January 1987

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Abstract
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In the private sector major employers exhibited strong interest early on, but that interest waned, particularly as the issue seemed to shift to the public sector and seemed to be one of concern for state and local governments. Several firms testified and lobbied state and local legislative committees and task forces on the issue.

Keywords
CAHRS, ILR, center, human resource, job, worker, advance, pay equity, women, comparable worth, labor market, revolution, evolution, personnel, practices, economic, social, management

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ONE MORE TIME: WHAT IS THE
NATURE OF THE EARNINGS GAP?

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Working Paper 87-02

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This paper has not undergone formal review or approval of the faculty of the ILR School. It is intended to make the results of Center research, conferences, and projects available to others interested in human resource management in preliminary form to encourage discussion and suggestions.

An earlier version of this paper was presented at the Corporate Symposium on Pay Equity, The Conference Board 1987, New York, New York.
INTRODUCTION

Over the past decade different groups have had varying degrees of interest in pay equity and comparable worth. Those groups pursuing women's rights (e.g. NOW and 9 to 5) and some unions, most notably those in which women make up a high percentage of membership, (e.g. AFSCME) have had a keen and constant interest.

In the private sector major employers exhibited strong interest early on, but that interest waned, particularly as the issue seemed to shift to the public sector and seemed to be one of concern for state and local governments. Several firms testified and lobbied state and local legislative committees and task forces on the issue.

It is a mistake to believe that managers in large firms are of one mind on the issues involved in comparable worth. Some actively oppose it, others have taken steps to insure their pay systems will withstand potential legal challenges, and still others seem to act as if it is an issue whose priority pales in comparison to other issues confronting them, such as insuring economic competitiveness and productivity. When it comes to pay determination, these managers' attentions are directed at actions designed to contain the rate of increase in labor costs, at gainsharing and QWL schemes designed to improve product quality and reduce unit costs, and the like. Their first concerns are for efficiency and more often than not, their eyes glaze over when issues of internal equity are introduced. But if the fundamental process of wage determination is believed to be inequitable and unfair by a large number of employees, that inequity may affect employee productivity. So interest in pay equity and comparable worth for some has been keen and constant, and has waxed and waned for
others.

The task that I was assigned for this Conference is to examine the nature of the earnings gap - to review the potential causes of pay differences between men and women. My plan of attack is to attempt to separate fact from belief - what is really known, versus what is believed, about the nature of the earnings differentials. I am going to do this by examining two questions.

1. Why do women earn less than men, and
2. How much of the gap is attributable to discrimination?

Other questions, such as "what can be done about it?" and "what are the consequences?" are the domains of others at the Conference.

First, what are the facts about the earnings gap? We know that women, on average, earn less than men. This is an indisputable fact. The size of the gap depends on the data series used. One series reports the ratio of female to male median annual income for year round full time workers. It reached 64 percent in 1986. The second series reports the median weekly earnings of full time wage and salary workers. It reached 69 percent in 1986.1

The size of the gap depends on how it is defined. If, for example, the data are adjusted for differences in hours worked (women on full time schedules work about six percent fewer hours than men on full time schedules) the ratio would be about 72 percent.

Historically, the ratio was relatively constant for about thirty years. In 1955 women's median earnings was 64 percent of men's, in 1965 it declined

1The data reported in this presentation are from several sources which are included in the references.
to 60 percent, in 1975 it fell a tick to 59 percent, by 1985 it was back to 65 percent - about where it was 30 years earlier. That relatively constant pattern occurred despite the passages of the Equal Pay Act in 1963, the Civil Rights Act of 1964 and the Executive Orders that mandated affirmative action in firms doing business with the federal government - all implemented during the intervening years.

Since 1971, the ratio has risen steadily, reaching 69 percent in 1986. So there is some evidence that in the most recent years the gap is slowly narrowing. The fact remains that an earnings gap exists. Almost any way you measure it, women earn less than men, and the differences is slowly narrowing.

So what do we know about why that gap exists? Anyone involved in the pay determination process knows that many factors affect pay. Consequently, the difference in female/male earnings is attributable to many factors.

Some of the more important ones include

(1) differences in the occupational attainment and the jobs held by men and women,

(2) differences in personal work related characteristics and work behaviors,

(3) differences among industries and firms,

(4) differences in union membership, and

(5) the presence of discrimination.

