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Unions, Work Practices, and Wages under Different Institutional Environments: The Case of Canada and England

John Godard*

* Asper School of Business, University of Manitoba,

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Abstract

Using data collected in 2003–2004 in national telephone surveys of 750 Canadian and 450 English workers, the author finds that alternative work practices (AWPs), such as autonomous teams, quality circles, and information sharing, provided meaningful pay gains for non-union workers but not union workers in both Canada and England. In Canada, non-union AWP payoffs approached union wage premia at even moderate levels of AWP adoption, suggesting that AWPs may serve as an alternative means to higher pay, one that is incompatible with unions and that could erode demand for union representation. In England, there was no meaningful union wage premium, suggesting that AWPs may have replaced pay bargaining as a means to higher pay; but an interaction term combining union representation and “best” HR practices bore a strong association with higher pay, consistent with a new economic role whereby unions achieve gains for their members through collaborative, performance-enhancing strategies.

KEYWORDS: unions, work practices, wages

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JOHN GODARD*

Using data collected in 2003–2004 in national telephone surveys of 750 Canadian and 450 English workers, the author finds that alternative work practices (AWPs), such as autonomous teams, quality circles, and information sharing, provided meaningful pay gains for non-union workers but not union workers in both Canada and England. In Canada, non-union AWP payoffs approached union wage premia at even moderate levels of AWP adoption, suggesting that AWP may serve as an alternative means to higher pay, one that is incompatible with unions and that could erode demand for union representation. In England, there was no meaningful union wage premium, suggesting that AWP may have replaced pay bargaining as a means to higher pay; but an interaction term combining union representation and “best” HR practices bore a strong association with higher pay, consistent with a new economic role whereby unions achieve gains for their members through collaborative, performance-enhancing strategies.

In liberal market economies (especially those of the United Kingdom, the United States, and Canada), labor unions have traditionally provided the primary means through which workers, as a class, can hope to win terms of employment above those set by markets. Yet the developments of the past few decades have called this role into question. Not only is there evidence that the union wage premium has been in some or even considerable decline in these economies (Blanchflower and Bryson 2003; Belman and Voos 2004; Fang and Verma 2002), but collective agreements cover only one in three or, in the case of the United States, one in seven workers. There is also a widespread concern that, in view of emergent economic

realities, unions’ traditional economic role may not be sustainable, further reducing their ability to win gains for their members and accelerating union decline.

These developments may, however, be offset by the spread of alternative work practices (AWPs) associated with the high performance paradigm, such as autonomous teams, quality circles, and information sharing (Marshall 1996:101; Handel and Levine 2004:39; Handel and Gittleman 2004:67–78; Forth and Millward 2004:99–100). AWP not only may have the potential for generating productivity gains, but also may provide workers with an opportunity to share in these gains, through “mutual gains” pacts, efficiency wage policies, or some combination thereof (Handel and Levine 2004). What makes this possibility

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Copies of the research instrument, raw data, programs, and results are available on request, but for replication purposes only unless otherwise permitted by the author. For inquiries, contact the author at Asper School of Management, University of Manitoba, Winnipeg, Manitoba, Canada R3T 5V4; Godard@ms.umanitoba.ca.

especially appealing is that the resulting pay differential ideally arises because AWP's engender a high-involvement approach, under which workers develop, share, and apply their skills and abilities more fully. To the extent that is the case, the pay differential reflects a genuine gain for workers rather than compensation for work intensification, which some have argued to be a consequence of AWP's.¹ It is also in theory more sustainable than union wage premia, because AWP payoffs are based on superior performance rather than economic rents.

Yet any such gains may prove a mixed blessing if they serve to substitute for collective bargaining, because they could lower demand for union representation. This outcome may be especially likely if union representation is in general incompatible with AWP gains, so that these gains are realized only or primarily in non-union jobs. Yet AWP proponents have argued that union representation is complementary to AWP's and the gains arising from them. Not only may unions have an important role to play in ensuring that workers receive their fair share of any gains (Osterman 2006:190), but they also may help to ensure worker acceptance of AWP's and to resolve the conflicts and contradictions that AWP's tend to engender (Ackers and Payne 1998:546; Godard 2004b). If so, unions may enhance the magnitude of productivity gains, in effect filling a new economic role. This could mean a higher wage payoff to AWP's in union than in non-union firms, with positive implications for union demand.

Much may depend on national institutional environments, defined for present purposes as the legal and normative "rules of the game" forming the context within which the parties interact and hence within which AWP's are adopted (Godard 2004a). Where these environments foster acrimonious relations, union representation is less likely to be compatible with the trust-based, collaborative relations necessary for a high-involvement approach, in which case genuine AWP gains may well

be limited primarily to the non-union sector. But where they foster collaborative relations, the opposite may be the case, yielding higher AWP gains in the union sector.

Canada and England provide ideal settings for exploring this possibility. Both are liberal market economies, and they have similar union density levels (roughly 30%). But the Canadian system is premised on the assumption that labor and management are adversaries, and (in contrast to its U.S. counterpart) it continues to provide workers and their unions with relatively strong rights and protections both during the organizing process and after a union is organized, including strong bargaining and strike rights (Wood and Godard 1999).² It also has a long normative tradition of employer hostility toward unions and acrimonious union-management relations, a tradition that remains largely intact.³ In contrast, the British system is premised on the assumption of (potentially) collaborative relations and provides workers and unions with relatively weak rights and protections during and after the organizing process, including weak bargaining and strike rights (Wood and Godard 1999; Smith and Morton 2001). It has a long normative tradition of employer acceptance of unions and hence voluntary union recognition (Howell 2005), a tradition that was weakened during the Thatcher/Major era (Freeman and Pelletier 1990; Brown et al. 1997; Machin 2000) but that the Blair government has sought to rekindle and build on. Thus, in the Canadian

¹See Godard (2004b) for the distinction between involvement and intensification approaches to AWP's.

²In general, employers are effectively required to bargain in good faith over all wage and non-wage terms and conditions of employment, are subject to first contract arbitration, cannot allow an open shop, cannot hire permanent replacements in the event of a strike, and, in two of the three largest provinces, cannot hire temporary replacements. In Britain, on the contrary, bargaining over pay is not required (although labor laws encourage employers to agree to participate in such bargaining), there is no first contract arbitration, open shop is mandatory, and employers have the right to hire permanent replacement workers after a strike has lasted eight weeks. See Wood and Godard (1999).

³Canada has the third highest strike days lost per thousand employees in the developed world, and the level is roughly ten times that of Britain (see Monger 2004).

system, unions continue to focus on achieving gains through traditional collective bargaining, a focus that may be incompatible with AWP gains, whereas in the British system, the opposite appears increasingly to be the case, especially in leading-edge workplaces (Oxenbridge et al. 2003; Oxenbridge and Brown 2004, 2005; White 2005).

This paper explores these possibilities. Specifically, it addresses three primary research questions: (1) whether AWP coverage yields a wage gain that is equivalent to or greater than the union wage gain, (2) whether union representation is either contrary to or complementary to AWP gains, and (3) whether and how the answers to these questions vary across Canada and England. Although empirical investigation of these questions cannot directly establish the implications of AWPs for unions, it may shed some light on (1) whether AWPs are serving as genuine means to higher pay, with the potential to compensate for declining union representation and power; (2) whether they engender an alternative means through which unions can generate gains for their members; and (3) whether national institutional differences matter.

