

Perceptions about Minority and Female Opportunities for Job Advancement:
Are Beliefs about Equal Opportunities Fixed?

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Abstract

Perceptions of job advancement opportunities were examined for a large correctional agency that is an equal opportunity employer. Outcome measures were analyzed that compared respondents' perceptions of their own job advancement opportunities with the opportunities they believed to exist for women and minorities. The attitudinal data were taken from the 2001 administration of the Prison Social Climate Survey by the Federal Bureau of Prisons. Multilevel models were employed that permitted the simultaneous examination of individual- and institutional-level covariates. A sample of 4,037 staff members working at 98 different prisons provided the data. Consistent with prior research, whites and males believed that minorities and females had greater opportunities for job advancement. The results demonstrated that the gap in equality of opportunities varied significantly from prison to prison, suggesting that the work environment or context does matter. Nonetheless, the gap in how job opportunities were evaluated between men and women and between blacks and whites did not vary significantly across prisons, suggesting that the work context had no effect upon these differences.

Keywords

Correctional staff, equal opportunities, women prison workers, minority prison workers,
multilevel models

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Affirmative action programs receive considerable attention in both the scholarly and popular literatures. Opposition to affirmative action has been demonstrated to be stronger when the programs are directed to racial or ethnic minorities as opposed to women or the handicapped (Kravitz et al., 1997), and when hiring and promotions are the targets of the programs as compared to positions in academic institutions (Bobo & Smith, 1994). Most of the prior research has focused upon asking people directly for evaluations of affirmative action programs or to rate the fairness of different scenarios. One study took a somewhat different tactic. Instead of giving individuals hypothetical scenarios, the researchers asked the respondents who worked for an equal opportunity employer to rate their own opportunities for job promotion and the respective opportunities for minorities. The ratings of own and minority opportunities were then compared, and the results demonstrated that minorities and whites viewed opportunities for job advancement differently, but in an interesting way. White correctional officers in federal prisons were found to overestimate the opportunities for advancement available to minorities, even though actual job promotions received by minorities were consistent with the number of minorities employed (Camp, Steiger, Wright, Saylor, & Gilman, 1997).¹ Interestingly, white and

¹The federal agency that was used in the Camp et al. (1997) study is the same one analyzed here, the Federal Bureau of Prisons. The agency has various “affirmative action” programs that extend training and networking opportunities to members of protected groups, but there is no preference given in hiring or promotion decisions. Such preference, in fact, is contrary to BOP practices and illegal. The agency also

black officers evaluated their own opportunities to be about the same. In other words, views about individual opportunities were similar across the races, but the perceptions about opportunities for minorities as a group differed. These findings provide indirect support that minorities support affirmative action programs more than white males, as reported by others (Harrison, Kravitz, & Lev-Arey, 1998; Kluegel & Bobo, 1993; Kluegel & Smith, 1986; Lipset & Schneider, 1978; Sigelman & Welch, 1991).

There were several follow-up questions not addressed in the Camp et al. study that tie in and extend the current literature. First, there was no examination of female opportunities, a commonly examined area in the literature. At the time, these data were not available although they now exist. Second, the study did not address whether differences in perceptions about equal opportunities were influenced by the practices of local management at the different prisons. In other words, there was no investigation of whether the work context influenced perceptions of job opportunities, and the data Camp et al. analyzed were uniquely structured to allow such analyses. Affirmative action researchers and advocates base their proscriptions on the assumption that ideas held about diversity and equity are amenable to change by actions taken in the workplace (see for example Cox, 1994). Generally, affirmative action programs, such as diversity training, are geared toward changing the behavior of individuals, but anyone who has experienced diversity training knows that the training is also oriented toward changing attitudes.

The answer to whether micro-level, local management practices impact staff perceptions of equal opportunities is important for developing strategies to deal with perceptions (or misperceptions) among staff. Surprisingly, this question seldom has been raised in affirmative

aggressively trains supervisors and employees on cultural diversity. The agency, therefore, provides a forum in which to assess how employees feel about job opportunities in a proactive environment.

action research, even though it is essential to understanding the impact of spending millions of dollars on affirmative action programs. The study by Taylor (1995) is exceptional because it addressed whether context makes a difference in people's perceptions about affirmative action.² Moreover, the Taylor study looked across different employers who did and did not practice affirmative action. Although the present study is limited to a single organization, it does contribute to the empirical literature by assessing the influence of local work environments upon employee perceptions of equity in promotions. While we did not have a national probability sample to work with, the data were taken from 98 different prisons scattered throughout the United States. To the best of our knowledge, this is the first research to examine whether differences between men and women and between blacks and whites in evaluating job opportunities (or equal opportunities writ large) is fixed or variable.