My intention is to present some data or facts and then explain different beliefs about those facts. First some data, then conflicting beliefs.
Differences in Occupational Attainment

One of the most important factors, that accounts for much of the remaining 30 percent gap, is the difference in the nature of jobs held by men and women. A variety of data illustrate these differences. For example, the Bureau of Labor Statistics reports that half of all working women are employed in only 20 percent of the 427 occupations. And among 427 occupational classes, 80 percent of women work in occupations in which at least 70 percent of employees are women. The distribution of women among occupations differs from that for white men. These are the classic data used to illustrate that occupational segregation or differences in occupational attainment exist.

The occupations in which women are employed tend to be lowest paying. In fact, the larger the proportion of women workers in an occupation, the lower the average hourly wage. Thus, the difference in occupational attainment is the major factor accounting for the earnings gap.

Now lets examine the beliefs or theories used to explain the data. Supporters of comparable worth believe the differences in occupational attainment are a reflection of discrimination in society. Discrimination and gender stereotyping in counseling received and courses taken in high school, admission to colleges, and in the hiring and promotion practices of employers have all worked, the argument goes, to allocate or crowd women into a limited number of occupations. Because these occupations are typed as women's work, they are devalued. That is, women's jobs pay less because wage discrimination acts on an entire occupation, not only on individual women workers.

On the other hand, the opponents of comparable worth believe wages
are determined primarily by supply and demand; that is, by choices of women and employers. Wages and employment levels are flexible and labor markets adjust, so that the supply available, made up of choices of workers to undertake training required and seek job opportunities, adjusts to equal the demand. If we just get markets competitive and working efficiently, the argument goes, the goal of maximizing profits will eventually lead employers to eliminate discrimination.

According to this view, women make choices about which occupations to train for, when to leave and enter the work force. From this efficient market perspective, women earn less because the jobs chosen have low productivity and low wages, but those jobs permit women to enter and leave the work force readily; and require relatively less training, and are not onerous or dangerous.

So the facts are that women, on average, earn about 69 percent as much as men. It is also a fact that differences in the nature of the jobs held by men and women account for much of that gap. But then we leave fact and shift to competing theories and beliefs.

Some see discrimination. They believe in occupational segregation and crowding, and that women's occupations are undervalued. Others see the differences in occupational attainment reflecting choices made and preference of individuals and the workings of markets.

Recent data indicates these occupational patterns are changing. Women are gaining access to (are choosing) a wider array of occupations. To illustrate this change: Over the period 1971-1982, women were employed in increasing percentages in some male dominated occupations. Lawyers went from 5.6 percent to 14 percent women, bank officers and financial
managers from 18.8 to 35.3 percent and operations analysts from 11.4 to 32.1 percent. Similar increases were observed in forklift operators, industrial engineers, mail carriers - a wide array of occupations. At the other extreme, the gender composition of female dominated occupations were very slowly changing - elementary teachers, file clerks, health aides, nurses and the like.

It is a fact that (1) women tend to be employed in female dominated occupations and (2) that wages in these occupations are relatively lower. It is also a fact that (3) women tend to hold the lower paying jobs in each occupation. So while the percentage of women employed is increasing dramatically, new workers are more likely to hold lower paying jobs. Thus, the influx of women into the workforce has also tended to hold down women's earnings.

Based on a recent survey of the research conducted on the earnings gap, no study has been able to explain more than half of the difference between male/female earnings without one or more variables designed to measure differences in occupations and the nature of the work performed (Cain, 1985). So we know that the nature of the jobs performed is a critical factor.

DIFFERENCES IN PERSONAL WORK RELATED CHARACTERISTICS

Differences in employee attributes and behaviors is another important factor explaining the earnings gap. These include differences in education, seniority within a firm, continuous time in the work force, age, and the like.

To illustrate with some data, consider time and tenure differences
among full time workers. As I have already noted, on average, men work six percent more hours per week than women. By the time men and women have been out of school for six years, women on average have worked 1.6 years, or 30 percent less than men. After 16 years out of school, women average half as much labor market experience as men.

Research shows that the male/female differential is reduced by about half when women are compared to men with the same years of work experience (Cain, 1986). While women still lag men in total work force experience (especially in older age groups), recent data published in the 1987 Report of the Council of Economic Advisors shows that women have increased their job tenure. In 1963, women averaged 2.7 fewer years of tenure with their current employer than men. By 1983, the difference narrows to 1.4 years. So differences in experience is a critical factor.

