High-Commitment Work Practices and Downsizing Harshness in Australian Workplaces

RODERICK D. IVerson and CHRISTOPHER D. ZATZICK*

This study examines the relationship between high-commitment work practices (HCWP) and downsizing. The results based on a large, representative sample of Australian workplaces supported our predictions. Consistent with previous research, HCWP was positively related to workforce reduction. However, workplaces with more HCWP used less harsh strategies (e.g., more employee-friendly approaches to downsizing) such as voluntary layoffs and early retirement than the harsher strategy of compulsory layoffs. The implications of these findings are discussed.

FOR THE PAST DECADE, CONSIDERABLE ATTENTION HAS BEEN PAID TO THE BENEFITS OF HIGH-COMMITMENT WORK PRACTICES (HCWP) (E.G., TOTAL QUALITY MANAGEMENT [TQM], TRAINING, AND TEAMS) (SEE REVIEWS BY BECKER AND HUSELID 1998; WOOD AND WALL 2002). HCWP, ALSO REFERRED TO AS HIGH-PERFORMANCE (HUSELID 1995), HIGH-INVOLVEMENT (LAWLER 1992), FLEXIBLE, AND ALTERNATIVE WORK PRACTICES (GODARD 2001A), HAVE BEEN LINKED TO INCREASED PRODUCTIVITY (DATTA, GUTHRIE, AND WRIGHT 2005) AND LOWER OCCUPATIONAL INJURY (ZACHARATOS, BARLING, AND IVERSON 2005) AND Turnover FOR ORGANIZATIONS (ARTHUR 1994; GUTHRIE 2001; HUSELID 1995), AS WELL AS GREATER EMPOWERMENT (LAWLER 1992; PFESSLER 1998) AND LOWER WORK–FAMILY CONFLICT FOR EMPLOYEES (BATT AND VALCOUR 2003). However, recent research has highlighted the economic and political conflicts associated with such practices (GODARD 2001A), including the financial costs that may offset productivity gains (e.g., CAPPelli AND NeUMARK 2001) AND THE INTENSIFICATION OF WORK THAT RESULTS IN GREATER BURNOUT AND STRESS FOR EMPLOYEES (E.G., GREEN 2004; RAMSAY, SCHOLARIOs, AND HARLEY 2001). Thus, many questions remain about the viability of high-commitment workplaces, particularly when organizations face external pressures to increase profitability.

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Downsizing poses just such a conflict for organizations. Downsizing, or workforce reduction, involves an intentional reduction in personnel to contain costs, increase efficiency, and become profitable in the short run (Cameron 1994). The decision to downsize, which often has negative effects on victims and survivors, seems to contradict the high-commitment view of employees as a source of competitive advantage. One view expounded by Levine (1995) is that most high-commitment workplaces have implicit or explicit long-term contracts with their employees that emphasize increased job security. These workplaces may avoid downsizing in order to maintain positive relations with their key “assets” and retain valuable firm-specific skills (e.g., Guthrie 2001). Yet, another competing perspective asserts that high-commitment workplaces may use workforce reduction as part of their transformation away from traditional management structures, such as reducing managerial ranks in order to empower front line workers (Osterman 2000). Also, the significant labor costs and wages associated with transforming the workplace (e.g., Bailey, Berg, and Carola 2001; Cappelli and Neumark 2001; Colvin, Batt, and Katz 2001) can actually prompt the need for workforce reduction in order to manage costs. Hence, the first objective of our study is to test these competing perspectives: Are workplaces with more HCWP associated with the use of workforce reduction?

We then suggest that the two perspectives might be compatible if we consider how high-commitment workplaces conduct workforce reduction. High-commitment workplaces possess a comprehensive system of HR practices designed to attract, retain, and motivate employees. Consistent with this system, high-commitment workplaces will attempt to minimize the impact of workforce reduction on employees by providing outplacement and counseling services, generous severance packages, and voice in the decision-making process (Cascio and Wynn 2004). In particular, we argue that high-commitment workplaces will use less harsh layoff strategies (e.g., natural attrition, voluntary layoffs, early retirement) instead of other harsher strategies (e.g., compulsory layoffs) in order to mitigate the negative effects of downsizing. Less harsh strategies help maintain goodwill between the organization and both departing and surviving employees (Feldman and Leana 1994). As noted by Pfeffer (1998: 186): “Even for firms that need to reduce the number of employees, downsizing can be accomplished while still treating people as important assets and maintaining morale and trust.”

The paper opens with a discussion of HCWP. It then links a workplace’s system of HR practices to workforce reduction and, in particular, the relative level of harshness of layoff strategies. Finally, the study’s methodology and results are presented, along with implications for future research.
HCWP

Drawing on social exchange theory, Whitener (2001) asserts that high-commitment management involves using HR practices to encourage employees to align to the goals of the organization and exert effort to accomplish them. HCWP are designed to promote employee development, improve work and employee quality, and protect employee interests; they are perceived as rewards by employees, who then reciprocate back to the organization in terms of their attitudes and behavior (Zacharatos, Barling, and Iverson 2005). HCWP operate together to improve the productivity of a workplace, with more practices in place indicating a stronger and more comprehensive system (Guthrie 2001; Lawler 1992; Osterman 1994, 2000). Thus, high-commitment management involves using HR practices to build an environment of exchange and reciprocity between an organization and its employees.

High-commitment work practices cut across multiple aspects of organizational life. Employee development practices (i.e., formal training and skills audit) are critical for equipping employees with new knowledge, skills, and competencies. These investments lead to increased loyalty to the organization (Lee and Bruvold 2003). Work-quality practices such as TQM, quality circles, and team building elicit employee involvement and participation at all levels in order to increase effectiveness while meeting the intrinsic needs of employees (Lawler 1992). Many of these practices have been associated with increased organizational commitment (e.g., Brooks and Zeitz 1999; Gould-Williams 2004; Workman and Bommer 2004). Another facet of high-commitment management is the need to build a high-caliber workforce through selective and effective hiring. Matching employee and organizational needs leads to increased alignment to the organization (Meyer and Allen 1997). Contingent compensation such as performance-related pay is also used to motivate and reward employees. Recent studies treat contingent compensation as HR practices that can be bundled directly with teams and TQM (e.g., Guthrie 2001) or training and recruiting practices (MacDuffie 1995). Compensation and organizational commitment are positively related in the literature (Caldwell, Chatman, and O’Reilly 1990; Paul and Anantharaman 1999).

