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Does Dual Commitment Underlie Company and Union Commitment? Evidence from Australia, Sweden, and the United States

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Keywords
union members, dual commitment, human resource management, Australia, Sweden, United States

Disciplines
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Using diverse data from union members in Australia, Sweden, and the United States, this paper develops a new approach to study the dual commitment construct. Specifically, the paper investigates whether dual commitment (i.e., simultaneous commitment to the company and the union) represents a latent second-order factor underlying both union and company commitment factors. Accordingly, alternative models of the factor structure of union and company commitment are analysed to find the best fitting first-order models using the confirmatory factor analysis technique of LISREL VII. These best fitting factors are then subjected to second-order confirmatory factor analysis. The results using this sophisticated methodological approach indicate no support for a latent general dual commitment construct. Curiously, the results are similar to those obtained by other researchers who have so far failed to identify a dual commitment construct, but are at odds with the views of practitioners, who continue to pursue human resource management policies that are geared to increasing the dual commitment of employees. The implications for future research are discussed.

Introduction

The concept of dual commitment (also referred to as dual allegiance or dual loyalty) has been a subject of intermittent research interest over the last 40 years (Gordon and Ladd 1990). Early research argued that an employee’s commitment to the union would compete with his or her commitment to the company since there was essentially an adversarial relationship between the company and union (Kornhauser 1961). Researchers sought to question whether commitment to the company and union was an either/or choice for employees (Angle and Perry 1986). Since then, two primary reasons account for the renewal of research interest in dual commitment in the 1990s.
First, the traditional adversarial relationship between management and labor in Australia, the United States and other countries has begun to change. This new industrial relations (Kochan, Katz and McKersie 1986) is characterized by innovations such as increased employee input into decision making at the workplace and strategic levels of the enterprise, new production organization techniques emphasizing team work and quality circles, increased employment security, and new collective bargaining methods such as “win-win bargaining.” All of these innovations require cooperative management-labor relationships. This new approach to labor relations reflects the realization that workers and unions are necessary partners in production (Trowbridge 1986). Strauss (1988) refers to these new human resource (HR) systems as high commitment systems, i.e., systems designed to increase the commitment and loyalty of the unionized worker to the employer. Examples of cooperative labor management relationships in the auto industry (e.g., New United Motor Manufacturing Inc (NUMMI) and General Motors’ Saturn plant) have also heightened the interest in dual commitment. Dual commitment is now viewed as an essential ingredient in the success of cooperative labor-management relations (Kochan, Katz and Mowrer 1984).

Second, industrial psychologists have made considerable advances in measurement instruments for union commitment (Gordon, Philpot, Burt, Thompson and Spiller 1980) and company commitment (commonly referred to as organizational commitment [Porter, Steers, Mowday and Boulian 1974]). These efforts have led to new approaches to the study of dual commitment, and reflect efforts to isolate and perhaps measure, the construct.

Given the lack of theoretical development regarding the dual commitment construct, and given the increasing efforts of employers to increase the organizational commitment of unionized employees, this paper outlines a new hypothesis about the dual commitment construct, and uses a sophisticated methodological approach to test the hypothesis.

We examine the hypothesis that dual commitment is a latent second-order factor underlying both union and company commitment. If the second-order latent factor explains the relationships between the first-order company and union commitment factors, then a latent dual commitment variable can be said to exist. Before proceeding to the discussion of the methodological issues, it is first appropriate to examine the theoretical issues surrounding dual commitment.
Review of the Dual Commitment Literature

As dual commitment is generally considered to derive from the definitions of company and union commitment, the review of literature begins with a discussion of company and union commitment. It is usually agreed that the definitions of union commitment have been based on the company commitment literature (Kuruvilla and Iverson 1993). Although there is some disagreement over the definition of company commitment (e.g., Allen and Meyer 1990; Becker 1964; Coopey and Hartley 1991; Iverson and Roy 1994; Salancik 1977; Weiner 1982) researchers generally agree that the term commitment can be employed to describe two distinct but related concepts, attitudinal and behavioral commitment. Attitudinal commitment, also referred to as affective company commitment, represents the degree of loyalty an individual has for an organization. Specifically, it emphasizes an individual’s identification and involvement in the organization (Porter et al. 1974). Conversely, behavioral commitment, reflects the process by which individuals link themselves to an organization and focuses on the actions of the individuals. Kuruvilla and Iverson (1993) note that although that there are other forms of commitment such as continuance or calculative commitment (i.e., the costs associated with employees leaving the organization) and normative commitment (i.e., the right or moral thing to do (Weiner 1982), all forms of commitment reflect a bond between the individual and the organization.

Gordon et al. (1980) argued that the union commitment concept should be similar to the accepted definition of company commitment (Porter et al. 1974). They subsequently defined union commitment as the extent to which an individual (a) has a strong desire to remain a member of the union, (b) is willing to exert high levels of effort on behalf of the union, and (c) a definite belief in and acceptance of the values and goals of the union.

