

# ANTICIPATION, FREE-RIDER PROBLEMS, AND ADAPTATION TO TRADE UNIONS: RE-EXAMINING THE CURIOUS CASE OF DISSATISFIED UNION MEMBERS

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The author studies the past, contemporaneous, and future effects of union membership on job satisfaction. Using eleven waves (5–15) of the British Household Panel Survey, he documents evidence rejecting the paradox of dissatisfied union members. By separating union “free-riders” from union-covered non-members in fixed-effects equations, he finds significant anticipation effects to unionism for both prospective and covered non-members of both genders. Workers go on to report, on average, a significant net increase in their overall job satisfaction in the year unionization occurs, although this decreases with time. Moreover, adaptation to unionism is complete within the first few years of unionization. One explanation for this is that workers adapt their reported satisfaction over time to support their union bargaining efforts, which would be consistent with at least one explanation given for a union’s role in fanning the flames of discontent with management during contract negotiations. That is, members may not actually be as dissatisfied with their jobs as it appears.

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Perhaps one of the most well-known findings in trade union and collective bargaining literature comes from studies indicating that union members are generally less satisfied with their jobs than non-members.<sup>1</sup> This finding is deeply counterintuitive. Given that unionism often leads to more bargaining power and improved working

conditions, one would expect it to lead to greater, rather than less, job satisfaction.

Freeman (1978, 1980) and Freeman and Medoff (1984) argued that the negative relationship between unionism and job satisfaction is a reflection of the role of unions as a “voice” for workers. According to them, unionized workers are encouraged by their union to express their discontent and grievances to the management, thereby raising the level of apparent job dissatisfaction among union members during contract negotiations. This is reflected in the finding that union members often express lower job satisfaction than non-members but express relatively high satisfaction with their unions (Fiorito, Gallagher, and Fukumi 1988; Jarley, Kuruvilla, and Casteel 1990). Duncan (1976) and Borjas (1979) proposed that unionized jobs are inherently unpleasant; thus, a union wage effect can be viewed as a compensating differential for decreased job satisfaction

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The British Household Panel Survey (BHPS) is available to download from the U.K. Data Archive ([www.data-archive.ac.uk](http://www.data-archive.ac.uk)).

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<sup>1</sup> See Freeman 1978; Borjas 1979; Clark 1997; Heywood, Siebert, and Wei 2002; Guest and Conway 2004; Meng 1990; Renaud 2002; Garcia-Serrano 2009; Miller 2008.

overall. Borjas (1979) argued that the impact of unionism on job satisfaction will also depend on the strength of the trade union to maintain “full wage” and non-pecuniary job rewards. An inverse relationship is therefore possible if there is a significant discrepancy between what union members expect and what they actually receive. Bryson, Capelari, and Lucifora (2004) hypothesized that the negative relationship between unionism and job satisfaction may reflect the role of workers’ unobserved heterogeneity; that is, those who are intrinsically unhappy with their jobs are more likely to join the union and involve themselves in union activities than those who are not, thus leading to lower job satisfaction among union members relative to non-members.

The above arguments imply one important empirical implication. Namely, if we are able to control sufficiently for individual and workplace heterogeneity, as well as to allow for the selection effect into a unionized job, then it may be possible to estimate a *net* effect of union membership on job satisfaction that is both causal and non-negative. However, due to data limitations (restricted controls and unrepresentative or small samples), only a handful of studies have been able to satisfy the above requirements. The notable examples are Bryson et al. (2004), Bender and Sloane (1998), Gordon and Denisi (1995), and Renaud (2002). Using linked employer-employee data from the 1998 Workplace Employee Relations Survey (WERS) for the United Kingdom, Bryson et al. found that unionized workers report, on average, significantly lower levels of job satisfaction compared to non-unionized workers.

These researchers, however, found that the well-being gap between the two groups becomes statistically insignificant once individual heterogeneity, establishment heterogeneity, and selection effects are controlled for in the estimation. Based on this finding, they argued that unions are successful at securing an attractive wage package for their members only insofar as it is large enough to offset their intrinsic dissatisfaction generated by higher expectations about their job. Using the Social Change and Economic Life Initiative (SCELI) data set, Bender and

Sloane (1998) controlled for the selection into being a union member by using employee perceptions of employer attitudes as instruments. Treating union membership as exogenous, they were able to show that the correlation between union membership and job satisfaction is not statistically significantly different from zero. Finally, Gordon and Denisi (1995) and Renaud (2002) reported insignificant effects of union membership on both job satisfaction and the intent to quit once working conditions are controlled for.

The finding that trade unions do nothing to improve workers’ job satisfaction is a bitter pill to swallow for workers who may be considering joining a union in order to receive prospective benefits in the forms of improved wages and working conditions. Despite the fact that this is what many studies have concluded, I propose that the discussion regarding the role of union membership on job satisfaction is far from over.

Specifically, I argue that previous empirical studies have consistently failed to take the following information into account when analyzing the impact of unionism on job satisfaction: (a) levels of workers’ job satisfaction in the periods before and after joining the union and (b) the status of union coverage of the control group.

As a result, studies that have mainly investigated cross-section data sets have failed to find two effects:

- 1) The estimated effects of union membership or union coverage on job satisfaction at cross-sections may not only suffer from unobserved heterogeneity—in that unhappy workers are more likely to select themselves into a unionized job—but they may also be biased due to confounding time-varying endogenous effects. For example, there may be significant *anticipation effects* to joining the union or becoming union-covered; the same worker may have been experiencing a decline in job satisfaction for some years before he or she decides to become a union member. There could, therefore, be a positive *net* impact on job satisfaction in the first year of joining the union, which would not have been picked up in prior studies.

2) When estimating the effect of union membership on job satisfaction, researchers may discover a significant *free-rider problem* among covered non-members (workers who are covered by collective bargaining agreements but are not union members) which, if unaccounted for, can bias the overall estimates of the union membership effects.

3) There may be evidence of significant mean-reversion or *adaptation effects* to the initial impact of union membership on job satisfaction, which could lead to an underestimation of the union effect.

Taking the above factors into account, it may therefore be possible to estimate a *net* positive union membership effect. Since Richard Freeman's (1984) caveats against the use of short-run longitudinal data sets to estimate the impact of union membership (simply because the associated measurement error bias stemming from the fact that workers rarely change their union status in short-run panels is too great), we now have at our disposal many rich, long-run micro-panel data sets, with a reasonably good number of observations of those who change their membership status over time. I use eleven years (Waves 5–15) of the British Household Panel Surveys (BHPS) to study the leads and lags in job satisfaction to having a recognized union at the workplace for (a) all workers who went on to be employed at a unionized firm, with this sample split further into (b) prospective union members, and (c) prospective covered non-members.

## Concepts

### Anticipation Effects

When we think of anticipation, we consider the effect of an event of interest on well-being *before* it actually occurs (Clark et al. 2008; Frijters, Johnston, and Shields 2008). In the context of unionism and job satisfaction, one hypothesis is that non-union members' perceptions about work conditions decline significantly over time, which leads them to join or form a trade union in the future. This proposition can be captured empirically by looking at the coefficients on

a series of lead variables (will form the union in the next twelve months, in the next one to two years, and so on) in job satisfaction equations. In the analysis of anticipation effects to unionism, an individual fixed effect must be introduced so that any negative effect of the lead variables will pick up anticipation rather than selection (in which those who are inherently unhappy with their jobs are also those who are likely to join or form the union). Failure to take into account the anticipation effect may bias the union effect in the same direction as the usual selection bias.

