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# THE EFFECTS OF ORGANIZATIONAL CHANGE ON WORKER WELL-BEING AND THE MODERATING ROLE OF TRADE UNIONS

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The authors explore the effects of organizational change on employee well-being using multivariate analyses of linked employer-employee data for Britain, with particular emphasis on whether unions moderate these effects. Nationally representative data consist of 13,500 employees in 1,238 workplaces. Organizational changes are associated with increased job-related anxiety and lower job satisfaction. The authors find that job-related anxiety is ameliorated when employees work in a unionized workplace and are involved in the introduction of the changes.

A large empirical literature links flexible work specialization, innovations in lean production, the introduction of total quality management, “high-involvement management practices,” and other organizational changes to improved workplace performance, chiefly through productivity growth (Ichniowski, Shaw, and Prensushi 1997; Caroli and Van Reenen 2001; Black and Lynch 2004; Bloom and Van Reenen 2007). But what effects do these organizational changes have on worker well-being? Previous work indicates these effects depend on the nature of the change (Tichy 1983; Dent and Goldberg 1999) as well as other factors such as individual responses linked to personality (Oreg 2003). Effects are also context-specific (Wanberg and Banas 2000; Oreg 2006). For example, worker resistance to change is negatively associated with trust in management (Oreg 2006). Using nationally representative linked employer-employee data for British private sector workplaces we explore the effects of organizational change on employee job anxiety (JA) and job satisfaction (JS),

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with particular emphasis on whether unions moderate these effects. This potential moderating influence has not been tackled in the literature hitherto.

First we investigate the relationship between organizational change and JA and JS. Then we investigate the role of unions. We start from the premise that managers are rarely free to make changes at will. Organizational change can be met with resistance or hostility by employees who are either fearful of change or believe it will be to their detriment. When employees have sufficient bargaining power they may be capable of significantly modifying management plans for change to meet some of their concerns. Employees may even be able to block management attempts to introduce changes. Unions' strength and organizational capacity are among the factors that determine unions' influence over organizational changes (Frost 2000, 2001; Lévesque and Murray 2005) and the precise role they play. Is the key role of unions to threaten opposition to change, or to facilitate consultation and involvement in the process leading up to changes? If it is the latter, does consultation over organizational change require a union to ensure employee well-being? We address this issue by distinguishing between employee involvement in the introduction of organizational changes in unionized and nonunionized settings.

### **Theoretical and Empirical Literature**

Does Organizational Change Reduce Worker Well-Being?

Organizational change may affect worker well-being through affective, behavioral, and cognitive responses to anticipated outcomes (Dent and Goldberg 1999; Oreg 2006). Adverse effects on well-being may be anticipated when changes are to workers' detriment (or perceived as such), when they generate uncertainty associated with future loss, and when they are introduced in a way that is perceived to be unfair. Not all changes will be perceived in the same fashion by workers, however, because some are more likely to impinge on their working conditions and work arrangements than others. For example, changes to working hours or work organization may have a greater direct

effect on workers than, say, the introduction of a new product or service that requires no major change to working arrangements.

Job anxiety (JA) may increase when workers are concerned about their ability to perform under new work routines or if changes lead to the threat of job loss and thus job insecurity (De Witte 1999; Burke and Greenglass 2001; Cheng and Chan 2008; Green 2010).

Organizational change might also affect worker motivation and thus job satisfaction (JS). For example, the introduction of performance-related pay may positively affect extrinsic motivation at the expense of intrinsic motivation (Deci 1975; Benabou and Tirole 2003).

Empirical evidence links employees' perceptions of fairness or equity to their well-being (Warr 2007: 135-140). Perceptions of fairness also help explain their attitudes to organizational change (Greenberg 1990; Greenberg and Cropanzano 2001). Organizational change may affect perceptions of distributive (in)justice depending on the allocations of rights and rewards accruing to workers, and they may result in perceptions of procedural (in)justice depending on the process that governed the introduction of the change.

The organizational changes to which researchers have devoted the most attention are the introduction of what are variously referred to as "high-involvement," "high-commitment," or "high-performance" work practices. These practices may offer opportunities to employees to improve the quality of their working lives by way of devolved decision-making. Since workers often demand greater decision-making power at the workplace, more control over how they do their work, and more input into managerial decision-making (Freeman and Rogers 1999), it seems reasonable to assume that "high-involvement" practices may increase job satisfaction and well-being. In line with this notion, Mohr and Zoghi (2008) identified positive associations between high-involvement work practices and job satisfaction among Canadian workers during 1999 to 2002. Since these practices can also improve firm performance they are characterized as offering mutual gains for employees and employers (Kochan and Osterman 1994). Not all workers may

benefit, however, due to job cuts and associated insecurity (Osterman, 2000; Black, Lynch, and Krivelyova 2004), and not all workers prefer greater decision-making.

These practices may also entail labor intensification and are often associated with higher levels of work intensity, overload, and worker stress (Godard 2001, 2010; Askenazy and Caroli 2010), even when they are also associated with higher satisfaction (Godard 2010), higher work commitment (Ramsay, Scholarios, and Harley 2000), or higher job control (Gallie 2005). Others (e.g., Appelbaum et al. 2000) have found no adverse effects of such practices on stress levels; while Godard (2010) reported that “old” practices are associated with lower stress and fatigue and greater empowerment, satisfaction, and commitment. Using the Workplace Employment Relations Survey 2004 (also used in this article), Wood (2008) confirmed Karasek’s (1979) theory that worker well-being is negatively related to job demands and positively related to job control, and that high job controls reduce the negative association between job demands and well-being. In a similar vein, Bordia et al.’s (2004) case study linked organizational change to psychological stress through perceived loss of control. Pollard (2001) showed that workplace reorganization caused significant increases in distress and in systolic blood pressure and that uncertainty was a key factor.

