

# Compulsory Unionism and the AWIRS: Redrawing the Map

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## Abstract

*This paper uses AWIRS data to examine two related questions. First, how extensive are closed shop arrangements in Australia and second, what factors are associated with closed shop coverage? The paper draws heavily on earlier work by Gianni Zappala, but argues that Zappala's estimates substantially overstated the extent of the closed shop. Moreover, unlike other studies of the closed shop (both in Australia and overseas), this paper utilises multivariate techniques to isolate the impact of the different factors thought to be associated with closed shop coverage.*

## 1. Introduction

Zappala (1992), in a recent paper, uses data from the Australian Workplace Industrial Relations Survey (AWIRS) to present estimates of the extent of compulsory unionism or the closed shop. He reports that two-thirds of workplaces in Australia (with 20 employees or more) have a closed shop agreement covering at least some employees and that these agreements cover 57 per cent of all unionized employees (Zappala, 1992, p. 11)<sup>1</sup>. Not surprisingly, he concludes that the closed shop remains "a widespread and significant phenomenon in the Australian industrial relations landscape" (p.17). Indeed, comparisons with the earlier survey of Wright (1981) actually point to increases in closed shop coverage.

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Given the marked decline in trade union membership that has occurred in Australia since 1980, at least as measured in the Trade Union Members survey undertaken periodically by the Australian Bureau of Statistics (see Plowman, 1991), this finding is somewhat of a surprise. While it is possible that it could be explained as the result of a relatively greater decline in the number of union members outside closed shops, such explanations are not very convincing for at least two reasons. First, as Zappala notes, surveys of attitudes to unions undertaken in 1976 and 1990 point to a marked decline in the extent of compulsory unionism (Rawson, 1990). Second, a substantial proportion of the decline in union membership can be explained by structural shifts in the economy (see, for example, Peetz, 1990), and it is exactly those sectors of the workforce hardest hit by such shifts - blue-collar workers in large manufacturing firms - where the closed shop is most prevalent.

It is argued here that the estimates provided by Zappala are actually misleading and substantially overstate the extent of closed shop coverage. The cause of this problem ultimately lies in the absence of any direct questions on the existence of closed shops in the AWIRS and hence creating problems of definition. A slightly different way of interpreting the data is suggested which gives rise to substantially lower estimates. Indeed, within the sample of workplaces with 20 employees or more, the percentage of union members estimated to be covered by closed shop arrangements is just 40 per cent.

Finally, in response to Zappala's claim (p. 17) that "the main source of variation in the coverage of the closed shop are due to sectoral, occupational and industry differences", multivariate models of the factors associated with closed shop coverage are tested. The results indicate a much more complex picture than that painted by Zappala.

The article is organized as follows. In the next section the problems and limitations of the AWIRS data with respect to the measurement of the incidence of the closed shop are discussed. Section 3 provides estimates of the incidence and coverage of closed shop agreements using both the definition described in Zappala and a somewhat different version suggested here. A comparison of these estimates suggests that the latter are more compatible with expectations. In section 4, multivariate models of the factors associated with closed shop coverage are developed and tested. A conclusion completes the article.

## 2. The AWIRS and the Measurement of Closed Shop Coverage

The AWIRS represents the most comprehensive survey of industrial relations practices ever undertaken in Australia. Involving a stratified sample of 2353 workplaces, it is representative of all workplaces with five employees or more in all industries except agriculture, fishing and hunting and defence. In total, the sample represents 122,500 workplaces employing 4.29 million people, or 68 per cent of all Australian wage and salary earners (Callus *et al.*, 1991, p. 19).

The scope of the survey is broad. The issues covered range from workplace negotiations and union organisation to the nature of product markets and aspects of workplace performance. Unfortunately, and as Zappala (1992, p. 9) notes, the survey instruments administered to the principal sample (workplaces with 20 employees or more) contain no explicit question on the existence of closed shops. A closed shop is typically defined as existing where "a particular job is only to be retained if they [employees] become and remain members of one of a specified number of trade unions" (McCarthy, 1964, p. 3). The main AWIRS instruments, however, sought no information on whether union membership was an employment requirement. Information on whether all of the employees within any of the major eight occupational groups (as defined in the Australian Standard Classification of Occupations [ASCO]) were members of a union, however, was sought and it is these data that Zappala uses to estimate the extent of compulsory unionism. In particular, he defines workplaces with closed shops as being any where at least one occupational group was 100 per cent unionized.<sup>2</sup> Additionally, an estimate of employee coverage by closed shops can be obtained by summing the number of employees in occupations where 100 per cent union membership was reported.