Review of Literature

Affirmative action programs are often confused with legislative measures to end gender and racial discrimination in employment opportunities. Title VII of the Civil Rights Act of 1964 established protections against discrimination on the basis of race, sex, ethnicity, and religious affiliation. However, Title VII is largely a "passive" piece of legislation that provides remedies for those who can demonstrate discrimination in one of the protected areas. Affirmative action programs, on the other hand, are more proactive in terms of promoting balance in the workplace on the basis of race and sex. President Lyndon Johnson first enacted affirmative action in the

²A study by Fletcher and Chalmers (1991) looked at organizational context in Canada. Unfortunately, the questions asked of respondents in the different contexts (federal government and private industry) were slightly different and confounded the findings.

federal government with Executive Order 11246. An executive order is issued at the discretion of a sitting president and directly covers federal workers only. An executive order is not a “law,” but because of Federal Acquisition Regulations (FAR clauses) placed on private-sector firms competing for business with the federal government, affirmative action programs enacted in the federal government have a far-reaching impact upon workers and employers outside of the federal government. There are other ways in which affirmative action programs differ from “equal opportunity” laws such as Title VII, but the proactive nature of affirmative action is most relevant for the present purpose (Crosby, 1994). It is crucial to note, however, that affirmative action does not mean reverse discrimination. Reverse discrimination, or favoring protected groups in hiring and promotion decisions, is banned under federal law.

Despite the interest and controversy surrounding affirmative action, little research has examined the real-world experiences of workers who work for affirmative action employers (Camp et al., 1997). Instead, research has primarily focused upon asking workers for abstract evaluations, usually of hypothetical scenarios (see the review in Kravitz et al., 1997). Similarly, respondents are often asked for their general evaluations of affirmative action. The problem with such approaches is that they do not measure real-world experiences and may reflect the ideological baggage associated with terms such as discrimination or affirmative action (Kluegel & Smith, 1986). In this research, we focus upon perceptions about job opportunities in an actual organization for those very reasons.³

³Again, we are not implying that the agency being examined is an affirmative action employer. However, being part of the federal government, it is active in insuring equal opportunities for protected groups.

Research Outline

We examined the impact of management practices upon perceptions of job opportunities in three areas. As described in more detail below, the outcome variables were defined as the difference in evaluation of respondents own opportunities and those of the respective target groups, minorities and females. First, we examined whether management practices affected the overall perceptions of differences in opportunities held by staff. Since we expected to replicate the overall finding reported by Camp et al. (1997) that minority opportunities were rated more highly than personal opportunities, especially by white males, the question here was whether the differences were uniform across prisons or whether they varied. In addition to race differences, we wanted to view similar comparisons of own to female opportunities, an area not previously examined.

A second goal was to identify what sorts of contextual factors affected employee perceptions of fairness in promotions. In particular, the context created by working for female or minority wardens was examined for its impact upon workers evaluations of female and minority opportunities. We also examined contextual effects related to such factors as promotions and grade levels.⁴ The simultaneous examination of individual-level and contextual factors was facilitated by multilevel models whereby it is possible to treat individual-level coefficients as random and affected by contextual variables (Goldstein, 1995; Raudenbush & Bryk, 2001). This

⁴Jobs in the federal government are ordered by grade and step. The grades run 1 through 15 with the higher grades receiving higher wages. Within each grade, there is also a series of 10 steps determined by performance and seniority that also increase salary.

approach allowed us to make the assessments about whether differences between respondents' perceptions about their own job advancement opportunities and those of minorities and females were amenable to change or were fixed, and the approach allowed us to examine whether management practices could overcome, or at least mitigate, the known relationship of whites and males holding less support for affirmative action programs (Camp et al., 1997; Fine, 1992a, 1992b; Lynch & Beer, 1990; Sigelman & Welch, 1991), at least as measured by perceptions of job advancement opportunities.

Data and Methods

The data discussed here were taken from the Winter 2001 administration of the Prison Social Climate Survey (PSCS). Under normal circumstances, the survey would have been administered in October, but given the events of September 11, 2001, the administration was postponed until February of 2002. The survey was developed by William Saylor of the BOP and has been administered annually to Federal Bureau of Prisons (BOP) staff working in field locations since 1988 (Saylor, 1984). In 2001, 9,129 questionnaires were collected from respondents working at 99 different prisons. The response rate was 82.5%. In this study, we dropped one of the prisons, MDC Guaynabo, because it is located in San Juan, Puerto Rico. The socio-demographics of what constitutes a minority vary between the continental U.S. and Puerto Rico.

To lessen the burden on respondents, the PSCS is administered in four versions. No single respondent has to answer all parts of the PSCS. The questions examined here about job opportunities were asked of half of the respondents, and 4,549 respondents returned usable surveys with these items included. Of these, 512 (or 11.2 percent) were dropped from further

analysis because they were missing one or more of the variables used in the analysis. We relied upon data from 4,032 respondents.

The demographic and attitudinal data taken from the PSCS were supplemented with operational data reported in the Key Indicators/Strategic Support System (KI/SSS). KI/SSS was designed and implemented to provide ready access to monthly data for BOP managers and line staff (Gilman, 1991; Saylor, 1988). The KI/SSS provided information on prison security level, sex and race of the warden, aggregate socio-demographic characteristics of staff, and related information. In addition to these types of data, other institution-level information was obtained from KI/SSS that related to human resources practices. These variables represented the percentages of promotions in 2001 that went to females/minorities, the percentages of higher pay levels held by females/minorities, and the percentages of supervisors who were females/minorities.

The joining together of the attitudinal data from the PSCS and the operational data of KI/SSS allowed for rich models of the outcome variables. These data provided a unique opportunity to examine factors describing both individuals and their work places that one would intuitively believe should influence perceptions of job advancement opportunities in an agency that practices affirmative action or actively enforces equal opportunity laws. Once we move beyond individual-level factors, there is not much explicit theory to guide the selection of contextual factors in the modeling of perceptions of equal opportunity.