Much of the literature reviewed above focuses on associations between worker well-being and management practices at a point in time. Our article departs from this approach by using retrospective data on the introduction of practices at the workplace over the previous two years to capture the nature of organizational changes.

### Do Unions Moderate the Impact of Organizational Change on Worker Well-Being?

Trade unions may play an important role in mitigating or exacerbating the negative effects of work reorganization on worker well-being for a number of reasons. First, unions may negotiate on behalf of their members over the nature of organizational change. Unions with a strong bargaining position may be able to block changes that appear particularly detrimental to workers. Where

changes proceed they may be significantly modified by the union such that they are more acceptable to employees than might have been the case in the absence of trade union representation.

Second, through their union representatives, employees have the opportunity to refashion proposals for change to their advantage, either in response to union-oriented consultations or through the union's role as negotiator with the employer. Consultation and negotiation with union representatives gives employees a say in the change process, which can enhance worker well-being, irrespective of the final shape of the changes, simply because workers feel they have had some meaningful involvement in the process. Several authors (Skarlicki and Folger 1997; Robbins, Summers, and Miller 2000) argued that the process around the change could be even more important than the outcome for behavioral intentions. This involvement can then lead to heightened perceptions of procedural fairness and the sense that employees have some control over how their working environment is being reshaped.

The third way in which unions may ameliorate the negative impact of organizational change on employee well-being is as a guarantor of job security to employees. Unions often link the acceptance of work reorganization to job security commitments, thus increasing the credibility of managerial assurances that changes will not lead to redundancies. These agreements often take the form of job security guarantees (JSGs), which seek to avoid compulsory redundancies if at all possible. JSGs are more prevalent in union than in nonunion workplaces and, although job cuts are just as likely where JSGs are present, the probability of compulsory redundancy is lower. As a consequence, JSGs reduce employee perceptions of job insecurity (Bryson, Cappellari, and Lucifora 2009) and may thus facilitate organizational change.<sup>1</sup>

Fourth, social psychologists argue that social supports can help people cope with high demands under conditions of low control (Payne 1979), as in the case of workers facing organizational change. Wood (2008: 157) argued that trade unions can be regarded as a source of

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<sup>1</sup> Black and Lynch (2004: footnote 5) made the point that because worker-management agreements are rarely legally enforced, unions can help overcome the incentive incompatibility problems discussed by Malcolmson (1983).

social support that, under Karasek and Theorell's (1990: 75) model, helps to limit the impact of work strain on worker well-being. In his empirical analysis, however, he found that union membership is not correlated with well-being or job satisfaction, but perceptions of consultative management are conducive to worker well-being. In contrast, Godard's (2010) study using a random sample of 750 Canadian workers found that participative practices are negatively associated with stress and fatigue, while positively associated with empowerment, satisfaction, and commitment in the union sample, whereas no significant associations exist in the nonunion sample.

A fifth means by which unions may mediate the link between organizational change and worker well-being is through their efforts to secure higher wages in return for productivity-enhancing organizational changes. This may be seen as a form of rent-sharing on the part of unions, or the negotiation of compensatory wage differentials in return for what might be regarded as the disamenities associated with organizational change. *Ceteris paribus*, "high-involvement" labor practices command a higher wage premium in unionized workplaces than in nonunionized workplaces, a finding consistent with unions extracting a wage premium in return for organizational change (Bryson, Forth, and Kirby 2005). Thus, even if workers do not like work reorganization they may be more sanguine about it if their wages rise as a consequence.

For all these reasons it seems that unions may be able to assuage employees' worst feelings about managerial organizational changes. And yet, unionization may also exacerbate negative effects of organizational change on worker well-being. By increasing the flow of information between unions and management, unions can heighten employees' awareness of problems and shortcomings about management-initiated changes, thus increasing employee dissatisfaction (Freeman and Medoff 1984: 142; Gallie et al., 1998: 113–14). If management does not involve unions in the process of organizational change, worker discontent arising from unmet expectations and perceptions of procedural unfairness may result in lower well-being than in circumstances for which the absence of a union is associated with lower worker expectations of involvement.



Empirically these mechanisms might all be present and offsetting one another, and thus one might observe that unions are not important for how organizational change affects worker well-being. For example, Mohr and Zoghi (2008) found no differential relationship between job satisfaction and organizational change between union and nonunion workers.

## Data

Our data are the linked employer-employee Workplace Employment Relations Survey 2004 (WERS 2004). Although the survey covers workplaces with at least five employees in all sectors of the British economy, we confine our analyses to the private sector. Face-to-face interviews were conducted with the manager responsible for employment relations at each given workplace. The response rate was 64%. The respondent's permission was sought to distribute a self-completion questionnaire to a randomly selected set of employees at the workplace or, in the case of workplaces with fewer than 26 employees, all of them. This permission was granted in 86% of cases. A further 10% of workplaces did not return any questionnaires. The overall response rate for the employee questionnaire was 61%.<sup>2</sup>

## <H2>Well-Being Measures

Our data contain two sets of well-being measures: one relating to job-related anxiety, the other relating to job satisfaction. The job anxiety measure is based on employee responses to the following question: "Thinking of the past few weeks how much of the time has your job made you feel each of the following: tense, calm, relaxed, worried, uneasy, content?" Responses are coded on a 5-point scale: "all of the time," "most of the time," "some of the time," "occasionally," "never." These measures have their origins in Warr's (2007: 19–49) anxiety–contentment axis for measuring subjective well-being. Anxiety, on the one hand, as measured by feeling tense, worried, or uneasy, is associated with negative affect but entails a high level of arousal. Contentment, on the other

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<sup>2</sup> For more information about the survey, see Kersley et al. (2006) and <http://www.wers2004.info/>.

hand, as measured by feeling calm, contented, or relaxed, is associated with positive affect and entails low levels of arousal.