Strangely enough, the questionnaire administered by telephone to managers of small workplaces (5 to 19 employees) does contain a question which enables the presence of closed shops to be identified. There managers are asked: "Are any employees here required to be members of a union?" Thus estimates of the incidence of closed shop derived for the small workplace should be reasonably accurate. Unfortunately, data on the number of workers covered by such requirements was not ascertained and hence worker coverage cannot be determined for these small workplaces.

Some of the problems with what I shall refer to as the "Zappala method" were discussed by Zappala.<sup>3</sup> In particular, he notes that occupation groups may have unionization rates less than 100 per cent yet still have closed

shops. Since the coverage of closed shops will mirror that of the unions present, and since many unions in Australia, as a consequence of the occupational basis to their structure, are represented in many workplaces in relatively small concentrations (see Blandy, Sloan and Wooden, 1989), closed shop agreements will often only cover narrow segments of the workforce and will exclude workers in other occupations within the broader occupational category. The tradespersons category, for example, covers many trades and hence in workplaces where more than one trade is represented, it is quite likely that unless all the trades present are represented by unions covered by closed shop agreements, 100 per cent unionization may not be found. The Zappala method on this argument should understate closed shop coverage, especially in larger workplaces.

Perhaps of greater importance is bias in the opposite direction. That is, every employee within a particular occupation category may be a union member yet a closed shop does not exist. Zappala, for no particular reason, dismisses such cases as relatively unique. In contrast, the view expressed here is that such cases are likely to be very prevalent, especially in small workplaces. To illustrate this point, consider a workplace with 49 employees, a figure exceeded at only seven per cent of the workplaces represented by the sample, and assume employment is divided equally between the eight major ASCO groups identified in the AWIRS. This gives approximately six persons within each occupation. If in any of these groups, all six are union members, a closed shop will be defined to exist by the Zappala method. Clearly, the possibility that all six might be union members without being "conscripts" is not small. Moreover, given a number of the workers are union members, peer pressures and group norms will in many instances lead to the remaining non-union members to join.

Indeed, it is the issue of "custom and practice" which separates the approach taken here from that of Zappala. An additional question was asked of managers at workplaces where all employees within any of the major occupation categories were union members concerning the reason for that 100 per cent unionization rate. As expected, the majority responded that complete union coverage was the result of either preference clauses in awards or union-management agreements (54 per cent, after weighting).<sup>4</sup> Nevertheless, a sizeable fraction (37 per cent) responded that "custom and practice" was the cause, while a small percentage (nine per cent) responded that it arose for some other reason.

But does custom and practice imply closed shops exist? Zappala argues that it does. In contrast, the view taken here is that just because custom and practice may be ultimately responsible for all workers within a certain occupation group being members of a union, does not mean that refusal to

join or remain a member of a union would affect their employment. Consequently, custom and practice will only be associated with closed shop arrangements if those practices are reinforced by management (that is, by dismissing or not employing someone who refused to join a union). The industrial relations climate of 1989/90 when the AWIRS took place, however, was very much one where managers were re-asserting their managerial prerogatives and where traditional union practices were being challenged. The late 1980s, for instance, saw a marked increase in "employer militancy" as reflected in the Mudginberri, Dollar Sweets, Robe River and Queensland electricity disputes. As Plowman (1991, p. 42) observes, contemporary managers are likely to be far less enamoured of closed shop arrangements. This is most obviously reflected in employers pulling out of formal arrangements (e.g., in the banking industry), but it is even more likely that management will cease to tolerate arrangements which they had not agreed to support. As a consequence, the position taken here is that in the majority of cases where custom and practice was cited as the main reason explaining 100 per cent union density within particular groups, closed shops do not actually exist. That is, complete coverage in such cases is most likely to be the result of peer pressures and group norms and while resigning from the union may be met by social sanctions from within the group, is unlikely to lead to any action taken by management. While this definition may tend to understate the extent of closed shop arrangements, it is interesting to note that according to the 1984 British WIRS, agreements between unions and management were reported in 95 per cent of establishments where closed shops were present (Millward and Stevens, 1986, p. 108).<sup>5</sup>

The measures of closed shop incidence and coverage recommended here, therefore, are identical to that used in Zappala except that workplaces where it was indicated that the reason best explaining 100 per cent unionization in any group was custom and practice were not counted as having closed shops.

