, and work redesign. *The Academy of Management Review*, 23: 567-588.

Mitchell, T.R., Holtom, B.C., & Lee, T.W. 2001. How to keep your best employees: Developing an effective retention policy. *The Academy of Management Executive*, 15: 96-108.

Mitchell, T.R., Holtom, B.C., Lee, T.W., Sablynski, C.J., & Erez, M. 2001. Why people stay: Using job embeddedness to predict voluntary turnover. *Academy of Management Journal*, 44: 1102-1121.

Mobley, W.H. 1977. Intermediate linkages in the relationship between job satisfaction and employee turnover. *Journal of Applied Psychology*, 62: 237-240.

Moorman, R.H. 1991. Relationship between organizational justice and organizational citizenship behaviors - do fairness perceptions influence employee citizenship. *Journal of Applied Psychology*, 76(6): 845-855.

Mowday, R.T., Steers, R.M., & Porter, L.W. 1979. The measurement of organizational commitment. *Journal of Vocational Behavior*, 14: 224-247.

Noe, R.A., Hollenbeck, J.R., Gerhart, B., & Wright, P.M. 2003. *Human Resource Management: Gaining a Competitive Advantage* (4th ed.). NY: McGraw Hill/Irwin.

Robinson, S.L. & Rousseau, D.M. 1994. Violating the psychological contract: not the exception but the norm. *Journal of Organizational Behavior,* 15(3): 245-259.

Rogers, W. 1993. Regression standard errors in clustered samples. *Stata Technical Bulletin*, 13: 19-23.

Schrout, P.E. & Fleiss, J.L. 1979. Intraclass correlations: Uses in assessing rater reliability. *Psychological Bulletin*, 86: 420-428.

Schwab, D.P. 1991. Contextual variables in employee performance-turnover relationships. *Academy of Management Journal*, 34: 966-975.

Schwab, D.P., Rynes, S.L., & Aldag, R.J. 1987. Theories and research in personnel and human resource management. In K.R.G. Ferris (Ed.), *Research in personnel and human resource management*, Vol. 5: 129-166. Greenwich, CT: JAI Press.

Shaw, J.D., Gupta, N., & Delery, J.E. 2005. Alternative conceptualizations of the relationship between voluntary turnover and organizational performance. *Academy of Management Journal*, 48: 50-68.

Shaw, J.D., Delery, J.E., Jenkins, G.D., & Gupta, N. 1998. An organization-level analysis of voluntary and involuntary turnover. *Academy of Management Journal*, 41: 511-525.

Simons, T. & Roberson, Q. 2003. Why Managers Should Care About Fairness: The Effects fo Aggregate Justice Perceptions on Organizational Outcomes. *Journal of Applied Psychology*, 88(3): 432-443.

Sobel, M.E. 1982. Asymptotic confidence intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), *Sociological methodology*: 290-312. Jossey-Bass.

Solomon, J. 1988. Companies try measuring cost savings from new types of corporate benefits, *The Wall Street Journal,* New York, NY.

Spence, M. 1973. Job market signaling. *The Quarterly Journal of Economics*, 87(3): 355-374.

Sturman, M.C., Trevor, C.O., Boudreau, J.W., & Gerhart, B. 2003. Is it worth it to win the talent war? Evaluating the utility of performance pay. *Personnel Psychology*, 56: 997-1035.

Swaen, G.M.H., Bultmann, U., Kant, I., & Van Amelsvoort, L. 2004. Effects of Job Insecurity From a Workplace Closure Threat on Fatigue and Psychological Distress. *Journal of Occupational & Environmental Medicine,* 46(5):443-449.

Tepper, B.J. & Taylor, E.C. 2003. Relationships among supervisors' and subordinates' procedural justice perceptions and organizational citizenship behaviors. *Academy of Management Journal*, 46(1): 97-105.

Tett, R.P. & Meyer, J.P. 1993. Job satisfaction, organizational commitment, turnover intention, and turnover: Path analyses based on meta-analytical findings. *Personnel Psychology*, 46: 259-293.

