Institute of Education

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Working Paper No. 16-15
December 2016

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Gender Differences in the Union Wage Premium? A Comparative Case Study

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Abstract

Trade unions have transformed from male-dominated organisations rooted in manufacturing to majority-female organisations serving predominantly white-collar workers, often in the public sector. Adopting a comparative case study approach using nationally representative linked employer-employee surveys for Norway and Britain we examine whether, in keeping with a median voter model, the gender shift in union membership has resulted in differential wage returns to unionisation among men and women. In Britain, while only women receive a union wage premium, only men benefit from the increased bargaining power of their union as indicated by workplace union density. In Norway, on the other hand, although a union wage premium arises from individual union membership for men and women in male-dominated unions, in workplaces where the union is female-dominated women benefit more than men from the increased bargaining power of the union as union density rises. The findings suggest British unions continue to adopt a paternalistic attitude to representing their membership, in contrast to their more progressive counterparts in Norway.

JEL codes: J28; J51; J81; L23; 031
Keywords: Trade unions; Collective bargaining; Union density; Wage premium; Gender

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Acknowledgements: We thank the Norwegian Research Council for funding (grant number 2271 l7/H20) and participants at the Colloquium on Personnel Economics 2016 in Aachen and the CORE seminar in Oslo for comments. Alex Bryson thanks the sponsors of the Workplace Employment Relations Survey 2011 (Department for Business Energy and Industrial Strategy, Acas, ESRC and NIESR) and the UK Data Archive for access to the WERS data. Corresponding author: Alex Bryson a.bryson@ucl.ac.uk.

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1. INTRODUCTION

Unions are in secular decline. Union membership has been falling for decades in much of the developed world (Schnabel, 2012), and collective bargaining is under threat, even in countries like Germany where sectoral bargaining was previously regarded as a fixed feature of the economic landscape (Addison et al., 2011). However, two salient features of unionisation often go unnoticed in discussion of the economic effects of trade unionism. The first is that unions continue to procure a wage premium for covered employees. There is little evidence to suggest a substantial decline in the size of the union wage premium, at least in the Anglo-Saxon countries where evidence is available (Blanchflower and Bryson 2003, 2007; Forth and Bryson, 2015). Second, there has been a remarkable transformation in the composition of the unionised workforce. In a number of countries unions are now majority-female membership organisations serving predominantly white-collar workers, often in the public sector (Schnabel and Wagner, 2007). For example, in Britain and Norway - the two countries examined in this study - union density has been greater among women than men since the early 1990s and 2000s, respectively (Figures 1a and 1b). Women now make up the majority of union members in the UK (Department for Business, Innovation and Skills, 2015, Figures 1 and 2). This feminisation of the union sector has outstripped underlying compositional change in the workforce at large, though the union sector has also become increasingly educated, older, and more white collar in both countries (Figure 2a and 2b).

[INSERT FIGURES 1 AND 2]

As voluntary, democratically-run membership organisations, it seems reasonable to assume that trade union representatives, intent on re-election, will aggregate their members' preferences and seek to maximise the benefits accruing to the median member, as one might anticipate under a median voter model (Booth, 1994: 112-113; Atkinson and Stiglitz, 1980).

The dominant model used to examine union effects on wages is the monopoly union model under which unions seek to monopolise the supply of labour to an employer in order to maximise the union's bargaining power (Hicks, 1932). The median voter model can be accommodated in this setting with the union maximising the utility of the median member rather than that of the representative member. The shift in

unions' membership base means that the median voter is increasingly likely to be a woman. We therefore hypothesise that women are increasingly likely to benefit from the bargaining behaviour of unions, compared to men.

There is a countervailing view in which unions are characterised as hierarchical, bureaucratic organisations run by apparatchiks maximising the utility of the organisation, rather than its membership. Under this model there is a separation between the interests of union functionaries - the union representatives - and the rank-and-file membership (Pemberton, 1988; Dunlop, 1944). This results in a failure of the union to represent adequately its members' interests. This issue is particularly acute in the case of women for two reasons. First, union representatives have long tenure. Because they have been *in situ* for some time they tend not to be drawn from the ranks of the current membership. Instead, they reflect the demographics of past cohorts of members who were predominantly male and white.

The second reason why women face particular problems in receiving adequate representation by their union is that the jobs they undertake and the employers they work for are often among the most difficult to reach. This arises because women are more likely than men to work in the secondary labour market, either on non-standard contracts on the periphery of the firm, or in small firms. The marginal costs unions face in representing such workers are high relative to the costs of representing those in the primary sector including those in larger firms. For these reasons it is possible that women do not benefit from their majority status in the union movement, in which case our alternative hypothesis is that women will not benefit from a larger union wage premium than men.

In addition to the two countervailing hypotheses outlined above we test a third hypothesis relating to the differential ability of trade unions to address gender equality issues in Britain and Norway. There is substantial evidence that unions in Britain have been slow to address issues that are salient for women. There is an on-going debate as to the extent to which union structures and behaviours have adjusted to accommodate the needs of this new clientele, especially the extent to which unions are able to tackle gender equality (Beirne and Wilson, 2015). Debate

on this topic has spawned the term "male, pale and stale" to caricature those representing union members today.[4]

Summarising their analysis of the changing characteristics of shop stewards and union members in Britain over the period 1980-2004 Charlwood and Forth (2009: 85) conclude "senior shop stewards may have become less representative of the wider union membership over the previous twenty-five years, rather than more so", potentially undermining their ability to address adequately gender equality issues. For example, reflecting on the genesis of equality legislation in the UK Dex and Forth (2009: 231) say "unions often had their own internal struggles about taking equality seriously as the old male-dominated leadership and agendas had to face the reality of the growth in women's trade union participation and demands. Some pioneer legal cases fought and led by women did, however, help to turn around union agendas". Unions in Britain have since been successful in negotiating improvements in workplace policies and practices that have been of particular benefit to primary carers, most of whom are women (Budd and Mumford, 2004; Bryson and Forth, 2016).