### Free-Rider Problems

Previous empirical studies on the impact of unionism on job satisfaction have often failed to distinguish between union members and union-covered workers who are non-members in job satisfaction equations. Typically, a dummy variable representing union status will take a value of 1 if the individual is a union member and zero otherwise, suggesting that non-members in union-covered firms and non-covered workers will fall within the same zero category. This would be acceptable if the decision to remain a non-member at a unionized firm were exogenous, which may not always be the case (Chaison and Dhavale 1992; Booth 1985; Booth and Bryan 2001). The results on the benefits of free-rider status (employees who are covered by collective-bargaining agreements but are not members) are mixed. In terms of the estimated wage differentials, Kahn (1980) and Belfield and Heywood (2001) showed that union threat effects by covered non-members have a positive impact on the non-union wages, which exceeds that of the average pay package received by non-members in the uncovered sector. Using WERS 1998 data sets, Booth and Bryan (2001) found evidence of zero wage premia between union members and covered non-members once union membership is instrumented. By contrast, Budd and Na (2000) found for the United States, and Hildreth (1999) for the United Kingdom, that covered non-members do not receive the same wage premia as covered members.

In a novel approach to identify the differences between the two groups, Clark (2001) found, using the British Household Panel Survey (BHPS), that a dissatisfied union member and a dissatisfied covered non-member have a statistically identical probability of quitting. In other words, his results support the notion that union dissatisfaction reflects workers' true well-being rather than being an artifact of institutional structures that make union members more likely to express dissatisfaction. At the same time, he also found that a worker with low job satisfaction at a "union-recognized" workplace is less likely to quit than an identical worker at a workplace in which a union is not recognized. In addition to this, Jarley and Fiorito (1990) concluded that union free-riders, not non-covered workers, are significantly more likely to indicate a preference for pro-union voting intent, which is at odds with "right-to-work" advocates' view of free-riders as "principled conscientious objectors." Given these conflicting findings, further analysis distinguishing between union members, covered non-members, and non-members in the uncovered sector is warranted.<sup>2</sup>

### Adaptation

When we think of adaptation, we consider the processes that reduce the effects of repeated sensory and cognitive stimuli (see, e.g., Frederick and Loewenstein 1999). In other words, adaptation generally refers to the decline in satisfaction over time *after* the event has occurred. Empirical studies in this area have found significant evidence of adaptation to marriage and divorce (Lucas and Clark 2006; Zimmerman and Easterlin 2006), income (Di Tella, Haisken-DeNew, and MacCulloch 2005), disability (Oswald and Powdthavee 2008; Powdthavee 2009), and unemployment (Lucas, Clark, Georgellis, and Diener 2004). Regarding unionism, one could hypothesize that union members become "accustomed to" improvements in

the pay package and work conditions. After a period of satisfaction, the psychological effects of union membership adapt to a base level and cognitive changes in interests, values, and goals set in. In this process, workers increase their expectation (or aspiration) level (Stutzer 2004).

### Implementing a Test

#### Empirical Implications

Are there anticipation effects to forming a union or staff association to negotiate wages and work conditions with the management? Is there a free-rider problem in the covered sector? Do union workers adapt to their new work conditions? A test of these questions must exhibit a number of special features:

- 1) Individuals in the sample must be followed for a reasonably long period, so that information on them is available before and after joining a union-covered firm.
- 2) A control group that does not join a union-covered firm against which to measure the sample is needed.
- 3) A distinction between union members and non-members at a unionized firm can be made within the data set.
- 4) The sample should be representative of the working age population.
- 5) A set of other job-related variables, particularly on occupation, must be available in the data set, so that confounding influences can be differenced out.

No study of this type has apparently been published in either economic or industrial relations literature.

#### Data

The main data set comes from Waves 5–15 of the British Household Panel Survey. The BHPS is a nationally representative longitudinal data of British households, contains more than 10,000 adult individuals (every adult member in the sampled households is interviewed), and has been conducted

<sup>2</sup> It is worth noting here that there is no labor law that restricts workers' ability to free-ride in the United Kingdom.

between September and December each year since 1991 (Taylor et al. 2002).<sup>3</sup>

In every wave since the first, individuals were asked to rate their level of satisfaction with four different aspects of their job: total pay, job security, satisfaction with work itself, and hours of work.<sup>4</sup> Each criterion was to be given a number from one to seven, with one representing "very dissatisfied" and seven "very satisfied." Finally, individuals were asked about their overall job satisfaction: "All things considered, how satisfied or dissatisfied are you with your present job overall using the same 1–7 scale?"

I also draw upon two questions regarding trade union status in the BHPS: 1) "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?" 2) "Are you a member of this trade union/association?"

I discuss three empirical categories of trade union status. The first category is "Union Coverage," which means having a recognized trade union or a staff association to bargain over pay and work conditions at the workplace and includes all workers in unionized firms (covered workers). The other two categories are broken-down by union membership status: "Union Members" and "Covered Non-members."

I consider all working-age individuals (aged 16–65) in full-time employment (omitting the self-employed) who report a level of overall job satisfaction in any given wave. Among those who are employed full-time, the response rates to the job satisfaction questions are high (88%). I also restrict the

sample to those who do not change their workplace throughout the panel (this is to avoid the identification problem of the union effect on job satisfaction between job changers and newly unionized workers). In addition to this, because more than 85% of workers in the public sector are covered by trade unions compared to 33% of workers in the private sector, there will be significantly fewer workers moving in and out of union jobs in the former than in the latter. For this reason, I focus on the dynamic effects of unions on job satisfaction for workers in the private sector who do not change their jobs during their time in the panel.<sup>5</sup> This produces a nationally representative sample of 23,259 observations (5,446 individuals) for men and 17,926 observations (4,838 individuals) for women. Of those, 9,635 observations for men and 5,970 observations for women had a trade union, or a similar body such as a staff association, in their workplace. Approximately 61% of men and 50% of women in unionized firms are members of a union or a staff association. These data are unbalanced since some people are not present in all eleven waves.

In this study, I conduct all statistical analyses separately by gender, primarily because there is evidence to suggest that unions may affect men and women differently. For example, studies in the 1980s suggested that women are less likely than men to be unionized (e.g., see Antos, Chandler, and Mellow 1980) as well as less inclined toward unionization, at least in research on union membership status (Fiorito, Gallagher, and Greer 1986). Such results may be interpreted to mean that women have poorer perceptions toward unionization than do men. More recent studies have shown, however, that the lower unionization rates of women than of men stem not from lower interest in unions, but from barriers to unionization faced by women (Leigh and Hills 1987; Schur and Kruse 1992). With respect to union commitment, some studies report that women are significantly more committed to unions than men (Sherer and Morishima 1989; Bemmels

<sup>3</sup> Wave 1 of the BHPS consists of about 5,500 households and 10,300 individuals drawn from 250 areas of Great Britain. An additional sample of 1,500 households in both Scotland and Wales were added to the main sample in 1999, and in 2001 a sample of 2,000 households was added in Northern Ireland, making the panel suitable for U.K.-wide research (see <http://www.iser.essex.ac.uk/survey/bhps>).