Following Wood (2008), who used the same data as ours (except we exclude public sector workplaces), we run a principal component analysis which reveals that the six items form two discrete factors, in which the negative items load into one and the positive items into another. Correlations between the items range from slightly less than 40% (for “uneasy” and “calm”) to nearly 80% (“relaxed” and “calm”). As Wood noted, such a pattern is not uncommon and can be viewed as support for the notion that negative and positive feelings are independent of each other (Bradburn 1969) as well as that the response categories may not follow a bipolar format (Segura and González-Romá 2003). Wood also pointed out that when a Mokken model (of ordinal unidimensional measurement) is applied to the anxiety items, a good fit is achieved, thus indicating they form a one-dimensional scale.

We follow Wood (2008) and combine the six items into a single scale. This anxiety–contentment scale has a reliability statistic of 0.85 as measured by the Cronbach’s alpha, which is consistent with previous studies (Mullarkey et al. 1999: 63; Wood 2008). Our single summative job anxiety (JA) score rescales the 5-point scores for each measure into (–2, 2) scales for which –2 is “never” and 2 is “all of the time,” having reverse-coded the positive affect items such that higher scores indicate higher job anxiety. The scale thus runs from (–12, 12). Just over one-third (35%) of the sample score above zero; one-tenth (10%) score zero; and the remaining 55% have negative scores.

Our second dependent variable is job satisfaction (JS), which captures the pleasure–displeasure axis in Warr’s concept of subjective well-being. Again, we follow Wood (2008) and use all eight facets of job satisfaction available in the data. Employees are asked: “How satisfied are you with the following aspects of your job? . . . achievement you get from your work; the scope for using your own initiative; the amount of influence you have over your job; the training you receive; the amount of pay you receive; your job security; the work itself; the amount of involvement you

have in decision-making at this workplace?” Responses are coded along a 5-point Likert scale ranging from “very satisfied” to “very dissatisfied.” Principal component analysis of the job satisfaction items indicates one factor, which explains more than 50% of variance. When combining the eight items into a single scale, we achieve a reliability statistic of 0.85, as measured by the Cronbach’s alpha. Our single summative job satisfaction score rescales the 5-point scores for each measure into (–2, 2) scales for which –2 is “very dissatisfied” and 2 is “very satisfied.” The scale thus runs from (–16, 16). One-fifth (20%) of the sample score below zero; 30% score between 0 and 4; and the remaining 50% score 5 or more.<sup>3</sup> (Results remain unchanged when we run sensitivity analyses on non-pecuniary job satisfaction using the same scale but excluding the scores for pay satisfaction.)

#### Measures of Organizational Change

Our organizational change measures are based on managerial responses to the following question: “Over the past two years has management here introduced any of the changes listed on this card?”

PROBE: Which others? UNTIL ‘None.’

- 1) Introduction of performance-related pay
- 2) Introduction or upgrading of computers
- 3) Introduction or upgrading of other types of new technology
- 4) Changes in working time arrangements
- 5) Changes in the organization of work
- 6) Changes in work techniques or procedures
- 7) Introduction of initiatives to involve employees
- 8) Introduction of technologically new or significantly improved product or service
- 9) *NONE None of these.*

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<sup>3</sup> The correlation between the JA and JS scales is –0.45. If one regresses them against each other they account for 20% of the variance in the other.

All eight organizational changes are positively correlated with correlations ranging between 0.19 (introduction of incentive pay and the introduction of new technology) and 0.65 (changes in work techniques and procedures and changes in work organization). We interpret the number of changes as an indicator of the intensity of changes in general.

To provide additional information on the importance of specific kinds of change, we apply principal components analysis, which reveals two factors with Eigen values above 1, and a clear pattern emerges concerning the grouping of changes.<sup>4</sup> The first factor (Eigen value 1.90), accounting for 59% of the variance in organizational changes, contains the four labor-oriented changes, namely items 4, 5, 6, and 7 above. The Cronbach's alpha (scale reliability coefficient) for these items is 0.65. The second factor (Eigen value 1.59) contains the three capital-oriented changes, that is, items 2, 3, and 8 (Cronbach's alpha 0.60). The introduction of performance-related pay is positively correlated with both factors, but its factor loadings are not high (0.32 and 0.18, respectively) indicating that this particular change does not belong to either factor. We construct three count variables, one which sums all eight changes (NCHANGE, Cronbach's alpha 0.72); a second for changes in labor practices based on items 4, 5, 6, and 7 with a maximum value of 4 (NLABCHG), and a third for changes in capital investment based on items 2, 3, and 8 with a maximum value of 3 (NCAPCHG).

One-quarter (25%) of workplaces had introduced no labor-related organizational changes in the previous two years, one-fifth had introduced one change (21%), another fifth (22%) had introduced two, a further fifth (19%) had introduced three, and 13% had introduced all four. One-fifth (20%) of workplaces had introduced none of the three capital investment changes, one-quarter (24%) had introduced one, 29% had introduced two, and one-quarter (26%) had introduced all

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<sup>4</sup> The factor analysis reported uses STATA's `factormat` command, which is intended for use with dummy variables. We report on the workplace-level data but results are virtually identical when run on employee-level data. Full details are available on request.

three. Twelve percent of workplaces had introduced performance-related pay in the previous two years.

### Unionization

Our measure of union coverage is the presence at the workplace of one or more unions recognized by the employer for bargaining over pay and conditions of employment, whether the bargaining occurs at the workplace, organization, or sectoral level (1 = union coverage, 0 = not covered). These data are derived from the management questionnaire. In an extended control vector (see below), we control for individual-level union membership, which is taken from the employee self-completion questionnaire (1 = individual union membership, 0 = not union member). This may be relevant because individual membership could reflect personality traits that might influence attitudes to change (Judge et al. 1999; Wanberg and Banas 2000; Oreg 2006).