To address these questions, I draw on data from telephone survey interviews with 750 randomly selected Canadian workers conducted in 2003 and 2004 and with 450 randomly selected English workers conducted in 2003. This data set makes it possible not only to address the three primary research questions, but also to control for a more complete array of variables than has been typical of most (if not all) research into both union premia and AWP payoffs. Specifically, the present analysis makes use of control variables for the way in which work is experienced (for example, stress), individual characteristics and beliefs (for example, about unions), the organizational environment (for example, workplace growth), and a full array of HRM practices. An analysis employing this fuller set of control variables should be able to eliminate the possibility of specification errors and, indeed, to establish the extent to which concerns about such errors in other analyses (raised, for example, by Bryson 2005; Godard 2004b; Handel and Levine 2004) may

be justified. Accordingly, this represents a further, albeit secondary, research question addressed by this paper.

For the purposes of this paper, the term “AWP payoff” is defined as the amount of hourly pay workers receive in excess of the market clearing rate, controlling for human capital characteristics and compensating differentials (for example, for work intensity levels), and for alternative possible explanations for pay not attributable to AWPs but that may covary with them (such as workplace size). In other words, it represents the extent to which AWPs generate genuine gains for workers, gains in excess of any compensating differentials that could arise from work intensification.

The Literature

The literature on AWP wage effects has been well reviewed elsewhere (Osterman 2006; Godard 2004b; Handel and Levine 2004). The estimates have varied considerably, ranging from zero (Handel and Gittleman 2004) to as high as 16% (albeit only in a limited sample of apparel industry employers; Bailey et al. 2001). Almost all of the research has, however, been in the United States. No published analyses have used Canadian data, and only one has used U.K. data; the latter (Forth and Millward 2004) found an 8% payoff for “high involvement” over “traditional” workplaces.

Overall, the results of this research have led Handel and Levine (2004:39) to conclude that AWPs “do not appear to generate a wage premium comparable to unionization.” Yet only one study (Black et al. 2004) has directly addressed this question; it found a 10% union wage premium but no *a priori* payoff for AWPs. Moreover, Handel and Levine appear to have based their conclusion mostly on the U.S. union premium, which may be substantially higher than the union premium in Canada and Britain. For example, one recent analysis (Blanchflower and Bryson 2003) estimated the union premia to be 14% in the United States and only 5% in Britain. Another recent paper suggested that the 5% figure for Britain may even be too high (Bryson 2005). A recent Canadian estimate (Fang and Verma

2002) placed the union premium at 8% in that country.

There have been only two analyses of the possible interactions between union representation and AWP. Using U.S. data, Lynch et al. (2004:55) found a positive interaction with quality circles but not with self-managed teams. Using U.K. data, Forth and Millward (2004) found an additional 10% payoff for AWP where a strong union is established. However, the Lynch et al. data set contained only two AWP, while the Forth and Millward analysis combined so-called complementary HR practices with AWP, and hence did not explore whether the latter alone interacted with union representation.

There has not been any research addressing whether or how national institutional environments are associated with differences in the wage effects of AWP. These environments may be especially important across different “varieties” of capitalism (for example, Hall and Soskice 2001). For example, within coordinated market economies, such as Germany, unions serve primarily to coordinate wages through industry-level bargaining, and are likely to have little involvement with AWP at the workplace level, except, possibly, through works councils. As a result, any interactions between unions and AWP in coordinated market economies may differ substantially (as may the nature of AWP themselves) from those in liberal market economies, where bargaining is more decentralized and unions (where organized) traditionally have had a strong presence at the workplace level. Yet we would expect to observe important differences even among liberal market economies. As discussed earlier, a comparison of England and Canada may prove particularly fruitful in this regard, because the former potentially epitomizes the “new,” collaborative model of labor-management relations, while the latter epitomizes the “old,” adversarial model.

The research that has been reported to date also typically suffers from possible measurement and specification problems (for a more thorough discussion, see Handel and Levine 2004). For example, none of this research adequately controls for aspects of the work experience for which workers may

receive compensating differentials, including stress, work load, and work pressures, even though a number of authors have found these to be by-products of AWP (for example, Rinehart et al. 1997; Delbridge 1998; Godard 2001). Thus, estimates of the genuine payoffs from AWP, above those that may reflect such factors, could be upwardly biased. Moreover, in estimating AWP payoffs, many of these studies have included only one or a few work practices, and most (if not all) of them have failed to control adequately for HRM practices (for example, selection processes) that may not be unique to the adoption of AWP yet could account for any observed effects (Godard 2004b). As noted above with reference to the Forth and Millward (2004) analysis, a number of studies have included some HR practices, but have combined them with AWP, and hence may not be addressing the implications of the latter per se. Little attention has been paid to possible selection bias, which may occur if workers subject to AWP possess unobserved attributes (values, for example) that enhance the likelihood of both AWP coverage and high (or low) wages (Handel and Gittleman 2004). Furthermore, few if any studies have controlled for the economic health or environment of the employer, which could matter if these factors are associated with wages on the one hand yet with the propensity to adopt AWP on the other (Handel and Gittleman 2004).

Endogeneity may also be a problem. For example, it is possible that AWP are more likely to be introduced in workplaces that already pay high wages and hence have higher costs, in order to generate performance gains that compensate for these costs (Osterman 2006:197). This could upwardly bias estimates of the AWP wage effect. The standard approach to addressing such problems in the union effects literature has been to rely on instrumental variable techniques, and at least one study of AWP payoffs (Osterman 2006) has also relied on these techniques. That study found little evidence of endogeneity, suggesting that it is in fact not a problem. But the general consensus in the union effects literature has in any case been that, in view of limitations of these techniques, OLS may offer the least biased procedure (Lewis

1986),⁴ and it is likely that a similar conclusion applies for AWP effects. In addition, Heckman (1998) has argued that controlling for biases due to observables may be as important as controlling for biases due to unobservables when attempting to address possible endogeneity problems, thus reducing the likelihood that they occur. Although high wages may lead to the adoption of AWPs, controlling for factors associated with high wages reduces any estimation biases that might otherwise result, to the extent that they are also associated with AWPs.

In the analysis below, I begin by specifying a more complete model than has been typical of research to date, one that follows Heckman's advice and attempts to address possible specification problems.

Model Specification

The standard model of wage determination incorporates human capital variables, including age, experience, experience squared, education, and seniority. However, a number of additional variable sets may be seen to have implications for wage determination. In the present analysis, I include five such sets (in addition to human capital variables, union representation, and AWPs), all of which can be hypothesized to bear associations with AWPs or with union representation (or with both) on the one hand, and with wages on the other.

