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Did partnership in Ireland deliver for all workers? Unions and earnings

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Abstract

Purpose – After 20 years of social partnership in Ireland the purpose of this paper is to use a national survey of firms and employees to examine the extent of the wage gap between union and non-union workers in the private sector and compare the degree of wage inequality in union and non-union firms and among union and non-union employees.

Design/methodology/approach – The analysis in the paper is based on the National Employment Survey carried out by the Central Statistics Office in October 2008. Approximately 9,000 enterprises were sampled and almost 5,000 enterprises responded – a response rate of over 50 per cent while almost 100,000 employees were sampled and 65,535 completed the questionnaire – a response rate of over 60 per cent. In total 22 per cent (14,619) of respondents worked in the public sector and 78 per cent (50,916) in the private sector.

Findings – It appears that over time the earnings premium enjoyed by unionised workers has declined. This may reflect a long term decline in union bargaining power in the private sector as union density levels have declined. Even so unionised employees enjoy a wage premium over non-union employees and collective coverage appears to reduce levels of income inequality. However, the overall union wage gap is relatively modest – being generally below 10 per cent possibly due to the harmonising effects associated with the period of social partnership supported by government trade unions and employers.

Research limitations/implications – The cross-sectional nature of the data means that the factors associated with variations in employee earnings over time cannot be identified.

Practical implications – There is substantial evidence of a considerable spill-over effect as nationally agreed rates of pay percolated from the union to the non-union sector. It may also be the case that social partnership has acted to reduce wage inequality in non-union as well as union establishments. It appears that partnership type arrangements have the capacity to deliver for all workers in the private sector.

Originality/value – A unique aspect of the national survey data used here is the availability of employer/employee matched data from a robust national level survey with measures of union membership, earnings, individual and employment characteristics.

Keywords Social partnership, Earnings inequality, Union premiums

Paper type Research paper

Introduction

Since 1987 social partnership agreements between government, employers and trade unions have regularly set annual wage increases across all unionised establishments in the Irish economy. In all there have been seven formal agreements, usually lasting for a three year period. The partnership agreements concluded after 1995 coincided with a remarkable period of economic growth (Nolan *et al.*, 2000; MacSharry and White, 2000). The last pay agreement (towards 2016) was concluded in November 2008. Yet early in 2009 the agreed pay increases for all public sector workers and many private sector

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workers were suspended. The unique growth conditions in the Irish economy up to 2007 changed dramatically with the global financial crisis. After more than 20 years of social partnership agreements the process began to unravel. Assessment of the organisational benefits for trade unions from the partnership period appear to have been relatively poor (D'Art and Turner, 2011). Union density levels decreased significantly, union recognition became more difficult to achieve and employer opposition increased in scope and intensity. In this context it may be an appropriate time to assess the extent to which the era of partnership between unions, employers and the state has delivered in terms of a wage premium for union members compared to non-union workers and more generally whether harmonisation of earnings has occurred across the private sector.

Research indicates that workers join unions to improve their pay and working conditions (Guest and Dewe, 1988; Waddington and Whitson, 1997), to ensure fairness and due process in the workplace and often in the wider society (Sayer, 2000; Budd, 2005) and because they identify with the values and goals of the union (Hartley, 1992; Ashford and Kreiner, 1999). Here we focus on the instrumental gains that unions can achieve for their members in terms of the extra pay premium that accrues to union members compared to non-members. While the impact of trade unions on wage levels and wage inequality have been comprehensively addressed particularly in the USA and UK these questions have received less attention in Ireland. Aside from two earlier studies based on survey data collected prior to the commencement of social partnership agreements (Callan and Reilly, 1993; Freeman, 1994) little is known of the detailed effects of unionisation on wages and the distribution of incomes in the organised compared to the unorganised sector of the economy.

In this paper using a national survey of firms and employees we examine the extent of the wage gap between union and non-union workers in the private sector and compare the degree of wage inequality in union and non-union firms and among union and non-union employees. Public sector employees are excluded from our analysis for two reasons. First the majority of employees in the public sector are union members – over 70 per cent compared to close to 20 per cent in the private sector. Second collective agreements tend to extend universally to all employees in the public sector.