We recognize that a debate exists regarding whether or not high-commitment work systems have multiple “bundles” of HR practices (Wood 1999). For example, MacDuffie (1995) focuses on two HR “bundles”—“work systems” and “HRM policies”—both of which reflect a similar organizational logic of flexible production. Other researchers suggest that work quality and HR practices form a single bundle reflecting a high-commitment work system (Guthrie 2001; Huselid 1995; Lawler 1992; Wood 1999). In this article, we follow the latter approach and treat it as a system of HR practices that cut across numerous facets of an organization, including work design, selection, safety, grievance procedures, and work–family practices.
High-Commitment Work Practices and Downsizing

Finally, supportive or flexible work practices signal to current and potential employees about the values of an organization, and in exchange for a better work environment, employees will contribute extra effort and embrace organizational goals (Aryee, Srinivas, and Tan 2005; Berg, Kalleberg, and Appelbaum 2003; Perry-Smith and Blum 2000; Pfeffer 1998). These practices cover a broad spectrum of issues important to employees such as occupational health and safety, procedural justice issues (e.g., grievance and equal employment opportunity policies), and work–family practices (e.g., family leave and counseling programs). For example, recent research has found organizational commitment to be related to safety practices and climate (including safety compliance, initiative, knowledge, and motivation) (Barling and Hutchinson 2000; Zacharatos, Barling, and Iverson 2005); lower levels of perceived supervisory and organizational discrimination and grievances (Ensher, Grant-Vallone, and Donaldson 2001); and work–family balance (Aryee, Srinivas, and Tan 2005). Consistent with recent approaches in the literature (e.g., Guthrie 2001; Zacharatos, Barling, and Iverson 2005), we focus on HR practices that are part of a high-commitment system characterized by reciprocity, and whether a stronger system is associated with organizational outcomes (i.e., workforce reduction and layoff strategies).

HCWP and Workforce Reduction

Investments in HCWP have coincided with the increased use of downsizing (Helper, Levine, and Bendoly 2002; Osterman 2000). Osterman’s (2000) study of three hundred workplaces was the first to link HCWP to layoffs. He found a significant, positive relationship between the presence of high-commitment practices (i.e., TQM, team building, and quality circles) and the use of layoffs in a workplace. So why would high-commitment workplaces downsize? The primary rationale relates to the transformation of the workplace for increased efficiency and productivity gains (Cappelli 2000a; Osterman 2000). The redesigning of work requires less people and the elimination of positions that do not fit the new work environment. For example, team-based work often reduces the need for managers (Osterman 2000). Additionally, workplaces often hire employees in one department, while downsizing in another one (Appelbaum, Everard, and Hung 1999). Workplace transformation also requires investments in new technologies (Cappelli 2000a) and the use of contingent workers (Cappelli and Neumark 2004), which facilitate the reduction in workforce size. Finally, implementing and maintaining HCWP

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2 These studies measured HR practices at the workplace or employee level.
is expensive (Cappelli and Neumark 2001), making it necessary to reduce costs in other ways including layoffs of nonessential employees.

Concurrently, a new psychological contract has formed to regulate the changing relationship between organizations and employees (Cappelli 2000b). Osterman (2000) suggests that employees may be willing to trade the benefits of working in a high-commitment environment for fewer jobs. In other words, employees recognize that high-commitment work systems are more attractive than traditional management systems (e.g., increases human capital skills); therefore, employees give the management the prerogative to downsize. This flexibility allows high-commitment workplaces to respond quickly to competitive changes in the environment. Our first hypothesis seeks to replicate Osterman’s (2000) study:

Hypothesis 1: HCWP will be positively related to the use of workforce reduction.

While Osterman’s (2000) findings provided an initial link between HCWP and layoffs, they are limited in that other workforce reduction strategies were not examined, and layoffs were treated as homogenous. In the next section, we address these limitations and develop the construct of downsizing harshness in the context of Australian workplaces.

Downsizing Harshness in Australian Workplaces

Downsizing strategies typically fall into two categories: alternatives and layoffs. Alternative strategies, including natural attrition and redeployment to another workplace within the organization, can be used for reducing workforce size or changing a workplace’s composition. Alternative strategies are preferable for most organizations because they are easy to implement, cost less, and rarely affect employee perceptions of job security. However, these strategies often do not cut deep enough immediately (Greenhalgh, Lawrence, and Sutton 1988; Morehead et al. 1997). Consequently, alternative strategies are a first step or the baseline in the downsizing process and are used in conjunction with layoff strategies (Iverson and Pullman 2000).

In terms of the second category, layoffs, the two primary strategies include voluntary and compulsory (Iverson and Pullman 2000; Morehead et al. 1997). Voluntary layoffs (including early retirement) involve offering buyout packages and other incentives to motivate employees to volunteer for redundancy, whereas, in compulsory layoffs, employees are targeted by management for mandatory redundancy. Financially, voluntary layoffs are more costly because they consist of more extensive and lucrative severance packages to encourage employees to volunteer. Iverson and Pullman
(2000), in a study of hospital employees in Australia, observed voluntary packages to include a maximum of a one-time termination payment of $10,000 (Australian), plus 34 weeks of pay (2 weeks per every year of service) and accrued leave. The maximum for the compulsory separation package was 24 weeks of pay, plus accrued leave.

Workplaces often incur the additional costs of voluntary layoffs to minimize the negative impact of downsizing on employee morale. In compulsory layoffs, unconscious stereotypes (Elvira and Zatzick 2002) and biased performance evaluations (Iverson and Pullman 2000) influence the decision-making process, and impact surviving employees’ perceptions of procedural fairness (Brockner 1988, 1992; Brockner, Wiesenfeld, and Martin 1995). By giving employees the opportunity to volunteer in exchange for attractive severance packages, the process is more transparent and reduces survivor guilt and perceptions of inequity (e.g., Cornfield 1983). Furthermore, survivors of voluntary layoffs may gain a sense of control over their own fate in the organization, as they elected to remain in the organization. While management can retain some control in the process by offering voluntary layoffs to certain departments and jobs (Cornfield 1983), they risk losing some top performers who may volunteer for layoffs because they can get jobs elsewhere (Cascio 1993).

Consequently, management must weigh the quantifiable costs of voluntary layoffs against the less tangible costs of compulsory layoffs on surviving employees’ work effort and commitment. Chadwick, Hunter, and Walston (2004), in a study of more than one hundred hospitals, found that hospitals that showed concern for employees’ morale and welfare during the downsizing process demonstrated better financial performance. This finding suggests that voluntary layoffs may be an important strategy for maintaining employee commitment and productivity when downsizing.

