Evaluating the Legal Defensibility of Regression Models Designed to Investigate and Remediate Pay Disparities: Lessons from Rudebusch v. Hughes

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The Equal Pay Act of 1963 and Title VII of the Civil Rights Act of 1964 provide the legal foundation for pay equity studies. While Title VII generally prohibits pay discrimination, the Equal Pay Act is specifically tailored around “equal pay for substantially equal work,” with claims typically arising when men and women perform “substantially equal work” for unequal pay. Specifically, the Equal Pay Act holds that:

No employer having employees subject to any provisions of this section shall discriminate, within any establishment in which such employees are employed, between employees on the basis of sex by paying wages to employees in such establishment at a rate less than the rate at which he pays wages to employees of the opposite sex in such establishment for equal work on jobs the performance of which requires equal skill, effort, and responsibility, and which are performed under similar working conditions...

Title VII of the Civil Rights Act of 1964 prohibits employers from discriminating on the basis of race, color, religion, national origin or sex and also states that employers cannot discriminate “against any individual with respect to his compensation … because of such individual’s sex.”

The U.S. Supreme Court has interpreted this section of Title VII as a prohibition “not only against overt discrimination, but also practices that are fair in form, but discriminatory in operation.”

Following this statute, plaintiffs that bring a Title VII suit need to establish “the existence of a discriminatory hiring pattern and practice,” and proving such a claim requires the plaintiffs to show a practice or pattern, as opposed to an “isolated or ‘accidental’ or sporadic discriminatory acts.” Specifically, the plaintiff in a Title VII case must prove that the plaintiff was a member of a protected class, the plaintiff was meeting the employer’s legitimate expectations, the plaintiff suffered an adverse employment action, and the employer treated a similarly situated employee of the opposite sex more favorably.

Therein lays the fundamental strength of multiple regression when used to analyze pay equity. Because regression is capable of controlling for job qualification factors that may differ at both the individual and group levels, it is the ideal strategy for analyzing whether “the employer treated a similarly situated employee of the opposite sex more favorably.” For this reason, and because the use of multiple regression has been widely-adopted as the tool-of-choice accepted by the courts for pay equity analyses, the U.S. Department of Labor’s enforcement arm, the Office of Federal Contract Compliance Programs (OFCCP), has endorsed multiple regression as the ideal methodology for conducting compensation analyses.

The standard process for using multiple regression to analyze pay includes grouping the employees into Similarly Situated Employee Groups (“SSEGs”), loading the model with the major job qualification factors thought to predict (explain) pay, and then dropping the race/gender variable into the equation to assess whether it adds significantly to the model (i.e., beyond the job qualification factors, which theoretically should explain most of the variance...
without race or gender). Then, if a significant disparity is observed, cohort analyses can be conducted to determine why the significant imbalance may exist, and then remedial pay changes can be applied if differences remain. Such remedial pay changes range from “just enough to get out of significance” to “complete parity” to “parity with back-pay” based upon the strength of the evidence and the circumstances of the study (i.e., whether proactive, in response to an audit, or litigation).

While employers have been conducting such practices for years (and perhaps even more frequently with the formal endorsement of the OFCCP through the publication of the 2006 standards), some employers have been concerned with the potential of “reverse discrimination” or Equal Protection-based lawsuits that may arise after making pay adjustments to a given group. Faced with liability from potential class action suits or audits from “classical” pay disparity issues on one side and Equal Protection cases on the other, some employers view themselves in a “pickle.” Indeed, some employers that act in good faith to conduct (and later act upon) proactive pay equity studies may find themselves open to an Equal Protection suit from the group that received no pay changes.

When the courts evaluate such circumstances, some have extracted three criteria from the U.S. Supreme Court case, Johnson v. Transportation Agency: (1) evaluating whether a “manifest imbalance” exists (which typically includes statistical significance as a minimum threshold); (2) evaluating whether the rights of individuals who were not part of the remedial pay were “unnecessarily trammeled”; and (3) evaluating whether the remedial pay adjustments were along the lines necessary to “attain a balance.” The Johnson decision also dictates that the burden shifts to the employer to provide a nondiscriminatory rationale for its decision after the plaintiff demonstrates that sex was taken into account in an employer’s employment decision. The employer can establish such a rationale by pointing to an existing affirmative action plan.

