

## A Meta-Analysis of Some Determinants of Union Voting Intent

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Article abstract

Past literature has identified a need for a detailed investigation of the role of individual characteristics as predictors of individual unionization decision. This research paper uses the Hunter and Schmidt (1990) meta-analytical framework to examine the true impact of specific beliefs about unions, general beliefs about unions, job satisfaction, sex, race, and southern residence on union voting intent. This study also investigates if any of the above relationships are effected by moderator variables.

# **A Meta-Analysis of Some Determinants of Union Voting Intent**

**Satish P. Deshpande**

*Past literature has identified a need for a detailed investigation of the role of individual characteristics as predictors of individual unionization decision. This research paper uses the Hunter and Schmidt (1990) meta-analytical framework to examine the true impact of specific beliefs about unions, general beliefs about unions, job satisfaction, sex, race, and southern residence on union voting intent. This study also investigates if any of the above relationships are effected by moderator variables.*

The decline of U.S. union representation from roughly 33% of the labor force to less than 20% over the past 30 years is well known. While there is controversy regarding the reasons for this decline, there is little doubt that diminished union success in organizing employees through representation elections conducted by the National Labor Relations Board has played a major part. This awareness has contributed to a gush in research examining representation elections (see Heneman and Sandver 1983) and, more generally, the determinants of employee support or opposition to union representation, often through surveys of nonunion employees' voting intentions. Researchers in this area have used a wide range of variables ranging from work related attitudes and perceptions to individual characteristics to predict union vote. Many of these studies were inductive in nature and not based on any theoretical foundation or a model of union voting decision (Fiorito and Greer 1982).

A large number of studies have examined causes of pro-union voting intent in both hypothetical and imminent union representation elections (DeCotiis and LeLouarn 1981; Deshpande and Fiorito 1989; Fiorito 1987; Hills 1985; Kochan 1979; Rosse, Keaveny and Fossum 1987, Schriesheim 1978; Youngblood et al. 1984; Youngblood, Mobley and DeNisi 1982). Many such studies are summarized in recent literature reviews (e.g. Fiorito, Gallagher and Greer 1986). As Summers, Betton and DeCotiis (1986:644) noted, most of these studies equated voting

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intention with actual union vote. Recently, Premack and Hunter (1988) reported a meta-analytic correlation of .79 between intent to vote and actual vote in studies involving actual elections. They stated that both union vote intent and actual vote measure "the same underlying construct" (1988:232), and that union voting intent is a valid criterion measure. They also identified a need for further investigation of the role of individual characteristics as predictors of individual voting decisions.

While the literature has identified a number of causes of voting intent, job satisfaction and perceived union instrumentality have been singled out as the most prominent factors (Kochan, Katz and McKersie 1986). In addition to union instrumentality and job satisfaction, numerous other variables have been identified as correlates or determinants of union voting intentions. Besides focusing on the above mentioned two influences, we shall also examine the impact of other variables like sex, race and southern residence on union voting intent. The impact of all these variables on union vote intent will be examined by doing meta-analyses of studies done in all these areas. One of the aims of this study is to compare conclusions of traditional methods of literature review with those generated by meta-analysis. Another aim is to present new information regarding the relative magnitudes of the respective correlation coefficients, and the presence of any moderator variables.

## EMPIRICAL LITERATURE

Perceived union instrumentality is one of the few predictors for which empirical results are very clear. Workers who perceive unions as instrumental generally favor unions (e.g. Kochan 1979). Despite consensus on the importance of perceived union instrumentality, there is considerable diversity in the frame of reference used to capture its effect on preference for union representation (i.e. in voting intention studies). Some researchers use instrumentality measures referring simply to "unions" (e.g. Kochan 1979) and others to the effect of a union at the respondents' workplace (Youngblood et al. 1984). Summers et al. (1986) refer to the distinction between unions as a class of entities or in the generic sense, and particular unions in terms of general versus specific union beliefs. Although previous research has used either specific or general union instrumentality as predictors of voting intentions, Premack and Hunter (1988), in a recent meta-analysis, treated both these measures as the same. Recently, Deshpande and Fiorito (1989) gave explicit attention to the relative importance of specific versus general beliefs. They showed that even though the above two measures are correlated (.48), beliefs about a unions effects at one's own workplace carry significantly greater weight than do general union beliefs in the formation of union voting intentions (demonstrated via t-test for differences in regression coefficients for respective measures) and that these two constructs are not the same. It is one of the purposes of this meta-analysis to rectify this error made by Premack and Hunter (1988).