Dual commitment has been viewed as a combination of union and company commitment, and has been operationalized as “simultaneous commitment to the employer and to the union”. Therefore, definitions of company commitment and union commitment suggested by Porter et al (1974) and Gordon et al. (1980) can be merged to denote that dual commitment is the extent to which an individual (a) has a strong desire to remain a member of the company and union, (b) is willing to exert high levels of effort on behalf of the company and union, and (c) a definite belief in and acceptance of the values and goals of the company and union.
Despite the burgeoning interest in the concept, dual commitment research still appears to be plagued by a number of theoretical and methodological problems (Gordon and Ladd 1990). Indeed, a fundamental issue yet unresolved is the question of whether dual commitment exists. Does it in fact represent an independent psychological construct? The conceptual problem pertains to the absence of a theory that explains dual commitment. The methodological problems involve both analytical and measurement issues. Our review below focuses more on the relevant approaches to the identification of the dual commitment construct, which is the subject of this paper.

Approaches to Dual Commitment Studies

Gordon and Ladd (1990), provide an extensive review of the conceptual and methodological problems associated with dual commitment studies. It is not the intention in this paper to revisit that literature in detail (see however, Iverson and Kuruvilla 1990). We review here the relevant methodological approaches in studying the dual commitment construct. There are three main approaches: “taxonomic”, “dimensional”, and “parallel models”.

The taxonomic approach categorizes respondent scores on company and union commitment into high-low groups. Respondents in the first quadrant (high company-high union commitment), are labelled as being dually committed. Some researchers (e.g., Martin 1981), view people in the second quadrant (low union-low company) as being “dually uncommitted”. This approach then attempts to isolate variables (usually demographics) that differentiate membership in these groups. One problem with this approach is that cutoff points for dividing scores into four groups are arbitrarily determined (i.e., median and midpoint splits are commonly used), making categorization problematic (Gordon and Ladd 1990). There are also variations across samples in cutoff points used. A second problem concerns the information lost as a result of dichotomous categorization of continuous variables (commitment is typically measured on a five or seven point likert type scale). Although cluster analysis has been suggested (Gordon and Ladd 1990), defining clusters is still arbitrary. Finally, this approach does not provide evidence that a dual commitment construct exists.

The dimensional approach, which is more widely used (see Angle and Perry 1986; Conlon and Gallagher 1987), focuses on the first-order correlation coefficient as a indicator of dual commitment. A high correlation indicates the existence of dual commitment. This approach argues that the constructs of union and company commitment must become more intercorrelated for dual commitment to exist.
The correlation coefficient between two commitment scales is not related to the absolute values (levels) of commitment, since the correlation is sensitive to the variance. Therefore, it is possible to have a high correlation between company and union commitment, even if the absolute levels of both commitments are low. In addition, given the absence of theory, researchers have to assume that both commitments are equally important, i.e. they have no basis to decide whether union (company) commitment mediates the relationship between company (union) commitment and other antecedent variables (Gordon and Ladd 1990).

Other variations of the dimensional approach include the calculation of composite dual commitment scores by adding or multiplying an individual’s score on the company and union commitment measures. The relationship of this composite with antecedent and consequential variables is then examined. The problem with the adding up of scores to make a composite (see Magenau, Martin, and Peterson 1988) is that the sum of the two commitment measures cannot identify individual differences in commitment patterns, i.e., employees with different patterns for each commitment may have identical scores on the composite (dual commitment), and will be treated similarly. The multiplication of the two commitment scores (see Gallagher, Fiorito, Jarley, Jeong, and Wakabayashi 1988) is also subject to the above criticism. In addition, multiplication using scores measured on an interval scale without any rational zero point results in biased estimates (see Schmidt 1973, for examples of biased estimates using this procedure). Regardless of the way in which the composite is created, it is still a composite, but not necessarily a dual commitment construct.

If a high correlation is the means by which the existence of dual commitment is to be proved, then the empirical evidence to date presents very mixed results. The range of observed correlations between company and union commitment is large, ranging from 0 to .70 (Gordon and Ladd 1990). Young, McHugh and Reed (1992) attempted to explain these disparate research findings by employing the statistical technique of meta-analysis. Examining 13 studies across Canada, Japan, Sweden, and the United States they found the correlation between company and union commitment after correcting for the effects of sampling error and measurement error to be .47. In a subsequent analysis, they found that the type of industrial relations (classified as adversarial in Canada and the United States and consensual in Japan and Sweden) moderated the commitment relationship. One tentative conclusion possible from this evidence is that dual commitment may be a phenomenon that is sensitive to certain country and sample characteristics. This is consistent with the stream of research that suggests that dual commitment is a consequence of the quality of union-management relations (Angle and Perry 1986;
Magenau and Martin 1985), but this characterisation does not indicate whether dual commitment is a construct.

The parallel models approach, involves regressing measures of union and company commitment on a common, or similar set of antecedent measures in order to identify common predictors of both commitments (Fukami and Larson 1984; Jeong 1990). This approach only suggests variables that may influence union and company commitment, but tells us very little about the existence of a dual commitment construct. Attempts to measure dual commitment directly (e.g., Angle and Perry 1986) are also problematic given the absence of theory or empirical evidence that the construct exists. In addition, Gordon and Ladd (1990) note that the Angle and Perry (1986) scale does not really measure dual commitment, but appears to measure the extent to which membership in the company and union has created perceived role conflict. Furthermore, the construct validity of this scale has not been established.

The three previous approaches therefore do not provide evidence of the existence of the dual commitment construct. An examination of the antecedents of dual commitment, as Iverson and Kuruvilla (1990) suggest, is also premature until there is evidence that the construct itself exists. So too are direct measures of dual commitment (e.g., Angle and Perry 1986) without a clear theoretical underpinning for the construct.