As discussed above, alternative and layoff strategies can be employed individually or in combination to meet the needs of an organization. Cascio and Wynn (2004) note that workforce reduction strategies can be characterized by their relative harshness on employees. As shown in Figure 1, we propose a downsizing harshness continuum using the various downsizing strategies available to most organizations. Level I, low harshness, is where no downsizing is conducted. We characterize this as low rather than no harshness as organizations may still convey uncertainty in their HR planning without implementing any reductions at this stage. Level II on the continuum consists of alternative strategies only. We consider this relatively low in harshness as

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3We thank David Levine and the anonymous reviewers for helping us develop this continuum.
no existing employees lose their job, and job loss is restricted to hiring freezes. Generally, alternative strategies take longer to implement with limited coverage (Greenhalgh, Lawrence, and Sutton 1988), making them less harsh than layoff strategies. Next, we characterize moderate levels of harshness (level III on harshness continuum) to include workplaces using voluntary layoffs (or early retirement) with or without alternative strategies. The incorporation of voluntary layoffs is harsher than level II because employees are losing their job; however, for many of the reasons described earlier, it is considered more employee friendly than compulsory layoffs.

Level IV on the harshness continuum, moderate–high harshness, consists of workplaces employing a combination approach of voluntary and compulsory layoffs. That is, organizations initially offer the more attractive voluntary severance packages, followed by the more conservative compulsory severance packages contingent on budgets (Iverson and Pullman 2000). This approach sends conflicting messages to employees, but has the desired effect of reducing workforce size more efficiently. The combination approach is considered harsher than using voluntary layoffs.

Finally, the harshest strategy, level V, involves using compulsory layoffs with or without baseline alternative strategies. In this situation, cost cutting and short-term efficiency are the primary focus (Cameron 1998; Rosenblatt and Mannheim 1996). The organization has bypassed the use of voluntary layoffs or early retirements to facilitate workforce reduction.

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4 It is possible that firms could begin with compulsory layoffs, and then add voluntary layoffs later in the process. However, this scenario is unlikely, given the negative consequences of using the harsher strategy first.
Consequently, employees receive the minimum amount of severance pay (Greenhalgh, Lawrence, and Sutton 1988), top management retains decision-making authority, and employees have little or no voice in the layoff process.

The relative harshness of downsizing strategies is important, particularly for organizations that rely on employees to provide discretionary effort to meet organizational goals. We posit high-commitment workplaces will use less harsh downsizing strategies in order to maintain surviving employees’ commitment, involvement, and motivation. In high-commitment workplaces, “employees are more pivotal . . . because such a firm is employee-centered by design; information and decision-making power are dispersed throughout the organization, with employees at all levels taking on greater responsibility for its operation and success” (Guthrie 2001: 181). Previous research has found that negative treatment of layoff victims increases job insecurity, guilt, and anger among surviving employees (Mishra, Spreitzer, and Mishra 1998). These negative feelings impact the survivors’ work behaviors and attitudes as a result of layoffs, and ultimately workplace performance (e.g., Brockner 1988, 1992; Brockner, et al. 1997). In other words, if an organization views employees as a source of competitive advantage, they will need to minimize the harshness of downsizing to protect survivors. This is consistent with Chadwick, Hunter, and Walston (2004), who found that a hospital’s HR strategy is positively related to showing consideration for survivors’ job security, employee marketability, and dignity in the downsizing process. In formal terms, we predict:

Hypothesis 2: HCWP will be negatively related to the use of harsher workforce reduction strategies.

Method

The data are drawn from the Australian Workplace Industrial Relations Survey 1995 (AWIRS 95). This survey was undertaken during the period between August 1995 and January 1996. Morehead et al. (1997) reported that in the year prior to AWIRS 95, 27 percent of workplaces experience workforce reduction, compared to 26 percent in AWIRS 90. Littler, Dunford, Bramble, and Hede (1997) reported in a sample of 653 Australian organizations between 1993 and 1995 wherein 57 percent had downsized (i.e., workforce reduction). In a follow-up and expanded study of 1222 organizations, Dawkins et al. (1999) found that this trend increased to 62 percent during the period 1997–1998. Of these organizations, 36 percent
had downsized once, 30 percent on two occasions, and 34 percent had downsized three or more times (Dawkins et al. 1999). Nevertheless, there is evidence to suggest that layoffs have remained relatively stable and have even declined over the last two decades in Australia. The Australian Bureau of Statistics (2002) reported that although the labor force layoff rate grew from 5.7 percent in 1975 to 7.2 percent in 1983, it declined dramatically between 4.1 percent and 4.6 percent from 1986 to 1990. Due to the economic recession in 1990 and 1991, layoff rates increased from 4.4 percent to 6.5 percent, which again fell to 4.4 percent by 1998. This general trend was also evident in the United States (Farber 2003).

The Australian Workplace Industrial Relations Survey 95 consists of a stratified random sample of 2001 workplaces with twenty or more employees across Australia (due to missing data, our sample size is 1939). AWIRS 95 had an overall response rate of 80 percent, mitigating nonresponse bias concerns. The sample did not include the agriculture, forestry, and fishing sectors (see Morehead et al. 1997 for a complete description of sample procedures). The present paper utilizes data collected via extensive face-to-face interviews with two key informants in each of the workplaces. The first, the general management questionnaire, was directed at the most senior manager at the workplace and focused on workplace characteristics (senior manager). The second, the employee relations management questionnaire, was directed at the manager who had the most day-to-day responsibility for employee relations at the workplace and focused on various issues such as human resource practices and policies, as well as workforce reduction strategies (HR manager).

Measures

*Downsizing Harshness.* Human resources managers were asked the question “Has management intentionally reduced the size of the workforce here at any time in the last year?” The survey considered workforce reduction that involves situations where workers lose their employment permanently because their work was no longer needed. A follow-up question focused on the specific methods used to reduce the size of the workforce. The survey indicated five possible methods: natural attrition, redeployment, early retirement, voluntary layoffs, and compulsory layoffs. Voluntary layoffs was defined as those that “involve employees volunteering to resign when management calls for workforce reductions,” while compulsory layoffs “are where employees are selected by management to lose their jobs because their labor is no longer needed at the workplace.” Respondents could select
all, some, or one of the methods. Importantly, all respondents who indicated downsizing occurred also indicated at least one of these methods was used in the workplace.