The situation appears very different in Norway, both in terms of the incidence of unionisation and the role unions play. Whereas Britain is a quintessential liberal Anglo-Saxon economy with low unionisation rates and virtually non-existent sectoral bargaining Norway has among the highest levels of union density in the world and a fairly centralised bargaining system incorporating strong sectoral-level bargaining in combination with local bargaining.[5] In terms of trends, Britain has experienced very substantial de-unionisation since the late 1970s when union density was at the level it currently stands at in Norway. In Norway, on the other hand, union density and union structures have been relatively stable for many decades, although, in keeping with other Scandinavian countries, both union density and collective bargaining coverage are gradually declining (Barth and Nergaard, 2015; Nergaard et al., 2015). Norway is also noted for the degree to which it has achieved gender equality in the social, political and economic domains, with unions to the fore in promoting it

[4] This phrase has been attributed to Frances O'Grady who, at the time, was Head of the TUC's New Unionism Project (Metcalf et al., 2001: 73). Now, as General Secretary of the TUC, she is the most powerful trade unionist in Britain.

[5] For a comparison of union bargaining structures in the two countries see Bryson and Dale-Olsen (2015).

(Paraskevopoulou and McKay, 2015). We therefore hypothesise that unions in Norway are more likely than those in Britain to use their workplace bargaining power to further women's interests.

Adopting a comparative case study approach using nationally representative linked employer-employee surveys for Norway and Britain we examine whether, in keeping with a median voter model, the gender shift in union membership has resulted in differential wage returns to unionisation among men and women. In Britain, while only women receive a union membership wage premium, only men benefit from the increased bargaining power of their union as indicated by workplace union density. In Norway, on the other hand, there is no union wage premium arising from individual union membership for men or women across workplaces as a whole. However, in workplaces where the union is female-dominated women benefit more than men from the increased bargaining power of the union as union density rises. In Norwegian workplaces where the union is male-dominated men and women both benefit to a similar degree from rising union density. The findings suggest British unions continue to adopt a paternalistic attitude to representing their membership, in contrast to their more progressive counterparts in Norway.

The remainder of the paper is organised as follows. Section Two briefly reviews the literature on the union wage premium and the role of unions in tackling gender issues. Section Three describes our data and outlines the empirical approach. Results are presented in Section Four before concluding in Section Five.

2. PREVIOUS LITERATURE

The union wage premium literature is dominated by studies for Anglo-Saxon countries. There have been some exceptions but commentators continue to bemoan the absence of studies elsewhere (Bryson, 2014). The Anglo-Saxon literature has traditionally focused on union membership as its preferred measure of union presence, partly for pragmatic reasons since most household surveys used to estimate the premium lack other union measures. This is not usually thought to be a big problem since other union measures tend to be strongly positively correlated with membership. Recent contributions to this literature have suggested that there has been a slow, small secular decline in the union membership wage premium

(Blanchflower and Bryson, 2007; Forth and Bryson, 2015). Some have suggested this reflects declining union bargaining power due to an intensification of product market competition arising through global competition, often from non-unionised producers, together with falling union membership (Brown et al., 2009). The latter is thought to affect employer responses to union wage claims because unions' ability to monopolise the supply of labour to the employer falls with declining membership.[6]
Much of the literature is confined to union effects in the private sector, in part because interest lies in how unions affect wages in a scenario in which they would otherwise be set by the market. However, the public sector is heavily unionised. Indeed, in Britain, public sector workers constitute the majority of all union members (Figure 2a). In Norway the public sector accounts for about half of all union members, a situation that has been roughly constant since the mid-1990s (Figure 2b). It therefore makes sense to compare and contrast union effects on wages across the whole economy. One of the few studies to do so found union membership wage effects were substantially higher in the public sector than they were in the private sector, perhaps because union strength in the sector and the absence of overt product competition make it easier for unions to capture rents (Blanchflower and Bryson, 2010).

Union wage setting has the capacity to increase gender wage equality by driving out discriminatory employer behaviour and by attaching wage rates to jobs rather than workers (Flanders, 1970; Slichter et al., 1960). This is what Flanders (1961) termed unions' "sword of justice" effect. Using data for 1998 Metcalf et al. (2001: 72) confirm that unions in Britain narrowed male/female wage differentials by delivering a much higher union wage premium for women than for men.[7] Other studies for Britain also find unions have a bigger positive effect on wages for women than they do for men (Harkness, 1996; Swaffield, 2000).

[6] The literature also confirms counter-cyclical movement in the union wage premium in Britain and the United States (Blanchflower and Bryson, 2007; Forth and Bryson, 2015). This counter-cyclical wage gap is sometimes attributed to the ability of unions to resist downward wage adjustments which employers find easier to achieve in the absence of a union though it might also be due to high-wage risk-averse workers sorting into union coverage for insurance in cyclical downturns (Bryson, 2010).
[7] The other factor driving the size of the union effect on wage inequality between men and women is the proportion of men and women in union membership, but this was fairly similar in their data, as in ours. The union effect on wage dispersion among women is a different matter. This will depend upon which women join unions and possible heterogeneity of the union wage premium at different parts of the wage distribution. Card et al. (2007) found that, while unions have an equalising effect on wages for men in the UK, the US and Canada, they increased wage dispersion among women in all three countries.

However, some studies for Britain reach different conclusions. Millward and Woodland (1995) find unions only increased men's pay and that this effect was confined to circumstances in which unions had strong workplace organisation. The inconsistency in previous studies may partly reflect differences in data sets used, the measures of unionisation and model specifications. It is also possible that union effects may have changed since these studies were conducted given the changes in the gender composition of the union and non-union sectors noted in the introduction.

Blanchflower and Bryson (2010) estimate trends in the union wage premium by gender in the public and private sectors for the periods 1993-1999 and 2000-2006. They find the union wage premium for women is larger than that for men in both the public and private sectors in both periods. For both sexes the premium is roughly constant in the public sector but falls in the private sector.[8]

For the United States Rosenfeld (Rosenfeld, 2014: 72-73) found the private sector union wage premium was persistently higher for men than it was for women over the period 1973-2009. Furthermore, the premium remained constant for men but declined for women. Blanchflower and Bryson (2003) also undertake analyses for the United States. They find the wage premium was slightly higher among women in the 1970s compared to men but they find the premium had fallen markedly for women by the 1990s. However, Blanchflower and Bryson (2003) show the situation was quite different in the public sector: throughout the 1980s and 1990s the union membership wage premium stood at around 10 percent for men compared with 16-17 percent for women.