Theory and literature

A central function of trade unions and collective bargaining is to improve the wages and conditions of union members. Collective bargaining evens up the asymmetrical power imbalance inherent in the employment relationship by increasing the market power of workers to collectively negotiate wage raises. Alternatively non-union individual workers rely on individual sources of power such as skill and expertise. However, it has been argued that unions also affect non-union wages through a threat and a spill-over effect (Freeman and Medoff, 1981; Hirsch, 2004; Farber, 2005). The "spill-over" effect results from a reduction of union employment due to the increase in the union wage and a consequent increase in labour supply in the non-union sector. This effect causes downward pressure on non-union wages. Alternatively the "threat effect" motivates non-union employers to increase wages to avert the threat of unionisation. The evidence indicates that the threat effect tends to dominate, though the efficacy of its impact for non-union workers in highly organised industrial sectors compared to non-union workers in less organised sectors is relatively marginal (Freeman and Medoff, 1981; Farber, 2005).

In the Anglo-Saxon countries[1], workers covered by collective bargaining arrangements tend to have higher wages, better non-wage benefits, better seniority

protection and better grievance systems and lower quit rates (Freeman and Medoff, 1984). Empirical studies of the wage gap between unionised and non-unionised workers have consistently shown an average positive wage gap of about 15 per cent (Freeman and Medoff, 1984; Hirsch, 2004). Blanchflower and Bryson (2003) estimate that the wage gap averaged around 17 per cent in the USA between 1973 and 2002 in the private sector controlling for individual characteristics such as gender, race and education as well as state and industry measures. Hirsch and Schumacker (2004) report a higher average wage gap for the same period of approximately 24 per cent. Data for the UK indicates a lower union wage premium that is declining over time from the mid-1990s reaching at best 10 per cent or lower by 2002 (Blanchflower and Bryson, 2004a). Estimates for the wage gap in Canada for 1999 were 14.4 per cent but this falls to 7.7 per cent when the gap is adjusted for employee and workplace characteristics (Fang and Verma, 2002, p. 20).

In the Irish case Callan and Reilly (1993) estimated a union membership mark-up of over 20 per cent for a sample of male non-agricultural workers ($N = 1{,}167$) in all sectors based on a 1987 survey of income, distribution and poverty. This is likely an overestimate of the union mark-up in the private sector because of the inclusion of predominantly unionised public sector workers characterised by high skill occupations and high levels of education (Turner and D'Art, 2008). A comparative study of nine countries that included Ireland reported a similar wage gap (Freeman, 1994). Both of these studies suffered from a number of limitations. The 1987 survey was composed of a relatively small sample confined to male workers that included private and public sector workers and lacked any controls for part-time working that tends to be higher in the unorganised sector. By contrast Walsh (2013) using the EU Survey of Income and Living Conditions from 2006 to 2010 estimated a premium for union employees of approximately 10 per cent. These Irish studies provide a comparative benchmark to examine the impact of social partnership on union wage premiums over the lifetime of social partnership.

Unions and wage inequality

Trade unions traditionally have attempted to shape pay structures by ensuring lower levels of income dispersion among union members compared to non-members (Metcalf *et al.*, 2001; Metcalf, 1982). Many unions operate within a tradition that views the labour market as embedded in a moral economy that consists of norms prescribing fair distribution and the reduction of inequality in pay (Western and Rosenfeld, 2011). Trade unions have traditionally been seen as the defenders of egalitarian pay structures demanding "equal pay for equal work", the standardisation of pay setting mechanisms where pay scales are attached to jobs rather than the individual (Machin, 1999). Politically unions encourage economic equality and social solidarity through mechanisms such as public speeches, advocate redistributive public policies and shape fair rules governing the labour market (Western and Rosenfeld, 2011). Empirical studies generally indicate that trade unions act to reduce income inequality in labour markets indirectly through political and social pressure and directly through its actions at industry and workplace level (Freeman and Medoff, 1984; Gosling and Machin, 1995).

Social partnership, wage premiums and wage inequality

There are a number of reasons to expect that 20 years of social partnership may have reduced the wage premium and wage inequality between union and non-union employees and establishments. First the dominance of social partnership in setting

wage increases at national level agreements, though formally covering only unionised establishments, tended to filter down to the unorganised sector. Many non-union firms adopt similar pay arrangements in order to retain staff and avoid the threat of a unionised drive – "the threat effect" (Sexton and O'Connell, 1997; Flood and Toner, 1997). While non-firms are under no obligation to accept the terms and condition negotiated in the national wage agreement, such firms have tended to use the agreements as a benchmark for pay (Geary and Roche, 2001; Collings *et al.*, 2005).