The four dependent variables analyzed here were constructed from six items in the PSCS that asked about job advancement opportunities. Respondents were asked to rate their own, female, and minority opportunities for job advancement at their own institution of employment

as well as for the Bureau of Prisons overall. Each of the six original items were coded on a 7 point Likert scale from strongly disagree (coded 0) to strongly agree (coded 6) with the middle category indicating “undecided.” Since each of the 6 items represented ordinal ratings, it seemed reasonable to compare the items. In particular, variables were created by taking the difference between how a respondent evaluated minority or female opportunities and their own opportunities. This technique produced four dependent variables which ranged in value from -6 (indicating minority/female opportunities were lower) to 6 (indicating minority/female opportunities were higher): minority opportunities compared to own opportunities at the institution, female opportunities compared to own opportunities at the institution, minority opportunities compared to own opportunities within the BOP, and female opportunities compared to own opportunities within the BOP. We expected the largest effects of management impact upon the measures at the level of the institution rather than the BOP. Local management clearly has more control over the institution than the BOP, and this should be reflected in the perceptions of the respondents.

Camp et al. (1997) employed a similar strategy in their analyses of minority opportunities, although their analysis did not retain the information contained in the implied metric of the ordinal response categories. Camp et al. created three categories: minority opportunities were evaluated as higher, minority opportunities were seen as the same, and minority opportunities were ranked as lower. In our analysis, we expand the higher and lower categories to capture how many steps apart on the Likert scale the respective items differed. For example, if an individual ranked their own opportunities for job advancement at their institution as somewhat disagree (coded 2) and female opportunities at the institution as strongly agree

(coded 6), then their score would be 4 for the outcome variable comparing female opportunities to respondent's own opportunities at the institution.

While this approach to constructing the outcome variables is not without problems, it is preferable to approaches in which respondents are asked specifically to compare their own opportunities to female or minority opportunities. We believe that such questions are more ideologically loaded than the approach taken here, much in the same manner that questions about opportunities are preferred to questions about discrimination. Discrimination is a "hot button" topic that provokes reaction from respondents (Kluegel & Smith, 1986). In this approach, we derived an implicit comparison based upon the difference in responses to questions about the respondents' own opportunities and the opportunities of females and minorities.

As noted previously, the outcome variables were modeled with techniques known as hierarchical linear models or multilevel models (Goldstein, 1995; Raudenbush & Bryk, 2001). These models allowed for the simultaneous assessment of variance at multiple levels of analysis. In this study, we were interested in variance in responses to survey items at two levels, variance generated by individual characteristics and by characteristics of the prisons at which the respondents worked. The individual-level variance is known as level-1 variance, and the variance associated with the prisons is level-2 variance. Hierarchical linear models differ from ordinary regression models in that level-1 coefficients, such as the intercept, can be treated as random variables that are then modeled at level 2 of the model. Three coefficients at level-1 of the hierarchical linear models were tested for whether they were random. These variables test whether management practices 1) pushed up or down the gaps (differences in evaluations of own and target group opportunities) for all respondents, 2) whether management practices had an

impact upon racial differences in assessments, and 3) whether sex differences were similarly random or fixed. The intercept was allowed to have a random component (the test for whether overall differences in assessments were affected by the prison) as well as the coefficients for being black as compared with white and female as compared with male.

The analysis proceeded in two steps. First, we examined models with only level-1 variables and determined if there was significant variation at level-2 in the three coefficients allowed to vary randomly, the intercept, the coefficient for sex of the respondent, and the coefficient comparing blacks to whites. The level-1 variables were entered into the models centered around the respective grand mean for the variables (that for all prisons) if the variables were continuous, as with age. Dummy variables, such as sex, were entered without centering. Second, for the random effects found to have significant variance, the coefficients were modeled in a second equation that included level-2 variables. Given a lack of formal theory and a relatively large set of level-2 variables, the general strategy was to explore the effects of sets of variables. With only 98 prisons, we were not able to include all variables at once, so we followed an exploratory approach to testing level-2 variables against one of the outcomes, the female to own comparison within the context of the BOP. Following this analysis, we tested the model we derived at level-2 against the other three outcomes. Admittedly, the results we produced were not as conclusive as if we had simply tested a preexisting theory.

The exploratory analysis of level-2 covariates for the model of female to own opportunities within the BOP proceeded as follows. First, we examined the effects of the socio-demographic characteristics of the warden upon the outcome variables. In this first pass with level-2 variables, we also included the percent of staff receiving promotions, the percent of staff

who were female or minority (depending upon whether female or minority opportunities were being investigated), and the respective mismatch variable. The mismatch variables were measured as the difference between the percentage of minorities/females receiving promotions and the percentage of the workers at the prison who were minorities/females. Because we were specifically interested in the variables representing the sex and race of the warden, these variables were retained in all succeeding models. Next, we dropped nonsignificant variables from the first pass (with the exception of the race and sex of the wardens) to create additional degrees of freedom and added effects for average age of workers, the average tenure of workers, percentage of staff with a college degree, and percentage of staff who were Hispanic.