To create a measure of downsizing harshness, we combined several of the downsizing methods into new strategies to reflect the multiple levels in our continuum. First, the strategies of natural attrition and redeployment were grouped together as alternatives. Second, we grouped early retirement with voluntary layoffs because they involve offering financial incentives to entice older employees to volunteer for retirement. Finally, voluntary and compulsory layoffs were grouped together as a combination strategy. Using the original strategies identified in the survey along with these new strategies, we created five ordered categories in terms of downsizing harshness: 1283 workplaces had no workforce reductions (coded as 1); 196 workplaces had implemented alternative reduction strategies only (coded as 2); 213 workplaces had implemented voluntary layoffs only or voluntary layoffs plus alternative reduction strategies (coded as 3); 79 workplaces had implemented both voluntary and compulsory layoffs or both plus alternative reduction strategies (coded as 4); and 168 workplaces had implemented compulsory layoffs only or compulsory plus alternative reduction strategies (coded as 5).

**HCWP Index.** Human resource practices were assessed in terms of their existence in the workplace. These were measured as dichotomous variables: 1 = yes and 0 = no. Based on the high-commitment workplace literature (e.g., Huselid 1995; MacDuffie 1995; Osterman 1994), we initially focused on the following twelve practices: formal training (mean = 0.75), skills audit (mean = 0.34), TQM (mean = 0.43), quality circles (mean = 0.17), team building (mean = 0.51), semi-autonomous group (i.e., self-managed) (mean = 0.31), formal written selection procedure (mean = 0.68), non-management receive performance-related pay (mean = 0.36), written policy on occupational health and safety (mean = 0.85), written grievance procedure (mean = 0.77), written policy on equal employment opportunity/affirmative action (mean = 0.75), and employee welfare/assistance schemes or other counseling services (mean = 0.46). The HR practices used in Australian workplaces are increasingly similar with those used in the U.S. and UK workplaces (Katz and Darbishire 2000).

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5 Other HR practices such as job rotation were not included in our data and therefore could not be included in the study. This is a common issue in HR studies utilizing archival data (Godard 2001b). This is not considered a major limitation as we have examined twelve HR practices across various facets of an HR system.
To validate the HCWP index, we used the two techniques of the Mokken Scaling Analysis (MSA) and confirmatory factor analysis (please see Appendix for discussion of analyses). Although the two techniques differ in their approach, they provided consistent results to support the bundling of nine HR practices—TQM, team building, formal training, skills audit, formal written selection procedure, written policy on occupational health and safety, written grievance procedure, written policy on equal employment opportunity/affirmative action, and employee welfare/assistance schemes or other counseling services—used to form the HCWP index. The three practices—quality circles, semi-autonomous teams, and performance-related pay—did not load on to any factor. The index ranged from 0 to a maximum of 1 (i.e., number of practices in a workplace divided by nine). As shown in Table 1, the mean for the HCWP index is 0.62 (approximately 5.5 HR practices) (SD = 0.25).

**Control Variables.** Multiple variables were entered into the models as controls: log (employment), workplace age (1 = over 10 years and 0 = under 10 years), industry (comprising seven dummies), status (1 = private and 0 = public), union presence (1 = yes and 0 = no), market volatility in current year (comprising three dummies), new technology in last 2 years (1 = yes and 0 = no), labor productivity in last 2 years (1 = a lot lower than 2 years ago; 5 = a lot higher than 2 years ago), and the proportion of contingent workers (measured as the sum of noncore workers [casual employees, agency workers, home or outworkers, and contractors and their employees]) as a percentage of the total workforce at the workplace (i.e., all permanent employees plus noncore workers). Research indicates that HCWP are associated with larger (Jackson and Schuler 1995) and older workplaces (Guthrie 2001). Propensity to downsize is also expected to differ between industries (i.e., manufacturing, transportation, communication, retail, government, mining/construction, and service), as well as among private and public workplaces (Guthrie 2001). The presence of a union is also anticipated to impact a workplace’s workforce reduction strategy (Cornfield 1983; Iverson and Pullman 2000). Whether the demand for a workplace’s main product or service is currently expanding, stable, or contracting is expected to influence downsizing (Budros 1997). The three dummy variables—expanding, stable, and contracting (reference group)—are used to indicate a workplace’s current product or service volatility, as indicated by respondents of the general management questionnaire. As previously discussed, the introduction of new technology, labor productivity, and contingent work have all been linked with workforce reduction (Cappelli 2000a; Cappelli and Neumark 2004; Osterman 2000).
### TABLE 1
Means, Standard Deviations, and Correlations of All Variables