<sup>4</sup> Participants were also asked in selected BHPS Waves (Waves 1–7) about their level of satisfaction with (a) promotion opportunities, (b) relations with boss, and (c) the use of initiative in their job, although these are not used in this paper's analysis.

<sup>5</sup> I thank Alan Carruth for this suggestion.

1995), which implies that women may benefit more than men from unionization, thus explaining why they are more likely than men to identify with the union's values and goals. However, Meyer and Allen (1997) argued that this is not a consistent finding, and women's stronger commitment to unions may reflect gender differences in terms of work characteristics and experience.<sup>6</sup>

Studies on male-female differences in union voting behavior also reported inconsistent findings. Whereas some have found no gender differences in general support for collective bargaining (Feuille and Blandin 1974; Bigoness 1978), some studies have shown gender to be a strong predictor of union voting intentions (Sutton 1980) and preferences (Fiorito and Greer 1986). Moreover, there is evidence of women adopting more important roles in shaping union organizing styles in some female-dominated sectors (Crain 1991), suggesting that there may be more contemporaneous psychological benefits to unionizing among women compared to men. Because of these ambiguous relationships between gender and union outcomes, it is difficult to speculate what the dynamics of job satisfaction according to gender will be before and after unionizing. Thus, it seems important to study whether unions also affect men's and women's job satisfaction and its dynamics differently as well.

Since the vast majority of individuals can be tracked for far shorter periods of time than the available eleven BHPS waves, I concentrate solely on up to four years before and three years after union coverage. Finally, it is worth mentioning that, unlike some job satisfaction surveys that are conducted by the respondent's employer, the responses to the question on job satisfaction in the BHPS are anonymous and conducted by an independent surveyor (e.g., see Taylor et al. 2002). What this implies is that self-rated job satisfaction scores should not be influenced by concerns that the respondent's employer will find out who "voiced" their dissatisfactions.

### Analytical Strategy

The first equation considers the lead and lag effects of union coverage rather than union membership on job satisfaction. Here, I follow the method outlined in Frijters et al. (2008) and estimate the following:

$$(1) \quad JS_{it} = \beta_{-4}U_{-4,it} + \beta_{-3}U_{-3,it} + \beta_{-2}U_{-2,it} + \beta_{-1}U_{-1,it} + \beta_0U_{0,it} + \beta_1U_{1,it} + \beta_2U_{2,it} + \beta_3U_{3,it} + X'_{it}\delta + u_i + \epsilon_{it}$$

where  $JS$  represents job satisfaction. Here,  $U_{-4}$  represents a dummy variable that takes a value of 1 if the individual will be covered by a union in the following three to four years. The other leading  $U$  dummies are defined similarly. If there is a lead effect to being covered by a union, then we would expect the lead coefficients to be zero or negative, and to be more negative the closer the periods come to union coverage. By contrast, the adaptation effects to being covered by a union are captured by three dummies: Union coverage one to two years, Union coverage two to three years, and Union coverage three years or more. Union coverage of less than one year duration,  $U_0$ , is identified by being covered in the current survey wave but not in the previous interview. Coverage of one to two years is identified by  $U_t = 1$ ,  $U_{t-1} = 1$  and  $U_{t-2} = 0$ . Longer lags are defined analogously.

If there is no important well-being effect from working at a unionized firm, so that being covered by a union does nothing to improve the employees' job satisfaction immediately, then presumably  $\beta_0$  would take some negative values. If there is no adaptation to this union effect, then ostensibly the later values of  $\beta$  would have the same negative values as  $\beta_0$ . Conversely, if there is a complete adaptation to being covered by collective-bargaining agreements, later values of  $\beta$  will be insignificant: being covered by a union long enough is the same as not being covered at all. A *net* effect of union coverage can then be calculated by subtracting  $\beta_0$  by  $\beta_{-1}$ . If  $(\beta_0 - \beta_{-1})$  is positive and statistically significant, then we can conclude that, on average, there is a positive net effect associated with a move from a non-membership status to being covered by a union. With

<sup>6</sup> For a comprehensive review on union commitment, see Snape et al. (2000).

respect to other parameters,  $X$  represents a vector of standard controls, which includes dummies for different age groups, marital status, number of hours normally worked per week, temporary job status, opportunity for promotion, real annual personal income, workplace size (number of employees), education level, health, as well as social class, occupational, regional, and wave dummies (e.g., see Clark 1997).  $\epsilon_{it}$  is the error term. The individual fixed effects,  $u_i$ , are included in the equation so that I am effectively following the same individual through different periods prior to being employed at a unionized firm. The descriptive statistics for some of the variables used in my analysis are reported in Appendix Table A1.

To test for the welfare impacts of union membership and union coverage on workers with free-rider status, that is, covered non-members, Equation (1) can be rewritten to distinguish between covered members and covered non-members:

$$(2) \quad JS_{it} = \beta \sum_{k=-4}^3 U_{k,it} + \theta \sum_{m=-4}^3 UM_{m,it} + \lambda \sum_{n=-4}^3 (UM_{n,it} \times UM_{n,it}) + X'_{it} \delta + u_i + \epsilon_{it},$$

where  $UM$  is a dummy variable representing covered members. By interacting lead and lag dummies of both union coverage and union membership, I am able to control for the timing of becoming a member of either a staff association or a union since some workers may decide to become a member in their second or third year rather than in the first year of their firm becoming union-covered. To interpret the coefficients,  $\beta_3$  represents, for example, the well-being impact of having worked in a union-covered firm for at least three years, whereas the sum  $\beta_3 + \theta_3 + \lambda_3$  represents the well-being impact of being a union member for at least three years. In the case where all  $UM$  variables are equal to zero,  $\beta_3$  on its own can be interpreted as the well-being impact of remaining a non-member in a covered firm for at least three years. The number of observations of the various

lags and leads are presented in Appendix Table A2.

This set-up allows me to conduct simple tests of whether the dynamics of job satisfaction differ significantly between covered members, covered non-members, and non-covered workers. One hypothesis is that the anticipation effect, if any, will be more prominent among those who went on to become a covered member in the lead equation, compared to covered non-members. If there is evidence of union free-riding (in that there are no statistically significant differences in terms of job satisfaction between union members and covered non-members) then presumably all of the values of  $\beta$  would take some positive numbers whereas all of the sums of  $\theta + \lambda$  would presumably be statistically insignificantly different from zero at conventional levels.<sup>7</sup>

## Longitudinal Results

### Union Coverage

Are union-covered workers more dissatisfied with their jobs compared to non-covered workers? A first look at the raw data evidence suggests that they are. Figures 1A and 1B show for men and women the reported levels of overall job satisfaction for covered workers and non-covered workers. Both figures illustrate that, in every wave of the BHPS, non-covered workers report higher scores of overall job satisfaction compared to covered workers. Moreover, for eight of the eleven waves for men and nine of the eleven years for women, the differential is easily significant at the .05 level. This is consistent with previous studies that found a negative association between unionism and job satisfaction (Freeman 1978; Borjas 1979; Clark 1997).