We also investigated the percentages of female and minority staff who were supervisors and in higher pay levels. We looked at the supervisory and pay grade variables in two different ways. First, we looked at the percentage of all supervisors who were minority or female. This provided one view of minority/female supervisors. Second, we looked at the percentage of minority or female staff who were supervisors. This provided an entirely different perspective. From the former perspective, a representation of the likelihood of working with a female or minority supervisor is provided. In the latter perspective, the representation is whether the target group is disproportionately represented among supervisors given their representation at the institution.

Findings

The univariate values for the variables examined in this analysis are presented in Table 1. As can be seen in these results, the largest differences in the outcome variables were noted for questions about the institution in which the respondents worked. For example, the average

difference between a respondent's perception of their own and female opportunity was 1.73 when the institution was the context. This means that the average respondent rated female opportunities almost 2 points higher (on a 7 point scale) than they rated their own opportunities at the institution. The value was 1.66 when the referent group was minorities. The differences were closer to zero for comparisons generated from questions about job opportunities in the BOP overall. The univariate statistics for the level-1 and level-2 variables are also presented in Table 1. For dummy variables (those with a minimum of 0 and a maximum of 1 in Table 1), the mean should be read as the proportion of respondents with that characteristic. For example, the proportion of respondents who were female was 0.28, meaning that 28 percent of the respondents were female.

Graphical representations of the univariate data suggested that there were patterns to the variance to be explained in how respondents answered the questions that were used to construct the four outcome measures.⁵ Treating the four outcome measures as four indicators of an underlying construct produced a Cronbach's alpha coefficient that is acceptable by most standards ($\alpha=.8756$). Nonetheless, we decided to analyze the four outcomes as separate, if highly correlated outcomes, for substantive and empirical reasons. From the empirical side, an examination of the responses for the outcome variables for female opportunities showed that more people viewed their own and female opportunities as being comparable at the level of the BOP.

⁵The graphs are not presented here because of space considerations but are available from the authors upon request.

All four outcomes demonstrated significant variance in the intercept when examined with the first stage of HLM models, suggesting that institutions do differ systematically in the average values for the outcome variables (see Table 2). For reasons not yet addressed, workers at different prisons provided evaluations of job opportunities at their institution and in the BOP overall that were significantly affected by the institution at which they worked. However, with only one exception, there were no institutional effects upon the coefficients for the female-male and the black-white comparisons.⁶ The one exception is that there was significant variance in the black-white comparison for evaluations of the difference between minority and own opportunities at the current institution. The p-value of 0.079 for this coefficient, which was only marginally significant, became significant ($p=0.045$) when the random effect for sex was removed from the model.⁷ However, when we entered a more fully specified model, the effect for this coefficient again became statistically non-significant. As such, we treated the black-white

⁶Although not reported in Table 2, the coefficients for the fixed components of the male to female and African American to white comparisons were both significant. In fact, the t-values for sex and the black-white comparison were the largest (or among the largest) for the effects found at the individual level. The significance of sex and the black-white comparison held when the level-2 covariates were entered into the models as shown later in Table 4. The results demonstrated that sex and race made a difference in how job opportunities were evaluated, but the effects were fixed across institutions rather than random.

⁷The results of this model are not presented here.

comparison as a fixed effect in all results reported here. For all of the models, the differences in the intercepts at the different prisons were investigated with level-2 variables.

The results for the full models of the constructed comparisons are presented in Tables 3 and 4. Table 3 presents the results generated from comparing the respondents' opportunities with female opportunities. In the first panel, the comparisons are for the institutions in which the respondents work, and in the second panel the results are for the BOP overall. At the individual level, the results were fairly consistent across the models where the institution was the point of comparison and the BOP overall. Gender and race had the relationships expected. Females provided evaluations that were lower than males. That means that females did not see as large a difference between male and female opportunities as did males. The same was true for black respondents. They provided evaluations of female opportunities that were closer to their own than was true for white respondents. In both models, the t-values for the sex and black-white comparisons were the largest in the models, underscoring their importance. As noted in Table 2, these effects were indeed fixed across institutions, meaning that there was no variation in the effects at different prisons. There was a significant interaction between being female and being African American, meaning that African American females differed in ways not captured by the main effects of being female and being African American. Being Hispanic also reduced the difference between the respondents' evaluations of their own opportunities for promotion and those available to minorities. Tenure with the BOP had a positive effect upon exaggerating differences, although the negative and significant finding for the squared value for tenure suggested that this effect became less with additional years of tenure. A counterintuitive finding at the individual level was that college graduates had larger differences between evaluations of

their own and female opportunities, and this finding held when asked about their current institution and the BOP overall. The effect, though, is consistent with prior research that has demonstrated that more politically sophisticated Americans are more likely to hold ideologies of racial dominance than those who are less politically sophisticated (Federico & Sidanius, 2002; Jackman & Muha, 1984; Sidanius, Pratto, & Bobo, 1996). Admittedly, the effect of college education is marginally significant in the model for the BOP if we adhere to the normal alpha level of 0.05. Perhaps the most surprising finding at the individual level was that for being a supervisor. Supervisors had larger differences between evaluations of female and their own opportunities at their institution, but for the BOP overall the effect of being a supervisor was to reduce the difference. Correctional officers exaggerated the differences between female opportunities and their own within the BOP overall but not at their institution.