### Employee Involvement in the Introduction of Organizational Change

When managers had reorganized they were asked what type of involvement trade unions, consultative committees, and the employees affected had in “introducing and implementing this change.” The pre-coded responses were: “they decided” “they negotiated,” “they were consulted,” “they were informed,” “no involvement.” Among employees who had experienced organizational changes in the last two years, 20% were in workplaces where there had been no employee involvement, 12% worked at workplaces where a change had been subject to negotiation or was actually decided by employees, 56% were in workplaces where there had been consultation, and 38% were in workplaces where they had been informed about the organizational change. (The figures for negotiation, consultation, and information sum to more than 100% because in some cases workplaces took different approaches with respect to unions, joint committees, and employees.) In the analysis we create a dummy variable—employee involvement—which simply identifies those workplaces in which the union, a consultative committee, or employees had either

decided on the organizational change, had negotiated over it, or were consulted about it. We also construct a similar dummy—employee negotiation—expressing when the union, a consultative committee, or employees had negotiated over the organizational change.

### Control Variables

In addition to workplace-level union recognition status, our basic control vector contains the individual-level controls such as age (9 dummies); academic qualifications (8 dummies); single-digit occupation (9 dummies); and dummies for disability and gender, and workplace-level controls such as single-digit industry (11 dummies); log workplace employment size and a quadratic term; and a dummy for low travel-to-work-area unemployment (below 1.2%). Then, as robustness checks we control for a more detailed set of worker, workplace, and job characteristics. Some of these variables could be bargaining objectives for unions or could reflect other employer practices and employer orientation that may be correlated with both change and employee involvement. Thus, we follow Wood and de Menezes (2008) and use their technique for identifying a latent variable expressing employer high-involvement orientation. We use the method of Zheng and Rabe-Hesketh (2007), utilizing Generalized Linear Latent and Mixed Models (GLLAMM) (Rabe-Hesketh, Skrondal, and Pickles 2005), to estimate the posterior mean of a latent variable. The variables used to identify this latent variable are the same as those identified by Wood and de Menezes (2008) as important for high-involvement orientation: teamwork, functional flexibility, quality circles, suggestion schemes, team briefing, induction, training for HR skills, information disclosure, and appraisal.

We construct a job autonomy measure based on responses to the following question: “In general, how much influence do you have over the following. . . . What tasks you do in your job, the pace at which you work, how you do your work, the order in which you carry out tasks, the time you start or finish your working day?” The responses have a 4-point scale (“a lot,” “some,”

“a little,” “none”), from which we formed a summated rating that went from 0 (“none” on all five items) to 15 (“a lot” on all five items).

We also add a simple additive index capturing motivational practices (prompted by Wood and de Menezes 2008) based on the following dummy variables: survey feedback method, internal recruitment, job security guarantees, single status, and variable pay. Similarly, we add a vector comprising total quality management practices (dummies) such as self-inspection, records on faults and complaints, records on quality, training in quality, and customer surveys.

Finally, workplace controls, such as workplace injuries, family-business, being listed, and located in urban area, are added to the regressions to capture work environment heterogeneity, and as noted above we incorporate control for individual union membership.

### **Empirical Approach**

The effects of organizational change on worker well-being are analyzed using the additive scales for job anxiety and job satisfaction as described above. The rescaling makes simple linear models appropriate so that expressing the relationship between the well-being of worker  $i$  employed in workplace  $f$  by Equation 1 is possible:

<EQ>(1)

$$W_{if} = \beta_1 \text{Organizational\_Change}_f + \beta_2 \text{Union}_{if} + \beta_3 \text{OC}_f \times \text{Union}_{if} + \beta'_x X_{if} + \varepsilon_{if}$$

where  $W_{if}$  expresses well-being (JA or JS) for individual  $i$  in workplace  $f$ ,  $\text{Organizational\_Change}_f$  (and  $\text{OC}_f$ ) express the number of organizational changes introduced in workplace  $f$ ,  $\text{Union}_{if}$  expresses a dummy for union coverage (which varies at the worker level), while the  $X$ s represent our control vector and  $\varepsilon_{if}$  is the error term.  $\beta_1$  gives the effect of change on the well-being of nonunionized workers, whereas  $(\beta_1 + \beta_3)$  gives the effect of change on the well-being of unionized workers. As noted above, we vary the  $X$  vector in our sensitivity analyses.

The models are unweighted and so provide within-sample estimates, rather than population estimates. Individuals' probability of sample selection is not independent of one another since they are clustered within sampled workplaces. Standard errors are adjusted to account for this using clustering, and we use the robust estimator to tackle remaining heteroskedasticity in the error terms. Sample sizes vary a little across the well-being and job satisfaction models. For the basic models the unweighted number of employee observations is 13,500 clustered in 1,238 private sector workplaces (an average of nearly 11 employees per workplace).<sup>5</sup> We also run Equation 1 (without the interaction term) for covered and uncovered employees separately.

Establishing the causal relationship between organizational change and employee well-being is difficult because changes are not randomly assigned to workplaces and their employees. We have no instrument to isolate the true causal impact of unions in mediating the effects of organizational change. In our most detailed specification, however, our control vector is extensive, controlling for variations in, for example, employer orientation, autonomy, TQM-practices, and motivational practices. By introducing union membership as a control variable we capture worker preferences for unionization, which might be correlated with employees' well-being, thus permitting us to estimate the effects of union coverage net of preferences for joining a union. Union membership as a control variable might also capture personality traits. We explore the role of worker selection by testing the robustness of our results for those with short and long tenure and investigating the role of worker quit rates at the establishment.

## **Results**

The descriptive statistics in Table 1 reveal that, compared with employees in uncovered workplaces, those in union-covered workplaces are more likely to be exposed to both labor and capital-related changes, but they are a little less likely to have recently faced the introduction of performance-

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<sup>5</sup> We lose more than 1,500 observations by excluding workers with missing data on items used in the analysis, which is another reason we decided to estimate within-sample rather than within population estimates.



related pay. The unionized workers also tend to be less satisfied with their jobs, and they report lower well-being. But how do reorganizations affect job anxiety and job satisfaction, and how do these relationships depend on union coverage? To answer these questions we turn to the multivariate analyses.