Second the implementation of a National Minimum Wage (NMW) in 2000 has likely created a "within group effect" by standardising wages for low income groups across firms and industries reducing the wage premium between union and non-union low paid workers. In addition a NMW can have a "between group effect" by raising the wages of unskilled workers and reducing wage inequality. Such effects are likely to have been reinforced by the operation of Joint Labour Committees (JLCs). These committees set legally binding minimum rates of pay for low paid workers in certain sectors such as hotels, catering, retail, contract cleaning and security. Up to 2011 JLCs had the power to set a range of minimum rates of basic pay, as well as overtime rates and unsociable hours' premiums. The majority of basic minimum rates set by JLCs were in excess of the NMW (O'Sullivan and Wallace, 2011). Social partnership increases also filtered down to low paid non-unionised workers through the wage setting mechanisms of the JLCs as social partnership increases were applied on top of the previous minimum rates.

These direct union reduction effects on wage inequality appear to be enhanced where collective bargaining takes place at a centralised national level (Wallerstein, 1999). Data from 1980 to 2004 indicate that countries with more centralised and encompassing bargaining arrangements have a more equal earnings distribution than countries with decentralised collective bargaining (OECD, 1997, 2004). Countries with strong centralised bargaining systems such as Sweden, Denmark and Norway were among the countries with the lowest levels of wage inequality and wage dispersion had remained relatively stable between the years 1979 and 1990 (Freeman and Katz, 1995, p. 11). Recent studies of the "boom" years in Ireland found that the degree of inequality in the distribution of income using household survey data "was remarkably stable" between 1987 and 2008 (Callan *et al.*, 2010, p. 469). For workers in the labour market the level of wage inequality fell markedly between 1994 and 2001 (McGuinness *et al.*, 2010). These latter trends appear to confirm the expected effect of centralised bargaining arrangements on levels of wage dispersion in the labour market. Those studies in Ireland that have directly compared levels of earnings dispersion between union and non-union members indicate that collective bargaining reduces within firm wage inequality (Callan and Reilly, 1993; McGuinness *et al.*, 2010).

Third the membership dominance of one union[2] in the Irish trade union movement likely acted in the partnership process to moderate wage demands and curtail the wage premium between union and non-union sectors because of economy wide repercussions (Kittel, 2000). Encompassing unions that bargain for large portions of the workforce across a range of occupations and industries are constrained as excessive wage demands may be passed on in higher prices thus nullifying wage gains, price firms out of business leaving workers unemployed and reduce profits available for reinvestment – a key source of future wage gains (Kenworthy, 1996, p. 493).

Alternatively there are also credible countervailing factors that could increase the wage gap between union and non-union workers. Although many large non-union firms have used the wage agreements as benchmarks for wage increases, medium and

small non-union enterprises are less likely to have followed suit. In many European countries collective agreements apply extensively to non-union firms[3] (Visser, 2006). In contrast extension mechanisms for collective agreements in the Irish private sector are not common (Eurofound EIRO, 2011). Thus it may be the case that the period of social partnership has enhanced or at least maintained the wage premium between union and non-union employees and establishments. If the union and non-union sectors have remained separate systems regarding wage shifts then the increases in wages in the union sector may have created a "spill-over effect" through a reduction in of union employment as wages rise and a consequent increase in labour supply in the non-union sector.

In summary it is plausible, all things being equal, to expect a wage differential between union and non-union employees in the Irish private sector and also lower levels of wage inequality among union members. On balance the effect of over 20 years of social partnership are more likely to have reduced the wage premium and wage inequality between union and non-union employees and establishments.

Other factors associated with the size of the wage gap

The size of the wage gap is also likely to vary depending on a number of sectoral and workplace factors. First, the higher the level of union density in a sector or industry the greater the union premium is likely to be and the lower the level of wage dispersion (Freeman and Medoff, 1981; Belman and Heywood, 1990). This effect may extend to non-union workers. Non-union workers in highly unionised sectors and industries may enjoy a wage premium compared to similar non-union workers in weakly unionised sectors (Hirsch, 2004; Western and Rosenfeld, 2011, p. 524). McGuinness *et al.* (2010) found that within firm wage inequality in Ireland was inversely related to trade union density levels.