Are covered workers always less satisfied with their jobs compared to non-covered workers? To answer this question, Table 1 presents within-person evidence of the dynamics of overall job satisfaction four years

<sup>7</sup> Conventional levels include 1%, 5% and 10% confidence intervals.

Figure 1. Union Coverage and Job Satisfaction in the U.K.

Fig 1a. Men

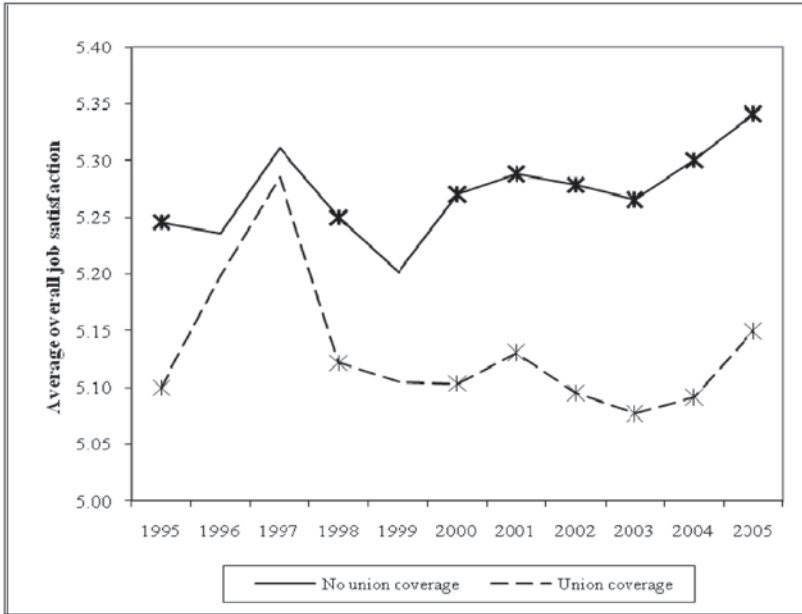
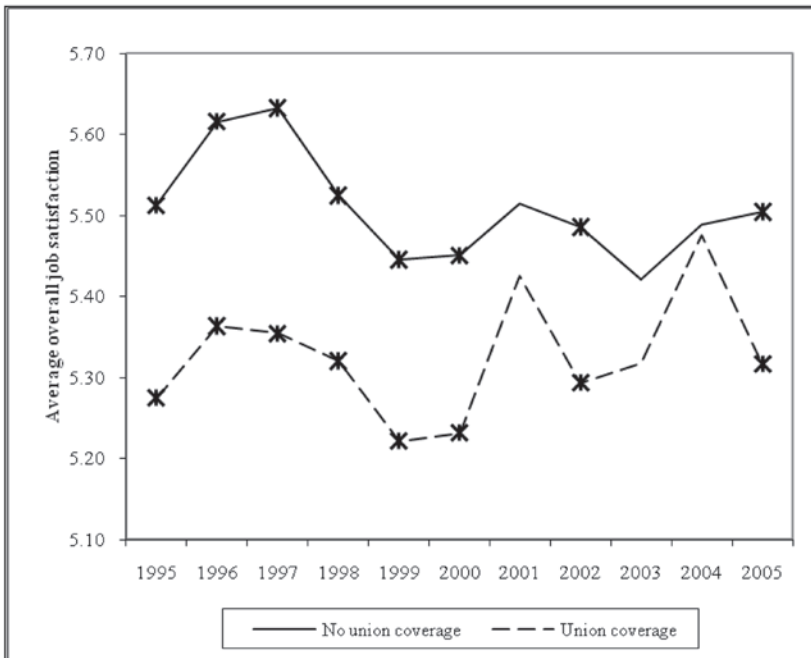


Fig 1b. Women



Note: The asterisk (\*) indicates that the differences in average levels of job satisfaction between workers with union coverage and those without are statistically significant at the .05 level.



*Table 1. Fixed Effects Job Satisfaction Regressions:  
Leads to and Lags of Union Coverage*

<i>Dependent Variable: Overall Job Satisfaction</i>	<i>Men</i>	<i>Women</i>
Union coverage 4 years hence	0.069 [0.080]	-0.037 [0.091]
Union coverage 3 years hence	0.121 [0.066]*	-0.085 [0.080]
Union coverage 2 years hence	-0.074 [0.055]	-0.045 [0.066]
Union coverage within the next year	-0.128 [0.045]***	-0.347 [0.054]***
Union coverage 0–1 year	-0.003 [0.038]	-0.146 [0.048]***
Union coverage 1–2 years	-0.090 [0.045]**	-0.210 [0.057]***
Union coverage 2–3 years	-0.080 [0.051]	-0.215 [0.066]***
Union coverage 3 years or more	-0.200 [0.045]***	-0.274 [0.058]***
<b>Estimated net effect of union coverage</b>		
[Coeff.] Union coverage 0–1 year – [Coeff.] Union coverage within the next year =	0.124 [0.041]***	0.201 [0.051]***
Age: 26–35	-0.002 [0.044]	0.031 [0.053]
Age: 36–45	-0.013 [0.065]	-0.002 [0.078]
Age: 46–55	-0.049 [0.087]	-0.035 [0.104]
Age: 56–65	0.008 [0.110]	-0.082 [0.132]
Living with a partner	-0.017 [0.044]	-0.017 [0.052]
Widowed	0.151 [0.230]	-0.175 [0.168]
Separated	0.154 [0.079]*	-0.141 [0.082]*
Divorced	0.103 [0.089]	0.034 [0.086]
Never married	0.003 [0.059]	-0.114 [0.068]*
Ln(number of hours normally worked per week)	-0.330 [0.058]***	-0.175 [0.039]***
Temporary job	-0.073 [0.052]	-0.149 [0.062]*
Promotion opportunity	0.369 [0.021]***	0.368 [0.026]***
Ln(real annual personal income)	-0.045 [0.021]**	-0.047 [0.022]**
Work size: 1–24	0.062 [0.048]	0.009 [0.064]

*continued*

Table 1. Fixed Effects Job Satisfaction Regressions:  
Leads to and Lags of Union Coverage Continued

<i>Dependent Variable: Overall Job Satisfaction</i>	<i>Men</i>	<i>Women</i>
Work size: 25–199	–0.014 [0.043]	–0.071 [0.058]
Education: completed first degree	0.043 [0.147]	–0.161 [0.191]
Education: completed higher degree	0.319 [0.246]	0.381 [0.479]
Health: poor	0.206 [0.127]	0.000 [0.116]
Health: fair	0.260 [0.125]**	0.136 [0.113]
Health: good	0.395 [0.125]***	0.235 [0.113]**
Health: excellent	0.485 [0.127]***	0.329 [0.116]***
Constant	6.358 [0.329]***	6.290 [0.351]***
Social class dummies (21)	Yes	Yes
Occupation dummies (372)	Yes	Yes
Regional dummies (20)	Yes	Yes
Wave dummies (10)	Yes	Yes
Observations	23259	17926
Individuals	5446	4838
R <sup>2</sup> (within)	0.0576	0.0605

Notes: Reference groups: no union at the workplace, married, permanent job, no promotion opportunity, work size: 200 and more workers, education: lower than first degree, health: very poor. Standard errors are in parentheses.