The first set of variables includes characteristics that can be seen largely as proxies for often unobserved variables. These include (1) whether the respondent is in a managerial or professional occupation, thus controlling for knowledge, skill, expertise, and responsibility levels not fully captured by human capital measures and that may lower the likelihood of union representation yet be positively associated with wages; (2) whether the respondent is an unskilled blue-collar worker, thus controlling for physical

requirements of the job that may give rise to compensating wage differentials and be associated with a higher likelihood of union coverage; (3) whether the respondent is a skilled tradesperson, thus controlling for both skill-related pay and possible compensating differentials; (4) whether the respondent is a public sector worker, giving rise to higher levels of both union and AWP coverage yet also potentially higher pay levels; (5) whether the respondent is employed in a traditional "core sector" firm (for example, in manufacturing or a public utility), which may be associated with high pay, union coverage, and AWP adoption, independently of each other; (6) whether the respondent is male, which may be associated with both a somewhat higher likelihood of representation by a strong union (especially in the private sector) and a higher pay level; and (7) hours worked per week, which is likely to be associated with higher pay and a greater likelihood of union representation.

The second set of variables represents the experience at work, and may be expected to address some of the unobserved sources of variation in the first set. It includes (1) job complexity, including the amount of variety, discretion, and skill in the job; (2) empowerment, or the extent to which individuals perceive that they can affect what happens to them at work; (3) role stress, or the extent to which the job is stressful; (4) fatigue, or the extent to which workers experience fatigue by the end of the working day; (5) normative pressures, or the extent to which individuals experience pressure to adopt employer goals as their own and to perform at high levels; and (6) security, or the extent to which individuals feel secure in their employment. All of these variables have been hypothesized to increase under the adoption of AWPs, and all may be expected to bear some association with wage levels, either because they entail higher levels of knowledge and responsibility (complexity and empowerment) or because they are (positively or negatively) associated with compensating wage differentials (stress, fatigue, security, normative pressures). We would also expect these variables to bear some association with union coverage. Not only may they affect the likelihood of workers

⁴This has also led researchers to experiment with alternative, nonparametric estimation procedures (see Bryson 2005), although these procedures are not well established and may suffer from limitations of their own.

organizing, but it is also possible that unions are able to improve these conditions (for example, empower workers, reduce stress levels and normative pressures, improve job security).

The third set of variables represents employer HRM practices. There are a number of HRM practices that have long been considered to represent “good” management practice, such as elaborate job classification systems, internal promotion ladders, grievance procedures, and job training. These practices can be expected to bear positive associations with pay, but to be at least as closely associated with a traditional “bureaucratic” model as with the more organic model associated with AWP (Godard and Delaney 2000). This model is in turn more conducive to the presence of a union and is, to an extent, likely to be enhanced by the presence of a union—especially in Canada (and the United States), where unions play a major role in the establishment of such rules and procedures. Yet this model may be inimical to the establishment of AWP.

There are also a number of HRM practices that tend to be advocated as part of the high performance paradigm and hence that may be associated with AWP, including single-status policies (whereby all workers in an establishment are treated equally with respect to pay, hours, vacation, and so on), no-layoff policies, values-based selection, “soft” skills training (such as team work and problem-solving), and career planning. These so-called “best practices” tend to be based on a more “unitary” model than traditional “good” practice, and are meant to encourage high levels of commitment. They are likely to bear a positive association with AWP and again with pay. Yet they tend to be contrary to the more bureaucratic rules and procedures associated with unions and hence may be negatively associated with union presence. Thus, failure to control for them is likely to result in an upward bias for the estimated AWP payoff, and a downward bias for the estimated union premium.

The fourth set of variables involves the employment context. Of particular relevance is workplace size, which has been found to bear positive associations not only with pay, but also

with the likelihood of both union and AWP coverage. Also important, however, is the economic context and performance of the employer. As suggested earlier, workplaces that are in decline or subject to financial pressures are likely to constrain pay levels to the extent possible, resulting in lower pay. The research further suggests that these conditions are more likely where a union is organized. Unions are often blamed for such conditions, although it is plausible that causality runs the other way, with unions being more likely to become organized where employers have been constraining pay levels and increasing work loads. Although the research findings are ambiguous (Godard and Delaney 2000), AWP are often argued to generate positive financial conditions. It is also possible that firms enjoying such conditions are more willing and able to commit to the adoption of AWP (Handel and Levine 2004:11).

The final set of variables can be referred to as “subjective attributes.” A major problem in much of the wage determination literature has been an inability to capture individual values and orientations that might be associated with performance. This may be an especially serious problem with regard to estimation of AWP payoffs, either because employers select workers who are more likely to be trusting and loyal and less likely to favor unions, or because these types of employees are more likely to agree to participate in AWP systems (Handel and Gittelman 2004:71). If so, exclusion of these attributes will result in upwardly biased estimates of AWP wage payoffs. The converse may be the case for union wage premia if workers who possess these characteristics are less likely to unionize or to choose employment in a union workplace.

How the results of the analysis are affected by the choice of whether to include the variables described above may differ for Canada and England, given these two countries’ institutional differences. For example, the traditional system of voluntary recognition in England might lead to a higher likelihood of union coverage for workers with “good” jobs and employers, whose pay is already high (Godard 2005). If so, failure to control for

job and employer characteristics is likely to result in an upward bias. Canada's system of involuntary recognition and relatively strong organizing rights for workers, in contrast, might result in a higher likelihood of union coverage for workers with "bad" jobs and employers (Godard 2005), giving rise to lower pay with or without a union. If so, failure to control for these characteristics may result in a downward estimation bias. However, my concern in this paper is less with the implications of specific variables than with whether they matter in general to the estimation of AWP payoffs and union wage premia. Thus, it is beyond the present purpose to attempt to develop more specific hypotheses as to whether and how individual variables generate different biases in the two countries.

Data and Methods

The data set employed for this analysis is from a follow-up and extension to a 1997–98 telephone survey of 508 employed Canadians (Godard 2001). It averaged approximately twenty minutes in duration. Households were initially telephoned at random in English-speaking provinces of Canada (by the polling firm Prairie Research Associates) and in England (by Wirthlin Europe) in February and March 2003. This stage yielded a sample size of 450 employed respondents for each country. To facilitate more thorough analysis, an additional sample of 300 employed respondents was obtained in Canada in February and March 2004, using the same method. Unfortunately, the polling firm for England was unwilling to expand the English sample. Restriction of the surveys to English-speaking Canada and England was intended to avoid problems arising from potentially important differences between English and French Canada and between England and Scotland, Wales, and Northern Ireland. The overall response rates were estimated to be 39% for Canada and 31% for

England.⁵ The data may contain sampling biases, especially in England, where men and union members represented, respectively, 51% and 28% of the labor force as of 2003, but comprised 45% and 42% of respondents. In Canada, by comparison, men and union members represented 51% and 31% of the labor force, respectively, and 47% and 35% of respondents.

The measures used in the present analysis appear in Appendix A. Where appropriate, their item content and inter-item reliability scores (Cronbach's alpha) are also included. These measures follow directly from the earlier discussion and are relatively straightforward, with the exception of AWP. AWP is a 13-item additive index adapted from Godard (2001). Because fewer than 1% of respondents in each sample reported more than 10 practices, the upper bound was attenuated to 10. In addition, this index was divided by 10, thus giving it a range of from 0 to 1.0.⁶ This allows for a direct and relatively simple initial comparison between the AWP payoff and the union wage premium and renders the AWP coefficient easy to interpret. However, a score of 1.0 on the AWP index can be thought of as representing the maximum premium, from the most "powerful" AWP program possible, while a score of 1.0 on union coverage only represents the "average" union, not the most powerful one. Accordingly, alternative criteria for comparison will be applied, based on the magnitude of the AWP coefficients and on alternative measures, once the main analysis has been completed.

