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Unions and the economic basis of attitudes

Alex Bryson[1] and Michael White[2]

Abstract

Unions make differences to employee satisfaction that correspond to their effects on individual economic advantage. Panel data reveal how changes in economic circumstance and changes in job satisfaction are linked to changes in union coverage. When individuals move *into* a union covered job they receive a wage mark-up and express enhanced pay satisfaction. Conversely, those moving *from* a union covered job on average lose any mark-up and have significantly reduced satisfaction. Similar findings emerge for working hours. On average individuals prefer shorter hours, something they tend to (not to) achieve on moving into (out of) a unionized job, resulting in higher (lower) satisfaction. Switching into union coverage lowers satisfaction with job security, even though coverage has no effect on the risk of unemployment. This is because covered employees suffer greater costs of re-employment for a given level of unemployment risk, partly due to loss of the union mark-up.

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1 Introduction

In their seminal contributions to research on the attitudes of unionized employees, Borjas (1979) and Freeman and Medoff (1984) (FM) pointed out that union members often expressed dissatisfaction, even though they could be expected to have better terms and conditions than non-members. FM labeled this 'the anomaly of dissatisfied union workers'. At the same time, FM suggested the need 'to compare the effect of unionism on specific aspects of the conditions of work with the effect of unions on expressed satisfaction with those conditions' (Freeman and Medoff 1984: 140).

In recent years research on unionism and attitudes has continued to grow. However, the suggested comparison between attitudes and union effects on real employment conditions has somewhat dropped out of view. Instead, much of the recent work considers the possibility that union members have unmeasured characteristics that bias their replies in a negative direction, and tests whether dissatisfaction remains after applying statistical techniques to remove this suspected bias. Of course, much research also continues into the union wage effect ('union mark-up'), and other union effects on employment conditions, but with rare exceptions this work has been disconnected from the issue of unionism and attitudes.

In this article we seek to re-establish the linkage between unionism and satisfaction ('union attitudes') and unionism and employment conditions ('union economic outcomes'). The key initial step is to conceptualize the main economic outcomes for employees that unionism might or does bring, and then to select union attitudes that correspond to these outcomes. Having set up this framework, we proceed to an analysis in which (like other recent contributions) we purge the results of bias from unobserved, persistent individual characteristics that may be associated with union coverage. Further, in developing the analysis we differentiate between various conditions under which employees can enter, leave, or continue in a job and/or in a unionized setting. This permits us to test whether employees' attitudes vary not only according to the economic (dis)advantages that unionization brings, but also according to the specific circumstances in which that advantage or disadvantage shows itself.

The results reported here make several new contributions. Contrary to much of the literature, we show that union attitudes are broadly positive both with regard to pay and with regard to hours of work. On the other hand, they are broadly negative with regard to job security. We also show that these effects vary according to whether individuals are continuing in an existing job or moving externally to a new job, with implications for continuity or change in union coverage. Movement into coverage tends to produce positive effects, while negative attitudes are associated with moves out of coverage.

These attitudinal results correspond to a high degree with union economic outcomes. We find, as in most of the existing literature, a positive wage mark-up, and shorter hours can still be gained by moving to a unionized job. We also break new ground in estimating the effect of unionization on the individual probability of unemployment and on the individual cost of re-employment through wage shrinkage.

The research covers the period 1990-2007, a period that witnessed profound changes including in the employment scene (Bresnahan 1999; Castells 2000; Dreher 2008). In the private sector, coverage and membership declined though they held up in the public sector (Cully et al. 1999; Kersley et al. 2006). We do not address the period since 2008, in part because of a lack of suitable data and in part because there is still a long way to go in understanding what are the key labour market changes of the 'austerity' era. However, we believe our findings will be of value as a baseline against which union effects in the subsequent period can eventually be assessed.

The structure of the article is as follows. Section 2 conceptualizes union economic effects and how these map onto what employees seek. Section 3 briefly reviews recent evidence on union attitudes and on union economic effects. Section 4 describes the data, variables and analysis methods used in the research, and Section 5 presents the results. Section 6 offers a summary of findings and conclusions.

2 Unions' economic effects

We focus on 'economic' conditions because these are important to (most) employees, they are (often) the subject of formal negotiations, and they are fairly well-defined and measurable. On these criteria we select as economic effects (1) pay, (2) hours of work, and (3) job security. Of course unions have other effects that are important but not 'economic'. For instance, a negative union effect on employee satisfaction with supervision has often been found (Freeman and Medoff 1984: 141-2); however, it is difficult to obtain independent measures of supervisory behaviour and effectiveness to set alongside employee attitudes toward supervision.

Our assumption that pay bargaining is a central economic role of unions is unlikely to be contested. Even with the declining strength of unions in the private sector, by 2004 pay was still at the top of the bargaining agenda, with three-fifths of union workplaces (61%) negotiating (Kersley et al. 2006: 194). The same source reports that hours of work came second – 53% of union workplaces were bargaining over hours. In Britain most of the major industry agreements on shorter hours lie well in the past.[1] However around the year 2000 unions were again involved in working hours issues as a result of the EU's Working Time Directive (1998) (for case evidence see CIPD 2001; Neathey and Arrowsmith 2001).

