The Implementation Process of Comparable Worth: Winners and Losers

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This paper provides a unique opportunity to observe how a public policy affected the earnings of various interest groups at different stages of implementation. Specifically, we examine how the earnings of women, union members, and supervisory and professional staff were affected by various proposed and implemented comparable worth pay plans in Iowa. We find that large relative gains to women in the original proposed plans were reduced as the process evolved. As a result, some of the original gains to women were redistributed to union members, supervisors, and professionals.

Despite 25 years of legislation related to equal pay, equal opportunity, and affirmative action for women in the job market, women still tend to be concentrated in relatively low-paying, predominantly female jobs. This perceived lack of rapid progress in women's labor market status has motivated some states and localities to consider or implement comparable worth as an additional weapon in the battle against sex discrimination. Supporters view comparable worth as a method for achieving immediate increases in the pay for female-dominated jobs, given the apparent ineffectiveness of previous legislation in raising the pay of women relative to that of men.

A typical comparable worth policy calls for a study of jobs and pay structure within an organization to determine if there has been any

We would like to thank the Panel on Pay Equity, National Research Council, for partial support in funding this study and members of the state government of Iowa for their cooperation in providing data and information relevant to the comparable worth process. Jeff Greig and Kyle Stephens provided able research assistance. The views expressed in this paper are exclusively those of the authors.
sex bias in compensation and, if so, to correct the situation. Jobs are usually analyzed in terms of the skills, effort, responsibility, and working conditions required. Typically, points will be assigned to each job attribute so that a weighted total number of points can ultimately be associated with each job. Job classifications having equal (or near equal) total points are assigned equal wage rates. Comparable worth proposals typically ignore market wages in setting relative pay because market wages are presumed to embed discrimination against predominantly female jobs. Advocates argue that use of the job analysis/factor point method will eliminate sex bias in the pay plan.

A fundamental problem with such plans is that the valuation of different jobs is inherently subjective, meaning that two equally informed, unbiased, and qualified analysts could value the same job very differently. The problem becomes more difficult as more and more agents with differing agendas are brought into the analysis. Because comparable worth pay analysis in the public sector has typically been conducted with input from various combinations of consultants, politicians, women’s groups, union representatives, supervisory staff, and rank-and-file employees, it is clear that the results can be influenced by the objectives of the individuals or constituent groups involved in the process. The process becomes even more subject to external pressure when decisions are made regarding implementation of the plan. Public-sector budget constraints, market opportunities for public-sector employees, and union resistance to pay cuts may significantly alter the pay plan relative to the initial proposal.

This paper illustrates how the original goals of a comparable worth policy can become diluted as political and economic pressures from state budgets, politicians, unions, personnel professionals, market forces, and supervisory personnel enter the implementation process. We make use of a unique data set from the state of Iowa that allows us to examine the earnings structure underlying the initial pay plan, a consultant’s initial proposed plan, a plan designed by a steering committee composed of politicians, a compromise plan implemented after negotiations between the state and the union, and the final plan that resulted after an appeals process was completed. We are able to show how the returns to women, union members, supervisors, and professionals changed under successive pay plans. The results indicate that initial gains to women were ultimately reduced and redirected toward constituencies that stood to lose or gain little as a result of the initial plan: union members, professionals, supervisors, and those with the highest market wages.

In the next section, we discuss the process of legislating and implementing comparable worth in the state of Iowa. After a discussion of our data and methodology, we present our empirical analysis. We
conclude with a summary of our results and an evaluation of whether these results are likely to generalize to other states.

**Comparable Worth in Iowa**

To date in the United States, comparable worth legislation has been directed only toward government employees at the state or local level. A recent law in Ontario, Canada, extended coverage to private-sector firms as well. At least seven states completed or have begun to implement comparable worth pay adjustments (Connecticut, Iowa, Minnesota, New York, Oregon, Washington, and Wisconsin), at least two states have completed studies and are deciding whether to implement pay adjustments (Michigan and New Jersey), and several other states are in the process of studying or are considering a study of pay inequities. In addition, a large number of municipal, county, and school district governing units have initiated comparable worth studies or plans (Ehrenberg and Smith 1987).

This study focuses on the implementation of comparable worth plans in Iowa. This process started in 1983 when the Iowa legislature voted to fund an initial study of the Iowa Merit Pay System by consultant Arthur Young and Company. A steering committee composed of legislators, administrators, and union representatives voted not to use market wage survey data in the analysis. In cooperation with the consultant, 13 factors (discussed in more detail below) that measured various aspects of skill, effort, responsibility, and working conditions were defined. Four-person teams of employees and supervisors assigned points to each factor for each job to which they were assigned. The teams based their evaluations on employee questionnaires.