Yet union density levels may be of less importance than whether employees are covered by a collective agreement. Given the difficulties unions have in gaining recognition in Ireland, union membership is not necessarily coterminous with union representation (D'Art and Turner, 2011). While all employees have a constitutional right of association to join a union there is no corresponding right to representation. Hence not all unionised employees are likely to be covered by a collective agreement. Conversely employees are free not to join a union in a workplace that recognises a union. It may be the case that a proportion of non-union workers are employed in firms that have a collective agreement with a trade union and enjoy spill-over benefits in pay and conditions of employment[4].

Second unions are likely to generate a bigger wage gap for unionised women because women are more likely to be found in lower level occupations and thus benefit from the upward compression of wages (Metcalf *et al.*, 2001; Heery, 2000). Fang and Verma (2002) found that the wage differential tended to be larger for women than men in the Canadian labour market.

Third, evidence from the Workplace Employment Relations Survey in the UK indicates a larger union premium among manual than non-manual workers (Blanchflower and Bryson, 2004a, p. 19; see also Booth, 1995). Earlier work by Freeman and Medoff (1984) based on the 1979 CPS also showed that unions raised wages most for the young and least educated blue collar workers. Fourth size of firm tended to be directly related to the size of the wage differential with wage differentials tending to fall with the size of the firm (Freeman and Medoff, 1984).

Comparing these original findings with the effects of unions in the late 1990s in the UK Blanchflower and Bryson (2004b) found that the union wage gap was higher for

men than women. Young workers still benefited most from unionisation but the premium had declined substantially and the lowest educated continued to benefit most from unionisation but not to the same degree as in the 1970s. Manual unionised workers still received a wage premium compared to non-union manual workers but the premium had "collapsed" for non-manual workers. Overall by the late 1990s no group of workers in the private sector had experienced a significant increase in its union premium (Blanchflower and Bryson, 2004b, p. 390).

To explore the wage gap and levels of wage dispersion between union and non-union workers we use the National Employment Survey (NES). This survey has the advantage of being a matched sample of employee and firm level data. As Bryson (2007, p. 35) notes in recent empirical research in the UK the paucity of employer controls tend to result in an upward bias in union wage effects.

Data and measures

The analysis in the paper is based on the NES carried out by the Central Statistics Office in October 2008. The purpose of the NES is to provide information on the distribution of individual employee earnings and on the factors which influence earnings levels. It allows results to be broken down by sector, occupation, age, sex, educational attainment as well as many other individual employee circumstances. Participating employers are requested to supply a sample of employee names. A sample of employers is selected initially and in a second stage a sample of employees is selected from within the selected enterprises. Employers complete a questionnaire with basic organisational details and practices and certain payroll-type details for the sample of employees. These details relate to gross earnings including overtime and shift allowances in a pay period together with hours worked in that period. An employee questionnaire is completed separately by each of the employees in the sample chosen. The measures used here are sourced from the combined matching in one database of the employer and employee surveys. It is important to note the nature of the different measures in both surveys.

The dependent variables in this study come from the employer survey response dealing with earnings, for the sample of employees chosen. Our critical dependent measure is earnings per hour. While earnings per week is also available we believe that earnings per hour is a more appropriate measure given the extent of part-time and short time working among low pay workers. Average hourly earnings are provided in the database by CSO and are derived by dividing estimates of the gross monthly earnings by estimates of the total hours paid in the month at the level of the individual employee.

An important dimension of our analysis is the relationship between union membership and earnings. Union membership is provided by the employee questionnaire and the existence of a collective agreement in a firm is provided by the employer questionnaire[5]. Based on these two dimensions four categories of employees can be identified: unionised employees in firms covered by a collective agreement totalling 16 per cent of employees in the private sector; unionised employees in firms with no collective agreement amounting to 7 per cent of employees in the private sector; non-union employees in firms with a collective agreement – 15 per cent of employees; and non-union employees in firms without any collective agreement totalling 62 per cent of employees. We examine and compare the earnings of these four categories in the following analysis.