### **3. Estimates of Closed Shop Incidence and Coverage**

Table 1 presents estimates of the proportion of workplaces where at least some workers are covered by a closed shop. When custom and practice is excluded from the definition of closed shop (column B in Table 1), just 17 per cent of all workplaces and 37 per cent of all unionized workplaces are found to have closed shops. These relatively small numbers, however, are due partly to the large number of small workplaces in the weighted sample where, unsurprisingly, the incidence of closed shops is less. Exclusion of

**Table 1.** Percentage of Workplaces with Closed Shops by Workplace Size

Employment size	Zappala (%) A	Preferred (%) B	Weighted N ('000s) <sup>a</sup>
<b>All workplaces</b>			
5-19	?	12	84
20-49	48	27	15
50-99	52	31	84
200-499	68	43	2
500+	63	37	1
Total	(23 <sup>b</sup> )	17	115
<b>Unionized workplaces</b>			
5-19	?	35	28
20-49	66	38	11
50-99	65	39	7
100-199	69	42	4
200-499	70	45	2
500+	65	39	1
Total	(50 <sup>b</sup> )	37	52

Notes: All figures are based on weighted workplace data.

a To obtain the number of workplaces with closed shops, multiply the number of weighted workplaces by the percentages reported.

b Assumes that the proportion of closed shops in small workplaces (5-19 employees) is the same as given by the preferred method.

these very small workplaces would see the above proportions rise to 31 and 39 per cent.

The Zappala method (column A), of course, gives rise to much larger estimates - 20 to 25 percentage points greater in all workplace size categories above 19 employees.<sup>6</sup> Zappala's treatment of the very small workplace, however, is not clear from his paper. It is stated that of "workplaces employing fewer than twenty employees, 26 per cent had a closed shop covering at least some employees" (p. 11). How that figure was determined is not obvious, and certainly does not equate with the proportion of workplaces reporting union membership as a requirement of employment.<sup>7</sup>

**Table 2.** Percentage of Workers Covered by Closed Shop Arrangements

Employment size	Zappala (%)	Preferred (%)	Weighted employees ('000s) <sup>a</sup>
<b>All workplaces</b>			
20-49	28	17	475
50-99	34	23	567
100-199	45	29	590
200-499	47	30	650
500+	39	28	1004
Total	39	26	3286
<b>Unionized workplaces</b>			
20-49	38	23	348
50-99	41	27	474
100-199	49	32	541
200-499	48	30	633
500+	39	28	993
Total	43	29	2988

Notes: All figures are based on weighted employee data, where the weight applies to employees at workplaces which returned the Employee Profile Questionnaire.

a To obtain the number of employees covered by closed shops, multiply the number of weighted employees by the percentages reported.

Table 2 presents figures on the proportion of workers covered by these closed shop arrangements (that is, the number of workers in occupations where 100 per cent union density was reported divided by the number of employees). The total proportion of the workforce (in workplaces employing 20 or more persons) covered by such arrangements is 26 per cent according to the preferred method and 39 per cent if the Zappala method is used. Even though some over-statement of closed shop coverage is expected, because of the absence of relevant data for very small workplaces, the latter estimate is way out of line with the 1980 estimate of 25.7 per cent reported by Wright (1981). By contrast, the alternative method provides an estimate identical to that of Wright, but given upward bias, suggests that closed shop coverage has actually declined. The extent of that decline is difficult to determine but given workplaces with fewer than 20 employees



account for about 25 per cent of all employed wage and salary earners, and assuming the level of coverage of workers by closed shops in these very small workplaces to be, say, ten per cent, the level of coverage of closed shop for the entire workforce would be about 22 per cent.<sup>8</sup> That is, the level of workforce coverage by closed shops between 1980 and 1990 fell by four percentage points (or about 15 per cent). In stark contrast, use of the Zappala method suggests that closed shop coverage would actually have increased by at least six percentage points during a period when union density was in severe decline. This result seems far from plausible.

Further evidence of the superiority of the measure advocated here is provided in Table 3. This table compares the level of closed shop coverage among union members across industries in 1980, as measured by Wright (1981), and in 1990, using the AWIRS data. Again closed shop coverage in the AWIRS data is measured with both the "Zappala" and "preferred" methods. The calculations reveal that according to the Zappala method, the importance of the closed shop to union membership increased significantly in all industries except financial services.<sup>9</sup>

**Table 3.** Percentage of Union Employees in Closed Shops by Industry - A Comparison of Different Estimates

Industry	Wright - 1980	AWIRS - 1990 <sup>a</sup>	
		Zappala	Preferred
Mining	87	98	88
Manufacturing	678	3	59
Electricity, gas & water	42	70	48
Construction	71	80	53
Wholesale & retail trade	66	77	58
Transport & storage	70	82	52
Communication	33	63	12
Finance	60	41	28
Public administration	10	28	18
Community services	7	31	14
Recreation, personal & other services	49 <sup>b</sup>	70	46
TOTAL	51	61	40

Notes: a In both cases the figures are calculated as the proportion of workers in each industry covered by closed shops divided by the mean unionization rate within the industry. All data are weighted and only relate to employees at workplaces with 20 employees or more.

b Entertainment industry only.