Analysis

Although this paper is concerned primarily with AWP wage payoffs, the extent to which these payoffs equal or exceed union wage

holds was assumed to be the same among households for which eligibility could not be determined (due to telephone hang-ups) as among those for which it could be, and hence was used to estimate the total number of eligible non-respondents.

⁶The original items for this index measured respondent involvement levels with each practice, on a scale of 1 to 5. However, creation of the AWP index using these scores yielded little difference in the results and was more difficult to interpret than a simple count index.

⁵This was computed as the number of respondents divided by the number of households in which there was an eligible member available at the time of contact (in England, 38.5% of households had an eligible member; in Canada, 37%). The ratio of eligible to ineligible house-

Table 1. Estimated Payoffs under Alternative Specifications.

Specification	Estimated AWP Payoffs ^a			Estimated Union Premia ^a		
	Canada (N = 644)	England (N = 363)	Canada & Eng. (N = 1,007)	Canada (N = 644)	England (N = 363)	Canada & Eng. (N = 1,007)
1. Full Model / Lower Bound Estimates	6.2	6.7	4.9	11.0***	2.1	7.6***
2. Work Experience Vars. Excluded ^b	9.3*	12.0	9.1**	8.8**	1.0	6.0**
3. HRM Practices Excluded ^b	3.3	8.4	3.9	11.9***	2.5	7.8***
4. Employment Context Vars. Excluded ^b	9.0	6.4	7.0*	13.4***	3.1	10.4***
5. Subjective Attributes Excluded ^b	6.6	6.3	5.1	9.2***	2.0	6.4**
6. Work Experience, HRM, Employment Context, Attributes Excluded ^b	16.3***	18.2**	16.8***	11.7***	3.3	3.4
7. Reduced Model / Upper Bound Estimates^c	9.9*	9.7	8.9**	n/a	n/a	n/a

^aIn percent, calculated by taking the anti-log of the coefficient, minus 1.

^bRows 2 to 6 identify union and AWP coefficients when specific variable sets are excluded.

^cRow 7 identifies estimated AWP premia when *job complexity*, *empowerment*, *employer finances*, and *growth/decline* are excluded.

*Statistically significant at the .10 level; **at the .05 level; ***at the .01 level (one tailed tests).

premia is important for assessing their relative value as means to “good” pay and their potential implications for union representation. Thus, I first estimate and compare the effects of AWP and union coverage on the log of hourly wages, experimenting with a number of alternative specifications in order to explore how the addition of different sets of control variables alters the estimated AWP and union effect sizes (research question 4). Next, I draw on these findings to address the extent to which different levels of AWP adoption generated payoffs that were equivalent to or greater than union wage premiums, and hence may serve as alternatives to unions (research question 1). I then explore the possible interactions between union representation and AWPs (research question 2). In all cases, I run separate regressions for the Canadian and English samples, thus facilitating exploration of how the institutional differences identified above influence the results (research question 3). However, I also report full regressions for the combined sample where appropriate.

Because the English sample is smaller than the Canadian sample, the standard errors tend to be higher for it, lowering the likelihood of statistical significance. To an

extent, this limits the basis for comparison. However, it will still be useful to compare the coefficients in the English sample to those in the Canadian sample, even where they are not statistically significant, in order to establish whether there *appear* to be systematic differences between the two samples.

Alternative Model Specifications

The estimated AWP payoff and union wage premia with and without controlling for various variable sets are shown in Table 1. All estimates are calculated by taking the anti-log of the coefficient, minus 1, thereby converting log points to percentage scores (Lewis 1986:13).

The AWP and union estimates for the full specifications (that is, controlling for all of the variable sets identified above; see Appendix B) appear in row 1. They reveal AWP payoffs for both samples and for the combined sample as a whole that are relatively weak and not statistically significant, a moderate and statistically significant union premium for the Canadian sample, a negligible and statistically insignificant union premium for the English sample, and a moderate and statistically significant union premium for the combined sample. In view of the differences

between the Canadian and English union premia, however, the estimate of the union premium for the combined sample should be disregarded.

To investigate whether the unique variable sets included in this paper may serve to reduce estimation biases that have potentially plagued other research (research question 4), I reran the full specifications, removing, in successive trials, (a) only the work experience variables; (b) only the HRM practice variables; (c) only the employment context variables; (d) only the subjective attributes measures; and (e) all four sets of control variables.

Rows 2–5 report the change in the AWP and union estimates when each variable set is removed, and row 6 reports the change when all four variable sets are removed. These results reveal that, with the exception of subjective attributes and, in the case of England, employment context variables, exclusion of these variable sets may introduce substantial biases into the estimation of AWP payoffs. Indeed, when all variable sets are excluded (row 6), the estimated payoffs increase to 16.9% for Canada, 19.0% for England, and 16.8% for the entire sample. This compares to 6.2%, 5.5%, and 4.9%, respectively, in the full model (row 1). The estimated union premia appear to be less affected, overall, by exclusion of these variable sets, with little change occurring from row 1 to row 6. However, in the case of Canada, this is because the direction of the biases varies. All except the HR practice measures alter the estimated union premium in the Canadian sample by one percentage point or more if excluded.

These results suggest that failure to include the variables unique to this study may indeed result in meaningful biases, especially in the estimation of AWP wage payoffs. However, some of these variables may also actually serve as routes through which AWP payoffs are realized. AWP are believed to yield payoffs in part through their implications for enhanced job complexity and empowerment (that is, efficiency wages), on the one hand, and in part through improved employer performance and hence both employer finances and growth (that is, mutual gains),

on the other. Research evidence in support of these arguments not only is limited at best (Handel and Levine 2004; Godard 2004b), but also somewhat equivocal, inasmuch as it suggests that these variables are at least in part causally prior to the adoption of AWP (Handel and Gittelman 2004:90–94). If the latter is true, to exclude the variables could produce an upward bias in the estimates. But their inclusion may also produce downward biases. Reporting estimates that exclude these variables and estimates that include them makes it possible to establish upper- and lower-bound estimates, respectively.⁷

While the full model (row 1) yields lower-bound estimates, row 7 reports upper-bound estimates, based on a reduced model in which the potentially intermediate variables are excluded. As expected, these estimates suggest higher payoffs for AWP than do the full specifications in row 1. In addition, the AWP estimate is statistically significant in both the Canadian sample and the combined samples. The AWP estimate for England is not statistically significant, but its magnitude is almost identical to that for the Canadian sample, suggesting that the want of statistical significance reflects the smaller sample size for England, and that there is thus little difference between these two nations in the AWP payoffs, despite major differences in the union premia.