At level 2 of the models for female opportunities, the race and sex of the warden did not have a significant effect on the evaluations of respondents. The female mismatch variable did have a significant effect for the evaluations of opportunities within the BOP, but the effect was only marginally significant within the institution. While the substantive impact was small, a value of 0.0168 for the BOP on a seven point scale, the result was as expected. As the percentage of promotions going to females increased over the representation of females at the institution, the respondents noted that there were larger differences between evaluations of female and their own personal opportunities. Average age at the prison had a significant effect for the model of opportunities within the BOP overall but not at the institution. At prisons with older workers on average, the differences between respondents' evaluations of female and their own opportunities were somewhat smaller. The effect for average level of tenure came very close to significance in

both models. In both instances, the differences between own and female opportunities were larger at prisons that had workers with higher average levels of tenure.

Other interesting results for the outcome variables for female to own opportunity comparisons were the results for the intra-class correlation (ICC) and for the reliability of u_{0j} . The ICC measure provided an assessment of how much of the total variance in the outcome measures existed at level-2 of the model. The ICC values for both outcomes, female comparisons within the institution and within the BOP, were relatively small.⁸ Only about 2 percent of the variance in respondents' comparisons existed at level-2, where management potentially had an impact upon perceptions about opportunities for advancement. While small in comparison to the individual-level variance, the variance was nonetheless significant. The reliabilities showed that using the u_{0j} terms to rank the prisons in their effects upon evaluations of differences in minority/female opportunities and own opportunities were also somewhat problematic. Ideally, reliability scores at or above 0.7 are desired. The u_{0j} terms are estimated in multilevel models as empirical Bayes (EB) coefficients.

Table 4 presents the findings for the models of opportunity comparisons where the referent group is minorities. As can be seen if the results for the models in Table 4 are compared to the results in Table 3, the effects of the individual-level variables upon comparisons of

⁸The ICC value was computed from the first-step models in this analysis where the individual-level variables were allowed to explain all of the variance that they could. The remaining unexplained variance at level-2 (τ in usual HLM terminology) was divided by the total variance, the level-1 variance added to the level-2 variance, to produce the measures of ICC reported.

minority to own opportunities were identical to those for comparisons of female to own opportunities, at least with respect to the direction of the relationship and as to which variables turned out to be significant. As such, there is no need to step through the findings again. The only exception is the interaction between sex and being African American. For the comparisons of respondents' opportunities with female opportunities, the interaction was statistically significant. When comparing own to minority opportunities, however, being a black female did not add anything beyond the main effects for race and sex. For the comparison of own opportunities to minority opportunities at the institution and within the BOP, only the intercepts of the models were random, and we were not able to find any significant predictors of this variation.

While the major focus of the present investigation was to determine whether the work context influenced how respondents rated job opportunities for themselves and the target groups, Table 5 presents information on the types of comparisons made by men and women who were black and white. This information was derived from the results presented in Tables 3 and 4. As can be seen there, white males provide evaluations of female and minority opportunities for job advancement that are the most different from evaluations of their own opportunities. On a seven-point scale, white males rank female and minority opportunities for job advancement 2 points higher than their own opportunities when the institution is the context of the question. When the BOP is the context of the question, white males rated female and minority opportunities about 1 point higher than their own. The evaluations provided by white females are less problematic, especially when asked about opportunities in the BOP overall, but white females also exaggerate the opportunities available to other females and minorities, especially minorities. When the

institution was the context of the question, white females evaluated minority opportunities almost 2 points higher (1.79), and they rated minority opportunities as being almost a point higher (0.96) when the BOP was the context. The comparisons made by black men and women were more in accordance with how they evaluated their own opportunities, although black men did rate female opportunities at their institution as one point higher (0.98) on a seven-point scale.

Conclusions

The question about whether management has an impact upon perceptions held by workers about equal opportunity enforcement is especially pertinent when an employer values diversity, provides annual training on the advantages of diversity, and enacts equal opportunities. The general finding of this study, at least with regard to the limited issue of workers' perceptions about job advancement opportunities, is both good news and bad news. The good news is that management practices did appear to have some impact upon the size of the gap that respondents provided between their own chances for job advancement and those of females and minorities, although we were not successful in identifying the types of factors that explain the differences between prisons. The bad news is that management practices appeared to have no impact upon mitigating the differences between males and females or between blacks and whites in making implicit comparisons of job opportunities. This is troubling given the size of the differences noted in Table 5 between how whites evaluated target group opportunities, especially minority opportunities, and their own opportunities. The effects of sex and race, at least the black-white comparison, were usually the largest in the models in addition to being impervious to differences between prisons.

Clearly, much work needs to be done. Working with data from a single employer, we were unable to uncover variables that consistently explained the level-2 variance in our models. We simply lack good theory at this time to explain the level-2 processes at work. We believe that the differences were caused by the uneven ability of managers to create an environment in which respondents believed there is equity in job advancement opportunities.