Much less clear is our third selection, job security. Around 2004, bargaining over staffing levels took place in only 7% of unionized workplaces (Kersley et al. 2006: 194). This supports what is now the economist's normal assumption that unions determine the wage but then management decides the manpower level. None the less, during the 1990s a number of large organizations entered into collaborative 'social partnership' agreements with unions (Kelly 2004) and these often included 'no compulsory redundancy' clauses. Moreover, it appears that such agreements had a marked effect in limiting actual use of compulsory redundancies (Bryson et al. 2009). Also, there is little doubt that job security remains an important issue for most employees.

To connect employment conditions with attitudes, we assume that unionized employees will be more/less satisfied with pay, hours, and security to the extent that unions get them 'what they want'. A positive union wage mark-up maps straightforwardly onto greater satisfaction with pay. Specifying the relationship is less obvious when it comes to hours and security. An individual may think she is working 'too many' hours or 'too few' (excessive work demands versus underemployment) and unions may be called upon either to reduce the working week or to restore a full working week. So, we begin our analysis of employee satisfaction with hours by establishing the direction of change in hours that the majority of employees prefer. Specifying what job security means for

the employee also has two alternative interpretations. Insecurity may arise from the uncertainty of retaining one's job (Green 2006). Or it may mean the inability to maintain one's earnings if one is obliged to change jobs (see Nickell et al. 2002). We will look at both unemployment risk and re-employment cost, in our exploration of insecurity.

3 Some previous evidence

3.1 Unions and job satisfaction facets

We focus on satisfaction with pay, satisfaction with hours, and satisfaction with job security; in our brief review, we consider only recent British research. In the applied psychology terminology, we consider job satisfaction 'facets' rather than 'overall job satisfaction'.

The empirical literature remains split as to whether there is a negative effect of unionization on various facets of job satisfaction. There is much more agreement that the relation between unionization and job satisfaction is affected by features of the workplace and of the unionized employees that are often unobservable. For example, a poorer working environment or 'climate' may induce union organizing (Bender and Sloane 1998). The possibility of worker unobserved heterogeneity is addressed by Bryson et al. (2004) using an instrumental variables methodology: initial negative

associations between union membership and pay satisfaction become statistically non-significant once an instrument for union status is introduced.

Most recently panel data has been used to eliminate fixed unobservable differences across unionized and non-unionized workers. Heywood et al. (2002) analyzed the first four waves of the British Household Panel Survey (BHPS) covering the period 1991-1994. A negative union membership coefficient from a regression analysis of pay satisfaction became statistically non-significant when individual fixed effects were eliminated (Heywood et al. 2002: 606). The reverse effect was found when analysing satisfaction with 'relations with the boss'. The paper illustrates the importance of distinguishing between different facets of job satisfaction.

Using the BHPS data for 1995-2008 Green and Heywood (2014) find that, having accounted for both fixed within-individual and fixed within-job effects, covered members are significantly less satisfied with job security than other employees, but there are no differences by union status with respect to satisfaction with pay or hours. Furthermore, the introduction of worker fixed effects systematically reduces the size of the negative regression coefficients for satisfaction with all aspects of the job (Green and Heywood 2014: Table 5).

Powdthavee (2011) uses a panel fixed effect methodology and also tackles the issue of time-variance in the relationship between union status and job satisfaction; he considers private sector employees over the period 1995-2005 using waves 5-15 of the BHPS. He finds job satisfaction declines in the year prior to becoming unionized relative to the job satisfaction of those who continue to remain non-union. He also shows that the initial positive impact of being newly unionized dies out over subsequent years, for several aspects of job satisfaction. However, the positive effect of becoming unionized on pay satisfaction persists.

While this set of studies confirms the likely importance of unobservable fixed effects, they do not offer a theory about what those hidden effects may be. Personality differences between unionized and non-union employees might be relevant. There is massive evidence that personality affects all subjective well-being (SWB) attitudes, including various forms of satisfaction (see Diener and Lucas 1999). Personality is invariant over long periods, and it is plausible that employees seeking out a unionized environment tend to have a personality profile that affects their attitude toward their employment. Other persistent variables that may be involved are unobserved 'tastes' and unmeasured 'ability'.[2]

3.2 Unions' economic effects on employees

Most authorities believe that there is a positive wage differential ('mark-up') for unionized employees, though there is wide variation in the estimates according to time period, sample and methodology. Machin (2001) analysed six years in the 1990s using the BHPS and concluded that the mark-up for male employees fell from 10% in 1991 to zero in 1999, while it fell for female employees from 16% to 10%. Recent estimates using repeat cross-sectional data indicate that a positive mark-up (pooled over female and male employees) persisted during the 2000s and indeed up to 2012 (Bryson and Green, 2015).