These estimates may still understate the true effects of AWP, either due to synergies from the adoption of multiple AWP, with increased levels of AWP adoption yielding increased marginal returns, or due to complementarities between AWP and best HR

⁷There is no obvious basis for making a similar argument for the union premium, although I did run alternative specifications leaving *job complexity* and *empowerment* out. Doing so resulted in estimates of 10.7% ($p = .01$) for Canada and 0.4% for England.

⁸It is also possible that a simple AWP index, though easy to interpret, generates results that do not fully capture the potential effects of AWP (Forth and Millward 2004:105). Accordingly, I ran regressions with dummy variables representing four alternative levels of adoption: 0 to 2 (no adoption); 3 to 4 (low); 5 to 7 (moderate); and 8 or more (full). However, the results did not differ appreciably from those obtained by using these alternative criteria.

Table 2. Estimated Payoffs under Alternative AWP Adoption Levels.

Description	Estimated AWP Payoffs		
	Canada (N = 644)	England (N = 363)	Canada & Eng. (N = 1007)
Upper Bound Estimates (At Least 10 AWP)	9.9*	9.7	8.9**
Full AWP Programs (8 or More AWP)	8.8*	8.5	7.9**
Moderate AWP Programs (5 to 7 AWP)	6.3*	5.9	5.7**

Notes: Upper-bound estimates are taken from Table 1. Payoffs for “full” and “moderate” are computed by taking the mean number of AWP for workers in each category and multiplying it by the initial, upper-bound estimate.

*Statistically significant at the .10 level; **at the .05 level (one tailed tests).

practices.⁸ The synergies argument suggests an upward-sloping concave curve, with the returns to AWP increasing exponentially as more are adopted. Thus, I sought evidence of synergies by introducing a quadratic term for AWP (see Aiken and West 1991:63–66). To search for complementarities, I drew on the approach developed by Forth and Millward (2004).⁹ With regard to the former, neither AWP nor AWP squared was statistically significant in either sample, suggesting no support for the synergies argument. As for the latter, a dummy variable representing “high-involvement” workplaces was statistically significant in both samples and in the combined sample, but only before the remaining HRM practices—practices not included in the Forth and Millward analysis—were controlled for. The coefficient on a dummy variable representing Forth and Millward’s “mixed” or in-between approach was also statistically significant in the Canadian sample both before and after introducing these controls ($B = .062$, $p = .53$), which, if anything, is contrary to the complementarities argument.

How Do AWP Payoffs Compare to Union Premia?

The results so far have addressed speci-

⁹They distinguished between traditional, mixed, and high-involvement workplaces, all designated by a dummy variable. Although their data were collected at the workplace as well as the individual level, the data set used in the present analysis contains items almost identical to theirs. Some of these have to this point been considered as HR practices, and so I deleted them from the HR indices and, following Forth and Millward, used them and the AWP to classify workplaces.

fication issues and provided upper- and lower-bound estimates of AWP payoffs and estimates of union premia. However, they still may not provide a clear basis for comparing union and AWP payoffs. As noted earlier, the union estimates in Table 1 represent the difference between the average union and the average non-union respondent, while the AWP estimates represent the difference between respondents subject to maximum levels of AWP adoption and those subject to no AWP at all. Only 4% of respondents reported maximum levels (10 or more AWP). Indeed, only 14% reported the adoption of 8 or more AWP, and only 1 in 3 reported the adoption of 5 or more. As such, the AWP estimates in Table 1 may not provide for meaningful direct comparisons with union premia.

For the present, we can specify two somewhat arbitrary criteria for obtaining such comparisons: (1) the average effects for those subject to “full” AWP programs, defined as consisting of 8 or more AWP, and hence comprising 14% of the sample, and (2) the average effects for “meaningful” programs, defined as consisting of from 5 to 7 AWP and hence comprising a fifth (a third minus 14%) of the sample. We can then multiply the mean number of AWP reported by respondents in each category, divided by 10, by the AWP coefficient in the full and reduced models (rows 1 and 7). Because none of the lower-bound AWP estimates in Table 1 are statistically significant, I report this computation only for the reduced model/upper-bound estimates. For Canada, the category means are 8.9 and 6.4, respectively; for England,

Table 3. Estimated Payoffs under Alternative AWP Adoption Levels, by Union Coverage.

Description	Canada		England		Canada & England	
	Union (N = 419)	Non-Union (N = 224)	Union (N = 206)	Non-Union (N = 157)	Union (N = 643)	Non-Union (N = 382)
Lower Bound Estimates (10 AWPs)	-1.5	7.8	4.2	12.7	1.7	9.4*
Full AWP Programs (8 or More AWPs)	-1.3	7.2	3.7	11.6	1.5	8.4*
Moderate AWP Programs (5 to 7 AWPs)	-1.0	4.5	2.7	7.7	1.1	5.8*
Upper Bound Estimates (10 AWPs)	-2.9	15.4**	6.7	17.4	1.0	16.0**
Full AWP Programs (8 or More AWPs)	-2.5	14.0**	6.0	15.8	0.9	14.6**
Moderate AWP Programs (5 to 7 AWPs)	-1.9	8.9**	4.3	10.6	0.6	9.4**

See Table 2 notes for computation of payoffs for "full" and "moderate" programs. See Table 1 for additional notes.

*Statistically significant at the .10 level; **at the .05 level (one tailed tests).

they are 8.8 and 6.4; and for the full sample they are 8.9 and 6.4. As revealed in Table 2, this results in upper-bound estimates of 8.8% and 6.3% for Canada, 8.5% and 5.9% for England, and 7.9% and 5.7% for the combined sample.

These calculations suggest that even moderate AWP programs *may* (that is, if one uses an optimistic, upper-bound estimate) generate meaningful payoffs overall. AWPs may also generate gains that begin to approximate the average Canadian union premium, but only where a full AWP program is in place. In contrast, in England the AWP payoff would appear to far exceed the union wage premium at even moderate adoption levels, although this is because English unions do not appear to generate a meaningful average wage premium, not because AWP payoffs are higher (which they are not).

Do AWP Payoffs Substitute for Union Premia in the Non-Union Sector?

The primary research questions underlying this paper pertain not only to how AWP payoffs *compare* to union premia (research question 1), but also to whether AWPs may be either serving as *substitutes* for unions in this regard or providing unions with a new economic role (research question 2). To address this question, I divided the samples into two, based on union coverage, and estimated the AWP payoff in each sector of each country and

for the sample as a whole, using the full (lower-bound) and the reduced (upper-bound) specifications.

As revealed in Table 3, both specifications suggest that AWPs had little if any wage payoff in the union sector of either country, but that they had large and very meaningful payoffs in the non-union sector. In the full, lower bound specification, only the estimates for the combined sample are statistically significant. However, they suggest that full AWP programs on average yielded, at minimum (that is, at the lower bound), a payoff of 8.4% for non-union workers, and moderate programs a payoff of 5.8%. The results also suggest higher payoffs for both union and non-union workers in England than in Canada, but the lack of statistical significance in both samples limits any conclusions that might be drawn.