Overall job satisfaction has consistently been shown to have a negative relationship with union voting intent (e.g. Allen and Keaveny 1981; DeCotiis and LeLouarn 1981; Kochan 1979; Youngblood et al. 1984). The converse has been

shown to hold true for nonwhites in empirical studies (e.g. Kochan 1979; Youngblood 1984). This is because union racial equality policies and protective policies inhibit employer discrimination. Hypotheses for gender effects are generally similar to those concerning nonwhites, but studies with voting intent as the dependent variable have generally come to a conclusion of no gender effect (e.g. Youngblood et al. 1984). There is mixed results for the effect of "southern effect" on union voting intent. But the general argument is that southern workers have a low desire for unionization because of the low probability of being hired by a union employer conditional on desiring union representation (Leigh and Hills 1987). Fiorito et al. (1986) have done a comprehensive review of all the above relationships.

We expect our meta-analyses to support the general conclusions arrived by various reviews done in the literature which have been stated above.

## **METHOD**

An extensive computer and manual search of both published and unpublished industrial relations literature in the last 20 years was conducted to get as many correlations of interest as possible. A manual search of all relevant published references cited by the following two major reviews of the determinants of U.S. unionism was done: Fiorito and Greer (1982) and Fiorito, Gallagher and Greer (1986). The literature review done by Heneman and Sandver (1981) was not considered since they excluded all research that used intent to vote (our dependent variable) as a criterion measure. Unpublished technical reports, doctoral dissertations, and unused data sets (no studies published using these data sets) were also included in this study. The inclusion of unpublished studies minimizes any potential selection bias that may occur in published studies (Rosenthal 1979).

### **Data-Collection Procedure**

Individual studies were selected on the basis of the following criteria: (a) some measure of union vote intent was used as the dependent variable; (b) minimum information needed for meta-analysis (correlations of measures of interest and sample sizes) were provided; (c) correlations were taken from the highest level of aggregation when both subsample and total sample correlations were provided. If a correlation of interest in different studies was based on the same data set, then only one of the studies was considered. In all, eight published studies and five unpublished studies/surveys that assessed the relations of one or more predictors of unionization relevant to our meta-analysis were found. Sample sizes ranged from 46 to 1168. A total of 7,270 participated in the 13 studies.

## Statistical Analysis

Meta-analysis is a statistical technique used to cumulate research findings across studies (Hunter and Schmidt 1990). Meta-analytic techniques provide the most accurate estimate of the existing relationship in a particular area of research. Further, the Hunter and Schmidt (1990) meta-analytic framework is capable of accounting for statistical artifacts that inevitably operate in any empirical study. These artifacts include sampling error, criterion reliability, predictor reliability, range restriction, criterion deficiency, criterion contamination, and bad data. These artifacts will not only increase the observed variance, but will also depress the true correlation between the constructs of interest.

Hunter and Schmidt (1990) believe that most of the inconsistency of results across similar studies in various research areas could be attributed to statistical artifacts rather than the presence of moderator variables. One way of testing this hypothesis is by using the 75% rule. This rule states that if 75% of the observed variance in the correlation is accounted by quantifiable artifacts like sampling error, error of measurement, and range restriction, then we can assume that the remaining variance will be accounted for by the numerous non-quantifiable artifacts, and that the relationship is constant across settings (Schmidt et al. 1979).

Another way of testing this hypothesis is using lower 90% credibility values. Current researchers (see McDaniel et al. 1986 for more details) have suggested using the lower 90% credibility value as a test for generalization of results. This is particularly true in the area of validity generalization (in personnel selection), but can be extended to other areas too. This value is the point above which 90% of the true correlation coefficients lie. Predictors are said to be generalizable if the lower 90% credibility value is greater than zero (Callender and Osburn 1981) or in the same direction as the mean true correlation. This statistic, which can be used to assess the likely minimum correlation of any of the determinants of unionization, is used analogous to significance testing.

Hunter and Schmidt (1990) list two methods of correcting correlations. The first approach involves the correction of correlations individually and then cumulating them. The second approach involves artifact distributions. In this approach, the average and variance of the uncorrected correlations are first calculated, and then the variance due to artifacts are subtracted from that observed variance to arrive at the residual variance. The true correlations are arrived at by correcting the average of the uncorrected correlations with the average value of the artifacts. The artifact distribution method was used in this study. The first method could not be used due to insufficient reporting of information in the studies used in this paper. Hunter and Schmidt (1990) have formulas based on the distribution of artifacts, which enable the researcher to estimate variance attributed to error of measurement and range restriction after estimating the sampling error variance.