Thau, S., Aquino, K., & Wittek, R. 2007. An extension of uncertainty management theory to the self: The relationship between justice, social comparison orientation, and antisocial work behaviors. *Journal of Applied Psychology*, 92(1): 250-258.

Tobin, J. 1958. Estimation of relationships for limited dependent variables. *Econometrica*, 26: 24-36.

Trevor, C.O. 2001. Interactions among actual ease-of-movement determinants and job satisfaction in the prediction of voluntary turnover. *Academy of Management Journal*, 44: 621-638.

Trevor, C.O., Gerhart, B, & Boudreau, J.W. 1997. Voluntary turnover and job performance: Curvilinearity and the moderating influences of salary growth and promotions. *Journal of Applied Psychology*, 82: 44-61.

Trevor, C.O. & Wazeter, D. 2006. A contingent view of reactions to objective pay conditions: Interdependence among pay structure characteristics and pay relative to internal and external referents. *Journal of Applied Psychology*, 91: 1260-12-75

United States Department of Labor: Bureau of Labor Statistics (n.d.). Accessed in 2006 from http://www.bls.gov/.

White, H. 1980. A heteroskedasticity-consistent matrix estimator and a direct test for heteroskedasticity. *Econometrica*, 48: 817-838.

Whitener, E.M. 2001. Do "high commitment" human resource practices affect employee commitment? A cross-level analysis using hierarchical linear modeling. *Journal of Management*, 27(5): 515-535.

Zatzik, C.D., & Iverson, R.D. 2006. High-involvement management and workforce reduction: Advantage or disadvantage. *Academy of Management Journal*, 49: 999-1015.

TABLE 1

Correlations and Descriptive Statistics

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Voluntary turnover rate	-2.15	0.83	--																	
2. Downsizing rate	-7.24	2.66	-.01	--																
3. Procedural justice index	1.30	0.94	-.07	-.03	--															
4. Job embeddedness index	-0.01	0.50	-.13	.08	.15	--														
5. Career development index	0.03	0.65	-.03	.07	.20	.16	--													
6. Commitment	1.69	0.10	-.21	-.27	-.16	.01	.13	--												
7. Early retirement	0.12	0.32	-.13	.49	.00	.15	.01	-.12	--											
8. Restructuring	0.26	0.44	.06	.17	.01	.03	.01	-.03	.05	--										
9. Organization age	56.52	41.22	-.27	.00	.20	.19	.09	.02	.24	-.10	--									
10. Pay level	2.65	0.72	.02	-.07	.00	.02	.11	.22	-.10	-.01	-.08	--								
11. Unemployment rate	3.64	1.26	.34	-.15	-.11	-.18	-.18	-.14	-.13	-.03	-.18	.07	--							
12. Employees	8.34	1.32	-.17	.14	.32	-.04	.23	-.20	.13	.05	.24	-.08	-.04	--						
13. Employees change	0.11	0.22	.29	-.13	-.11	-.03	.03	.15	-.17	.11	-.32	.11	-.01	-.23	--					
14. Proportion service < 2	0.35	0.17	.72	-.18	-.09	-.14	-.03	-.01	-.25	.05	-.41	.04	.31	-.26	.53	--				
15. Proportion age < 25	0.13	0.12	.55	-.17	.01	-.20	-.11	-.22	-.17	-.07	-.16	-.09	.45	.03	.18	.62	--			
16. Proportion male	0.54	0.17	-.30	.13	-.04	-.05	.05	.01	.08	.06	-.10	.04	.03	.14	-.08	-.18	-.17	--		
17. Proportion exempt	0.49	0.23	.01	.05	-.21	.03	.15	.22	-.04	.08	-.19	.16	-.18	-.20	.08	.15	-.20	.19	--	
18. Proportion union	0.06	0.16	-.38	.09	.07	.08	-.05	.07	.15	-.04	.28	.03	-.01	.16	-.17	-.34	-.24	.20	-.28	--

N = 267

Note: Voluntary turnover rate, downsizing rate, and employees are natural logarithm values. Correlations with absolute values above .11 are statistically significant at $p < .05$.