Turning next to *union effects on hours*, there was considerable research activity in the 1970s and 1980s, a period when unions pressed the idea that shorter working time could provide a partial remedy for mass unemployment, but subsequently a dearth of research that perhaps reflects a lack of more recent union activity in the area. Some circumstantial evidence comes from Green (2006) who analysed work intensification across various periods in the 1990s. In his Table 4.1 he shows that collective bargaining reduced work intensification in the 1990s, and long hours are likely to be a component of work intensity. Similar findings have been extended to 2012 by Bryson and Green (2015). However, Francesconi and Garcia-Serrano (2002), in a comparative study of Britain and Spain, showed that union recognition in both countries was associated with a lower use of part-time employment contracts, which suggests that the union effect has sometimes been to raise rather than reduce hours. On the other hand, the qualitative

evidence of CIPD (2001) and Neathey and Arrowsmith (2001) suggests that in large workplaces unions have been associated with a more active response to the WTD, which was designed to limit the use of long working hours. Overall, there is only weak evidence to suggest that British unions were having an impact on working time in the 1990s and 2000s.[3] But one must bear in mind the likely persistence of shorter working hours agreements made in the 1980s.

On *unions and job security*, there is a mass of evidence suggesting that unions *reduce* employment at the workplace level. British studies tend to find that the average effect of union recognition is to lower employment growth by 2.5–4 per cent per annum relative to non-union workplaces (see e.g. Blanchflower *et al*., 1991; Booth and McCullough, 1999; Addison and Belfield, 2004). On the other hand, this evidence does not in itself show that individual unionized employees are exposed to more unemployment risk, since for example employment contraction can take place through a reduced rate of recruitment. Cully et al. (1998: 128) report that union members are less likely to be dismissed. Also, as mentioned earlier, unions in the 1990s obtained a number of 'no compulsory redundancy' agreements that reduced unemployment risk, though these covered only a minority of workplaces. White and Bryson (2013) report that in 1998 7% of private sector employees, and 24% of public sector, were covered by 'no compulsory redundancy' promises. In any case Nickell et al. (2002) have argued that it is not unemployment *risk* that is central to insecurity, but unemployment *cost*: the former (at

the time of their paper) had remained static for many years while cost (in terms of wage cuts following re-employment) had become more severe. An important factor here is whether a unionized employee who suffers job loss is able to get another unionized job – if not, she may lose the previous union mark-up on her wage as well as suffering other adverse effects of unemployment on her re-employment prospects. There is however no direct evidence linking union coverage either to unemployment risk or the cost of job moves. The present paper will contribute toward filling that gap.

4 Data, variables, analysis

4.1 Data set

We analyze the British Household Panel Survey (BHPS) 1991-2007. The initial sample for BHPS was drawn in 1990 and consisted of 9,912 full interviews with individuals from 5,538 households drawn as a stratified sample from all British households.[4] Members are interviewed annually. Representativeness has been maintained by following individuals who set up or join new households and by admitting as new panel members those who form a family relationship to existing members. We exclude from our analysis some booster samples that at various points were added to the original sample design, largely to provide sufficient numbers for separate analysis of country sub-samples; their inclusion would bias the analysis.

We analyze the 'unbalanced panel' that includes those who either left or joined the sample during the observation period. Further we limit the analysis to observations when individuals are aged 20-60, in order to reduce problems of selection and self-selection into employee status: ages 16-19 being peak student years, and ages 61-65 being peak years for (early) retirement and disability/incapacity claims. This results in a loss of about eight per cent of the full employee sample. A consequence of unbalanced panel analysis is that sample weighting cannot be applied; however, we compensate for this by including a wide range of control variables (following the method of Taylor et al. 2011; see section 4.2.3).

4.2 Variables

4.2.1 Dependent variables

We focus on three job satisfaction 'facet' measures that are available across all waves of the BHPS: satisfaction with (1) pay, (2) hours, and (3) job security. The corresponding economic outcomes that we analyse are: (1') the usual log hourly wage, (2') cross-year change in the usual hours worked, (3'a) the probability of moving to unemployment from employment, (3'b) cross-year change in the usual hourly wage. Table 1 provides descriptive information for all seven outcomes. The satisfaction facets have seven-point response scales, and we interpret these measures as cardinal (equal interval); this is the usual assumption of applied psychologists, and has been

increasingly accepted by economists (see e.g. Ferrer-i-Carbonell and Frijters 2004). For the economic outcomes we use, respectively, the natural logarithm of the hourly wage, weekly hours including overtime, being unemployed at the time of interview, and the signed difference in wage between the current and previous year.

[Table 1 about here]

4.2.2 Explanatory variables

The joint effects of three variables are considered in analysing each of the six outcomes. These three variables are: (a) current union coverage; (b) lagged union coverage (i.e., coverage the previous year); and (c) continuity or change in employment.

We examine the effect of union coverage, rather than union membership, because the economic outcomes that arise through the bargaining process benefit covered non-members as well as covered members (under British employment law employers are required not to discriminate between members and non-members who are covered by a union agreement). An individual is regarded as 'covered' if she replies 'yes' to the following question: 'Is there a trade union or a similar body such as a staff association, recognized by your management for negotiating pay or conditions for the people doing your sort of job in your workplace?' This question not only focuses on workplace trade

union recognition, but also on recognition that covers the respondent's job or occupation at that workplace. This question was asked in BHPS every year 1991-2007, but in years 1992-4 it was only asked if the individual had changed her job. To reduce missing data for those staying in the same job, we use the method of Booth et al. (2003) in filling missing values in years 2-4 using information from years 1,2,3.[5]

The employment change/continuity variable, when interacted with either current or lagged union coverage, permits us to investigate different ways that employees can move from the uncovered to the covered sector (or *vice versa*). There are in fact three routes into union coverage:

(1) The existing job in the existing workplace is newly organised by a union with bargaining rights.