There is an opportunity to use these results to build better theories. For example, it would be possible to identify prisons at the extremes of the distributions in the outcome variables. Even though the u_{0j} elements that measure the differences between prisons in raising and lowering comparisons of opportunities demonstrated modest reliabilities, in the 0.4 to 0.5 range, the variance was significant. Additionally, there was sufficient variation and reliability to identify institutions in the positive end of the distribution (those that reduced the gap between evaluations of minority/female opportunities and own opportunities) as well as the negative end (those that added to the gap). For example, Figure 1 shows a dropline plot for the female to own opportunity comparisons when the institution was the referent. Basically, the plot is of the prison contribution to the gap between female opportunities and own opportunities, from lowest (which indicates a “positive” finding because it reduces the gap) to highest (the prison contributes to respondents having a larger gap). From Table 3, we know that the reliability of using the u_{0j} to rank the institutions is 0.470. As most researchers view a reliability of 0.7 as minimally acceptable, this ranking of the prisons is less than ideal. The unreliability of the measures show up in the graph by the overlaps in the confidence intervals of prisons adjacent to one another. The order could easily be quite different. Nonetheless, some institutions clearly differed from others (where the confidence intervals do not overlap) in the graph. Also, there were clearly prisons in the tails of

the distribution where the effect clearly differed from 0. It would be possible to use these prisons as case studies in future research to begin to develop testable theory about the level-2 processes at work.

This research suggests that the ability to influence workers attitudes about equal opportunities in the workplace may be less than commonly supposed. However, there are strong reasons to temper this conclusion. First, the current study only examined workers employed by one employer, and this definitely limits the ability to generalize. It would be interesting to view results produced from a more representative sample, but we have not uncovered a source of data with the structure needed for the types of analyses conducted here. Second, the current study only examined a single cross-section in time. If the black-white or sex differences are mutable, then it is hard to imagine that we would not have uncovered significant differences in the effects of these factors across 98 prisons spread across the continental United States. Without longitudinal data, however, it is not possible to rule out such a possibility.⁹ Third, the diversity training and policy at the BOP is not geared specifically to minimizing staff misperceptions about promotion opportunities. Instead, the training focuses upon broader issues, and examining

⁹It would be possible to begin to address longitudinal concerns with the PSCS data analyzed here because it has been administered annually since 1988. Practically, there are serious challenges to using the data for these purposes. First, the data were not designed to be longitudinal for individual responses, only the prisons covered. Second, the data contain no unique individual identifiers to use in matching respondents so any matching strategy has to be statistical.

staff attitudes about promotion opportunities is admittedly an indirect test. Finally, the present study only addressed attitudes and not behaviors.

Even granting the caveats to the present study, we think our findings should cause a little pause, reflection, and impetus for much needed research about what diversity training or affirmative action programs can achieve with respect to staff attitudes. Clearly, there was variability across institutions (prisons) in the amount of discrepancy between own and target group opportunities. This bodes well for the overall goal of having a diverse and team-oriented workforce. On the other hand, the differences between men and women and between blacks and whites in how job promotions opportunities were evaluated did not demonstrate variability across prisons, and as noted, even though only one employer was examined, the BOP has 98 different prisons that are spread out across the United States, ranging from rural locations such as Yazoo City, Mississippi and Victorville, California to urban centers such as New York City and Chicago. The question is whether these findings for sex and race were unique to the BOP and its practices or whether these differences are so entrenched that when employees enter the workplace the contextual differences in the work environment are overpowered by the effects. We do not have the answer to this question, but it is certainly a question worth pursuing.