Gordon and Ladd (1990) rightly note that the problem here is one of theory development, i.e., the inability of researchers to articulate a precise theoretical formulation and a nomological network in which the construct is embedded.

Curiously however, researchers continue to treat dual commitment as a construct (e.g., Gallagher et al. 1988). Most interestingly, there appears to be some consensus that dual commitment exists in empirical terms, especially amongst practitioners. It is seen as an integral part of the new industrial relations and HR strategy of employers, which is to increase the levels of commitment to the company of otherwise committed union members. Clearly, the new innovations in human resource management (HRM) practices such as increased employee participation, team based production systems, and total quality management (to name few examples) are predicated on the increased organizational commitment of unionized and non-unionized employees.

The peculiar situation where academicians cannot theoretically define the construct, while practitioners believe the construct exists, constitutes the primary justification of the different approach and methodology that is used in this paper. The approach is described in greater detail below.
The Dual Commitment Model

The argument in this paper is that the dimensional approach is not entirely without potential, although it has problems. In fact, our argument is that the dimensional approach, by observing only first-order correlations, does not go far enough. It is possible for two latent variables to be weakly correlated, but share a relationship at a higher order (Bollen 1989). That is, although the correlation between company and union commitment may be low, this does not exclude the possibility that dual commitment underlies both these constructs. This possibility casts doubt on the findings of such studies as Young et al. (1992), who base their analysis on the premise that a high first-order correlation indicates the existence of dual commitment. Marsh and Hocevar (1985) assert that second-order factor structures (e.g., general factor of commitment) are appropriate when trying to explain the covariances among first-order factors (e.g., company and union commitment). Gordon and Ladd (1990) allude to this prospect, suggesting dual commitment may represent a changing or melding of the factor structures underlying both company and union commitment. Iverson and Kuruvilla (1990) propose that union and company commitment are first-order representations of an underlying second-order latent dual commitment construct.

This second-order latent factor approach, although untested, is superior to the dimensional approach in that it accounts for the possibility that dual union and company commitment may be highly or lowly correlated. Under the dimensional approach, dual commitment is said to exist only if there is a high positive correlation between company and union commitment. Under this new approach, a low correlation would also indicate the existence of dual commitment, provided the second-order latent factor explains the covariance between the first-order constructs as suggested by Bollen (1989). Essentially then, dual commitment exists if the second-order latent dual commitment factor is successful in explaining the covariation among the first-order factors. However, so far, previous research has not yet uncovered a methodology that adequately tests for this possibility.

The objective of this paper is to test this proposition. Given that analysis of second-order factor structures are appropriate when trying to explain the covariances of first-order factors (Marsh and Hocevar 1985) we use the confirmatory factor analytic techniques of LISREL VII (Jöreskog and Sörbom 1988) to estimate whether a second-order dual commitment factor underlies company and union commitment in Australia, Sweden, and the United States. The model tested in this paper is detailed in Figure 1. Indicators (items) are shown in boxes, where the latent factors are shown in circles. For simplicity intercorrelations among the latent first-order factors have been omitted, as are the
disturbance terms of the latent first- and second-order factors. A complete description of the method used to estimate the latent second-order dual commitment factor is contained in the analytical procedures section of the paper.

**Methods**

**Subjects**

*Australia.* Surveys were administered to 400 employees belonging to three separate unions in a power generating plant in June 1986. Completed responses were received from 43% of the respondents, resulting in 181 useable cases. The sample consisted of full-time blue-collar (58.2%) and white-collar (41.2%) employees. A union shop clause was in operation and consequently, all employees in the sample were union members. Ninety-two per cent of the sample were male, and the average age, education, and tenure of employees were 31.92 years (SD=9.80) 11.34 years (SD=2.69), and 7.26 years (SD=1.27), respectively, commitment in Australia, Sweden, and the United States. The model tested in this paper is detailed in Figure 1. Indicators (items) are shown in boxes, where the latent factors are shown in circles. For simplicity intercorrelations among the latent first-order factors have been omitted, as are the
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Sweden. During the period of 1987-1988 questionnaires were mailed to 2900 professional union members affiliated with the Professional Union Federation (SACO), representing 26 different occupational groups. 1972 respondents returned the questionnaire (68% response rate), and after case-wise deletions for missing values 1805 cases were available for the analysis. Ninety-five per cent of the sample worked full-time, with 59% being male. The average age, education and tenure of employees were 41.64 years (SD=9.90) 17.60 years (SD=8.44), and 11.88 years (SD=8.64), respectively.

United States. Fifteen-hundred questionnaires were mailed to full time teachers (randomly selected) from a large Midwestern public school system between January and May 1991. The response rate was 57%, resulting in 838 useable cases. All teachers in the sample were union members. Eighty per cent of the sample were female, with the average age, education and tenure of teachers being 38.52 years (SD=9.45) 17.32 years (SD= 1.08), and 4.39 years (SD=3.72), respectively.