Approximately 9,000 enterprises were sampled and almost 5,000 enterprises responded – a response rate of over 50 per cent while almost 100,000 employees were

sampled and 65,535 completed the questionnaire – a response rate of over 60 per cent. In total, 22 per cent (14,619) of respondents worked in the public sector and 78 per cent (50,916) in the private sector.

Results

Generally raw mean hourly earnings tend to be higher for union members than non-union employees. Unionised male employees earn an average of €21.07 per hour and females earning an average of €17.81 compared to €20.44 for non-union males and €16.5 for females.

Wage inequality levels also show a consistent pattern with lower levels of dispersion in mean hourly earnings among union members than non-union employees However, union membership may be less relevant as a casual factor than coverage by a collective agreement. Membership without representation is unlikely to have any significant effect on earnings and wage dispersion in the absence of union bargaining power to negotiate wages and conditions of employment (D'Art and Turner, 2003). Indeed almost one third of union members are employed in firms not covered by a collective agreement (Table I). Conversely 19 per cent of non-union employees work in firms that have a collective agreement. Paradoxically nearly as many non-union employees as union members work in firms covered by a collective agreement. The mean hourly earnings of employees (both union and non-union) in firms with collective agreements are significantly higher than the earnings of employees (both union and non-union) in firms not covered by a collective agreement. While the hourly earnings of union and non-union employees covered by a collective agreement are similar, unionised employees in firms without a collective agreement have the lowest mean hourly earnings – even lower than non-union employees. Employees in firms with a collective agreement also have lower levels of earnings dispersion than employees not covered. Table I indicates that union membership in itself appears less salient than the existence in a firm of a negotiated collective agreement on terms and conditions of employment.

To assess the true union wage premium, union membership is first regressed on log hourly earnings and second with individual and workplace controls in the regression (Table II). First the earnings difference between union and non-union employees in the entire sample are compared. Second we compare employees in firms with collective agreement coverage with employees without coverage in the entire sample. Third unionised employees with collective agreement coverage are compared with unionised employees without coverage and finally non-union employees with coverage are compared with non-union employees without coverage.

Table I.
Union membership and collective agreement coverage (weighted)

	Employees covered by a collective agreement				Employees not covered by a collective agreement				
	% in firms with a collective agreement	Mean hourly earnings	SD	Coeff. of variation	% in firms with no collective agreement	Mean hourly earnings	SD	Coeff. of variation	*N* (000)
All employees	30.3	20.92	11.59	0.55	69.7	17.76	10.79	0.61	1,180
Union members	68.3	20.95	10.0	0.48	31.7	16.89	8.22	0.49	264 (22%)
Non-members	19.3	20.9	13.01	0.62	80.7	17.85	11.04	0.62	916 (78%)

Source: National Employment Survey (2008)

	Without controls[a]		% difference[b]	With controls[c] % difference
	Union members	Non members		
Mean log wage	2.93	2.85	+8.4 ($F = 248$***)	+5.9 ($F = 1,191$***)
N	11,727	39,006	50,733	48,135
	Covered by CA	Not covered		
Mean log wage	2.98	2.8	+18.6 ($F = 1,399$***)	+7.8 ($F = 1,201$***)
N	16,798	33,935	50,733	48,135
	Members covered by CA	Members not covered by CA		
Mean log wage	2.97	2.79	+19.5 ($F = 396$***)	+7.9 ($F = 200$***)
N	8,792	2,935	11,727	10,362
	Non-members covered by CA	Non-members not covered by CA		
Mean log wage	2.99	2.81	+19.4 ($F = 795$***)	+6.3 ($F = 997$***)
N	8,006	31,000	39,006	37,772

Notes: Method: ordinary least squares regression. [a]The four independent variables membership, coverage, member coverage and non-member coverage were regressed on the dependent variable hourly log earnings; [b]the percentage difference is calculated from the exponential of the unstandardised regression coefficient for the variables union membership and collective agreement coverage in each equation. The *F* score for each equation is given in parentheses; [c]the following controls were introduced into the regression equations: gender, full time or part-time, nationality, age, education, occupation, firm size, industrial sector, years of service and engagement in shift work

Source: National Employment Survey (2008)

Table II. Membership and collective coverage premiums (unweighted)