Factor weights were obtained using two different methods. First, the Arthur Young consultants derived statistical weights based on the estimated coefficients computed by regressing pay grade on each of the 13 job factors plus a variable that controlled for the percentage female in each job. These estimated weights included several that were statistically insignificant and three that had small negative values. After examining these regression weights, the steering committee defined a second set, which we refer to as the committee weights.

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1 Several states in recent years have developed new state pay plans using factor point-count methods but have also incorporated market wage survey information in setting wage rates for key jobs. Although these state plans (such as in Idaho, Louisiana, Massachusetts, New Mexico, Ohio, and Tennessee) have many features that are similar to comparable worth, they deviate to the extent that market wage rates alter relative pay. The state of Washington also utilized market wage survey information, but we include it in our list of comparable worth states since it has been widely publicized as such and, in particular, because the unions had to sue to obtain implementation of the state's original intent to make such adjustments.
These subjective weights differed in that all were assigned positive values and no factor was given a weight below 5 percent or above 15 percent of the total.

Two sets of total job points (and hence pay grade plans) were generated, one for each set of factor weights. Each recommended plan would have decreased the pay of some job classifications while increasing the pay of other classifications, thereby helping to limit the cost of implementation. The unions, which had been highly supportive up to this point, became resistant when pay cuts became a possibility. From the state's perspective, elimination of the pay cuts would have raised the cost of implementation to an unacceptable level. These issues became part of the contract negotiations between the state and the unions in 1984. The compromise plan settlement was that no one suffer a reduction in pay grade and that the size of all increases be reduced by one pay grade and one step. This plan was implemented (and extended by the governor to noncontract employees) in March 1985.

After implementation, an appeals process was put into effect to hear complaints concerning the comparable worth adjustments. Non-union appeals were heard by a panel of five personnel professionals, while union appeals were heard by a joint union-management panel. Forty-five percent of the merit system pay recommendations were appealed, with roughly equal proportions receiving increases, decreases, and no change on appeal. The final settlement of a new round of union contract negotiations provided implementation of the recommended pay increase in full in July 1987 but canceled all recommended pay cuts. We estimate that, in total, the final comparable worth system increased annual state payrolls by $26.2 million in 1983 dollars or 8.8 percent of the original payroll.

**Methodology and Data**

Our objective is to isolate the effect of alternative comparable worth pay plans on the structure of earnings. To do this, we must not allow other factors to change that would also alter the pay structure. It would be inaccurate, for example, to compare earnings functions estimated over samples of workers employed before implementation and after implementation. Because the new pay system may cause some employees to quit, others to transfer to different jobs, and still others to enter state employment, such comparisons of snapshots of the state pay structure at different points in time will be subject to sample selection bias. Second, changes in other exogenous influences over time such as political elections, shifts in public demand for government services, or changes in government revenue could also alter
the pay structure. Such coincident influences on employee earnings would render difficult any derivation of the comparative static effects of comparable worth. Finally, our objective is to illustrate how the proposed structure of earnings evolved over time. But not all proposed plans were implemented. Thus we require a methodology that allows us to analyze both earnings structures that were implemented and those that were never adopted.

We resolve these potential problems by holding constant a December 1983 sample of state employees and then observing how their pay would have changed (in 1983 dollars) as a result of each of the proposed or implemented comparable worth plans discussed above. That is, given an individual's 1983 job classification and pay grade, we are able to compute the number of pay grades that his or her job would have increased or decreased given each comparable worth proposal. Using the December 1983 pay schedule, we then compute what an individual's pay would have been in each case. We compute five different earnings rates for each employee: (1) the actual 1983 earnings, (2) the earnings associated with the recommended Arthur Young plan using the statistical weights, (3) the earnings associated with the recommended steering committee plan using the committee weights, (4) the earnings rate associated with the implemented state/American Federation of State, County, and Municipal Employees (AFSCME) compromise plan, and (5) the earnings rate associated with the implemented state/AFSCME appeals plan. We are therefore able to analyze all plans, whether implemented or not, avoiding biases associated with sample selection or coincident changes in exogenous variables other than comparable worth.