[INSERT TABLE 1]

Table 2 presents estimates of the association between organizational change and employee well-being. All models include both individual and establishment specific controls such as age (9 dummies); academic qualifications (8 dummies); single-digit occupation (9 dummies); and dummies for disability and gender, single-digit industry (11 dummies); log workplace employment size and a quadratic term; and a dummy for low travel-to-work-area unemployment (below 1.2%).

[INSERT TABLE 2]

Panel A presents results for the total number of labor- and capital-related organizational changes, with models for job-related anxiety (JA) in Models (1) to (4) and identical models for job satisfaction in Models (5) to (8). Organizational change is associated with increased job-related anxiety but in covered workplaces the point estimate is significantly smaller in absolute value and not statistically different from zero. When we separately identify labor, capital, and performance pay changes in Panel B, it turns out that only labor-related organizational change is significantly positively associated with JA, and only in the uncovered workplaces. This association disappears when we consider workplaces covered by collective bargaining. Other types of organizational change do not appear to have any significant impact or association with job-related anxiety. The results for job satisfaction are similar (with opposing sign, of course), with labor-related changes associated with lower job satisfaction for uncovered workers but not covered workers.

If union coverage effects are due to the way in which unions negotiate over the wage-effort bargain, one might think that the introduction of controls for effort and job autonomy could affect the union coefficients in the model. We might also be concerned that union workers who are given a say may be in high-skill, high-pay jobs. We therefore estimated these models adding controls for effort, job autonomy, and pay levels (results not reported). Their introduction does not affect the pattern of results already reported.

If workers sort across workplaces based on the amount of organizational change they face, this could influence our estimates of the association between employee well-being and organizational change, and the mediating role of unions. We test for this in two ways. First, we split our analyses into employees with less than two years' tenure and those with tenure of two years or more, corresponding with the period over which management was asked to identify organizational change. Second, we ran the results for low- and high-quit workplaces separately (greater than 13% quit rate is defined as high). In both sets of analyses, the results (not reported) were unaffected: the negative association between job-related anxiety and work-related changes was confined to uncovered employees, regardless of whether employees were short- or long-tenured, and regardless of whether quit rates in the previous year had been high or low. The implication is that independent associations between organizational change and worker well-being are unaffected by worker sorting.

#### Union Coverage versus Worker Involvement

It seems that union coverage “protects” workers against the psychological costs of organizational change. But what is it that makes the difference: Is it union coverage per se, or is it employee involvement in the introduction of organizational change?

To explore which mechanisms proved important we split the sample once depending on union coverage, and then once more according to employee involvement, that is, whether the employer had involved the union, a joint consultative committee, or employees directly when

introducing organizational change(s), either by consulting them, negotiating with them, or allowing them to make the decision. Separately for these four groups of observations (depending on union coverage and employee involvement), we then repeated the previous job-related anxiety (JA) regressions on our measures of organizational change and other controls. These results are presented in Models 1, 3, 5, and 7 of Table 3. This distinction proves important, but only in the case of covered employees.

[INSERT TABLE 3]

Among uncovered employees, organizational change is positively correlated with their job-related anxiety whether the employer engaged with employees in introducing it or not. In the case of covered employees, the employer is able to introduce changes without it adversely affecting employee job-related anxiety if the employer engages with employees when implementing change. If they or their union are not involved, their JA is positively associated with organizational change in much the same way as uncovered employees.<sup>6</sup> This evidence is consistent with the idea that employee involvement in the organizational change process can ameliorate its negative effect on their well-being, but only in a unionized environment, suggesting that employee involvement only has “bite” when backed by formal bargaining institutions. In this respect, our results are reminiscent of those Godard (2010) reported for Canadian workers.

Until now we have ignored other employer practices and employer orientation that may be correlated with both change and employee involvement. For example, our results may be driven by the work practices associated with change. Similarly, “good” employers are less likely to implement “bad” changes, and may also be more likely to involve and recognize unions. Thus a

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<sup>6</sup> Among unionized employees the differences between employee involvement and no involvement are statistically significant at a 95% confidence level for our aggregated organizational change measure. Note that if we replace employee involvement with union involvement among covered employees, our results are strongly enforced. Focusing on union involvement only, however, makes comparison with uncovered workers difficult, since unions are largely nonexistent in uncovered workplaces.

correlation between the effect of changes and union presence/involvement might arise just because of employer orientation. Similar arguments can be utilized regarding a wide range of employer practices, such as motivational practices, total quality management variables, pay, and work environment (injuries). Thus, we add a very extensive control vector (which even involves an estimated latent variable capturing employer orientation toward high-involvement practices, see the description of the controls in the Data section) to our previous regressions as a robustness check. The results of these regressions are presented in Table 3, Models 2, 4, 6, and 8.

Since the relationship between these controls and job-related anxiety are extremely complex, and potentially endogenous, such controls are clearly not our preferred specifications, but we note that even explicitly adding these variables as controls into our analyses does not qualitatively change our results. Only in the case of covered employees is the employer, by engaging with employees when implementing change, able to introduce changes without it adversely affecting employee job-related anxiety. Otherwise, organizational changes always increase job-related anxiety.<sup>7</sup>

#### “What Do Unions Do?”

Our finding that unions mediate the detrimental impact of organizational changes on employee well-being brings up the question: What, then, do unions do? To explore the mechanisms by which unions might mediate the link between organizational changes and employee well-being, we construct measures capturing factors such as social support, bargaining, distributive justice, job security, and conflict management. Let us briefly recapitulate why these mechanisms are important and how we test these empirically.

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<sup>7</sup> We grant that the nature of the change may determine whether the employer consults rather than vice versa. This sorting effect, however, should be stronger in the non-covered sector since it can be considered more endogenous here. In the covered sector, one is more likely to have agreements and established procedures for how and when employees should be involved. One might also be concerned that if union workers are less satisfied and more worried than others, there is less “room” for this to decline further. To test this notion we have estimated quantile regressions and find no qualitatively different impact at the quartiles. Thus, empirically we can reject this notion.