It is important to note that the samples differ in ways that may have implications for the dual commitment construct. The samples are drawn from different types of industrial relations systems. Employing Bamber and Lansbury’s (1987) typology of adversarial and consensual industrial relations, both the Australian and United States industrial relations systems are characterized by a greater degree of conflict than that of Sweden (e.g., Deery and Plowman 1991; Kochan, Katz and McKersie 1986), while Swedish industrial relations is characterized by a high level of cooperative labor-management relations (Pontusson and Kuruvilla 1991). The occupations in the samples also differ widely. The Australian sample consists of blue-collar workers, the Swedish sample consists of professionals, while the United States
sample consists of school teachers. In addition, the Australian sample was drawn from a manufacturing organization in the public sector, the Swedish sample was drawn from service organizations in the private and public sectors, and the United States sample was drawn from a service organization in the public sector. Further, the samples differed by gender, with males being predominantly represented in the Australian and Swedish samples, and females in the United States sample. The respondents within these samples work at different organizations characterized by variations in the quality of union-management relations. The Australian sample consists of workers at one plant, the Swedish sample of workers at a variety of occupations and organizations, while the United States sample consists of workers at over 400 schools in one school district. Finally, although the respondents in all three samples were union members, union membership was compulsory in the Australian sample (a union shop clause was in operation), and optional in the Swedish and United States samples. The diversity of these samples provide for a more robust test of the existence of a latent dual commitment construct.

However, a word of caution is appropriate here. It is possible that these macro level differences in economies may not quite translate into micro level differences in our three samples. Essentially, we have only one observation per country, a very limited sample, and hence it is not easy to attribute differences found between samples to macro level differences in the economies. However, the differences in context of the three samples may have some influence on the factor structure of union and company commitment.

Measures

Union commitment

In all cases, variants of the Gordon et al. (1980) questionnaire were used to measure union commitment. Given that the union commitment literature has uncovered many different factor structures, we construct measures of union commitment that correspond to these different factor solutions before conducting the first order analysis. The measures used are described below.

Australia. Union commitment was measured by 18 items (see Table 1) from the 48 items identified by Gordon et al. (1980). These 18 items were further broken into the four sub-scales as reported by Gordon et al. (1980): Union Loyalty (8 items: M=3.40, SD=.75, Alpha=.87); Responsibility to the Union (4 items: M=3.93, SD=.56, Alpha=.68); Willingness to Work for the Union (4 items: M=2.87, SD=.76, alpha=.79); and Belief in Unionism (2 items: M=3.35, SD=.85, Alpha=.62). Given evidence that the Gordon et al scale may yield different factor structures (Friedman and Harvey 1986; Fullagar 1986;
Klandermans 1989), we also created scales to measure the various dimensional solutions. Accordingly, the original 18 items were therefore grouped into the two sub-scales as reported by Friedman and Harvey (1986): Union Attitudes and Opinions (10 items: $M=3.39$, $SD=.73$, Alpha=.87); and Prounion Behavioral Intentions (8 items: $M=3.40$, $SD=.58$, Alpha=.82). In addition, based on the results of Klandermans (1986) and Gordon et al. (1980, p. 487), the Loyalty and Beliefs sub-scales were combined to form a general attitudes (Union Loyalty/Beliefs) factor. The three factor structure thus created comprised: Union Loyalty/Beliefs (10 items: $M=3.39$, $SD=.72$, Alpha=.88), Responsibility to the Union (4 items: $M=3.93$, $SD=.56$, Alpha=.68); and Willingness to Work for the Union (4 items: $M=2.87$, $SD=.76$, Alpha=.79).

**Sweden.** Union commitment in Sweden was measured by 12 items reported in Table 1. Given that the questionnaire was based on a two dimensional solution to union commitment, only measures of the two dimensions identified by Friedman and Harvey (1986) could be constructed. Accordingly, these 12 items were broken into the two sub-scales: Union Attitudes and Opinions (6 items: $M=3.16$, $SD=.36$, Alpha=.67); and Prounion Behavioral Intentions (6 items: $M=3.10$, $SD=.44$, Alpha=.70).

**United States.** Eleven items from the Gordon et al. (1980) scale were used to measure union commitment (see Table 1). The items were divided into the four sub-scales as found by Gordon et al. (1980): Union Loyalty (3 items: $M=3.17$, $SD=.89$, Alpha=.83); Responsibility to the Union (3 items: $M=3.48$, $SD=.67$, Alpha=.68); Willingness to Work for the Union (3 items: $M=2.77$, $SD=.82$, Alpha=.79); and Belief in Unionism (2 items: $M=2.59$, $SD=.53$, Alpha=.62). The 11 items were further broken into the two sub-scales reflecting the Friedman and Harvey (1986) dimensions: Union Attitudes and Opinions (5 items: $M=2.76$, $SD=.80$, Alpha=.88); and Prounion Behavioral Intentions (6 items: $M=3.12$, $SD=.63$, Alpha=.82). The items were also used to create the three dimensions suggested by Klandermans (1986): Union Loyalty/Beliefs (5 items: $M=2.76$, $SD=.80$, Alpha=.88), Responsibility to the Union (3 items: $M=3.48$, $SD=.67$, Alpha=.68); and Willingness to Work for the Union (3 items: $M=2.77$, $SD=.82$, Alpha=.79).