We use the standard earnings function approach pioneered by Mincer (1974) to relate earnings to a set of human capital and individual characteristics according to

\[
\ln W_{ik} = a_k + b_k S_i + c_k U_i + d_k P_i + e_k \ln MW_i + f_k X_i + \epsilon_{ik},
\]

where \(\ln W_{ik}\) is the natural logarithm of individual \(i\)'s biweekly earnings under pay plan \(k\), \(S_i\) is a dummy variable that takes the value of one if the incumbent is female, \(U_i\) is a vector of union status variables, \(P_i\) represents dummy variables for professional and supervisory positions, \(\ln MW_i\) is the natural logarithm of the median market wage for the occupation, and \(X_i\) is a vector of other human capital and personal characteristics commonly used in earnings functions. These variables are defined more precisely below. The parameters \(a_k, b_k, c_k, d_k, e_k, \) and \(f_k\) are specific to pay plan \(k\), and \(\epsilon_{ik}\) is the error term. These parameters may be compared across pay plans to determine how returns to the various characteristics change across pay plans.
More directly, we could estimate the change in returns across pay plans by estimating the equation
\[
\ln W_{ik} - \ln W_{i0} = (a_k - a_0) + (b_k - b_0)S_i + (c_k - c_0)U_i + (d_k - d_0)P_i + (e_k - e_0) \ln MW_i + (f_k - f_0)X_i + (\epsilon_{ik} - \epsilon_{i0}),
\]
where the zero subscript represents the original 1983 pay structure. The estimated coefficients in (2) measure the change in the return to the various characteristics under pay plan \( k \) relative to the original 1983 pay plan. A positive coefficient implies that the characteristic “wins” relative to other characteristics as a result of comparable worth, while a negative coefficient means that it “loses.” Estimation of (1) and (2) will allow us to observe how sex, union status, professional and supervisory status, market wages, and other characteristics change in importance and value in each successive pay structure.

Our data set consists of a random sample of 3,734 state government employees in Iowa as of December 1983. This was roughly one-fifth of total state merit employment. Personal characteristics as well as job classifications, biweekly pay, supervisory/professional status, union contract coverage, union dues checkoff, and employment time with the state came from a December 1983 payroll tape. Educational attainment, licensing, vocational training, military experience, and non-state work experience were culled from state personnel record files. We used (generally private-sector) wage survey data published by the Job Service of Iowa (1984) to measure median occupational market wages. We compared job descriptions used in the Job Service survey with job descriptions used by the State Merit Employment Department in order to match jobs as closely as possible.

Each employee's actual biweekly earnings rate during December 1983 was extracted from the payroll tape. Given the individual's job classification, we used tables supplied by Arthur Young and Company (1984) (for the statistical and committee plans) and by the state (for the 1985 and 1987 plans) to infer how the individual's pay grade would have changed under each of the comparable worth plans. These pay grades were translated into biweekly earnings rates using

2 Employees of the state universities and a small number of nonmerit employees (not subject to Civil Service exams and procedures) were excluded from the Iowa comparable worth process.

3 There is no need to adjust for the value of fringe benefits or for cost-of-living differentials since all state employees receive the same benefits and since the vast majority of employees live and work in central Iowa, in the Des Moines–Ames metropolitan area.
the December 1983 pay plan tables that were also supplied by the
state. See Orazem and Mattila (1988) for further details on the data
set and the measurement of the variables.

Results

The Female-Male Pay Gap

Means and standard deviations of the variables are reported in table
1. Most of the explanatory variables are binary variables, although
education, tenure, experience, and years out of the labor force are
measured in years. The market wage is shown in dollars in table 1,
although entered in log form in the regressions so that its coefficient
can be interpreted as an elasticity.

Summary statistics are also shown separately for men and for
women, who represented 49.9 percent of the sample. In 1983, wom-
en's earnings averaged 78.7 percent as much as those of men. Each of
the comparable worth plans would have increased the typical wom-
en's pay more than men's pay. Indeed, the plan based on the statistical
weights would have reduced the average men's biweekly pay by
$22.20 and raised women's pay to 88 percent of the average men's
pay. However, as a result of implementation and the appeals process,
no one's pay was cut, and women ended up gaining $68.99 biweekly
(12.3 percent) while men gained $42.85 biweekly (6.0 percent). As a
consequence, average female earnings rose to only 83.4 percent of
average male earnings. Overall, the net effect of comparable worth
was to increase women's relative pay by less than five percentage
points.

At this level of aggregation, it appears that women did gain as a
result of comparable worth. However, economists tend to be more
interested in the size of the female-male earnings gap after control-
ling for human capital and personal characteristics. Table 2 provides

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4 In 1983, 47.3 percent of state government employees were female. By comparison, 42 percent of Iowa private-sector and local-government employees were female, ac-
cording to 1980 census data.