The Norwegian literature on the union wage premium is limited. There is no empirical evidence on trends in union wage premia by sector and gender in Norway. Using Norwegian manufacturing plant data Balsvik and Sæthre (2014) identify an average union density wage premium effect of 6.7 percent for the period 1996-2007 so that when union density increases by 10 percentage points wages increase by 0.67

[8] Among men the membership premia were as follows: private (public) sector 1993-1999: .06 (.05) log points; 2000-2006 .03 (.06) log points. Among women the membership premia were: private (public) sector 1993-1999: .12 (.16) log points; 2000-2006 .08 (.15) log points.

percent. Similar figures were found by Barth et al. (2000) on 1989 survey data. This latter study also exploits individual level data and found that there was no individual union membership effect when one took union density into consideration, indicating that the union wage effect is a pure public good.

There are a number of difficulties interpreting wage gaps between union members and non-members as a premium attributable to the activities of trade unions. In both Britain and Norway employees are free to choose whether or not to be a union member, so are likely to do so based on their assessments of the costs and benefits. In this setting unobserved factors correlated with both membership and wages will result in an upward bias in estimates of a union wage premium. If selection on unobservables differs across men and women it is not possible to assert that any gender differentials in the union wage premium based on OLS estimates capture the causal impact of unions on women's relative to men's wages.[9] Earlier research points to potential upward biases through the omission of workplace characteristics since unions are more likely to organise in higher paying workplaces where unions are able to bargain over surplus rents (Blanchflower and Bryson, 2004; Brown et al., 2009). We are able to account for some of this bias using linked employer-employee data containing rich workplace covariates and, for both Britain and Norway, we can account for bias associated with workplace fixed unobservable traits by estimating workplace fixed effects models where our data contain multiple employee observations per workplace.

Perhaps a better indicator of unions' ability to affect wages is workplace union density. In the literature this is often treated as a proxy for union bargaining power (Booth, 1994). If, as some hypothesise (eg. Brown et al., 2009) product market competition is increasingly squeezing unions' ability to extract surplus rents from

[9] Recent laboratory and field research on gender differences in bargaining reveal that women may be less successful negotiators, both when it comes to initiating negotiations (Babcock and Laschever, 2003; Bowles et al., 2005) and for outcomes (Save-Soderbergh, 2007; Castillo et al., 2012; Card et al., 2013; Artz et al., 2016). This may affect their propensity to unionise and the outcomes of negotiations in male and female-dominated union settings. Although women are thought to be more altruistic and oriented towards cooperation, the empirical evidence on this in the experimental literature is mixed and ambiguous (Niederle, 2015). There is also some evidence to suggest women are more risk-averse than men (Borghans et al., 2009; Niederle, 2015). This may mean they value the insurance component of the union good more than men, increasing their relative propensity to unionise, and perhaps to trade higher wages for greater certitude. Whatever the merits or demerits of these considerations they bargaining ability and risk aversion are unobservable in our data, so we are unable to account for their potential effects on gender differences in the union wage premium.

employers we might find union density no longer plays a significant role in wage determination.[10]

3. DATA AND EMIRICAL APPROACH

3.1 DATA

Our data are the British Workplace Employment Relations Surveys 2004 and 2011 (WERS 2004 and 2011) and Norwegian linked employer-employee register data for the period 1995-2012 provided by the Statistics Norway. We focus on 2004 and 2011 for comparison purposes. The analyses presented below are confined to employees in workplaces with at least 5 employees which is the lower bound threshold for inclusion in WERS.

Information in WERS was acquired through face-to-face interviews which were conducted with the manager at the workplace responsible for employment relations. The response rate was 64%.

Unionization

We identify union wage effects using two measures of unionization. The first is individual union membership status (1=union member, 0=non-member). This is obtained via an employee survey in WERS whereas in Norway the data are taken from an administrative register. Our second measure is workplace union density which is often viewed as a useful proxy for union bargaining power. In WERS the density measure is derived from questions asked of the HR Manager whereas in NWERS it is derived from administrative data.

Wages

Our wage equations estimate log hourly wages at individual employee level having dropped outliers at the top and bottom 1 percent of earners. WERS does not collect continuous data on employees' wages; instead it asks employees to categorize their gross weekly earnings into one of 14 bands ranging from 'less than £60 per

[10] Currently we ignore the potential endogeneity of union membership and union density. We simply present conditional associations, as is common in the literature, although our linked employer-employee data provide us with a richer set of covariates which reduces, although by no means eliminates, the likelihood of estimation bias due to omitted variables.

week/£3120 per year' through to "£1051 or more per week/£54601 per year".[11] To obtain a continuous measure of gross hourly earnings the convention is to take the mid-point of the respondent's earnings band and divide this by the survey's continuous measure of hours worked (which includes overtime).[12] It is also conventional to top-code those in the top category, which has no ceiling, using an earnings figure that is 1.5 times the lower bound of this top category. We check whether these procedures introduce error into the dependent variable by imputing earnings within the bands using wage data from the Annual Survey of Hours and Earnings (ASHE).[13] A comparison of imputed gross hourly earnings based on the conventional approach with those based on our new ASHE-based method indicates a correlation between the two measures is 0.99.

The Norwegian hourly wage measure is calculated as the job spell-specific earnings reported to the tax authorities relative to the spell-specific contracted weekly working hours multiplied the spell duration measured in week. This measure comprises all wages, sick pay and taxable fringe benefits (such as a company car, stocks and stock options). To ease interpretation, we derive the equivalent values in pound by using the NOK-pound average yearly currency rates for 2004 and 2011.