The reduced, upper-bound, specification reveals even higher payoffs for non-union workers. The AWP payoff for non-union workers in the combined sample suggests an average payoff of 14.6% for workers subject to a full AWP program, and 9.4% for those in even a moderate one. The non-union estimates are similar across the two samples, indicating that differences between the Canadian and English institutional environments may make little difference in this sector. For Canada, the estimate suggests average payoffs of 14.0% and 8.9% for those subject to full and moderate programs, respectively. For England, it suggests average payoffs of 15.8%

and 10.6%, respectively. The English estimate is not statistically significant, but as it is slightly larger than its Canadian counterpart, this likely reflects the smaller sample size (the *p* value is .105). There is a greater difference in the estimates for the union sector. The estimates suggest payoffs of -2.5% and -1.9% for union workers in Canada, and 6.0% and 4.3% for their counterparts in England. But the lack of statistical significance for union workers in both samples again renders any conclusion as to the causes of these differences tentative at best.

When considered in conjunction with the estimated union premia in Table 1, these findings suggest that, in Canada, non-union workers with meaningful AWP programs may (that is, using upper-bound estimates) fare only slightly worse than their union counterparts and that those with full programs may fare better. Even though the *p* value for the English sample does not meet the .10 criterion used in this study, the results also pretty clearly suggest that, in England, non-union workers with only moderate AWP programs fare much better than their union counterparts, who receive little union wage premium and, at most, a small AWP payoff.

One possibility is that AWP are associated with higher pay for union workers than for non-union workers, but that this pay reflects compensating differentials associated with an intensification approach.¹⁰ However, subsequent analysis, in which all of the work experience variables were excluded, yielded no appreciable differences from the reduced model estimates for union (or, for that matter, non-union) respondents. This suggests

¹⁰Another possibility is that AWP do generate performance gains in the union sector, but that these gains go toward "paying off" the union premium. Yet this could be the case only if union wage premiums correlate highly with AWP adoption (and hence gains), and if that is the case, failure to control for correlates of the union premium (for example, related to bargaining power) will bias the AWP premium estimate upward in the union sector, not downward. One would also expect little sectoral difference in England, where the union wage premium is negligible. In any case, the results suggest that union workers are not any better off than their non-union counterparts who have either meaningful or full AWP programs.

that, in both Canada and England, AWP are incompatible with union representation and hence yield no performance gains—not even through work intensification—from which wage payoffs might be derived.

These findings are contrary to those of Forth and Millward (2002), who reported a larger rather than a smaller payoff for union workers in Britain. One possible reason for this difference is that Forth and Millward included some HRM practices in their index, and did not fully control for others. To explore this possibility, I reran the reduced form union sector regressions without controlling for *best practices* or *good practices* (the two HRM controls). Although the estimated AWP payoff for Canada remained virtually unchanged from the upper bound estimate reported in Table 3 (-2.8%), it jumped to 34.9% (*p* = .009) for England. When I excluded only *best practices*, the Canadian estimate dropped to -5.8% (not statistically significant) and the England estimate increased to 38.7% (*p* = .007). Similar analyses for the non-union sector resulted in only small changes, with the estimates dropping by from 2.7 to 3.4 percentage points below those reported in Table 3.

These results suggest that the Forth and Millward finding of an additional AWP payoff in union workplaces in England is illusory, reflecting a tendency for unions and best HR practices, which do yield a premium in that country, to go hand-in-hand.¹¹ Such an interpretation is also consistent with recent findings of Machin and Wood (2005), and suggests important interaction effects, involving *best practices* as well as *if union* and AWP.¹² I thus decided to investigate whether such interactions exist. I first introduced a two-way interaction term for *union representation* and

¹¹Further analysis revealed that the partial correlations for *if union* with *best practices* and with AWP, after controlling for all other variables in the full specification except *good practices*, were moderately high (.172 and .178, respectively) with high statistical significance levels (*p* = .000). In contrast, the equivalent partial correlations for Canada were small, not statistically significant, and negative (-.034 and -.022, respectively).

¹²I also performed a trial using a measure of all HRM practices combined (that is, good plus best). The results were weaker.

Table 4. Interactions between AWP, Unions, and Best Practices.

Independent Variable	Canada (N = 644)		England (N = 363)	
	If Union	18.3***	19.6***	-6.4
AWPs	29.3**	29.6	-27.0	23.1
Best Practices	—	-1.7	—	-4.7**
If Union × AWP	-5.9	-6.1	9.4*	-4.7
If Union × BestPract.	—	5.5	—	22.5**
AWPs × BestPract.	—	6.3	—	8.8
If Union × AWP × BestPract.	—	-6.2	—	-4.0
Rsqr.	.528	.528	.419	.434

Notes: The dependent variable is the log of wages/hour. All estimates are in percent and based on the full specification; the interaction terms are standardized. See Table 1 for additional notes.

*Statistically significant at the .10 level; **at the .05 level; ***at the .01 level (one tailed tests).

AWPs into the full specification. I then added two-way interaction terms with *best practices* for each of these variables, and a three-way interaction term for all three variables. The interaction terms were standardized.

The results, shown in Table 4, reveal that the interaction terms in the Canadian regressions are not statistically significant. However, the results for England point to the importance of institutional differences. They reveal a statistically significant positive interaction for *if union* and *best practices*, although not for any of the other interaction terms. Subsequent analysis, in which both samples were split by union status, revealed coefficients that were small and not statistically significant for *best practices* in the Canadian union and non-union samples and the English non-union sample. But it revealed a large and highly significant ($p = .001$) coefficient for the English union sample, one that translates into a 41% difference between the pay of union workers scoring at the 90th percentile of the best practices scale and the pay of those scoring at the 10th percentile.¹³ This estimate should be treated with considerable caution in view of the limited size of the English union sample. But it would clearly appear to confirm the suspicion that there is a strong complementarity between

union presence and best HR practices in England, even if there is no interaction with AWP. This is consistent with the argument that “best” HR practice employers are more likely to treat unions as partners and share resulting gains from doing so, reflecting a mutual gains approach—but not one that derives from AWP.

Discussion

This paper has had three primary objectives. The first has been to address how AWP payoffs in general compare to union premia and hence whether they may be providing an additional means for workers to achieve improved wages. The results suggest that, in both countries, even moderate levels of AWP adoption generate meaningful payoffs. In Canada, AWP may even yield payoffs comparable to those yielded by union representation, but only where there are relatively high levels of adoption, and only when more optimistic “upper-bound” estimates are used. In England, AWP appear to yield payoffs that exceed those yielded by union representation, although this is largely because the union premium is negligible.

The second primary objective has been to address possible interactions, and to explore in particular whether AWP payoffs may be (1) serving as *substitutes* for union premia in the non-union sector, thereby potentially lowering demand for union representation, or (2) providing a new economic role for unions. The results suggest that, in both countries

¹³Computed by subtracting the *best practice* score at the 10th percentile (-7.03) from that at the 90th percentile (6.65), multiplying by B (.025) to obtain log points (0.342), calculating the antilog (1.40), and subtracting 1.

and in the combined sample, non-union workers subject to even moderate levels of AWP adoption enjoy an AWP payoff that is only slightly below the Canadian union premium, and that those subject to full-blown AWP programs enjoy an AWP payoff that is well above the Canadian union premium. Coupled with the absence of any AWP payoff in the Canadian union sample, this means that AWP may indeed serve as substitutes for union representation in Canada, other things equal. In England, there may be some AWP payoff for union workers, but even if there is, it falls far below the payoff for non-union workers subject to even moderate levels of AWP adoption. This, coupled with a negligible union wage premium, essentially suggests that AWP has not just come to serve as an alternative to unions as a means to higher pay, they have actually supplanted them. However, there is a strong interaction between union representation and so-called “best” HR practices in the English sample, suggesting that, in “best HR practice” workplaces, the presence of a union does provide meaningful gains for union members. Thus, in England, unions may be associated with pay gains for their members in these workplaces, even if this is not through cooperation in AWP programs or through traditional pay bargaining.