When applying the Johnson framework to an Equal Protection pay case, the Ninth Circuit in Rudebusch pointed out that previous Appellate Courts (both the Fourth and Eighth Circuits) have adopted the Johnson approach in their analysis of pay equity claims. While agreeing that the Johnson case provided the proper framework for a pay equity case, they noted that there were “some significant conceptual differences between affirmative action in the promotional context and remedial measures used to cure pay inequity (p. 25)” because the Johnson case involved voluntary affirmative action efforts for promotional decisions—which is quite different than pay equity.

With respect to the second Johnson prong (evaluating whether the rights of those who were not part of the pay plan were “unnecessarily trammeled”), the Ninth Circuit noted that promotional decisions that were the focal issue in Johnson involve a competition for a finite position where the benefits of promotion will have lasting employment consequences, and that operating exclusively to alleviate racial or gender-based disparities may in fact trammel upon the excluded employee’s legitimate expectation to compete equally for the position. Thus, the Ninth Circuit pointed out that in Johnson, the remedial plan should make “minimal intrusion on the legitimate expectations of other employees.” Drawing a clear distinction between the lawfulness of voluntary affirmative action in the promotional context compared to pay equity situations, the Ninth Circuit stated:

But none of these concerns are presented in this case. Here, there would have been no opportunity or funds available for any pay adjustments but for the University’s decision to address the manifest imbalance between the salaries of
white male professors and their female and minority counterparts in the first instance. In other words, the University’s decision to scrounge its budget for unused funds and make adjustments to women and minorities’ salaries was driven solely by the perceived need to make such adjustments.

Further clarifying the differences between the voluntary affirmative action promotional decisions and a pay equity case, the Court stated, “Allowing Rudebusch and the white male plaintiffs to claim that their exclusion from consideration ‘absolutely barred their advancement’ would permit them to recharacterize [the employer’s] situation as an ‘opportunity for advancement’ when, in fact, such an opportunity never existed in the first instance.”

The Seventh Circuit Ende v. Board of Regents case gave a similar ruling by endorsing a similar adjustment scheme for purposes of an Equal Pay Act claim brought by male faculty, stating: “it determines the incremental adjustment to females’ salaries necessary to remedy the effects of past sex discrimination and eliminate sex as a determiner of salary. The formula merely [brings] the women to a salary level they would have reached in ordinary course if they had been men and not subjected to sex discrimination. It makes no sense to apply the formula to men in this context.”

Regarding the third prong of the Johnson framework applied in the Rudebusch case (i.e., whether the adjustments were along the lines necessary to “attain a balance”), the Circuit Court remanded this issue back to the Federal District Court for ruling. This is exactly where the case moves into the “hall of fame of lessons learned” for both academics and practitioners alike. Upon remand, the Court found that both the defense and plaintiff multiple regression studies revealed that the differences in pay were not statistically significant, and as such, they ultimately failed both the first Johnson prong (manifest imbalance) as well as the third prong (attaining a balance).

The evidence for this finding was compelling. For example, the defendant’s regression revealed that the difference attributable to ethnicity was only $87 and was not statistically significant. The difference between men and women was also not statistically significant. The plaintiff expert’s regression analysis found that the differences between men and women “would not even remotely be statistically significant” and both “gender and minority status do not come close to being statistically significant.” The District Court further clarified that “if ‘manifest imbalance’ requires a ‘statistically significant disparity,’ then there is no ‘manifest imbalance’ in this case.”