3.2 EMPIRICAL APPROACH

We present descriptive evidence on trends in union membership and workplace union density before estimating union effects on wages in 2003/4 and 2011/12. The effects of unions on wages are captured with an individual-level analysis. The analysis for Britain is weighted for the inverse of the probability that the employee will

[11] The wage is based on employee responses to the question: "How much do you get paid for your job here, before tax and other deductions are taken out? *If your pay before tax changes from week to week because of overtime, or because you work different hours each week, think about what you earn on average.*" There is no explicit instruction to respondents as to whether to include performance payments and, since respondents may not have annual bonuses in mind when making the calculation, this earnings measure may understate earnings variance associated with performance pay.

[12] The question asks: 'How many hours do you usually work each week, including any overtime or extra hours?'

[13] ASHE is a random sample of 1 per cent of all employees in Britain based on the last two digits of their National Insurance number. The employer is required by law to provide the information which is based on payroll records; it is therefore highly reliable and there is no top-coding. We use the ASHE measure of annual earnings, divided by hours worked in the reference period. The advantage of the annual earnings measure is that it includes all payments made to an employee over the year, including cash and bonus payments made in months other than April. A focus solely on April wages would lead to a substantial underestimate of bonuses paid to employees (Forth et al., 2013). ASHE has no measure of annual hours worked. For each employee in WERS, we impute a gross hourly wage by using ASHE to estimate the mean hourly wage of all employees within the hourly wage interval indicated by the WERS data.

be sampled and standard errors are clustered at workplace-level to account for the non-independence of observations. The analysis for Norway is based on population data so weights and clustering are not needed.

First we present the raw member-non-member log hourly wage gap in 2003/4 and 2011/12. Then we recover a regression-adjusted gap having conditioned on individual (gender, age, and education), job (occupation, hours and tenure) and workplace (industry, size and location) traits that are standard in the literature. Then we present a workplace fixed effects model identifying the wage differential between observationally equivalent workers at the same workplace, having accounted for fixed unobservable traits of the workplace. For Norway only we draw on panel linked employer-employee data to estimate the effects of changes in individual union membership and changes in workplace-level union density on employees' wages.

All analyses are run separately by gender for the whole economy (separate analyses for the private sector only yield qualitatively similar results and are available from the authors upon request).

5. RESULTS

Table 1 presents descriptive information on union membership rates in Britain (Table 1a) and Norway (Table 1b). In both countries the percentage of employees who are union members is roughly constant over time, both in the private and public sectors, with density considerably higher in the public sector (three times higher in Britain and around two times higher in Norway). The stability in union density in Britain confirms previous work using WERS for this period (van Wanrooy et al., 2013)[14] and contrasts with the remarkable rate of union decline experienced in the 1980s and 1990s (Millward et al., 2000). The tables also show unionisation rates are much higher in

[14] This stability seems somewhat surprising given the depth of the economic recession that began in 2008, yet it is also apparent in other European countries (see Amossé et al., 2016 for France and Roche et al. (2013) for Ireland).

Norway than they are in Britain. This is the case in the public as well as the private sector.

[INSERT TABLE 1]

The bottom row in each table reveals the way union members are dispersed across workplaces. Very few workplaces have no union members in Norway whereas, in Britain, over four-in-ten workplaces have no union members. This rises to six-in-ten in the private sector. Whereas around a quarter of workplaces in Britain have union density of 50 percent or more, this is the case in nearly two-thirds of workplaces in Norway (and almost 100 percent in the public sector). These distributions of union members across workplaces are fairly stable over the period.

[INSERT TABLE 2A]

Table 2a presents the union membership wage premium in Britain for the whole economy for women and men separately. Among women the raw hourly wage gap between members and non-members is around 0.2 log points and does not vary much over time. Much of this raw differential is accounted for by observable demographic, job and workplace traits but a sizeable and statistically significant union wage premium persists. The premium is 0.06 log points in 2004 and a little higher in 2011. Women's wages do not rise with union density.

For men, once controls are introduced there is no evidence of a union wage premium, either in 2004 or 2011. Even the raw membership wage gap apparent in 2004 has disappeared by 2011. However, in contrast to women, men’s wages rise with union density, albeit non-monotonically, an effect that is stronger in 2011 than it was in 2004. These results are replicated when we confine the analysis to the private sector. The effects are quantitatively large. For example, in the whole economy model, those men exposed to 100 per cent union membership at their workplace earned 0.14 log points more than an observationally equivalent man in a workplace where nobody was a union member.

A premium of a similar size is apparent when estimates are run for the private sector only, although the fixed effects estimate for 2011 is somewhat smaller and non-significant (0.03 log points).[15] However, in both the whole economy and the private sector women's wages do not rise with workplace union density.

The implications from the British OLS analysis by gender are the following. First, and unexpectedly, there is little evidence of positive selection into union membership among men on observable traits - certainly by 2011 - whereas it is very evident among women, as indicated by the reduction in the size of the raw wage gap when controls are added to the model. Second, there is a substantial and persistent union wage premium in Britain, but it is confined to women. This is the case in whole economy and private sector estimates. Third, only men benefit from higher union density. One possible interpretation of this union density effect is that unions use their bargaining power at the workplace to deliver wage increases for men, but not for women. Women do benefit, on average, from their union membership since they receive a wage premium, but there is no additional benefit arising from the additional bargaining power unions have via higher density. The fact that the union membership wage premium is confined to women is consistent with unions maximising their members' benefits according to a median voter model, although we can not discount the possibility that union membership may be picking up the effects of women's unobservable traits that are correlated both with union membership and wages. The fact that increasing union density does not benefit women runs counter to the proposition that unions will use the additional bargaining power they derive from higher bargaining power to deliver greater benefits to their median voters, namely women.

A precise test of the median voter proposition requires information on the gender split of union members by workplace to distinguish majority male and majority female unions. WERS does not collect these data for all workplaces. However, we can identify circumstances in which the majority of union members are female at the workplace using membership data from the subset of employees who return an employee questionnaire. To minimise measurement error we run analyses for the subset of employees where all employees at the workplace submitted a

[15] The full results for the private sector analyses are available from the authors on request.

questionnaire return. We pooled data for both years given the low estimation sample (826 observations in 93 workplaces). This confirmed that, conditioning on individual union membership, women only received a wage premium associated with union density when a majority of union members were women.[16] However, this is an imperfect test given the non-random nature of this estimation sample.