\*Statistically significant at the .10 level; \*\*at the .05 level; \*\*\*at the .01 level.

before and three years after employment at a unionized firm or a firm with a recognized staff association.

As anticipated, there is a significant lead effect in overall job satisfaction one year before being covered by either a union or a staff association. The lead coefficient at  $T-1$  is negative and statistically significant at the .01 level for both men and women (although the drop took place earlier for men, at  $T-2$ ). Given that individual fixed effects are controlled for in the regressions, the observed drop in the level of job satisfaction one year before being covered is independent from the negative selection effect; that is, people who are inherently unhappy with their jobs are more likely to become covered workers in the future than those who are not unhappy (see Bender and Sloane 1998; Bryson et al. 2004). In other words, this result implies that for this particular sample of male

and female workers, instead of quitting their jobs following a significant drop in their job satisfaction, they are more likely to become covered by collective bargaining agreements in the following year. It may also be the case that organizers of a prospective union or a potential staff association encourage all workers to voice their dissatisfaction at period  $T-1$ , which would in turn act as a justification for the formation of either a union or staff association at  $T$ . This explanation is consistent with what Freeman and Medoff (1984) proposed, although the difference in the present case is that instead of an existing union fanning the flames of discontent for bargaining purposes, organizers of a prospective union may encourage workers to express their discontent and grievances before either organization is formed.

What is the contemporaneous effect of union coverage on overall job satisfaction?

Figure 2. The Dynamic Effect of Union Coverage on Job Satisfaction

Fig 2a. Men

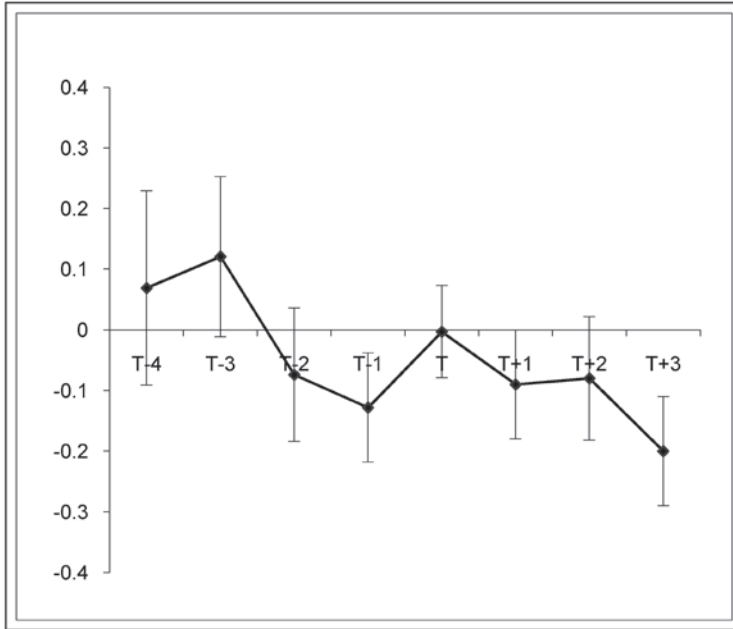
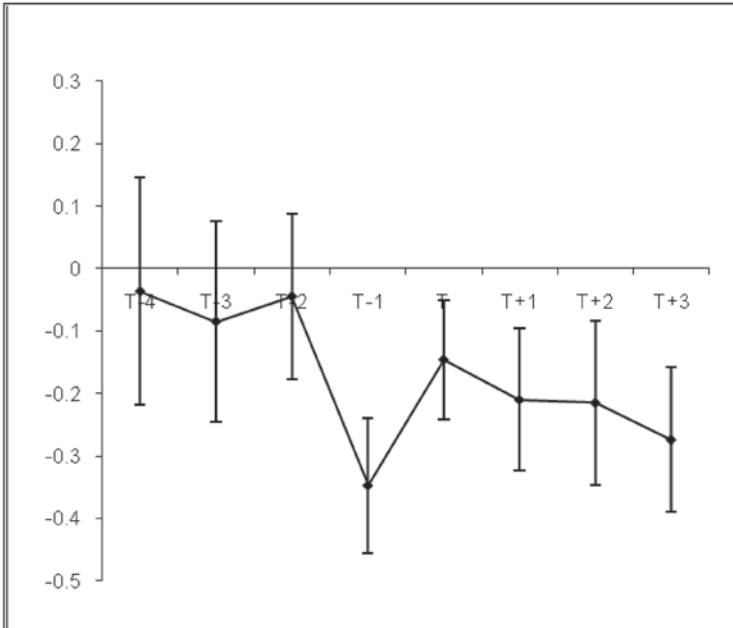


Fig 2b. Women



Note: Year T is the year of union coverage. Four-standard-error bands (95% C.I.) are reported: two standard errors above and two below.

Conditioning for individual fixed effects and personal and workplace characteristics, there is evidence that the net effects of a move from non-covered to being covered, that is, between  $T-1$  and  $T$ , are *positive and sizeable for both genders*. As the results in Table 1 demonstrate, the calculated net union coverage effects (the coefficient on union coverage during year 0–1 *minus* the coefficient on union coverage within the next year) for men and women are 0.124 [*S.E.* = 0.041] and 0.201 [*S.E.* = 0.051], respectively. The net effect appears slightly larger for women than for men, although the difference between these two coefficients is not statistically significant at conventional levels ( $t = 1.177$ ).

The results on the positive net impacts of unionizing contrast with the popular finding of a negative relationship between unionism and job satisfaction. They are also inconsistent with the existing theory that workers are encouraged upon becoming union members by their union to voice their dissatisfactions about their job and working environment to management (Freeman and Medoff 1984). Instead, the results seem to support one of the more intuitive ideas about the role of trade unions, namely, that they exist to improve the well-being of those associated with them. Nevertheless, it is worth noting that, despite the positive net union coverage effect being observed at  $T$  for both male and female workers, job satisfaction remains, on average, either the same as, in the case of men, or significantly below, in the case of women, that of workers who reported being in the uncovered sector throughout the sampling period.