Absent controls, there is a union membership premium of 8.4 per cent for union members compared to non-union employees. In contrast the premium for employees covered by a collective agreement is 18.6 per cent. This substantial premium holds when only union members with and without coverage are compared and similarly when non-union employees are compared. When controls for individual and workplace characteristics are included in the equations the union membership premium drops to 5.9 per cent. More significantly the collective coverage premium declines by over ten percentage points to 7.8 per cent. Most of this substantial fall is due to the inclusion of firm size in the regression equation. In total, 10 per cent of employees in firms with less than ten employees are covered by a collective agreement compared to 52 per cent of employees in firms with over 200 employees. Nevertheless Table II indicates a modest earnings premium for union members and a larger premium, albeit reduced when firm size is considered, for employees covered by a collective agreement. In addition there appears to be a spill-over affect for non-union employees covered by a collective agreement.

Table III outlines the effects of the various workplace characteristics on hourly earnings[6]. Given the similar pattern of effects (unstandardised coefficients) across the four equations only equation 1 reports the actual percentage impact of each variable on hourly earnings. Hourly earnings are positively affected by being in a higher level occupation, increasing age, education, size of firm and years of service.

We tested the additional contribution that union membership and collective agreement coverage adds to hourly earnings both with and without controls for selected individual and workplace characteristics[7]. Separate regressions were run for men and women, young and older workers, low skill and high skill, low educated and high

	Log earnings per hour in the private sector			
	1.	2.	3.	4.
Union members →	0.06 (+6%)***			
Collective coverage →		0.08 (+8%)***		
Members with coverage →			0.08 (+8%)***	
Non-members with coverage →				0.06 (+6%)***
Controls:	Individual characteristics			
Gender-males	0.16 (+17%)***	0.16***	0.18***	0.15***
Full time (over partime)	0.08 (+8%)***	0.08***	0.06***	0.09***
Irish nationality	0.11 (+12%)***	0.11***	0.09***	0.11***
Age 25-35	0.16 (+17%)***	0.16***	0.16***	0.15***
Age 36-45	0.26 (+30%)***	0.26***	0.22***	0.27***
Age over 45	0.23 (+26%)***	0.23***	0.20***	0.24***
Referent: Age under 25				
Lower secondary	0.06 (+6%)***	0.06***	0.06***	0.05***
Higher secondary	0.10 (+11%)***	0.10***	0.10***	0.10***
Technical/diploma	0.16 (+17%)***	0.15***	0.16***	0.15***
Degree or higher	0.27 (+31%)***	0.27***	0.24***	0.27***
Referent: None or Primary				
Manager/admin	0.50 (+65%)***	0.5***	–44***	0.51***
Professional	0.39 (+48%)***	0.39***	0.41***	0.39***
Assoc. professional	0.21 (+23%)***	0.21***	0.24***	0.20***
Clerical	0.09 (+9%)***	0.09***	0.09***	0.09***
Craft/skilled	0.12 (+13%)***	0.12***	0.14***	0.1***
Sales	0.06 (+6%)***	0.06***	–0.01 (ns)	0.07***
Machine operatives	–01 (ns)	–0.01 (ns)	–0.01 (ns)	–0.01 (ns)
Other	–0.02 (–2%)*	–0.02*	–0.04*	–0.01 (ns)
Referent: Personal services				
Adjusted R^2	0.45	0.45	0.39	0.47
F score	1,191***	1,201***	200***	997***
n	48,135	48,135	10,362	37,772

Notes: ns, not significant. Ordinary least squares regression, method: enter+used. Unstandardised coefficients reported. [a]The following controls for workplace characteristics were introduced into the regression equations: gender, full time or part-time, nationality, age, education, occupation, firm size, industrial sector, years of service and engagement in shift work. *$p<0.05$; **$p<0.01$; ***$p<0.001$

Source: National Employment Survey (2008)

Table III. Determinants of hourly earnings in the private sector[a] (unweighted)

educated and high and low density industrial sectors. Similar to previous results there is a consistent reduction in the union and coverage premium when individual and workplace variables are included in the regression equations – particularly firm size. Unionised male workers enjoy a higher membership and coverage premium than female union members. While employees age 30 and under have a higher membership premium than employees over 44, the older age group have a significantly higher coverage premium. Thus the evidence is mixed as to whether young workers benefit most from unionisation. Manual or low skilled workers and those with lower levels of education do appear to benefit more from being union members and collective agreement coverage than high skill occupations and the higher educated. Similarly employees in higher density industrial sectors gain more from membership and coverage than employees in lower density sectors. However, the magnitude of the union membership and coverage premium, ranging from some 3 to 11 per cent, seems relatively modest.