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<tr>
<th>Variables</th>
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<td>1. Downsizing harshness</td>
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<td>2. HCWP index(^a)</td>
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<td>3. Log (employment)</td>
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<td>4. Workplace age</td>
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<td>&gt;10 years(^c)</td>
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<td>5. Manufacturing(^c)</td>
<td>0.05</td>
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<td>6. Transportation(^c)</td>
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<td>7. Retail(^c)</td>
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<td>8. Government(^c)</td>
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<td>9. Mining/ construction(^c)</td>
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<td>0.10</td>
<td>—</td>
<td>0.03</td>
<td>—</td>
<td>0.31</td>
<td>—</td>
<td>0.14</td>
<td>—</td>
<td>0.24</td>
<td>—</td>
<td>0.38</td>
<td>—</td>
</tr>
<tr>
<td>10. Service(^c)</td>
<td>0.72</td>
<td>0.45</td>
<td>0.02</td>
<td>—</td>
<td>0.22</td>
<td>—</td>
<td>0.12</td>
<td>—</td>
<td>0.11</td>
<td>0.30</td>
<td>0.10</td>
<td>0.23</td>
<td>—</td>
<td>0.66</td>
<td>0.10</td>
<td>0.10</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Private(^c)</td>
<td>0.19</td>
<td>0.39</td>
<td>0.01</td>
<td>—</td>
<td>0.36</td>
<td>—</td>
<td>0.26</td>
<td>—</td>
<td>0.10</td>
<td>—</td>
<td>0.02</td>
<td>—</td>
<td>0.04</td>
<td>0.16</td>
<td>0.17</td>
<td>0.07</td>
<td>0.05</td>
<td>0.25</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>12. Union presence(^c)</td>
<td>0.53</td>
<td>0.50</td>
<td>—</td>
<td>0.11</td>
<td>0.16</td>
<td>0.07</td>
<td>—</td>
<td>0.04</td>
<td>—</td>
<td>0.09</td>
<td>0.00</td>
<td>0.00</td>
<td>0.02</td>
<td>—</td>
<td>0.12</td>
<td>0.14</td>
<td>—</td>
<td>0.05</td>
<td>—</td>
<td>0.04</td>
</tr>
<tr>
<td>13. Expanding demand in current year(^c)</td>
<td>0.35</td>
<td>0.48</td>
<td>0.01</td>
<td>—</td>
<td>0.11</td>
<td>—</td>
<td>0.05</td>
<td>0.02</td>
<td>0.02</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.08</td>
<td>—</td>
<td>0.09</td>
<td>0.00</td>
<td>0.04</td>
<td>0.79</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>14. Stable demand in current year(^c)</td>
<td>0.11</td>
<td>0.32</td>
<td>0.15</td>
<td>—</td>
<td>0.08</td>
<td>—</td>
<td>0.05</td>
<td>0.03</td>
<td>0.12</td>
<td>0.02</td>
<td>—</td>
<td>0.04</td>
<td>—</td>
<td>0.06</td>
<td>—</td>
<td>0.07</td>
<td>0.08</td>
<td>0.01</td>
<td>—</td>
<td>0.38</td>
</tr>
<tr>
<td>15. Contracting demand in current year(^c)</td>
<td>0.46</td>
<td>0.50</td>
<td>0.02</td>
<td>0.10</td>
<td>0.05</td>
<td>0.03</td>
<td>—</td>
<td>0.11</td>
<td>—</td>
<td>0.01</td>
<td>0.04</td>
<td>0.08</td>
<td>—</td>
<td>0.06</td>
<td>0.03</td>
<td>—</td>
<td>0.12</td>
<td>0.01</td>
<td>0.08</td>
<td>—</td>
</tr>
<tr>
<td>16. New technology in last 2 years(^c)</td>
<td>4.06</td>
<td>0.88</td>
<td>0.04</td>
<td>0.21</td>
<td>0.09</td>
<td>0.02</td>
<td>—</td>
<td>0.10</td>
<td>—</td>
<td>0.04</td>
<td>0.05</td>
<td>0.04</td>
<td>—</td>
<td>0.06</td>
<td>0.07</td>
<td>—</td>
<td>0.07</td>
<td>0.08</td>
<td>0.16</td>
<td>—</td>
</tr>
<tr>
<td>17. Productivity in last 2 years</td>
<td>17.74</td>
<td>23.06</td>
<td>—</td>
<td>0.13</td>
<td>—</td>
<td>0.17</td>
<td>—</td>
<td>0.05</td>
<td>—</td>
<td>0.11</td>
<td>—</td>
<td>0.16</td>
<td>0.00</td>
<td>0.20</td>
<td>0.04</td>
<td>—</td>
<td>0.05</td>
<td>—</td>
<td>0.01</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Notes: \(^a\)Correlations ≥0.05 are significant at \(p < 0.05\) for \(N = 1939\).

\(^b\)Consists of index of nine HR practices; Rho = 0.73.

\(^c\)Dummy variable.
Data Analysis

Given the categorical and ordinal nature of our dependent variable, we use ordinal logistic regression analysis to test our hypotheses (Borooah 2002; Demaris 1992). However, our hypotheses are such that we expect to violate the parallel regression/proportional odds assumption of ordinal logit, which requires the coefficients to be equal when comparing across equations based on ordinal outcomes (Long and Freese 2006; Williams 2005). Specifically, in hypothesis 1, we predict a positive relationship between HCWP and downsizing harshness when comparing level I (no downsizing) to all other levels in the harshness measure (levels II–V). However, in hypothesis 2, we expect a negative relationship between HCWP and downsizing harshness when comparing less harsh downsizing strategies (levels I–III) to harsher layoffs strategies (levels IV and V). The Brant test of parallel regression/proportional odds assumption (Brant 1990; Long and Freese 2006) confirmed that our model violated the assumption of ordinal logit ($\chi^2 (45) = 357.25, p < 0.000$). In particular, the HCWP index ($\chi^2 (3) = 21.29, p < 0.000$) was especially problematic in relation to the parallel regression assumption.

To correct for this violation, we utilized a generalized ordinal logit model (gologit2) which relaxes the constraint of parallel lines for those variables that violate the assumption (StataCorp 2003; Williams 2005). This method estimates “models that are less restrictive than the proportional odds/parallel lines models estimated by ologit (whose assumptions are often violated) but [are] more parsimonious and interpretable than those estimated by a non-ordinal method, such as multinomial logistic regression” (Williams 2005: 1). Consequently, we model a slightly modified version of ordinal logit where a series of regressions are reported predicting differences at each level of the dependent variable, holding constant those variables that do not violate the parallel regression/proportional odds assumption across the regression models. By holding constant many of the independent variables in the model, we were able to run the model without violating the assumption. We confirmed this was the case in our data: $\chi^2 (15) = 21.02, p > 0.05$.

Results

The correlations presented in Table 1 provide initial support for hypothesis 1: the HCWP index was positively correlated with downsizing harshness ($r = 0.09, p < 0.05$). The generalized ordinal logistic regression results are shown in Table 2. The model examines the five ordered categories (j-1 multiple equations) of downsizing harshness conducted by the workplace:
### TABLE 2