5 We exclude the 13 original job factors and the total factor points from the regres-
sion so as to focus on the pure effect of the personal and human capital variables. Variables such as supervisors, education, and experience have corresponding factors
that compete to explain the same effects. Also, as we argue in this paper, various
groups such as unions, professionals, and supervisors were able to influence the job
factors and the factor-weighting process so that factor points are also a function of sex,
union status, professional status, and supervisory status. Thus, e.g., the full impact of
union status on the pay structure is the direct impact (through negotiation) and the
indirect effect through potential influence on factor weights and measurements. For
tests of the sensitivity of our results to other specifications, see Orazem and Mattila
(1989).
<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
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<tr>
<td></td>
<td>All</td>
<td>Female</td>
</tr>
<tr>
<td>1983 pay</td>
<td>$636.14</td>
<td>$560.39</td>
</tr>
<tr>
<td>Arthur Young statistical pay</td>
<td>$648.05</td>
<td>$606.51</td>
</tr>
<tr>
<td>Arthur Young committee pay</td>
<td>$671.71</td>
<td>$625.10</td>
</tr>
<tr>
<td>1985 pay</td>
<td>$675.88</td>
<td>$612.71</td>
</tr>
<tr>
<td>1987 appeals pay</td>
<td>$692.04</td>
<td>$629.38</td>
</tr>
<tr>
<td>Arthur Young statistical pay</td>
<td>$11.90</td>
<td>$46.12</td>
</tr>
<tr>
<td>Arthur Young committee pay</td>
<td>$35.57</td>
<td>$64.71</td>
</tr>
<tr>
<td>1985 pay - 1983 pay</td>
<td>$39.74</td>
<td>$52.32</td>
</tr>
<tr>
<td>1987 pay - 1983 pay</td>
<td>$55.90</td>
<td>$68.99</td>
</tr>
<tr>
<td>Education</td>
<td>13.27</td>
<td>13.02</td>
</tr>
<tr>
<td>MS</td>
<td>.0533</td>
<td>.0376</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>.0121</td>
<td>.0032</td>
</tr>
<tr>
<td>License</td>
<td>.0653</td>
<td>.0815</td>
</tr>
<tr>
<td>Vocational</td>
<td>.1957</td>
<td>.2698</td>
</tr>
<tr>
<td>Military</td>
<td>.2180</td>
<td>.0161</td>
</tr>
<tr>
<td>Years out</td>
<td>1.147</td>
<td>2.004</td>
</tr>
<tr>
<td>Supervisor</td>
<td>.1320</td>
<td>.0928</td>
</tr>
<tr>
<td>Professional</td>
<td>.2051</td>
<td>.1385</td>
</tr>
<tr>
<td>Full-time</td>
<td>.9769</td>
<td>.9579</td>
</tr>
<tr>
<td>Market wage</td>
<td>$7.887</td>
<td>$6.608</td>
</tr>
<tr>
<td>Union</td>
<td>.7740</td>
<td>.7822</td>
</tr>
<tr>
<td>Dues</td>
<td>.1524</td>
<td>.1218</td>
</tr>
<tr>
<td>Association dues</td>
<td>.0335</td>
<td>.0333</td>
</tr>
<tr>
<td>Single</td>
<td>.3385</td>
<td>.4131</td>
</tr>
<tr>
<td>Minority</td>
<td>.0206</td>
<td>.0231</td>
</tr>
<tr>
<td>Female</td>
<td>.4992</td>
<td>1.000</td>
</tr>
<tr>
<td>Number of observations</td>
<td>3,734</td>
<td>1,864</td>
</tr>
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</table>
**TABLE 2**