So, too, are differences in the level of education and in educational specialty. Currently men and women graduate from college in nearly equal numbers. As you might expect, if the occupations women enter are changing, so too, are the college majors chosen by women. In 1964, 42.5 percent of all bachelors degrees earned by women were in education, in 1981 it plummeted to 18 percent. Fields attracting women today are those traditionally chosen by men, with the sharpest growth in professional degrees. In 1964, women earned only 5 percent of the medical degrees and 4 percent of the law degrees and 3 percent of the MBAs. By 1984, 25 percent of the medical degrees, 32 percent of the law degrees, and 25 percent of the MBAs were earned by women. So we are observing significant shifts in the education/training choices made by women.

These are facts. But they are also subject to conflicting
interpretations and beliefs. Some proponents of comparable worth suggest that lower continuous time in the workforce and lower tenure with a current employer reflect women's child-bearing and primary parenting responsibilities, which society has undervalued (Remick, 1984). If women voluntarily quit jobs and leave the workforce more often than men do (e.g., to move when their husbands change jobs or to have children) naturally they will have less experience and earn less pay. But women may also leave because they are discouraged. They are discouraged about being passed over for promotion, or getting smaller pay increases. What appears to be voluntary choices about child rearing, parenting, or leaving the workforce may be simply discouragement at the discrimination faced on the job. In short, discrimination may be operating through these factors. Even granting the differences in experience, tenure and education, about 20 percent of the earnings gap remains unaccounted for. Advocates attribute that difference to discrimination.

As you might expect, the opponents of comparable worth hold a different set of beliefs. Opponents believe that factors such as these differences (e.g., in education, education specialty, experience, time spent out of the workforce) reflect individual choices and preferences. These choices along with the differences in job held, which we just discussed, account for much of the gap.

We also know the earnings gap varies by age of workers. The gap is larger for older than younger workers. The ratio almost disappears at age 16–19, it is about 96 percent. At age 20–24 it is 89 percent, and 65 percent for those 55–64 years of age.

Some believe that all we have to do is be patient. As those 16–19
and 20-24 cohorts grows older, the earnings gap will close. But others point out that this is cross sectional analysis, that similar patterns were observed in black white earnings gaps, and they have not closed. Proponents also agree that waiting for the workforce to age will take too long. And at no age do women's average earnings exceed men's.

DIFFERENCES IN INDUSTRIES AND FIRMS

Another factor affecting earnings differences between men and women is the industry and the firms in which they are employed. Studies report that employees in some jobs can get about a 20 percent pay increase simply by switching industries in the same geographic area while performing basically similar jobs (Groshen, 1985).

There is some evidence that within the same occupations, industries which employ higher percentages of women (e.g. retail, insurance), tend to pay a lower average wage than those firms in industries employing higher percentages of men (Johnson & Solon, 1984). In other words, office and clerical workers, most likely women, tend to be paid less in retailing than in manufacturing or chemicals.

Differences in the firm's compensation policies and objectives within a specific industry is another factor which accounts for some of the earnings gap. A study of 21 aerospace firms reports that within 13 job families (e.g., marketing, manufacturing, data processing and the like) the top paying firm paid more than 21 percent above the average for its market and the lowest paying firms paid 13 percent below the market average (Foster, 1985). Similar results are reported in a study of high tech firms in California (Leonard, 1986). Clearly some firms within an industry adopt
pay strategies that place them among the leaders in their industry, while other firms adopt policies that may offer more employment security coupled with bonuses and gainsharing schemes. The issue here is whether within an industry, if some firms are more likely to employ women than other firms and if those differences are related to earnings differences.

We also know that the size of a firm is systematically related to differences in wages. Female employment is more heavily concentrated in small firms. Wages of men in large firms are 54 percent higher than wages of men in small firms. That gap was only 37 percent for women in small versus large firms (01, 1986). The earnings ratio (measured as female/male median hourly earnings) fell from 72 percent in small firms (1–24 employees) to 62 percent in large firms (1000 + employees). This observation is confounded by the type of work in small firms which are more likely to be service jobs.

DIFFERENCES IN UNION MEMBERSHIP

Finally, we also know that belonging to a union will affect differences in earnings. Belonging to a union in the public sector seems to raise female wages more than it raises male wages (Medoff & Freeman, 1986). So far no evidence for such a gender effect for union membership has been found in the private sector.