TABLE 2

Main and Mediated Effects of Downsizing

	Turnover Model 1		Commitment Model 2		Turnover Model 3		Turnover Model 4		Turnover Model 5	
Intercept	-2.07***	(.55)	1.56***	(.10)	-.31	(.79)	-1.59**	(.58)	.06	(.72)
2-digit industry	yes		yes		yes		yes		yes	
Organization age	.00	(.00)	.00	(.00)	.00	(.00)	.00	(.00)	.00	(.00)
Unemployment rate	-.08	(.10)	.02	(.02)	-.05	(.11)	-.08	(.10)	-.06	(.11)
Employees	-.02	(.03)	-.01	(.01)	-.03	(.03)	-.03	(.03)	-.04	(.03)
Employees change	-.01	(.21)	.05	(.04)	.04	(.19)	.01	(.20)	.06	(.19)
Restructuring	.11	(.08)	.00	(.01)	.11	(.08)	.07	(.07)	.08	(.07)
Prop. service < 2	2.20***	(.49)	.02	(.08)	2.22***	(.47)	2.21***	(.48)	2.23***	(.47)
Prop. age < 25	1.00	(.71)	-.18	(.10)	.80	(.72)	.77	(.66)	.58	(.67)
Prop. male	-.50	(.53)	-.01	(.07)	-.52	(.53)	-.47	(.49)	-.49	(.49)
Prop. exempt	-.14	(.28)	.06	(.04)	-.08	(.27)	-.19	(.26)	-.13	(.24)
Prop. union	-.75*	(.34)	.13**	(.05)	-.61	(.34)	-.71*	(.33)	-.57	(.33)
Pay level	.04	(.05)	.02	(.01)	.06	(.05)	.02	(.05)	.04	(.05)
Early retirement	.03	(.13)	.03	(.02)	.06	(.13)	.05	(.11)	.09	(.11)
HR Practice Indices										
Procedural justice	.06	(.05)	-.01	(.01)	.05	(.05)	-.18*	(.09)	-.17	(.09)
Job embeddedness	-.05	(.07)	.00	(.02)	-.05	(.06)	-.55***	(.15)	-.56***	(.14)
Career development	.00	(.06)	.02*	(.01)	.03	(.06)	.39*	(.15)	.43**	(.16)
Commitment					-1.127**	(.425)			-1.083**	(.396)
Downsizing rate	.058***	(.015)	-.013***	(.004)	.044**	(.016)	.103***	(.022)	.084***	(.023)
Interactions										
Downsizing rate by procedural justice							-.035**	(.013)	-.032**	(.013)
Downsizing rate by job embeddedness							-.069***	(.021)	-.070***	(.020)
Downsizing rate by career development							.055**	(.019)	.057**	(.020)
R^2	.74		.47		.75		.77		.78	
Adjusted R^2	.66		.30		.68		.69		.70	
Δ in downsizing effect					-25%					
Observations	267		267		267		267		267	

Note: Robust standard errors are in parentheses. One-tailed tests for hypothesized effects; two-tailed tests for all other effects (including HR practice indices).
* $p<.05$; **$p<.01$; ***$p<.001$