In addition to not demonstrating that a manifest imbalance existed between groups (through a showing of statistical significance), the plaintiff expert analysis and the court noted several internal flaws with the original regression analysis that was used as a basis for making pay changes. These included:

- Ethnicity was used as a linear variable (rather than a dummy-coded variable). This mistake alone would make most regression analyses uninterpretable, because treating race as a linear variable gives higher credit to various race groups (e.g., whites = 1, Hispanics = 2, Asians = 3, etc.).
• The regression model omitted “critical factors influencing salary levels, such as doctoral status, performance, and individual differences.” While building a “perfect” regression model is not a requirement, the Court in this case noted that these factors were important but were omitted from the model.

• Pay increases were given to women and minorities based upon how far away they were from their predicted pay (using the Standard Error of Estimate, or “SEE”) without the gender or race variable first being statistically significant. In addition, the furthest individual was only 1.77 SEEs away from their predicted pay.

• The amount of pay increases that were given to women and minorities far exceeded the amount necessary to attain a balance. For example, the average pay increase given to women was three times the amount of the average difference between men and women ($2,400 versus $751).

• The regression model “forced” a market value variable into the model to use linear spacing, which distorted the effect of the other variables and led to an apparent significant gender effect.

There are two major lessons that can be learned from the Rudebusch case. First, before making pay adjustments to a group, be sure the regression model clearly shows that the gender or race variable is statistically significant after controlling for job qualification factors. Second, make sure that the regression model is sound, accurate, and reliable. To help employers address these key requirements, as well as the core requirements from other related pay discrimination cases, we offer the following guidelines:

1. Do not make pay adjustments unless multiple regression analyses are used (opposed to other techniques) to control for realistic differences in job-related factors that may exist between groups. In most situations, using multiple regression is the only clearly acceptable way to model compensation decisions, and has decades of support in the federal courts and recent endorsement from both federal enforcement agencies that investigate and enforce pay equity cases.

2. Do not make pay adjustments unless the gender or race variable is statistically significant after controlling for job qualification factors.

3. Be sure that the pay equity analysis was designed to identify significant pay disparities that may exist for any group (whites and men included). In addition, determine (preferably in advance) how pay disparities will be addressed if discovered to insure that the criteria and rules will be uniformly applied across all gender and race/ethnic groups.

4. Do not make pay adjustments unless the regression model itself is statistically significant. This can be accomplished by evaluating the ANOVA associated with the model.
5. Insure that the strength of the regression model is adequate for making reliable predictions. The strength of the regression model can be evaluated by referencing the Adjusted $R^2$ value, with Adjusted $R^2$ values that are statistically significant passing a minimum threshold. In addition, the degree of multicollinearity among the variables should be evaluated (high multicollinearity tends to inflate standard errors associated with predictions, which can make predictions less reliable).

6. Do not make pay adjustments until after performing a “cohort” analysis whereby additional variables (i.e., those not included within the regression analysis) are investigated.

7. Be sure that the fundamental factors relevant to compensation have been included in the regression analysis or evaluated in the cohort analysis. This has been one of the key factors reviewed when regression studies are contested in litigation settings. In Bazemore v. Friday, the U.S. Supreme Court addressed this issue by evaluating the validity of statistical evidence that is necessary to support an inference of discrimination, but fails to consider all possible variables. In Bazemore, the Court reversed the lower court’s refusal to accept plaintiff’s regression analysis as proof of pay discrimination, noting that “discrimination need not be proved with scientific certainty.” The Court rejected the lower court’s conclusion that “an appropriate regression analysis should include all measurable variables thought to have an effect” (478 U.S. at 399, 400) (emphasis added). Thus, in Bazemore, the Court ruled that statistical evidence may prove discrimination provided that it accounts for the major measurable factors causing the disparity. Rather than requiring the “perfect regression model,” the courts typically require the opposing party to prove that the omitted variables would have substantially changed the outcome of the study, and they typically do not allow an inference of discrimination (based on statistical evidence) to be rebutted by simply pointing out unaccounted variables that might have affected the analysis.