The third primary objective has been to establish whether and how the different institutional environments of England and Canada matter. Although the findings reveal substantial cross-national differences in union wage premia, they provide no evidence of important differences in AWP payoffs. This latter result is especially true for nonunion workers, but even among union workers, any difference in AWP payoffs between Canada and England is likely small. Thus, it appears that the differences between the institutional environments of these countries, although substantial, do not matter with regard to AWP payoffs and hence need not be taken into account when theorizing about these payoffs. As expected, however, these differences do appear to matter with respect to union wage premia, with potential implications for how AWP payoffs affect demand for union representation. Moreover, differ-

ences in institutional environments appear to matter with regard to the interaction between union representation and “best” HR practices. The finding of a positive interaction for England, yet of no interaction at all for Canada, is consistent with the argument that the English environment lends itself to a collaborative role for unions, especially in “best” HR practice workplaces, and the Canadian environment to a more adversarial one.

Finally, a secondary objective of this paper has been to establish the implications of model specification for the estimation of AWP and union wage premia, especially the implications of including sets of variables that are not found in other data sets. As expected, the analysis established that the inclusion of these sets of variables matters to a considerable extent, especially for the estimation of AWP wage payoffs but also for the estimation of union wage premia. Thus, there is a need for data sets that include a more complete array of control variables than have typically been used if researchers are to accurately estimate the implications of AWP (and unions) for pay.

Conclusions

Although the data set employed in this study is rich in a number of respects, it may also suffer from important limitations, and so at least some of the results should be viewed as preliminary.¹⁴ In particular, larger sample sizes, especially for the English sample, would likely have yielded more robust results. It is also possible that even the more comprehensive set of control variables included in this study was insufficient, omitting additional variables that matter (for example, health and safety). Finally, there is some possibility (although likely a small one) of endogeneity biases in the estimates. But regardless of its possible limitations, this study yields two potentially important conclusions.

¹⁴For example, union premia may be related to unemployment levels (Blanchflower and Bryson 2003), providing a possible alternative explanation for the findings in this paper. But ILO adjusted unemployment estimates were 7.6% both for Canada and for the United Kingdom in 2003 (<http://laborsta.ilo.org>).

First, AWP in general appear to yield meaningful gains for workers, especially in the non-union sector. But they may represent a double-edged sword. On the one hand, they appear to provide an alternative to collective bargaining as a means through which workers can improve their economic well-being. On the other hand, they may further undermine demand for union representation. This may matter more in Canada, where unions have continued to win gains through collective bargaining alone, and where union members do not enjoy the payoff from AWP enjoyed by their non-union counterparts, than in England. In England, collective bargaining no longer appears to produce meaningful gains (on average) for workers, so AWP payoffs cannot be seen as in competition with it. AWP gains do appear to be limited to the non-union sector, potentially providing workers with an incentive to choose non-union workplaces with relatively high levels of AWP adoption over union workplaces. However, English unions appear to play a meaningful economic role for workers in “best” HR practice workplaces, yielding substantial gains for their members in this respect.

Second, institutional environments may not matter with regard to the generation of gains from AWP. But they do matter with regard to the economic role played by unions. In Canada, this role appears to revolve around collective bargaining, and to reflect an adversarial relationship, as re-

vealed by a sizeable union premium but no added payoff to AWP or to best HR practices in the union sector. In England it appears to revolve more around the implementation of “best” HR practices and to reflect a more collaborative relationship, as revealed by a negligible union wage premium but a sizeable added payoff to best HR practices in the union sector.

One possible conclusion is that the results in this paper point to the need for Canadian unions (and, potentially, their U.S. counterparts) to discard their “old” adversarial role in favor of a “new” collaborative role and thus to follow the example of their English counterparts before it is too late. Yet not only do differences in institutional environments explain differences in the predominant roles of unions in the two countries, they also constrain the ability of unions to alter these roles, especially because they tend to reflect different and difficult-to-change national traditions and trajectories (Godard 2004a). Any attempt by Canadian unions to shift to a collaborative role may simply be too out of step with these traditions and trajectories and the institutional environment to which they have given rise. The same may be true for the U.S. labor movement in view of institutional similarities with Canada. If so, there may be some future for British unions in generating economic gains for workers through a collaborative, mutual gains role, but the future of North American unions may still lie elsewhere.

Appendix A
Variables

Ln Pay (logarithm of continuous variable) Can you tell me what you normally [in an average week] earn for each hour you work, before deductions?

If Union (single item binary variable) If represented by a recognized union or covered by a union agreement (union defined as “any organization that negotiates on behalf of workers or seeks to do so, including employee associations established for this purpose”) (1 = no, 2 = yes)

AWPs (additive scale adapted from Godard 2001, alpha = .71) (1) If involved to at least a moderate extent in a) a system for minimizing inventories, supplies, work in progress, for example, just-in-time; b) a workplace redesign, reorganization, or re-engineering program; c) a quality improvement program—for example, total quality management, ISO 9000; d) a job rotation program; e) a cross-training or multi-skilling program; f) a team-based work system; g) teams that are self-directed or semi-autonomous, with no direct supervision; h) teams that are given responsibility for specific products or services; i) informational meetings or briefings for workers—for example, town hall meetings or team briefings; j) team or area meetings held specifically for workers to discuss quality or workflow issues, sometimes referred to as quality circles; k) a joint committee or council where formally elected or appointed representatives of workers meet with management to discuss workplace changes and policies for you. (2) If pay depends to a moderate extent on l) a group or departmental bonus system; m) a profit- or productivity-sharing system.

Human Capital

Age (continuous, transformed to dummy variables to maximize explained variance). Would you mind telling me your age?

Education (categorical, transformed to dummy variables) What is your highest educational or occupational qualification?

Seniority (continuous variable) For how many years have you worked for your current employer?

Proxy Characteristics

Public Sector (binary variable) If employer’s main business is in government administration or public services.

Core Sector (binary variable) If employer is in public utilities, manufacturing, transportation, communication, construction, or resource extraction.

Managerial/Professional (binary variable) If respondent is in a designated profession, a manager, or a supervisor.

Skilled Blue-Collar (binary variable) If respondent works in a skilled trades position (for example, printer, baker, tailor, electrician, machinist, plumber, carpenter, mechanic).

Semi-skilled Blue-Collar (binary variable) If respondent works in a semi-skilled skilled trades position (for example, factory machine operator, assembly line worker, truck, taxi, or bus driver).

Male (binary variable) If respondent is a male.