Figure 1. Female to Own Opportunities
Prison Effect with Institution as Referent

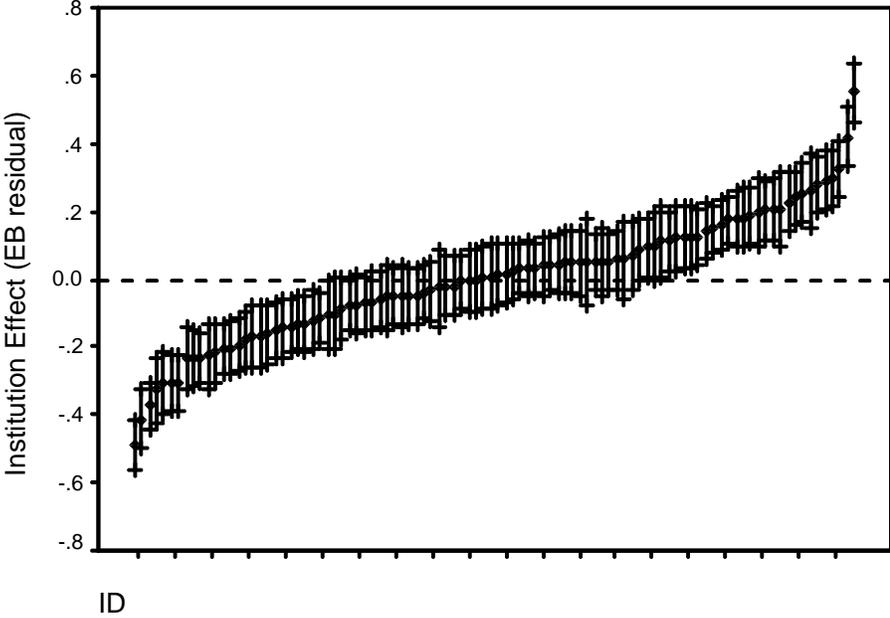


Table 1. Univariate Statistics

VARIABLE NAME	N	Mean	Standard Deviation	Minimum	Maximum
<i>Outcome Variables</i>					
Female to Own Opps., Institution	4037	1.73	2.05	-6.00	6.00
Female to Own Opps., BOP	4037	0.81	1.69	-6.00	6.00
Minority to Own Opps., Institution	4037	1.66	2.15	-6.00	6.00
Minority to Own Opps., BOP	4037	0.82	1.71	-6.00	6.00
<i>Level-1 Covariates</i>					
Work at Main Facility	4037	0.96	0.20	0.00	1.00
Age (Years)	4037	38.08	7.07	18.00	69.00
Age Squared	4037	1499.72	559.72	324.00	4761.00
Hispanic (1=yes)	4037	0.11	0.31	0.00	1.00
College Graduate (1=yes)	4037	0.37	0.48	0.00	1.00
Correctional Officer (1=yes)	4037	0.36	0.48	0.00	1.00
BOP Tenure (Years)	4037	8.66	5.86	0.00	39.67
BOP Tenure Squared	4037	109.25	134.28	0.00	1573.44
Supervisory Status (1=yes)	4037	0.13	0.34	0.00	1.00
Female (1=yes)	4037	0.28	0.45	0.00	1.00
African American (White Referent)	4037	0.19	0.39	0.00	1.00
Other Race (White Referent)	4037	0.12	0.32	0.00	1.00
Interaction, Female x African Am.	4037	0.07	0.25	0.00	1.00
Interaction, Female x Other Race	4037	0.03	0.17	0.00	1.00
<i>Level-2 Covariates</i>					
Warden is Female (1=yes)	98	0.21	0.41	0.00	1.00
Warden is Black (1=yes)	98	0.16	0.37	0.00	1.00
Warden is Other Race (1=yes)	98	0.15	0.36	0.00	1.00
Average Age of Respondents	98	38.29	2.31	33.03	42.82
Percent Hispanic	98	0.12	0.11	0.00	0.62
Percent with College Degree	98	0.36	0.10	0.17	0.65
Average Tenure	98	8.80	2.25	4.26	13.42
Percent of Other Race–Supervisors*	98	22.05	19.64	0.00	100.00
Percent of Other Race–High Grade	98	17.10	17.44	0.00	95.83
Percent African Americans–Supervisors	98	21.57	15.76	0.00	100.00
Percent African Americans–High Grade	98	13.22	13.65	0.00	100.00
Percent Females–Supervisors	98	15.83	4.50	5.88	31.06
Percent Females–High Grade	98	10.03	3.52	0.00	20.41
Percent of Workers Promoted	98	18.37	7.00	2.33	40.56
Promotion Mismatch–Females	98	3.40	6.40	-12.82	19.52
Promotion Mismatch–African American	98	1.81	5.60	-8.49	28.82
Promotion Mismatch–Other Race	98	-3.40	2.39	-12.92	-0.46
Percent Staff–Female	98	26.95	8.27	10.32	55.90
Percent Staff–African American	98	20.82	17.32	1.23	69.96
Percent Staff–Other Race	98	3.40	2.39	0.46	12.92
Percent Supervisors–Other Race**	98	0.68	0.56	0.00	2.24
Percent Supervisors–African American	98	3.19	2.36	0.00	12.77
Percent Supervisors–Female	98	4.33	1.99	1.01	12.13
Percent High Grade–Other Race	98	0.47	0.39	0.00	1.52
Percent High Grade–African American	98	1.66	1.14	0.00	5.21
Percent High Grade–Female	98	2.68	1.20	0.00	6.60

* The six variables starting here measure the percent of the target group (other race, African Americans, and females) who are supervisors or high grade staff. For example, if there are 2 other race individuals at an institution and one is a supervisor, the supervisor variable would have a value of 50 percent.

**The six variables starting here measure what percentage of supervisors or high grade staff are from the targeted groups (other race, African American, and females).

Table 2. Test of Variance in Parameters for Intercept, Sex, and Race (Black to White)

Outcome	Variance (u_j)	Degrees of Freedom	χ^2	p-value
<i>Female to Own, Institution</i>				
Intercept	0.13911	85	169.45	0.000
Sex Comparison	0.05025	85	77.52	>0.500
Black-White Comparison	0.09836	85	86.01	0.449
<i>Female to Own, BOP</i>				
Intercept	0.11628	85	145.17	0.000
Sex Comparison	0.03155	85	59.18	>0.500
Black-White Comparison	0.05501	85	72.44	>0.500
<i>Minority to Own, Institution</i>				
Intercept	0.15671	85	169.45	0.000
Sex Comparison	0.04776	85	84.50	>0.500
Black-White Comparison	0.19898	85	103.99	0.079
<i>Minority to Own, BOP</i>				
Intercept	0.13067	85	166.59	0.000
Sex Comparison	0.02542	85	53.50	>0.500
Black-White Comparison	0.09527	85	71.89	>0.500

Table 3. Complete Model for Comparing Female Opportunities with Own Opportunities