To test the robustness of these results propensity score matching (PSM) is used to estimate models of the union/coverage wage differential. A first stage probit model for

four separate binary outcomes is estimated initially. These are the binary outcomes of being a union member or not for the full sample, being in a collective agreement or not for the full sample, being in a collective agreement or not while a member of a union and being in being in a collective agreement for those not in a union. This provides the propensity scores for whether an individual within the various samples is either in a union and/or covered by a collective agreement. This propensity will depend on a range of observable characteristics, with different specifications of which characteristics to include provided below. Based upon similar characteristics, observations in a treatment group (union members in specification 1) are then matched with observations in the control group (non-union members). It is then assumed that matched observations have no systematic differences in response to the treatment, so they provide a valid counterfactual (Gibson, 2009). This matching process will ensure that union members and/or those covered by collective agreement will be matched with non-members/those not covered with similar observable characteristics. This then allows us to estimate the average treatment effect on the treated (ATT), which can be defined as the estimated gain/loss in log pay for a given worker moving from non-membership of a union to membership or moving from not being in a collective wage agreement to being in one.

Table IV below presents the results of the PSM model with earnings per hour used as the dependent variable and gender, full time or part-time, nationality, age, education, occupation, firm size, industrial sector, years of service and engagement in shift work as explanatory variables within the first stage probit[8]. As seen from Table IV, the results are very much in line with the results in Tables II and III with both a positive union and collective agreement wage premium for the full sample and those with union membership and without. The magnitude of these differences is also broadly in line with the previous estimates. However, we do see a significant increase in the collective agreement membership premium for those in a union compared to our OLS results; the estimated wage gap increases from 8 to 13 per cent. As with the OLS regressions, these models were also run separately across age groups, education levels, gender and intensity of industry. While not reported here for brevity, the results are again very similar to the OLS estimations.

Conclusion

Based on the extant literature on the effects of trade unions we predicted a positive wage gap in favour of unionised employees. Controlling for individual and workplace characteristics results indicate that unionised employees enjoy a wage gap of around 6 per cent over non-union employees. This is considerably lower than the mark-up

	Hourly earnings
	1
Union members	+6.7% (6.36)***
Collective coverage	+9.6% (9.31)***
Members with coverage	+13.1% (6.32%)***
Non-members with coverage	+7.8% (6.43)***

Notes: These estimations were undertaken using the PMATCH2 ado file within STATA (Leuven and Sianesi, 2012) using a nearest neighbour algorithm. Relevant *t*-statistic in parentheses. *,**,***Significance at 90, 95 and 99 per cent levels

Source: National Employment Survey (2008)

Table IV. Membership and collective coverage premiums using PSM models (with same controls as Table III in main text)

of 20 per cent estimated for union employees in 1987 (Callan and Reilly, 1993). The difference between the two figures likely reflects a real decline in the union wage gap between union and non-union employees and is reflective of similar trends of a lower union wage premium over time in the USA and particularly the UK and Canada. A common feature of the Anglo-Saxon countries including Ireland is a consistent decline in the proportion of unionised employees in the private sector. Consequently union bargaining power is likely to be weakened in the private sector especially in firms where union density levels are low. Regarding wage dispersion levels the evidence indicates that trade unions in the Irish private sector act to reduce inequality.

A unique aspect of the national data used here is a measure of collective agreement coverage. Our results indicate that the existence of a collective agreement appears more significant than union membership with substantial wage mark-ups of nearly 20 per cent in the absence of controls for individual and workplace characteristics. Mean hourly earnings of employees (both union and non-union) in firms with collective agreements are significantly higher than the earnings of employees not covered by a collective agreement. However, the collective coverage premium declines by over ten percentage points when size of firm is taken into account due to the concentration of collective agreements in the larger firms with over 200 employees. Employees in large firms enjoy a mark-up of 28 per cent over firms with less than ten employees controlling for individual and workplace characteristics. Nevertheless there appears to be a wage premium spill-over effect for non-union employees in firms covered by a collective agreement compared to non-union employees in firms without a collective agreement controlling for human capital endowments such as skill levels (occupation), education and experience. It may be the case that unions in firms with collective agreements negotiate on behalf of all employees essentially providing a public goods dividend to all. A second possibility is that the employer offers non-union employees broadly similar wages and conditions of employment either as an inducement not to join the union or to preserve standard wage differentials between different occupations and grades in the firm.

