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## A Closer Look At The Calif. Pay Gap And Equal Pay Act

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Law360, New York (December 8, 2016, 10:56 AM EST) -- Recently, there has been a great deal of discussion at professional conferences and other forums about the new California Equal Pay Act's requirement that employers, when explaining a gender gap in their wage data, show that each legitimate factor was applied "reasonably" and that the factor(s) relied upon account for the entire gender gap. A literal reading of the California law may lead one to conclude that an employer is responsible for any measurement of a gender pay differential whether statistically significant or not. Can that really be the case? If so, this interpretation ignores the statistical principles upon which the estimate is based, differs from the application commonly accepted by courts in employment matters, and introduces potentially harmful unintended consequences.



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Suppose for example, after controlling for various factors, the male employees' estimated average salary was \$69,877, while the estimated average female salary was \$69,876. Can this \$1 difference in estimated averages really lead to a finding of discrimination even though the difference is not "statistically significant"? If so, it is possible then, that an econometric model showing a slightly negative, but woefully statistically insignificant estimate of a gender pay differential could generate, on the one hand, little employee financial damages but, on the other hand, large legal fees for protracted litigation that has no real benefit to individual employees.



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Alternatively, suppose that the estimated difference in average salary was much larger, say \$5,000, but is measured so poorly that one cannot determine with a reasonable degree of confidence whether the "true" difference favors women or is adverse to women. A literal reading of the California law would suggest that this estimate would support a gender difference that is not explained by reasonable factors, and may lead to a substantial damage awarded to plaintiffs.

However, reaching this conclusion is inconsistent with how social scientists use and interpret the statistical methods on which the estimated difference is based, as well as the well-established use of statistical analyses in employment litigation matters set forth in the *Hazelwood School District v U.S.* (433 U.S. 299, 1977) ruling.

Social scientists, and the courts, rely on the estimated difference between protected and

nonprotected groups and the probability associated with that difference. However, the literal reading of the California law would suggest that one should ignore the probability that the difference occurred by chance. In the context of a murder case this would be comparable to convicting the suspect based on the fact that he was observed with a gun (the estimated difference between groups), rather than the standard of "beyond a reasonable doubt" (the probability of the difference occurring by chance).

It is established legal doctrine that statistical insignificance means that one cannot reasonably rule out the likelihood that the estimated difference occurred by chance, thus it does not support the allegation of discrimination. In other words, if the statistical tests of a gender wage gap come back as inconclusive — the "true" difference could be negative (adverse to women); positive (favorable to women); or zero. Much like the murder case, there is not enough evidence to prove beyond a reasonable doubt that a pay difference actually exists. Thus, to conclude that there is a gender difference when the estimate is not statistically significant creates the real possibility of awarding the protected group when there is no "real" difference after accounting for legitimate compensation factors.

It is through statistics that we estimate these differences, and can distinguish whether any estimated differences are meaningful or not within a reasonable degree of confidence. To rely only on the estimated difference without examining the likelihood that the difference occurred by chance is a misapplication of the statistical principles upon which the difference is measured.

## **Regression Analysis**

One method for determining if a gender-based wage differential really exists is to compare the averages of the two groups. For instance, a comparison of the average incomes for men and women in the United States has come in at women making 78 cents on a dollar made by men. This average comparison however, does not account for a host of legally permissible factors (e.g., experience, pay schedule and education) that when factored in, tend to reduce that gap substantially. "Regression analysis," which courts have looked upon favorably, is a statistical technique that has been around for hundreds of years that can properly estimate any pay differential while simultaneously accounting for legally permissible factors that affect productivity and pay.

At this point it should be noted that discrimination lacks any direct measurement. A regression analysis simply provides an estimate of the difference between employee groups, and associates a probability that the observed difference could have occurred by chance. The two measures (the estimate and the probability) should be used together when interpreting the results. Focusing only on the estimate (as suggested by the literal reading of the California law) or only the probability can lead to inappropriate, and potentially harmful, conclusions. In the regression model, if we estimate the relationship between pay and gender to be statistically significant, even in the presence of control variables and other legally permissible variables affecting pay and productivity, all we can conclude is that the difference is unlikely to have occurred by chance. The regression results cannot explicitly determine whether this difference is due to discrimination or the result of other nondiscriminatory factors not accounted for in the regression analysis.

## **Statistical Significance**

As noted above, the general rule of thumb applied by the courts since the Hazelwood decision is that differences that have a likelihood of occurring by chance of less than five percent are statistically significant, and unlikely to occur randomly. When the likelihood is less than five percent, one is reasonably confident that the "true" difference is within a range around the estimate that does not include zero (no difference between the groups).

Alternatively, when the likelihood is greater than five percent, one is not reasonably

confident that the range does not include zero (no difference between the groups). Using an estimated difference that is not statistically significant to assume liability and calculate damages, increases the chances of "convicting, when not guilty". Proper use of statistical analyses can lower the risk of this type of error.

## Conclusion

Does the California law literally mean that the regression model showing a gender pay gap, even if not statistically significant still has implications for plaintiff damages and recovery of legal expenses? If so, this would be a novel approach to statistical analyses, and a break from standards generally applied by courts since at least the decision in Hazelwood.

Suppose that after conducting a proper statistical analysis, the estimate of the gender gap is minus 1.2 percent, but based on commonly applied statistical standards is likely to have occurred by chance (i.e., a probability that is greater than five percent). Scientifically, this means that we cannot determine with a reasonable degree of certainty the absence of a gender-based pay gap (or even a gender-based pay gap favoring women). To assume liability and calculate potential damages based on this estimate would be done at an increased risk of awarding damages (a finding of guilt), when in fact there is no gender-based pay difference (truth is innocence).

Based on sample evidence at conventional significance levels, plaintiffs would not be entitled to any damages and presumably plaintiff attorneys would not be eligible to recover their legal fees that may be considerable in the case of a protracted four to five years or more of litigation. The sample data that produced a gender gap of minus 1.2 percent could have easily (randomly) produced a positive estimate of the gap. Is this still a violation? If the California law is interpreted literally, then statistics should play no role in estimating either liability or damages. This is not statistics.

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