Again in stark contrast, the method advocated here suggests that the importance of closed shops for union membership only increased in four industries. In two of these - mining and electricity, gas and water - the growth was quite moderate, and given the small upward bias in the data, are probably indicative of stable levels over time. Very differently, the proportion of union members covered by closed shop arrangements doubled in community services and almost doubled in public administration. Wright (1981, p. 123), however, admits that the coverage of his survey was deficient in precisely these two sectors, and hence the apparent increase may be a function of the limitations of the earlier study. In the remaining seven industry groups, closed shop coverage declined according to this measure. The industry where this decline was most apparent was the finance industry, with closed shop coverage as a proportion of union members falling from an estimated 60 per cent to just 28 per cent. The steepness of this fall is not unexpected, however in 1984 the closed shop agreement that existed in the banking industry was rescinded. Significant losses also occurred in the construction and transport industries.

#### **4. Factors Associated with the Presence and Coverage of Closed Shops**

Drawing mainly from literature in the UK, Zappala briefly considered a number of factors which are generally thought to have some influence on the presence and coverage of closed shops. These factors are workplace and organisational size, sector (that is, whether the workplace operates in the private or public sectors), industry, workforce composition, particularly in terms of occupation but also gender, whether the workplace is part of a single or multi-establishment organization, shift work, foreign ownership and whether union dues are automatically deducted from worker pay.

On the basis of bivariate cross-tabulations, he concludes that "the main source of variation in the coverage of the closed shop are due to sectoral, occupational and industry differences" (Zappala, 1992, p. 17). Cross tabulations, however, reveal nothing about the relationships between the different variables that might be associated with closed shop coverage. For example, industries such as mining, manufacturing and construction may have a relatively high incidence of closed shops not because they are inherently conducive to closed shops but because they have relatively greater concentrations of male, blue-collar workers. Some form of multi-variate analysis needs to be undertaken before Zappala's conclusions can be accepted. In this paper, such an analysis, using regression techniques, is reported.

## *Variables*

Models of both the incidence and coverage of closed shops are estimated. In the first case the dependent variable is a simple binary variable indicating whether a closed shop (as defined by the preferred method discussed above) is present. To consider the second issue, the estimated proportion of union members covered by closed shops was used. Since this variable is constrained to lie between 0 and 1, it was transformed into log-odds form.<sup>10</sup>

Turning to explanatory variables, following Zappala we include measures of workplace size (WPSIZE), firm size (represented by six dummy variables: FSIZE2 to FSIZE7), whether the organization is a private or public sector firm (PRIVATE), the proportion of the workforce which is female (FEMALE), whether all or most employees work rotating shifts (SHIFT), single workplace organization (SINGLE), whether the firm is wholly or predominantly foreign owned (FOROWN) and whether union dues are automatically deducted from worker pay packets (CHECKOFF), as well as controls for occupation (OCC1 to OCC7) and industry (IND1 to IND9). Additionally, variables capturing other aspects of workforce composition (namely length of tenure, age, ethnic origin and the extent of casual, part-time and contract work), workplace age, the number of unions represented, union size, the nature of awards present and labour intensity are also experimented with. Further description of the variables used in the analysis can be found in an Appendix.

## *Method*

Following Wooden and Balchin (1992), the analysis is restricted to workplaces with at least some union members. The size of the data set is reduced further by the purging of observations affected by non-response on variables of interest. In total, 1388 observations are used in the analysis. These data were then weighted.<sup>11</sup>

The model proposed here involves two sequential equations. In the first, the probability of a closed shop being present within a workplace is estimated. Since the measure of closed shop presence is binary, probit regression analysis is applied. In the second equation, the log-odds of the proportion of union members covered by closed shop arrangements is estimated (using ordinary least squares). Of course, closed shop coverage equals zero in workplaces where closed shops are not present, and hence workplaces without closed shops are excluded from this equation.<sup>12</sup>

For each equation two separate specifications are reported. The first includes just those variables hypothesized in Zappala as being of importance. The second specification augments the first with additional variables

found to improve the overall fit of the model. Note also that experimentation with functional form suggests that variables for both workplace size (EMP) and number of unions (UNIONS) be specified in logarithmic form.