To summarize, several patterns emerge from all the studies of the female/male earnings gap.

1. Women on average earn less than men. After three decades at about 60 percent, the female/male earnings ratio has risen steadily since 1979, 69 percent in 1986.
2. Much of the gap is related to differences on the demand side; differences in the jobs held, differences in occupation chosen, differences in employer wage policies, and differences in industry wage patterns.

3. On the supply side, taking years of continuous experience, tenure with current employer, years of education and type of education into account increases the proportion of the earnings gap that can be explained statistically. Interestingly, Johnson & Solon have estimated that a policy that eliminates wage differences for employees with the same education and training within single companies would eliminate no more than one tenth of the total earnings gap. (See Sorensen, 1986 for a critique of Johnson & Solon.)

4. The gap increases with age of the workforce, but women aged 20-24 now earn about 90 percent as much as men do in that age group. In the most recent survey of studies of the gap, the portion of the gap that remained unexplained varied between 5 and 50 percent depending on the breadth of narrowness of the variables under consideration (Cain, 1985).

HOW MUCH IS ATTRIBUTABLE TO DISCRIMINATION?

Several approaches have been used to try to find an answer to the second question addressed here: How much of the gap is attributable to discrimination?

The standard approach for answering this question, at least the standard statistical procedure for determining whether discrimination explains part of the gap is to try to relate pay differences to the factors just discussed above (e.g., job tenure, education, age, type of work and the like). The procedure typically used is to regress some measure of
earnings on those factors thought to legitimately influence earnings. If the average wage of men, with given set of values for these factors is not significantly different from the average wage of women with equal factors, then discrimination is assumed not to occur.

The standard statistical methodologies interpret the residual portion of the gap as discrimination. In fact, Treiman and Hartmann, authors of the National Academy of Science Report adopt the residual definition of discrimination. They "pose the search for additional explanatory variables as a challenge to those who wish to dispute the interpretation of the residual effects as discrimination." (Treiman & Hartmann, 1984).

The residual approach to identifying discrimination brings to mind an observation made by Carl Sagan, Cornell astronomer who hosted a PBS series designed to educate the public about the cosmos. He observed that while space exploration and research has increased our knowledge of the universe, much remains to be learned. He cautioned, "Just because we can't identify a light doesn't make it a space ship." Many of my colleagues fall into the same trap. Just because we can't explain all the differences in pay between men and women doesn't make it discrimination.

Must this residual earnings disparity be considered a function of discrimination? Consider studies on the earnings of white men. Studies that attempt to explain differences in white men's earnings using such factors as education, and age, are able to account for about 60 percent of the differences. How can we logically conclude that residual unexplained portion is discrimination among white men?

I have been writing and saying this for about ten years now. Theorizing about the nature of the residual is important. But when
financial liabilities are assessed based on unexplained residuals, as they are by the Courts, then more is required than statistical analysis. Statistical studies are just one type of evidence that people should consider in deciding whether pay differences are attributable to discrimination.

If they do not tell us what portion of the gap is discrimination—What do these analyses show? They show that the gap is not fully explained by a number of factors; differences in characteristics of men or women employees, differences in the jobs they hold, the occupations they are in, the firms in which they are employed, the industry, and so on. But these studies do not eliminate the possibility that the discrepancy is caused by unmeasured variables other than discrimination. Nor can they rule out that wage and earnings differences are the result of voluntary behaviors.

Many studies of the earnings gap have little relevance to understanding pay discrimination because actual pay decisions are decentralized: made by individual employers, unions and employees. With a few exceptions most analysis of the earnings gap is conducted at aggregate levels (not within firms over time), while pay decisions and choices are made at individual and organizational levels. Studies using such aggregate data often do not adequately include factors actually used in wage determination. This is not always because researchers are not aware of these factors; the omissions are due in large part to two problems. First, there is a lack of adequate publicly available data and second, the proxies used are often too abstract.

Consider a study which treats all employee experiences as equal
(measured as age minus years of education minus five years) and all fields of education as equal (measured as years of education completed). Common sense and our own experience tells us that there are differences in the types of experience (whether it is continuous with one employer and the type of training received) and that there are differences in the nature and quality of education (a four year degree in social work is not equivalent to a four year degree in electrical engineering). Anyone knowledgeable in pay determination believes that these differences effect pay differences.