[INSERT TABLE 2B]

In Norway the raw gap between union members and non-members is substantial among women but the regression adjusted differential is small: in 2004 it is 0.01 log points but by 2011 it has become zero (Table 2b). Among men a sizeable raw wage premium disappears with the addition of controls such that men faced a union wage penalty of 0.02 log points in 2004 and no significant effect in 2011 (Table 3b). In contrast to Britain, the wages of both men and women rise substantially in workplaces with higher union density in Norway. In both cases this effect strengthens between 2004 and 2011.[17]

[INSERT TABLE 3]

Both Britain and Norway face the challenge of gender labour market segregation, with Norway having slightly higher levels of segregation than Britain (European Commission, 2009). One aspect of this is segregation across workplaces. Table 3 abstracts away from this by estimating the union wage returns for members in the same workplace based on workplace fixed effects models. These indicate a sizeable union membership premium for women only in Britain whereas, in Norway, there is no significant effect of membership for women's wages while male union members suffer a small wage penalty relative to their non-member counterparts.

[16] This premium was .44 log points raw (t=2.78) and .26 log points (t=1.67) conditioning on demographic and workplace characteristics. In the private sector the figures were .55 log points raw (t=3.31) and .35 log points (t=2.06) with controls.

[17] In the private sector the individual membership premium was .55 log points raw (t=3.31) and .35 log points (t=2.06) with controls.

The similarity between the OLS and workplace fixed effects models in the British and Norwegian analyses suggests that worker selection across workplaces plays little role in the determination of the union wage premium in either country.

[INSERT TABLE 4]

For Norway only we are able to draw on panel linked employer-employee data to estimate the effects of changes in individual union membership and changes in workplace-level union density on employees' wages, and we can also identify whether unions are male-dominated or female-dominated. The results, presented in Table 4, indicate that women earn considerably less than men in the same workplace, but that this effect is ameliorated a little by being a union member, as indicated by the positive coefficient on the interaction between membership and being a woman in the first four columns. In workplaces where the union is female-dominated (column 3) women benefit more than men from the increased bargaining power of the union as union density rises. Where the union is male-dominated (column 4) men and women both benefit to a similar degree from rising union density (although there is a small negative premium for women where union density is under 75 percent).

The last four columns of Table 4 examine union effects on workers who have switched union status over time, and thus where we are able to completely control away individual productivity differentials. Both men and women benefit from individual union membership under male dominated unions only (column 4 vs column 3). However, where the union is female-dominated increasing union density has a disproportionately large positive effect on women's wages, as indicated by the positive and statistically significant interaction terms in the penultimate column in Table 4. Men do not benefit in a similar fashion from male-dominated unionised workplaces (final column), where both men and women receive the same benefits from increasing union density.

5. CONCLUSION

We investigate union wage effects on men and women using nationally representative linked employer-employee data for Britain and Norway over the

period 2003-2012. In Britain there is a union wage premium of 6-7% for women but no premium among men. These findings are apparent in estimates for both the whole economy and the private sector only. However, higher union density only raises *men's* wages, not women's. Thus, although women appear to benefit from their investment in union membership, there are no additional returns to being in a workplace where union bargaining power is strengthened through high union density, raising questions about the extent to which unions are focused on using their organisational strength to tackle gender wage inequality.

Consistent with earlier research for Norway unions are unable to procure a wage premium for their members. Indeed, if anything, union members suffer a wage penalty across workplaces in general. Norwegian men experience a small union membership wage penalty of 1-2%. Among women a small union premium of 1-2% in 2004 disappears by 2011. However, the wages of both men and women rise substantially in workplaces with higher union density in Norway, consistent with the idea that union efforts to raise wages at workplace level result in a public good. Furthermore, the wage returns from increasing union density are larger for women than they are for men when the union is female-dominated, a finding that is consistent with the median voter model.

The median voter model receives only limited support in Britain: only women receive a union membership wage premium and, in the small unrepresentative sample where we observe the gender composition of the union, women see their wages rise with union density. However, in general, only men benefit from higher union density in Britain, despite women being the median union voters. The returns to union density are more equitably distributed in Norwegian workplaces where the union is male-dominated, perhaps reflecting unions' desire to address gender equity issues at the workplace. Furthermore, where unions are female-dominated, the wage premium attached to higher density is greater for women than it is for men, consistent with the median voter model. The findings suggest British unions continue to adopt a paternalistic attitude to representing their membership, in contrast to their more progressive counterparts in Norway where higher union bargaining power at workplace level, as indicated by union density, benefits both men and women.