**REGRESSIONS EXPLAINING THE LEVELS AND CHANGES IN EARNINGS UNDER DIFFERENT IOWA STATE MERIT PAY PLANS**

<table>
<thead>
<tr>
<th></th>
<th>Pay Levels</th>
<th>Pay Differences</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>1983</td>
<td>Arthur Young Statistical (1)</td>
</tr>
<tr>
<td>Female</td>
<td>-0.039</td>
<td>(7.10)*</td>
</tr>
<tr>
<td>Supervisor</td>
<td>0.055</td>
<td>(4.83)*</td>
</tr>
<tr>
<td>Professional</td>
<td>0.154</td>
<td>(16.07)*</td>
</tr>
<tr>
<td>Union</td>
<td>0.027</td>
<td>(5.54)*</td>
</tr>
<tr>
<td>Dues</td>
<td>0.010</td>
<td>(1.63)</td>
</tr>
<tr>
<td>Association</td>
<td>0.023</td>
<td>(1.94)</td>
</tr>
<tr>
<td>Market wage</td>
<td>0.350</td>
<td>(42.22)*</td>
</tr>
<tr>
<td>Minority</td>
<td>0.006</td>
<td>(0.04)</td>
</tr>
<tr>
<td>Education</td>
<td>0.035</td>
<td>(28.9)</td>
</tr>
<tr>
<td></td>
<td>MS</td>
<td>(90)</td>
</tr>
<tr>
<td>--------</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td></td>
<td>-.010</td>
<td>.044</td>
</tr>
<tr>
<td></td>
<td>-.002</td>
<td>.054</td>
</tr>
<tr>
<td></td>
<td>.022</td>
<td>.182</td>
</tr>
<tr>
<td></td>
<td>.003</td>
<td>.077</td>
</tr>
<tr>
<td></td>
<td>.008</td>
<td>.069</td>
</tr>
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</table>

**R²**: .815  .794  .760  .763  .778  .407  .545  .373  .349

* Significant at the .05 level.
TABLE 3

<table>
<thead>
<tr>
<th></th>
<th>1983</th>
<th>1985</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthur Young</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statistical</td>
<td>.787</td>
<td>.829</td>
<td>.834</td>
</tr>
<tr>
<td>Arthur Young</td>
<td>.880</td>
<td>.964</td>
<td>.971</td>
</tr>
<tr>
<td>Committee</td>
<td>.870</td>
<td>.996</td>
<td>.971</td>
</tr>
<tr>
<td>1985 Compromise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statistical</td>
<td>.951</td>
<td>.964</td>
<td>.971</td>
</tr>
<tr>
<td>Arthur Young</td>
<td>1.009</td>
<td>.996</td>
<td>.971</td>
</tr>
<tr>
<td>Committee</td>
<td>.996</td>
<td>.996</td>
<td>.971</td>
</tr>
<tr>
<td>1987 Appeal</td>
<td>.877</td>
<td>.913</td>
<td>.916</td>
</tr>
<tr>
<td></td>
<td>.986</td>
<td>.913</td>
<td>.916</td>
</tr>
<tr>
<td>Corrected (as directly implied by table 2)</td>
<td>.961</td>
<td>.968</td>
<td>.975</td>
</tr>
<tr>
<td>Corrected (including market wage)*</td>
<td>.951</td>
<td>.964</td>
<td>.971</td>
</tr>
<tr>
<td>Corrected (excluding market wage)*</td>
<td>.877</td>
<td>.913</td>
<td>.916</td>
</tr>
</tbody>
</table>

* The ratio is computed as the average female wage divided by the predicted female wage under the male earnings structure. The latter was computed by first estimating eq. (1) over the sample of male incumbents for each plan, including and excluding the market wage, respectively. These coefficients represent the male earnings structure. The summation of the average female characteristics multiplied by their respective coefficients from the male earnings structure is a commonly used estimate of what women would earn if their characteristics were rewarded at the same rate as men.

regression estimates of equation (1) in which we control for standard measures of education, training, work experience, marital status, and race, as well as the market wage. After controlling for these variables, we see in column 1 that women were underpaid by only 3.9 percent relative to men in 1983. This coefficient is sensitive to inclusion of the market wage variable. When equation (1) is reestimated excluding the market wage, women earned 12 percent less than men.

For our purposes, what is more important is how returns to women change from one pay plan to the next, not the magnitude of the differential. In table 3, we report the estimated ratio of female to male wages both controlling and not controlling for market wages. The highest relative female earnings occur in the statistical plan. However, later revisions and compromises tended to dissipate these gains for women. This general pattern of reductions in the relative gains to women is not altered by the inclusion or exclusion of market wages. Overall, the results suggest that the implemented plan reduced the unexplained pay gap between men and women by 32–40 percent, whereas the original proposed statistical plan would have virtually eliminated the pay gap.

The Arthur Young Statistical Weight Plan

The original proposed pay plan devised by the Arthur Young consultants weighted the job factors on the basis of coefficients derived from a regression of pay grades on measured job characteristics. Of the four comparable worth plans that we consider, this plan was least subject to political forces. Although based on the same 13 job factors as the other plans, its weights were determined in a “scientific” man-
The statistical plan proposed cutting pay for some jobs while raising pay for others.

The impact of the statistical plan may be analyzed either by comparing columns 1 and 2 of table 2 or directly by focusing on the pay difference coefficients of column 6. In either case, women would have enjoyed a substantial 8.8-percentage-point gain in pay on average. Women having started 3.9 percent behind men under the 1983 pay plan, the statistical plan would have given women a 4.9 percent advantage over men, other things constant.