*Social support/ "voice"* To offer social support, as expressed in the Karasek and Theorell (1990)'s Demand/Control model, unions need a local on-site representative to offer socio-emotional support (Israel and Antonuci 1987) to "buffer" psychological strain when job demands are high. One might also argue that effective worker "voice" is best delivered through on-site union representation, as opposed to off-site support. To capture these potential explanations we construct a dummy for local on-site union representative.

*Bargaining* If unions mitigate the negative effects of organizational change on employees in the course of bargaining with the employer, one might anticipate a role for the scope of collective bargaining. Thus, as well as identifying the presence of one or more unions recognized for pay bargaining, we identify the scope of active bargaining with the employer with two dummy variables capturing whether unions "normally" bargain over wage and nonwage job amenities (pensions, holiday entitlements, working hours, training, work environment).

*Distributive justice* Unions have the opportunity to influence employee perceptions of distributive justice, and thus employees' sense of well-being, through union negotiation over staffing issues, recruitment, selection of workers, and in ensuring equal opportunities. Distributive justice is measured with a dummy taking the value of 1 if the union negotiates on one or more of these criteria.

*Job security* Unions' influence on employee perceptions of job security should be reflected in two dummy variables, the first identifying whether a policy of guaranteed job security or no-compulsory redundancies exists, and a second dummy capturing whether any employees at the workplace have been declared redundant in the last 12 months.

*Conflict management* Unions often partake in the development and establishment of conflict management procedures. We capture this with a dummy identifying whether the union negotiates over grievance or disciplinary procedures.

To explore the empirical importance of these mechanisms we split the sample into union-covered and not-covered workers, and for these two separate groups of observations we estimate OLS-regressions of job-related anxiety on organizational change, employee involvement, our variables expressing the mechanisms discussed above, and cross-terms between organizational change and the above-mentioned variables and controls. Results are presented in Table 4.

[INSERT TABLE 4]

In Models 1 and 3 we focus on the role played by worker negotiation over the introduction of organizational change, as opposed to the broader measure of involvement presented so far, and in the covered sector, the importance of a local union representative. Our basic control vector is also incorporated into the regression. We see that both union-covered and not-covered workers experience increased job-related anxiety when employers introduce organizational changes. Neither local on-site representatives nor negotiation appear to be of importance. We can therefore infer that the significant reduction in job anxiety associated with employee involvement in change in Model 3 is due to the mediating effect of consulting the union about organizational changes.

In Models 2 and 4 we then add indicators expressing pay bargaining, nonwage pay amenities, conflict management, distributive justice, job security, injuries, log weekly pay, and the corresponding cross-terms of these with organizational change. The main result from Models 1 and 3 is unchanged, thus confirming that consulting with the unions over change is what mediates the detrimental impact of organizational changes in the union-covered sector. In addition, we see an interesting pattern associated with matters related to distributive justice. We also tested the sensitivity of our results to the inclusion of our extended control vector. As noted previously, this extended control vector introduces variables associated with both organizational changes and job-related anxiety in a complex way, potentially raising endogeneity issues, but even incorporating this does not change our results in a qualitative way (results available from the authors).

These models indicate that worker involvement in the introduction of organizational change is what matters for worker well-being, but even this is effective only in the presence of a trade union that has bargaining rights with the employer. Support and voice effects associated with having a local representative are not important, and guarantees of job security do not seem to be what drives the effect of unions either. Local pay bargaining and wages are not important, but some evidence is observed that unions do deliver some distributive justice, helping to reduce the negative impact of organizational change on worker well-being accordingly.

### **Conclusion and Discussion**

Using private sector linked employer-employee data for Britain we explore the effects of organizational change on job-related anxiety and job satisfaction. We find that organizational change is associated with increased job-related anxiety; however, this effect disappears if workers are covered by a union involved in the introduction of change. These differences between covered and not-covered employees are statistically significant. Thus, unions play a mediating role when it comes to how changes affect job-related anxiety.

These results are weaker in the case of job satisfaction. Again, the effect is confined to not-covered employees. The weaker results for job satisfaction might also reflect the possibility that job-related anxiety precedes job satisfaction thus possibly making this the primary impact.

Although our main focus is on organizational changes per se, and less on specific changes, analyses of specific changes indicate spheres of union influence. We find that our main results are more valid for labor-related changes than for capital-related changes, indicating that unions have a greater ability to influence work reorganization than capital investment.

Workers often look to trade unions to engage with management over change at the workplace to ensure that changes take into account employee interests. We find evidence to suggest that in fulfilling this role, unions ameliorate the negative effects of organizational change on employee well-being, but only when the employer involves employees in the introduction of

change. In an environment where a trade union has bargaining rights with the employer, consultation over change is sufficient to ameliorate the negative well-being effects of change.

We are not able to pinpoint any specific mechanism that is at work when unions are involved in the introduction of organizational change. Including a measure of social support and voice effects associated with having a local representative does not affect our key results, and neither job security guarantees nor local pay bargaining seem to matter. Some evidence supports that the unions' role in ensuring distributive justice helps to reduce the negative impact of organizational change on worker well-being, but even when controlling for this factor, organizational change is associated with lower job anxiety in union-covered workplaces.

In the absence of a union, worker involvement in the introduction of organizational change has no effect, suggesting that consultation without formal bargaining institutions does not provide employees with sufficient bargaining power to change the outcome in a more favorable way.

The study contributes to the literature on work reorganization and employee well-being by identifying an important mediating role for trade unions arising from their involvement in the process of organizational change and in promoting distributive justice. In doing so it is one of only a few nationally representative studies examining the links between workplace organizational change and job-related well-being.