This improvement in well-being does not seem to last very long. Within the first two years of becoming covered workers, there is a complete mean-reversion or adaptation effect. Put simply, it takes only two years of being covered by either a union or staff association for workers to become just as dissatisfied about their jobs as they used to be one year before the unionization occurred. One psychological explanation for this is that workers increase their level of expectation (or aspiration) very soon after becoming covered by unions. Another plausible

explanation, which is more strategic than psychological, is that this increased drop in workers' job satisfaction does not reflect the workers' true well-being and that the heightening of the level of discontent is there only to support their union's bargaining efforts (Freeman and Medoff 1984).<sup>8</sup> Workers, in other words, adapt their reported satisfaction over time to support their union in its bargaining endeavors.<sup>9</sup>

Table 2 reports the dynamic effects of union coverage on satisfaction with total pay, job security, the work itself, and hours worked. The columns across the table show that the net union coverage effect is positive in two out of four domain-specific job satisfaction equations for men, and in three out of four for women. The largest of these effects is observed in the satisfaction-with-pay regressions. A move from a union or staff association coverage within the next year to being covered by collective-bargaining agreements is associated with a 0.16-point increase in satisfaction with pay for men and a 0.22-point increase for women. Given that income is controlled for in the satisfaction equations, we can readily interpret these net union coverage effects on workers' satisfaction with pay as non-pecuniary. There is evidence, in other words, that workers become significantly happier about their expected payments in the future in the first year of being union-covered. For women, the decision to becoming covered workers is associated on average with a significant improvement in the level of satisfaction with work itself, which does not seem to hold true for men.

It is worth noting that these positive net union coverage effects are often preceded by one or two years of significant drops in workers' satisfaction levels, either with their pay, job security, or even with work itself,

<sup>8</sup> It is also possible to follow workers before and after the de-unionization of their firm. Though not shown here, there is a significant improvement in workers' job satisfaction following de-unionization. Workers, in other words, become significantly happier with their jobs after the de-unionization has occurred.

<sup>9</sup> It is possible that there could be further adaptation to unionism beyond  $T+3$ . However, since there are only a few hundred observations of these individuals in the sampled data, we can only speculate about the trend.

Table 2. Fixed-Effects Regressions for Each Different Aspect of Job Satisfaction

<i>3a. Men</i>				
<i>Dependent Variable</i>	<i>Satisfaction with Pay</i>	<i>Satisfaction with Job Security</i>	<i>Satisfaction with Work Itself</i>	<i>Satisfaction with Hours Worked</i>
Union coverage 4 years hence	0.033 [0.092]	0.161 [0.090]*	-0.076 [0.080]	0.053 [0.086]
Union coverage 3 years hence	0.002 [0.076]	0.139 [0.074]*	0.075 [0.067]	0.119 [0.072]*
Union coverage 2 years hence	-0.063 [0.063]	-0.103 [0.061]*	-0.109 [0.055]**	-0.013 [0.059]
Union coverage within the next year	-0.105 [0.052]**	-0.167 [0.050]***	-0.099 [0.045]**	-0.034 [0.049]
Union coverage 0-1 year	0.054 [0.044]	-0.169 [0.043]***	-0.042 [0.038]	0.041 [0.041]
Union coverage 1-2 years	0.030 [0.052]	-0.166 [0.051]***	-0.124 [0.045]***	0.062 [0.049]
Union coverage 2-3 years	0.002 [0.059]	-0.210 [0.058]***	-0.149 [0.052]***	0.012 [0.056]
Union coverage 3 years or more	-0.074 [0.051]	-0.234 [0.050]***	-0.187 [0.045]***	-0.047 [0.048]
<b>Estimated net effect of union coverage</b>				
[Coeff.] Union coverage 0-1 year - [Coeff.] Union coverage within the next year =	0.159 [0.047]***	-0.002 [0.046]	0.056 [0.041]	0.075 [0.044]*
<i>3b. Women</i>				
<i>Dependent Variable</i>	<i>Satisfaction with Pay</i>	<i>Satisfaction with Job Security</i>	<i>Satisfaction with Work Itself</i>	<i>Satisfaction with Hours Worked</i>
Union coverage 4 years hence	-0.082 [0.106]	0.027 [0.099]	-0.025 [0.094]	0.163 [0.097]*
Union coverage 3 years hence	-0.052 [0.093]	-0.141 [0.086]	-0.079 [0.082]	0.043 [0.085]
Union coverage 2 years hence	-0.066 [0.078]	-0.013 [0.072]	-0.033 [0.068]	-0.015 [0.071]
Union coverage within the next year	-0.187 [0.064]***	-0.189 [0.059]***	-0.232 [0.056]***	-0.066 [0.058]
Union coverage 0-1 year	0.035 [0.056]	-0.087 [0.052]+	-0.106 [0.049]**	0.018 [0.051]
Union coverage 1-2 years	0.010 [0.067]	-0.161 [0.062]***	-0.179 [0.059]***	-0.025 [0.061]
Union coverage 2-3 years	0.058 [0.077]	-0.183 [0.071]***	-0.174 [0.067]***	-0.069 [0.070]
Union coverage 3 years or more	-0.038 [0.068]	-0.193 [0.063]***	-0.223 [0.060]***	-0.016 [0.062]
<b>Estimated net effect of union coverage</b>				
[Coeff.] Union coverage 0-1 year - [Coeff.] Union coverage within the next year =	0.221 [0.059]***	0.103 [0.055]+	0.127 [0.052]**	0.083 [0.054]

Note: Same control variables and number of observations as Table 1. Standard errors are in parentheses.

\*Statistically significant at the .10 level; \*\*at the .05 level; \*\*\*at the .01 level.

beyond what is normally experienced by those who remained in non-unionized firms throughout the panel. Workers then go on to report a significant drop in the level of satisfaction with both job security and the work itself in the second year of being covered by a union or a staff association. However, perhaps rather unexpectedly, there appears to be zero adaptation to the positive net union coverage effect on the satisfaction-with-pay equation for both male and female workers. This implies that the effect of being covered by collective-bargaining agreements upon satisfaction with pay remains positive even after four or more years spent at a unionized firm. That is, all else being equal, the individual would have remained dissatisfied with his or her pay if unionization did not take place at  $T$ .

### Union Members versus Union “Free-Riders”

Table 3 goes on to estimate Equation (2) in order to examine whether the results obtained in Table 1 vary significantly by union membership status. The two questions of interest are whether (a) the negative anticipation effect upon overall job satisfaction found in the previous section is primarily driven by prospective union members rather than prospective union free-riders (or covered non-members) and (b) there are any clear psychological benefits to union free-riding; in other words, is the post-union impact on job satisfaction statistically indistinguishable between union members and non-members in unionized firms? For simplicity, only the coefficients for those who have either been a union member or remained a nonmember since the first year of working for a union-covered firm are reported.

Table 3 presents a set of results that may be difficult to predict. First, while there is a noticeable drop in the level of overall job satisfaction among male members one year before unionization occurs at  $T$ , for male free-riders the lead effect to becoming covered by collective bargaining agreements is not statistically different from zero. Second, a similar pattern between members and free-

riders is also obtained in the female sample regressions. There appears to be some statistical evidence of a positive net union coverage effect among free-riders in the first year of unionization, which is statistically more robust for women than for men. Third, there is strong adaptation to the positive union coverage effect following unionization for both members and free-riders of both genders. Finally, though there is evidence of free-riding generating positive satisfaction, it does not seem to engender any significant differences in overall job satisfaction over union members in general.