Six meta-analyses were performed using the formulas based on distributions of artifacts. In this study we corrected for sampling error and measurement error but not for range restriction. No corrections for range

restrictions were made because unionization campaigns always involve incumbent populations. A computer program in BASIC was used to estimate variance attributed to sampling error and measurement error.

## RESULTS AND DISCUSSION

Table 1 contains relevant information on the various meta-analyses conducted. The first column of the table identifies the relevant correlation analyzed. The next two columns show the sample size and the number of correlation coefficients in each distribution. Column 4 presents the estimated mean true correlation. This is the average correlation corrected for statistical artifacts. Column 5 presents the observed or uncorrected variance in correlations used for analyses. Column 6 presents the corrected variance in correlation ( $S^2_p$ ). This is variance remaining in observed correlations after correcting for statistical artifacts (i.e. sampling and measurement error). Column 7 presents the percentage of observed variance accounted for by statistical artifacts. Column 8 presents the lower bound of the 90% credibility value for each measure of union voting intent. This value is based on their mean true correlation and  $SD_p$  estimates.

TABLE 1  
Information on the Relation Among Relevant Correlations

<i>Relation</i>	<i>N</i>	<i>No. of corr.</i>	<i>Mean corr.</i>	<i>Variance corr.</i>	<i>Corrected variance</i>	<i>% Variance accounted</i>	<i>90% Credib.</i>
UVOTE-GENERAL	3457	10	.59	.0299	.0289	13.03	.37
UVOTE-SPECIFIC	1346	3	.83	.0034	.0026	51.54	.76
UVOTE-JOBSAT	5729	13	-.26	.0129	.0114	14.11	-.12
UVOTE-SEX	5099	6	.09	.0023	.0011	50.27	.05
UVOTE-RACE	5071	6	.15	.0092	.0082	12.12	.03
UVOTE-SOUTH	2468	3	.01	.0014	.0000	100.00	.01

Note: UVOTE=union voting intent; GENERAL=general union instrumentality; SPECIFIC=specific union instrumentality; JOBSAT=job satisfaction; SEX=sex; RACE=race; SOUTH=southern residence

The mean correlation coefficient reported for various determinants of union voting intent was in the same direction as hypothesized by review articles in this area. As expected, specific instrumentality had a higher correlation coefficient than general instrumentality (.83 vs. .59). They were followed by job satisfaction ( $r=-.26$ ), race ( $r=.15$ ), sex ( $r=.09$ ), and southern residence ( $r=.01$ ).

Table 1 shows that it is only in the case of southern residence that all the observed variance is accounted for by statistical artifacts. For the remaining determinants of union voting intent, the percentage of variance explained by these artifacts ranged from 12% to 51%. The variance remaining after correcting for the two artifacts could be due to moderating variables and/or uncorrected for statistical artifacts.

Column 8 on table 1 shows that the 90% credibility values for all the six determinants of union voting intent are in the same direction as their mean true correlations. This indicates to us that these correlations are generalizable across all situations, though the magnitude of the effects may vary across situations.

The results strongly support the thesis that union voting intent is affected by both specific and general instrumentality, with specific instrumentality being a more important predictor of union voting intent than general instrumentality.

The results for the other determinants besides southern residence are in accord with the general conclusion derived by reviews of previous research done in this area. Specifically, results indicate nonwhites and women are more likely to express a pro-union voting intent, while those with high job satisfaction are more likely to express an anti-voting intent.

Meta-analysis results also show that even southerners are likely to express a pro-union voting intent. Though this is a counter-intuitive result, it is certainly one that has been observed in earlier studies on voting intentions and representation campaign outcomes. But one must keep in mind that the magnitude of this effect is very small compared to the other factors examined in this study.

This study goes beyond Premack and Hunter (1988). It examines variables they did not examine, and also made amends for the error they made in the conceptualization of union instrumentality.

This meta-analysis has serious implications for future research. Results indicate that all the factors considered in this study do impact union voting intent regardless of the situation. But they further indicate that the incidence of some of the factors (e.g. specific beliefs about unions, general beliefs about unions, job satisfaction, sex, and southern residence) on union voting intent could vary across situations.

Future studies in union vote and union voting intent must pay more emphasis on the examination of moderator variables and interaction effects, than just looking at the main effects. Specifically, future studies could examine what variables moderate the relationship between union voting intent and some of the variables examined in this study. A meta-analysis also needs to be done using other individual characteristics and various job characteristics as predictors of individual unionization decision. A path-analysis of the impact of individual characteristics on union voting intent could also be done using meta-analyses results.

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