**Australia.** The full sale of company commitment (see Table 1) as identified by Porter et al. (1974) was employed in this study. Following the recommendations of Michaels and Spector (1982) and Mobley, Griffeth, Hand and Meglino (1979) company commitment was divided into two sub-scales: Commitment to the Company (11 items: $M=3.18$, $SD=.61$, Alpha=.86) and Intention to Leave (4 items: $M=3.07$, $SD=.62$, Alpha=.60).

**Sweden.** Eleven of the 15 items reported by Porter et al. (1974) were utilized in the analysis (see Table 1). These were further bifurcated into two sub-scales: Commitment to the Company (9 items: M=3.07, SD=.62, Alpha=.60) and Intention to Leave (4 items: $M=2.87$, $SD=.76$, Alpha=.79).
M=3.16, SD=.40, Alpha=.73) and Intention to Leave (2 items: M=2.10, SD=.62>, Alpha=.64) (Michaels and Spector 1982; Mobley et al. 1979).

United States. Table 1 contains six items from the Porter et al. (1974) company commitment scale, which were broken into two sub-scales: Commitment to the Company (4 items: M=3.27, SD=.23, Alpha=.72) and Intention to Leave (2 items: M=2.59, SD=.91, Alpha=.61) (Michaels and Spector 1982; Mobley et al. 1979).

Analytical Procedures

Since the purpose of this paper is to estimate whether dual commitment underlies both union and company commitment, second-order confirmatory factor analysis methods using the LISREL VII (Jöreskog and Sörbom 1988) computer program were adopted. Although the advantage of using LISREL to test first-order factors are well known, its utility in testing higher order factor structures has not been exploited fully by researchers.

Marsh and Hocevar (1985) note that, LISREL is superior to other methods of examining higher order factors given that it allows the researcher to restrict the solution in ways that make it possible to test alternate specifications, using criteria for rotation that have some scientific meaning, rather than relying on mathematical criteria to determine optimal rotation. The analysis involves two steps, the first-order factor analysis and the second-order factor analysis.

First-order factor analysis. In this step, the first-order models are identified, and alternate specifications of first-order models are estimated to identify the best fitting factor structure in each of the three samples. This was necessary given that previous research had identified numerous different factor structures of both company and union commitment. For each sample, the null model was estimated, i.e., a model that hypothesized that each of the items in the company and union commitment questionnaires is an independent factor of its own. For union commitment, we then estimate four different specifications; the two factor specification suggested by Friedman and Harvey (1986), the three factor specification suggested by Klandermans (1989) and Gordon et al. (1980), and the four factor specification found by Gordon et al (1980) (although the three and four factor solutions were estimated only for the Australian and United States samples). As we used a nested comparisons approach, covariance matrices were used in the analysis.

These models were combined with two different specifications of company commitment (i.e., the one factor model of Porter at al. 1974, and the two factor model of Michaels and Spector 1982 and
Mobley et al 1979). In all, in the Australian and United States samples, six different combinations of factor models were tested. In the Swedish case, four different combinations of factor models were tested. In the analyses, the items were arranged into oblique factors as it is generally accepted that though union and company commitment are distinct constructs, they are correlated (Gordon and Ladd 1990).

Second-order factor analysis. After the best fitting factor models were identified for each of the three samples in the first step, we test for the possibility that first-order latent variables (union and company commitment) share a relationship at a higher order. After obtaining maximum likelihood factor analysis solutions for the best fitting model in each of the samples, that model is then subjected to a second-order confirmatory factor analysis, to identify whether a latent dual commitment construct underlies both commitments.

Evaluation of the measurement models are made using conventional good-ness-of-fit criteria (see Bentler 1990 and Bentler and Bonnet 1980 for a description of the virtues of various goodness of fit tests). We report and describe all the various indices below. The goodness-of-fit index (GFI) is an index of the amount of variance and covariance accounted for by the model; the adjusted goodness-of-fit (AGFI) is an index of the amount of variance and covariance explained, adjusted for the degrees of freedom in the model; the normed fit index (NFI) or rho compares the fit of the model to the null model when all items are constrained to be independent of each other (Bentler and Bonett 1980); the parsimonious fix index (PFI) or delta corrects the NFI by adjusting for the degrees of freedom for the model (James, Mulaik and Brett 1982); the normed comparative fit index (CFI) is the preferred index for small samples, which is a population measure of comparative model misspecification (Bentler 1990); and the root mean square residual (RMSR) is the result of the subtraction of the hypothesized covariance matrix from the sample covariance matrix (Jöreskog and Sörbom 1988). For the GFI, AGFI, NFI, PFI, and the CFI the values range from zero to one, with higher values representing better fit. For the RMSR, lower values indicate better fit.

For drawing implications, we rely on the PFI. Researchers focus on the PFI as it can be interpreted to indicate practical significance in difference of fit for competing models (e.g., Harvey, Billings, and Nilan 1985; Kelloway, Catano, and Southwell 1992; Thacker, Fields, and Tetrick 1989; Widaman 1985). To establish whether the fit of one model is significantly different from the fit of another model, chi-square difference tests are used (Bentler and Bonett 1980).