### Union Satisfaction with Pay Premium

The non-pecuniary benefits of union coverage on satisfaction with pay, which could be interpreted as the effects of union coverage on workers’ perception regarding their financial security in the future, are quantitatively important as well as statistically significant. To gain some perspective on the size of the coverage impacts on satisfaction with pay, the “Union Satisfaction with Pay Premium” (or USPP for short)<sup>10</sup> can be calculated using the coefficient on pay, and the estimated net union coverage effect can be obtained from the satisfaction with pay regression equations. Given that the pay variable is in a log form, the USPP equation can be written as follows:

$$USPP = Y \times \left( \exp \frac{\beta_{\text{union for } 0-1 \text{ year}} - \beta_{\text{union within the next year}}}{\lambda_{\lg \text{ pay}}} - 1 \right), \quad (3)$$

where USPP refers to the *additional* income required to compensate an average non-member before unionization occurs at  $T-1$  to be just as satisfied with his or her total pay as an average worker covered by collective-bargaining agreements at  $T$ ;  $Y$  is the current real personal income;  $\beta_{\text{union for } 0-1 \text{ year}}$  represents the coefficient of being covered

<sup>10</sup> For other applications of the shadow pricing method to evaluate nonmarketable experiences in a monetary term, see Powdthavee (2005) for an example.

Table 3. Fixed-Effects Job Satisfaction Regressions:  
Leads to and Lags of Union Coverage by Membership Status

<i>Dependent Variable: Overall Job Satisfaction</i>	<i>Men</i>	<i>Women</i>
Union member, i.e. the sum of $\beta + \theta + \lambda$ parameters		
Union coverage 4 years hence and become member in the 1 <sup>st</sup> year	-0.194 [0.156]	-0.221 [0.177]
Union coverage 3 years hence and become member in the 1 <sup>st</sup> year	0.009 [0.119]	-0.064 [0.154]
Union coverage 2 years hence and become member in the 1 <sup>st</sup> year	-0.129 [0.098]	-0.015 [0.123]
Union coverage within the next year and become member in the 1 <sup>st</sup> year	-0.243 [0.077]***	-0.494 [0.095]***
Union coverage union 0-1 year and member 0-1 year	-0.075 [0.057]	-0.297 [0.074]***
Union coverage 1-2 years and member 1-2 years	-0.099 [0.064]	-0.375 [0.087]***
Union coverage 2-3 years and member 2-3 years	-0.147 [0.071]**	-0.393 [0.098]***
Union coverage 3 years or more and member 3 years or more	-0.312 [0.059]***	-0.384 [0.081]***
<b>Estimated net effect of union coverage</b>		
[Coeff.] Union coverage 0-1 year - [Coeff.] Union coverage within the next year =	0.168 [0.074]**	0.197 [0.093]**
Non-member, i.e. $\beta$ parameter		
Union coverage 4 years hence & remain non-member	0.152 [0.091]*	0.013 [0.104]
Union coverage 3 years hence & remain non-member	0.155 [0.079]**	-0.126 [0.094]
Union coverage 2 years hence & remain non-member	-0.064 [0.065]	-0.017 [0.080]
Union coverage within the next year & remain non-member	-0.055 [0.053]	-0.260 [0.065]***
Union coverage union 0-1 year & non-member	0.032 [0.046]	-0.064 [0.057]
Union coverage 1-2 years & non-member	-0.137 [0.062]**	-0.088 [0.077]
Union coverage 2-3 years & non-member	-0.078 [0.080]	-0.077 [0.094]
Union coverage 3 years or more & non-member	-0.110 [0.060]*	-0.310 [0.075]***
<b>Estimated net effect of union coverage</b>		
[Coeff.] Union coverage 0-1 year - [Coeff.] Union coverage within the next year =	0.086 [0.052]*	0.196 [0.066]***

Note: Same control variables and number of observations as Table 1. Standard errors are in parentheses.

\*Statistically significant at the .10 level; \*\*at the .05 level; \*\*\*at the .01 level.

by a union or staff association for 0-1 year;  $\beta_{\text{union within the next year}}$  is the reference coefficient for the lead effect to becoming union-covered within the next year; and  $\lambda_{\text{lg pay}}$  is the estimated coefficient on log of real personal income.

To illustrate how USPP can be calculated for the first year of being covered by collective bargaining agreements, the estimated net union coverage effects ( $\beta_{\text{union for 0-1 year}} - \beta_{\text{union within the next year}}$ ) are given by 0.159 (S.E. = 0.047) for men and 0.221 (S.E. = 0.059)

for women. Although not reported in the tables, the estimated coefficients on log of real personal income are 0.107 (S.E. = 0.024) for men and 0.064 (S.E. = 0.025) for women, respectively. Based on current average real earnings of £18k (or \$29)<sup>11</sup> per annum for male non-members and £11k (or \$18k) per annum for female non-members, the USPP are approximately £61k (\$98k) and £82k (\$131k) for men and for women. In other words, an average non-covered male worker would require additional pay worth three times his current earnings to feel indifferent about his wages as an average covered male worker in the first year of being covered. An average non-covered female worker, on the other hand, would require additional pay worth up to seven times her current earnings to be just as satisfied about her wages as an average covered female worker in the first year of being covered. Given that income is potentially endogenous in the satisfaction with pay equation, the interpretation of these results is only illustrative and should therefore be read in that spirit.<sup>12</sup>

### Conclusions

In this paper, I have used data from the British Household Panel Survey (Waves 5–15) to study the relationship between job satisfaction and past, contemporaneous, and future union status. The main conclusions of my findings can be set out as follows:

1) *Anticipation (from  $T-4$  to  $T-1$ )*. There is evidence to suggest that, on average, workers select themselves into a unionized firm at  $T$  based on how unhappy they have become with their jobs in the periods before  $T$ . This finding is consistent with the view that a worker's decision on whether to join a unionized firm is endogenously determined (see Hildreth 1999; Budd and Na 2000).

2) *Net union coverage effect (a difference between  $T-1$  and  $T$ )*. In contrast to the popular

findings of zero or even negative effects of union coverage on job satisfaction, this paper finds a positive and significant improvement in workers' job satisfaction in the first year of unionization, an improvement that is statistically robust in both male and female samples. Free-riding also generates positive satisfaction, which seems consistent with studies finding beneficial effects from free-riding on wages (Booth 1985; Chaison and Dhavale 1992; Booth and Bryan 2004). The impact of union coverage on satisfaction with pay is large, as indicated by the calculated USPP, and is larger for women than for men.

3) *Adaptation (from  $T+1$  to  $T+3$ )*. Evidence on adaptation to working in the covered sector is mixed. In terms of overall job satisfaction, there is evidence of a complete adaptation to the initial increase in job satisfaction within one year of working at a unionized firm for both men and women. There is, however, little adaptation to the initial increase in satisfaction with pay following unionization. An alternative explanation to the evidence of a continuing decline in satisfaction in the years that follow unionization is that workers may be adapting their reported satisfaction over time to support their union's bargaining efforts, an explanation consistent with that given by Freeman and Medoff (1984).

These results are important for several reasons. First, the evidence of significant anticipation effects to unionism implies that, in addition to the usual unobserved heterogeneity, there are also omitted time-varying variables that differ between prospective covered workers (both members and non-members) and other "permanent" non-covered workers. Both types of endogeneity will therefore have to be taken into account if one wishes to estimate the causal effects of unionism on job satisfaction. Second, because of the potential free-rider problem, it is important to make clear distinctions between union members, covered non-members, and non-covered workers when constructing a union membership variable. Third, because of adaptation to unionism, it seems pertinent for future studies to control also for the number of years that individuals have been

<sup>11</sup> Exchange rate: £1 = \$1.44 in March 2009.