Hours/Week (continuous variable) On average, about how many hours a week do you work in this job?

Work Experience

Job Complexity (additive scale from Oldham and Hackman 1980, alpha = .85) a) Your job requires a high level of skill; b) Your job is challenging; c) Your job makes you keep learning new things; d) There is a lot of variety in the kinds of things you do in your job; e) Your job requires lots of mental effort. (for all items, 1 = strongly disagree, 5 = strongly agree)

Empowerment (R; additive scale adapted from Godard 2001, alpha = .85) a) What happens to you and your co-workers is pretty much beyond your control; b) You and your co-workers have little choice but to go along with things at work, even if you disagree with them; c) You and your co-workers have little choice but to do what you are told at work, whether you like it or not; d) It does little good to speak up about things; e) There is little point in you and your co-workers trying to affect the way things are done. (for all items, 1 = strongly agree, 5 = strongly disagree)

Role Stress (additive scale from Godard 2001, alpha = .76) a) Your job is stressful; b) Some days, you feel like you cannot continue any longer at your job; c) In your job, you are often confronted with problems you can’t do much about; d) You have little time to think and contemplate on your job; e) You have conflicting demands placed on you on your job. (for all items, 1 = strongly disagree, 5 = strongly agree)

Fatigue (additive scale from Godard 2001, alpha = .82) a) You are often worn out by the end of the day; b) After working, you are too tired to do things with others; c) When at home, all you want to do is rest; d) Some days you feel

like you can't continue any longer at your job. (*for all items, 1 = strongly disagree, 5 = strongly agree*)

Insecurity (additive scale developed for this study, alpha = .68) To what extent do you worry that a) things could change for the worse at work; b) you could soon find yourself out of a job; c) you would have difficulty getting another job at the same pay, without having to move house? (*for all items, 1 = not at all, 5 = to a great extent*)

Normative Pressures (additive scale developed for this study, alpha = .62) a) You are expected to not just do your job well, but also to demonstrate a high level of loyalty to management; b) It is not a good idea to question or criticize a management decision or policy; c) You are expected to accept employer goals and values as if they are your own, even though they may not be; d) There is constant pressure to perform at high levels; e) There is pressure to go to work even if you are feeling unwell (*for all items, 1 = strongly disagree, 5 = strongly agree*)

HRM Practices

Good Practices (additive scale with standardized mixed response items, developed for this study, alpha = .57) a) if the respondent was tested for job-related knowledge or abilities at the time of hiring; b) if there was a formal orientation session once the respondent was hired; c) if the respondent has a dental plan paid for primarily by the employer; d) days of employer-sponsored technical knowledge or skill training sessions attended by the respondent in the past year; e) if employees are given priority over external applicants when a good job opens up; f) if employees with the most seniority are given priority, as long as they are qualified, when a new job opens up; g) if workers can get a formal hearing, with some form of representation, in the event that they are about to be disciplined; h) if job security policies or protections make it unlikely that permanent employees will ever be laid off; i) if there is a complex system for classifying jobs. (*for a to c, 1 = no, 2 = yes; d is interval; e to i, 1 = strongly disagree, 5 = strongly agree*)

Best Practices (additive scale with standardized mixed response items, developed for this study, alpha = .71) a) if the respondent was tested for values, attitudes, preferences, or overall personality at the time of hiring; b) if the respondent was subject to formal review or appraisal over the past year; c) if the respondent receives appraisals in which plans for long-term advancement or career development are discussed; d) if the respondent was asked to participate in team building, communication, or similar exercises when first hired; e) if there is a policy whereby all workers are in theory treated equally regardless of who they are, possibly referred to as a single-status policy; f) days spent by the respondent over the past year in employer-sponsored problem-solving, team working, communications, or related skill-building sessions; g) the respondent's degree of involvement in a continuous learning or long-term employee development program. (*for a to e, 1 = no, 2 = yes; f is interval; g, 1 = no involvement, 5 = high involvement*)

Employment Context

Workplace Size (categorical variable) Overall, approximately how many people are now employed in total—including full or part time—at the workplace you work in or from? Would you say under 25, between 25 and 100, between 100 and 500, or over 500? (*1 = under 25, 4 = over 500*)

Workplace Growth/Decline (ordered categorical variable) As far as you know, which of the following best reflects how many people work here compared to five years ago? (*1 = a lot more, 5 = a lot less*)

Employer Finances (ordered categorical variable, R) As far as you know, how good or bad is your employer's financial or budgetary situation at present? Would you say it is . . . ? (*1 = very bad, 5 = very good*)

Subjective Attributes

Trustee (5 point scale) How much would you agree or disagree that you are the type of person who, even before you got your current job, has always tended to trust employers to treat employees fairly? (*1 = strongly disagree, 5 = strongly agree*)

Loyalist (5 point scale) How much would you agree or disagree that you are the type of person who, even before you got your current job, has always tended to think loyalty to one's employer is important? (*1 = strongly disagree, 5 = strongly agree*)

Unionist (5 point scale) How much would you agree or disagree that you are the type of person who, even before you got your current job, has always tended to think unions are needed to look out for workers? (*1 = strongly disagree, 5 = strongly agree*)

Note: R = items have been reverse-coded for purposes of scale creation.

Appendix B
Full Wage Determination Model
(Unstandardized Coefficients)

<i>Independent Variables</i>	<i>Canada</i>	<i>England</i>	<i>Canada & England</i>
Human Capital Variables			
Age 21 to 24	.021	.231**	.071
Age 25 to 29	.225***	.106	.191***
Age 30 and Over	.294***	.145*	.255***
Skilled Trade	-.185***	-.245***	-.210***
Vocational Diploma	-.041***	-.074***	-.050***
High School or Less	-.362***	-.237***	-.304***
Seniority	.011***	.003*	.008***
Proxy Characteristics			
Public Sector	.021	.010	.018
Core Sector	.117***	.046	.103***
Managerial/Professional	.166***	.195***	.176***
Skilled Blue-Collar	.114**	.177***	.125***
Semi-Skilled Blue-Collar	.016	-.083	-.060
Male	.150***	.120***	.132***
Hours/Week	.001	.002	.001
Work Experience			
Job Complexity	.083***	.067***	.084***
Empowerment	.014	.033	-.015
Stress	.008	.054**	.025**
Fatigue	(-.015)	(-.021)	(-.020*)
Insecurity	-.027	-.029	-.020**
Normative Pressures	.042**	.009	.020
HRM Practices			
Good Practices	.003	-.007	.002
Best Practices	-.006	.007	-.002
Employment Context			
Workplace Size	.063***	.031**	.056***
Workplace Growth/Decline	-.007	.006	.002
Employer Finances (R)	.033***	(-.041**)	-.006
Subjective Attributes			
Truster	-.002	-.025	-.012
Loyalist	(-.031*)	.002	(-.018)
Unionist	-.017*	-.005	-.013*
Union/AWP Coverage			
Union Coverage	.103***	.021	.073***
AWP Coverage	.060	.063	.048
Rsq	.527	.416	.454

Notes: The age default is under 20 years old; the education default is university degree; the occupational default is white-collar or unskilled. See Table 1 for other notes.

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