	Institution as Context			BOP as Context		
	Coefficient	T-ratio	P-value	Coefficient	T-ratio	P-value
<i>Level-1 Covariates</i>						
Main Facility	0.0096	0.065	0.949	-0.1201	-0.962	0.337
Age	-0.0169	-0.444	0.656	-0.0169	-0.529	0.596
Age Squared	0.0004	0.773	0.440	0.0004	1.008	0.314
Hispanic	-0.6872	-6.005	0.000	-0.6504	-6.773	0.000
College Graduate	0.3628	5.543	0.000	0.0985	1.792	0.073
Correctional Officer	-0.0743	-1.032	0.303	0.1794	2.964	0.003
BOP Tenure	0.1167	6.522	0.000	0.0707	4.706	0.000
BOP Tenure Squared	-0.0030	-4.212	0.000	-0.0016	-2.620	0.009
Supervisor	0.2511	2.739	0.007	-0.4916	-6.380	0.000
Female	-0.8815	-10.420	0.000	-0.7289	-10.255	0.000
African American	-1.0406	-10.388	0.000	-0.9236	-11.021	0.000
Other Race	0.0476	0.380	0.704	0.0628	0.596	0.551
Interaction, Female x Af. Am.	0.3865	2.360	0.018	0.5467	3.972	0.000
Interaction, Fem. x Oth. Race	-0.1847	-0.855	0.393	0.0854	0.470	0.638
<i>Level-2 Covariates-Intercept</i>						
Intercept	2.0290	12.963	0.000	1.2590	9.643	0.000
Female Warden	0.1226	1.173	0.241	0.0663	0.798	0.425
Black Warden	0.1333	1.113	0.266	0.1258	1.319	0.187
Other Race Warden	0.0917	0.765	0.444	0.0405	0.424	0.671
Average Age	-0.0448	-1.038	0.300	-0.0769	-2.239	0.025
Average Tenure	0.0845	1.901	0.057	0.0674	1.907	0.056
Percent Females-High Grade	0.0030	0.241	0.810	0.0095	0.969	0.333
Female Mismatch	0.0123	1.746	0.080	0.0172	3.053	0.003

Intra-Class Correlation (ICC)	0.022			0.017		
Reliability of u_0	0.470			0.409		
Variance of u_0	0.07869		0.000	0.04326		0.000

Table 4. Complete Model for Comparing Minority Opportunities with Own Opportunities

	Institution as Context			BOP as Context		
	Coefficient	T-ratio	P-value	Coefficient	T-ratio	P-value
<i>Level-1 Covariates</i>						
Main Facility	0.0266	0.175	0.861	-0.1009	-0.805	0.421
Age	-0.0350	-0.900	0.369	-0.0221	-0.689	0.491
Age Squared	0.0005	1.068	0.286	0.0004	1.146	0.265
Hispanic	-1.0633	-9.094	0.000	-0.8759	-9.084	0.000
College Graduate	0.3084	4.616	0.000	0.0524	0.952	0.342
Correctional Officer	-0.1215	-1.653	0.098	0.1290	2.129	0.033
BOP Tenure	0.1424	7.797	0.000	0.0764	5.074	0.000
BOP Tenure Squared	-0.0039	-5.337	0.000	-0.0020	-3.298	0.001
Supervisor	0.2718	2.904	0.004	-0.3937	-5.105	0.000
Female	-0.2704	-3.130	0.002	-0.3303	-4.638	0.000
African American	-1.6768	-16.268	0.000	-1.1726	-13.780	0.000
Other Race	-0.3156	-2.465	0.014	-0.1134	-1.074	0.283
Interaction, Female x Af. Am.	0.1099	0.657	0.511	0.2612	1.896	0.058
Interaction, Fem. x Oth. Race	-0.2786	-1.263	0.207	-0.0386	-0.213	0.832
<i>Level-2 Covariates–Intercept</i>						
Intercept	2.0639	12.891	0.000	1.2895	9.736	0.000
Female Warden	-0.0352	-0.325	0.745	0.0142	0.156	0.877
Black Warden	0.1500	1.235	0.217	0.0599	0.584	0.559
Other Race Warden	0.1272	1.009	0.314	0.0646	0.606	0.544
Average Age	-0.0310	-0.687	0.492	-0.0514	-1.348	0.178
Average Tenure	0.0664	1.424	0.155	0.0493	1.253	0.211
Percent Blacks–High Grade	0.0048	1.349	0.177	0.0026	0.858	0.391
Black Mismatch	0.0160	1.779	0.075	-0.0066	-0.875	0.382

Intra-Class Correlation (ICC)	0.023			0.024		
Reliability of u_0	0.481			0.505		
Variance of u_0	0.08580		0.000	0.06426		0.000

Table 5. Sex and Race Comparisons of Opportunities

	Female Compared to Own		Minority Compared to Own	
	At Institution	In BOP	At Institution	In BOP
Black Males	0.98*	0.34	0.39	0.12
Black Females	0.49	0.15	0.23	0.05
White Males	2.03	1.26	2.06	1.29
White Females	1.15	0.53	1.79	0.96

* The values presented in this Table are simply a function of the values for the intercepts and the regression coefficients from Tables 3 and 4 for being female, African American, and the interaction between female and African American holding all other values at zero. The numbers represent the magnitude of the perceived difference. For example, the first column and first row show that on a 7-point scale, white males perceive female opportunities for advancement as being 2.03 points higher than their own, net of all other individual and contextual effects.

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