In terms of the second-order analysis, a different index is used for evaluating the models. Although the goodness-of-fit criteria reported above may be used, the problem, as Marsh and Hocevar
(1985) suggest, is that the goodness-of-fit of the second-order model can never be better than the first-order model. Therefore, they suggest the use of the target coefficient when comparing the fit of nested second-order models with first-order models. The target coefficient is the ratio of the first-order model's chi-square to the chi-square of the second-order model, and is characterized by an upper limit of 1 representing no difference in fit between the 4 factor models (2 UC and 2 CC; 3 UC and 1 CC). In relation to the 5 factor models of 3 UC and 2 CC and 4 UC and 1 CC, the factor model had a significant change in the chi-square ($\Delta \chi^2 (5) = 125.22$, $p<.05$, and $\Delta \chi^2 (5) = 54.06$, $p<.05$, respectively), with the PFI increasing to .908.

Table 2

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<td>.930</td>
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<td>.000</td>
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<td>.856</td>
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<td>.876</td>
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<td>(4 UC &amp; 2 CC)</td>
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<td></td>
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<td></td>
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</tr>
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</table>

* GFI= Goodness-of-Fit Index; AGFI= Adjusted-Goodness-of-Fit Index; RMSR= Root Mean Square Residual (Joreskog & Sorbom, 1988); NFI= Normed Fit Index (Bentler & Bonett, 1980); PFI= Parsimonious Fit Index (James, Mulaik & Brett, 1982); CFI= Normed Comparative Fit Index (Bentler, 1990).

**Note:**
2 Factor model: 1 union and 1 company commitment factor.
3 Factor Model¹: 1 union commitment factor and 2 company commitment factor (Michaels & Spector, 1982).
3 Factor Model²: 2 union commitment factors (Friedman & Harvey, 1986) and 1 company commitment factor (Porter et al., 1974).
4 Factor Model³: 2 union commitment factors (Friedman & Harvey, 1986) and 2 company commitment factors (Michaels & Spector, 1982).
4 Factor Model⁴: 3 union commitment factors (Klandermans, 1989) and 1 company commitment factor (Porter et al., 1974).
5 Factor Model⁵: 3 union commitment factors (Klandermans, 1989) and 2 company commitment factor (Michaels & Spector, 1982).
5 Factor Model⁶: 4 union commitment factors (Gordon et al., 1980) and 1 company commitment factor (Porter et al., 1974).
6 Factor Model⁷: 4 union commitment factors (Gordon et al., 1980) and 2 company commitment factors (Michaels & Spector, 1982).
Second-Order Factor Model: The best fitting first-order models (Australia: 3 UC & 1 UC; Sweden: 2 UC & 1 CC; and United States: 4 UC & 2 CC) were then re-estimated on a second-order basis.
In sum, an examination of the first-order factors clearly indicates that the 4 factor model (i.e., 3 factors of union commitment and 1 factor of company commitment) for the Australian sample, the 3 factor model (i.e., 2 factors of union commitment and 1 factor of company commitment) for the Swedish sample, and the 6 factor model (i.e., 4 factors of union commitment and 2 factors of company commitment) for the United States sample are the best fitting, most parsimonious structures. The Australian result is consistent with Klandermans’ (1989) 3 factor union commitment solution and Porter et al.’s (1974) 1 factor company commitment construct, whereas the Swedish result corresponds to Friedman and Harvey’s (1986) 2 factor union commitment structure and Porter et al.’s 1 factor company commitment dimension, and the United States sample is congruent with Gordon et al.’s (1980) 4 factor union commitment structure and Michaels and Spector’s (1982) and Mobley et al.’s (1979) 2 factor company commitment solution.

From the results it is clear that union commitment and company commitment are distinct empirical constructs. If they were not distinct, we would expect a very high goodness-of-fit for the 1 factor models in all three countries, which is not the case here. Although differences in measurement instruments cloud our ability to inquire into cross-national differences, it is noteworthy that we reproduce a 4 factor structure for union commitment for our United States sample, consistent with results suggested by Gordon and his colleagues (Gordon, Beauvais, and Ladd 1984; Gordon et al. 1980; Ladd, Gordon, Beauvais, and Morgan 1982) in various studies in the United States.iii Evidence from other diverse United States samples (e.g., Thacker, Fields, and Tetrick 1989) appear to support the 4 factor structure. More importantly, the 4 factor United States structure was replicated here with a more parsimonious number of items (11), compared to earlier studies.

Before we describe the results of the second-order confirmatory factor analysis, it is perhaps instructive to examine the correlations between company and union commitment factors for the different samples. The dimensional approach to the identification of the dual commitment construct relies on these correlations. Examination of the LISREL correlations in Tables 3, 4, and 5 suggests general support for the existence of dual commitment in the United States sample (i.e., most factors were correlated, with only the factor of intention to leave the company not being significantly correlated with the factor of responsibility to the union), and partial support in the Swedish sample (i.e., the factor of company commitment was not significantly correlated with the factor of prounion behavioral intentions). However, as per the dimensional approach, there is little support for the existence of dual commitment in the Australian sample, given the absence of significant correlations among the union and company commitment factors in that sample.
Conversely, the results for the second-order confirmatory factor analyses reported in Table 2 provide a different picture. The best fitting first-order models in the three countries were employed in this analysis (the 4 factor model in Australia, the 3 factor model in Sweden, and the 6 factor model in the United States). As the goodness-of-fit of the second-order model can never be better than the corresponding first-order model (Marsh and Hocevar 1985), the PFI indice was not employed in the analysis. In general terms, and in contrast to the correlational results reported in Tables 3, 4, and 5 the results do not indicate support for the existence of a latent dual commitment construct. It should be noted that even when the fit of the first-order is modest it is possible to have a target coefficient of one (Marsh and Hocevar 1985). The results of the Australian sample demonstrate that there was no significant difference between the first-order and second-order factor models. The target coefficient approached 1, illustrating that the models differed only marginally. In relation to the Swedish sample, the fit of the first-order model was significantly better than the second-order model ($\Delta x^2 (1) = 66.03, p<.05$). In this case the target coefficient was a high .98, indicating similarity of the models. The United States result is more telling however. The results clearly indicate that the first-order model is a statistically significantly improvement over the second-order model ($\Delta x^2 (9)=357.66, p<.05$). The target coefficient in this case was .49, suggesting that the models are quite different, where the second-order model cannot adequately explain the factor covariations. Again, this result explicitly shows that a general commitment factor does not underlie both union and company commitment.