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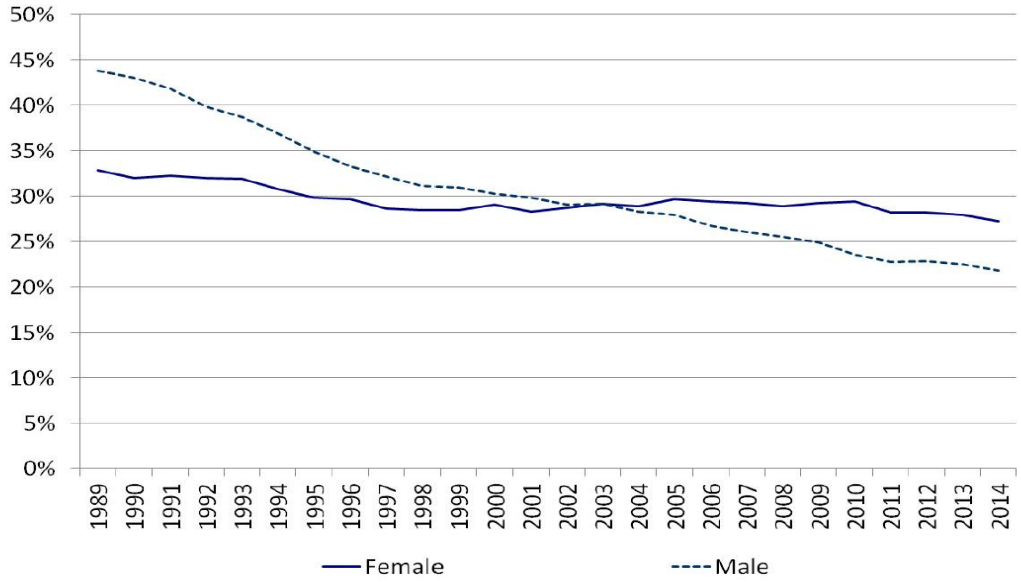
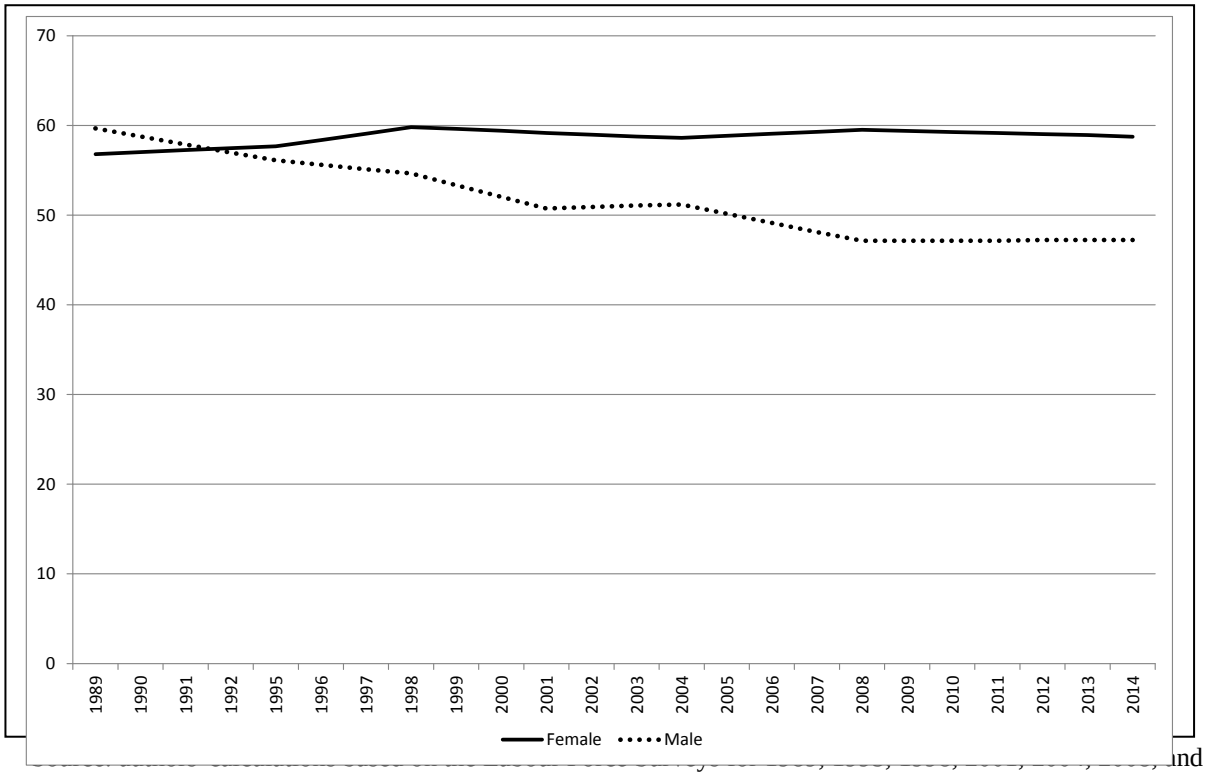
Figure 1a: Union Membership Density in Britain, 1994-2014, Labour Force Survey



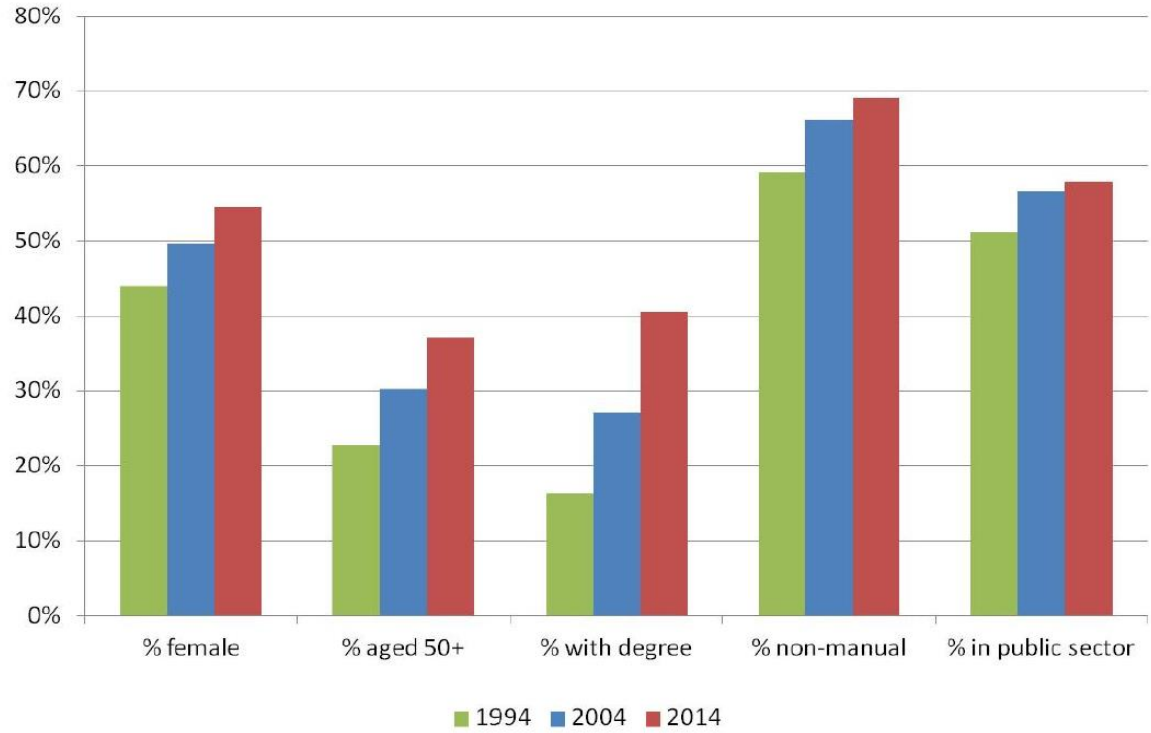
Source: Bryson and Forth (2015)