From previous studies a likely union wage mark-up was expected for women, manual occupations, low education, young workers and high density sectors. Contrary to expectations men benefited more from union membership and coverage than women. While young workers benefit most from union membership, older workers gain more from collective agreement coverage. Manual or low skilled workers and those with lower levels of education do appear to benefit more from being union members with collective agreement coverage than high skill occupations and the higher educated. Similarly employees in higher density industrial sectors gain more from membership and coverage than employees in lower density sectors.

Yet overall the union wage gap is relatively modest – being generally in the range of 8-13 per cent for membership and coverage. As noted above, this may reflect a long term decline in union density and bargaining power in the private sector. Alternatively it may be the case that the modest difference between unionised and non-union employees is a result of upwardly converging rates of pay due to the effects of over 20 years of centralised wage bargaining. Social partnership agreements at national level between employers unions and government set rates of pay for union employees covered by a collective agreement in the private sector. There is substantial evidence of a considerable spill-over effect as nationally agreed rates of pay percolated from the union to the non-union sector – thus underestimating the true union effect on wages. It may be the case that the wage differential between union and non-union workers

(wage gap) has narrowed even though unions have achieved substantial "wage gains" for their members relative to what wages would have been in the absent trade unions. In any case it appears that all workers in the private sector have gained from the era of social partnership. A similar more speculative argument could be made that social partnership has acted to reduce wage inequality in non-union as well as union establishments. Thus the demise of social partnership agreements and the continuing decline in union density and coverage are likely to reverse previous trends and widen the wage gap between union and non-union employments and increased wage inequality generally across the private sector. Such developments are likely to increase pressure on state industrial relations agencies in the absence of the quasi-regulatory function provided by social partnership, particularly against a backdrop of an increase in atypical forms of work in the Irish labour market (O'Sullivan *et al.*, 2015). Direct costs to society may also rise as the state subsidises low pay work through supplementary welfare mechanisms in an increasingly unorganised and union free private sector.

Notes

1. The union wage premium has received less attention in Continental Europe partly because in these countries collective bargaining often has almost universal coverage to include non-union workers as well as the unionised (Bryson, 2007; Visser, 2006). In five countries France, Germany, Italy, the Netherlands and Sweden the union wage premium is zero (Bryson, 2007, p. 39). Studies of union wage premiums in European countries tend to be on the effect of different bargaining levels (such as multi-employer vs single-employer) on pay dispersion (Dell'Aringa and Pagani, 2007).
2. The amalgamation of the two largest general unions in Ireland into the services, industrial, professional trade union (SIPTU) in 1990 created an increasingly encompassing general union. SIPTU's membership accounted for 40 per cent of the Irish Congress of Trade Union's membership in 1995. This was the largest proportion of membership accounted for by a single union in any of the peak organisations in the European Union (Ebbinghaus and Visser, 2000, p. 66).
3. Union density rates in the Netherlands, France, Spain, Austria and Germany are 25, 8.2, 15.7, 38.4 and 27 per cent, respectively, while bargaining coverage rates are 82, 95, 81, 99 and 63 per cent, respectively, (Visser, 2006, p. 46).
4. However, Hildreth (2000) found no evidence that covered non-union members received a wage premium in comparison with union members, nor any mark-up on non-covered workers in the 1990s in Great Britain.
5. Employers were asked the following question: "Does your business have a collective agreement dealing with pay and conditions with trade unions?" Scored "yes" or "no". We regard this question as relatively unambiguous and a "yes" as a clear indicator of an active trade union that engages in collective bargaining.
6. Issues of multicollinearity were tested for in the post estimation of these models. However, the VIF scores for each regressor had a of value of less than 3.6 and therefore were not deemed problematic.
7. Statistical results available from author on request.
8. These specific controls were chosen to keep the model consistent with the model estimated in Table III of the main paper. The results for the first stage probit are not presented here but are available on request.

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