## Results

The results are presented in Table 4. Looking first at the probit estimates of the probability of a workplace having at least one closed shop, the evidence points to a negative relationship with workplace size. This relationship, however, was only found to be highly significant once size was specified in log form and, more importantly, once the number of unions present was controlled for. These results stand in marked contrast to UK evidence which suggests that closed shops are more likely in large workplaces (see, for example, Daniel and Millward, 1983, p. 66-68).<sup>13</sup> Nevertheless, the finding has intuitive appeal. Wooden and Balchin (1992) hypothesize that unions are more likely to supply services where the average cost of organizing and servicing members is low. Obviously, due to diseconomies of scale, such costs will be higher in smaller workplaces. Closed shops, however, offer unions a means by which membership can be maintained in such workplaces whilst providing minimal services.

In contrast to workplace size, firm size is positively associated with the incidence of closed shop arrangements, though the relationship is not linear. Indeed, the major distinction is between very small firms (less than 100 employees) and all larger firms, and once a firm size of 500 is reached, the likelihood of closed shops being found no longer appears to rise with firm size.

Zappala expects that due to less hostility towards closed shops, their incidence would be higher in the public sector. In contrast, the results in Table 4 point to a higher prevalence of closed shops in the private sector, though the association is only weakly significant.

Zappala also expected industry and occupation to have a major bearing on the incidence of compulsory unionism. This conclusion is supported here only with respect to industry. In the case of occupation, only clerical workers (OCC5) appear to have a markedly different (lower) probability of closed shop coverage from the control group - plant and machine operators and drivers. Indeed, the occupation variables are jointly insignificant. Inter-industry differences, on the other hand, are far more marked. The control group, mining, is clearly the industry where closed shops are most likely to exist. Indeed, all other industry groups have a significantly lower probability of closed shop presence. At the other end of the spectrum, closed shop presence is least likely in community services (IND8), wholesale and retail trade (IND4) and recreation, personal and other services (IND9).

Table 4. Determinants of the Presence and Coverage of Closed Shops - Regression Results

	Probability of closed shop being present - Probit estimates		% of union members covered by closed shops - OLS estimates	
	(1)	(2)	(3)	(4)
Constant	0.948	0.994	5.562	5.467
ln WPSIZE	-0.073	-0.131	0.153	0.402
FSIZE2	0.366	0.349	-0.015	0.160
FSIZE3	0.704	0.681	1.293	1.460
FSIZE4	0.671	0.675	0.747	1.253
FSIZE5	0.592	0.569	1.312	1.628
FSIZE6	0.282	0.241	0.222	0.492
FSIZE7	0.762	0.701	0.906	1.251
PRIVATE	0.236	0.220	-0.544	-0.846
FEMALE	-0.214	-0.346	1.128	0.614
SHIFT	0.317	0.346	0.201	0.269
SINGLE	0.058	0.047	-0.111	0.144
FOROWN	0.248	0.265	0.166	0.373
CHECKOFF	-0.030	-0.025	-0.565	-0.454
OCC1	-1.095	-0.525	-2.659	-3.397
OCC2	-0.096	-0.104	-3.417	-3.474
OCC3	-0.585	-0.463	-1.076	-0.878
OCC4	-0.035	-0.072	-1.275	-1.218
OCC5	-0.897	-0.650	-3.942	-3.692
OCC6	0.267	0.189	-3.307	-3.507
OCC7	-0.045	-0.080	-0.425	-0.812
IND1	-1.066	-1.077	-1.508	-2.008
IND2	-1.252	-1.267	-1.812	-2.243
IND3	-0.953	-0.974	-1.754	-2.377
IND4	-1.327	-1.484	0.110	-0.878
	(1.67)#	(1.76)#	(5.75)**	(5.89)**
	(1.66)#	(2.64)**	(1.06)	(2.50)*
	(2.53)*	(2.38)*	(0.03)	(0.37)
	(3.89)**	(3.73)**	(2.73)**	(3.16)**
	(4.07)**	(4.04)**	(1.55)	(2.66)**
	(3.13)**	(2.98)**	(2.75)**	(3.53)**
	(1.29)	(1.09)	(0.34)	(0.81)
	(4.54)**	(4.07)**	(1.78)#	(2.50)*
	(1.89)#	(1.69)#	(1.57)	(2.44)*
	(1.14)	(1.76)#	(2.23)*	(1.21)
	(2.59)**	(2.78)**	(0.73)	(1.02)
	(0.40)	(0.33)	(0.24)	(0.33)
	(1.90)#	(1.98)*	(0.57)	(1.26)
	(0.27)	(0.22)	(1.92)#	(1.59)
	(1.31)	(0.61)	(0.89)	(1.19)
	(0.29)	(0.31)	(3.25)**	(3.48)**
	(1.82)#	(1.42)	(1.30)	(1.08)
	(0.12)	(0.25)	(2.07)*	(2.12)*
	(2.88)**	(2.05)*	(4.38)**	(4.17)**
	(0.94)	(0.65)	(4.91)**	(5.43)**
	(0.18)	(0.31)	(0.95)	(1.82)#
	(2.20)*	(2.22)*	(3.69)**	(4.76)**
	(2.43)*	(2.46)*	(2.74)**	(3.40)**
	(1.87)#	(1.92)#	(3.25)**	(4.35)**
	(2.66)**	(2.97)**	(0.20)	(1.51)