FIGURE 1

HR Practices as Moderators of the Relationship Between Downsizing and Voluntary Turnover Rates
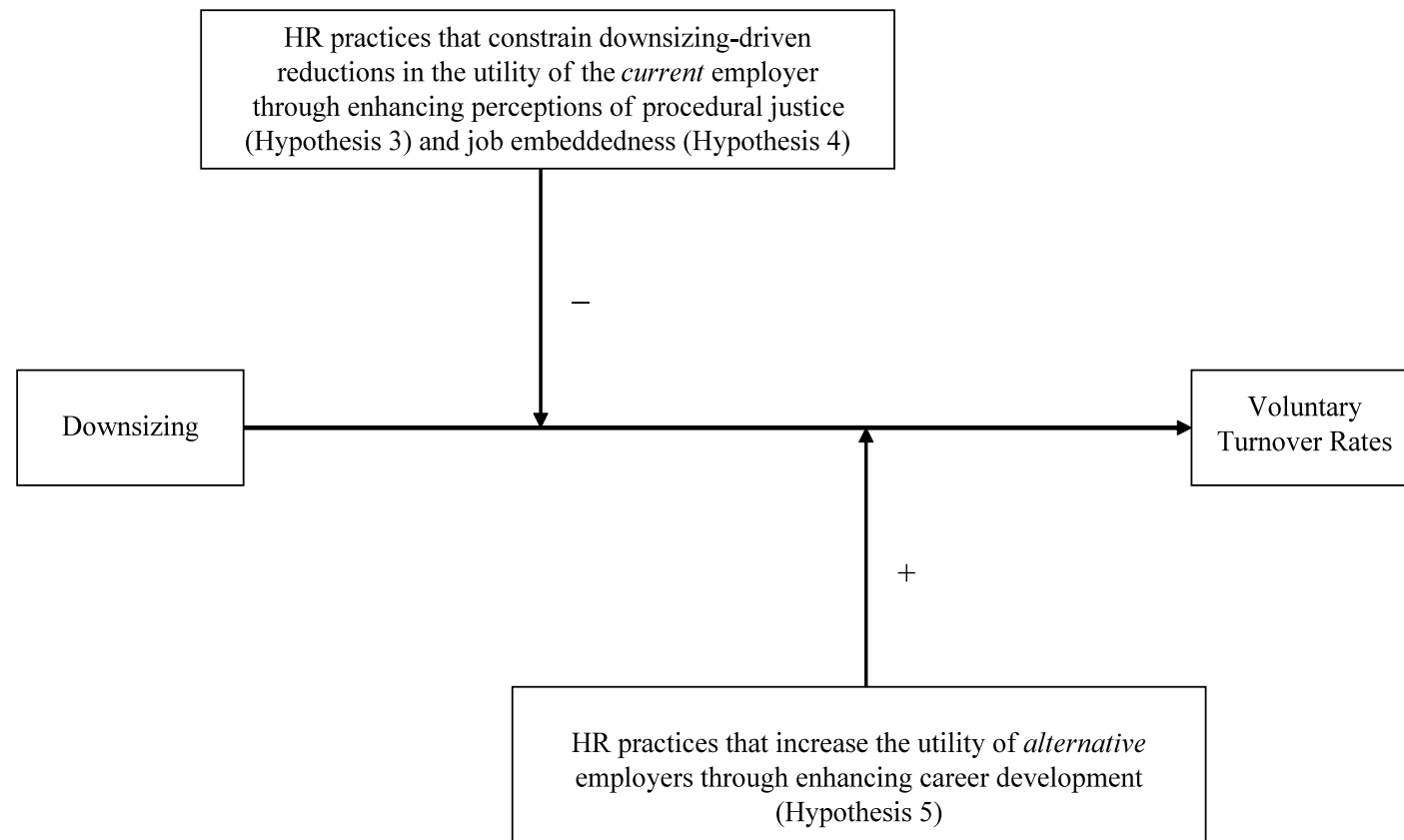
Note: Both examples of moderation are consistent with the general contention from the unfolding model of turnover, where shocks yield greater scrutiny of the employment context. This scrutiny involves a comparison of the utilities of the current and alternative employers. We argue that HR practices largely determine the results of this comparison, and thus the extent to which downsizing leads to voluntary turnover rates.