### Table 3

Correlations among the first-order 4 factor model of union and company commitment for the Australian sample

<table>
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<th>Factor</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Union Loyalty/Beliefs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Responsibility to the Union</td>
<td>.76*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Willingness to Work for the Union</td>
<td>.75*</td>
<td>.72*</td>
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</tr>
<tr>
<td>4. Commitment to the Company</td>
<td>.05</td>
<td>.04</td>
<td>.04</td>
</tr>
</tbody>
</table>

*p<.05

### Table 4

Correlations among the first-order 3 factor model of union and company commitment for the Swedish sample

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<tr>
<th>Factor</th>
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</tr>
</thead>
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<tr>
<td>1. Union Attitudes and Opinions</td>
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<td></td>
</tr>
<tr>
<td>2. Professional Behavioral Intentions</td>
<td>.71*</td>
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</tr>
<tr>
<td>3. Commitment to the Company</td>
<td>.19*</td>
<td>.01</td>
</tr>
</tbody>
</table>

*p<.05
Discussion

The purpose of this paper was to examine whether a general dual commitment factor underlies union and company commitment, using a different methodological approach. The results indicate no support for the existence of a dual commitment variable. The new method used here also allows us to come to a different set of conclusions from the more traditional dimensional approach. For instance, using the dimensional approach of examining positive correlations between union and company commitment, it would appear that dual commitment could exist in both the United States and Sweden, given the correlations in Tables 4 and 5. However, when one goes deeper and examines whether the correlations between the first-order factors can be explained by an underlying latent general commitment factor, the result is different, suggesting that dual commitment does not exist. Clearly, the covariance between union and company commitment factors cannot be explained by a general latent factor of dual commitment in the Australian, Swedish, and United States samples.

The results, while completely consistent with existing academic views (Gordon and Ladd 1990) regarding the lack of theory surrounding the dual commitment construct, is still at odds with the practitioners views. Interestingly, HRM and industrial relations policies in all these countries continue to move towards systems demanding high levels of commitment to both the employer and the union. The continued movement towards increasing dual commitment suggests the possibility that existing research has not done enough in trying to measure and isolate the construct.

For instance, the argument has often been made that the absence of dual commitment in the United States can be explained by the adversarial nature of industrial relations. If that is the case, then dual commitment ought to be present in industrial relations systems that are characterized by harmonious labor-management relations. Australian industrial relations during the last decade has been characterized by more cooperative labor-management relations consequent to the Australian trade union-government accord (Deery and Plowman 1991), and Swedish industrial relations has been a highly

| Table 5 |
| Correlations among the first-order 6 factor model of union and company commitment for the United States sample |

<table>
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<tr>
<th>Factor</th>
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<th>2</th>
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<th>5</th>
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</thead>
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<tr>
<td>1. Union Loyalty</td>
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<td></td>
<td></td>
</tr>
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<td>2. Responsibility to the Union</td>
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<tr>
<td>3. Willingness to Work for the Union</td>
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<tr>
<td>4. Belief in Unionism</td>
<td>.68*</td>
<td>.45*</td>
<td>.66*</td>
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<td></td>
</tr>
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<td>5. Commitment to the Company</td>
<td>.53*</td>
<td>.10*</td>
<td>.45*</td>
<td>.15*</td>
<td></td>
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<tr>
<td>6. Intention to Leave</td>
<td>-.52*</td>
<td>-.00</td>
<td>-.39*</td>
<td>-.15*</td>
<td>-.80*</td>
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</table>

*p<.05
acclaimed model of cooperative relationships (Pontusson and Kuruvilla 1991). Yet, there was little evidence of dual commitment in Sweden and Australia. Although there are dangers in relating macro level phenomena to micro level results, the absence of finding a dual commitment construct in models of cooperative industrial relations, such as in Sweden may indicate that dual commitment may have little to do with the nature of labor-management relationships. Moreover, recent research in Australia by Deery, Iverson, and Erwin (1994) confirms this result as employee perceptions of co-operative industrial relations climate (where the mean was 2.86 on a 5-point scale) were associated with higher employee commitment to the company, but lower commitment to the union.

Two explanations seem plausible for the lack of support for dual commitment. One is that as researchers, we have failed to conduct a proper field experiment, by selecting firms that are characterized by harmonious and adversarial labor-management relations and examining dual commitment in them. In this case, the Swedish and United States samples had employees from different professions, occupations, and school districts. The second possibility is that in all these samples, labor-management relations have not as yet reached an acceptable degree of cooperation. Perhaps investigation in Japanese firms, which are characterized by a high degree of union-management cooperation may yet yield evidence of the dual commitment construct. We leave it to future research to examine these issues.