Table 4 (contd)

	Probability of closed shop being present - Probit estimates		% of union members covered by closed shops - OLS estimates	
	(1)	(2)	(3)	(4)
IND5	-0.901 (1.78)#	-0.966 (1.92)#	-1.753 (3.44)**	-2.300 (4.51)**
IND6	-1.299 (2.56)*	-1.200 (2.36)*	-1.418 (2.12)*	-0.251 (3.28)**
IND7	-0.899 (1.72)#	-0.970 (1.86)#	-2.316 (2.95)**	-2.983 (3.76)**
IND8	-1.582 (3.08)**	-1.686 (3.29)**	-2.010 (2.61)**	-3.150 (4.84)**
IND9	-1.072 (2.10)*	-1.392 (2.69)**	-2.927 (4.26)**	-2.142 (3.32)**
CASUAL		0.892 (3.65)**		1.357 (2.11)*
NESB		0.335 (3.45)**		0.413 (1.61)
NEW		-0.201 (1.52)		0.579 (1.71)
In UNIONS		0.172 (2.19)*		-0.757 (3.55)**
COMPAWARD		-0.238 (1.57)		-1.371 (3.01)**
FEDAWARD		-0.101 (1.23)		
Log-likelihood	-843.82	-827.17		
Adjusted R <sup>2a</sup>	0.178	0.206	0.159	0.196
Equation signif. <sup>b</sup>	196.90**	230.21**	4.75**	5.12**
Breusch-Pagan test <sup>c</sup>			103.57**	120.63**
Prediction success		64.8%	66.0%	
Reduction in prediction error	0.276	0.300		
N	1388	1338	576	576

Notes: Figures in parentheses are asymptotic t-ratios in the case of the probit equations and White-corrected t-ratios in the case of OLS. \*\*, \* and # indicate at the one, five and ten per cent levels, respectively, in a two-tailed test.

a. Cragg-Uhler F2 reported for probit equations. b. Likelihood ratio (chi-squared) test reported for probit equations and F-test reported OLS equations. c. Test for heteroscedasticity. It has a chi-squared distribution with k degrees of freedom.

If the other variables in the basic specification (1), only SHIFT is strongly significant. The explanation for this result is not immediately obvious but may reflect worker attitudes to unionism in workplaces where shift work is important. Alternatively, because of reduced opportunities for contact between the union and shift workers, unions may perceive a greater need for closed shop arrangements to maintain membership levels in workplaces where shift work involves a significant fraction of the workforce.

A statistically weak positive relationship is also found between closed shop presence and foreign ownership. Again this finding contrasts with that reached by Zappala (1992, p. 14). Moreover, the sign of the coefficient is probably not that which Zappala would have predicted, a point to which I shall return shortly.

In equation (2), six additional variables not considered by Zappala are added, three of which achieve significance at the five per cent level or better. CASUAL, the proportion of the workforce employed on a casual basis, is highly significant (at the one per cent level) and positive. While counter-intuitive at first glance, this result is consistent with the analysis of the BCA workplace data reported in Drago, Wooden and Sloan (1992, p. 191-92). They argue that unions perceive casual employment as a threat to their membership base, and hence the positive relationship results from the active pursuit of closed shop arrangements by unions in industries and firms where casual employment is prevalent. In a sense, this is similar to the argument behind the workplace size result mentioned above - casual employment increases the cost to unions of organizing, causing them to respond with closed shops.

This same argument can also explain the strong positive coefficient on NESB, the variable measuring the proportion of workers from a non-English speaking background, as well as the positive coefficient on the foreign ownership variable. Because of language and cultural barriers, NESB workforces may be more difficult and costly to organize and service, making closed shops an attractive option for unions. Similarly, unions may anticipate greater resistance to union membership by foreign owned firms, given that most foreign companies are based in countries with far lower levels of union membership than in Australia.

The last variable of large significance is the number of unions present, its positive sign indicating that the probability of a closed shop rises with the number of unions present. This result is hardly unexpected given the definition of closed shop used here. Since the majority of unions are occupationally based, the likelihood of any occupation being covered by a closed shop will rise with the number of unions represented.