It is notable that the earnings of unionized workers would have deteriorated. Those covered by a union contract would have lost 3.8 percentage points in pay. Those who were dues-paying members (with professional associations excluded) would have lost an additional 4.8 percent in pay, for a total loss of 8.6 percent. One might have expected these effects if unions were disproportionately male. However, referring back to table 1, we see that men and women were almost equally likely to be covered by a union contract. On the other hand, men were somewhat more likely to be dues-paying members of unions than women were, while equal proportions of each sex paid dues to a professional association.

Men are more likely to be professionals and supervisors than women are. As seen in table 2, professional employees would have lost 1.9 percent of earnings, other things constant, under the statistical plan. Supervisors would have neither gained nor lost any earnings as indicated by the statistically insignificant coefficient for pay differentials.

The Committee Weights Plan

On receiving the consultants' proposed plan, the steering committee devised its own set of weights. Job factors such as physical demands, working environment, mental/visual demands, unavoidable hazards/risks, and work pace/pressures and interruptions that had negative or near-zero coefficients in the statistical plan were given positive weights. To the extent that these characteristics were closely associated with blue-collar and clerical jobs, this could be expected to raise the pay of many workers covered by union contract. In fact, the committee explicitly took into account how the factor weights influenced outcomes, including how they affected relative pay for female jobs, in revising the factor weights.6 By setting the weights partly on

6 The Arthur Young report (1984, p. 30) states that "upon reviewing the results of the statistical analysis, the committee determined that the preliminary weights again needed to be refined. The Steering Committee established, as their policy, a final set of weights for each factor. In making their determination they considered the different

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the basis of their impacts on outcomes, the committee allowed the possibility that favoritism toward a constituency could enter the pay plan.

As seen in table 2, for whatever reasons, the losses that would have been inflicted on unionized workers under the statistical plan were eliminated under the committee plan. The pay difference coefficients (col. 7) show that unionized workers would have made small positive, although insignificant, gains under the committee plan relative to the original 1983 pay plan. At a minimum, the committee plan was neutral toward union jobs.7

In the original Arthur Young study, the job factor most closely associated with supervision (supervision exercised) had a regression coefficient that was essentially equal to the regression coefficients for two other factors (impact of errors and guidelines/supervision available to the workers). The committee plan assigned an 8 percent weight to supervision exercised while leaving the other two factors with 5 percent weights. The committee plan raised supervisors' pay by 3.7 percent relative to the 1983 pay plan. This plan also restored professionals' pay to its original relative level, eliminating a 1.9 percent cut in the statistical plan.

Although it may not have been the committee's objective, the net result of these changes was to greatly reduce the relative gains for women. As opposed to the 8.8 percent gain under the statistical plan, women would have gained only 2.8 percent relative to 1983 pay schedules under the committee plan. One way of interpreting this is that the committee plan shifted the gains toward unions, supervisors, and professionals and away from women. Of course, we should keep in mind that the regression results highlight the relative gains with other variables held constant. In fact, the committee plan raised average pay for both men and women (as seen in table 1). In other words, the committee plan achieved less equalization of pay between men and women than the statistical plan, but at a much higher total cost to the state.

The 1985 Compromise Plan

Neither of these plans was ever implemented. Instead the state and AFSCME negotiated a compromise pay plan. The major compromise

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7 Even though the committee plan increased average pay, it reduced the standard deviation of pay across all jobs. This pattern is also typical of the impact of unions on income distributions. See Freeman and Medoff (1984) for a discussion of the effect of unions on income inequality.
was a reduction in the size of the comparable worth pay increases in return for no pay cuts. Both features would be expected to reduce the size of the gains to women since female-dominated jobs increased less and male-dominated jobs avoided cuts. Our results confirm this: the 1985 compromise plan increased female earnings by only 0.7 percentage points relative to the 1983 plan. Women did gain relative to men, but only by a small fraction of the potential gains that would have been made had either of the earlier proposals been implemented. Once again, this should be interpreted in a relative sense. As seen in table 1, in absolute terms, average female pay increased on implementation more than it would have under the statistical plan but increased less than under the committee plan.