Years of education serves often as a proxy for all the differences in a person's skills and abilities and quality of the education received. Employee performance may be measured as absenteeism, differences in firms may be measured as differences in industries treating each firm within an industry as the same. One study even used number of children as a proxy for time spent away from the job. It can be argued that the number of teenagers one has will increase the time on the job and away from home.

Another problem with the proxies used is that mere possession of a qualification or skill doesn't mean it is work related. Examples of cab drivers, secretaries, and house painters with college degrees are numerous. In a college town like Ithaca, New York it is common for spouses of students to hold down jobs for which they are overqualified, simply to help support themselves and their spouses. It is not the quantity of studies of the earnings gap that is lacking, it is the quality, and the quality problem is mostly a data availability problem.

Even if the legitimate factors fully explain pay differences between men and women, discrimination still could have occurred. First, the factors
themselves may be tainted by discrimination. For example, past discrimination against women in the admission to engineering schools may have affected their earnings. Another reason is that women may be better qualified on some factors which were omitted or abstracted in the analysis. The fact that the included variables explain only the observed pay differences could imply discrimination. For example, consider the earnings differential between Mr. and Mrs. Jones. Both have college degrees (his is psychology, hers in computer science), both are in sales (he in shoes and she in computers) and both work for private sector employers (he for J.C. Penney and she for IBM). They probably earn very different salaries but most aggregate data would report them to have similar skills, educations, and similar jobs. In sum, statistical analysis needs to be treated as part of a pattern of evidence and that evidence needs to reflect the wage behaviors of specific firms rather than infer their behaviors from grossly aggregated data.

CONCLUDING OBSERVATIONS

My recommendations for insuring pay equity are twofold.

(1) First, and perhaps most obvious, there is a need to continue to strive to eliminate occupation discrimination insuring that women and minorities have equal access to all jobs, occupations, firms, and industries, and insure equal pay for equal work.

(2) For those jobs and occupations that are held predominantly by women or minorities, the issue is to determine if such jobs are in some sense undervalued, and if so, to take corrective action. This can be done by insuring that the pay practices followed by the parties meet three
standards: (1) work related (2) business strategy related and (3) include a viable appeals process.

1. Work Related: The actual content of the work performed and/or the skills used must be demonstrably related to the pay rates and structure. This can be accomplished through properly designed and managed job evaluation or through knowledge based plans systems. A variety of technologies to determining pay rates exist. A legislative attempt to mandate one, such as the Minnesota statute which mandates job evaluation in the public sector is ill advised. Our economy is diverse; this diversity and flexibility is its strength. To mandate one technique for pay determination is folly. Better to legislate policy rather than specific techniques.

2. Business Strategy Related: The second attribute needed to insure pay equity is to verify that approach used by each employer is related to the firm's business strategy and objectives. This means for example that market data, when it is used, must be based on relevant markets, not arbitrarily chosen ones or ones conveniently available through consultants' surveys. In fact the use and misuse of markets is not well examined in debates over pay equity. Similarly the factors used in job evaluation plans need to be related to a firm's business strategy. Firms with strategies that emphasize technical expertise, consumer responsiveness, and decentralization need to insure that work possessing these characteristics is highly valued. On the other hand, firms which emphasize manufacturing excellence, low cost production and internal consistency need to develop evaluation plans supportive of these characteristics.

Salary surveys and job evaluation plans which are uncoupled from the
business strategies and philosophies of the firm risk becoming bureaucratic burdens.

3. **Viable Appeals and Employee Involvement:** Third attribute is that pay plans must contain an appeals process. Some formal appeals process for employees to have an opportunity to question the results of the pay setting process. This can be accomplished through collective bargaining and formal grievance procedures or perhaps through peer review and through peer speak up programs in non-union firms.

Emphasis on these criteria and on broader pay policies will go a long way toward fostering pay equity. Emphasis on mandating specific techniques through the courts or legislatures will go a long way toward constructing bureaucratic barriers which hinder creativity and the flexibility required to compete. Emphasis on broader policies designed to insure pay equity leaves room for the parties to adapt to their own particular circumstances to find solutions that best fit. Decentralized decision making can focus on both economic efficiency and political pluralism. General policies with decentralized freedoms to act is more likely to accommodate the varied interests and pressures in a diverse society.
REFERENCES