Overall, the probit results suggest that an adequate explanation of why some workplaces have closed shops and others do not requires more than just knowledge of a workplace's industry or the occupational composition of its workforce. Moreover, the discussion has suggested that closer attention needs to be given to the motives of unions. In particular, it is argued that a number of the factors found to be of importance reflect union efforts to avoid the high costs of organizing and servicing members. Finally, it should be noted that while the estimated model provides mainly sensible predictions (indeed, its predictive power is extremely good), what it leaves unexplained is far more than what it explains (as reflected in an R squared term of about 0.20).

Turning now to the proportion of union members covered by these closed shops, the results in columns (3) and (4) point to clear relationships with five factors. First, closed shop coverage is more likely to be complete in large workplaces. Second, multiple unionism is associated with lower levels of average coverage in workplaces where closed shops are present, a result which occurs almost by definition since the probability of any union not being covered by a closed shop increases with the number of unions. Third, closed shop coverage is smaller the greater the proportion of persons in white-collar occupations (especially clerical, sales and professional occupations). Fourth, the presence of company awards appears to have an inhibiting effect on closed shop coverage, possibly because the sort of management which favours company awards is also likely to be more hostile to compulsory unionism. Finally, it is clear that closed shop coverage is particularly pronounced in the mining industry (the control industry for the specifications reported in Table 4).

## 5. Conclusions

Using two alternative definitions of the closed shop, this article estimated the proportion of the total workforce covered by closed shop arrangements to lie somewhere between 26 and 39 per cent, though adjustment for the exclusion of small workplaces (employing less than 20 persons) would see both of these figures fall slightly. Clearly, the two estimates have very different implications. Taking the 1980 estimates reported in Wright (1981), the lower (after adjusting for the exclusion of very small workplaces) implies that closed shop coverage fell by about four percentage points during the course of the 1980s while the latter implies a rise of about six percentage points.

Given both the marked decline in union membership that has occurred



in Australia over this period as well as other independent evidence from opinion surveys pointing to significant declines in the number of union conscripts, the lower estimate seems more plausible. Nevertheless, the definition which lies behind this estimate is unlikely to go undisputed. Ultimately, the problem with operationalizing a measure of closed shop coverage with these data lies in the absence of any questions on the existence of closed shops *per se*. Unlike the British WIRS, no questions are asked in the main survey instruments about whether union membership is required to retain employment. Hopefully this is a deficiency that will be corrected in any future round of the AWIRS. Nevertheless, the fact that at only five per cent of British workplaces with closed shops were those arrangements not supported by agreements, provides yet further evidence that the definition advocated here is superior.

This article also examined the factors behind the variation in closed shop coverage across workplaces. Moreover, unlike the British evidence, multivariate techniques are used to isolate the effects of each of the different variables considered. A number of interesting results emerged, many of which conflict with what is the accepted wisdom. The relationships with establishment and firm size, for instance, are not simple positive linear relationships. Indeed, the probability of a closed shop being present falls (at a declining rate) with workplace size, but where a closed shop is present, the proportion of union members covered rises with the number of employees (and again at a declining rate). Perhaps the most significant contribution of this analysis was to highlight the possibility that the presence of closed shops is dependent on the motives of unions. In particular, it was suggested that closed shops were more likely to be favoured by unions where the costs of organizing and servicing members was relatively high.

Finally, it is worth noting that the models developed here explain at best, little more than 20 per cent of the variation in closed shop coverage. Whether this will improve with more and better data is doubtful. A major part of the explanation for why some workplaces have closed shops and others not, almost certainly lies in a complex amalgam of factors idiosyncratic to workplaces and unions; an amalgam, the representation of which, may lay beyond the abilities of simple statistical models such as that presented here.