(2) The individual switches jobs in the same workplace and the new job is covered while the previous job was not.

(3) The employee switches to a new workplace where she has union coverage.

The employment continuity/change variable has categories corresponding to the above. In the BHPS data, we are able to classify 97.5 per cent of cases into these three employment stability/change categories (conditional on an individual having employee status in consecutive waves).

The analysis specifications generally have three interaction terms: current coverage x previous year coverage; current coverage x current employment continuity/change; previous year coverage x current employment continuity/change. We also tested for inclusion of a 3-way interaction term between the three variables, but this was not supported. Descriptive information on the links between these variables is shown in Table 2. However, for the analysis of the unemployment outcome (outcome 3'a above) there is no current employment or current coverage variable. Instead, we simply use the lagged coverage (covered last year) variable to predict the probability of movement into unemployment.

[Table 2 about here]

4.2.3 Control variables

All analysis specifications contain the same extensive set of control variables. These are mostly either individual/household characteristics commonly used in models of labour market participation and earnings, or else are workplace characteristics that are likely to affect employee attitudes or economic outcomes. The controls also include variables that were used in the original construction of the strata and weights for the survey sample: these are indicators of household resources. Finally, all models include

year dummies that control for variation in macro-economic and other external conditions. Further details of the control variables are given in the notes to Table 3.

4.3 Analysis methods

4.3.1 Hypotheses

In the light of the literature referred to in Section 3, we assume that union attitudes and union economic outcomes are potentially affected by unobserved individual differences between unionized and non-union employees. If these unobserved variables are constant over time, we can eliminate them by fixed effect panel regression methods. Assuming individuals to be rational in evaluating their employment situation, a positive effect of unionization will dominate where union bargaining has improved workers' terms and conditions relative to what they might have achieved in a non-union environment. A negative effect will dominate where bargaining relies on voice-induced complaining to strengthen the bargaining hand of the union. Negative or near-zero effects will also arise where unions prove ineffectual. On the basis of these assumptions and our interpretation of the recent literature, we state the following hypotheses:

H1. The union wage mark-up will be positive over the period analyzed and the corresponding union attitude (pay satisfaction) will also be positive, especially when individuals move from non-covered to covered status.

H2. Unions are unlikely to be directly affecting hours worked during the period, but there may be a 'carry-over' from earlier gains (of shorter hours) that are persistent. Thus, individuals can still gain when moving from a non-covered to a covered environment and this will be linked to positive satisfaction with hours.

H3. Unions are likely to be increasing the unemployment risk for covered employees because of the demonstrated link between unions and labour-shedding. Thus covered employees will be relatively dissatisfied with job security. Also, as covered employees stand to lose their union wage mark-up if they move externally to a non-covered job (i.e. they suffer a re-employment cost) they will tend to be dissatisfied with job security specifically when making moves of this type.

4.3.2. Estimation

The analysis uses fixed-effects (FE) panel regression to estimate the union effect while removing unobservable fixed characteristics such as personality/tastes/ability. The identification of union effects relies on employees who switch union status. By introducing interactions between union status (current and previous-year) and employment continuity/change, we distinguish between the different kinds of entry to and exit from coverage.

To estimate the model by FE panel regression we transform the observed values by subtracting all individual-specific means; this results in the elimination of any fixed constant effects which are present though unobserved. The analysis takes the form of an OLS regression that is performed on de-meaned data. This is often referred to as the 'within regression', i.e. one is concerned with variation within each person around that person's mean values. Standard errors of the estimates are computed by a robust variance estimator, which takes account of the clustering of observations for each person and of heteroskedasticity arising from the variable number of observations per person. For further explanation of the methodology, see Wooldridge (2002: 275-84) and Allison (2009).

Because of the complex interactions in the analysis specification (section 4.2.2), the partial (or 'marginal') effects of the union variables cannot be read directly from the regression estimates (see Wooldridge 2002:14-8). They are calculated first as mean partial effects across all interaction terms, and then as partial effects that are conditional on a particular situation. In each case, the values of all other (control) variables are held at their observed values. (For further details, see the Stata™ reference manual under 'margins').

The sole exception to the above method is when unemployment probability is the dependent variable. Since this is a binary outcome, one is obliged to apply the logistic transformation and use the conditional logit model. This method is more restrictive than the linear panel model, but we do not discuss details since the results in this case turn out to be relatively unimportant. See Allison (2009) for further explanation of the method.

4.3.3 Analysis for female and male subpopulations

The chief practical limitation of the panel FE regression method is that observed variables taking fixed values over all waves cannot be included in the estimation. Thus gender effects cannot be directly estimated, and these are potentially important for the wage analyses, especially in view of the Machin (2001) results noted earlier. The method of circumventing this problem, given sufficient sample size, is to run the models separately for female and male employees as well as for the whole employee population.

5 Results

Results, in the form of mean partial effects and conditional partial effects, will be presented consecutively relating to each hypothesis. It will become apparent that employees' moves to external jobs play an important part in regard to both attitudes and economic outcomes. It is worth noting that over the period in question, these external

moves formed a large element in the labour market. They constituted 17% of all employee observations; two-thirds of people who were ever employees made an external move at least once in the panel.