FIGURE 2

Main and Moderating Downsizing Rate Effects
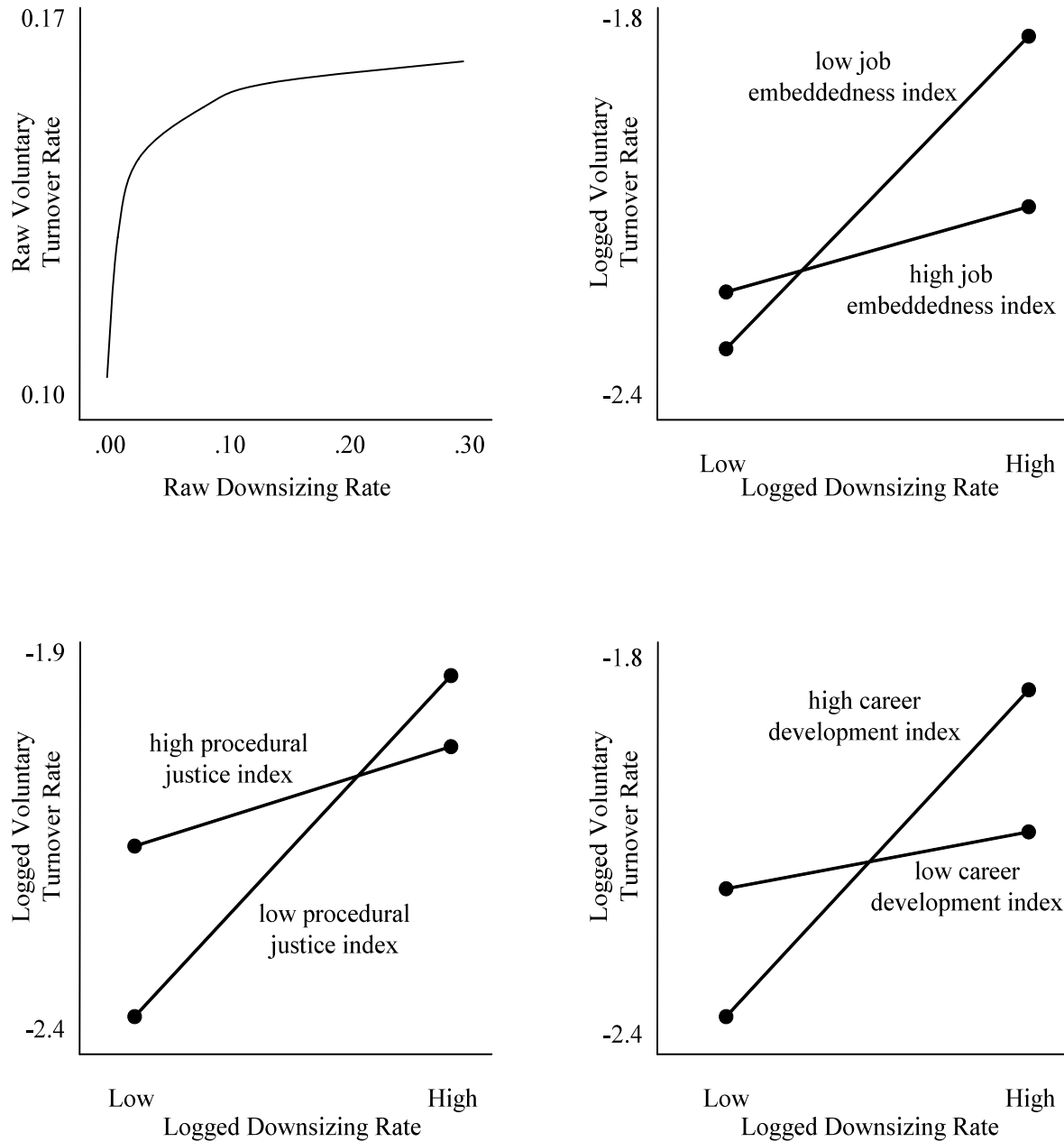
Note: "Low" and High" x-axis levels of logged downsizing rates represent non-downsizers and the median downsizing rate among companies that did downsize, respectively.