## Appendix

### Explanatory Variables - Definitions and Summary Statistics

Variable name	Definition	Mean (weighted)	Std.dev. (weighted)
WPSIZE	Number of employees in the workplace	121.78	251.30
FSIZE2	Firm size: 100-499 employees (1,0)	0.19	0.39
FSIZE3	Firm size: 500-999 employees (1,0)	0.09	0.28
FSIZE4	Firm size: 1000-4999 employees (1,0)	0.14	0.34
FSIZE5	Firm size: 5000-9999 employees (1,0)	0.08	0.26
FSIZE6	Firm size: 10000-20000 employees (1,0)	0.05	0.22
FSIZE7	Firm size: more than 20000 employees (1,0)	0.24	0.43
PRIVATE	Private sector organization (1,0)	0.57	0.50
FEMALE	Proportion of workforce which is female	0.42	0.29
SHIFT	"All" or "most" workers work rotating shifts (1,0)	0.13	0.34
SINGLE	Single workplace organization (1,0)	0.17	0.38
FOROWN	Firm predominantly or wholly foreign owned (1,0)	0.09	0.29
CHECKOFF	Union dues automatically deducted from worker pay (1,0)	0.84	0.37
OCC1	Managers as a proportion of the workforce	0.06	0.05
OCC2	Professionals as a proportion of the workforce	0.12	0.22
OCC3	Para-professionals as a proportion of the workforce	0.10	0.19
OCC4	Tradespersons as a proportion of the workforce	0.11	0.19
OCC5	Clerical workers as a proportion of the workforce	0.17	0.21
OCC6	Sales workers as a proportion of the workforce	0.16	0.28
OCC7	Labourers as a proportion of the workforce	0.20	0.24
IND1	Manufacturing industry (1,0)	0.22	0.41
IND2	Electricity, gas and water and communication industries (1,0)	0.05	0.23
IND3	Construction industry (1,0)	0.05	0.22
IND4	Wholesale and retail trade industry (1,0)	0.14	0.35
IND5	Transport and storage industry (1,0)	0.05	0.22
IND6	Finance, property and business services industry (1,0)	0.08	0.28
IND7	Public administration industry (1,0)	0.06	0.24
IND8	Community services industry (1,0)	0.25	0.43
IND9	Recreation, personal and other services industry (1,0)	0.08	0.27
CASUAL	Proportion of workforce employed on a casual basis	0.15	0.23
NESB	More than 10% of workforce are immigrants from a non-English speaking background (1,0)	0.20	0.40
NEW	Workplace less than five years old (1,0)	0.09	0.28
UNIONS	Number of unions present	2.53	1.81
COMPWARD	Company award present (1,0)	0.06	0.25
FEDAWARD	Federal award present (1,0)	0.46	0.50

Note: Though not included in the analysis, variables representing size of largest union, labour intensity, length of job tenure, the extent of teenage employment, the proportion of part-time employees in the workforce and the proportion of the workforce employed on contracts were also used to define the sample.

## Notes

1. He actually states that these arguments cover 57 per cent "of all employees in unionized workplaces". Elsewhere in the paper, however, it becomes obvious that this was an error, and that 57 per cent of all employed union members was intended. This confusion between "all employees" and "unionized employees" also affects many of the Appendix Tables reported by Zappala.
2. In addition, he excludes workplaces where it was reported that the main reason for the presence of 100 per cent unionization was not a union-management agreement, a preference clause or custom and practice (p. 10).
3. Zappala also reports figures, drawn directly from Callus *et al* (1991), on workplaces where *all* non-managerial employees were union members. For obvious reasons, this measure does not indicate either the presence or absence of a closed shop and in describing these data, Callus *et al* never implied it did.
4. Since no distinction is made in the AWIRS between formal written agreements and informal agreements, it is assumed that the term "union-management agreements" encompasses both.
5. Unlike the AWIRS, the British WIRS defines an establishment has having a closed shop if workers "normally have to be members of a union in order to keep their jobs" (Daniel and Millward, 1983, p. 301).
6. Very small differences exist between the numbers reported in Table 1 and those reported by Zappala (1992) in Appendix Table A3. While the data are handled slightly different here, it proved impossible to reconcile these differences.
7. The figure, however, does equate with the proportion of small workplaces where *all* workers were union members, reported in Table A44 of Callus *et al* (1991, p. 272). However, as discussed above, closed shops can, and generally do, co-exist with less than complete union coverage, and hence this figure will understate the incidence of closed shops.
8. Employment in private sector workplaces with less than 20 employees accounts for 24 per cent of all wage and salary earner employment, excluding agriculture (ABS, 1991). Allowing for the public sector would raise this figure to about 25 per cent.
9. Zappala (1992, Table D, 16) actually reports dramatically different figures to those reported here as being derived using the Zappala definition. It proved impossible to reconcile these differences.
10. That is, the model to be estimated is of the form:

$$\ln [(CS_i + 0.5/N_i)/(1 - CS_i + 0.5/N_i)] = \alpha + \beta'X_i + \mu_i$$

where  $CS_i$  is the number of union members in closed shops as a proportion of all union members in the  $i$ th workplace,  $N$  denotes the number of employees and  $X$  is a vector of explanatory variables.

11. Since the employment data used here are derived from the Employee Profile Questionnaire (rather than from the General Manager Questionnaire) the appropriate weighting variable is SCQWT, not GMQWT. I am indebted to Mark Cully for pointing this out to me. Weighting, however, does not have a critical bearing on the results reported.
12. The model described here is akin to the standard sample selection model. Applying such a model to these data, however, suggests selectivity bias is not a problem and hence single equation estimation will not lead to inconsistent

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estimates.

13. Note that none of the British studies employ multivariate analysis.

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