In relative terms, if women gained less, then other interest groups must have gained more. Our results in table 2 suggest that unionized workers, professionals, and supervisors gained. Those covered by union contracts and those paying union dues gained relative to all prior plans. Dues-paying workers covered by union contracts enjoyed 2.5 percent increases in earnings overall. Professionals gained relative to all preceding pay plans. It appears that these heavily male job classifications may have benefited from the elimination of pay cuts, as did unionized workers. Supervisors also gained relative to 1983 and to the statistical plan, although not relative to the committee plan.

The 1987 Appeals Plan

Of the 798 merit pay job classifications that existed in 1985, 363 were appealed. About one-third of the appeals resulted in an increase in pay grade. Although 28 percent of the appeals resulted in a proposed pay reduction, no reductions were implemented. Therefore, the appeals plan is the same as the compromise plan except for the implemented pay increases. In addition to the appeals, a relatively small number of high-level job classifications received comparable worth increases in 1987 after implementation had been postponed in 1985.

We were uncertain about what impact the appeals process would have. On the one hand, complaints from men and management concerns about meeting market wages could move the pay plan back toward the original 1983 pay structure. On the other hand, complaints from women and continuing inequities could move it toward additional gains for women.

Our results indicate that, on net, women did make some small additional gains as a result of the appeals process. Recall that the 1985 compromise plan left women with only a 0.7 percent gain relative to men. Had the appeals recommendations been implemented in full, including pay cuts, we calculate (not shown) that women’s gains would
have totaled 2.0 percent. However, this was rolled back to a 1.4 percent gain.

Unions also gained from the appeals process. Dues-paying members of professional associations enjoyed the largest gain, a total pay differential of 7.3 percent. Having union representatives on their appeals committees appears to have been useful. There was little change in the relative pay of supervisors and professionals.

*Relative Gains or Losses to Other Characteristics*

Although comparable worth plans purport to ignore market wages in establishing pay, market forces still influence the pay structure in each pay plan. Moreover, the statistical plan, the plan least influenced by constituent pressure or compromise, reduced the influence of market wages the least. The committee plan, on the other hand, reduced the influence of market wages by 57 percent relative to the original 1983 pay structure. Thereafter, the implemented compromise plan and the appeals process reintroduced the influence of market wages. At least in Iowa, it appears that market forces did influence the outcome of the pay analysis process once it came time to actually implement the plan, and again as the appeals process allowed further pay adjustments over time.

Another interesting question has been the impact of a comparable worth policy on the pay for minorities. Iowa has a disproportionately small population of minorities, and state employment reflects that. Only 2 percent of our sample is classified as minority (black, Hispanic, or American Indian). Nevertheless, the impact of the various plans was to reduce relative pay for minorities by 1 percent in all pay systems. Both the small population of minorities and the low marginal significance level of the coefficients (it is significant at the 10 percent level but not the 5 percent level in the implemented plans) suggest caution in generalizing this result to other states.

A final interesting effect of the Iowa comparable worth process was the relative treatment of educational degrees relative to additional years of education. There appears to be a clear pattern of increasing the returns to credentials or threshold levels of education. The coefficients on dummy variables signifying the attainment of master's, doctoral, and vocational degrees and occupational licenses are all positive and generally significant in the pay differences equations. Recipients of Ph.D.'s and holders of occupational licenses made particularly

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8 In other words, there seems to be a shift in relative rewards to education toward the type of returns emphasized in the screening literature (Spence 1973).
significant relative gains. On the other hand, marginal increases in human capital as measured by years of education, years of job tenure with the state, and years of job experience prior to entering state employment either decreased in relative returns or had no change.

This relative deemphasis in marginal returns to human capital investment accompanied perhaps by an increase in returns to specific threshold levels of education is likely to occur in other settings. First, because job pay is set in regard to the minimum requirements for successful completion of the job, additional education beyond the minimum is likely to be deemphasized. Second, because the plans are designed to emphasize factors that previously were not being rewarded in the pay structure, the factors that had been given importance in the original pay plan (including tenure, experience, and education) must fall in relative importance.9

Conclusions

Our major conclusion is that the ultimate impact of comparable worth on the wage structure of state employees in Iowa was greatly modified by various interest groups through the political process of legislation and implementation. Potential gains of 8.8 percentage points in female pay relative to male pay under the original statistical plan ended up as a gain of only 1.4 percentage points once comparable worth was fully implemented and appeals were resolved.