**ESTIMATES OF GENERALIZED ORDERED LOGIT MODEL FOR DOWNSIZING HARSHNESS**

<table>
<thead>
<tr>
<th>Model 1&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Model 2&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Model 3&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Model 4&lt;sup&gt;f&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coef.</td>
<td>SE</td>
<td>Coef.</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log (employment)</td>
<td>0.381***</td>
<td>0.051</td>
<td>0.462***</td>
</tr>
<tr>
<td>Workplace age &gt;10 years&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.331*</td>
<td>0.157</td>
<td>0.371*</td>
</tr>
<tr>
<td>Manufacturing&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-0.129</td>
<td>0.151</td>
<td>-0.129</td>
</tr>
<tr>
<td>Transportation&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-0.474</td>
<td>0.265</td>
<td>-0.554</td>
</tr>
<tr>
<td>Retail&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-0.329</td>
<td>0.180</td>
<td>-0.329</td>
</tr>
<tr>
<td>Government&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-0.179</td>
<td>0.166</td>
<td>-0.241</td>
</tr>
<tr>
<td>Mining/construction&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-0.290</td>
<td>0.207</td>
<td>-0.216</td>
</tr>
<tr>
<td>Private&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.045</td>
<td>0.160</td>
<td>-0.015</td>
</tr>
<tr>
<td>Union presence&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.054</td>
<td>0.151</td>
<td>0.237</td>
</tr>
<tr>
<td>Expanding demand in current year&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-1.113***</td>
<td>0.156</td>
<td>-0.959***</td>
</tr>
<tr>
<td>Stable demand in current year&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-0.743***</td>
<td>0.154</td>
<td>-0.743***</td>
</tr>
<tr>
<td>New technology in last 2 years&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-0.031</td>
<td>0.104</td>
<td>-0.044</td>
</tr>
<tr>
<td>Productivity in last 2 years</td>
<td>0.131*</td>
<td>0.059</td>
<td>0.131*</td>
</tr>
<tr>
<td>Contingent workers</td>
<td>-0.012***</td>
<td>0.003</td>
<td>-0.012***</td>
</tr>
<tr>
<td><strong>Independent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCWP index</td>
<td>0.720**</td>
<td>0.256</td>
<td>0.783**</td>
</tr>
<tr>
<td>Log-likelihood</td>
<td>-1870.21</td>
<td>1939</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood-ratio test $\chi^2$ (d.f.)</td>
<td>486.05 (45)**</td>
<td>1115</td>
<td></td>
</tr>
<tr>
<td>Pseudo $R^2$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- <sup>a</sup> Downsizing harshness coded as 1, no downsizing; 2, alternative strategies only (e.g., natural attrition); 3, voluntary layoffs (including early retirements) only or voluntary layoffs plus alternative reduction strategies; 4, both voluntary and compulsory layoffs or both plus alternatives reduction strategies; and 5, compulsory layoffs only or compulsory plus alternative reduction strategies.
- <sup>b</sup> Dummy variable; service and contracting are omitted categories for industry and demand variables, respectively.
- <sup>c</sup> Compares level I versus II–V on the downsizing harshness continuum.
- <sup>d</sup> Compares levels I and II versus III–V on the downsizing harshness continuum.
- <sup>e</sup> Compares levels I–III versus IV and V on the downsizing harshness continuum.
- <sup>f</sup> Compares levels I–IV versus V on the downsizing harshness continuum.

*p < 0.05; **p < 0.01; ***p < 0.001 level.
(1) no downsizing, (2) alternative strategies only (i.e., natural attrition and redeployment), (3) voluntary layoffs (including early retirements) with or without alternative reduction strategies, (4) both voluntary and compulsory layoffs with or without alternative reduction strategies, and (5) compulsory layoffs with or without alternative reduction strategies. The results in Table 2 are interpreted as follows: each column reflects a level of the dependent variable, and each level is used as a cutoff to compare to higher levels. Model 1 presents analyses comparing workplaces with no downsizing (harshness = 1) to all other groups (harshness = 2, 3, 4, and 5). As predicted in hypothesis 1, the HCWP index is positive and significant ($B = 0.720, p < 0.01$), which indicates that workplaces with more HCWP are more likely to conduct workforce reduction. In model 2 (comparing levels I and II versus III–V), we can extend this finding to report that workplaces with more HCWP are more likely to utilize some form of layoffs (voluntary and/or compulsory) when conducting workforce reduction ($B = 0.783, p < 0.01$) compared to no downsizing or alternative reduction strategies alone. In model 3 (comparing levels I–III versus IV and V), we see that the HCWP index is negative and significant ($B = -0.714, p < 0.05$), indicating that workplaces with more HCWP are less likely to use the harsher layoff method of compulsory layoffs as part of their downsizing strategy. In model 4 (comparing levels I–IV versus V), we find a negative, nonsignificant relationship indicating that the use of compulsory layoffs alone is not differentiated from the other strategies. The overall model had a pseudo $r^2$ of 11.50 percent, which is considerably higher than the pseudo $r^2$ of 4.80 percent in a standard ordinal logit analysis (not shown here). Thus, we find support for our predictions that workplaces with more HCWP downsize (hypothesis 1), but will do it in a less harsh manner by avoiding the use of compulsory layoffs (hypothesis 2).

Interpretation of these results can be done by examining marginal effects—the probability change in workplaces utilizing different forms of workforce reduction for a unit change in an independent variable. The probability of a workplace conducting no downsizing (level I on the harshness continuum) decreases by 15.5 percent as the HCWP index increases in value (slope of curve), when evaluated at the mean of all variables in the model. By contrast, the probability of a workplace using voluntary layoffs with or without alternative strategies (level III on the harshness continuum)

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6 Calculation of marginal change in the probability was conducted with assistance from Richard Williams, author of the generalized ordinal logit (GLOGIT2) program. It is based on the calculation of marginal change in a standard ordinal logit model, which is the slope of the probability curve holding all other variables constant (see Long and Freese 2006). For discrete independent variables (i.e., dummy variables), the computation is slightly different (see Long and Freese 2006). The complete set of marginal effects for all variables is available from the authors.
High-Commitment Work Practices and Downsizing

increases by 19.9 percent as the HCWP index increases. The probability that a workplace uses compulsory layoffs (level IV or V on the harshness continuum) decreases by 3.5 percent and 3 percent, respectively, as the HCWP index increases. These probabilities confirm that having more HCWP is related to the use of downsizing, but it is through the use of more employee-friendly strategies of voluntary layoffs and alternative strategies.

In terms of control variables, several interesting patterns were found across the models. When unionized workplaces downsize they are more likely to utilize compulsory methods, as evidenced by positive significant relationships in model 3 (B = 0.954, p < 0.001) and 4 (B = 1.401, p < 0.001). Workplaces that are expanding (model 1: B = −1.113, p < 0.001) or stable (model 1: B = −0.743, p < 0.001) are less likely to use workforce reduction, but when faced with this situation, are consistently less likely to employ harsher downsizing methods compared to workplaces that are in decline (model 4: B = −1.816, p < 0.001; model 4: B = −0.743, p < 0.001, respectively). In addition, larger workplaces are more likely to downsize (model 1: B = 0.381, p < 0.001) and to use harsher methods (model 3: B = 0.485, p < 0.001), except when it comes to using compulsory layoffs in isolation from voluntary layoffs. Finally, workplaces with higher productivity are more likely to downsize more harshly (all models: B = 0.131, p < 0.05), while those with a greater proportion of contingent employees are more likely to downsize using employee-friendly strategies (all models: B = −0.012, p < 0.001).