<sup>12</sup> Other USPP values and coefficients of other variables in the satisfaction with pay equation can be obtained by writing to the author.



members of a trade union. Fourth, there is little difference in the way results are interpreted across gender, suggesting that a separate dynamic fixed-effects analysis of job satisfaction—one for men, and one for women—may not be necessary.

The fifth consequence of these results is purely descriptive. The evidence of a positive and statistically significant coverage effect on all workers at  $T$  suggests that there may in fact be no paradox at all to unionism. In other words, workers' decision to form a union or staff association to negotiate their pay and working environment on their behalf is rational in the sense that they do indeed gain more satisfaction from their jobs in the first year of unionization. However, as the evidence of this paper clearly suggests,

we would also need to take into consideration the adaptation effects to both union membership and union coverage if we want to build a more realistic and accurate economic model of trade unions.

I began by noting the famous paradox of dissatisfied union members. The above results seem to point toward the opposite conclusion—that there is indeed a significant psychological benefit to unionizing, at least in the first year of becoming covered by collective bargaining agreements. In order to explain more systematically why this might be the case, future research should measure underlying psychological factors, including self-esteem and self-worth, and examine these changes in the periods before and after unionization.

**Appendix Table 1A**  
Descriptive Statistics, BHPS 1995–2005

Variable	Men			Women		
	Union-Covered		Non-Unionized Firms	Union-Covered		Non-Unionized Firms
	Union Member	Non-Members		Union Member	Non-Members	
Overall job satisfaction	5.07 (1.35)	5.21 (1.27)	5.27 (1.29)	5.28 (1.34)	5.38 (1.26)	5.50 (1.29)
Job satisfaction: total pay	4.77 (1.49)	4.85 (1.49)	4.81 (1.55)	4.97 (1.51)	4.95 (1.46)	4.90 (1.61)
Job satisfaction: security	5.02 (1.59)	5.20 (1.49)	5.37 (1.47)	5.23 (1.55)	5.43 (1.45)	5.64 (1.39)
Job satisfaction: work itself	5.18 (1.41)	5.27 (1.33)	5.44 (1.30)	5.28 (1.39)	5.32 (1.37)	5.54 (1.31)
Job satisfaction: hours worked	4.96 (1.44)	5.10 (1.36)	4.99 (1.46)	5.28 (1.40)	5.37 (1.32)	5.38 (1.40)
Age	40.31 (10.04)	36.16 (12.32)	36.88 (11.95)	38.69 (10.90)	34.55 (11.24)	37.08 (12.05)
Married	0.64 (0.47)	0.53 (0.49)	0.54 (0.49)	0.63 (0.48)	0.50 (0.49)	0.51 (0.49)
Ln(annual individual income)	9.83 (0.49)	9.64 (0.74)	9.67 (0.77)	9.28 (0.64)	9.13 (0.80)	9.08 (0.81)
Ln(work hours)	3.65 (0.15)	3.64 (0.22)	3.67 (0.23)	3.39 (0.35)	3.34 (0.43)	3.31 (0.50)
Completed college degree	0.07 (0.25)	0.12 (0.32)	0.12 (0.33)	0.06 (0.25)	0.09 (0.28)	0.08 (0.27)
Completed graduate degree	0.01 (0.13)	0.03 (0.17)	0.03 (0.17)	0.01 (0.10)	0.01 (0.12)	0.01 (0.10)

*continued*

**Appendix Table 1A**  
**Descriptive Statistics, BHPS 1995–2005 Continued**

<i>Variable</i>	<i>Men</i>			<i>Women</i>		
	<i>Union-Covered</i>		<i>Non-Unionized Firms</i>	<i>Union-Covered</i>		<i>Non-Unionized Firms</i>
	<i>Union Member</i>	<i>Non-Members</i>		<i>Union Member</i>	<i>Non-Members</i>	
Temporary job	0.02 (0.14)	0.06 (0.24)	0.04 (0.26)	0.02 (0.15)	0.06 (0.23)	0.05 (0.21)
Promotional opportunity	0.58 (0.49)	0.61 (0.48)	0.42 (0.49)	0.60 (0.49)	0.61 (0.49)	0.35 (0.47)
Work size: 1–24	0.13 (0.34)	0.17 (0.39)	0.43 (0.49)	0.21 (0.41)	0.20 (0.39)	0.53 (0.49)
Work size: 25–199	0.70 (0.46)	0.69 (0.47)	0.52 (.50)	0.67 (0.47)	0.66 (0.47)	0.44 (0.49)
Health: very good	0.27 (0.45)	0.28 (0.45)	0.29 (0.45)	0.22 (0.41)	0.24 (0.43)	0.24 (0.43)

**Appendix Table 2A**  
**Number of Leads and Lags to Working in a Union-Covered Firm, BHPS (1995–2005)**  
**A. Leads**

<i>Leads</i>	<i>Male Workers</i>			<i>Female Workers</i>		
	<i>Total</i>	<i>Will Join Union in the 1<sup>st</sup> Year</i>	<i>Will Not Join Union in the 1<sup>st</sup> Year</i>	<i>Total</i>	<i>Will Join Union in the 1<sup>st</sup> Year</i>	<i>Will Not Join Union in the 1<sup>st</sup> Year</i>
Union coverage 4 years hence	<b>234</b>	57	177	<b>202</b>	50	152
Union coverage 3 years hence	<b>374</b>	110	251	<b>290</b>	69	202
Union coverage 2 years hence	<b>633</b>	181	410	<b>486</b>	127	307
Union coverage within the next year	<b>1,203</b>	343	772	<b>971</b>	273	577

**B. Lags**

<i>Lags (Male Workers)</i>	<i>Total</i>	<i>Covered Non-Members</i>	<i>Member for 0–1 Year</i>	<i>Member for 1–2 Years</i>	<i>Member for 2–3 Years</i>	<i>Member for 3 Years or More</i>
Union coverage 0–1 year	<b>2,706</b>	1,318	1,198	-	-	-
Union coverage 1–2 years	<b>1,478</b>	502	108	773	-	-
Union coverage 2–3 years	<b>950</b>	264	47	50	543	-
Union coverage 3 years or more	<b>3,348</b>	795	79	78	80	2,204

*continued*

**Appendix Table 2A**  
**Number of Leads and Lags to Working in a Union-Covered Firm, BHPS (1995–2005)**  
**B. Lags Continued**

<i>Lags (Female Workers)</i>	<i>Total</i>	<i>Covered Non-Members</i>	<i>Member for 0–1 Year</i>	<i>Member for 1–2 Years</i>	<i>Member for 2–3 Years</i>	<i>Member for 3 Years or More</i>
Union coverage 0–1 year	<b>1,843</b>	967	687	-	-	-
Union coverage 1–2 years	<b>957</b>	372	92	390	-	-
Union coverage 2–3 years	<b>613</b>	213	41	44	258	-
Union coverage 3 years or more	<b>1,873</b>	607	83	59	79	940

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