Figure 1b: Union Membership Density in Norway, 1994-2014, Labour Force Survey



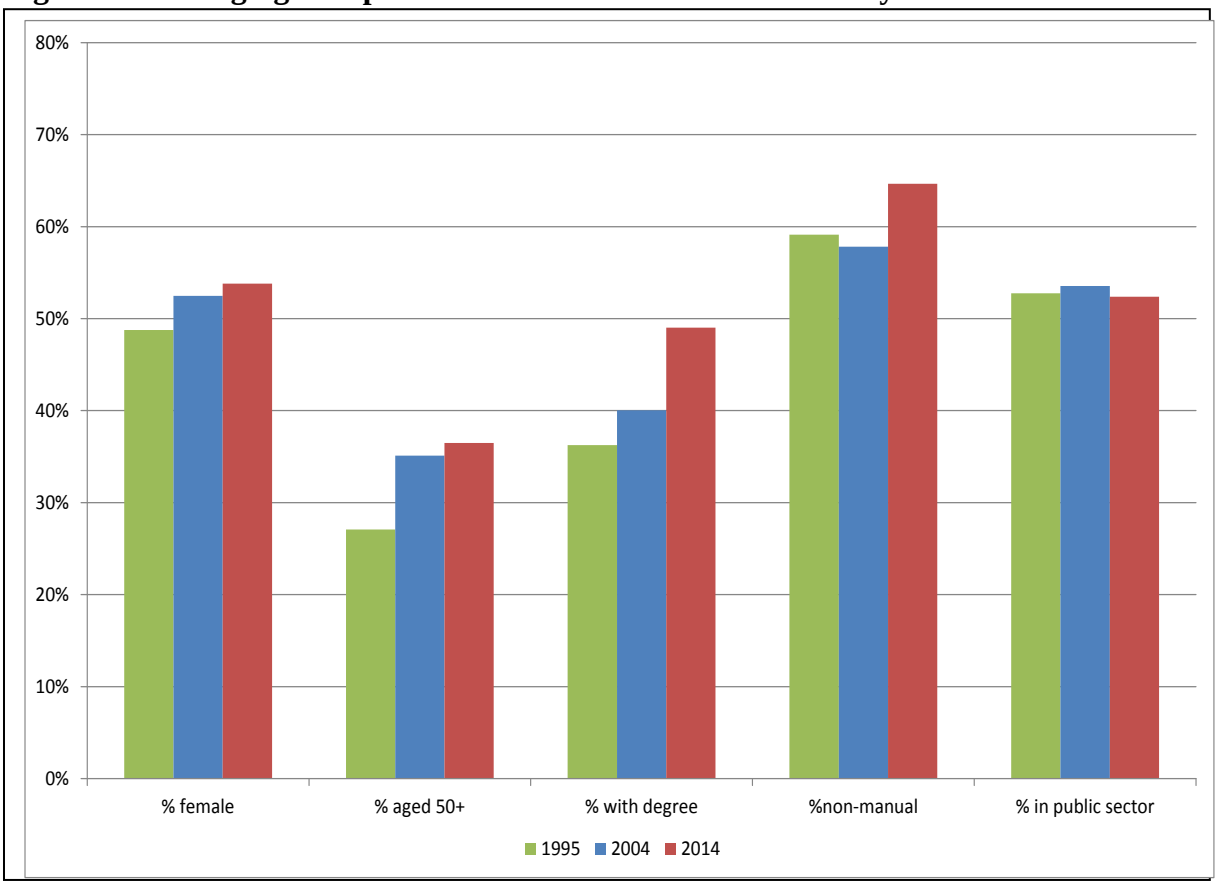
2014. Data for the intervening years are interpolated. We thank Fafo for access to these special versions of the Norwegian LFS.

Figure 2a: Changing Composition of the Union Sector in Britain



Source: Bryson and Forth (2015)

Figure 2b: Changing Composition of the Union Sector in Norway



Note: authors' calculations, Norwegian Labour Force Surveys

Table 1a: Unionisation in Britain, 2004-2011

	2004			2011		
	Private	Public	All	Private	Public	All
% member	20	64	31	19	61	29
Workplace union density:						
Zero	57	2	43	60	3	47
1-49%	26	35	29	27	39	28
50%+	17	63	28	13	58	25

Note: Workplace Employment Relations Surveys. Workplaces with 5+ employees. Employee weighted

Table 1b: Unionisation in Norway, 2004-2011

	2004			2011		
	Private	Public	All	Private	Public	All
% member	45	78	57	42	80	56
Workplace union density:						
Zero	12	0	07	10	0	06
1-49%	41	3	27	47	2	31
50%+	47	97	66	43	98	63

Note: Population-wide register data 2004-2011. Employees in workplaces with 5+ employees.

Table 2a: Female and Male Union Wage Premium Whole Economy. Britain. OLS.