Through a series of modifications to the plan and through collective bargaining compromises, other interest groups such as unions, supervisors, and professionals were able to avoid potential losses in pay that would have accrued under the original statistical plan. Indeed, these groups ended up with relative pay increases. Dues-paying workers covered by union contracts converted potential relative losses of 8.6 percent to actual relative gains of 3.4 percent in earnings. Similar though smaller gains were made by professionals and supervisors. Regardless whether we interpret this as a defensive reaction to protect their incumbents from economic loss (Hirsch and Addison 1986) or as rent-seeking activity designed to enhance their income (Buchanan, Tollison, and Tullock 1980), the net impact was to shift gains away from women toward these interest groups. The bottom line is that although women gained, they would have gained much

9 O’Neill, Brien, and Cunningham (1989) report lower returns to education and job experience in the Washington State comparable worth plan. In contrast with our results, they do not find increases in returns to threshold levels of education.
more (given the ultimate state outlay) had the original "formula" not been modified.\textsuperscript{10}

One may question how general our findings are since our data relate to one state and one comparable worth process. A final judgment must await further research. However, on the basis of our inquiries in other comparable worth states, we find that many of the same phenomena are at work.\textsuperscript{11} In all states, influential legislators or governors played a key role in the early stages along with sympathetic high-level managers. Most oversight committees contained supervisors, especially from the personnel department, and all contained legislators except in New York.

Consultants were hired in the early stages in all states to analyze pay discrimination and to conduct a job factor analysis leading to proposals for change. Although contracts were divided among Arthur Young and Company, Hay Associates, Halcrest-Craver, and Willis Associates, they all tended to analyze jobs on the basis of skills required, effort or major demands, responsibility, and working conditions and used a point-count method. Then, after examining the outcomes, the state typically altered the consultants' proposals. For example, in New York, working conditions were deleted, a different set of factors was used, and new weights were computed. In Minnesota, New Jersey, and Oregon, additional points or weights were added to certain job factors. In Connecticut, the appropriate points were negotiated with each of several unions. All states ignored market wages in making comparisons between male and female jobs (except Washington, as discussed in n. 1).

Unions have played an important role in all states. Union contracts called for comparable worth studies at an early stage in Minnesota and New York. Union representatives were appointed to oversight committees in every state except New York. Collective bargaining negotiations either determined the size of the compromise or else

\textsuperscript{10} It should be emphasized that the goal of comparable worth is to raise the relative pay of female jobs, and, in principle, this may be done without raising the total payroll cost to the state provided that (a) pay is cut in a sufficient number of male-dominated jobs to offset the increases and (b) these jobs remain at or above competitive private-sector rates after the cuts. The latter may be possible given Smith's (1977) analysis. She concluded that federal workers were paid well above, state workers somewhat above, and local-government workers slightly above private-sector workers. An increase in total payroll cost need arise only because of political opposition to pay cuts.

\textsuperscript{11} This discussion relies heavily on telephone interviews with and documentation supplied by individuals who play a key role in their state's comparable worth process. We surveyed the states of Connecticut, Michigan, Minnesota, New Jersey, New York, Oregon, Washington, and Wisconsin most intensively since they have the most experience with comparable worth. In addition, Massachusetts has followed a similar pattern, even though its pay plan has taken market wages into account. See the individual state publications listed in the references.
facilitated it by setting aside money in Connecticut, New York, and Oregon. Unions were consulted so that implementation would coincide with new contracts in Minnesota. In Washington, a legal suit brought by the unions was dropped only after (noncontract) negotiations with the unions induced the state to implement its comparable worth plan. In Michigan, a union-filed suit charging the state with sex discrimination is now under appeal but appears to have played an important role in motivating study and some initial pay adjustments.

Comparable worth has not led to a reduction in pay grade or pay rate in any state except in New York and Washington. In those two states, only a very small number of jobs have had cuts in grade, with assurances to incumbents that they will not be cut at all (in New York) or not cut for 6 months (in Washington). Very few employees appear to be affected adversely.

All state personnel departments have played an important role in doing the job analysis and setting up the new pay plan. Typically the consultant plays only an advisory role after completing an initial study. In all states, factor ratings were based, in part, on questionnaires filled out by incumbents and, in part, on committees of supervisors and professionals, especially from the personnel departments. Union representatives were involved in some cases. All states also have provided that appeals of job evaluations may be made, although typically the appeals go back to the same personnel analysts who made the initial decisions.

While each state has its own unique history and political features, the patterns of participation by the major actors (unions, consultants, personnel specialists, legislators, and supervisors) are sufficiently similar to allow the conjecture that our major conclusions apply in other states. That is, we expect that women have gained less than originally proposed as other groups such as unions, supervisors, and professionals protect their interests and capture parts of the gains for themselves. At a minimum, this study has given a unique perspective on how political and economic forces affect the evolution of public policy both in general and in the context of comparable worth.

References