A priori, no reasons are present to suspect that organizational change in Britain differs compared with elsewhere, nor that its relationship with worker well-being should differ fundamentally across countries. Union institutions, however, do differ somewhat across countries, thus we acknowledge that the relationship between organizational changes and worker well-being “may be historically and institutionally contingent” (Godard 2010: 466). The U.K. regime provides unions and workers with weak rights and protections (Smith and Morton 2001; Godard 2007). There is merit, therefore, in establishing whether this result holds elsewhere.

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Table 1. Descriptive Statistics on Key Variables

Variable	All observations		Uncovered		Union covered	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
<i>Dependent variables</i>						
Job-related anxiety	-1.367	4.637	-1.571	4.617	-1.037	4.652
Job satisfaction	3.943	5.507	4.537	5.341	2.981	5.634
<i>Organizational change variables</i>						
Nchange	3.777	2.102	3.597	2.044	4.068	2.162
Nlabchg	1.883	1.342	1.728	1.322	2.133	1.335
Ncapchg	1.772	1.035	1.735	1.001	1.831	1.078
Introduced performance pay	0.123	0.328	0.134	0.341	0.104	0.305
<i>Employee involvement in change</i>						
Employee involvement in org. change	0.586	0.493	0.550	0.498	0.664	0.479
Employee negotiation on org. change	0.114	0.318	0.550	0.498	0.644	0.479
<i>Unionization</i>						
Union member	0.244	0.429	0.072	0.259	0.521	0.500
Union on-site representative	0.300	0.457	—	—	0.776	0.417
Union negotiates pay	0.292	0.455	0.013	0.113	0.743	0.437
Unions negotiates non-pay terms	0.263	0.440	0.017	0.128	0.660	0.474
Unions negotiates conflict procedures	0.121	0.326	0.009	0.095	0.301	0.459
Unions negotiates distributive justice	0.055	0.227	0.002	0.042	0.140	0.347
<i>Other 'mechanisms'</i>						
Job security guarantees	0.124	0.329	0.092	0.290	0.175	0.380
Any redundancies last 12 months	0.368	0.482	0.325	0.468	0.438	0.496
<i>Controls</i>						
Male	0.525	0.499	0.487	0.500	0.587	0.492
Disability	0.041	0.199	0.038	0.190	0.047	0.211
Log workforce size	4.673	1.549	4.154	1.352	5.512	1.478
Low travel-to-work-area unemployment	0.115	0.319	0.118	0.323	0.109	0.312
High involvement employer orientation	0.153	0.860	0.027	0.885	0.357	0.775
Autonomy	10.051	3.697	10.297	3.564	9.654	3.870
Motivation	3.010	1.269	2.796	1.244	3.354	1.232
Quality records	0.680	0.466	0.630	0.483	0.762	0.426
Fault records	0.476	0.499	0.396	0.489	0.606	0.489
Quality training	0.419	0.493	0.379	0.485	0.484	0.500
Self-inspection	0.657	0.475	0.661	0.474	0.651	0.477
Customer surveys	0.532	0.499	0.449	0.497	0.667	0.471
Manufacturing	0.209	0.406	0.151	0.358	0.302	0.459
Utility	0.026	0.159	0.003	0.050	0.064	0.244
Construction	0.061	0.240	0.076	0.265	0.038	0.190
Wholesale retail	0.142	0.349	0.171	0.377	0.094	0.292
Hotels and restaurants	0.035	0.184	0.051	0.220	0.009	0.092
Transport and communication	0.068	0.252	0.038	0.192	0.116	0.320
Financial services	0.095	0.293	0.059	0.235	0.153	0.360
Other business services	0.165	0.371	0.232	0.422	0.058	0.234
Education	0.042	0.201	0.020	0.140	0.079	0.269
Health	0.096	0.294	0.125	0.331	0.048	0.214
Number of observations	13,500		8,340		5,160	

*Notes:* The table presents a selection of the variables used in the analyses. A full version of the descriptive statistics is available from the authors on request.

Table 2. OLS for Correlation between Organizational Change, Job-Related Anxiety, and Job Satisfaction

	Job-related anxiety				Job satisfaction			
	Uncovered		Covered		Uncovered		Covered	
	M1	M2	M3	M4	M5	M6	M7	M8
<b>Panel A: Organizational change = nchange</b>								
nchange	0.086*** (3.50)	0.134*** (4.22)	0.132*** (4.11)	0.031 (0.84)	-0.025 (0.77)	-0.043 (1.13)	-0.034 (0.86)	-0.020 (0.35)
covered	0.067 (0.52)	0.521** (2.31)			-0.348** (2.18)	-0.515* (1.73)		
Nchange*covered		-0.115** (2.40)				0.043 (0.65)		
R-squared	0.072	0.073	0.083	0.063	0.099	0.099	0.088	0.086
<b>Panel B: Organizational change = nlabchg, ncapchg, and introduction of performance pay</b>								
nlabchg	0.146*** (3.68)	0.199*** (4.01)	0.208*** (4.14)	0.083 (1.31)	-0.143*** (2.68)	-0.180*** (2.76)	-0.172*** (2.57)	-0.118 (1.30)
ncapchg	0.016 (0.30)	0.074 (1.14)	0.060 (0.90)	-0.037 (0.42)	0.117 (1.61)	0.093 (1.01)	0.102 (1.09)	0.139 (1.18)
Perf.pay	-0.013 (0.15)	-0.083 (0.44)	-0.095 (0.51)	0.038 (0.15)	0.143 (0.69)	0.365 (1.53)	0.363 (1.52)	-0.240 (0.64)
covered	0.042 (0.33)	0.522** (2.25)			-0.301 (1.88)	-0.525* (1.70)		
Nlabchg*covered		-0.135* (1.69)				0.096 (0.87)		
Ncapchg*covered		-0.126 (1.15)				0.055 (0.38)		
Perf.pay*covered		0.191 (0.60)				-0.664 (1.45)		
R-squared	0.073	0.073	0.084	0.064	0.100	0.101	0.089	0.087

Notes: 1) Panel A reports the results from unweighted OLS regressions of job-related anxiety and job satisfaction scale, where we do not differentiate between different kinds of organizational change. Panel B reports the similar results arising when we differentiate between labor- and capital-related changes and the introduction of performance pay. Robust estimator with clustered standard errors. Absolute value of T-stats in parentheses. \* significant at 90% confidence interval; \*\* significant at 95% confidence interval; \*\*\* significant at a 99% confidence level.