5.1 Pay satisfaction and wages (H1)

Table 3 shows the model results for satisfaction with pay. Employees who have current union coverage have enhanced satisfaction, and this effect is significant for women and men separately as well as for the pooled analysis. However union coverage in the previous year confers no increase in pay satisfaction. This is understandable if individuals' attitudes depend chiefly on the current situation, and also because last year's union status can be lost. Underlining this point, when an employee has moved externally *to* a covered job, satisfaction is relatively high, but when they have moved externally *from* a covered job their satisfaction is relatively low – their new job is *not covered* in one in three cases (32%). When moving internally union coverage makes no difference to pay satisfaction; in fact, internal moves mostly leave union status unaffected, thus satisfaction is also unaffected.

[Table 3 about here]

Table 4 tests whether there is a union mark-up in reality. The first row shows that current coverage is associated with a mark-up of 5-6 per cent; this estimated effect has a high degree of statistical precision because of the large sample size. The estimated

effects of lagged union coverage are also significant, but only about half as large. As these union effects are additive, one can say that the combined union effect is a wage mark-up of about 7.5%. The conditional partial effects show as one might suppose that covered employees continuing in the same job obtain the usual mark-up; so too do people moving to an external job that is covered. People moving internally to a covered job get a slightly smaller mark-up: this may be because internal job moves to non-covered jobs may often be promotions to supervisory or management positions. Those who were previously covered and move externally have no mark-up which suggests the damage to wages arising from moving out of union coverage.

[Table 4 about here]

To clarify what is happening when people move externally, in Table 5 we show the average wage for people in each lagged and current coverage condition. (These are descriptive statistics, not model predictions). This confirms that the employees maintaining coverage across a move are highest-paid while those moving from a previous covered status to non-covered do no better than those who are always non-covered.

[Table 5 about here]

5.2 Satisfaction with hours and usual hours worked (H2)

As noted in Section 2, a preliminary requirement when analyzing issues around unions and work hours is to assess whether employees on the whole would prefer to work fewer or more hours. Fortunately, BHPS always included a question asking whether the respondent wants fewer, more or the same hours as now (with unchanged wage rate). Over the period, 33% of the time the wish is for fewer hours, 7% for more hours, and 58% prefer the hours they actually work. Table 6 summarizes descriptively the mean actual hours for each hours preference condition.

[Table 6 about here]

The people wanting to work fewer hours on average are working substantially longer hours than those who are at their preferred hours already, while the relatively small proportion who want to work more hours are working somewhat below the average for those on preferred hours. Moreover, at the descriptive level people who are on their preferred hours are also much more satisfied with hours; mean satisfaction for those who want fewer hours = 4.30, for those who want more hours = 4.84, for those who want to continue with same hours = 5.72 So it seems likely that unions will be associated positively with 'hours satisfaction' to the extent that coverage is associated with shorter hours.

Table 7 shows the union effects on hours satisfaction in the same form as before. Current union coverage always has positive sign on satisfaction with hours. This effect is significant for men but not women. Covered men staying in the same job are more satisfied with their hours at the 10% significance level, while men moving externally into a covered job are more satisfied at the 1 per cent level. For women, the latter effect is also positive but only weakly significant at the 10 per cent level. However, those moving externally from a previous covered status have reduced satisfaction with hours, and this is significant for both women and men.

[Table 7 about here]

We interpret this as follows. Historically, unions were quite successful in bargaining for shorter working hours, 4 ½-day week etc. These past successes tend to be preserved since employers cannot increase hours unilaterally without risking conflict. So a worker's best chance of getting an hours reduction is to move to a job with union coverage where cuts have taken place in the past. Moving to a non-covered job tends to lose this chance.

Table 8 investigates this through the union coverage effect on usual hours, focusing on the difference (current hours minus hours in previous year). A negative sign indicates a 'favourable' result, according to our interpretation, since on average employees want

fewer hours. Overall, the current union effect is non-significant (unions are not making any current progress on this front), while the lagged union effect is significantly *positive* for men and across the whole sample. The conditional partial effects reveal that most of the union and lagged-union effect results, as hypothesized, in conjunction with external job moves. Moving *to* a union-covered job is associated with substantial decreases in hours for men and smaller (non-significant) decreases for women. Moving *from* a covered job onto the external market (which can be to either a covered or non-covered job) results in increased hours for both women and men, both at a statistically significant level.

[Table 8 about here]

To make this more concrete, Table 9 shows the average actual hours following an external move, tabulated by current and previous union status. These are descriptive statistics, not model estimates. Those moving to a covered job on average get shorter hours than those moving to a non-covered job, the only exception being women who move *from* a covered job. The weaker effects on hours satisfaction and hours for women may reflect the tendency of unions to organize full-time rather than part-time jobs (Francesconi and Garcia-Serrano 2002).