	Female				Male			
	No controls 2004	No controls 2011	Controls 2004	Controls 2011	No controls 2004	No controls 2011	Controls 2004	Controls 2011
Member	0.23***	0.19***	0.06***	0.09***	0.08***	-0.03	0.02	0.00
	(13.79)	(9.42)	(6.20)	(6.49)	(3.98)	(-1.23)	(1.40)	(-0.02)
Workplace union density (ref: 0%)								
1-24%			0.01	0			0.03	0.09***
			(0.77)	(0.03)			(1.50)	(3.82)
25-49%			-0.01	0.01			-0.01	0.05
			(-0.37)	(0.48)			(-0.41)	(1.49)
50-74%			0.02	0.03			0.05**	0.12***
			(1.00)	(1.18)			(2.04)	(4.01)
75-99%			0.02	0.02			0.06**	0.11***
			(0.99)	(0.72)			(2.49)	(3.71)
100%			0.05	0.02			0.03	0.14***
			(1.39)	(0.43)			(0.36)	(3.88)
r2	0.05	0.03	0.54	0.53	0.01	0	0.59	0.62
N	11165	10888	10974	10668	9809	8640	9682	8460

Notes: Workplace Employment Relations Surveys 2004-2011. Employees in workplaces with 5+ employees. Controls: age (6 dummies); highest qualification (8 dummies); workplace tenure (5 dummies); usual weekly hours (5 dummies). OLS workplace controls: 2-digit industry; located in capital city; N employees; N employees squared; 2-digit occupation; union density (7 dummies). t-statistics in parentheses. Significance tests: * 90% ** 95% *** 99%

Table 2b: Female and Male Union Wage Premium Whole Economy. Norway. OLS.

	Female				Male			
	No controls 2004	No controls 2011	Controls 2004	Controls 2011	No controls 2004	No controls 2011	Controls 2004	Controls 2011
Member	0.18***	0.20***	0.01***	-0.00	0.12***	0.17***	-0.02***	-0.00
	(52.52)	(60.46)	(5.16)	(-1.44)	(17.08)	(23.59)	(-5.80)	(-1.36)
Workplace union density (ref: 0%)								
1-24%			0.02***	0.06***			0.04***	0.08***
			(3.91)	(9.46)			(7.10)	(13.95)
25-49%			0.09***	0.14***			0.08***	0.15***
			(14.04)	(20.11)			(8.70)	(21.10)
50-74%			0.16***	0.23**			0.10***	0.17***
			(26.04)	(34.86)			(13.50)	(21.32)
75-99%			0.15***	0.23***			0.12***	0.18***
			(22.95)	(29.67)			(13.91)	(18.72)
100%			0.12***	0.18***			0.13***	0.22***
			(17.84)	(24.62)			(13.62)	(24.37)
r2	0.03	0.04	0.22	0.26	0.01	0.03	0.30	0.30
N	880009	1003065	880009	1003065	907684	1043414	907684	1043414

Notes: From Norwegian tax authority employment registers. See Table 2a on controls.

Table 3: Female and Male Union Wage Premium Whole Economy. Britain and Norway. Workplace Fixed Effects with controls.

	Britain				Norway			
	Female 2004	Female 2011	Male 2004	Male 2011	Female 2004	Female 2011	Male 2004	Male 2011
Member	0.06***	0.07***	0.00	0.00	0.02***	0.00	-0.02***	-0.01***
	(5.72)	(4.70)	(-0.10)	(-0.13)	(8.60)	(-1.84)	(-5.89)	(-4.94)
r2	0.67	0.66	0.73	0.76	0.35	0.45	0.47	0.51
N	10974	10668	9682	8460	880009	1003065	907684	1043414

Notes: see Table 2a and b.

Table 4: Female and Male Union Wage Premium Whole Economy. Norway.

	Within workplace (Workplace FE)				Within individual (Worker FE)			
	No Union density	Union density	Female dominated union	Male dominated union	No Union density	Union density	Female dominated union	Male dominated union
Woman	-0.13***	-0.14***	-0.15***	-0.14***				
	(-87.45)	(-46.23)	(-45.70)	(-44.40)				
Member	-0.01***	-0.01***	-0.02***	-0.01***	0.07***	0.02***	0.01	0.02***
	(-5.47)	(-2.65)	(-5.96)	(-3.73)	(17.63)	(6.21)	(0.94)	(4.03)
WomanX Member	0.02***	0.01*	0.02***	0.02***	-0.02***	-0.03***	-0.00	-0.01
	(8.16)	(1.76)	(6.51)	(7.16)	(-4.84)	(-7.49)	(-0.25)	(-0.83)
Workplace union density (ref: 0%)								
1-24%		-0.02***	-0.04***	-0.01**		0.01**	-0.01	0.01**
		(4.71)	(-5.34)	(-2.45)		(2.22)	(-0.84)	(2.23)
25-49%		-0.02***	-0.05***	-0.00		0.07***	0.06***	0.06***
		(2.56)	(-3.40)	(-0.37)		(11.41)	(5.45)	(8.04)
50-74%		-0.01	-0.05***	0.01		0.14**	0.16***	0.11***
		(1.45)	(-3.31)	(1.02)		(23.78)	(14.00)	(14.99)
75-99%		-0.01	-0.04***	0.02		0.15***	0.17***	0.13***
		(1.10)	(-2.62)	(1.35)		(23.01)	(14.01)	(13.93)
100%		0.00	-0.02	0.02		0.16***	0.16***	0.13***
		(0.01)	(-1.46)	(1.52)		(19.12)	(11.00)	(11.46)
WomanX 1-24%		-0.00	0.01**	-0.01***		-0.00	0.01	0.01
		(1.15)	(2.23)	(-3.35)		(-0.35)	(0.52)	(0.46)
WomanX 25-49%		0.01	0.04***	-0.03***		0.04***	0.06***	0.00
		(1.43)	(8.48)	(-5.22)		(4.66)	(4.33)	(0.38)
WomanX 50-74%		0.03***	0.06***	-0.01***		0.08***	0.09***	0.01
		(7.07)	(10.25)	(-2.62)		(11.14)	(6.85)	(0.52)
WomanX 75-99%		0.03***	0.05***	-0.01		0.09***	0.10***	0.00
		(8.41)	(9.78)	(-1.31)		(10.41)	(7.64)	(0.17)
WomanX 100%		0.03***	0.04***	-0.01		0.08***	0.10***	-0.00
		(6.34)	(7.59)	(-1.46)		(8.24)	(6.54)	(-0.20)
r2	0.59	0.59	0.57	0.61	0.86	0.86	0.89	0.91
N	3834172	3834172	2207218	1986420	3834172	3834172	2207218	1986420

Notes: From Norwegian tax authority employment registers. See Table 2a on controls.