The marginal changes in the probabilities for the control variables are also important for understanding the relative effect of HCWP. For example, the probability of expanding and stable workplaces conducting no downsizing (level I) is 24 percent and 26 percent greater, respectively, while their probability of using compulsory layoffs (level V) is 10.7 percent and 4.4 percent lower, compared to declining workplaces. Additionally, private workplaces have an 11 percent decrease in probability of using compulsory layoffs (level III) and 10.7 percent increase in probability to use compulsory layoffs (level V). Finally, having a union is linked to an 8.3 percent increase in probability of using the harshest downsizing strategy (level V).

Discussion and Conclusions

Past research on HCWP has focused predominantly on the relationship between HR practices and firm performance or productivity. Based on a sample of Australian workplaces, we extend this research by linking a workplace’s HCWP to its layoff strategies. Our results indicate that workplaces with more HCWP are associated with conducting workforce reduction.
However, high-commitment workplaces are also more likely to implement less harsh layoff strategies (e.g., alternatives and voluntary layoffs) in preference to other workforce-reduction strategies that incorporate the harsher strategy of compulsory layoffs. These results suggest that what differentiates high-commitment workplaces over traditional workplaces is not a no-layoff policy (Helper, Levine, and Bendoly 2002; Osterman 2000), but the process with which they undertake layoffs (Chadwick, Hunter, and Walston 2004; Pfeffer 1998). That is, high-commitment workplaces use more employee-friendly downsizing strategies compared to traditional workplaces.

Our findings have several implications for understanding the relationship between HCWP and workforce reduction. In particular, other researchers have characterized downsizing as either a reinforcement or reorientation approach to workforce restructuring (Cameron, Freeman, and Mishra 1993; Freeman 1999). In the reinforcement approach, downsizing drives redesign based primarily on efficiency and cost cutting, while, in contrast, re-orientation is part of everyday business and involves recalibrating the workforce. We suggest that high-commitment workplaces utilize the latter approach of transforming the workplace, in that maintaining both employee well-being and productivity are major considerations. This strategic approach is consistent with Chadwick, Hunter, and Walston (2004) who reported that hospitals displaying real concern for employees during downsizing had superior financial performance. Therefore, as indicated by our findings, workplaces with a system of HCWP do downsize, but they do it in a way that attempts to ensure procedural justice and fairness in the process, as well as maintain employee morale and effort.

Nevertheless, we have to be somewhat circumspect with our results as we were unable to measure employee well-being directly. For example, the “labor process” model suggests that high-commitment practices lead to work intensification, burnout, and stress (Green 2004; Ramsay, Scholarios, and Harley 2000), and that workforce reduction, in conjunction with work intensification, will exacerbate conflict between management and employees. Yet, even in this situation, Osterman (2000) asserts that the productivity gains from HCWP will entice management to implement such practices, and that employees will accept this trade-off. Likewise, we find that organizations will try to mitigate this conflict by using more generous workforce reduction strategies (e.g., voluntary layoffs and early retirement).

Another practical implication relates to the cost–benefit tradeoffs of implementing HCWP. For example, introducing TQM involves a significant up-front investment in training, which would suggest that HCWP are more of a longer-term strategy by organizations to increase productivity. Thus, the use of less harsh strategies such as natural attrition and voluntary layoffs
are vital because employees have short- and long-term value for the workplace. In contrast, traditional workplaces have little to gain financially from using the more costly voluntary layoffs. Many traditional workplaces view employees as “disposable” because they can be replaced at little or no cost (Drago 1996). Additionally, it is assumed that lower morale will not significantly impact profitability because employees are relatively unimportant in the production process (Lawler 1992). Furthermore, individual HR practices can be implemented and discontinued easily because they are not part of an overall system.

Yet we must be careful not to go beyond the scope of the study. The problem of using large-scale government surveys has been well documented. Godard (2001b) notes that these types of surveys are usually designed for descriptive purposes, tend not to be in-depth in their probing, frequently involve single respondents, and are typically absent of research questions. In A WIRS, for example, we are only able to measure the existence of the HR practices, not their actual usage. The coverage and implementation of the HR practices in each workplace would be more precise measures. Another possible limitation is that of selection bias, in that workplaces that reduced their workforce to less than twenty employees during the previous year (including those that shut down entirely) would not be included in the sample. Thus, our study may not be capturing those workplaces with severe financial conditions or those in major decline.

The issue of common method bias is also problematic, given that the HR practices and downsizing data were collected from the HR manager contemporaneously (Guthrie 2001). It is plausible that workplaces that are downsizing invest in their HR practices to a lesser extent. However, in our downsizing harshness continuum, we distinguish between no downsizing, alternative strategies, and voluntary and compulsory layoff strategies, which lessen the temporal concern in that we predict and find support for the relationship between HCWP and unique layoff strategies. It is also possible that high-commitment workplaces are in a better financial position to offer more generous severance packages or be more proactive in responding to the need to restructure. Yet, research using longitudinal designs has affirmed the causal link between HCWP and organizational productivity (e.g., Huselid, Jackson, and Schuler 1997), as well as layoffs (e.g., Osterman 2000; Zatzick and Iverson 2006). Furthermore, our measure of productivity was positively related to the use of harsher downsizing strategies. Finally, although our results indicate that HCWP are associated with workforce reduction, we were unable to determine the extent of downsizing or that these workplaces are more successful in implementing their layoffs strategies. These limitations present important avenues for future research.
In the course of validating our set of nine HR practices, we found that three practices (i.e., quality circles, performance-related pay, and semi-autonomous teams) typically considered part of high-commitment management did not fit into our high-commitment index. This is consistent with Wood (1999) who also reported that quality circles failed to display discriminate validity in an analysis of HR practices and that it is difficult to differentiate whether the measure of performance-related pay is at the group or at the individual level. In terms of semi-autonomous teams, it may be that they were not fully implemented when data collection occurred (mid-1990s); many organizations may have incorporated teams into existing work processes without actually giving team members formal decision-making authority. This is consistent with the team-building practice fitting in the index, despite not having semi-autonomous teams in it. Although we utilize a variety of methods for validating the HCWP index, future research is required regarding the types of HR practices that comprise the system of HCWP (e.g., individual versus group performance-related pay). Wood and Wall (2002) note that as studies operationalize HRM in different ways (e.g., type and number of HR practices), it is difficult to find a coherent pattern of results. For example, the number of practices that comprise an HR system can range up to as many as twenty-two (Guest and Hoque 1994). This indicates that although there is a need for greater standardization in the conceptual and operational definition of HCWP, they may be country, industry, and workplace specific (Becker and Huselid 1998).