[Table 9 about here]

5.3 Satisfaction with job security, unemployment risk and re-employment cost (H3)

Table 10 summarizes results for satisfaction with job security. Most of the union coverage effects have negative signs but it is the lagged union variable, not current union, where these effects are statistically significant. In a simplified model (not shown), without interaction effects and without lagged union coverage, the main effect of current union coverage on satisfaction with security is significantly negative. However this effect is not robust to the more complex specification, largely because current and lagged coverage are highly correlated and the overall effect becomes split between the two terms, with lagged coverage being the stronger (for reasons which will become apparent).

[Table 10 about here]

As set out earlier, there are two recognized ways of assessing security – unemployment risk and re-employment cost (loss of wages). To assess unemployment risk for union-covered employees, we run a conditional logit regression of unemployment observed at a given wave on union status at the previous wave, while controlling for other time-varying variables, and eliminating fixed individual effects, as before. We do not provide a table of estimates, since the results are both simple and statistically non-significant. For the whole sample (pooled across women and men), the coefficient on the lagged

union variable is -0.138, with standard error 0.125 and t-statistic -1.1. For women, the corresponding figures are:-0.164, 0.193,and -0.85. For men, they are: -0.023,0.169, and -0.14. There is no evidence here of unionized employees having an increased risk of moving to unemployment. Two caveats should be noted, however. First, the analysis considers the unemployment outcome one year after an 'employee' observation, so it does not capture all short unemployment spells; secondly, the conditional logit model that one is obliged to use for binary outcomes with panel data, has several technical limitations making it less precise and less robust than the linear panel regression model.

Following Nickell et al. (2002) we next model change in earnings following external job moves. Ideally, one would confine this analysis to those moving because of dismissal or redundancy from their previous jobs but in our view the BHPS data is not sufficient to determine this; in any case, individuals may also leave 'voluntarily' to pre-empt job loss ahead. Accordingly we simply examine the difference in wage for the current wave relative to the previous wave and see how this is affected by union status and job moves. Results are shown in Table 11.

[Table 11 about here]

Overall, the partial effect of current union coverage on change in the wage is positive but non-significant. The partial effect of lagged coverage, however, is negative and

significant (at the 5% level for the pooled sample, at the 10% level for women and men analyzed separately). To understand why this is so, the external move rows are the critical ones. When an external move to a covered job takes place, there is on average a moderate increase in the wage (weakly significant at the 10 per cent level for the pooled sample, and for men). When however a formerly covered employee moves externally (which might be to a covered or to a non-covered job) on average there is a rather substantial fall in the wage – significant both for women and men, but about twice as great for the latter. (For the pooled sample, the fall is nearly 10 per cent of the mean wage.) The dissatisfaction with job security expressed by *formerly* unionized employees reflects the fact that many of them have *already* experienced wage cuts consequent on moving externally. They may well be anxious about further repetition of this experience.

6 Summary and conclusions

The findings provide strong evidence in support of H1: the union wage mark-up is positive and significant over the period analysed, and pay satisfaction is also significantly positive. Moreover while individuals moving externally *into* a covered job have both a positive mark-up and enhanced pay satisfaction, those moving externally *from* a covered job on average lose any mark-up and have significantly reduced

satisfaction. There is also evidence in support for H2, a hypothesis making weaker claims. Having first established that the balance of employee preference is toward shorter hours, the research shows that individuals on average achieve an hours reduction when moving externally *into* a covered job, and it is in these circumstances that satisfaction with hours tends to be enhanced. Conversely, when individuals move externally *from* a covered job, this is associated with an increase in hours and a fall in satisfaction with hours.

H3 relates to job security and predicts somewhat negative outcomes, of two types. The first prediction, namely that unions will tend to increase the unemployment risk for covered employees, received no support from an analysis of the probability of entering unemployment. There was however support for the second prediction, that covered employees will suffer a re-employment cost when moving externally, in part because of the loss of a union wage mark-up. The wage difference when moving *from* a covered job was significantly negative, whereas the difference was positive when moving *into* a covered job. Consistent with this, employees who moved externally from a covered job became less satisfied with their job security in their new job (which could be either covered or non-covered currently): this result was driven by men.

The research demonstrates a substantial degree of correspondence between job satisfaction attitudes and real economic outcomes – with respect to pay, hours, and security. This is not easy to account for by those who see satisfaction measures as 'merely subjective' or arbitrary. On the other hand, we do not go so far as to claim that union attitudes are 'calculatively rational', to use Weber's phrase. As we made clear in section 2, we also do not claim to have covered all the aspects of job satisfaction that unions may influence. It is possible that union effects in some cases, e.g. toward supervision, are shaped largely by non-economic factors and require a different research approach.

The research has relied upon panel data analysis to eliminate bias from unobserved persistent personal attributes and similar results would not have been obtained by standard OLS regression methods. The panel data have also made it possible to take account of job mobility and this has been revealed as an important factor in respect to both attitudinal and economic outcomes.

Finally, the practical implications of the research are worth some consideration. Since the 1980s assertions have been made that unions have become what Hyman (1997) termed "hollow shells" capable of wielding little influence in the workplace. Similar views have been expressed in the United States where Rosenfeld recently wrote a book

entitled “What Unions No Longer Do” (2014). But the present research suggests that they continued to make a considerable difference to British employees right up to the mid-2000s. Not only was there on average a substantial union wage mark-up over the 1990-2007 period, but even in respect of the shorter working time objective one finds that moving into union coverage was advantageous, probably as a consequence of gains made by unions in previous decades that have proved to be persistent. On the other hand, with the progressive contraction of union coverage in the private sector, external mobility has become riskier for formerly covered employees, since their wage and hours advantages may be eroded by movement to a non-covered situation.