8. Be sure that the compensations adjustments made to the disadvantaged group are no more than necessary to attain a balance. As noted in Rudebusch:

   In addition to existence of a manifest imbalance, the pay equity plan must not unnecessarily trammel the rights of others, and it must be designed to do no more than ‘attain a balance’ (citing Johnson v. Transportation Agency, 480 U. S. at 637-39, 1987). It is logical that, since pay equity plans are, at least theoretically, implemented to eliminate a pre-existing manifest imbalance, Title VII requires that they must not be designed to go beyond correcting the imbalance, or unnecessarily trammel the rights of others.

   When dealing with the important issue of “attaining balance” and “not trammeling the rights” of other groups not part of the pay adjustments, the Ninth Circuit noted in Rudebusch that “while pay equity plans resemble affirmative action, they are not concerned (as affirmative action usually is) with providing an ultimate advantage, such as providing preferences in hiring and promotion plans. Though sometimes labeled as
affirmative action, “a pay equity plan such as that implemented by [the defendants] seeks to eliminate existing salary disparities for particular individuals due to race and sex (emphasis added).” The Federal District Court also clarified this matter by stating: “In other words, where salary is already skewed due to discrimination (as prohibited by Title VII, on account of race and sex equalization results in the elimination of the preferences—it does not create a preference.”

9. Thoroughly discuss with legal counsel and executive staff how adjustments to compensation will be made (e.g., incrementally, lump-sum, as part of a yearly compensation/performance review, etc.).

In addition to addressing the important lessons that emerge from the Rudebusch case, employers will further safeguard their pay equity analyses (and resulting remedial pay changes) from the principles laid down in the recent U.S. Supreme Court case, Ricci v. DeStefano by following guidelines 1-8 above. In Ricci, the Supreme Court held that, in order for employers to avoid a reverse-discrimination lawsuit in a hiring case, the employer must have a “strong basis in evidence” to believe that it will be exposed to a discrimination suit if it follows an employment practice.

While the U.S. Supreme Court may need to clarify the extent to which Ricci applies to pay discrimination cases, it is clear that at least three Circuit-level courts have regularly applied the previous Johnson Supreme Court case to evaluating whether a “manifest imbalance” exists, whether the rights of individuals who were not part of the remedial pay were “unnecessarily trammeled,” and whether the remedial pay adjustments were along the lines necessary to “attain a balance.” These Circuit cases have also made a point out of clarifying that voluntary affirmative action actions (such as considering race in promotions) falls under a different type and level of scrutiny than making remedial pay changes based on a robust multiple regression model.
3 Title VII of the Civil Rights Act of 1964 (42 U.S.C. § 2000e-2(a)(1)).
7 Cullen v. Indiana University Board of Trustees, 2003 WL 21741693, F.3d, 7th Cir. 2003).
10 See Rudebusch v. Hughes, 313 F.3d 506 (9th Cir. 2002).
11 Ende v. Board of Regents, 757 F. 2d 176, 181 (7th Cir. 1985).
12 While the Ninth Circuit’s 2002 decision ultimately did not try the manifest imbalance issue (but rather assumed the issued had already been addressed by the previous Federal District case), the June 30, 2006 decision (after remand) ultimately ruled on the “attaining a balance” prong based upon the faulty premise of how the “manifest balance” was substantiated.
14 Plaintiffs/Appellants Reply Brief (Appendix 1 to Opening Brief, p. 8; 2 T. 84.). Rudebusch v. Hughes, 313 F.3d 506 (9th Cir. 2002).
15 Plaintiffs/Appellants Reply Brief (Citing Excerpt of Record, 147, pp. 25-26). Rudebusch v. Hughes, 313 F.3d 506 (9th Cir. 2002).
20 For example, if the \( R^2 \) of a given regression is 0.28 and the corresponding \( p \)-value is statistically significant (\( p < .05 \)), one would also desire the Adjusted \( R^2 \) (e.g., 0.24) to be statistically significant (< .05).
24 Rudebusch v. Hughes, 313 F.3d 506 (9th Cir. 2002) (at 520).
25 Ricci et al., v. DeStefano et al., USSC, No. 07–1428 (June 29, 2009).