This study is a first attempt at understanding the complex relationship between HCWP and workforce reduction strategies. We successfully replicated Osterman’s (2000) original findings, and extended this to specific layoff strategies in an Australian context. A corollary of our research is to examine whether the form of workforce reduction strategy plays a mediating or a moderating role between the system of HCWP and employee outcomes (e.g., survivor syndrome, psychological contract). Data are required at the employee level to gauge the attitudinal and behavioral impacts of layoff strategies. Finally, our results extend those of Cappelli and Neumark (2001: 737) in that “high-performance practices raise labor costs,” they also are linked to the workforce reduction and, more specifically, less harsh workforce reduction strategies.

REFERENCES


Australian Bureau of Statistics. 2002. Labour Mobility, Australia, (Cat. no. 6209.0).


Previous research has focused on a variety of statistical approaches to validate HR indices including cluster analysis (e.g., MSA) and factor analysis (e.g., Goodehr, Nordhaug, and Ringal 1999; Helper, Levine, and Bendoly 2002; MacDuffie 1995; Ramsay, Scholarios, and Harley 2000). We begin by using the MSA program (Molenar and Sjitsma 2000) because of its ability to construct scales based on dichotomous HR practices (Goodehr, Nordhaug, and Ringal 1999), and then supplement it with factor analysis. The MSA is a nonparametric item response model that relaxes many of the statistical assumptions of previous approaches (e.g., factor analysis). The MSA program allows researchers to construct clusters or scales based on Guttmann’s (1950) notion of cumulativeness using item response theory.

Although we use term “scales” to be consistent with Molenar and Sjitsma (2000), MSP allows us to construct an “index” for HCWP where more practices present in an organization reflect a stronger more comprehensive system.
Specifically, this approach entails a hierarchical method of selecting items that are related. For example, in a high-commitment workplace, an HR manager responding that the workplace has a formal written selection procedure will have a significantly greater probability than null to answer that they also have a written policy on occupational health and safety. As the scale is cumulative, the existence of HR practices is ranked, a total is calculated, and coefficient of scalability is estimated. This derives from Mokken’s (1971) criterion using Loevinger’s (1948) H-coefficient of homogeneity. The H-coefficient compares the probability of errors in ranking the related items to the probability of errors in ranking if the items were unrelated. The range for H-values is between 0 and 1, with values of at least 0.30 considered acceptable. H-values are estimated for individual HR practices, as well as for the total scale. Another advantage of the MSA program is that it provides a better approximation to the reliability coefficient rho than Cronbach’s alpha for dichotomous variables (Molenar and Sjitsma 2000). As we a priori hypothesized that the system of HCWP comprised one dimension, we employed the “test” option of the MSA program (Molenar and Sjitsma 2000). The H-value was 0.26, with a rho of 0.73. As the overall scale failed to demonstrate adequate fit, we undertook further analyses that involved removing the poorest-fitting HR practices and re-estimating the model (see Molenar and Sjitsma 2000 for discussion of the “test” procedure). The best-fitting model comprised the nine HR practices: formal training, skills audit, formal written selection procedure, written policy on occupational health and safety, written grievance procedure, written policy on equal employment opportunity/affirmative action, TQM, team building, and employee welfare/assistance schemes or other counseling services (H-value = 0.34; rho = 0.73). Before deciding on these nine HR practices, we carried out additional analyses to examine the robustness of this system.

To test the validity of the HCWP index, we employed structural equation modeling (i.e., linear structural relations [LISREL]) on the initial twelve HR practices. The application of confirmatory factor analysis (CFA) provides a rigorous and parsimonious structural test of competing models (Kelloway 1998). The advantage of structural equation modeling is that it examines the extent to which the factor structures best “fit” the data across various indices. Although there are a multitude of indices, we focus on the four most commonly used in research (Hu and Bentler 1998, 1999). The goodness-of-fit index (GFI) and comparative fit index (CFI) have values ranging from 0 to 1, with values greater than 0.90 as an acceptable fit (Bentler 1992; Hu and Bentler 1999). Conversely, the standardized root mean square residual (SRMR) and root mean square error of approximation (RMSEA)
are lack of fit measures bounded by 0 to 0.10, with values less than 0.08 and 0.06 representing an acceptable fit, respectively (Hu and Bentler 1999). The CFA using LISREL 8.7I (Jöreskog & Sörbom 2004) assessed the convergent validity of the original twelve HR practice model. PRELIS (Jöreskog & Sörbom 2004) was initially employed to transform the categorical data. This comprised the matrix files for the polychoric correlation matrix and the estimated asymptotic covariance matrix of the polychoric correlations. Weighted least squares were used to estimate the measurement models. The $\chi^2$ of the twelve practices was $\chi^2 (54) = 449.003, p < 0.05$. Two indices indicated that this measurement model was a poor fit of the data: GFI = 0.98, CFI = 0.85, SRMR = 0.13, and RMSEA = 0.06 (Bentler 1990, 1992; Browne and Cudeck 1993; Gerbing and Anderson 1993; Hu and Bentler 1999). We therefore revised the analysis and undertook a nested approach. This comprised testing a two-factor model with the nine HR practices of the HCWP index being one-factor and semi-autonomous teams, quality circles, and performance-related pay being the second factor. Although the chi-square was a significant improvement in fit [$\Delta \chi^2 (1) = 8.45, p < 0.05$], all other indices remained virtually identical: GFI = 0.98, CFI = 0.86, SRMR = 0.13, and RMSEA = 0.06. Finally, in terms of parsimony, we estimated a model with the nine HR practices supported in the MSA. The chi-square of this model was $\chi^2 (27) = 193.838, p < 0.05$ (all lambdas [factor loadings] were significant). Additionally, three out of four indices demonstrated a good fit: GFI = 0.99, CFI = 0.93, and RMSEA = 0.05 (SRMR = 0.09; slightly above the 0.08 threshold).

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8 Given the sensitivity of the chi-square test to sample size, these alternative measures of fit are recommended. Nevertheless, there is debate in the literature regarding exact cutoff criteria due to sample size, model complexity, and estimation procedure (e.g., maximum likelihood) (see Hu and Bentler 1999 and Marsh, Hau, and Wen 2004 for a discussion).