Table 1 Descriptives for satisfaction and economic outcome variables

satisfaction with	covered employees	not-covered employees	all employees
pay	4.82,1.56,30833	4.82,1.61,28893	4.82,1.58,61506
hours	5.18,1.45,30845	5.16,1.48,28930	5.18,1.46,61562
job security	5.18,1.61,30717	4.82,1.61,28893	5.31,1.56,61236
economic outcomes			
log wage	2.182,0.503,29252	1.987,0.606,26588	2.081,0.564,57387
weekly hours	34.04,9.65,32181	34.46,11.91,30169	34.11,10.93,64242
unemployment rate[a]	0.016,32664	0.032,32968	0.0236,65632
wage difference[b]	0.526,3.815,24297	0.549,3.80,20980	0.536,3.840,46312

Notes: Each cell reports mean, standard deviation, and N, with the exception of the 'unemployment rate' row where the standard deviation is redundant. Ns for covered and not-covered employees do not sum to equal all employees, because of missing union information.
a: The observed probability of unemployment for those who were employees at the previous wave (year).
b: The difference in observed wage (£/hour), for current year minus previous year.

Table 2 Transitions between jobs/employments and between union covered and non-covered status

employment change		lunion=0 & union=0	lunion=1 & union=0	lunion=0 & union=1	lunion=1 & union=1	Total
Same job (t & t-1)	N	12875	983	1076	15193	30127
	Row %	42.7	3.3	3.6	50.4	100.0
	Col. %	75.2	52.8	53.2	80.2	75.4
Different job within same employment (t v. t-1)	N	1350	156	167	2172	3845
	Row %	35.1	4.1	4.3	56.5	100.0
	Col. %	7.9	8.4	8.3	11.5	9.6
Different employment (t v. t-1)	N	2897	723	781	1590	5991
	Row %	48.4	12.1	13.0	26.5	100.0
	Col. %	16.9	38.8	38.6	8.4	15.0
Total	N	17122	1862	2024	18955	39963
	Row %	42.8	4.7	5.1	47.4	100.0
	Col. %	100.0	100.0	100.0	100.0	100.0

Note: Excludes 2.5 % of employee observations where information on employment change was missing or inconsistent. union(0,1) = whether covered by a union at the current wave. lunion (0,1) = whether covered by a union at the previous wave.

Table 3 Union coverage effects on pay satisfaction

	all	female	male
partial effects:			
union	**0.104,0.029,3.62**	**0.105,0.043,2.46**	**0.107,0.038,2.79**
lagged union	0.004,0.028,0.15	0.013,0.040,0.34	0.003,0.039,0.07
conditional partial effects:			
union | same job	**0.101,0.031,3.23**	**0.106,0.046,2.32**	**0.098,0.043,2.30**
union | internal move	0.018,0.069,0.26	0.043,0.118,0.37	0.004,0.084,0.05
union | external move	**0.182,0.052,3.47**	*0.140,0.077,1.82*	**0.235,0.072,3.27**
lagged union | external move	**-0.121,0.048,-2.53**	*-0.112,0.068,-1.65*	**-0.112,0.067,-1.67**
N (observations)	44100	22274	21826

Notes: Columns refer to separate analyses. Each cell reports b, s.e., and t. Standard errors are computed with a robust variance estimator. Estimates significant at 5% or better are emboldened, those significant at 10% but not at 5% are italicized. When an individual moves, 'union' refers to the new job, while 'lagged union' refers to the previous job.

All estimates come from models including controls, as follows: year dummies, age in decades (20-29 etc), partnered/not, partner employed/not, age of youngest child (6 categories – no child as reference), highest educational qualification (4 categories), any professional qualification (dummy), nonlabour income, housing tenure (4 categories), vehicle ownership dummy, private sector, industry (11 categories), workplace size (7 categories).

Table 4 Union coverage effects on log wage

	all	female	male
partial effects:			
union	**0.056,0.007,8.48**	**0.058,0.010,5.77**	**0.053,0.009,6.14**
lagged union	**0.026,0.006,4.23**	**0.029,0.010,3.02**	**0.023,0.008,2.87**
conditional partial effects:			
union | same job	**0.056,0.007,7.85**	**0.060,0.011,5.46**	**0.051,0.009,5.54**
union | internal move	**0.044,0.017,2.56**	*0.038,0.024,1.62*	*0.046,0.024,1.92*
union | external move	**0.064,0.012,5.31**	**0.063,0.017,3.65**	**0.065,0.017,3.81**
lagged union | external move	-0.006,0.011,0.57	-0.001,0.015,-0.08	-0.012,0.016,-0.75
N (observations)	39745	20152	19593

Notes: as for Table 3. *q.v.*

Table 5 Average log wage for employees moving externally, by previous and current union coverage status

log (£/hour)

Covered this year?	Not covered last year	Covered last year
Whole sample:		
No	2.01	2.02
Yes	1.94	2.22
Female sample:		
No	1.81	1.80
Yes	1.88	2.15
Male sample:		
No	2.19	2.07
Yes	2.17	2.32