2) Models (1), (2), (5), and (6): all employees, N = 13,500. Models (3) and (7): uncovered employees. N = 8,340. Models (4) and (8): covered employees. N = 5,160.

3) All models contain an intercept and the following individual-level controls: age (9 dummies); academic qualifications (8 dummies); single-digit occupation (9 dummies); and dummies for disability and gender. They also contain the following workplace-level controls: single-digit industry (11 dummies); log workplace employment size and a quadratic term; and a dummy for low travel-to-work-area unemployment (below 1.2%).

Table 3. OLS for Correlation between Job-Related Anxiety and the Role of Employee Involvement in the Organizational Change

	Uncovered employees				Covered employees			
	Not involved		Involved		Not involved		Involved	
	M1	M2	M3	M4	M5	M6	M7	M8
<b>Panel A: Organizational change = nchange</b>								
nchange	0.152*** (3.40)	0.120** (2.44)	0.124 ** (2.40)	0.123 ** (2.49)	0.157 *** (2.89)	0.130 ** (2.45)	-0.046 (0.08)	-0.036 (0.59)
Extended controls		Yes		Yes		Yes		Yes
R-squared	0.089	0.128	0.090	0.143	0.079	0.134	0.059	0.144
<b>Panel B: Organizational change = nlabchg, ncapchg, and introduction of performance pay</b>								
nlabchg	0.224 *** (2.81)	0.197 ** (2.32)	0.202 *** (2.91)	0.182 *** (2.75)	0.203 ** (2.14)	0.143 (1.33)	0.026 (0.28)	0.017 (0.19)
ncapchg	0.123 (1.26)	0.089 (0.88)	0.044 (0.46)	0.042 (0.45)	0.053 (0.40)	0.032 (0.24)	-0.119 (1.01)	-0.056 (0.50)
Perf.pay	-0.299 (1.07)	-0.345 (1.28)	-0.101 (0.41)	0.046 (0.19)	0.598 (1.16)	0.885 ** (2.08)	-0.144 (0.52)	-0.252 (0.94)
Joint F-test Change-variables (P-value)		0.037		0.041		0.026		0.704
Extended controls		Yes		Yes		Yes		Yes
R-squared	0.090	0.130	0.091	0.143	0.080	0.136	0.060	0.144
Unweighted N	3,753	3,530	4,587	4,286	1,835	1,719	3,325	3,037

Notes: 1) Unweighted OLS regressions for job-related anxiety (JA). Panel A and B report the results from two sets of regressions depending on how we treat organizational change (see footnote to Table 2). Sample split into four (uncovered not involved; uncovered, involved; covered, not involved; and covered, involved). Robust estimator with clustered standard errors. Absolute value of T-stats in parentheses.

2) See Table 2 footnote 3 for baseline controls.

3) Extended controls add controls for individual union membership, log weekly pay and being full-time worker, and workplace-level controls such as employer orientation toward high-involvement practices, total quality management (TQM)-practices, motivational practices, autonomy, workplace injuries, family-business, being listed, and located in urban area. See text for additional details.

Table 4. How Does Union Involvement Mediate the Well-Being Effects of Organizational Change?

	Uncovered employees		Covered employees	
	M1	M2	M3	M4
nchange	0.164*** (3.82)	0.536** (2.54)	0.164* (1.72)	0.638** (2.06)
nchangeXemployee involvement	-0.047 (0.69)	-0.010 (0.15)	-0.193** (2.22)	-0.201** (2.26)
nchangeXjob security		-0.115 (1.11)		0.130 (1.31)
nchangeXredundancies		0.027 (0.42)		-0.060 (0.72)
nchangeXunion on-site representative	—	—	-0.033 (0.35)	-0.061 (0.61)
nchangeXpay bargaining		-0.225 (1.36)		-0.066 (0.52)
nchangeXnon-wage pay amenities		0.243 (1.61)		0.053 (0.44)
nchangeXconflict management		0.220 (1.22)		0.047 (0.48)
nchangeXdistributive justice		1.314*** (5.05)		-0.322*** (2.63)
nchangeXunion negotiation	0.021 (0.14)	-0.037 (0.24)	0.070 (0.54)	0.092 (0.72)
nchangeXnumber of workplace injuries		0.037 (0.24)		-0.067 (1.40)
nchangeXlog weekly wage		-0.073* (1.94)		-0.070 (1.34)
Employee involvement		-0.052 (0.19)		0.761* (1.80)
Union on-site representative	—	—	0.369 (0.82)	0.118 (0.25)
Job security		0.210 (0.49)		-0.228 (0.44)
Redundancies		0.277 (0.97)		0.310 (0.78)
Pay bargaining		0.280 (0.29)		0.123 (0.21)
Non-wage amenities		-0.656 (0.92)		-0.121 (0.22)
Conflict management		0.015 (0.02)		0.233 (0.52)
Distributive justice		-6.002*** (5.16)		1.331** (2.42)
Union negotiation	-0.470 (0.66)	-0.233 (0.31)	-0.445 (0.67)	-0.688 (1.08)
Number of workplace injuries		-0.203 (0.89)		0.432* (1.84)
Log weekly pay		1.056*** (6.80)		1.063*** (3.94)
R-squared	0.084	0.094	0.060	0.080
Unweighted N	8,340	8,114	5,160	4,899

Notes: 1) Dependent variable: job-related anxiety.

2) Unweighted OLS regressions of job-related anxiety on employee involvement dimensions.

3) All models contain the baseline controls described in footnote 3 to Table 2