From a practical standpoint, the dual commitment of employees is viewed as a necessary pre-requisite for facing the problems of increased foreign competition, however where does that leave HRM strategies if dual commitment does not in fact exist? Moreover, with unions experiencing a decline in membership, and management policies designed to rest the commitment of their members to the company (Frenkel 1989), the lack of empirical support for dual commitment raises questions as to whether consensual strategies are worthwhile. These questions also need to be addressed in future research.

In sum, and especially in view of new HRM policies that requires employee participation and high levels of employee commitment to the union as well as to the company, we do not reject the possibility that dual commitment may empirically exist. It is just that researchers have not found a way to conceptualize dual commitment. From a research standpoint, we are in agreement with Gordon and Ladd (1990) that the larger issue is the absence of theory in dual commitment studies. What is missing from dual commitment research is adequate theoretical explication of the construct, consistent with the shift in HRM practices towards a high commitment HR system. Without such theory development, continued empirical approaches to the study of dual commitment may be futile.
Footnotes
3. An additional first-order factor analysis comparing Australia on a common set of items with both Sweden and the United States provided some interesting findings. Using the same 20 (10 UC and 10 CC) items for Australia and Sweden, the best fitting most parsimonious models were the 3 factor model (2 UC and 1 CC: GFI=.844; PFI=.734) and 4 factor model (2 UC and 2 CC: GFI=.896; PFI=.789) for Australia and Sweden, respectively. Comparing Australia and the United States on the same set of items (11 UC and 6 CC), the best fitting factor structure was found for the 5 factor model (4 UC and 1 CC: GFI=.883; PFI=.783) in Australia and the 6 factor model (4 UC and 2 CC: GFI=.952; PFI=.908) in the United States. In contrast to Table 2, both Australia and Sweden exhibited different factor structures. Hence, controlling for the possible confound of the number and type of items used to measure union commitment, the results would confirm that perhaps the different factor structures in each country are an epiphenomenon of different cultural contexts, such as the type of industrial relations (Gordon and Ladd 1990 1993). Nevertheless, we were still unable to find the existence of the dual commitment construct using second-order confirmatory factor analysis across the three countries.

References
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Deery, S J, Iverson, R D and Erwin, Peter, J, (1994), Predicting Organizational and Union Commitment: The Effect of Industrial Relations Climate, British Journal of Industrial Relations, 32 (4), 581-597.


Iverson, R D and Kuruvilla, S, (1990), Does dual commitment underlie the constructs of company and union commitment? *Proceedings of the 43rd Annual Meeting of Industrial Relations Research Association* (pp. 208-217).


Researchers have found different factor structures for union commitment across countries (e.g., Friedman and Harvey 1986; Kuruvilla and Iverson 1993; Klandermans 1989). These inconsistent results may be due to the number and type of items used to measure union commitment. We attempt to address this confound by undertaking an additional analysis which compares Australia and Sweden, and Australia and the United States on common items. Unfortunately we were not able to compare all three countries on the same set of items due to the different items used to measure dual commitment.

Bender and Bonnet (1980) suggest that the goodness-of-fit indices over .90 represent an excellent fit. By this criterion, only the United States sample would indicate an excellent fit, where the fit of the Australian and Swedish models were more modest. However, the best fitting models identified in the Australian and Swedish samples were substantial improvements over the fit of alternative models. This assessment strategy is consistent with other recent studies (e.g., Kelloway et al. 1992), where the goodness-of-fit of the models are quite comparable. Further, examining the CFI (which avoids underestimation of fit), these models demonstrated acceptable fit.

An additional first-order factor analysis comparing Australia on a common set of items with both Sweden and the United States provided some interesting findings. Using the same 20 (10 UC and 10 CC) items for Australia and Sweden, the best fitting most parsimonious models were the 3 factor model (2 UC and 1 CC: GFI=.844; PFI=.734) and 4 factor model (2 UC and 2 CC: GFI=.896; PFI=.789) for Australia and Sweden, respectively. Comparing Australia and the United States on the same set of items (11 UC and 6 CC), the best fitting factor structure was found for the 5 factor model (4 UC and 1 CC: GFI=.883; PFI=.783) in Australia and the 6 factor model (4 UC and 2 CC: GFI=.952; PFI=.908) in the United States. In contrast to Table 2, both Australia and Sweden exhibited different factor structures. Hence, controlling for the possible confound of the number and type of items used to measure union commitment, the results would confirm that perhaps the different factor structures in each country are an epiphenomenon of different cultural contexts, such as the type of industrial relations (Gordon and Ladd 1990 1993). Nevertheless, we were still unable to find the existence of the dual commitment construct using second-order confirmatory factor analysis across the three countries.

Friedman and Harvey (1986) argue that if first-order correlations are not significant, then a search for an additional general second-order factor to account for these correlations cannot be justified. However, Bollen (1989) notes that LISREL tests congeneric models, where it is possible that the indicators (or first-order latent constructs) may not even correlate, but have significant paths to the higher-order latent construct. Therefore, in relation to the Australian data we report the results of the second-order factor analysis.