Table 6 Mean usual weekly hours by hours preference

hours preference	overall	female	male
fewer (33%)	38.09	35.16	40.86
more (7%)	27.83	20.78	36.12
same (58%)	33.25	28.41	38.86

Table 7 Union effects on satisfaction with hours

	all	female	male
partial effects:			
union	*0.050,0.026,1.91*	0.012,0.039,0.30	**0.096,0.035,2.70**
lagged union	0.020,0.026,0.76	-0.010,0.037,-0.28	0.052,0.037,1.43
conditional partial effects:			
union | same job	0.029,0.029,0.98	-0.010,0.042,-0.24	*0.074,0.040,1.83*
union | internal move	0.031,0.067,0.45	0.028,0.114,0.25	0.051,0.084,0.60
union | external move	**0.189,0.048,3.92**	*0.125,0.071,1.76*	**0.255,0.066,3.84**
lagged union | external move	**-0.140,0.045,-3.09**	**-0.138,0.065,-2.12**	**-0.131,0.063,-2.08**
N (observations)	44125	22289	21836

Notes: as for Table 3. *q.v.*

Table 8 Union effects on change in hours (present hours – previous hours)

	all	female	male
partial effects:			
union	-0.046,0.134,-0.34	0.179,0.207,0.86	-0.272,0.175,-1.55
lagged union	**0.326,0.132,2.48**	0.176,0.202,0.87	**0.443,0.171,2.60**
conditional partial effects:			
union | same job	0.061,0.149,0.41	0.177,0.226,0.78	-0.063,0.199,-0.32
union | internal move	0.167,0.372,0.45	0.822,0.600,1.37	-0.336,0.457,-0.74
union | external move	**-0.822,0.326,-2.52**	-0.260,0.484,-0.54	**-1.426,0.437,-3.27**
lagged union | external move	**1.463,0.321,4.56**	**1.039,0.488,2.13**	**1.837,0.413,4.44**
N (observations)	43010	21731	21279

Notes: as for Table 3. *q.v.*

Table 9 Average weekly hours for employees moving externally, by previous and current union coverage status

Covered this year?	Not covered last year	Covered last year
Whole sample:		
No	35.4	35.3
Yes	33.4	34.1
Female sample:		
No	30.1	30.9
Yes	28.9	31.2
Male sample:		
No	40.0	39.5
Yes	38.3	38.2

Table 10 Union effects on satisfaction with job security

	all	female	male
partial effects:			
union	-0.037,0.029,-1.29	-0.028,0.041,-0.69	-0.040,0.040,-1.00
lagged union	**-0.071,0.029,-2.49**	-0.051,0.040,-1.29	**-0.085,0.041,-2.07**
conditional partial effects:			
union | same job	-0.045,0.032,-1.42	-0.054,0.044,-1.23	-0.033,0.045,-0.73
union | internal move	-0.023,0.077,-0.29	0.103,0.126,0.82	-0.101,0.098,-1.04
union | external move	-0.002,0.054,-0.04	0.034,0.076,0.44	-0.033,0.076,-0.43
lagged union | external move	*-0.081,0.048,-1.69*	-0.107,0.067,-1.59	-0.048,0.068,-0.71
N (observations)	44004	22212	21792

Notes: As Table 3, *q.v.*

11 Union effects on the difference (current year's - previous year's) wage

£/hour

	all	female	male
partial effects:			
union	0.113,0.116,0.98	0.046,0.099,0.47	0.179,0.197,0.91
lagged union	**-0.306,0.123,-2.49**	*-0.209,0.110,-1.90*	*-0.379,0.209,-1.81*
conditional partial effects:			
union | same job	0.080,0.112,0.71	0.035,0.117,0.30	0.125,0.188,0.67
union | internal move	0.168,0.471,0.36	0.024,0.262,0.09	0.275,0.761,0.36
union | external move	*0.275,0.150,1.84*	0.134,0.184,0.73	*0.416,0.239,1.75*
lagged union | external move	**-0.859,0.163,-5.25**	**-0.521,0.228,-2.29**	**-1.145,0.239,-4.79**
N (observations)	37452	18891	18561

Notes as Table 3, *q.v.*

Notes

1 For instance, the national agreements for shorter working hours in the engineering industry and the printing industry both took place in the early 1980s. About then there were also notable company agreements to cut working time, for example between Tesco and USDAW.

2 'Tastes' could include preference for working in a socially-beneficial, public sector job – potentially important because many union jobs are in the public sector. 'Ability' could be important if more-able people avoid unions believing they can do better on their own, or conversely if unionized employers seek out more-able people to offset the union mark-up (Abowd and Farber, 1983) .

3 New research using the 2011 Workplace Employment Relations Survey indicates unionisation reduces the probability that unions will work more than 48 hours per week relative to observationally equivalent non-union workers, and reduces the perception that there is a long hours working culture at the workplace (Bryson and Forth, 2016).

4 Userguide, 5151userguide_vola.pdf, Tables 16 & 17 (page A4-28).

5 In previous work we have shown that similar results are obtained if the union coverage variable is left as missing (reference withheld).

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